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Workplace Futures: A Case Study of an Adaptive Scenarios Approach to Establish Strategies for Tomorrow's Workplace

Ruth Saurin
Technological University Dublin, ruth.saurin@tudublin.ie

Dublin Institute of Technology
School of Spatial Planning
College of Engineering and Built Environment

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Ruth Saurin, BA, PgDip, MSc.

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Supervisors:
Dr. Ela Krawczyk
Dr. Lloyd Scott
Professor John Ratcliffe

Abstract

Workplace change and innovation will become critical to the organisation's future in a dynamic, knowledge-based economy and society. As such, anticipating and managing future change is fast becoming a vital dimension underpinning the successful transition – to new work styles, patterns and locations; yet traditional workplace planning methods are rather limited in their ability to fulfil this task. This research, therefore, examines how the potential application of Futures Studies, and more specifically the Prospective Through Scenarios process, can address this issue in order for the workplace to be actively sustained to stay effective for the organisation in the long-term.

Using a case study methodology, this research: explores the changing context and nature of the workplace from past and present perspectives and scans the potential changes of the future workplace; reflects the need to create conditions for excellence, promote innovation and manage risk at the workplace provision level; examines how the future is constructed in workplace planning; appraises the future studies field and employs a scenario planning approach in a real world context to establish strategies for tomorrow's workplace. To achieve these objectives, a combination of research methods are employed, namely documentary review, semi-structured in-depth interviews, horizon scanning, strategic conversations, futures workshops, illustration, and web forum discussions.

The results of the case study gives rise to the development of a futures framework for workplace planning, based on the Prospective Through Scenarios process, designed to assist property and facilities professionals in: anticipating future user demand requirements as well as what cannot be expected; understanding the complexities of the workplace environment; and, developing a mechanism for communication and collaboration between stakeholders in the workplace provision process. Ultimately, this research enables the creation of a new transformative mindset, based on awareness, responsibility, creativity and knowledge development, in order to change how the physical environment of work adds value for organisations.

Declaration

I certify that this thesis which I now submit for examination for the award of Doctor of Philosophy, is entirely my own work and has not been taken from the work of others, save and to the extent that such work has been cited and acknowledged within the text of my work.

This thesis was prepared according to the regulations for postgraduate study by research of the Dublin Institute of Technology and has not been submitted in whole or in part for another award in any Institute.

The work reported on in this thesis conforms to the principles and requirements of the Institute's guidelines for ethics in research. DIT has permission to keep, lend or copy this thesis in whole or in part, on condition that any such use of the material of the thesis be duly acknowledged**.**

Signature _____ Date _____

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List of Abbreviations

Alternative Officing (AO)

All Quadrants, All Levels (AQAL)

British Institute of Facilities Management (BIFM)

Building Rating Method (BRM)

Building Research Establishment Environmental Assessment Method (BREEAM)

Causal Layered Analysis (CLA)

Chief Executive Officer (CEO)

Central Business District (CBD)

Corporate Foresight (CF)

Corporate Real Estate (CRE)

Demography, Economy, Governance, Environmental, Society and Technology (DEGEST)

Dublin Institute of Technology (DIT)

European Facility Management Network (EuroFM)

European Union (EU)

Facilities Management (FM)

Gross Domestic Product (GDP)

Human Resource (HR)

Information Technology (IT)

Information and Communication Technology (ICT)

Leadership in Energy and Environmental Design (LEED)

National Centre for Partnership and Performance(NCPP)

Organisations, Buildings and Information Technology (ORBIT)

Real Estate (RE)

Royal Institution of Chartered Surveyors (RICS)

Sustainable Accommodation for the New Economy (SANE)

Strategic Conversation (SC)

Strengths, Weaknesses, Opportunities, Threats (SWOT)

Time Utilisation Survey (TUS)

United Kingdom (UK)

United States of America (USA)

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1. Introduction to Research

Driven by powerful driving forces of change at both the global and local level, organisations today are re-examining the way in which they think about, organise and carry out work in a global competitive environment. Providing workplaces that assist individuals and organisations realise their potential requires an understanding of these changes, and an awareness that this change will impact upon the likely nature of the future workplace. In the future, work environments will become sites of significant societal transformations. The future role of real estate, for example, will be evaluated by its capability to add to business performance and support organisational change, while the ability to manage time and space will become as important as the design of buildings (Worthington, 2006).

At present, many workplaces remain ineffective for the organisation in the long-term. This can be attributed to the inability of facilities managers (FM) to deal effectively with change and the complexity of workplace systems. FMs also lack an effective approach that would enable them to anticipate future transformations, and prepare for ensuing consequences. As such, there is a growing need for decision-makers and FMs to take a holistic and long view of the work environment in order to understand and respond more effectively to dynamic problems, caused by uncertainty of change and complexity, in the workplace.

The following research suggests that a futures approach, and its associated techniques, is one such approach that can facilitate this. The futures studies field has generated a body of knowledge on how to assist people to think constructively about the future (Bell 1996), and on how trends and forces influence it (Krawczyk, 2006). In addition, the wide range of tested futures methods and techniques enable the systematic, rigorous and holistic exploration of the future. Above all else, this approach offers a different way of thinking and acting about the future workplace, for the greatest risk is being overtaken by inevitable surprises that could have been foreseen and for which FMs could have been prepared.

1.1 A new social order at work

Society has shifted from an industrial base to an information and knowledge orientation, giving rise to a new economic order, typically known as the knowledge economy. Characterised by three discernible qualities, such as globality, intangibility and inter-connectivity (Dimitriades, 2005), the new economy is based on the increasing importance of digitizable knowledge products in the economy, and the shift to knowledge as the fundamental source of value (Harrison *et al*., 2004). A significant consequence of this structural change is the impact upon the nature of work in organisations. The structure, content and process of work is in a state of enormous change and uncertainty. Although many factors contribute to the changing patterns of work, two significant drivers are prompting unprecedented transformations in the way businesses operate and deliver services: increased competitive pressures; and, advances in information and communication technologies.

Firstly, the pressure of competition has led to the adoption of 'lean thinking' to improve the efficiency of internal processes, with the goal of eliminating waste and defining customer value (Heerwagen, 2010). Emphasis is now placed on intangible assets such as brand, customer ownership and knowledge creation, which are heavily leveraged to preserve margins and market share in the new economic climate (Harrison *et al*., 2005). Within the organisation, 'cost-cutting' has become the buzzword; the implications of which have led to not only the instability of once stable organisational structures and a decline in traditional job security, but also to the production of network service alliances within non-hierarchical, decentralised corporations where those responsible manage by results rather than by observation.

Secondly, these changes are facilitated by the exponential rate of transformations in information and communication technologies (ICT), and more specifically internet and communication devices. The emergence of new types of business models like Google, YouTube and E-Bay, and new interfaces with knowledge like Wikipedia are indicative of the way technology is reshaping the way organisations interact with their customers. In particular the use of virtual rather than physical interfaces is changing the way business is conducted and how organisations relate to their physical facilities. The impact of such ubiquitous, powerful and reliable technology is creating radical new

dimensions of spatial and temporal connectivity (Duffy, 2008a), where economic production no longer requires employees to work together in the same physical space to access tools and resources they need to produce work. Connectivity is key rather than proximity.

From a demographic perspective, each new generation is affecting the traditional values of work (Puybaraud, 2007). For instance, the enthusiasm for technology amongst younger generations is destabilising the values of seniority and experience in the organisation. Furthermore, the decline of loyalty and stability, values often held by older generations, is attributed to "draconian shake-outs" in a rapid changing business environment and to the emergence of a flexible new job market in which younger generations are skilled in new technologies, interaction, collaboration and risk-taking (Turner & Myerson, 1998:7; Tapscott, 2009). On top of that, more women are entering the workforce which is leading to the decline of established gender specific roles and there is an increased focus on work/life balance among younger generations (Puybaruad, *ibid*). While these changes create new freedoms for workers, they also create social tensions within the organisation.

As a result of the new social order at work, most managers expect that sooner or later their own organisation will experience some type of discontinuous change – new markets, new competitors, new customer needs, new combinations of technology, new distribution channels, new legislation and the like. There is also a growing awareness that these changing organisational issues are driving change in the workplace.

1.2 The changing workplace

Workplaces have undergone dramatic changes during the last number of decades as society shifts towards a post-industrial knowledge era. Historically, employees had a permanent place of work, with a fixed desk or office. Technological developments were in their infancy. The use of cellular offices emphasised hierarchies and individualism, and represented corporate success (Harris, 2006). Powerful driving forces of change, however, are having a profound impact on the use of current workplaces, such as (Ratcliffe and Saurin, 2007; Ratcliffe and Saurin, 2008; Ratcliffe *et al.,* 2009):

- the emerging trend of knowledge work;
- the changing demand for flexible employment contracts;
- the impetus for delivering action on sustainability accelerating worldwide;
- the growth of leaner organisations;
- the increased number of mobile and distributed workers; and,
- the exponential rate of technological development.

As such, contemporary workplaces are very different from those of the recent past. A movement known as alternative officing (AO) emerged in the 1990s initially to reduce costs, but over the years the focus has shifted towards managing uncertainty in organisations and using space as a tool to improve corporate performance and leverage organisational change (Becker, 1999; Becker & Sims, 2000; Steelcase, 2000). The underlying premise is that new workspace concepts – activity settings, zoning, collaborative, distributed and hybrid work environments (see chapter 2 for a detailed description) – are developed based on the interaction between people, space and working culture (Nathan & Doyle, 2002).

The development of these work settings suggest that space can be allocated according to work activities (Laing *et al*., 1998); workplaces can consist of both individual and group work settings to optimise productivity (Smith, 2003); and, work environments can now go beyond the office building to incorporate various work environments which include public and client spaces supported by technology platforms. This movement not only recognises the workplace as a strategic asset that should be used to support business goals, but it also represents the concept of "spaceless growth"[1] (Harris, 2006:54). This concept fractures the historic correlation between increased output and increased spatial demand (*ibid*). Since change remains the one constant, then workplaces will probably be very different again in years to come. The future workplace, therefore, will, more than ever, need to be actively 'sustained' to stay effective for the organisation. Yet, all too often,' Workplace' studies are about design, and not about the ways in which the workplace is actively used, supported and sustained over time.

[1] Spaceless growth is based on the idea that "allows an organisation to change and evolve without having to commit itself to new real estate…organisational headcounts can grow while the amount of space remains the same" (Harris, 2006:54).

1.3 Limitations of existing workplace planning approaches

Over the years, the traditional approach of research in the real estate (RE hereafter) domain has been primarily empiricist and retrospective. Decision-makers analyse time series data and perform elaborate calculations (Ratcliffe, 2008). These approaches, however, can overlook many deeper questions, especially about the future (*ibid*). Equally at the industry level, Vischer (2010) contends that workplace strategies are reactive and retrospective; rather than innovative and embracing of change, which suggests why the workplace is widely recognised by managers as a "necessary evil" rather than a "strategic asset" (Price & Akhlagi, 1999). As such, occupiers and employees continue to remain in outdated facilities and workspaces because designers, facilities managers and organisations fail to provide innovative new solutions that support emerging work processes.

Methods such as bench marking, time utilisation surveys (TUS), and pre- and post-occupancy evaluation are just some of the tools that measure the feasibility of AO strategies, yet they fail to consider the wider economic, social, environmental and cultural context within which an organisation operates (Harrison *et al*., 2004). If "macro-level changes[2] bring about wholesale change to workplace needs" (Harris, 2006:51), then it is crucial for all those involved in workplace provision to understand more about the forces that are driving change in the workplace, and their impact, not only on individuals, but also on the organisation. In this way, workplace decision-makers should embrace systems thinking[3] as a fundamental paradigm for all planning frameworks and decision-making processes.

In recent literature, workplaces are being recognised as complex adaptive systems (Haynes & Price, 2004), which are comprised of individual agents that adapt as they interact with each other and their environment. Work environments, therefore, have the ability to evolve, adapt to and accommodate spontaneous order. Under the remit of

[2] Globalisation, economic pressures, rapid technological development, an ageing population, changing political agenda.
[3] Systems thinking is defined as "a discipline for seeing wholes. It is a framework for seeing the interrelationships rather than things, for seeing patterns of change rather than static snapshots" (Senge, 2010).

complexity theory and system thinking, planning approaches enable decision-makers to consider the bigger picture as well as focus on a range of possibilities for the future (Kelly *et al*, 2005). In reality, there is a tendency to continue to separate the physical elements from the social, economic, technological and organisational aspects of the workplace as decision-makers retain a deep-rooted belief that the physical work environment is a neutral factor in improving productivity (Smith, 2003). Looking at these components individually can often lead to an oversight of significant connections and interdependencies between them resulting in ineffective workplace policies and practices.

Moreover, the lack of systems thinking in the application of social science methods relating to the relationship between the workplace and business performance has rendered empirical research results value free for two reasons: too many variables have been excluded; and there is an over reliance on data from individuals rather than the business as a whole (Duffy, 2008b). This has lead to the ongoing disconnection between the workplace and the organisation.

In an environment of growing complexity, heightened uncertainty and rapid change, various shortcomings can be further highlighted in prevailing workplace planning and strategy practices, which include:

- Ineffective mechanisms to deal with complexity and future change in the workplace.
- A short-term view when assessing future workplace requirements (Gibson, 2000:10).
- Limited collaboration between stakeholders, such as users, facilities managers, architects, and corporate decision-makers which reinforce the silo effect in organisations (Duffy & Tanis, 1993; McGregor, 2000; Duffy, 2000).
- Failure to provide visionary and innovative solutions (McGregor, *ibid*).

Today, many decision-makers in workplace provision still plan and invest based on forecasts of past trends and current conditions. They focus on short-term cost reductions rather than how the workplace can provide long-term benefits to an effective organisation. The impact of current drivers of change is making it increasingly difficult

to continue on this 'business-as-usual' course. While it is inevitable that decision-makers will focus on the bottom line in the short-term to survive the recent financial crisis; arguably, pushing harder and harder at something that does not work is unlikely to succeed either (Duffy, 2000; Haynes & Price, 2004).

Consequently, this research suggests the need for an alternative underlying paradigm, based on the synthesis of futures and systems perspectives, which could produce transformative strategies to create thriving, sustainable and responsible workplaces, and facilitate a greater understanding of the interrelationship between the core elements of the office environment (people, production and place), business results and corporate culture. For this to happen, a new mindset is required by all those involved in workplace provision to: anticipate and prepare for the future; embrace individualism, collaboration and innovation; address societal and environmental, as well as economic imperatives; and above all, deal with complexity, uncertainty and change. Key to this is a futures-oriented approach.

1.4 The futures approach

Today, decision-makers operate in a complex world of change and uncertainty in which the need for developing new approaches to anticipate and prepare for the future is becoming increasingly important (Sirr *et al.,* 2004). The futures approach is about future proofing present policy and ensuring that decisions made today are robust enough to withstand the uncertainties of tomorrow. It is based on the notion that the future can be explored and its events anticipated, and as it is not predetermined, human actions can influence its course (Ratcliffe 2002a). By trying to make things happen, rather than guess what might happen, decision-makers deal with change and complexity by continually reviewing a wide range of policy options; the result of which is the development of more holistic and effective policies and practices in the long-term (see chapter three for a more detailed analysis on futures).

The identification of limitations in current workplace planning and strategy development has led to a search for and adoption of a new future-oriented approach. But what can foresight add to the traditional processes of strategic planning? Futures thinking encourages people to look beyond the familiar and to search for a variety of

alternatives. In this way, futures methods are different from long-range planning in at least three distinct ways (The Future Academy, 2004).

1. They recognise that the future will not be an extension of the past and discontinuities will occur.
2. There may be numerous possible futures, rendering any attempt of prediction futile. The future will be a function of various factors as well as various possible relationships among these factors.
3. Innovation has the potential to accelerate the rate of change and to cause fundamental shifts in the nature of business and life. A futures approach can assist in developing a better understanding of potential changes and transformations.

Over the past six decades, futures studies has developed in both depth and breadth. It is now a globally-distributed meta-discipline, and its collection of concepts, methodologies, methods and findings are applied extensively in the areas of business, military, environmental studies, education, health and development studies (Krawczyk, 2006). More specifically, futures techniques have been applied in the workplace context to:

- create future scenarios that focus on alternative ways of organising work (Laubacher & Malone, 1997);
- develop an Irish national workplace strategy (NCPP, 2005);
- understand employee perceptions of the future workplace (Davis & Blass, 2007); and,
- identify future workspace trends (Schaffers *et al*., 2005).

While this research recognises the need for change in how organisations think about the future workplace, the majority of futures research on the subject omits the physical workplace dimension perpetuating the belief that the workplace is an invisible asset to the organisation. Much of the research comprises of forecasts, often based on linear and incremental projections (Dewulf *et al.,* 2003) which do not have the flexibility needed to appreciate, test and explain intricate, multifarious yet interrelated issues, factors and players that determine the future shape and performance of the workplace (Ratcliffe, 2001). In light of this, an opportunity arises for property and facilities management professionals to begin to explore alternative workplace futures for their organisation,

through methods, such as scenario planning and visioning, so they may anticipate and thus prepare for future risks and uncertainties. The contention being that during times of accelerating change and growing complexity they are in a strong position to manage the workplace so that it can be actively sustained to stay effective for the organisation in the long-term.

1.5 Statement of research questions, aim and objectives.

Following an initial review of the literature, a number of research questions have been formulated for exploration in this thesis:

1. How is the nature of the workplace changing?
2. Can strategic futures thinking provide guidance for the FM industry to address and prepare for these changes to create the future workplace?

Through careful consideration of these questions, the main aim of this study is to assess the feasibility of applying futures concepts and methods to the workplace strategy development process in order to assist facilities managers to deal with rapid change and growing complexity in the workplace environment. In attaining this aim, the following objectives were identified as follows:

- explore the changing context and nature of the workplace from past and present perspective and scan the potential changes of the future workplace;
- appraise the futures studies field and assess how the future is constructed in workplace planning;
- examine how a futures approach can be used to establish strategies for tomorrow's workplace; and,
- develop a future-oriented framework for use in workplace planning processes.

The research design process, described in chapter four, will explain further how these objectives are achieved.

1.6 Research process

As this research looks specifically at perceptions, opinions and attitudes about the future workplace, it is most appropriate to follow a qualitative research approach. In so doing, this research is underpinned by a constructivist ontology[4] and epistemic reflexivity[5]; in other words, people in circumstances. Given the exploratory nature of the research, the central theoretical paradigm is interpretive, where everyday knowledge and cognition become the basis on which the researcher develops a more formalised and generalised version of the world (Berger & Luckman, 1966).

A case study is employed as the most appropriate strategy to undertake this research. Due to the need for an in-depth examination of how the future can be planned for and constructed in workplace strategy development, this strategy serves to provide an in-depth description and analysis of a case (Creswell, 2007), by using multiple sources of evidence (Robson, 2002:178) to ensure validity and reliability of results and richer data analysis. This is achieved through the crystallisation of data collection methods (see chapter four for a more detailed explanation). By applying futures studies in the 'real world' context of workplace planning, an iterative and heuristic, and adaptive and emergent research process also emerges. Through a feedback loop, this process permits the researcher to make changes to the research process as a means to discovering more about the phenomena. As a result of this, this cycle of research not only improves the futures process and the research findings but also enables the researcher to bridge the gap between theory and practice.

The choice of methods for data collection was dictated by the case study approach employed to complete the research aims and objectives. Since interpretative approaches rely heavily on naturalistic methods (Miles & Huberman, 1998), the following research instruments were employed: semi-structured interviews, futures workshops, strategic

[4] Reality is subjective and created or 'constructed' by the interactions of social actors (Guba and Lincoln, 1994:108; Creswell, 2007:75)

[5] It is concerned with "the constant analysis of your lived experience as well as your own theoretical and methodological presuppositions" (Coughlan and Brannick, 2005:62).

conversations[6], and documentary research to place the empirical results in context. Furthermore, the research tests the application of futures thinking and techniques in developing robust workplace policies and practices, and argues that it is important to have a methodological process that is emergent and flexible to achieve fluid interactions that add rigour and energy to the overall process of a built environment project.

1.7 Contribution to knowledge

According to Haynes and Price (2004), workplace research is positioned within a narrow, rationalist framework[7], from which the current limitations in workplace planning and strategy development occur. Having identified this issue, it is clear that there is a need for an alternative, holistic paradigm within which flourishing and sustainable working environments can be delivered to ensure continued responsibility in a changing and complex environment for society, enterprise and individuals. By fusing futures research with workplace theory, a deeper understanding of the complex and dynamic nature of the workplace is facilitated. This research contributes to knowledge by demonstrating how futures studies can help FMs think, talk, plan and act creatively, differently and together in providing effective workplace strategies; particularly when this discipline is reactive in nature and its methods are largely quantitative. This research provides another contribution to knowledge, the development of a future-oriented framework for use in workplace planning, to demonstrate just how FMs can apply futures studies in this context.

The application of scenario planning to workplace strategy is important, yet it is largely an underdeveloped approach. As such, this research, through an innovative application of futures methods, has assisted in developing an understanding of what the workplace may be like in the future, and bridges the gap between theory and commercial practice. Additionally, the researcher has employed a relatively new technique in the futures field, known as causal layered analysis (CLA) (see section 3.14.4 for definition). To

[6] A strategic conversation goes beyond the semi-structured interview in that the interviewer has a more active and creative role than is normally permitted during the traditional interview process (Ratcliffe, 2002). Furthermore, they address complex issues that may not be addressed during more structured interviews as the insight, experience form both the interviewee and interviewer are considered to broaden and deepen thinking about the future workplace environment.

[7] Within this paradigm, parameters are set, organizational performance is planned and compliance is ensured (Haynes and Price, 2004)

date, there has been limited use of this technique, and consequently fewer CLA empirical results. The use of CLA, not only in this research, but also in the workplace context is a significant contribution to futures and workplace research as it demonstrates its effectiveness as a research method in the provision of the results here, and equally it extends our understanding of the workplace by opening up new areas for discussion.

1.8 Research scope

The term workplace represents many different work environments to many people, but for the purposes of this research the workplace refers to the commercial office. The commercial office was chosen because it is where many knowledge-based work activities and processes take place, and given that knowledge production requires various spaces to produce work, such as collaborative workspaces, distributed and hybrid workplaces, the office is likely to experience significant transformations over the coming decades. For this reason, office planning and strategy development is seen as an appropriate context within which to apply futures thinking.

The scope of this research also focuses on the private sector workplace. According to Turner and Myerson (1998), it is the workplace that faces the toughest market pressures, contains the most progressive management thinkers and has the most innovative office interiors. While the accountability of public funding may hinder how workplace change and innovation is managed in the public sector workplace, the private sector is driven by profit motivation; private sector organisations are more receptive to new ideas in workplace provision if it can be demonstrated that such innovation can positively affect the bottom line.

In this research, the definition of FM takes on a broader scope to include three key aspects –RE, facilities and management - which when taken together influence the perceptions of the main stakeholders that bring the physical context of work into being and manage it over time (Then, 2003:71). Some may argue that one is a subset of the other, but they are all interconnected in terms of workplace provision and management. This broader definition is enabled if the workplace under scrutiny is part of a larger

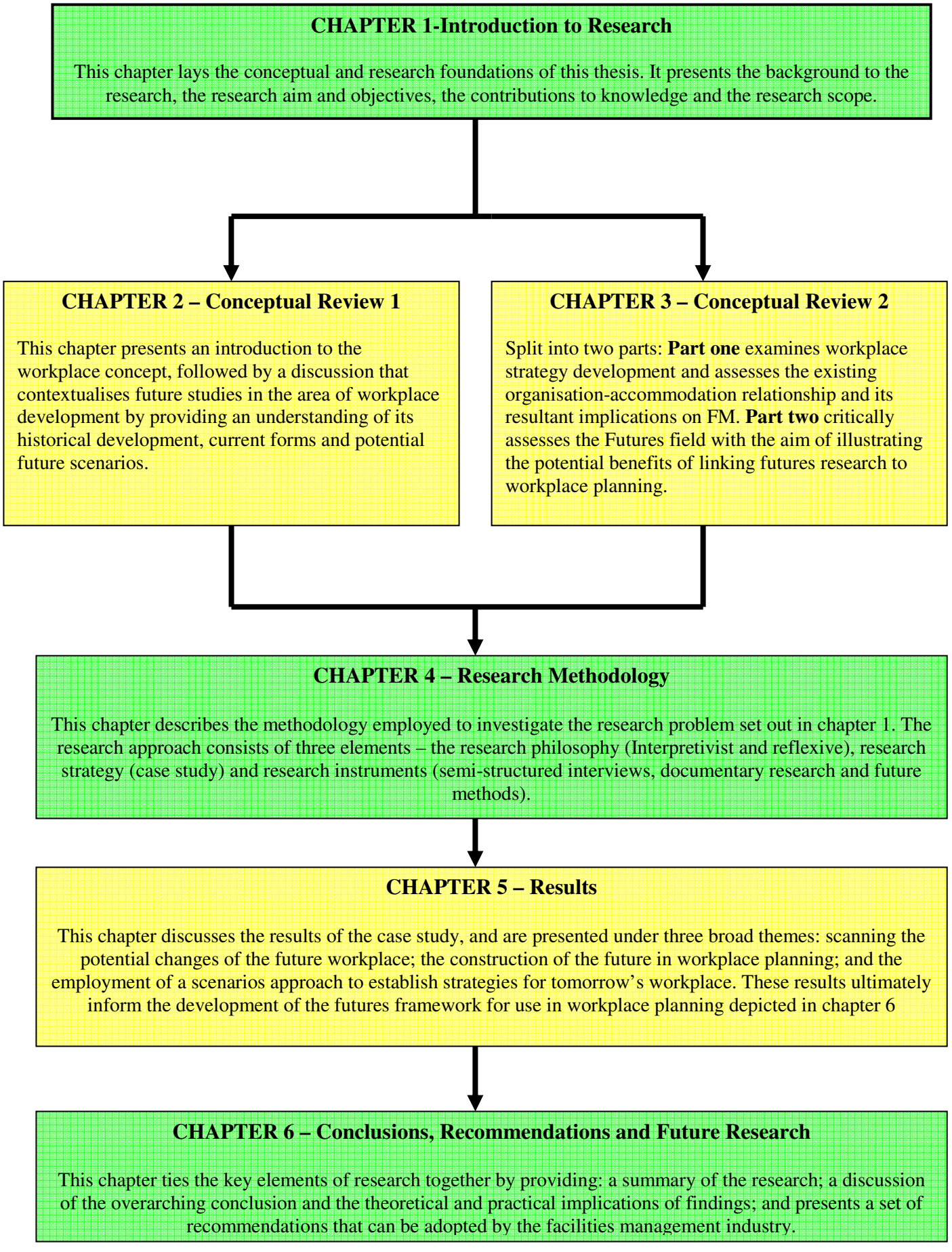
organisation. The reason for this is that large-sized organisations[8] tend to have both property and facilities departments, while smaller organisations, tend not to have a property department, only an office manager whose remit includes workplace management.

While there is an array of scenario development tools from which to choose, such as the Manoa method (Schultz, 1994), futures archetypes, baseline scenarios, cross-impact analysis to name but a few (Curry & Schultz, 2009), the following methods, 2x2 double uncertainty, CLA and the prospective, were chosen for use in the futures research design phase. The double uncertainty method was chosen because of its widespread application in the business planning context. This approach forms the basis of the Prospective Through Scenarios approach employed in this research. The CLA approach was identified by Curry and Schultz (*ibid*) as a tool to address the limitations of the double uncertainty approach. Since there is a cycle of research to improve the futures process in this research, the researcher identified CLA as an appropriate tool to take a deeper, more integrative look at the workplace in order to create richer scenarios. Finally, the prospective method is employed as it refers to a much wider approach than other futures methods as it comprises not only the study of the future and the evaluation of alternative outcomes against given policy decisions, but also the will to influence the future and shape it according to society's wishes.

1.9 Structure of thesis

Figure 1.1 illustrates the structure of the thesis. A short summary of each chapter is presented schematically to show the logical flow and overview of this research.

[8] A large-sized organisation is defined as one that has 250 or more employees (QFinance, 2012).


CHAPTER 1-Introduction to Research
This chapter lays the conceptual and research foundations of this thesis. It presents the background to the research, the research aim and objectives, the contributions to knowledge and the research scope.
CHAPTER 2 – Conceptual Review 1
This chapter presents an introduction to the workplace concept, followed by a discussion that contextualises future studies in the area of workplace development by providing an understanding of its historical development, current forms and potential future scenarios.
CHAPTER 3 – Conceptual Review 2
Split into two parts: Part one examines workplace strategy development and assesses the existing organisation-accommodation relationship and its resultant implications on FM. Part two critically assesses the Futures field with the aim of illustrating the potential benefits of linking futures research to workplace planning.
CHAPTER 4 – Research Methodology
This chapter describes the methodology employed to investigate the research problem set out in chapter 1. The research approach consists of three elements – the research philosophy (Interpretivist and reflexive), research strategy (case study) and research instruments (semi-structured interviews, documentary research and future methods).
CHAPTER 5 – Results
This chapter discusses the results of the case study, and are presented under three broad themes: scanning the potential changes of the future workplace; the construction of the future in workplace planning; and the employment of a scenarios approach to establish strategies for tomorrow's workplace. These results ultimately inform the development of the futures framework for use in workplace planning depicted in chapter 6
CHAPTER 6 – Conclusions, Recommendations and Future Research
This chapter ties the key elements of research together by providing: a summary of the research; a discussion of the overarching conclusion and the theoretical and practical implications of findings; and presents a set of recommendations that can be adopted by the facilities management industry.

2. The Evolving Workplace: Past, Present and Future

The overarching purpose of this chapter is to provide a critical overview and understanding of how and why the workplace is changing. As such, the objectives of this chapter are fourfold:

- To introduce the general concepts of the workplace, which include its function, key characteristics and philosophy.
- To examine the historical development of the workplace.
- To explore the dynamic context of the current workplace from which new emerging workplace concepts arise.
- To build upon a review of past and present trends to highlight possible future workplaces that may emerge.

Throughout this chapter, a critical assessment of existing contributions of knowledge in workplace development is undertaken in an effort to, not only comprehensively understand the workplace setting, but also contextualise futures studies in workplace strategy development.

2.1 The workplace function

In an era of expanding globalisation and ferocious competition, every factor that influences workforce performance is a potential source of competitive advantage. A growing number of workplace specialists and academics are suggesting that an emphasis should be placed on maximising workplace value to assist the organisation to compete and thrive (Becker, 1990; Duffy and Tanis, 1993; Duffy, 2000; Worthington, 2006; Kampschroer *et al.*, 2007; Vischer, 2010). The reasons for this is that the work environment can enhance productivity (Haynes, 2008), while the efficient design and use of physical spaces can limit the need for space and reduce cost in terms of rent and operations (Clute & Wagener, 2007). But what is the workplace?

In order to understand the workplace, it is necessary to look at the function it fulfils. Function is said to be “a basic tool of analysis to explain building activity” (Goldwaithe, 1980:67). The workplace is considered a component of production (just like human resources (HR), information technology (IT), finance and knowledge) (Pennanen, 2004) as the demand for space arises from the need to produce goods and services (Harris,

2006). The main function of the workplace is to facilitate and support the core processes and operational imperatives of the occupying organisation efficiently and effectively (Harris, *ibid*; Vischer 2010). Function, however, does not create a complete picture as to the type of space that should be built and managed to produce an effective workplace. Van Meel (2000) argues that if organisational requirements were the only factor considered to determine form, one would expect workplaces of similar organisations to take the same form. This does not seem to happen. As such, the following section will outline the other characteristics that constitute the workplace.

2.2 Characteristics of the workplace

The characteristics of the workplace are a set of features that define the workplace type and set it apart from others. Indeed, they underscore the importance of the workplace as part of the corporate fabric. Smith (2003) identifies a set of aspects that should be considered when determining the most appropriate workplace for the organisation, such as a vehicle of change, a product view, a stakeholder view, risk assessment, and a technological view.

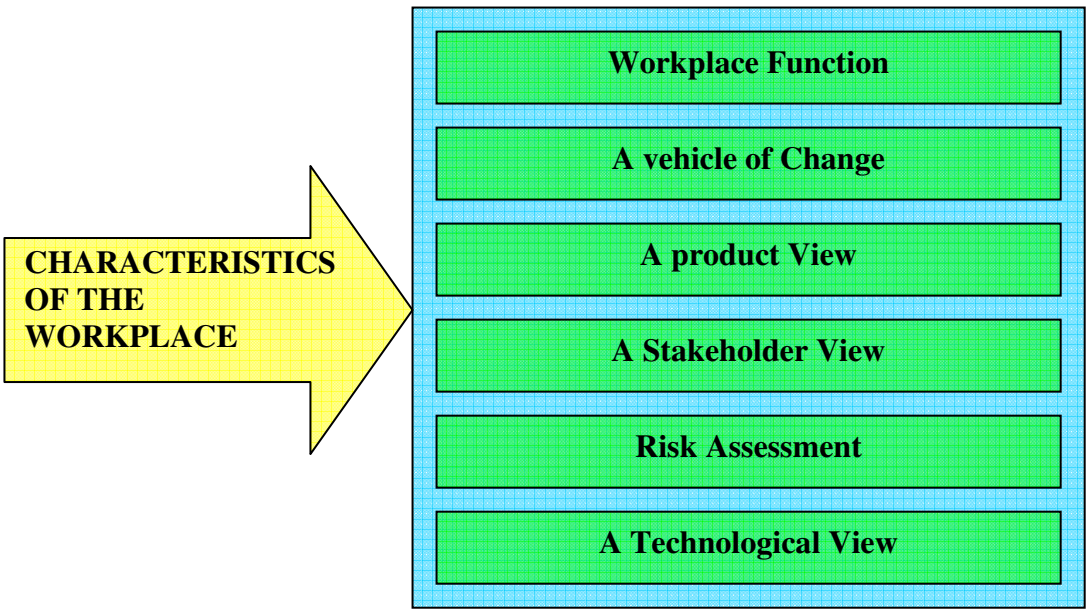


Figure 2.1 Characteristics of the Workplace - *Source: Smith (2003)*

2.2.1 A vehicle of change

The structural shift towards an information economy is impacting upon how organisations do business. In this environment, organisations are restructuring to reduce hierarchies and decrease the number of employees working independently in linear 'assembly line' groups. In fact, employees are starting to work in cooperative teams, often with cross-functional membership (Herman Miller, 2002). The changing nature of work also requires shifting the flow of information, redesigning jobs and work processes, and providing improved technologies. To enable this, commentators are suggesting that the workplace is a facilitator of change (Duffy & Tanis, 1993; Smith, 2003; Levin, 2005).

The workplace, as an agent of change, encourages employees to engage in various modes of interaction, promote collaboration and contribute to higher efficiency levels. Organisations should no longer seek more office space[9], rather they should create better workplaces that are more intelligently distributed and far more intensively used. Creating such spaces encourages organisational processes and wider thinking, that borders on the edge of chaos, to coexist, from which the development and implementation of new ideas emerge (Smith, 2003; Hough, 2011). In addition, the workplace can express corporate culture[10], and changing the physical environment is an effective way to signal and support changes in culture (Herman Miller, 2002). All too often, however, the physical workplace acts as a brake rather than a vehicle of change (see section 3.2 for the reasons as to why this is the case).

2.2.2 A product view

As consumers associate products with organisations, in the same way it is possible to associate facilities with organisations through recognition of their physical form (Becker, 2000; Smith 2003). Examples of this approach include:

- Starbucks whose facilities are reproduced in every location in the world and whose facilities act as a free address space for customers.

[9] The occupier demand for office space is decreasing in the UK (Thomas, 2009).
[10] Corporate culture is shared assumptions, values and knowledge within the organisation that bind and motivate employees (Herman Miller, 2002)

- Google is renowned for its workspace that encourages employees to engage in various modes of interaction to generate ideas and concepts.

The metaphor of 'facility as product' can be taken a step further (Smith, 2003:18). The concept of mass customisation[11] can be applied to the workplace; it demonstrates that there is a choice of work-setting that best suits task requirements (*ibid*). A lingering reliance on 'command and control' management practices, however, makes it difficult to implement this workplace concept. There is likely to be resistance to flexible and remote working from managers who find it easier to manage staff when they are in the same office at the same time as everyone else. To overcome this issue, one solution is to encourage employees to determine the type of work setting appropriate to their task based on the allocation of resources, such as financial, technology and physical space; a prerequisite for mass customisation (Becker, 2000).

2.2.3 A stakeholder view

The stakeholders of the facility belong to three categories: the end user (the internal client), FM and corporate real estate (CRE) manager (both a service provider and client), and the external service provider (architect, developer, engineer, building owner). Generally, the stakeholders are driven by conflicting agendas which can be attributed to the myriad of different organisations, leaders and business models involved in the workplace development process. Consequently, each point of view excludes consideration and understanding of the other stakeholders (Rayle, 2006). This leads to service provider underperformance, financial underperformance, loss of knowledge, labour risk and cultural rejection; all of which can have a negative impact on operations and the core business (*ibid*; Redding, 2010).

To avoid stakeholder contention, the following conditions must be considered (Smith, 2003; Rayle, 2006):

- promote life cycle costing and integrated FM[12] to ensure the physical sustainability of the facility;

[11] Mass customisation is defined as "producing goods and services to meet individual customer's needs with near mass production efficiency" (Tseng/Jiao 2001: 685).
[12] Integrated FM is the delivery of all or most of the FM services by a single service provider who has broad accountability for services and cost performance (Redding, 2010)

- provide structured information exchange and shared experiences to build a constructive relationship between stakeholders;
- redefine cost motivation as profit motivation and, therefore, minimising obsolescence and enhancing adaptability;
- consider intangibles, such as building performance and its impact on business performance, as facility attributes; and,
- realign the workplace/facility as an organisational competence which allows stakeholders, for example, to consider the workplace as an enabler of improved productivity.

By considering these organisational, financial and social elements, a holistic understanding of the facility arise that will define effective facilities in the foreseeable future.

2.2.4 Risk assessment

Risk management should be closely coupled with space planning[13] and space management[14], two separate but related processes (Muir, 2003) as risk changes focus not only during the development phase, but also throughout the lifecycle of the facility. There are six types of risks associated with facilities: business risk, public/social risk, occupational health and safety risk, security risk, procurement risk and innovation/change risk. Each type is interrelated, but the grouping of risk types differs depending on the facility (such as offices, manufacturing facilities, retail stores, hotels and restaurants, schools and hospitals) (Smith, 2003). All of these risks can be minimised through risk management, which includes strategies for: planning for risks, identifying risks, developing risk response strategies, and monitoring and controlling risks to determine how they have changed (Kerzner, 2009).

Legislation and compliance has become risk based (Reuvid, 2005), and impacts on most workplace development and management processes in some form or another. For

[13] It is the "process of optimising the layout of a building to suit a business's needs" (Muir, 2003:82).
[14] The management of change and the minimisation of operating costs constitute the space management process (Harrison, 2006:124).

instance, health and safety legislation[15] has improved awareness of hazards and risks in the workplace in the UK[16]. These regulations identify specific risks, and enable all involved to understand the level of risk to be managed by way of:

- considering thermal comfort, lighting, noise, ventilation issues in workspace design and maintenance;
- guaranteeing safety through the use of personal protective equipment and providing sufficient and ample sized floor and traffic routes both inside and outside the building;
- ensuring a maximum of 48 hour working week; and,
- matching skills to the demand of tasks by setting out performance and competency standards for accreditation.

Compliance also extends to other codes and standards, such as Eurocodes[17], the British Standard 8300-2001 Design of Building, and other environmental performance regulations and targets, such as EU Energy performance of Buildings Directive and Climate Change Levy 2001 as well as Leadership in Energy and Environmental Design (LEED)[18] and Building Research Establishment Environmental Assessment Method (BREEAM)[19] rating mechanisms. When complying with health and safety, disability, construction and environmental legislation, Smith (2003) advises that due diligence must be undertaken to set out clear responsibilities between supplier and client in order to avoid vicarious liability and minimise risk exposure for the company.

Outside the sphere of legal activity, research indicates that there is a shift in the collective corporate approach towards corporate social responsibility. Companies are now more likely to view voluntary reporting in terms of economic, environmental and

[15] European Union (EU) Directive 89/654/EEC and the Health and Safety Act of 1974, The Workplace (Health, Safety and Welfare) Regulations 1992, The Management of Health and Safety at Work Regulations 1999, Working Time Regulations 1989, Display Screen Equipment Regulations 1992, Electricity At Work Regulations 1989 and Noise at Work Regulations 1989.

[16] The UK is used as an example because most of the empirical research was undertaken in the UK. Also, it is important to note that similar codes and regulations exist in most places, governing many aspects of the physical planning and management of space (Muir, 2003).

[17] A set of European standards for the structural design of construction works which now supersede all national building codes since 2010 (Eurocodes, 2011).

[18] LEED is a mark of excellence that provides building owners and operators with a framework for identifying and implementing best practice and measurable green building design, construction, operations and maintenance solutions (US Green Building Council, 2012)

[19] Similar to LEED, BREEAM is the UK counterpart that sets the standard for best practice in sustainable building design, construction and operation and has become one of the most comprehensive and widely recognised measures of a building's environmental performance (BREEAM, 2011).

social factors as a competitive strategy to measure performance and risks, rather than as simply an effort in branding and image (O'Brien, 2009:152). In addition, continuity and disaster planning are other risk response strategies to lessen exposure to the organisation.

2.2.5 A technological view

Technology is one of the most important factors influencing the scale of change in the workplace today. Technological solutions for the workplace and for employees have increased so dramatically, that what is new today is frequently already out-of-date tomorrow. Technology is playing a significant role in enabling new ways of working and collaboration in the workplace. While employees are provided with the technology to complete a task, typically employees are not provided with facilities that enable the best use of technology (Smith, 2003). CoRE (2010) forecasts that the biggest challenge for the FM industry is the transformation of the business environment towards 'networked enterprises', dispersed but connected working environments, where ICT support and communication are essential.

Introducing new technology-enabled ways of working[20] allows workers to respond to the current business and social pressures facing organisations, such as: increased competitiveness; cost reduction; recruitment and retention of employees; quality improvement of services to customer; the need to innovate; and, the demand for family friendly environments to assist in equal opportunity provision (Toshiba, 2010). Despite these benefits, there are still a number of barriers which obstruct the development of networked enterprises and virtual corporations. They include (Harrison, 2006:126):

- Wide gaps exist in the technologies, particularly the lack of integration between building automation systems and information technologies.
- Data communications are still relatively basic.
- Bandwidth limitations.
- Conflict between data security and seamless voice and data communications.
- Management structures to manage work in many locations

[20] Home based working, distributed teams, networked relationships, virtual working, hot-desking, touch down sites (Toshiba, 2010).

- Managers are not prepared for the revolution in working practices, with its implications for organisation, culture, facilities and management.

Structured cabling, laptops and mobile phones are challenging the status quo of work in organisations, as well as accelerating major change by enabling organisations to rethink how they operate and how they use space. In the future, space will be closely related and interconnected with technology, from which the intelligent building[21] will be created (Harrison, *ibid*).

2.3 The workplace: multiple definitions

One of the difficulties in addressing the issue of the workplace lies in articulating a suitable working definition as there are various ways to view the workplace. The traditional definition of the 'workplace' (and synonymous terms, such as office, facility and work accommodation) is commonly associated with the physical structure of the office building; a place-centric focus (Smith, 2003; Mitchel-Ketzes, 2003). This workplace is defined as a general term which refers to the "entire physical environment for work…the whole floor, whole building, whole campus. The workplace contains large numbers of workspaces" (Brill *et al*., 2001:17). Moreover, in the dictionary entry the basic meaning is a place (a room, a set of rooms or building) where work is performed (Oxford Dictionary, 2011). Employees are contractually obligated to do their work in this physical space. The traditional office still largely operates by the dictionary definition, but this definition is too narrow and somewhat incomplete.

At a time where work, time and place divert from each other, a holistic and more advanced view of the workplace is emerging. The workplace concept is broadening to not only focus on the office building, but also incorporate separate yet inter-related contexts of organisational (structure, management), technological (ICT platforms), and physical (the buildings, locations, interior space layouts, furniture and equipment) environments of work (Becker & Steele, 1995; Cairns, 2003; Vischer, 2010). Under this definition, the workplace is a complex system influenced by various social, economic,

[21] A building which provides a responsive, effective and supportive intelligent environment within which the organisation can achieve its business objective (Harrison, 2006:124)

technological and political factors. This reflects the much broader agenda and pressures of the workplace, and is referred to as an "organisational ecology" (Becker & Steele, 1995:9).

Within this framework, the workplace has been redefined to illustrate an ecosystem characterised by people, processes and places to support the nature of work, from which "holistic, thoughtful, tool-rich environments add value to the bottom line through the ability to support work processes and behaviours that drive business results (Mitchell-Ketses, 2003:261). Smith (2003:15) further suggests that the workplace goes beyond the physical structure of the building to include:

- the work space, the client space, and the virtual space;
- the interrelationship between functional units, such as HR, FM, and IT and the organisation's activities, as well as with society through corporate social responsibility;
- the technology supporting the transfer of knowledge both internally and externally,
- the optimization of financial strategies that deliver short-term cost advantage and long-term projections, without loss of quality;
- the technology underlying the operation of the organisation; and
- the prevailing strategy that coordinates business objectives in an ever-changing business environment.

In an economy increasingly dependent on knowledge workers, Beltran (2011) argues that while organisations deem the workplace a system that is composed of different elements, and linked by the physical movement of people and the electronic movement of information, the latter workplace definition does not consider the social elements that create the workplace; communication and collaboration are not considered within the organisational ecology framework created by Becker and Steele. A more recent definition describes three dimensions of the workplace in a knowledge environment: the physical, virtual and social[22] spaces (Nenonen *et al*., 2009). Beltran (2011) suggests that each dimension adapts to and interacts with one another to develop the workplace.

[22] Social space refers to the interactions for building shared mental spaces, which requires communication and collaboration. Awareness and presence are important concepts linked to this space (Nenonen, et al., 2009)

The literature indicates that the concept of the workplace is shifting from a banal, place-dependant, passive setting to a dynamic facilitator and tool for work (Newsham, 1997: Olson, 2002; Levin, 2005; Vischer, 2008). But have the latter, holistic definitions moved from rhetoric to reality? Haynes and Price (2004) claim that the complex and ecological (Becker & Steele, 1995) stance has not gained ground, and the traditional view of the workplace as a physical structure remains prevalent in organisations. Nevertheless, this research follows a similar holistic rationale to define the workplace on a broader scale to reflect the changes that are impacting the current and future workplace. For the purposes of this research, the workplace is defined as the total workplace which consists of: an infrastructure that, not only includes the interior office space and building shell, but also considers the IT, telecoms and furniture systems that keep it operational; a support infrastructure that includes the people that make the environment work, such as the facilities and property management teams; and, a cultural and social space interchange within the workplace that reflects the relationship between the organisation and the employee.

2.4 A workplace philosophy: from a panoptical to heterotopian understanding

At an abstract level, there has been limited work undertaken to develop a comprehensive theory of knowledge of the workplace. An epistemological stance which reinforces the lack of theoretical engagement between two sets of literature, namely organisational theory and theory relating to the physical environment of the workplace[23], still predominate the professions concerned (Cairns, 2003). As complexity becomes increasingly rife in the knowledge based workplace, attributed to rapid changes in ICT, organisational and work patterns, conventional spatial and temporal management approaches cannot deal effectively with this issue.

Based on the work of de Certeau (1986), a distinction is made between 'places' (organised, planned and policed) and spaces (determined by actions of historical subjects, temporal, ephemeral and full of meaning) (Ward & Hotham, 2000a). Yet, in the search for control, conventional space management within organisations often fails to consider the latter distinction of the workplace as a transient and ephemeral space

[23] See section 3.2 for the reasons as to why this is the case.

(Cairns *et al*., 2003). The outcomes are a mismatch between employee workspace demand and employers' workspace supply, as well as a disconnection between the workplace sector and business at large (Nathan and Doyle, 2002).

By conceptualising new pragmatic epistemologies, they will inform critical thinking and action within the management of organisational space. In this way, the grounds for a philosophy of the workplace that embraces conflict, complexity and multiple realities of space and time within the organisation are established. Cairns *et al*. (2003) introduce the concept of the heterotopian (Foucalt, 1986) workplace, which is made possible through Janusian thinking (Rothenberg, 1979) to cope with complexity and ambiguity in the workplace.

Put simply, a heterotopia is a space that "is both utopian and dystopian, that serves multiple functions and holds multiple meanings simultaneously" (Cairns, 2003: 100). This concept can be applied to the workplace at different levels. For some people, the workplace represents and reverses family place with many workers and employers spending more and more time in the office. For others, the home and family space has become the new workplace with the advent of mobile working (*ibid*). At another level, the reception area of an office qualifies as a heterotopia space as it reflects simultaneous characteristics of freedom/control and welcome/wariness in rituals of entering and exiting this space (Cairns *et al*. 2003).

To position the workplace in a dichotomous framework reality of a heterotopia, Janusian thinking should be applied. The basic premise of Janusian thinking posits human beings are able to hold two opposite perspectives concurrently (Galindo, 2009). The workplace, therefore, can be considered both physical and intangible, supporting and controlling, and loved and loathed. Cairns (2003) argues that to see the workplace in this complex way enables workplace decision-makers to escape from the view of modernist theorists who claim that the physical structure has no theoretical importance at all as it is centred around the concrete instead of the abstract (Hatch, 1997).

Converting theory into practice, Cairns (*ibid*) states that qualitative data must be collected and analysed to gain a greater understanding of the multiple socially constructed realities of the workplace within this "postdichotomous reality framework"

(Cairns *et al*., 2003). A suggestion is made to employ futures techniques, such as the strategic conversation and scenario planning to explore "the broad ranging limits of the possible for a range of plausible futures, rather than applying a limited rationality to defining narrow boundaries of the present" (Cairns, 2003: 103).

2.5 Reviewing the workplace of the past

The past is used by people to guide their present actions and to assist them in forming images of the future (Bell, 2003:88). Although, not everyone recognises the importance of the past, futurists believe that to understand the future, firstly one needs to understand the past (Inayatullah, 2004a). Understanding how the office has developed in response to technological, organisational, cultural and economic change is key to learning how work should be accommodated in an increasingly complex and uncertain future. So, this section attempts to introduce and analyse the most significant and influential developments in the area of workplace provision and place change in demand for offices into a long-term perspective.

While the workplace has had a long history, and can be traced back as far as the middles ages[24] (van Meel, 2000), the office as we know it today emerged in the late 19th and early 20th centuries. The history of the office is divided into three significant waves of change in how they were designed and used: the Taylorist office, the social democratic office, the networked office (Duffy, 2008b). This division is based on various external and internal organisational trends that have influenced office development over the last one hundred years. Figure 2.1 presents an overview of the long-term changes occurring in office development.

[24] The earliest recorded instances of offices appear in the Middle Ages (9th Century) large thanks to illustrations of monks working at a desk, or bureau as it was referred to at this time.

	Taylorist Office	Social Democratic Office	Networked Office
Origins	North America and adapted by the UK	Northern Europe	Global
Office Concept	Open plan	Cellular/Combi	Distributed
Management Culture	Control	Democratic	Mutual responsibility
Workplace Measures	Efficiency, minimising space use and space costs	High quality environmental standards to suit end-user needs,	Effectiveness and efficiency
Work-styles	Routinised, linear, process work	Process work	Non-linear, flexible knowledge work
Suppliers	Developers	Owner-occupiers	Service providers

Table 2.1: Three phases of change in the historical development of the office

2.5.1 The Taylorist office

The first commercial offices appeared in the Northern Industrial cities of the United States in the late nineteenth century, largely thanks to American innovation in construction, the need to service a growing economy and the professionalization of the 'white collar' management role. Chicago, in particular, created the archetype of the speculative high rise building now symbolic of the corporate workplace (Harrison *et al*., 2004). At the same time, new technologies, such as the typewriter, electric lighting and the telephone, entered the office environment and enabled large amounts of information to be collected and processed even faster and more efficiently than ever before. This era of 'efficiency' brought about the concept of scientific management, invented by Frederick Taylor, which took a scientific perspective at work processes to find ways to maximise efficiency by splitting tasks into specific repetitive acts (Taylor, 1911).

Taylorist principles viewed the workplace as a "rational system of production" and strongly influenced office accommodation design to suit the dominant economic model, known as Fordism[25] (Myerson, 2009:12), as well as to enable uninterrupted flows of

[25] Fordism was based on the concept of mass production and mass marketing to a mass audience within highly planned, centralised and regulated economies (Myerson, 2009:12).

work and ensure close visual supervision by managers (van Meel, 2000). The 'Taylorist' office space was characterised by standardised interiors and furniture design, which included large open-floor spaces known as bull-pens, rigid rows of identical desks and a small number of enclosed offices on the perimeter for senior staff reflecting increased management control (Aronoff & Kaplan, 1995; Duffy, 2008b). The seminal workplace featuring this design approach is Frank Lloyd Wright's Larkin Building, New York (1904), which is considered the first purpose-designed environment for a specific organisation. Beneath the corporate slogan of "Intelligence, Enthusiam and Control", over 1,000 mail order employees sat in silence in a large open space, processing high volumes of paper on a daily basis (van Meel, 2000; Myerson, 2009). This American office model influenced European office development, but not to the same extent.

After the Second World War, the innovative steel and glass architecture of the international modern movement along with technological and engineering innovations led to the adoption of a more modern image of efficiency and standardisation in the Taylorist office of corporate America. Skidmore, Owing and Merrill Architect's Union Carbide Building in New York (1960) embodies this approach which is pervasive and symbolic of today's corporate office. It is characterised by its exterior 'glass box' design and interior space configuration that reflected a rigid expression of hierarchy through the size and location of one's offices, the amount of windows in that office and the type of furnishings supplied, while "individuality was subordinate to an overall exquisitely detailed expression of utility, efficiency and modernity" (Antonelli, 2001: 27). Moreover, air-conditioning and artificial lighting facilitated the creation of highly efficient deep and open floors resulting in the separation of the interior office and the external environment (Caruso St. John, 2011).

This formula became influential worldwide, with most office design of the 1960s and 1970s incorporating some variation of the SOM-style typology into their design. This office became the new international language of business and success, with firms developing highly detailed, homogenous, hierarchical spaces, at minimal cost (Nathan and Doyle, 2002). It can be argued further that the Taylorist office is still in existence in both the UK and the US today (Harrison *et al.*, 2004; Duffy, 2008b).Despite this trend,

a new office counter culture was emerging in Northern Europe, known as the Social Democratic Office.

2.5.2 The social democratic office

The social and economic hardship experienced in Europe during the Second World War fostered a democratic and egalitarian office planning approach in North European corporations during the 1950s and 1960s. Corporations competed for staff, not by offering higher wages but by providing high-quality interiors work environments tailored to the occupants' needs (Myerson, 2009). While the Taylorist office was concerned with questions of efficiency, economy and control; the Social Democratic office stressed the importance of human relations and democracy at work. The first expression of this new wave of office design came from the Quickborner team of management consultants in Germany, who pioneered the Burolandschaft or office landscape concept.

Based on the importance of work communication to support democracy in the workplace, the need for flexibility to accommodate rapid organisational change, and advances in IT (van Meel, 2000), this office design consisted of large undivided open spaces with scattered high quality furniture. Instead of walls or doors, arrangements of plants, artwork and other unconventional items divided the space into individual work areas. This interior design concept eradicated the hierarchical order of the organisation and reflected the new democratic style of management at this time (Aronoff & Kaplan, 1995). Subsequently, this office concept led to the development of systems furniture. In 1968, Robert Propst created a furniture panel-based office system to replace the bull-pens of earlier decades and improve work and location flexibility in the office environment. But this design had dire consequences. The cubicle emerged, which would ultimately deteriorate into the classic Dilbert experience of extreme standardisation, anonymity and isolation (Nathan & Doyle, 2002); characteristics that contradict all the claims of the 'Burolandschaft' office and Social Democratic office concepts.

By the 1970s, issues of privacy and acoustic control, difficulties in adapting to open plan spaces, and the oil crisis of 1973, led to the demise of the office landscape concept.

The Social Democratic office design shifted from a deep and simple open plan layout to an increasingly narrow and highly articulated floorplate design with a preference for cellular offices (Harrison *et al*., 2004). This new wave of change was largely attributed to the increased involvement of the employee in corporate decision-making which resulted in worker councils that became influential in the design of the working environment (Caruso St. John, 2011). According to Duffy (2008b:124), these spaces were "designed on democratic principles to be the same size; to give everyone external aspect and views; to be naturally lighted and ventilated; and to be equipped with easily rearranged and ergonomic, domestic style furniture".

Not all architects and clients, however, wanted to revert back to corridor-type office buildings as they did not express the culture of the social democratic office type. One notable example of democratic space is Hertzberger's Central Beheer Building in the Netherlands, which was designed as a village-type office so that the occupants "would have a feeling of being part of a working community without being lost in the crowd" (Staal, 1987:15). To achieve both privacy and a sense of belonging, the office consisted of both open spaces, such as raised walkways, atria and common spaces, for ease of communication, and defined space units for small groups and individuals to work without distraction. Employees were encouraged to decorate and personalise their own space, and markers of status were prohibited (Laing, 2006; Myerson, 2009).

In the late 1970s, Swedish designers, Tengborn Architects, went one step further and invented the 'combi-office' that combines cellular offices with common spaces (Harrison *et al*., 2004), from which a social community emerged. By the new millennium, however, the bespoke, inflexible and costly nature of the Social Democratic office created problems for the Continental European corporations employing this typology, particularly in a period of rapid change, uncertainty and complexity. A new wave of change began to gather momentum which was driven by the exponential growth rate of ICT.

2.5.3 The networked office

The networked office was the physical consequence of the computer moving from the computer room to the work desk in the early 1980s. At this time, the general expectation

was that IT would radically reshape office design. In reality, however, office design was only affected at the practical level (van Meel, 2000); focus shifted towards accommodating IT in the office as this emerging trend demanded a radical rethinking of the use, servicing and base building design for the office (Laing, 2006:40) to deal effectively with cabling and cooling problems of the new computers. In response to this challenge, DEGW and others conducted the ORBIT[26] studies in 1983 and 1985 to identify "the key factors determining the ability of office buildings to cope with IT (Harrison *et al*., 2004: 15), from which the 'intelligent building'[27] emerged.

As rapid globalisation, facilitated by new network technologies, was driving the emergence of creative forms of work-styles, such as flexible, distributed and knowledge based work processes, workplace researchers began to question the traditional design concepts of the office. Echoing this, the seminal article by Stone and Luchetti (1985), entitled "The Office is Where You Are", suggested that the organisation should provide multiple activity settings which have different technical and physical attributes assembled to support the variety of work modes that take place in the office, as well as encourage a working culture of trust and mutual responsibility. While this research would drive innovative thinking in office design for the foreseeable future, the hegemony of the RE supply industry would dominate workplace development for another ten years, leaving two variations of workplace design in place: those of Northern Europe[28] versus the UK and North America[29] (Laing, 2006).

The economic pressures of the 1990s and the associated RE market collapse in the UK and North America, however, brought an end to supply-driven workplace development. The lack of attention towards users' demands in the UK and North American model, and the particularly expensive North European model of the office were no longer valid. Corporate decision-makers had to reinvent their business in order to survive; as such, workspaces were reconfigured to add value to the business and improve productivity

[26] ORBIT – Organisations, Buildings and Information Technology
[27] The Intelligent Building is defined as one that has integrated management and information communication technologies systems providing a robust infrastructure for ubiquitous (Harrison et al., 2004: 14).
[28] Characterised by cellular and combi offices and narrow floorplates, the North European office design was driven by end user's needs with high levels of space inefficiency.
[29] Characterised by highly generic, deep open floor plans, the UK and North American office was cheap and suited unknown multiple end users and highly routinised office work.

(Myerson, 2009). Lower costs, flexible occupation, efficiency, and effectiveness became the new buzzwords of this era (Harris, 2006). The Responsible Workplace research study by DEGW in the early 1990s echoed these sentiments. The report criticised both stereotypes of existing office buildings in the UK, North America and Northern Europe, and claimed that changing user demands and powerful IT development were driving demand for improvement in the workplace (Duffy *et al*., 1992).

The opportunities created by IT made this transition possible. With the rapid development of mobile phones, laptops, the internet and email, companies discovered that space and time could be used globally, 24 hours a day, seven days a week in a much more constant and productive way (Duffy, 2008b); all of which led to a highly mobile but virtually interconnected workforce. As mentioned in section 1.2, a movement known as AO captured this shift in perspective in the 1990s. Today, the networked office goes beyond the current workplace debate that focuses on open-plan versus cellular office space; the concept incorporates attributes from both the Taylorist and Social Democratic office typologies, but at an improved level. It provides greater locational flexibility than the Social Democratic office with the provision of both traditional and non-traditional work settings, and is enabled by new technologies to make more efficient, just-in-time use of space than the Taylorist model. Nevertheless, none of these office concepts have replaced the other. Rather, they are still in use, representing different basic options for office design (Harrison *et al*., 2004:14).

2.6 Assessing the workplace of the present

The future is shaped in the present, but equally the future influences the present (van der Duin, 2008). Current workplace trends and innovation point to a different workplace future from the past and present. As such, it is necessary to examine current organisational and real estate market trends, and there associated spatial consequences in order to provide the most appropriate workplace solutions for today and set about shaping the preferred workplace future for the organisation.

2.6.1 The dynamic context of the current workplace.

As referred to in section 1.1, the knowledge economy has materialized. Productivity growth and added value depend increasingly on ideas, concepts, images, brands, software and services. In this context, talent has become the key factor of production as workers derive their identity and value from their role as purveyors of creativity (Florida, 2002). Knowledge workers[30] are highly skilled, in-demand and able to dictate the terms in which they might work for an organisation (Hall, 2006).

Work undertaken by knowledge workers is both highly cognitive and social (Heerwagen *et al*., 2004), and is described as complex, opportunistic, non-linear, improvisational and fast changing (Laing *et al*., 1998; Meyerson, 2009). Knowledge management theory is even beginning to regard the level of informal communication in workplaces as an important part of the knowledge creation process (Palmer and Richards, 2000). As such, knowledge work is becoming increasingly flexible, distributed and collaborative (Schriefer, 2005). The increasing knowledge intensity of the economy, worker and work processes has led to changing demands with regard to work environments (van der Klundert & van Winden, 2008).

It may seem that knowledge work and processes are restricted to a small number of businesses in certain sectors of highly developed countries, but with technological automation replacing industrial workers, the remaining employees must be able to constantly think and rethink their strategies and business models to survive and prosper in this changing environment. Harrison *et al*. (2004) highlight that knowledge work accounts for approximately 60 per cent of the gross domestic product (GDP) of North America, which demonstrates that the new economy is a driving force that will influence future organisational and workplace developments.

[30] A knowledge worker is defined as "anyone who creates, develops, manipulates, disseminates or uses knowledge to provide a competitive advantage or some other benefit towards the goals of the organisation. Thus, the product of a knowledge worker's work is intangible: knowledge is the addition of meaning, context and relationships to data or information. Knowledge workers typically work in a team (whether local or virtual), and make extensive use of information technology" (Harrison et al., 2004: 7).

Moreover, Dewulf *et al*. (2003:210) highlight three dimensions of RE market changes that add another layer of complexity to understanding how they influence decisions relating to workplace provision.

1) Any RE decision related to a geographically dispersed workplace must be taken within the context of influences and constraints of the local RE market. An example is the different types of lease structures in various countries.
2) If organisations own a significant portion of their RE portfolio, tracking changing market values is required to make appropriate decisions at any stage of the RE cycle.
3) Keeping abreast of new product developments is the final aspect of market change that can influence workplace provision. For instance, bundling services and space together to offer the serviced office model to organisations, such as start ups that require a certain type of work and spatial flexibility.

Organisational and RE market change demonstrate that the context within which the workplace exists is complex and multifaceted.

2.6.2 Spatial consequences of rapid change and complexity.

Organisations have sought ways to adapt and become more agile in order to respond quickly to changes in the marketplace. One such way is by building flexibility into the workplace. Flexible workplaces offer the next stage in workplace evolution (Dewulf *et al*., 2003: Joroff *et al*., 2003: 294). While there are three distinct categories of flexibility in the organisational context, such as contractual flexibility[31], time flexibility[32] and locational flexibility[33], it is the last of these that is directly linked to workplace provision (Gibson, 2003:15).

For many organisations, workplace costs are the second largest expense behind salaries and benefits (Deloitte, 2010), yet the average employee desk is occupied for only 45 per

[31] Contractual flexibility is defined as the employment of staff on a range of contracts, such as fixed, contract or consultant.
[32] Time flexibility is based on the time an employee work to suit both themselves and the employer, such as part-time hours, term time, and informal hours.
[33] Locational flexibility is defined as employees working in the most appropriate location which includes the home, client's offices, satellite offices, meeting rooms, cellular offices etc.

cent of office hours (Nathan & Doyle, 2002). This paradox highlights the growing trend of location-based flexible working, as well as supply-side dominance in workplace provision. With the rise of mobility, the assumption that every employee occupies their own static desk is being replaced with one that incorporates a more intensive, efficient and effective use of space to: facilitate knowledge work; attract and retain skilled workers; reduce costs; and, express the values, corporate identity and office culture of the organisation.

The underlying philosophy of this transformation is that organisations are no longer tolerant of the need to adapt their activities to suit the workplaces that are available (Laing *et al*., 1998); rather locations and workspaces are chosen based on the type of activity undertaken to complete a task (Stone & Luchetti, 1985; Becker & Steele, 1995; Gibson, 2003). This has led to the development of new office environments that break from the traditional office model towards working spaces that empower employees, and provokes interaction and cross-pollination of ideas (Nathan & Doyle, 2002).

To capture this shift, DEGW in collaboration with the Building Research Establishment conducted a study to address the issue of matching modern working practices with the office environment (Laing *et al*., 1998) from which new environments for working arose. Based upon two key organisational variables of interaction and autonomy, the outcome of this study asserts affinities between four alternative office layout typologies and the related work activities they support – Hive, Den, Club, Cell (see figure 2.2).

This research concluded that the longer term trend for organisations was towards more interactivity and more intermittent use of space and time, and most large organisations will continue to utilise a combination of all four space typologies, but the demand for each will shift over time (*ibid*). While this research may provide valuable insights about work processes and their spatial consequences, this approach must be considered together with the limitations of the work. These include: the research sample was too small (Laing *et al*., 1998); there is no analysis of the "mechanical details of how specific work is socially organised in relation to space" (Brown & O'Hara, 2003:5); and, the productivity variable was not factored into the research (Haynes, 2008).

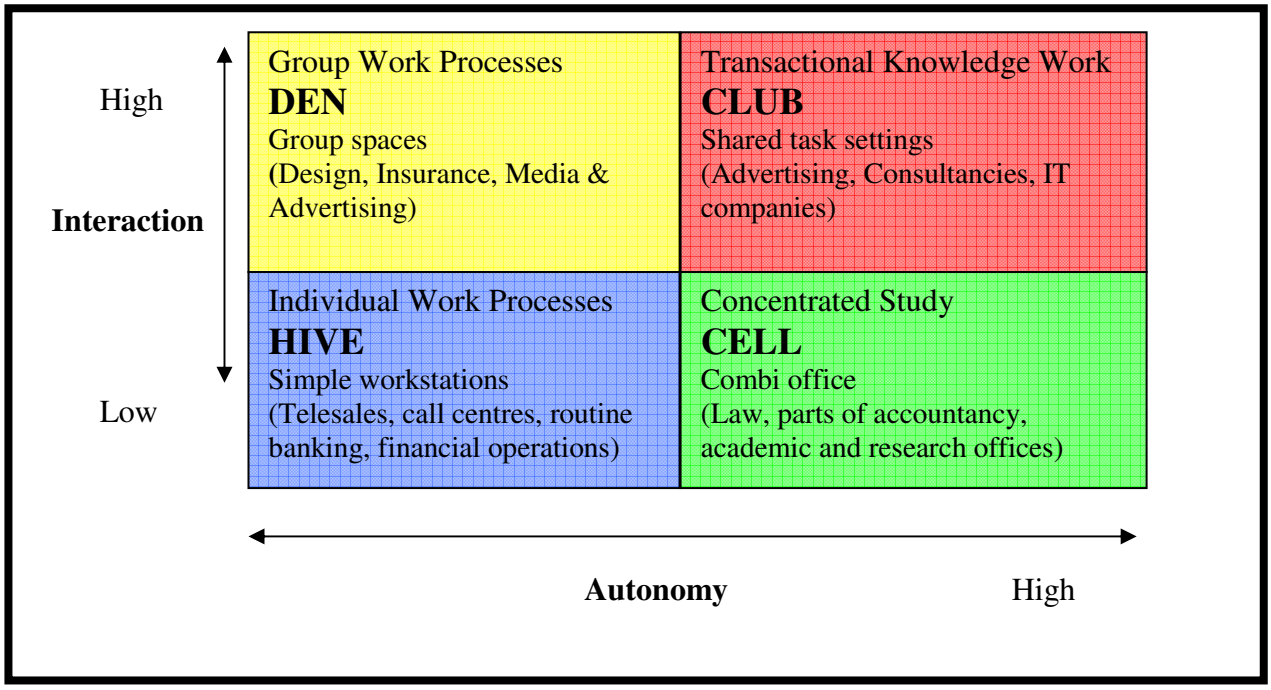


Figure2.2 Patterns of Space Occupancy - *Source: Adapted from Laing et al, 1998.*

By factoring productivity into the research proposed by Laing *et al*. (1998), Haynes (2005) discovered that the transactional knowledge worker grouping perceives their office layout to have a positive effect on their productivity. Not only that, the other groupings considered the office layouts and their related work patterns to have a negative impact on their productivity (*ibid*). This suggests that occupiers needs are ignored which sustains a mismatch between the types of workspace employees need, and what employers give them (Nathan & Doyle, 2002; Haynes, 2007). Even though current research (Gensler, 2008) concludes that the physical work environment is an asset with a specific and quantifiable impact on business success, Haynes (2005) results echo the findings of research undertaken by Tanis and Duffy in 1999 that highlights 58 per cent of 5,000 respondents consider themselves in the transactional knowledge worker grouping, yet 63 per cent of global office space is not fit to support new ways of working. This suggests very little has changed in the workplace to accommodate the knowledge worker effectively.

To overcome this issue, the major challenge facing those concerned with the design and management of the workplace, is to create the right working space for workers to increase productivity and add value to the organisation. Through the effective

application of IT and greater flexibility of space use, organisations can now choose to manage work across different time zones, on multiple sites, in a variety of settings, from which new workplace concepts emerge. The following sections describe the spatial consequences of these current trends, such as collaborative spaces, distributed workplaces and the sustainable workplace.

2.7 Collaborative spaces

A survey of 946 decision-makers in key positions (Gofus *et al*., 2006) concluded that collaboration contributes to 36 per cent of overall business performance across different dimensions, such as sales growth, profit growth, labour productivity and customer satisfaction. While research by Gensler (2008:13) suggested that top performing companies - those with higher profits, better employee engagement and stronger market and brand position - spend 14 per cent more time collaborating than average companies as they believe collaboration is critical to job success. These findings reflect the increased importance of collaboration as key to organisational effectiveness in an increasing number of work environments, such as service and policy making organisations and scientific and development groups (Heerwagen *et al*., 2004). Collaboration, therefore, should be fostered, facilitated and managed to ensure it yields the highest value for an organisation (Kristensen & Kijl, 2008).

Although collaboration is described as "working together" (Oxford Dictionary, 2011), effective collaborative work is actually made up of both individual work tasks and interactive group processes (Heerwagen *et al*., *ibid*). Research undertaken by Brill *et al.,* (2001:19) identified the most important workplace qualities that employees value and the top three are ranked as follows:

1. Ability to do distraction-free solo work
2. Support for impromptu interactions
3. Support for meetings and undisrupted group work.

In essence, workers need to be able to concentrate effectively when undertaking individual work tasks, but also have the ability to interact with each other to achieve objectives through a shared understanding of resources, knowledge, skills and

experiences. However, these demands create tension: research demonstrates that interruptions and distractions have a negative impact on worker concentration and productivity (Heerwagen *et al*., 2005; Haynes, 2007), while other research estimates that 70 per cent of work-related knowledge is generated through interactions with colleagues and improves productivity (Penn *et al*., 1999; Cross & Parker, 2004; Haynes, *ibid*). The central contention of the collaborative workspace, therefore, is finding the right balance between the need for privacy and communication and the provision of individual and group workspaces. As such, collaborative work environments require spaces, furnishings and technologies that facilitate, not only focus work, but also collaborative, learning and social modes of work that fosters continuous tacit learning and the unplanned, opportunistic sharing of information and ideas (Becker, 2007: Gensler, 2008).

As organisations increasingly rely on collaborative and group-based work patterns, the literature indicates that traditional workplace concepts are not fit for purpose; a lexicon of separation exists that includes cubicle, office, space per person, and department. To overcome this challenge, Becker and Sim (2000:52) suggest a change in mindset towards how the office is perceived and planned:

> "…Rather than thinking of the office as a place primarily for solitary activity, from which one occasionally breaks out in time and space to settings intended for social activity, the office is designed primarily as a social setting, from which one occasionally seeks out more private places for contemplation, concentration and confidentiality".

Embracing this way of thinking, Harrison *et al*. (2004) highlight two concepts that can be used in the design and management of collaborative work environments: activity settings and zoning.

Based on the work by Stone and Luchetti (1985), the activity setting concept is based on the premise that knowledge workers can choose and move between a range of multiple settings that are provided to accommodate different work modes, such as focus, collaborate, learn and socialise, in which a knowledge worker engages to make an organisation more effective. A variety of contradictory office worker requirements such

as acoustical privacy for concentration and informal spaces for collaboration constitute activity setting based environments, and are neither all open nor all closed (Luchetti, 2011:3). Supported by technology integration, such spaces may include (DEGW, 2000 cited in Harrison *et al*., 2004):

- small rooms/booths for concentrated work, or confidential telephone calls
- open areas for informal meetings
- quiet open plan areas
- touch-down desks for ad hoc or short term users.

Activity settings will vary from organisation to organisation. Luchetti (*ibid*) argues each working environment demands a different mix and quantity of activity settings when the wide range of needs, contexts, and corporate cultures that exist in organisations are considered. To effectively establish this type of workspace solution in an organisation, a detailed analysis of individual and social activities is required, along with a set of rules that establishes an appropriate working culture, such as a clear desk policy for sharing work stations or a hotel like booking system to reserve different types of activity settings (Harrison *et al*., 2004). Similarly, and drawing on the same premise as activity settings, zoning is another spatial solution that designates areas in an open environment for particular activities, such as focus work and informal communication (*ibid*).

Alternatively, Heerwagen *et al*. (2005:525) suggest a "cognitive cocoon" as a solution to balance the need for privacy and communication. Based on the importance of the individual workstation where high levels of interaction and collaboration are only a means to aid focus and learning work processes and tasks, the cocoon is characterised by several beneficial capabilities: it surrounds, but does not entirely cut off outside stimulation; it encompasses necessary support for growth and development; its design is simple, but the solution is elegant; and, it provides release when the occupant determines the time is right. Despite the legitimacy of this solution, the authors concede that this concept is unlikely to succeed as workplace design is moving in the opposite direction with individual workspaces becoming smaller, more open and more mobile (*ibid*).

Despite the potential of collaborative workspaces to add value to organisational effectiveness and improve productivity, there is well publicised account of a failure

(Berger, 1999). Heerwagen *et al*. (2004) attributes the failure of this type of work setting to the misapplication of popular research findings, such as Allen and Gerstberger (1973) work on the non-territorial office for research and development scientists. They argue that the findings are often generalised and applied to different organisational contexts and processes. This leads to the conclusion that "one size does not fit all" and what works for one company may not work for another.

Furthermore, knowledge work research suggests there is a gap between the perception of collaboration in organisations and the actual implementation of collaborative processes (Kristensen & Kijl, 2008), which can be an attributing factor to the following findings: recent research (Dixon & Ross, 2008) highlights that while desks are usually empty, workers continue to find it difficult to find meeting rooms in the office. This suggests that collaborative work modes are still not factored into office design and planning, from which the pervasive nature of the open plan and cellular office debate ensues. Nevertheless, forward thinking companies who embrace such a concept realise that collaborative spaces increase productivity, improve job satisfaction and performance, render the organisation increasingly effective, and attract and retain the most talented people. Ultimately, these outcomes are likely to yield a greater return for the organisation than direct savings on space.

2.8 Distributed workplaces

With the introduction of advanced 'presence' solutions, such as cloud-based and on-demand applications, a significant proportion of the European workforce (7%) work remotely in different kinds of environments, such as the home, serviced office, an airport lounge or a customer's office (European Foundation for the Improvement of Living and Working Conditions, 2010). Many factors have contributed to the increased physical distribution of work, namely: employees seeking to combine work and family life, from which the demand for flexibility of time, where and how they work arises (EOC, 2007); global corporations are emerging to take advantage of differences in labour rates and property costs around the world to minimise production and distribution cost (Harrison, 2006:122); employers are adopting these flexible working practices to retain key staff and improve overall recruitment as well as to increase productivity (Gibson, 2003); and, ICT development is shifting the idea of working

towards working 'any time and any place' (Ware & Grantham, 2003). As such, distributed work is becoming a significant option organisations can choose from in order to adapt to changing organisational, cultural and business contexts.

Distributed workers (synonymous with teleworkers, mobile workers, remote workers, customer site worker) are becoming a major component of the workforce. Ware (2003:3) qualifies a workforce as distributed if it meets any one of the following three conditions:

1. Individual workers are in different physical and geographical locations.
2. Most normal communications and interactions, even with colleagues in the next office, are asynchronous (they do not occur simultaneously).
3. The individual workers are not employed by the same organisation, or are working within distinctively different parts of the same parent organisation.

These conditions suggest that the distributed workforce not only includes externally mobile workers, but also comprise of internally mobile employees highlighting the importance of the role of interaction and collaboration in distributed working. Hardy *et al*. (2008:30) capture this transformation towards distributed working by providing an overview of the diversity of work styles already emerging in most organisations (see figure 2.3).

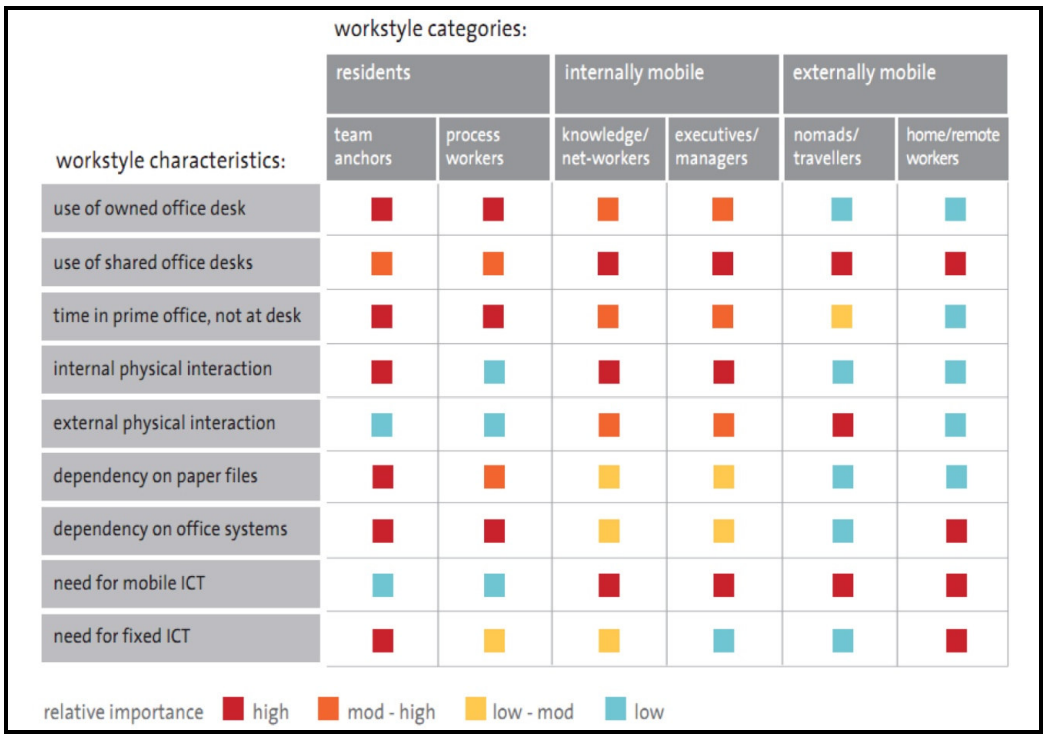


Figure 2.3 New work-styles - *Source: OGC, 2008:30.*

Echoing the words of Rifkin (2001:5) “ownership of physical capital, once the heart of the industrial way of life, becomes increasingly marginal to the economic process”, Hardy *et al*. (ibid) argue that the spatial implications of this new way of working has led to the decline in building and space ownership and to the critical integration of the physical work environment into the business process: the outcome has seen an increase in occupied spatial density and the creation of new opportunities for those in workplace provision to provide workplaces that encourage communication and interaction (Harrison, 2006). Such flexibility in the use of space allows an organisation to change and evolve without having to make fresh commitments to new RE.

Roper and Kim (2007) classify two types of distributed work environments: on-site workplaces and off-site workplaces. The distributed work settings in ‘onsite’ workplaces include free address, hoteling, group address, caves and commons, cellular and open plan offices, as well as project team environments, to name but a few. While off-site work arrangements include telecommuting, satellite officing, remote telecentres and virtual officing, all of which acknowledge the impact that ICT are having on work processes of individuals and organisations. Supporting this classification, Kishimoto (1996) identified distributed workplaces as primary and temporary offices. Both are characterised according to the frequency and availability of ICT tools, support services and purposes of use. Primary offices are described as the central space to which the knowledge worker belongs and consists of interaction areas, shared focus spaces and group work spaces with full time support workers. In contrast, temporary office are public spaces, commercial spaces, and transportation facilities.

The implications of these types of distributed workplaces were explored in a pan-European research project entitled Sustainable Accommodation for the New Economy (SANE). Its focus was on the creation of sustainable, collaborative workplaces for knowledge workers in Europe through a location independent approach to ensure compatibility between fixed and mobile, local and remote work areas (Harrison, 2006). This research demonstrates how a distributed working strategy can assist an organisation to reconcile the following paradoxes that are created in the business context (Katsikakis, 2006:99):

- The desire to expand versus the need to minimise risk.
- The need to work remotely versus the need to work collaboratively.
- The necessity to maximise productivity versus the necessity to retain and care for the best possible talent which is one of the organisation's key resource.
- The requirement to compete versus the requirement to be sustainable.

In addition, to help in the selection and creation of appropriate workplace strategies, DEGW developed a distributed workplace model during the SANE project (See figure 2.4). This model highlights the important symbiotic relationship between physical and virtual workplaces by recognising the impact of technological developments on the work processes of most individuals and organisations (Harrison *et al*., 2004).

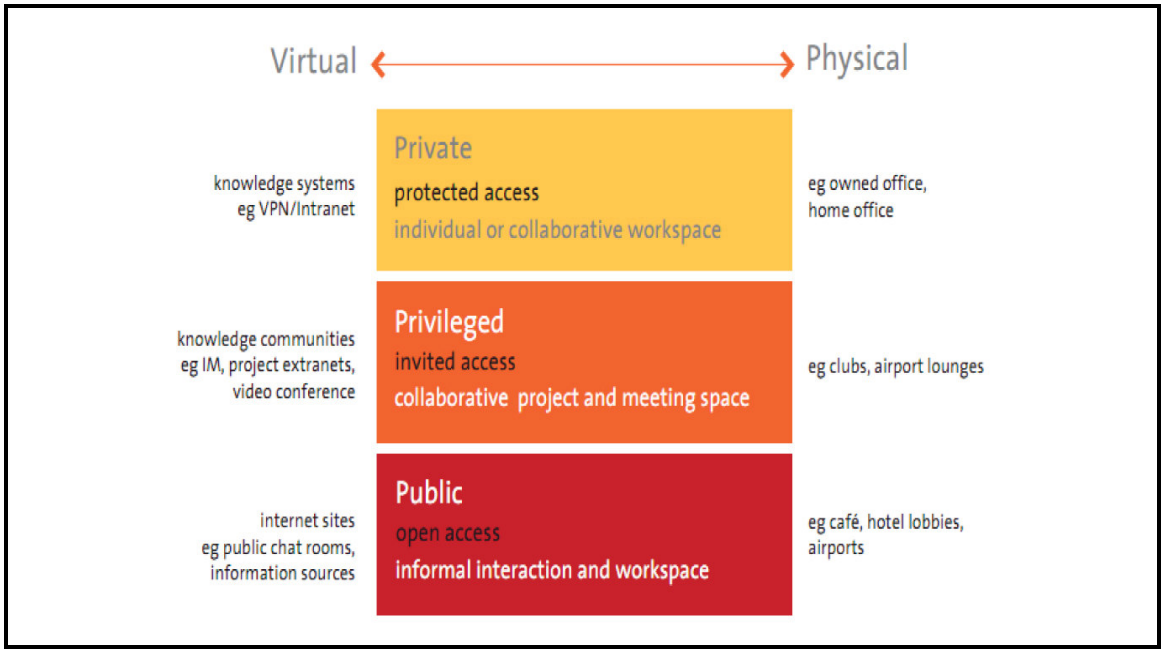


Figure 2.4 Distributed Workplace Model - *Source: Hardy et al., 2008.*

This model divides the physical workplace into three conceptual categories – private, privileged and public – all of which are based on the degree of privacy and accessibility on offer (Hardy *et al*., 2008). This model examines not only public and private space, but also the virtual workplace. The reason for this is that there is an increasing demand for the virtual work environment to support the distributed physical workplace, and harness the corporate culture and sense of community when employees work 'any time, any where' (Harrison *et al.*, 2004).

A number of issues negatively effecting the implementation of a distributed working strategy have been identified. Qvortrup (1998) argues that organisations who endorse these strategies often produce poor results on account of their focus being primarily on reducing office space, eliminating commuting and encouraging work at home, instead of understanding what the work activities and business processes are in the organisation that impacts demand for workspace. Not only that, Gillen (2006) highlights that distributed working is not a panacea for everyone as these opportunities and choices are typically only available to well educated knowledge workers living in the most developed parts of the world with access to technology and other resources. Thompson (2006) reinforces this argument by suggesting that there continues to be only a few organisations who have successfully designed their workplaces to support new ways of working, their related technologies and emerging patterns of work.

To counter this argument it has been suggested that distributed working should be context oriented which links the employee's activities to the organisational context and necessary workspace, while the concept should be considered as part of a broader transformation of organisations involving the dispersal of activities in space and time (Qvortrup 1998; Harrison *et al*., 2004). Moreover, these strategies should be founded on a top-down vision and achieved by bottom-up involvement and contribution (Thompson, 2006). Examples of successful distributed work arrangements include IBM's eMobility Program and Sun Microsystems iWork network, Deloitte's SmartSpace programme and Accenture. In addition, one of the most significant trends affecting distributed working arrangements is the rise of serviced offices (Harrison, 2006). This concept offers 'on-demand' offices with advanced IT and telecommunications services that links these remote spaces back to the parent organisation (*ibid*).

2.9 The sustainable workplace

Echoing the warnings of Hawken *et al*. (2010), the global economy seems to be exceeding the capacity of the earth to support it. Individuals and organisations are consuming renewable resources faster than they can regenerate: forests are shrinking, grasslands are deteriorating, water tables are falling, fisheries are collapsing and soils are eroding. On top of this, there is climate change, rising and moving populations, an

increasingly polarised world, perverse subsidies by governments, impending energy and water wars, failed nations, shanty cities and false accounting for the GDP measure that ignores natural capitalism (Ratcliffe, 2007:4). While an ambiguous concept (O'Brien, 2009), sustainable development has become the prevailing solution to tackle these problems in the 21st Century.

Sustainable development is a multidimensional concept that incorporates many different aspects of living from pursuing environmental protection and maintaining natural capital to achieving economic prosperity and equity for current and future generations (Kelly *et al*. 2005). One of the single most important issues related to this concept is the power of large corporations to shape the future of the planet. Both sustainability and corporate social responsibility are fast becoming mainstream business imperatives as the historic separation between competitive strategy and social awareness breaks down (Ratcliffe, 2008). Few involved in business can remain untouched or agnostic about either the ethics or economics of each.

Popular understanding focuses on environmental sustainability with greenhouse gas reduction as a key sustainability metric for developing society and business in a sustainable direction. Focusing on this aspect, however, is only part of the solution; sustainable development now includes organisational development, strategy and function (Smith, 2003). It is increasingly acknowledged that conducting business in a sustainable manner reduces risk, increases market opportunities and, more importantly, drives the global sustainability agenda (Kiewiet and Vos, 2010). By moving beyond the traditional organisational definition (Mintzberg, 1973), the sustainable organisation can be defined by employing the sustainable elements and philosophical guidelines of the ecological perspective of the sustainability concept, and applying them to the survival and success of organisations in a complex and changing environment (Smith, *ibid*).

In this way, leading companies are applying corporate citizenship to the core of their mission statement, giving sense, purpose and direction to their planned progress toward sustainability. Corporate citizenship can be built on four cornerstones (Ratcliffe, 2008:61):

- Business Conduct – how they treat associates.
- Environmental Stewardship – how they treat the world around them.
- People Practices – how they treat their employees.
- Community Involvement – how they interact with the communities around them.

Central to this commitment is how CRE is proficiently developed and properly managed, given that 60 per cent of the world's energy is used to heat, light and ventilate buildings (Sell, 2007). The potential for abuse in workplace provision, coupled with an accelerated rate of change in the ways in which people work has created an urgent need for a clear and well informed course of action – the sustainable workplace.

Gomes *et al*. (2002) state that the sustainable workplace is a broad subject, which takes into account, not only the economic consequences of operations, but also the ecological and social costs. As such, the sustainable workplace can be defined as an ecosystem that supports and integrates people, processes and place by incorporating the following sustainability principles into their integrated workplace strategy (Ratcliffe & Saurin, 2008):

- Greater social and ethical responsibility.
- Improved health and safety at work.
- Efficient and effective support for the organisation.
- Sustainable characteristics of the building design, equipment, and furnishings within the workplace.
- Maximisation of human capital by fostering mutually beneficial interactions between people, companies and the community.
- Protection of the natural environment.

This definition suggests that it is not just about the building, it is also about the users and how they work and utilise the facilities. To create a veritable sustainable workplace, service providers must move beyond the narrow focus of the supply chain approach towards a demand chain attitude that not only highlights the green profile of the building, but also the green profile of each individual. In doing this, the sustainable workplace becomes part of the wider global sustainable development agenda.

To ensure this development, Duffy (2008a:31) argues that there must be a realisation that the conventional Taylorist office building is the "perfect machine for delivering

environmental degradation", largely thanks to general over supply, large scale under use and poor FM (*ibid*). The literature indicates that there is an opportunity for facilities managers to rid themselves of this damaging reputation by taking a leadership role in developing and implementing sustainability strategies as their roles touch upon several of the most critical areas for finding competitive advantage, such as energy and water use, building design, supplier management (Juniper, 2005).

One of the most significant drivers of sustainable development is the force of changing global values. According to Inglehart (1997), value systems interact with external economic and political factors in shaping social change. One cannot understand sustainable social change without taking these value systems into account (*ibid*). Current research (O'Brien, 2009) suggests that Europe (West) is transforming towards a society that will prioritise environmental and social issues over the promotion of wealth maximisation; due in part, to its advanced society status (Inglehart & Welzel, 2005) and its transition towards a post-industrial society (WVS, 2007).

In this context, FM professionals are having to grapple with values alien to the built environment, such as human motivation, cultural change, democratic values, civic virtues, individualism, self expression, intergenerational perspectives, modernisation, natural capitalism and the like, which can be extremely difficult. But having an awareness of these values and of the broader driving forces of change – demographic, economic, environmental, societal, technological and political – is increasingly essential in attaining sustainable development and creating the sustainable workplace (Ratcliffe, 2008). Moreover, the benefits of the sustainable workplace are maximised when FM, IT and HR and operational processes are coordinated in an integrated approach (Carey & Parson, 2011); but there continues to be limited cross-functional interaction and collaboration between all actors in the development of the sustainable workplace.

Driven by diverse, but interconnected forces such as energy price hikes, government regulations, and changing occupier demands, the sustainable workplace is increasingly likely to become the prevalent future in workplace provision. But first, all those involved in workplace provision and management need to develop a mindset that views sustainability of the workplace with a longer and wider perspective to escape from "superficial and singular solutions to such issues as energy performance through box-

ticking methodologies like BREEAM and LEED" (Duffy, 2008a:4), however useful these voluntary building rating techniques may be. To fill this void, a futures framework and its associated methods can be examined as a creative and holistic approach to develop effective workplace strategies to deliver sustainability across all levels of the organisation.

2.10 Exploring the future workplace

Change, it seems, is a vital dimension underpinning the successful transition to new work styles, patterns and places. As referred to in section 1.4, research pertaining to the future development of the workplace, work and workspace highlights significant changes that the organisation will undergo over the coming decades, such as:

- An increase in distributed work that will have significant implications, not only for individuals and organisations, but also for cities, such as improved quality of life issues, increased productivity and organisational effectiveness, and more attractive urban centres to attract and retain talent.
- Office work will no longer be confined to the office, it will be everywhere. As such, the ability to organise and manage the logistics of space and time will be as important as the design of buildings.
- International competition will further compress product design to delivery cycles, from which a demand arises for facilities that go beyond the fundamentals of quality, reliability, cost and even beyond flexibility to agility - the ability to make anything, in any volume, anywhere, at any time, by anybody.

Each trend is bound together by an invisible, as well as tangible network of communication and I.T. (Duffy, 2006).

These trends are recognised by the European Foundation for the Improvement of Living and Working Conditions (2007) who anticipate a rise in occasional telecommuting which suggests the assumption that virtual communication and remote work environments will replace the need for the physical workplace is flawed (Laing, 2011). Consequently, the following paradox emerges: technology provides the freedom to work remotely, yet knowledge is best disseminated and created by social interaction within real places. The new challenge will be to reconcile this apparent opposing

paradox. To provide solutions to this challenge, the following workplace solutions are explored, such as the hybrid workplace, third places and the logistical city.

2.11 The hybrid workplace

Thanks to the exponential growth rate of ubiquitous computing, the use of wireless networks enables ICT devices and infrastructure to be seamlessly integrated into the physical environment (Poslad, 2009). Consequently, a shift towards hybrid spaces is occurring which span both physical and virtual space. A hybrid workplace "brings together physical place and cyber place" to create a space of networked places; made up of places and flows (Castells, 2001:131). This type of hybrid concept will become the prevailing spatial logic as experience is no longer confined to the spaces of places, "because human experience now has a fundamental dimension in the virtual space, as online communities and social networks have become a massive social practice that transforms the conditions under which we construct our culture and our sociability" (Castells, 2010: xxiv). The hybrid workplace is the future and will be essential for business looking to stay ahead of the curve (Huang, 2001; Laing 2011).

At a theoretical level, the concept of affordances can be applied to develop hybrid infrastructures for work. Affordances[34] are applied as a way of "focussing on the strengths and weaknesses of technologies with respect to the possibilities they offer people that might use them" (Gaver, 1991:79). In design, physical artefacts have affordances that facilitate certain actions and impede others, which help to suggest ways to improve usability of new objects through the ease of learning (*ibid*). The perspective of affordances can be applied to the workplace, and the ICT tools within it, as the accommodation that an organisation selects is a key factor facilitating or hindering human activities (Vischer, 2010). Gutwin and Greenberg (2010:1) suggest that affordances of physical workplaces enable people to "maintain awareness of others' locations, activities, and intentions relative to the task and to the space-awareness that enables them to work together more effectively". The concept of affordances, therefore, motivates the development of the hybrid workplace as they act as a unifying link

[34] Affordances are defined as the qualities of the physical world that suggest the possibilities of interaction relative to the ability of the actor to interact (The Motive Web Design Glossary, 2011).

between characteristics of space and characteristics of technology to create socio-spatial-technical spaces (Bakke and Yttri, 2003).

Today, 'clicks and mortar' operations are conceived and constructed independently (Huang, 2001), suggesting organisations are not fully reaping the synergies of physical space and IC technologies. To move beyond this situation towards hybrid workplaces that offer a virtuous circle of process effectiveness and efficiency (Hink, 2002), Huang (2001:4) identifies four key challenges facing designers and managers of convergent structures that must be overcome:

- matching form to function;
- visualising the presence of others;
- personalising spaces; and,
- choreographing connectivity.

The link between physical and virtual space will enable the global production and diffusion of routine and innovative working knowledge (Farrell and Holkner, 2005). Harrison *et al*. (2004) draw attention to a particular project that is exploring such technical dimensions of new ways of working, such as The TOWER project, undertaken by the European Commission, which explores the awareness of colleagues among dispersed team members by using avatars for visualising the presence of others. In addition, a significant benefit of the hybrid workplace is the physical setting that will provide a mix of enclosed and open work spaces that are available for users to occupy on an as-needed basis (Laing, 2011), while the building that houses these settings will be thin, with less complex infrastructure that, in turn, requires less cooling and power, from which a sustainable, networked office is created (Ross, 2010).

Despite the potential for hybrid workplaces, the FM and design literature indicates that the link between physical space and virtual space is still in its infancy today. Nevertheless, with the ongoing economic difficulties affecting funding for the improvement of public transport systems and infrastructures, and with the added expense of RE, it is now necessary to move past the assumptions that have failed organisations and develop in a new direction towards hybrid workplaces.

2.12 Third places

Based on the notion of 'third places'[35] (Oldenberg, 2001), a new type of work location for knowledge workers will increasingly develop in the future. Not intended to replace the traditional office, third places will be small multi-function facilities that can be used by people for a range of reasons and activities, and are seen as complementary additions to the corporate workplace and the home office (Grantham *et al*., 2007). This workplace development is supported by evidence which suggests that currently two-thirds of knowledge work is done outside organisational facilities and the firewall; workers spend 35 per cent in corporate facilities, 35 per cent in the home office and the remaining 30 per cent working from a variety of "third places" (Dirks *et al*., 2010). The following reasons suggest the emergence of the "third place" as a prominent feature of the future workplace landscape (Grantham *et al*., 2007: 188):

- Organisations will shift from fixed cost structures towards variable cost models to reduce capital requirements and risk, and to improve responsiveness to changing environments;
- remote and mobile workers do not have appropriate alternative meeting places, office services or technical support that are affordable and convenient;
- home-based independent workers require better technical support and services, more space and meeting rooms, all of which is not provided for in home environments; and,
- knowledge workers typically have to go to a variety of different places during the week, which gives rise to the importance of third place availability in order to seamlessly continue work outside the office.

At an abstract level, third places can be described as heterotopia. In a single real place, a heteroptopia is capable of juxtaposing several spaces that are typically contradictory and incompatible (Foucalt, 1986). In this context, Liu (2011) distinguishes third places from the home and the workplace, but at the same time argues that third places reflect the latter sites creating the contradiction required for a heterotopia. Conceptualising a third place as a heterotopia will assist decision-makers to embrace complexity and conflict in

[35] They refer to spaces that are separate from the home (first space) and the office (second place), which facilitate and foster broader, more creative interaction. Third spaces include bars, coffeehouses, bookstores and barber shops at the heart of the community's public life.

the workplace, as well as inform critical thinking and action within the space management discourse in the future.

Different models of "third places" have been outlined as 'business community centre' (Grantham *et al*., 2007; Dirk *et al*., 2010) and 'Being Spaces' (Trendwatching.com, 2006). Business community centres are described as membership based organisations, made up of mostly independent consultants, small businesses, start-ups and dependent workers who chose to work outside the corporate office from time to time; they pay only for the space and services they use, on top of a base fee. Many of the specialised business services integral to the business community centres would be provided through its own member network. "Being Spaces" are described as commercial living-room-like spaces in public space that are there to facilitate out of home and out of office activities like meeting friends and colleagues, reading a book, and writing.

Fledgling work-centred examples of these spaces are emerging across the world such as work clubs in New York called Paragraph, The village Quill, and Two Rooms, as well as Workspring in Chicago designed by Steelcase. These spaces offer screened workstation zones for individual work and communal spaces for social interaction. A new breed of marketing-led public spaces, complete with wireless internet connectivity are materialising across cities which suggests the workplace is weaving itself into the fabric of the city landscape.

2.13 The city workplace

At the office level, urban typologies will increasingly dominate internal workplace settings in the future, which are driven by changing working hours, inner city rental costs that push organisations to the edge of cities, transport challenges and the need to attract and retain talent (Gillen, 2006). Based on a neighbourhood design concept derived from city planning theory (Zhu, 1997), such a workplace is characterised by 'streetscapes' that not only link spaces and people, but also reflect street life in the vicinity of the building through the provision of collective services, such as restaurants, shops, and dry cleaners. Today, there are three different type of urban typologies used in workplace settings, namely 'Street Cafes', 'Town Squares' and Neighbourhoods', but

they are generally examples of "unimaginative borrowing from urban typologies than genuine successes" (Gillen, *ibid*: 66). While this design approach can reinforce the organisational values and culture to the employees and customers, it can also draw too much activity away from the work floors. Nevertheless, this workplace concept is a response to changing demands in the organisation for a more meaningful workplace, but since there is very little literature in this area, it appears this concept is still in its infancy.

In the future, the natural extension of the previous approach will be to integrate a wider range of external spaces into the commercial workplace. The future organisation will move beyond the physical structure of the workplace towards large organisational networks across cities, regions and the world, and the city will become the 24hour office setting (Harrison *et al*., 2004). In this context, the boundaries between living, working and moving will become blurred giving rise to a new type of lifestyle known as "matrix living": a term coined by DEGW, it describes "individual lifestyles that include multiple tasks and multiple locations across time (Harrison, 2002:251). As such, the following characteristics will constitute the future city workplace (Leaman, 2006:20):

- Time will replace space in location decision-making.
- Critical business and organisational functions will be housed in highly serviced, secure locations with an emphasis on teleworking and outsourcing.
- Polycentric central business districts (CBD) will replace the mono-centric CBD model prevalent in many cities today.
- Integrated urban transport systems will emerge that will reduce waste, particularly when transportation is one of the most damaging pollutants.
- Congestion will decline as journeys to work become less predictable.
- Home working and work-related third places will prove to be increasingly popular.
- Greater emphasis will be placed on re-use and multiple of existing RE in the city.
- Flexible time management will become a key characteristic in an employees daily work routine thanks to ICT development.

To create workplaces around this concept, the employment of a 'workscape' framework is required (Harrison *et al*., 2004: Gillen, 2006), which includes both real and virtual work settings as well as the places in which individuals will work, such as the work arena and the work environment (see figure 2.5). Each level is co-dependent on the other: for instance, work settings cannot be decided without consideration of its surrounding work arena and environment context. This framework emphasises the distributed nature of working, highlighting how individuals will spend more time communicating and travelling both within and beyond the physical structure of the workplace. The demand-led approach of workscapes, however, will only emerge through effective RE strategy implementation.

Work Setting Element	**Work Setting**	**Work Arena**	**Work Environment**
Desk Table Chair Filing Cabinet Plant Power Wall Partition Telephone Computer Network Connection	*Physical* L-shaped desk & Chair Small Table for 3-4 Large Table for 6-8 Sofa Quiet Booth Seat *Virtual* Video Conference Instant Messaging Shared Visualisation Chat Room e-Whiteboard e-Mail Avatar Text Message Voicemail	Team Work Business Lounge Club Café Picnic Area Meeting Room Meeting Area Individual Office	Organisation Office Serviced Office Business Centre Airport Railway Station Street/City Park Transportation Home

Figure 2.5 The Workscape - *Source: Harrison et al (2004:57)*

Gillen (2006:72) proposes a conceptual framework to describe future building typologies to support this trend (see figure 2.6). Within this conceptual framework, each quadrant is positioned according to the impact of two key driving forces of change: length of lease and expression.

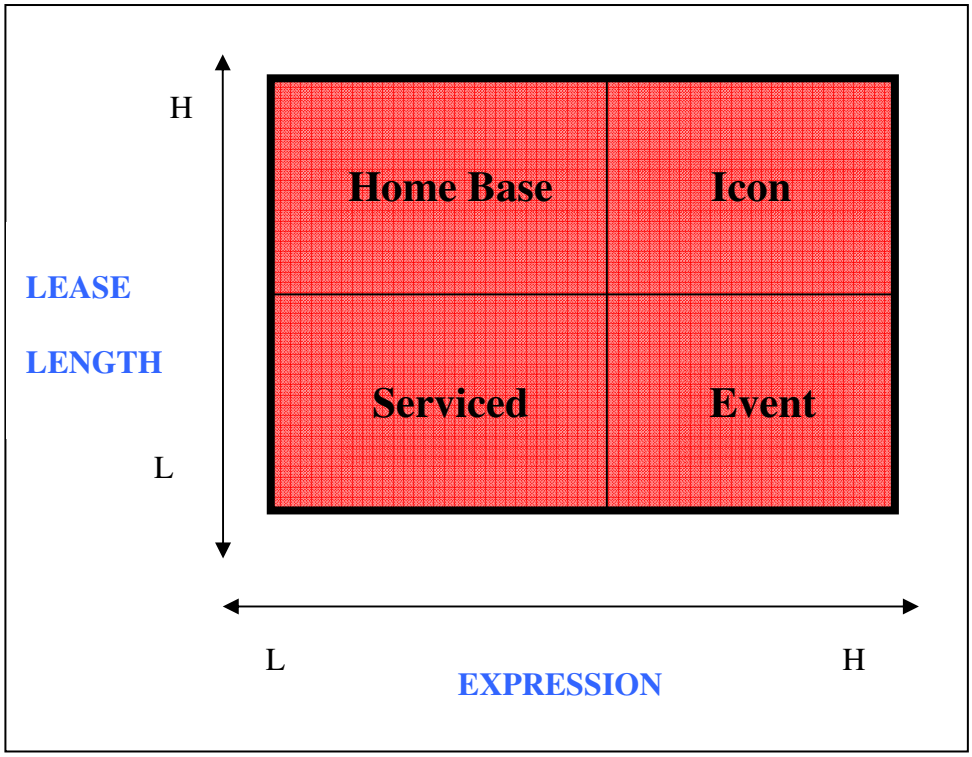


Figure 2.6 Occupancy expression - *Source: Gillen (2006:73).*

The diversification of workplaces, attributed to the changing nature of work-styles and temporal and ephemeral knowledge work, correlates to increased intensification of space (Leaman, 2006). As such, lease lengths will change and become increasingly flexible over time. Expression is concerned with symbolism of a building, and will effect location, occupancy, duration of occupancy and design. This factor is increasingly important for businesses as links with colleagues become more virtual and less intermittent (Gillen, *ibid*). This conceptual model demonstrates the complex and changing context in which facilities and corporate RE managers operate, and at the same time it highlights the importance of allocating diverse building typologies based on function and work patterns.

Despite the potential benefits of the workplace and building typology models to develop the city workplace, such as greater responsiveness to change, risk reduction and environmental improvements, Leaman (*ibid*) argues that current complex, high technology, energy intensive solutions are merely displacing risk from developers to society at large in the form of pollution, noise and waste. To overcome this, he suggests

the importance of risk and value trade offs, through the application of continuous feedback in order to anticipate and manage future workplace change effectively. One such way of achieving this is through a more imaginative, innovative, yet systematic approach towards the study of the future (Saurin *et al*., 2008; Saurin & Ratcliffe, 2011).

2.14 Summation

This review of literature reveals the following insights.

1. The workplace is much more than simply just a physical setting. It encompasses separate yet inter-related contexts of the work environment to include people, processes and place.
2. At an abstract level, qualitative research and the collection of subjective data, through strategic conversations and scenario planning, is required to gain a greater understanding of the multiple socially constructed realities of the workplace.
3. Evidence suggests that the workplace has changed, is changing and is likely to change in the future. The changing nature of the workplace is driven by not only external driving forces of change, such as economic, demographic, environmental, societal and technological forces, but also internal organisational trends as well as real estate industry change.
4. The combination and inter-relationship of these trends, issues and factors also adds a layer of complexity to the understanding of how they influence decisions relating to workplace provision.
5. While none of the workplaces of the past have replaced each other, the networked office appears to be the most effective concept for the organisation in the current changing and complex environment. Other emerging space concepts that could be included in the networked office include collaborative spaces, distributed and sustainable workplace. In addition, the literature points towards signals that suggest the office will exist in the future, but it will be very different from that of today. The city and virtual environments will become the norm.

Despite the potential of current and future workplace developments to enhance key organisational outcomes such as productivity, satisfaction, safety and long-term

effectiveness, the recurring theme throughout the literature is that most employees occupy their own static desk, which renders it increasingly difficult to employ these innovative options. If evidence suggests the workplace can add value to the organisation in an increasingly competitive environment, then why is this happening? Chapter three reviews the limitations of existing workplace strategy and planning approaches to deal effectively with change and complexity, and proposes a fresh way of thinking about the workplace. It is argued that a more imaginative, innovative, yet systematic approach towards the study of the future is required of those involved in the provision of work environments to bring about the necessary workplace change.

3. Futures Thinking: An Innovative Approach to Enhance Workplace Strategy Development

Chapter two highlights the changing and complex nature of the workplace. In this chapter, the analysis of the workplace continues, but from a different perspective. It examines how those involved in workplace provision prepare for and anticipate change in workplace strategy development. In addition, the general concepts of futures studies are introduced with the intention of linking their potential benefits to workplace planning. Therefore, the objectives of this chapter are fourfold:

- To explore the role of management in workplace provision, both senior management and facilities management.
- To examine the conventional commercial RE strategies and evaluation techniques employed to deal with uncertainty.
- To critically assess the current literature within the futures field.
- To discuss the conceptual and practical implications of employing futures studies techniques in workplace strategy and policy development.

In essence, this chapter highlights the limitations in existing workplace decision-making, and provides a robust argument for futures studies as workplace managers struggle to define and manage opportunities in a rapidly changing world.

Part 1: The examination of workplace strategy development

3.1 Current status of the organisational workplace

Despite the development of a body of literature pertaining to the importance of the physical environment of the workplace within the context of the modern organisation (Becker, 1990; Becker and Steele, 1995; Duffy, 1997, 2000; Haynes and Price, 2004; Vischer, 2010), the message of early workplace pioneers has been largely lost. To date, the relationship between the physical and social environments in the workplace has remained relatively undeveloped, and is not part of mainstream management studies (O'Mara, 1999; Cairns, 2003) (See appendix one for an examination of the three influences that perpetuate this issue). This has led to a diminished understanding of the impact of workplace decisions in managerial practices.

3.2 The contemporary organisation-accommodation relationship

As referred to in chapter two, the physical setting of an organisation should play functional and symbolic roles: a logistical tool to support the tasks of the organisation and visual and symbolic representations of the organisation's culture and values (O'Mara, 1999). Yet, it is well documented that operational property is not viewed by management as a strategic resource. This is largely due to the prevalent Taylorist management paradigm which views the workplace as something to be managed for minimum cost rather than optimum value (Price and Akhlaghi, 1999; Myerson, 2009). Even outside the main facilities literature, the physical workplace is considered "the most important, yet least appreciated, tool of contemporary knowledge management (Ward & Holtham, 2000a).

Due to widely publicised failures[36] of workplace concepts, Shriefer (2005:228) identifies seven myths of workplace strategy that leave executives wary of employing alternative workplace strategy approaches:

1. It is going to cost a lot.
2. We will have to start from scratch.
3. Hotelling[37].
4. More employees will be packed into less space.
5. Employees will be forced to work differently.
6. There will be less face-to-face interaction.
7. The corporate office will become extinct.

It is acknowledged that companies who use property as an integral part of their core business activities are more likely to support their competitive position in their market (Singer *et al.,* 2007). The literature indicates that worker effectiveness can be improved

[36]One such example is Chiat Day's reversion to traditional executives offices following the failure of its virtual office and work-from-anywhere workplace concept (Berger, 1999).
[37] It is a method of providing space to staff who spend most of the time away from their office. It is provided on an as needed rather than assigned basis. It can apply to whole offices or designated portions of them.

anywhere from five to 50 per cent with good quality workspaces, strong workgroup relationships and the right environmental stimuli (Becker, 2002; Vischer, 2005). Yet, there is still little recognition of the business value of space in organisations, and thus the organisation-accommodation relationship remains relatively fragmented and unbalanced (Vischer, 2010). This is a result of corporate decision-makers and practitioners retaining a deep-rooted belief that the physical work environment is a neutral factor in improving productivity (Smith, 2003: 15).

Research results pertaining to the effects of innovative workplace concepts on organisational productivity are ambiguous. Based on investigations into the costs and benefits of workplace innovation, van der Voordt (2004:135) concludes that not only are the findings contradictory and the "hard" data about the effects incomplete; there is also an unclear framework of concepts and a lack of clear, unambiguous methods to put them into operation. This is further emphasised by Haynes (2008) who argues that there is a much needed requirement to link together office layout to the work patterns of office occupiers. Without this link, it can be argued that it is increasingly difficult to bridge the gap between theory and practice, and, thus, decrease the likelihood of executives treating the workplace as a strategic resource to improve organisational performance at lower costs (van der Voordt, *ibid*).

The barriers for the wider proliferation of alternative AO strategies are generally organisational, such as (Ouye *et al.,* 2010:4): organisational culture; management concerns; resistance/fear of change; and, executive buy-in/endorsement. Nathan and Doyle (2004) identify three issues which emerge as a result of this fragmented organisation-accommodation relationship:

1) There is often a mismatch between the types of workspace employees need, and what employers provide.
2) Innovative ways of organising space does not always work in practice.
3) The message of good workplace design and management has not been acknowledged by employers, and more importantly, employed by employees.

There are signs of change. A recent survey undertaken by CoreNet Global and Deloitte concluded that 63 per cent of the respondents confirm their real estate and facilities function is now fully aligned with broader corporate strategic priorities (Acoba *et al.,* 2010). It is argued further that the transition is not complete. This can be attributed to three inter-related organisational decision-making perspectives, which limit the view of the organisation towards the workplace and make it increasingly difficult for FMs to deal effectively with uncertainty of change and complexity in workplace planning: cost perspective, advocated by the majority of organisations; the short-term perspective, which addresses how upper level managers view property issues; and, the expert systems approach to the decision making in the design and management of the physical workplace environment. The following three sections should offer insight into the lack of integration between the organisation and its space, and pave the way towards indentifying a new approach for workplace development.

3.2.1 Cost: the traditional view of the workplace

The prevalent business perspective towards the workplace and its related space is considered a cost to the organisation, which is embedded in the rational-instrumental[38] approach and presumes that the highest value output is sought at the lowest investment cost (O'Mara, 1999). To most organisations, and endorsed by the RE industry (Vischer, 2010), the traditional view of the workplace as a cost considers RE in terms of property acquisition and divestment (Kampschoer & Heerwagen, 2005), rather than space that incorporates a "bundle of services" that enables organisational agility which supports business goals (Bell & Joroff, 2001:11). As such, corporate decision-makers seek proof that there is a payoff from investing in high quality workspace before they look into an alternative to the least cost options (Vischer, 2010:3).Contrary to this, Duffy (1997) states that occupancy costs are a relatively small proportion[39] of the overall costs of employing someone, and maximising space efficiency through cost reduction may create working conditions that are counterproductive to the organisation, which could result in a loss of productivity, illness, and dissatisfaction (Appel-Muelenbroek, 2011).

[38]Defined as "decisions that are made in an economical rational way in order to increase efficiency (O'Mara, 1999).

[39] It is generally around ten per cent and includes rents, taxes and service charge, maintenance and maintenance staff, utilities, and security, while 90 per cent of costs employing staff includes all costs excluding facilities (Duffy, 1997).

Given the current global economic recession, corporate decision-makers must drive a low cost culture, in the short term at least, to ensure the bottom line of the organisation. Levin (2005) argues that this cost focus is a short-term fix that only solves immediate problems; while at the same time can cause problems in the longer term. Within the cost reduction paradigm, common workspace features have emerged, such as standardisation of workstations and furniture, a smaller "footprint", increased density, insufficient privacy, and an approach to construction projects that does not address the human aspect of the workplace (Vischer, 2010). Cost control can stifle operational effectiveness and employee creativity, especially in the knowledge era, and inhibit adaptation to changing requirements. By excluding human capital in workplace decisions, it conflicts with the planning definition of the built environment, which is about adapting the physical and spatial surroundings for human purposes (Hillier, 2008).

With calls for organisations to take a more holistic view of their workplace[40] (Herman Miller, 2002), the traditional, narrow, one-dimensional workplace cost focus of the organisation is making this move increasingly difficult. In part this may be due to the general failure of management to integrate property issues on a broader scale (Pitt and Hink, 2001). However, Ouye and Serino (2004) suggest that the prevalent cost reduction perspective is slowly being replaced by more diverse and organisation-related goals, signifying an improved alignment between the accommodation objectives and the long-term goals of the organisation.

3.2.2 Short-term decision making perspective

The physical assets in a workplace portfolio are, by nature, long-lasting and static, so any decisions made about the physical aspect of the workplace environment are likely to have far reaching consequences (Dewulf *et al*., 2003). The management of the workplace implies that both the short- and long-term consequences of change should be taken into account. As referred to in section 1.3, senior executives typically take a short-term view of property issues; demonstrated in times of economic recession where the maintenance and property budgets are cut. Barrett and Baldry (2003) argue that small

[40] This holistic view refers to people, production, processes and place.

savings in the short term may lead to greater expenditure in the long-term. As a result of this, organisations are finding themselves with a physical workplace that does not meet their current business requirements, let alone their future needs (Gibson, 2000).

Decision-makers do not plan too far into the future owing to the increasing pace of change in organisations. As organisations react to shorter product and business cycles, mergers and acquisitions, globalisation and corporate restructuring, they have difficulty in projecting more than one year ahead and certainly not more than three in the context of office space demand (Gibson, 2000). It is for this reason that organisations cling to the habitual short-term horizon, with little or no thought for the longer-term implications of workplace shifts underway. Property issues, however, should not be viewed within this short-term organisational decision-making framework because organisations continue to view the physical workplace as a liability, especially when the "physical assets cannot be reconfigured to meet changing business needs as quickly as organisational processes and structures may be modified" (Harrison *et al.,* 2004: 7). Instead, facilities managers should create workplace strategies that add value to the organisation by understanding future risks over a long-term decision-making framework.

3.2.3 Expert systems approach to workplace decision making

Typically, senior managers employ an "expert systems" approach (Cairns and Beech, 1999) or a "technical-hierarchical" approach (Dewulf & van Meel, 2003) to workplace design and management decision-making, in which solutions to workplace issues are developed by experts or external consultants, commissioned by internal managers, and passively implemented by internal users of the workplace (see figure 3.1) (Cairns & Beech, 1999). Missing from this approach is the inclusion of users in the decision making process. The users are mainly "informants" that communicate data and information to the expert or senior management. It is a widely used approach in workplace provision, and the underlying assumption is that architects, planners and managers know what is best for the organisation (Dewulf & van Meel, *ibid*).

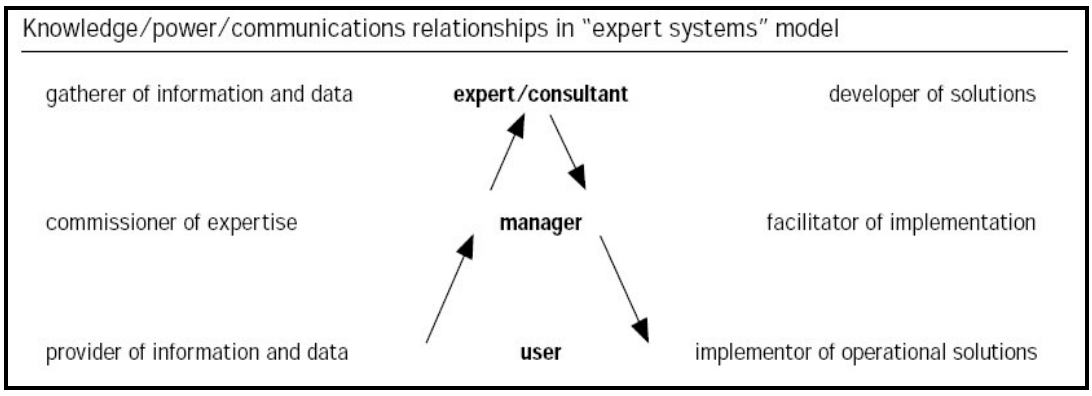


Figure 3.1: Expert Systems Model - *Source: Cairns and Beech, 1999: 15.*

As a result of this, there is often resistance to change. Management argue they can not please everyone, and exert legitimate and expert power to remove users from the decision-making process (Cairns & Beech, 1999). It seems that designing work environments which reflect user preferences is a challenge that has so far not been widely adopted (Oseland, 2009). This statement is reinforced by fragmented research focusing on users' needs, preferences, requirements and user satisfaction (Rothe *et al.,* 2011)[41]. Such a position not only strengthens the epistemological divide between management and design activities (Leaman 1992), it highlights also the lack of communication and knowledge exchange between workplace stakeholders[42], a factor critical to the successful implementation of property initiatives (Laframboise *et al.,* 2002). This reinforces the silo effect in organisations. Duffy (2008b) attributes this to a supply chain in space design and management that is uni-directional and feedback free from which the Taylorist office is ultimately created. This must be challenged and replaced with an approach that can foster a culture of collaboration amongst stakeholders if they are to create sustainable and intelligent workplaces in the future.

3.3 Organisation-accommodation strategies

An organisation's commitment to space and facilities provision is long lasting, typically for a minimum of five years and often longer (O'Mara, 1999), and decisions made today have far-reaching consequences. However, unpredictable and rapid change is

[41] This may be changing through the development of a new approach called process architecture, where the designer engages with the culture and unwritten rules of the organisation (Haynes and Price, 2004).
[42] Workplace users, facilities managers, architects, corporate decision-makers, HR and IT

making future requirements uncertain, and ultimately workplace decisions are made without understanding future risks and demand (Dewulf *et al*., 2003). In essence, the core issue for workplace providers is assessing the future in workplace strategy development. An empirical study by O'Mara (*ibid*), that explores how RE strategies can support the global competitiveness of business under different operational climates (O'Mara, 1999), echoes this issue. Having identified strategic uncertainty as a major influence on RE and FM decisions, O'Mara (*ibid*) distinguished three generic, but distinct RE approaches that organisations employ to deal with it:

1. Incrementalism – Using a rational-instrumental perspective, organisations employ an incremental strategy which emphasises a gradual approach to the use and procurement of space as required in the short-term. Adopted in a highly uncertain strategic environment, long-term commitments to facilities or workspace improvements are avoided as much as possible.
2. Standardisation – Another rational-instrumental approach, standardisation is characterised by a control and cost-centred perspective. Standards are applied across the design of facilities, space layout, furniture systems and CRE operations, such as space allocation. Standardised strategies are employed in relatively certain and stable strategic environments, and consequently long-range planning is possible based upon predictions about their future facility requirements.
3. Value-based strategy – This strategy uses CRE and the workplace as an expression of its culture, values and strategic goals to influence the behaviour of employees and customers through the layout, quality and type of workspace. Corporate image is enhanced through the workplace's communicative power. It is the only strategy that can encourage dialogue about the future direction of the company and the organisation symbolises these future goals in the way they design, allocate and occupy their business facilities.

From an analysis of these strategies, the long-term vision which the value-based strategy requires provides a framework to deal with future change in workplace provision. The literature indicates, however, that this strategy is not widely employed in organisations (Duffy, 2000; 2008a; Haynes and Price, 2004).

The standardisation approach is the workplace solution that is the most commonly applied in organisations (Vischer, 2010; Beltran, 2011). One reason for this is that the standardisation strategy supports all three of Porter's (1996) competitive strategies – low cost[43], differentiation[44] and focus[45], and suggests that it can provide sustainable competitive advantage to the organisation (Singer *et al.,* 2007). Under this strategy, however, the workplace cannot be actively sustained to stay effective for the organisation in the long-term as it is based on predicting future demand through linear forecasting in a stable environment. Broad and discontinuous changes in global markets, technology and society mean that there are fewer predictable industries, thus rendering forecasting futile. In the end, employees find themselves in unsuitable environments of work which is likely to impact on key organisational outcomes such as productivity, motivation, satisfaction and safety (Herman Miller, 2002).

The incremental RE strategy is also an ineffective tool to identify long-term consequences of change and complexity in the workplace. This strategy is reactive in that the organisation makes changes to its workplace not to embrace new ideas and processes but to solve problems of numbers by decreasing or increasing space (O'Mara, 1999; Vischer, 2010). It leads to a range of different kinds of properties in the portfolio which can reduce both the flexibility and effectiveness of the workplace over the long term (Haynes Nunningham, 2012). Reinforcing the limitations of this strategy, Singer *et al.* (2007) found that this strategy does not complement any of Porter's competitive strategies, indicating that it cannot assist organisation in sustaining competitive advantage.

The value-based strategy only supports a competitive strategy of differentiation and differentiation focus, and not one of low-cost. Clearly it has the potential to emphasise human resources and the marketing aspect of the organisation (Haynes & Nunningham, 2012, but it is very costly to implement (Singer *et al.,* 2007), and therefore a significant deterrent in organisational adoption. It could be argued that while the standardisation and incremental RE strategies are employed to meet current business requirements, in a

[43] The organisation achieves the lowest cost product or service in the market
[44] The organisation has a unique product in the market that achieves a high cost valuation
[45] The organisation targets a distinct niche market segment, and can be low cost focus or differentiation focus.

time of growing uncertainty of change they will be unable to meet future requirements, and result in being more costly to change in the future than it would have been to employ a value-based strategy in the first place.

3.4 Implications for facilities management

At an abstract level, Price and Akhlaghi (1999) describe how FM is leaning more towards the "living or learning systems" paradigm, which is able to generate lower costs and added value to the organisation owing to successful FM innovation. Table 3.1 highlights the different aspects of FM operations under both the mechanistic paradigm and learning paradigm. Current facilities literature, however, indicates that the learning paradigm has failed to be adopted widely across the RE and FM function (Cairns, 2003; Haynes & Price, 2004; Waheed & Fernie, 2009; Vischer, 2010), which suggests there has been innovation but limited dissemination. Nevertheless, it can argued that the discipline is still evolving (Goyal & Pitt, 2007), and has the potential to adapt to the learning management paradigm as changes, to the business[46], work practices[47] and workspace[48], accelerate and point towards the need for a more strategic perspective on corporate real estate and facilities (O'Mara, 1999; Then, 2003).

[46] operational changes, expansion or contraction of the business and its constituent parts
[47] the adoption of new work methods and processes, the introduction of technology to automate and preclude manual activities, and the changing expectations of people in business
[48] the process of reconfiguring new or existing workspace, relocation to new premises, and changes to the way workspace is relocated.

Topic	Mechanistic Paradigm	Learning Paradigm
Basic stance towards FM	FM is a cost centre, from which top management have to cut expenditure	FM and the organisation's serviced environment are seen as an integral part of the strategy of the organisation
Organisation	Organisations tend to be highly functional with a centralised manager responsible for staff in many locations	FM personnel are integrated into multifunctional teams with a shared emphasis on the external customer
Choice of FM Provision	Made by rigorous reliance on formal procurement and compulsory competitive tendering	Emphasis placed in the first instance on relationship with "open-book" negotiation of a provision contract
Focus of improvement initiatives	Internal costs and systems	External relationships with both suppliers and users
Customer-provider relationship	Tendency to assume that if it is not formally specified it will be done	Providers more concerned with receivers /customers. What can be done, will be done.
Attitude to staff, especially the lower paid	Top down definition of jobs and standards. Systems such as time recording are there to control	Encouragement of highest standards possible with available resources. Systems seen as there to generate information which helps
Multi skilling	Either not attempted, or imposed with the clear objectives of reducing costs by up-skilling lower paid to do more	Treated as a development exercise to enhance self-esteem and motivation
Service level agreements and contracts	Lengthy and detailed with an emphasis on costs. Operate in practice as the "best you will get without paying more"	Focus on outputs. Operate in practice as "the minimum you can expect from a given resource level"
Space design	Focuses on density of occupation and utilisation	Focuses on optimising output and internal communication

Table 3.1. Critical aspects of FM operations from mechanistic and learning paradigm.
Source: Price and Akhlaghi, 1999

Strategic FM is defined as a strategic fit between core business needs and the provision of FM (Barrett & Baldry, 2003). Based on work by Becker (1990), Barett and Baldry (*ibid:*69) distinguish four possible relationships between FM and corporate strategic planning:

1) the administrative linkage in which FM remains passive in that it provides the day-to-day operating support of the organisation, and is not involved in the planning process;

2) the one-way linkage constitutes a reactive FM function to corporate strategic initiatives;

3) the two-way linkage is characterised by a proactive, reciprocal and interdependent relationship between FM and the corporate strategic planning process; and,

4) the integrative relationship constitutes a dynamic ongoing dialogue, both formal and informal, between the FM and corporate planners.

While the first two are not suitable for the strategic FM function, the latter two relationships demonstrate the potential proactive role of FM and corporate planners; they highlight the responsibility of the FM function to communicate data, trends and issues to the corporate planner and vice versa. This proactive service orientation, however, is contrary to reality. Despite the calls in literature to link RE and facilities decisions to corporate strategy, and proactively manage functional workspace as a business resource (Then, 1999; 2003), a significant chasm of understanding exists between the organisation and the RE/FM function (Barrett & Baldry, *ibid;* Jensen, 2011). Figure 3.2 illustrates a conceptual representation of the current practice of RE/FM in many organisations.

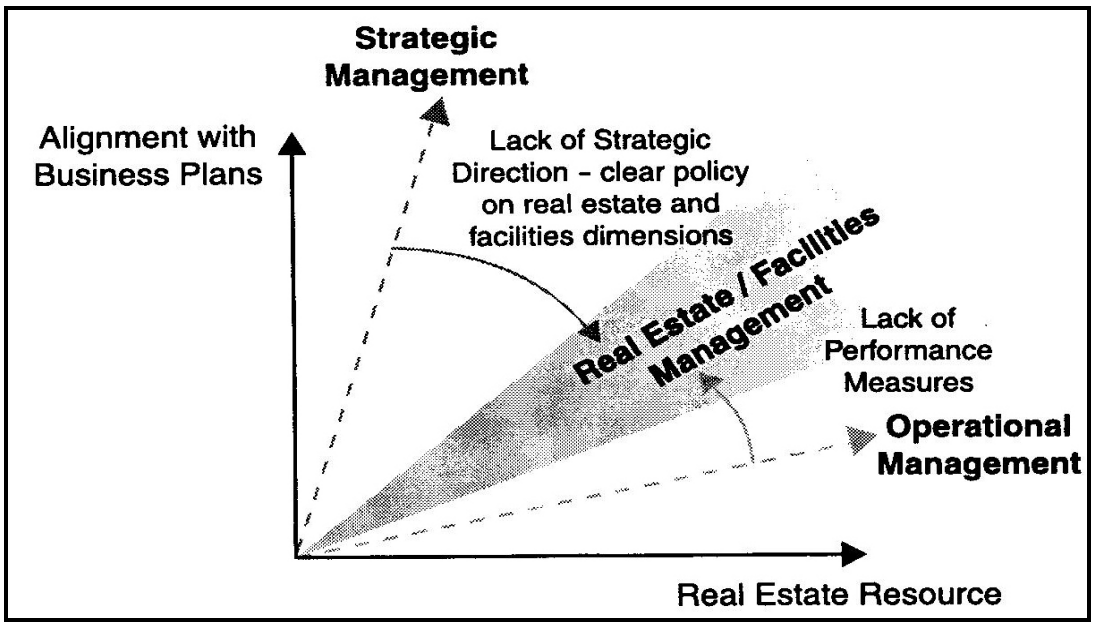


Figure 3.2: Conceptual representations of current practice - *Source: Then, 2003:72*

Facility management is reduced to building operations, office services and maintenance (Lord *et al.,* 2002). This is reinforced further by a survey that highlights the Swiss public's perception of the FM industry as having a below-average social status and fairly low earning potential which can have a detrimental impact on the industry as reputations are difficult to change (Coenen *et al*., 2010). Cementing the difficulties in realising a strategic practice orientation is the case set out by Kaya *et al* (2004), where a chief executive officer (CEO) saw "the fingerprints on power plugs and stains on carpets as the failure of facilities management practice" (*ibid*: 66). Adding to this challenge, the discipline of FM is still viewed with mistrust and misunderstanding by the organisation as it is a relatively new industry (Barrett & Baldry, 2003; Waheed & Fernie, 2009). All of these factors thus render strategic FM increasingly difficult to achieve.

Waheed and Fernie (2009) propose a new-knowledge based, core-competency understanding of FM, which deems an organisation-wide knowledge base more important than its mere functional-knowledge base. By viewing FM as a core-competency and not as a support function, FM will emerge as a strategic function, and theory and practice should relate to (*ibid*):

- emergent work patterns and the resultant use of space and services;

- performance standards for the quality of workspace corresponding to organisational constraints;
- models to forecast space requirements and timely and sufficient service provision; and,
- models for location decisions and theory development for workplace requirements according to user type.

In doing so, the issue of functional silos between the HR, IT and RE departments can be remedied, and value-based workplace strategies can be developed based on the holistic integration of new combinations of work practices, technology and space requirements (Ouye *et al.,* 2010).

A change of mindset is so often the necessary step towards effecting significant progress (Saurin *et al.,* 2008; Saurin and Ratcliffe, 2011). Joroff (2002: 266) suggests that this mind shift should:

> "challenge established values and assumptions about where value gets created as well as where people work. The mind shift should, in turn, lead workplace professionals to rethink their approaches to workplace design, and stimulate new organisational patterns for creating, justifying and continuously improving workplaces and enterprise-wide workplace portfolios".

In developing this mindset, Ratcliffe (2011:98) has identified five cognitive abilities that the FM must develop to deal effectively with what is expected in the future, as well as what cannot be anticipated:

1. A conceptual awareness of the built environment as a complex adaptive system central to the sustainable future of humankind.
2. The technical mastery of at least one specialist discipline within the process of workplace planning, development and management.
3. A synthesising capability, integrating ideas from other disciplines into a coherent whole to solve problems concerning the stewardship of land and property assets.

4. A creative facility, with an aptitude for uncovering and clarifying new issues, problems and events.

5. A respectful disposition, having an appreciation for differences among human beings, and responsibility as a professional and as a citizen.

Armed with these well-honed capabilities, the FM cannot use leadership anymore as a rationale or excuse for not confronting or accepting higher levels of personal responsibility (Ratcliffe, 2009); rather they can actively seek out strategic insight and create a workplace that is in line with what the organisation must do to compete and succeed in its marketplace (O'Mara, 1999). Without this transformational mindset, Ratcliffe (*ibid*) argues that the FM industry will be ultimately incapable of creating effective workplace strategies for the organisation in the long-term.

3.5 Workplace evaluation: from efficiency to effectiveness.

The provision of information for decision making is a key component of a workplace strategy, to which workplace evaluation techniques are crucial. According to Harrison *et al*. (2005), workplace evaluation is significant in that the output from these methods reflects current concerns and ways of thinking about the workplace among organisations, employees and wider society, and provides insight into the changing views of what constitutes the workplace. While this is an important part of the workplace strategy development process, the traditional evaluation methods are limited in their ability to anticipate and manage future change (Saurin and Ratcliffe, 2011).

There are two perspectives in which the workplace can be evaluated: efficiency and effectiveness. Traditionally, workplace performance measures are based on measuring efficiency (Duffy, 2000; Haynes & Nunningham, 2012). In facilities management, efficiency equates to operating a facility at the lowest possible cost and is defined in the short-term (Smith, 2003b). Measures to evaluate workplace efficiency include (Harrison *et al.,* 2004: 32):

- comparative space standards/ density measures (space per staff member);
- time utilisation surveys;

- bench-marking practices to establish norms; and,
- various measures of property cost, such as cost per person, cost per seat, cost of churn and area per person.

These evaluation techniques are retrospective in nature in that their output is based on what already exists in the organisation, and result in reproducing workplace concepts that are known and familiar (Vischer, 2010). All too often, these workplace concepts retain neo-taylorist overtones under the guise of updated imagery and design iconography (Levins, 2005). In addition, they are quantitative in nature and as mentioned in section 1.3 often overlook many deeper questions, especially about the future. As a result, these measures fail to anticipate emerging user demands, a task for which the FM is responsible (Duffy, 2000; Smith, 2003b), as they mask the need to focus on some broader measure of optimizing people, process and function over the life of the building (Smith *ibid*).

Haynes and Nunningham (2012) argue that if facilities professionals want to reposition themselves to become a core-competency, as referred to in section 3.4, they need to consider measuring workplace performance in the organisational context. This means going beyond workplace evaluation based on efficiency, and employing measures based on effectiveness which demonstrates how the workplace supports the corporate strategy. Duffy (1997) describes effectiveness, in this context, as a focus on:

- increasing value;
- using space to its fullest potential;
- having the right range of work settings to match the different types of work carried out; and,
- making the most of people.

As the measurement of effectiveness implies the measurement of intangibles[49], a different set of evaluation tools are required. The measures that are used to investigate workplace effectiveness include: Orbit 2.1 (Laing *et al., 1998);* post-occupancy evaluation (Vischer, 2008b); Building Rating Method, building appraisal, plan analysis (Harrison *et al.,* 2004); and, The Balanced Scorecard framework (Meng & Minougue, 2011). As rapid change and complexity ensues both inside and outside the organisation

[49] Productivity, costs, risk, value, flexibility, culture, PR and marketing (De Jonge, 1996)

(sees section 2.6.2), however, it becomes clear that these tools, while important, become limited in their ability to evaluate workplace effectiveness in this context for the following reasons (Harrison *et al.,* 2004):

- Focus restricted to what goes on inside the building.
- Communication not yet sufficiently recognised.
- Insufficient account taken of knowledge work and creativity.
- Revolutionary impact of electronic communication not taken into account.
- Failure to recognise the importance of organisational culture.
- Failure to take into account the work/life balance.
- Does not take into account the wider context of society and the physical environment.
- Does not match the dynamic of the new economy.

As such, much of the debate in workplace provision is still framed in terms of open-plan versus closed office (Haynes and Price, 2004). To address this, and develop sustainable accommodation for the organisation in the future, it is recommended that workplace research should adopt: an open socio-technical systems approach[50] (Duffy, *ibid*), which enables multiple factors to be studied simultaneously, taking into account the entire context including business performance (Harrison *et al,* 2004); a complex adaptive systems approach[51] (Haynes and Price, 2004), which may explain how workplaces enable or retard innovation (*ibid*); and/or, a futures thinking approach (Saurin *et al.,* 2008; Saurin & Ratcliffe, 2011), that not only enables the FM to anticipate and prepare for future user requirements through techniques such as corporate foresight, strategic visioning, scenario planning and the like, but also encourages them to think more rather than less about the long-term goals that are implicit in the effective workplace.

[50] It is an approach to complex organisational work design that recognises the interaction between people and technology in the workplace.
[51] As referred to in section 1.3.

3.6 Linking futures research to workplace strategy development

Having assessed how current workplace planning and strategy approaches deal with the uncertainty of rapid change and growing complexity in the work environment, it is clear that there is a need for FMs to rethink how they manage the long-term stewardship of the workplace. In this context, the potential for futures to play an important role in assisting them to anticipate and prepare for future change is enormous. Recent research (Saurin *et al.,* 2008; Saurin & Ratcliffe, 2011) shows the benefits of using futures thinking in workplace strategy development:

- *Communication:* the process acts as a catalyst for initiating dialogue and debate about the future. It can promote communication between the IT, FM and HR departments. Also, it fosters active participation in strategic thinking which leads to strategic decision-making.
- *Collaboration of Stakeholders*: the process is trans-disciplinary. Sometimes, intra company research and decision-making can be subjective and biased with a narrow focus. This process, however, enables organisations to draw on other disciplines (such as, architecture, FM, social psychology) and encourage cross pollination of knowledge, expertise and ideas in workplace provision.
- *Competition:* research has shown that there is a strong correlation between scenario planning and improved financial performance of the organisation (Chermack, 2003).
- *Conceptual*: the process challenges peoples current assumptions about the future and preconceived ideas about the workplace. The process promotes divergent thinking and encourages FMs to think outside the box in order to address issues of common concern that may be overlooked by taking the short-term view.

Futures studies is emerging as a powerful planning approach which provides an effective framework to produce better policy decisions today for the benefit of the future. In this way, futures studies can bring about the opportunity to align the workplace more closely with the goal's and values of the organisations, particularly in ways that are most meaningful for the employees.

PART 2: Futures Thinking

3.7 A futures approach to planning

Recognition of the need for a more integrated, holistic approach to workplace planning and development has led to a renewed interest in considering distant horizons in decision-making (Saurin *et al.,* 2008; Saurin & Ratcliffe, 2011). Thinking ahead and embracing far-sightedness is a prerequisite to successful development, particularly with the emerging idea of a "risk society" (Barbanente & Khakee, 2003). A futures approach applied in workplace decision-making can be beneficial in dealing with the myriad uncertainties that are likely to impact on workplace development in a flexible yet robust way.

3.8 Why futures?

There is widespread recognition that we live in an era of rapid change and environmental turbulence in which new discoveries, philosophies and technologies play an ever more prominent part in shaping social and economic development. Both the frequency and depth of change are fundamentally different from what occurred in past decades. In the 1960's and early 1970's, it seemed possible to keep an overview of development, take future changes into consideration and make five to ten year planning proposals based on ten to twenty year forecasts. It was a period of trend projection, time series, network analysis and mathematical modelling. Above all, it was an era with a belief that tomorrow would resemble today. The future was a given, and planning of all kinds sought to adapt current trends to meet that predestined condition (Saurin & Ratcliffe, 2007).

During the 1970's and 1980's, the view of the future changed. With sudden economic and social trends and discontinuities, the future did not seem as predictable as had previously been imagined; rather it became known as uncertain (Saurin and Ratcliffe, *ibid*). Today, Smith (2005) argues that the rate of change is increasing, owing in part to the technological innovation in the Western world which are creating significant transformations in society. It is now widely recognised that there is no likely future path of development, but several, different and possible futures.

Equally, in a globalised world everything tends to affect everything else, and small events can have large consequences. Systems thinking is the fundamental paradigm for all planning frameworks and decision-making processes, and complexity can be better understood through this lens creating complex adaptive systems (Ratcliffe, 2009). Understanding complexity is critical to corporate policy-making and commercial success (Ratcliffe, 2005). Popularly referred to as chaotic, virtually all business organisations are 'complex adaptive systems', and have several central characteristics which have a direct bearing on foresighting and strategic planning. These are (Zeisler & Harris, 2000):

- Complex adaptive systems have limited predictably. Not no predictability, just limited.
- Small events, epitomised by weak signals, and often hidden by the surrounding noise, can cause great change.
- The most prolific breeding ground for innovation in complex adaptive systems is an area known as 'bounded instability', otherwise known as the edge of chaos (Pascale, 1999).

Although systems thinking and futures thinking are separate disciplines, they have a natural tendency to overlap (Groff & Schaffer, 2008). Like systems thinkers and complex adaptive systems thinkers, many futurists possess a view of reality that is holistic in nature, within which the interrelationships between different variables is examined, as well as how these variable interact and change within the systems over time (*ibid*). In essence, systems thinking is the lens through which futurists observe the world (Bishop, 2008).

Managing complexity and finding ways to influence the future in a world where causal links are less and less visible, still remains a challenge for leaders in organisations. Current approaches to planning rely primarily on traditional methods which tend to reinforce the present by extrapolating trends from the past. They attempt to apply old remedies to new problems. As a result of this, there is a tendency toward short-term thinking in both the public and private spheres. Visioning processes drawn from the futures field represent the main way in which inherent short-termism of traditional policy-making and strategic frameworks (which often impede organisations in their

efforts to conceptualise and formulate long-term strategies for sustained competitive growth) might be overcome.

The strength of futures studies as a process is that it tackles uncertainty, complexity and change, and highlights longer-term opportunities and vulnerabilities. The process identifies significant factors that are driving change and allows for the anticipation of and preparation for such change (Oner & Gol Beser, 2011). Futures studies is arguably an effective approach to provide valuable input into the area of strategic planning, research, technology development and innovation, and also corporate communications and corporate identity and branding. Futures studies challenges corporate assumptions across many levels, and ultimately assists organisations to survive in an uncertain and complex environment.

3.9 Futures studies: an overview of basic concepts and purposes.

The futures approach is about future proofing present policy, ensuring that decisions made today are robust enough to withstand the uncertainties of tomorrow. It is based on the notion that the future can be explored and its events anticipated, and as it is not predetermined, human actions can influence its course (Ratcliffe 2002a). A broader definition of foresight is provided by the European Commission as embracing (Slaughter, 2009):

- critical thinking concerning long-term developments;
- debate and effort to create wider participation in decision-making; and,
- shaping the future, especially by influencing public policy and strategic decisions.

In order to gain a greater understanding of futures thinking and consequently futures studies, it is necessary to acknowledge the six foundational concepts of futures thinking as follows (Inayatullah, 2008:5):

1) The used future: describes a future that is unconsciously borrowed from someone else. An example of which is the development of Asian cities. Inayatullah (2004) claims that these cities were built based on the development model of the West, characterised by no vision and no

consideration for unplanned growth. Consequently, this used future is causing fresh water depletion, climate change and lack of human dignity.

2) The disowned future: This describes how, for example, a busy executive focuses on career achievements and in later life remembers his children. Plans go astray not because of a lack of effective strategy but because the act of creating a particular direction ignores other personal and organisational selves.

3) Alternative futures: An underlying assumption of futures studies is that the future is fundamentally plural and open (Dator,1996; Schultz, 2003; Poli, 2010), thus rendering attempts at prediction futile. Futures thinking encourages people to look beyond the familiar and to search for a variety of alternatives.

4) Alignment: involves aligning day-to-day problem based approaches to strategy, and strategy, in turn aligns with the bigger picture, and then the bigger picture aligns with the vision of the organisation, and finally, the vision with the day-to-day approach again.

5) Model of social change: Do you believe that the future is positive and you can do something about it? Or is the future bleak and there is nothing you can do about it?

6) The use of futures: this concept constitutes three layers of futures. At the first layer, futures thinking can help create more effective strategy. By understanding alternative, disowned and used futures, organisations can become more innovative and develop the capacity to create futures that organisation desire. Futures methods decolonise the world we think we may want and deconstruct our basic assumptions. The next deeper layer is emergence, where futures can create the conditions for a paradigm shift. The organisation imagines a new future, creates a new strategy, enables stakeholders to use tools and a new future emerges. The final deepest layer constitutes memes and microvita change. Meme change is about changing the ideas that govern institutions and microvita is about the non-local field of awareness that makes sense of reality. Futures thinking can go far as mapping and changing memes and fields of reality.

To study the future is to study the potential change – not simply fads, but what is likely to make a systemic or fundamental difference over the next 10-25 years or more. Studying the future is not simply economic projections or sociological analysis or technological forecasting, but a multi-disciplinary examination of change in all major areas of life to find the interacting dynamics that are creating the next age (Coates, 1985). To undertake this examination, futures studies is employed.

Futures studies is a transdisciplinary systems science-based approach to analysing patterns of change in the past; identifying trends in the present and extrapolating alternative scenarios of possible change in the future in order to help people create the futures they most desire (Schultz, 2003). As such, the purpose of futures studies is to "discover or invent, examine and evaluate, and propose possible, probable and preferable futures" (Bell, 2003), and gain a holistic or systemic view based on insights from a range of disciplines (Slaughter, 2009). Futures studies can help generate long-term policies, strategies and plans, which help bring desired and likely circumstances in closer alignment. Futures studies research can be categorised into three broad approaches based on its diverse objectives (Kuosa, 2011):

1. The first grand area of futures research is the creation of interesting future images, visions and scenarios within prediction and utopia/dystopia perspectives.
2. The second area of futures research is its ability to support planning and decision-making.
3. The third area constitutes futures research that helps solve the great global questions of all humankind.

Having described the foundational concepts and purposes of futures studies, it is necessary to explore the theoretical approaches underlining the futures studies field. The following section will outline the dominant theories of the futures field, and highlight the new paradigmatic direction of futures studies.

3.10 Beyond epistemological pluralism towards integral futures

The very notion of researching the future is a paradox. The word research lies within the time boundaries of the past and present so to research the future appears a logical

impossibility. Futures studies, however, is characterised by two fundamental, but distinct assumptions (Poli, 2010:11):

1. the future is at least partly governed by the past, which suggests the future is embedded in the past and/or a projection of it;
2. the future can be better confronted by opening our minds and learning to consider different viewpoints, which suggests that the future is plural and open.

These diverse assumptions can be attributed to the fact that futures studies is a trans-disciplinary approach. It is not defined by a hegemonic paradigm; rather it embodies a range of epistemological and theoretical perspectives, such as positivist(prediction and control), constructivist (understanding and insight) and critical (critique and transformation) and participatory (human flourishing) research dimensions (Voros, 2008), all of which are illustrated in table 3.2.. As such, its openness towards self-definition, gives it an advantage over traditional disciplines that have become institutionalised and domesticated (Inayatullah, 1998).

Theoretical Approach	**Positivist**	**Constructivism**	**Critical**	**Participatory**
Description	Trend Analysis	Imaginative, creative, flexible	Concerned with values and ideologies	Process and capacity building
Type of Futures Studies	Predictive, empirical, trend is destiny	Interpretative, cultural, utopian	Critical, emancipatory, post-modernist	Anticipatory action learning
Research Methods	Quantitative, forecasting, surveys, trend scenarios	Qualitative, dialogues, collaborative creative visions	Discourse analysis, critique of media, cultural artefacts, visioning	Action research, Self reflective action, narrative, song dance.
Main Aim or Goal	Generalisation, extrapolation	Opening alternative possibilities	Critical awareness, deconstruction	Human flourishing through political participation

Table 3.2: Different Theoretical Approaches to Futures Studies. - *Adapted from: Voros (2008) and Inayatullah (2002)*

Inayatullah (2010) argues that the strength of the discipline of futures studies is this epistemological pluralism which provides futures studies a greater capacity to solve

problems (Hideg, 2009). Futures studies should be employed using all of the dimensions that contextualises data (positivist) with the meanings we give them (constructivist) in the light of historical structures of power and knowledge (critical) (Inayatullah, *ibid*). As futures studies constitute a relatively new evolving knowledge base (Slaughter, 1996), the literature is now indicating a new type of futures studies paradigm, integral futures. It is being described as the next distinct research tradition (Slaughter, 2004b; Voros, 2008; Hayward, 2008; Gidley, 2010).

3.10.1 Integral futures

Integral is synonymous with wholeness and completeness (Voros, 2008). Integral theory is a holistic perspective (Ramos, 2010), which focuses on the internal and external perspectives of individual and collective domains (Slaughter, 2008a). This approach looks more completely at the internal and subjective qualities not readily seen in the external world of the objective realm of individual and organisational perspectives (Morgan, 2011). Due to the interdisciplinary nature of futures studies, and because it attempts to look at the "long view" through the "big picture", futures studies is ideally suited for the application of integral theory (*ibid*).

An integral approach to futures work attempts to "honour all truths and acknowledge the value of many different ways of knowing across all significant fields" (Slaughter, 2004a: 152). Integral futures is "an approach to futures inquiry which is based on a meta-paradigmatic integral meta-perspective perspective—an approach which attempts to take the broadest possible view of the human knowledge quest, and of how this knowledge can be used to generate interpretive frameworks to help us understand our images of what potential futures may lie ahead" (Voros, *ibid*: 199). In other words, integral futures does not take a singular perspective - the external perspective is predominantly used in futures work which covers only part of the issue (Slaughter, 2004b; 2008a); rather it recognises a plurality of perspectives. It is not confined to a single set of tools or methodologies and it recognises that there are many ways of knowing – many paradigms, practices and methodologies of knowledge seeking. Integral Futures Studies welcomes, embraces and values careful and sincere approaches to knowledge-seeking in all spheres of human activity to which they are both

appropriate and adequate – including analytical rationality, intuitive insight and spiritual inspiration (*ibid*).

Ken Wilber's (1996) system of analysis and problem solving, referred to as 'All Quadrants, All Levels' (AQAL) has been adopted as the main theoretical underpinning to integral futures. It focuses the practitioner on trying to achieve a holistic overview of all possible aspects of a futures problem or issue. In its simplest form, the four quadrants represent the inner and outer dimensions of individual and collective perspectives, and the different types of futures methods that can be used in each as illustrated in Figure 3.3. The use of Wilber's four quadrants allows practitioners, researchers and decision-makers to differentiate between different ways of knowing and to see which lenses are required for which forms of knowledge and action (Slaughter, 2006a).

Interior/Individual	**Exterior/Individual**
Inner aspect of individual (subjective realm which includes thoughts, values, motivations ideas and images). Methods: Critical futures studies, integral Operating system, Post conventional environmental scanning (including inner structure of meaning and value) Integral Visioning, Interior practitioner development.	Outer aspect of individual (objective realm which includes behaviour, physical) Methods: Delphi Surveys, Visioning, Conventional environmental scanning, Integral operating system
Interior/Collective	**Exterior/Collective**
Inner aspect of collective (inter-subjective realm, which includes meaning, systems, culture) Methods: Critical futures studies, Post conventional environmental scanning, Integral operating system, Transformative cycle, Anthropological futures studies, Layered analysis, Integral Macrohistory.	Outer aspect of collective (inter objective realm, which includes social systems, society). Methods: Scenarios, Trend Analysis, Forecasting, Modelling, Systems, Visioning, Wild cards, Layered Analysis, Strategic Anticipation Conventional ES SWOT, STEEP, Competitive Intelligence, Strategic Anticipation, Integral operating system

Figure 3.3 AQAL Analysis of Integral Futures
Source: Adapted from Wilber (1996) and Slaughter (2006).

The Wilber/Slaughter integral futures model has been put forward as the most comprehensive integral futures approach to date (Ramos, 2010). Gidley (2010) argues that this approach is too narrow because the term integral is used consistently with the Wilber integral model, with little acknowledgement for other contemporary uses of the term integral and minimal engagement with the broader literature. Equally, Ramos (2010:115) suggests that this integral futures model has "the tendency to un-necessarily close down, lock-out or to sub-ordinate alternative conceptions of holism", such as CLA and anticipatory action learning.

The contention that resonates from the integral futures literature suggests that it is an area that is relatively new and underdeveloped, and a substantial amount of research must be made before it develops as the next distinct futures inquiry paradigm that will propel futures research and practice to a new stage of its evolution (Morgan, 2011). Nevertheless, it represents significant innovation in futures theory, but for now futures studies remains without a defining hegemonic research paradigm defining it – ironically a post-modern stance to take (Blass, 2003).

3.11 The application and limitations of futures studies

Futures studies is broadening in terms of scope and geographical application, owing in part to its increasingly widespread recognition and acceptance as a legitimate planning tool. A study entitled "State of Play in the Futures Field" [52] suggests that governments, private multi-national corporations, financial institutions, not-for-profit agencies, designers, consultants and academia are embracing futures studies, with the United States of America (USA), Australia and Europe (Germany, France and UK) being the predominant players in futures applications (Slaughter, 2009). Despite the futures field being at an advanced stage of development internally with a broad suite of tools, methods, practitioners and comprehensive literature and journals, its application, however, has become uneven, fragmented and conventional in nature (Slaughter, 2008b). The reason for this state of play is that futures studies and its associated work - like any discipline or field of study – possess a range of limitations which create bias

[52] An overview of the "state of play" in the futures field was conducted in 2007-2008 to build a clearer picture of the current state of the futures field.

that reduce the effectiveness of all forms of foresighting[53], and include the following contentious issues (Branagh, 2003; Slaughter, 2008b; Kuosa, 2011).

1. Futures education: there is a failure to incorporate futures concepts, tools and thinking into educational systems as part of their core business.
2. Scope of futures: due to the various styles of business consultations that provide strategic intelligence and pattern management, the scope of futures work is now becoming increasingly narrow and blurred in the eyes of the general public and companies.
3. Human perception issues: people find it difficult to assess future or uncertain events. Human factors affect futures decision-making in the following ways: people tend to overestimate the likelihood of low probability events and underestimate the probability of very likely events; probability judgements are based upon the ease with which they come to mind; and, people tend to distort the reality of events by focusing on irrelevant catchy details. Also, the perspective and opinion of peers, subject expertise, emotional and/or physical state may affect a person's decision-making ability, and consequently, their ability to estimate future events.
4. Group dynamics: occasionally, group foresighting processes tend to avoid outlier ideas in order to reach a general consensus; therefore, there is a built-in bias against out-of-the-box thinking in futures studies.
5. Misinterpretation of futures studies: futures studies is often misinterpreted as a predictive science. Emphasis is placed on the need to consider alternative possibilities. Only when this view is accepted 'studying' the future becomes a useful activity.
6. Ownership of futures: it is assumed that the futures orientation is owned by futurists alone which leads to fragmentation in the discipline. In reality, many organisations, universities and development centres show an interest in the future, through risk assessment, technology and strategy development. This shows how they produce their own futures knowledge in a structured way, but a gap between this research and futures research still exists.

[53] Futures studies and foresighting are used interchangeably throughout this research, however, they can be viewed as distinct terms (Riedy, 2009)

Despite these limitations, futures work is critically important in a time of rapid change and growing complexity. In addition, an examination of the future helps to establish what are the main continuities and major trends, as well as to understand how change occurs (Krawcxyk, 2006).

3.12 Using futures studies to transform organisations

As referred to in section 1.1, the transition of society from an industrial base to an information and knowledge orientation requires new concepts and methods to sustain competitive advantage (von der Gracht *et al*., 2010). Corporate foresight (CF)[54] and innovation have been identified as key success factors (Hines, 2002; *ibid*). CF is an "ability that includes any structural or cultural element that enables the company to detect discontinuous[55] change early, interpret the consequences for the company, and formulate effective responses to ensure the long-term survival and success of the company" (Rohrbeck, 2010:5).

Often referred to as "futures studies within businesses" (Neef & Daheim, 2005:8), CF creates a vision to look beyond the closed environment of the organisation (Oner & Gol Beser, 2011). Drucker (1998:5) supports the case for CF by claiming that "in the next 10-15 years, collecting outside information is going to be the next frontier". Most planning processes concentrate on the internal setting of the working environment to create long-term strategy. However, individuals and organisations are unprepared for sharp discontinuities when external driving forces of change are not considered. Thinking from the outside-in enables organisations to consider both external and internal drivers, from which change and uncertainty is managed more effectively.

The motivation behind most CF activities is either a consequence of a companies' business operation which inherently demand such a long-term orientation (as in industries with long product cycles or long-term RE assets), or they are undertaken as a proactive step to better cope with uncertainties in the business environment in general

[54] CF is synonymous with strategic foresight (Slaughter, 1998; Rohrbeck, 2010). The reason for choosing CF in this thesis is to show that the majority of the research was undertaken in conjunction with the private sector. Nevertheless, this research can be applied to the public domain also.
[55] Discontinuous change are "relevant changes in an organizational environment which are characterised by being new and therefore difficult to predict" (Schwarz, 2005:22)

(Becker, 2002). The latter motivation is just one of a number of reasons why corporations employ futures studies, others include (Neef & Daheim, 2005:12):

- reducing uncertainty by identifying new and relevant trends;
- preparing strategic decisions;
- supporting innovation processes;
- developing new and future business fields and markets;
- creating orientation on future developments; and,
- building a knowledge base.

Despite these critical motives for applying futures studies in the business context, the literature indicates that there is still a need to further integrate futures studies into the company's process landscape and organisational structure to create an impact and add value (Rohrbeck & Gemunden, 2011). The general consensus in the futures studies field is that current organisational approaches to futures thinking are inadequate (Hines, 2002). To overcome this challenge, it is necessary to identify the pitfalls of CF approaches in organisations (Neef & Daheim, 2005:17):

1. Playground pitfall: there is a lack of continuity of activities, lack of commitment to CF which can be attributed to the lack of acceptance by senior management of qualitative foresighting knowledge.
2. Monologue pitfall: results remain unknown internally – low level of diffusion of results into the corporation.
3. Lone-rider pitfall: there are acceptance and implementation problems for outcomes which are attributed to the lack of integration of employees into the process. Another factor that perpetuates this problem is that CF activities are often too fragmented and too specialised (Oner & Gol Beser, 2011).

Other challenges that affect the application of CF in organisations include short-term thinking, bounded rationality (inward looking perspective), overlooking language, culture and traditions, the 'fog' of conventional thinking, mainstream economics, limited use of futures studies and 'tokenistic' responses and lack of capacity (Slaughter, 2006b). Having established the success factors and challenges of foresight in organisations, it is important to know at what stage CF integrates within the strategic planning process.

The strategic planning process consists of three main phases: 1) strategic thinking; 2) strategic planning; and, 3) strategic implementation. Foresight supports and develops the strategic thinking phase as futures approaches include particular tools to ground strategic thinking in the realities of decisions that are made today so that practical outcomes are achieved. The links between strategic management and futures studies are robust and the cross-disciplinary dialogue between both sets of management fields has proven invigorating (Fidler, 2011). Strategic thinking consists of three interconnected steps (Conway, 2011b): 1) divergence – evaluating diversity of perspectives; 2) emergence – questioning deeply held assumptions; and 3) convergence – connecting thinking of decision-makers to the present by identifying what action they will take now.

Based on these conceptual steps, Ratcliffe (2005) argues futures activities should consist of the same steps (see figure 3.4) as far too many foresighting studies place too much emphasis on the emergence phase and overlook the divergence and convergence phases. As a result of this, it is becoming increasingly difficult to distinguish between foresight processes and strategic surveys and plans. This approach consists of an outside-in perspective, which starts by exploring the critical drivers of change in the external world (divergence), then identifying what these drivers mean for the workplace in this context (emergence), and finally, with the "So what?" question at the top of the agenda, formulating action plans (convergence) (Outsights, 2011a), which in turn informs the strategic planning phase.

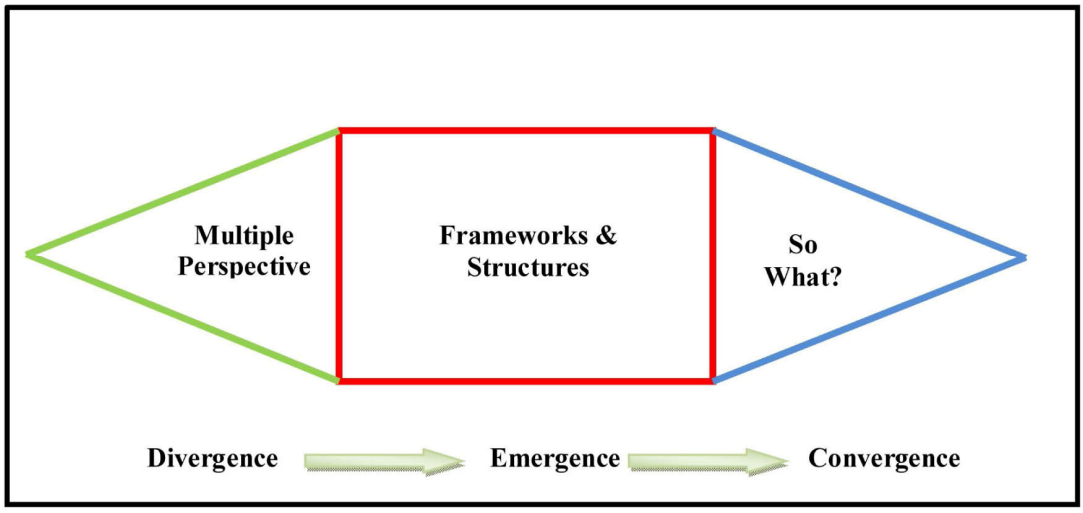


Figure 3.4 Conceptual phases of strategic thinking

At the Futures Academy in Dublin Institute of Technology (DIT), a combined methodology for exploring and shaping the future has been developed incorporating the three interconnected steps. The Prospective Through Scenarios process enables decision-makers to envision a preferred future for their organisation and navigate uncertainty to make more informed decisions today, as well as provide a platform to develop a strategic foresight capacity in organisations. (For a detailed description of this process see section 4.6.3).

3.13 Six pillars of futures studies and their related methods

According to Inayatullah (2008), futures studies has six pillars that are linked to an array of methods and tools, and developed through praxis. The pillars are: mapping, anticipation, timing, deepening, creating alternatives and transforming. While futures studies has an array of futures methods and tools, only the most relevant methods to this research will be discussed under each pillar.

3.13.1 Mapping

In the first pillar, the past, present and future are mapped. By mapping time, decision-makers become clearer on where they have come from and where they have to go. Horizon scanning is a popular tool that is employed to fulfil this role. This method consists of a systematic scanning of the external environment for precursors, events, signals of many kinds (the driving forces of change) and interpreting their significance. The technique is formally defined by the British Department for Environment, Food and Rural Affairs (DEFRA, 2002) as:

> "the systematic examination of potential threats, opportunities and likely future developments which are at the margins of current thinking and planning. Horizon scanning may explore novel and unexpected issues, as well as persistent problems or trends. Overall, horizon scanning is intended to improve the robustness of policies and evidence base".

Horizon or environmental scanning is important for two key reasons (Outsights, 2011b): it improves organisations strategic radar and intelligence, and establishes a rigorous

knowledge base for decision-making. An analysis of both primary and secondary documentary sources of information, such as journals, papers, conferences, reports and books is undertaken to identify, track record and monitor medium-to-long term trends, threats and opportunities as well as avoid surprises. While using this method it is important to constantly update the information so any weak signals cannot be overlooked (Puglisi, 2002).While careful scanning results in the development of a body of information with a range of uses, the process of scanning has the value of improving observation and analytic skills.

3.13.2 Anticipation

The second pillar of Futures studies is anticipation. At this stage, methods seek to identify issues, and search for new possibilities and opportunities. The Delphi method can be employed at this stage. It was developed by Helmer and Dalkey (1953) as a non-analytical, but subjective method for gathering information and making decisions about the future. It is based on seeking and compiling individual opinions and judgements from a panel of selected experts in their fields to arrive at a consensus view as to what might happen in the future (The Futures Academy, 2004). They assess the timing, probability, significance and implications of factors, trends, issues and driving forces of change related to the problem under review (Ratcliffe, 2002a). An interactive feedback effect, anonymity of participants and attainment of consensus are the main characteristics of technique. It is widely used today and is particularly useful for long-range forecasting (20-30 years) (Kreibich *et al.,* 2011). The construction of a questionnaire is the primary instrument of data collection (Bell, 2003).

Delphi studies are difficult to perform well for a number of reasons. The application of this method requires significant attention to be given to the choice of participants; the questionnaires must be thoroughly prepared and tested to avoid ambiguity; it is extremely time consuming; and, can be easily substituted for easier techniques (Kreibich *et al.,* 2011). Nevertheless, this method serves to explore issues that require judgement, and develop a range of possible program alternatives.

3.13.3 Timing the future

Timing the future is the third pillar of futures studies. The search for grand patterns of history and the identification of significant models of change is undertaken to establish where the organisation is in terms of its history and even survival (Inayatullah, 2008). The appropriate tool to utilise at this level is macrohistory. Inayatullah (2004a:1) defines macrohistory as the study of the histories of social systems, along separate trajectories, through space and time, in search of patterns, and even laws of social change". Macrohistorians provide maps of civilisations which can be used to time a civilisation or organisation in order to understand the current mindset and where it is leading in the future (Burke, 2011). Macrohistory, like futures studies, focuses more on overall patterns and stages and less on details (Inaytullah, 1998). The main models of change that emerge from macrohistory are as follows (Inayatullah, 2008):

- linear: the future is developmental and cumulative;
- cyclical: there is decline over generations, those that reach the top will eventually find themselves at the bottom and so on.
- pendulum: society can only be pushed so far before it swings right back.
- spiral: the future is linear and progress based, as well as cyclical.
- rise and fall: new futures are created by creative minorities and challenge the notion of a used future from which innovation emerges; if these groups dissipate, power and bureaucracy continue unchallenged leading to a universal state;
- hinge periods: Inayatullah suggest civilisation is at this point now, where old behaviours and patterns are no longer useful, what has succeeded before no longer works now.

Interestingly, development in the West is usually linear, while development in the East is cyclical (Burke, *ibid*). Ultimately, evaluating historical patterns of change enables policy makers and decision-makers to learn from grand thinkers about long-term trends in order to rewrite an improved future using foundational ideas from macrohistory, from which new metaphors of the future emerge.

3.13.4 Deepening the future

The fourth pillar of futures studies is deepening the future. The method generally employed at this stage is CLA. Drawn from poststructuralist theory, it is based on the assumption that the way issues are framed strongly influences how they are understood, and therefore limits the perceived scope of possible change. CLA is less concerned with the horizontal spatiality of futures – a focus held by methods such as cross-impact analysis, back casting and scenarios – rather its main focus is on the vertical dimension of futures studies or layers of analysis (Inayatullah, 1998). It is a futures method that guides participants in examining the future through multiple levels of understanding. Participants not only use language and data to define the trends and issues shaping the future, but are also encouraged to focus on deeper levels of beliefs, social causes, metaphors and worldviews (Inayatullah, 2004b). As such, CLA consists of four layers (Inayatullah, 1998; 2004b; 2008):

1. Litany: the day to day future where events, issues and trends are not connected and discontinuous. It is the most visible layer in futures research, where information is retrieved by 'skimming the surface". It examines quantitative trends and issues that are often exaggerated and used for political purposes.
2. Social causes: this level is deeper and focuses on the economic, cultural, political and historical cause of the issue. The quantitative data is interpreted at this level.
3. Discourse/Worldview: the layer is broader and deeper, and looks at the big picture. It describes the cognitive lens through which people understand and shape the world. Issues such as population growth, lack of women's power, lack of social security are examined at this level. The fundamental task is to search for deeper social, linguistic cultural structures that are not dependent on the actors.
4. Metaphor/Myth: deeper again, this level describes the deep unconscious story.

The objective of the CLA method is to conduct research that moves up and down these layers of analysis in order to form alternative futures; it moves beyond the conventional academic analysis which focuses on the second layer generally (Inaytullah, 1998). Benefits of CLA include (*ibid*):

- it broadens the range and richness of scenarios;
- shifts the debate beyond the superficial and obvious to the deeper and obscure; and,
- guides policy action that is informed by different and deeper layers of analysis.

Following the layered analysis to deepen the future, the knowledge and data collected at this level informs the development of scenarios which broadens the future.

3.13.5 Creating alternatives

The fifth pillar is creating alternatives to the present. Key to this is the development of scenarios. Scenarios are instruments for ordering people's perceptions about alternative future environments in which today's decisions might play out (Schwartz, 1991:4). They are carefully constructed stories about the future. Each scenario represents a distinct, plausible, internally consistent and challenging future world (van der Heijden, 2006). It is widely agreed amongst futurists that scenarios do not aim to make predictions. Rather, their value lies in disturbing the present (Berger, 1967) in order to assist decision-makers in understanding the complex forces shaping the future.

The purpose of scenario development is not to identify the most likely future, but to (Fahey and Randall, 1998): see what possible futures might look like, how they might come about, and why this might happen; produce new decisions by forcing fresh considerations to surface; reframe existing decisions by providing a new context within which they are taken; and, identify contingent decisions by exploring what an organisation might do if certain circumstances arise. Decisions that have been pre-tested and future proofed in this way against a range of prospects that fate may hold are more likely to stand the test of time. de Geus (1988) argues that decision-makers who embrace this process gain the ultimate competitive advantage, while van der Heijden (2006) suggests the process generates a distinctive kind of knowledge and promotes organisational learning.

3.13.6 Transforming the future

The final pillar is transformation where the future is narrowed toward the preferred. The visioning method is one of many methods that can be employed at this stage. Based on values, visioning creates compelling images of the preferred future that individuals or organisations are committed to creating (Bezold *et al.,* 2009). The process is based on the assumption that images of the future influence present behaviour and decisions (Puglisi, 2002). During a visioning exercise, the participants must consider the patterns and inter-relationships that emerge under the previous five pillars, as well as the possible future conditions, from which a preferred future vision can emerge. The vision must consider a number of factors in order for it to be robust, creative, and most importantly, thought provoking (Bezold *et al*., *ibid*):

- It should represent best dreams, hopes, desires, and aspirations.
- It must be plausible but bold enough to enable people to go beyond what they think are there personal limits.
- Must be achievable in the specified timeframe.

For a vision to be successful, it depends on the commitment and buy-in of the organisation. Ultimately the movement towards the future should be driven by the organisation's vision, with goals and strategies chosen as a result of the vision and the organisation's position in the external environment.

3.14 Summation

The above review concludes with the following insights which highlight the need for this research.

1. The organisational-accommodation is fractured and unbalanced because the organisation views the workplace: as a cost; in the short-term; and, through the lens of an expert approach rather than a user approach.
2. The standardisation and incremental real strategies, with standardisation being the most popular strategy applied in workplace provision, are not suitable to address high levels of change and complexity in the workplace environment. The value-based strategy is appropriate, but it is rarely employed.
3. The literature points towards the need for a new strategic role in FM, one that imparts data, trends and issues to the executives and vice versa. To achieve this,

a change of mindset is necessary which will equip FMs to deal with what is expected in the future as well as what cannot be anticipated.

4. The measurement of efficiency in the workplace is typically quantitative and retrospective and thus fails to anticipate emerging user demands. Measurements of effectiveness fail to take into account the wider economic, social, cultural and environmental context within which the organisation operates.
5. Systems thinking, a fundamental perspective of futures thinking, is an appropriate theory in which to investigate the workplace in a holistic manner and is a suitable paradigm for all planning frameworks and decision-making processes.
6. There is a growing realisation that the future is not fixed. It cannot be predicted because it consists of a range of alternative futures that organisations might face.
7. A futures approach, supported by tested methods, can enable decision-makers to adapt their current mindset to effectively tackle change and complexity by ensuring that decisions made today are robust enough to withstand the uncertainties of tomorrow.

By examining the work environment through the concept of futures studies, FMs can re-evaluate how they anticipate and prepare for the future workplace as well as address the current deficiencies in workplace strategy development. Above all, futures studies can bring together in collaboration senior management and horizontal organisational functions such as FM, HR and IT to identify agreed areas of strategic policy, foster a shared vision of the future they would like to achieve and decide on critical strategic decisions that must be made today in order to attain it. This review, therefore, provides the rationale not only to investigate the research questions in section 1.5, but also to empirically test futures studies in this context. The following chapter sets out how this can be achieved.

4. Research Methodology

Providing the scope for investigating the research aims and objectives set out in section 1.5, the previous two chapters provide evidence for the need for foresight to address the ongoing transformation and complexity in workplace strategy development. In the quest for the solution to this research problem, chapter four discusses the overarching methodological approach behind this research and provides an explicit account of:

- the purpose of the research;
- the philosophical lens through which this research is viewed;
- the case study research strategy;
- the research instruments employed to collect and analyse the data; and,
- the issues of trustworthiness in the context of qualitative research.

In essence, this chapter contextualises the empirical phase of the study by summarising and discussing in detail how the methodology is executed throughout the course of this study.

4.1 Purpose of the research

Apart from published work by Saurin *et al*. (2008) and Saurin and Ratcliffe (2011), there is very little literature available that describes the application of future studies in workplace strategy development. As such, an exploratory[56] approach is undertaken to address both the conceptual need for a new evolutionary approach to workplace management and the operational need to link futures studies to workplace strategy development in a mutually enhancing way. The ultimate aim of this study is to assess the feasibility of applying futures concepts and methods to the workplace strategy development process to not only encourage a mindset shift beyond the current rationalist paradigm, but also assist in the development of robust strategies in order to foster long-term thinking in workplace provision. To examine the key elements of this research, Figure 4.1 illustrates the research questions and objectives that have been identified, and the research instruments that have been utilised in the pursuit of this research aim.

[56] When research is classified according to its purpose, it can be described as exploratory, descriptive, analytical or predictive (Collis and Hussey, 2009).

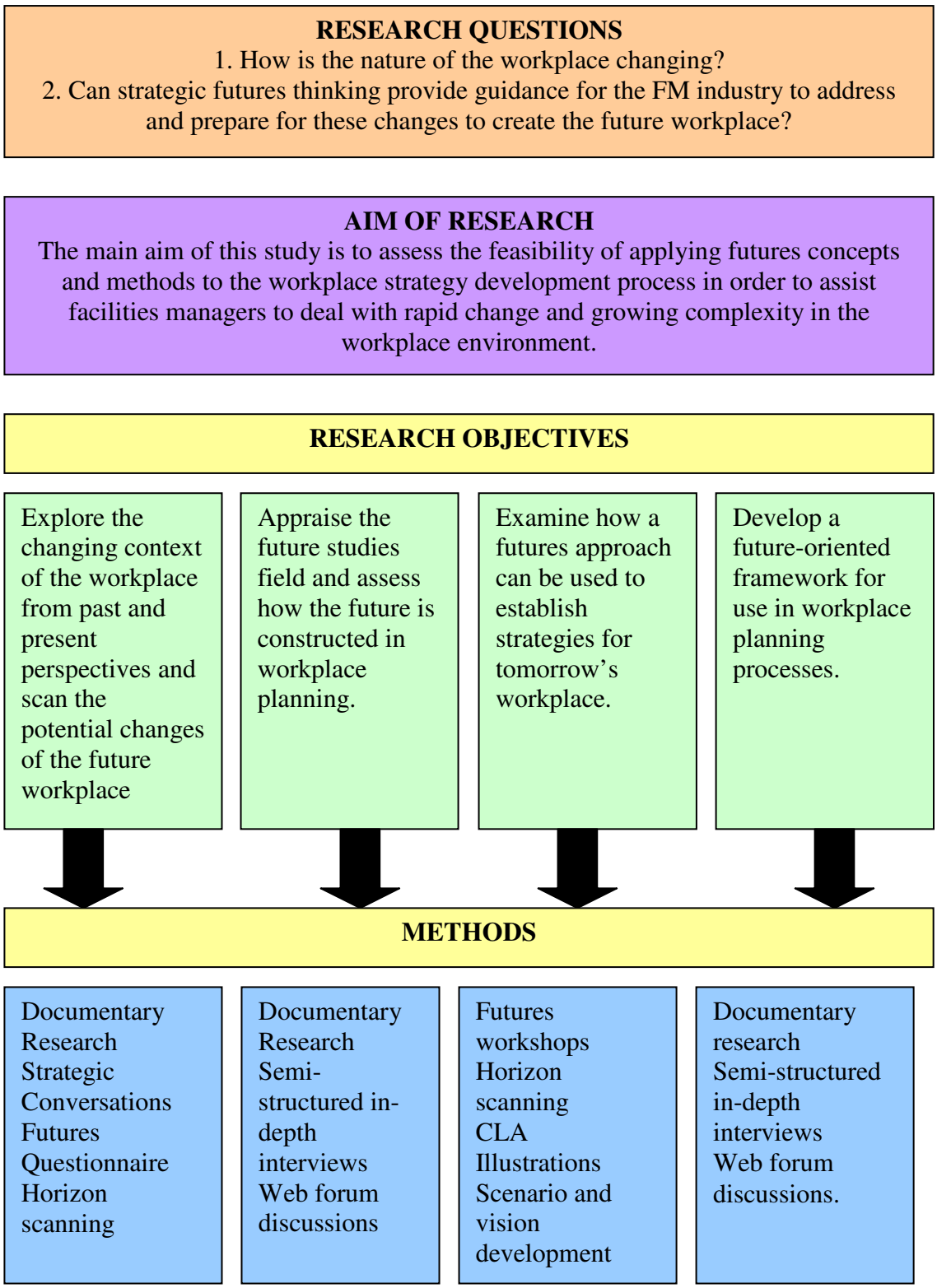


Figure 4.1: The research design.

The first question addresses how the changes in the very concept of the term workplace, driven by the power of IT and its impact on global business, are real and accelerating,

and promise fundamental changes to the relationship between the individual, work and workplace. Through an initial review of the literature (Duffy, 2000; Haynes & Price, 2004; Saurin *et al*. 2008), the second question logically follows in response to the inability of FMs to deal effectively with this ongoing change, complexity and uncertainty in workplace strategy development. The objectives imply much about the changing nature of the workplace and reflect the need to consider an alternative approach to managing risk at the workplace level, with particular emphasis on the development of a framework for workplace planning, based on the Prospective Through Scenarios process.

Having established a clear expression of the research purpose, it is now possible to identify the research philosophy, the research strategy and the instruments of collection and analysis to form a basic methodological triad in the pursuit of a solution to the research problem.

4.2 Interpretive research philosophy

A body of research on the physical environment of the workplace has emerged over the years (Ilozer *et al*., 2002; Best *et al*., 2003; Haynes & Price, 2004; Duffy, 2008; Vischer, 2010). The traditional approach has largely followed a positivist research philosophy thanks to the collection of quantitative performance data; metrics with which workplace planners and FMs are well accustomed to working (Cairns, 2003). Arguably, it is based on the fact that many researchers "still perceive positivist approaches to be simply a commonsensical way of conducting research" (Blaxter *et al*., 2006:60). A positivistic worldview assumes a stable and predictable reality. It is expressed through an objective point of view, and employs hard[57] research methods such as surveys, experiments and statistical analysis to test hypotheses and produce replicable findings (Buchanan, 1998: Wisker, 2008; Wimmer & Dominck, 2010).

In the context of this research, however, the positivist perspective is not suitable. Firstly, predictions in the latter paradigm are based on extrapolating the future from data and

[57] Hard research describes scientific and objective research, where math, figures, statistics, evidence and proven facts are absolutely critical

relationships of the past. Yet, if it is accepted that the driving forces of change in the workplace are multiple and mutable, and what happens today may not apply in six months time, not only are any attempts at prediction rendered futile, but it becomes increasingly difficult to replicate findings. Secondly, this study is exploratory in nature as there is very little literature available on the application of futures studies in workplace strategy development. Consequently, it is very difficult to propose a clear hypothesis for this research.

Finally, given the multiple socially constructed realities of the workplace (discussed in section 2.4), it would be prudent to reject the notion of a stable and absolute reality as set out in the positivist paradigm. By this, it means that positivist prescriptive solutions to problems that are valid outside of the context of their origination reduces the ability to seek meaning for the individual within their own context of thinking from which the socially constructed realities of the workplace emerge (Cairns, 2003). Moreover, if it is accepted that the workplace is complex in nature, simple linear cause and effect relations become increasingly difficult to identify. This can be attributed to the fact that multiple variables, such as organisational, technological, physical and social environments of work, that constitute the workplace can theoretically serve as either a cause or effect.

By contrast, the interpretive philosophy seeks to understand the world as it is (Martin & Nakayama, 2011). This approach has several hallmarks. The research is underpinned by a subjective view of reality that is created by the interactions of social actors in their natural settings, from which multiple realities emerge (Guba & Lincoln, 1994; Neuman, 1997; Creswell, 2007; Denzin & Lincoln, 2011).

Galliers (1991) categorises futures research within the interpretive paradigm. In doing so, it is acknowledged that there are no hard facts about the future. This research, therefore, generates knowledge about the future through the subjective perceptions, opinions and attitudes of those involved in workplace provision. The futures approach comprises not only the study of the future, but also the will to influence the future and to shape it according to society's wishes. An interpretive approach enables the researcher to understand the shared norms and values, culture, beliefs and common language between actors to achieve this goal.

Under the assumption that there is no stable and absolute reality to be measured and described in this research, the interpretive approach is underpinned by a relativist ontology (Denzin & Lincoln, 2011). In essence, multiple socially constructed realities exist due to varying human experience within a variety of contexts, such as temporal, cultural, economic, geographic and environmental (Berger & Luckman, 1966; Guba, 1990). By capturing the multiplicity of realities through engagement with multiple actors in and around the workplace, a wide range of rich pictures and patterns of what constitutes the future workplace emerge in this research. Rather than view the workplace from an exogenous perspective, based on rational and logical decision-making, this research seeks to interpret the workplace in its own context to cope with and maintain complexity, uncertainty and change; concepts underlying futures thinking.

4.2.1 Epistemological reflexivity

A research approach that draws on the traditions in qualitative research typically views knowledge as socially constructed and emergent, and the sources from which it is derived include discourses, language and social action (de Smedt & Borch, 2011; Martin & Nakayama, 2011). The researcher plays an active and subjective role in generating knowledge by interpreting and reflecting on the patterns of meaning revealed through the interaction between people. These interactions give rise to changes in self-identity, interpretation of meaning, practice and anticipations of the future (Fuller & de Smedt, 2008). This suggests epistemological reflexivity.

Reflexivity is a relatively modern epistemological position in social sciences, and involves the deconstruction of meaning through a process of interpreted feedback (Fuller & de Smedt, *ibid*). In the context of this research, reflexivity emerges on two levels. Firstly, futures studies is "self consciously reflexive" (Bell, 2003: 237). By producing and reflecting upon alternative images of the future workplace, which directly challenge self and community identity, all those involved in workplace provision can deepen, shape and change their understanding of the current workplace through robust, future-proofed workplace strategies.

Secondly, epistemological reflexivity requires the researcher to critically interrogate the way in which the research is conducted through its research design, the research

questions and the analysis of the results (MacFarlane, 2008) by asking, for example, how has the design of the study and the method of analysis constructed the data and findings? And, how could the research question have been investigated differently? (Nightingale & Cromby, 1999:228). This position is particularly important in futures research as discussions of validity can rely on indirect, fragile and uncertain reasoning based on current and based observations, experiments and data (Fuller *et al*., 2009). This research analyses how futures studies, and more specifically the prospective through scenarios approach, supports workplace strategy development by intentionally leveraging the principle of reflexivity. In so doing, knowledge generation becomes iterative rather than linear; the trustworthiness[58] of the research becomes increasingly rigorous; researcher self-awareness and critical self reflection highlights potential biases that may affect the research process and conclusions (Klenke, 2008).

4.3 A case study research strategy

The case study approach provides an empirical mode of inquiry for an in-depth and detailed examination of a phenomenon within a specific context. The "distinctive need" for case study research arises "out of the desire to understand complex social phenomena" (Yin, 2003:2) by asking 'how' and 'why' questions, and also in the absence of previous studies (Benbasat *et al*., 1987: 370). In this context, the case study approach was chosen as a suitable strategy to conduct this research for a number of reasons. Firstly, the research questions in this study were designed to obtain a deeper understanding of why the workplace is changing and how the application of futures studies can address this change in workplace strategy development. Secondly, the future-proofing of workplace strategies is a complex social phenomenon comprising activities, processes, and forces and their interrelationships, which grounds this research in a case study approach.

A case study, which is in line with the constructive/interpretive philosophy, is socially constructed, and not defined or bounded until data collection, and sometimes analysis is completed (Wells *et al*., 1995). Nevertheless, Denscombe (2007) suggests the importance of setting boundaries at the beginning of a case to allow the researcher to

[58] See section 4.9 for a more in-depth discussion on verification strategies to ensure the trustworthiness of this qualitative research.

see what is incorporated into the investigation and what is excluded from the focus of the study. Based on Yin (2003), this study was bounded in two ways: scope and relevant social groups. As referred to in section 1.8, the scope of this research centres on the private commercial office as an example of a workplace in a large organisation. Furthermore, this study was bounded by being limited to the research of the phenomenon futures studies in the FM industry. More specifically, this context includes facilities managers, corporate RE managers and workplace consultants.

Another important issue in the application of this approach is the choice of case study to be employed. Stake (1995) distinguishes three main types:

- *Intrinsic:* The study is undertaken because the researcher has a genuine interest in the case and wants to generate a better understanding of it.
- *Instrumental:* A particular case is examined to provide information and insights on issues, or to refine a theory.
- *Collective:* Multiple cases are examined to learn more about the phenomena, population, or general condition.

In the case of this thesis, the study is instrumental to the extent that it sheds light on problems and issues that may be common to other workplace strategy development efforts. Moreover, it provides information on, not only the potential changes of tomorrow's workplace, but how futures methods can be employed to address this change, complexity and uncertainty, and insights into how the output could inform the development of workplace provision in the future in a more society friendly direction.

To bring depth to the study, case study research enables the researcher to utilise multiple instruments for data collection and analysis (Yin, *ibid*). Since interpretative approaches rely heavily on naturalistic methods (Miles & Huberman, 1998), the following research instruments have been employed: documentary research, semi-structured interviews, and futures methods that include futures workshops, strategic conversations, environmental scanning and futures questionnaires. Each of these data sources provided different types of information for the study (see section 4.4 for a detailed summary). Multiple sources of evidence can improve the quality of the data and ensure robust findings through the employment of triangulation. In this context, however, it was achieved through the crystallisation of data methods (see section 4.3.2).

Case study research, while an appropriate strategy to conduct this research, is not without its limitations and problems. One point at which the case study approach is more vulnerable to criticism is in relation to human subjectivity. According to Burns (2000: 473), critics purport that it is more likely that case study researchers will "allow equivocal evidence or personal views to influence the direction of the findings and the conclusions". To avoid this criticism, the process of reflexivity can account for the element of self within the research (Ryan, 2005). A reflexive process tries to achieve an "outsider stance" to "question what their doings are doing" (Lewis, 2003:231) from which a degree of objectivity arises. While this may seem like a contradiction, Ryan (*ibid*) describes reflexivity as logical and rational as it allows the researcher to study his/her biases by reflecting upon the ways in which their own values, experiences, interests, beliefs, political commitments, wider aims in life and social identities have shaped the research.

Another much cited criticism is the lack of generalised findings in single case study research. However, the goal of this study is not to create a series of law-like generalisations which would reduce the complex nature of workplace provision; rather it is to understand the complex phenomenon. Nevertheless, it is argued here that this case study, which applies futures studies to private commercial office strategy development, generates new thinking. According to Hodkinson and Hodkinson (2001:11) that thinking has a "validity that does not entirely depend upon the cases from which it is drawn". As such, it is possible to abstract or distil important conclusions that may be tested in other workplace contexts, such as the public workplace or hospital.

4.3.1 An adaptive and emergent research process

A significant part of this case study is concerned with how futures studies can be applied in a 'real world' workplace planning context in order to enable the researcher to bridge the gap between theory and practice. Given the exploratory nature of this research (see section 4.1), an iterative and heuristic[59], and adaptive and emergent cycle of research emerges. Figure 4.2 illustrates this approach.

[59] Heuristics refers to "a process of internal search through which one discovers the nature and meaning of experience and develops methods and procedures for further investigation and analysis" (Moustakas, 1990: 9).

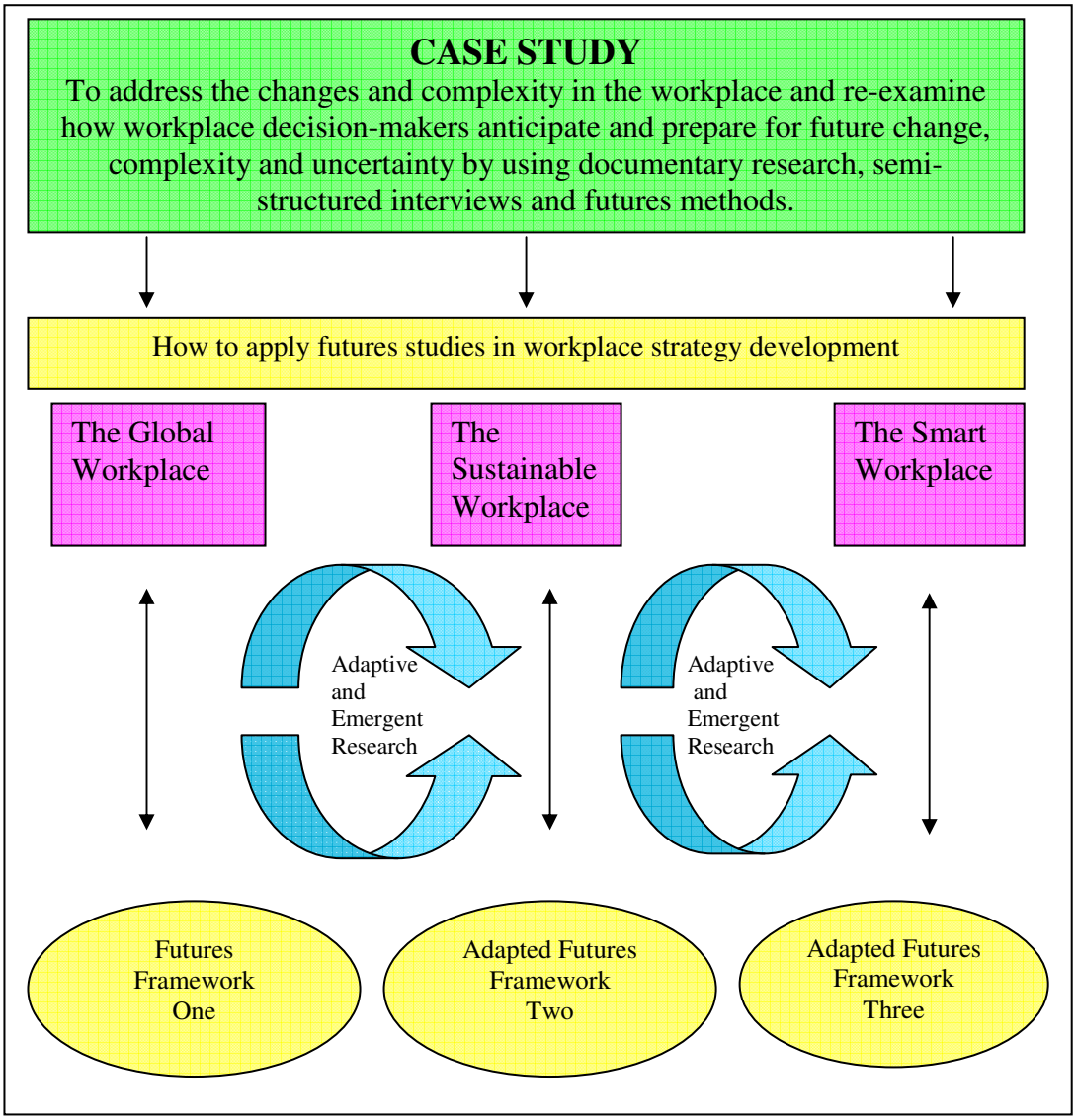


Figure 4.2: An adaptive and emergent approach in case study research

Based on the concept of discovery (Moustakas, 1990), this process improves the practical aspects of future-oriented planning in workplace strategy development through an iterative undertaking that seeks to obtain feedback, and use it to adapt the existing Prospective through Scenarios process and its associated techniques. The outcome of which is to achieve fluid interactions that add rigour and energy to the overall process (Saurin & Ratcliffe, 2011). In addition, a more in-depth understanding of the workplace emerges as each new methodological framework is tested in the context of a significant research theme that arises in the previous phase of research. As a result of this, the research findings are more comprehensive. For a further analysis of how the methodological frameworks and themes emerged in this research see section 5.3.2.

The researcher's role is consistent with the case study's observer position. In this way, the researcher is able to identify problems, concerns and requirements that arise from an activity 'in the real world context', and adjust the methodology accordingly to create a refined and responsive process to account for the needs of the participants who generate the actual knowledge. This approach provides the researcher with the opportunity to discover rich and varied insights, and relevant themes for further research.

Given the involvement of an industry partner during this part of the research, a question mark concerning the ownership of the research and its associated outcomes arises (Denscombe, 2007). To avoid any contention, it is worth noting that the research process has been designed by the author; the methods employed to collect the data have been undertaken by the author; and, the findings have been analysed and presented by the author of this thesis. Even though it is not an integral part of the research findings, it is important to highlight that the industry partner assisted in fleshing out the vision in the final futures report on the smart workplace as the context related to technology is an area which is beyond the intellectual scope of the thesis author.

4.3.2 Triangulation and crystallisation

One of the vital issues in this research is to instil methodological rigour within an interpretative framework to ensure the robustness of the qualitative research. One way of confirming the legitimacy, integrity and validity of the study is through triangulation; the intent of which is to employ more than one approach to the investigation of a research question so as to increase confidence in the ensuing findings. Distinguished by several forms, the process of triangulation refers to the combination of two or more data sources[60], investigators[61], theoretical perspectives[62], methods[63] (Denzin, 1970), or analytical methods[64] (Jonsen & Jehn, 2009) within the same study.

[60] Data triangulation involves gathering data through several sampling strategies to gather various types of data at different times, settings and on different sets of people.
[61] Investigator triangulation relates to multiple observers, interviewers or coders gathering and interpreting data in the field.
[62] Theoretical triangulation refers to the use of multiple theoretical positions in the interpretation of data.
[63] Methodological triangulation relates to using multiple methods for data gathering.
[64] Analytical triangulation involves employing multiple analytical tools to analyse the data.

As mentioned in section 4.3, one aspect that characterises good case study research is the ability of the researcher to utilise multiple instruments for data collection to bring depth to the study. Given that methodological triangulation is based on the belief that there are just three sides from which to collect data, the number of methods employed in this case study go beyond the scope of this process to include not only documentary research, semi-structured interviews, strategic conversations, but also futures workshops, environmental scanning, CLA combined with technical and human intervention, such as the use of an artist, storytelling and the creation of discussions on web forums. To address this, a methodological crystallisation approach is employed to generate robust data and richer data analysis.

Crystallisation recognises that there are multiple aspects related to any given problem in the context of the social world. Richardson (2000: 934) uses an analogy of a crystal to describe this approach "which combines symmetry and substance with an infinite variety of shapes, substances, transmutations, multidimensionalities, and angles of approach". It also fits within the social constructionist paradigm (Ellingson, 2009), which is in line with the ontological assumptions of this research. The data generated from a multi-method approach represents different perceptions, different angles and different approaches to a crystallised problem: the future workplace. In the end, the employment of all these methods, and their associated analysis of the findings, leads to the development of a futures framework for workplace planning that assists in the development of robust and innovative workplace strategies to prepare for the tomorrow's workplace.

4.4 Research instruments

The choice of instruments for data collection is dictated by the case study approach. Keeping the exploratory nature of the research questions in mind, a number of different types of research instruments have been employed to provide an in-depth understanding of the complex phenomenon, such as documentary research, semi-structured interviews and futures methods (horizon scanning, strategic conversations, futures workshops, and CLA). While they may not be research instruments in the traditional sense, a number of other data collection methods have been used to complement the data generated from

the main research instruments above. They include: discussions on web forums; the use of an artist and storytelling. The following sections, therefore, provide a description of: a) the method employed; b) the objective each instrument fulfils; c) the application process; and, d) the research sample on which the research is based.

4.5 Documentary research

Documentary research provides a summary and analysis of past and current literature relevant to the phenomenon under investigation. It enables the researcher to explore the problem area to seek new insights and assess phenomenon in a new light (Robson, 2002), from which the applied research phase can be informed. In this context, documentary research has been undertaken to explore how the form/perception of the workplace is changing; to identify the limitations of current workplace strategy approaches; and to make a case that highlights the need for, and the benefits of exploring and examining futures studies within workplace strategy development at a broader and deeper level.

Since the latter part of the twentieth century, there has been development of an extensive body of literature largely concerned with the physical environment of the workplace. Duffy's (2008b) categorisation of the three waves of change of workplace design was adopted to investigate the historical development of the workplace. Important texts related to the current workplace discourse include Laing *et al*. (1995) and Becker (1998) who makes the case for AO, Heerwagen *et al*. (2004) and Harrison *et al*. (2004) both present the case for a collaborative and distributed workplace respectively. Furthermore, seminal texts referring to the future workplace include Huang (2001) for the hybrid workplace, Grantham *et al*. (2007) for third place workspaces and Gillen (2006) for the city workplace. When reviewed and analysed these sources provide a composite and conceptual picture of how the workplace has evolved, is evolving and is likely to evolve in the future.

The documentary review in chapter three is split into two parts. The first part continues the analysis of the workplace, but from a different perspective: the limitations within existing workplace strategy development. An evaluation of the organisation-accommodation is undertaken, which thus identifies the current limitations that impact

on workplace strategy development (Becker, 1990; Becker & Steele, 1995; Duffy, 1997, 2000; Gibson, 2000; Barrett & Baldry, 2003; Vischer, 2010). Three common real estate strategies (O'Mara, 1999) are examined to see how change and complexity is dealt with in a competitive environment (Singh *et al.,* 2007). Finally, the implications of such strategy development for the facilities managers are discussed, as well as the current issues FMs face in workplace evaluation (Harrison *et al.,* 2004).

In part two of the chapter, the review examines the futures field by examining the basic concepts and purposes set out by Bell (2003), Inayatuallah (2008), Slaughter (2009) and Kuosa (2011). Sources, such as Slaughter (2004b), Vorros (2008), Hayward (2008) Gidley (2010) come from the futures journal. Despite the Australian influence of these contributions, the goal of the documentary review is to highlight all developments in the field of futures studies, even if one regional cluster of researchers are published on the same subject. From this review, Saurin, Ratcliffe and Puybaruad (2008) and Saurin and Ratcliffe (2011) demonstrate the importance of futures studies, as both a philosophy and research methodology, to prepare for change, complexity and uncertainty in workplace strategy and policy development.

4.6 Semi-structured in-depth interviews

Interviewing is one of the most established forms of data collection in qualitative research. The fundamental purpose of this approach is to access people's perceptions, meanings, definitions of situations and constructions of reality (Punch, 2005). The interview can take three forms, namely structured, semi-structured and unstructured (Fontana and Frey, 2005). In the context of this study, semi-structured in-depth[65] interviews were undertaken to explore the perceptions, opinions and attitudes of those involved in workplace provision with regard to how the future is considered and constructed in workplace strategy development.

According to Cachia and Millward (2011), semi-structured interviews are characterised by not only the use of an interview guide, but the ability of the interviewer to introduce new questions during the process to facilitate further exploration of issues brought up by

[65] Unstructured and semi-structured interviews "represent the essence of in-depth qualitative research interviewing" (Klenke, 2008:127).

the interviewee. In essence, it blends elements of both the structured and unstructured interviews to take the form of a "managed conversation" (*ibid*: 269), and thus produces richer data (Kvale, 1996). This approach allows for comparability across interviews as the same questions are asked of each respondent (Jordan and Gibson, 2004). Besides trying to generate rich, detailed information on the phenomenon under investigation, according to Brewerton and Millward (2001), the role of the researcher is to put the interviewee at ease, establishing rapport while maintaining control of the discussion (Cachia and Millward, 2011).

Like all research methods, semi-structured in-depth interviews have their limitations. Semi-structured interviews can be time consuming to conduct and analyse in that, firstly, it can be difficult to find participants who have busy schedules to volunteer in this process; and, secondly, these interviews can generate a large amount of data unrelated to the topic, which can slow down the analysis of the data; as such, selectivity is crucial. Given the in-depth nature of the interview, the interviewer must be appropriately trained in this technique so as to collect detailed and rich data from the interviewee. If this does not happen, inexperienced interviewers may not be able to ask prompt questions, and relevant data may be lost (Boyce & Neale, 2006).

Semi-structured interview data is also prone to bias as the researcher may knowingly or unknowingly steer the interviewee towards expressing views that agree with the research themes sought, while socially desirability bias may increase as the interviewees say what they think the researcher wants to hear leading to the reporting of spurious or misleading research results (Fisher, 1993). Nevertheless, effective probing combined with researcher reflexivity can reduce both researcher and respondent bias. Finally, the results of these interviews are difficult to reproduce, and thus lowers their reliability. Jordan and Gibson (*ibid*:222) argue that this is not a disadvantage in qualitative research "as what you sacrifice in reliability you gain in validity". Validity in semi-structured interviews is improved as researchers can clarify the meaning of questions for interviewees by adapting the wording, or probing further to elicit more in-depth responses (*ibid*).

4.6.1 Design of the interview schedule

Prior to each interview, the respondents received an interview schedule with a list of guiding questions upon which the dialogue was based (see appendix two). The questions were grounded in workplace theory and futures studies literature. With the exception of the questions one and eleven, all of the questions were open to facilitate further probing into other areas related to the topic that may not be on the interview schedule, and to collect rich, detailed information. Based on a broad review of the literature, the interviews addressed the potential use of futures studies by all those involved in workplace provision to prepare for the changing workplace. To reflect the natural progression of thinking from scanning the potential changes of tomorrow's workplace towards the employment of futures studies as an appropriate tool to anticipate such change, the question themes were divided into two main sections:

1. The changing workplace: The following broad topics for discussion in this part include: the definition of the workplace; the driving forces of change affecting the future development of the workplace; facilities and CRE management responses to these changes and uncertainties; and, the importance of strategic leadership in helping to prepare for change in the workplace.
2. Futures studies and workplace management: The themes for discussion here include: the performance of forward thinking in workplace planning and strategy development; the consideration of the long-term future in workplace strategy; the current methods employed to a) incorporate the future into workplace planning, and b) prepare for change, complexity and uncertainty in the workplace; the obstacles preventing long-term workplace planning; and, finally, the receptive nature of the FM industry to new strategic ideas and the factors encouraging futures thinking in workplace development.

These topics were used as a starting point to guide both the researcher, i.e. to maintain control of the discussion, and the interviewee, i.e. to keep them within the boundary of the topic.

4.6.2 The interview process

The interviews were conducted over the phone. Despite face to face interviews remaining the gold standard against which the performance of telephone interaction is judged, the employment of the telephone as an interview medium is gaining popularity, particularly within the private and business spheres in today's society (Cachia & Millward, 2011). Empirical research (Sturges & Hanrahan, 2004) suggests that the difference in the communication medium, i.e. telephone and face to face, does not affect the responses both in the length of the transcripts and in the type and depth of responses.

Telephone communication, in this context, was employed primarily for convenience. The sample to be reached was geographically dispersed with the majority of interviewees based in the UK. Other participants were located in the USA, Italy and Spain. Face to face interviews would be too costly and were not permitted by the researcher's budget. Furthermore, owing to the flexibility of the telephone interview process, a high response rate was achieved, that is if an interview was cancelled due to work commitments for example, it could be rescheduled at a time suitable for the interviewee through email communication some time later.

Before the interview process began, in some instances, the interviewee wanted to clarify whether this research was part of a larger research project for a corporate entity or the researcher's own. Even if parts of this research were conducted in collaboration with Johnson Controls Global Workplace Solutions, these interviews were purely related to the PhD research. Vigilance on behalf of the interviewee may arise on the grounds of commercial sensitivity. Similarly, some interviewees noted that their opinions, concerns and attitudes were those of a FM, CRE or workplace practitioner, and not those of the organisation in which the interviewee worked. The researcher assured each person that the research focus is on the general role of FM and CRE managers and workplace consultants in preparing for the future workplace, and not on individual company policy.

During the interview process, respondents shared their opinions, values, experiences and attitudes about the workplace and the potential use of futures studies in workplace planning and strategy development. Occasionally, however, interviewees used the

process to promote research they were undertaking. While some of this data complemented some of the conceptual underpinnings of this research, the majority of data provided was irrelevant to the context of this work and the researcher had to steer the discussion back to topic in question. Partly due to the novel nature of futures techniques in workplace planning and strategy development, some interviewees asked for clarity of the futures concept, and the researcher explained the process and its relevance to this field.

Before each discussion finished, the majority of respondents offered the researcher a chance to re-engage if points of significance needed clarity, to which the researcher agreed. Each interview varied in length ranging lasting between thirty minutes and two hours. The whole interview process was conducted over a three month period, which also included the transcription phase. The conversations were recorded to capture the respondent's ideas, opinions and perceptions as it is difficult to focus on the discussion when one is note taking.

4.6.3 Interview research sample

Given the goals and logic of qualitative research, non-probability sampling is often employed. Purposive sampling is one such approach where "sample units are selected on the basis of known characteristics which might be socio-demographic or might relate to factors such as experience, behaviour or roles, relevant to the research topic" (Arthur & Nazroo, 2003:109), in order to develop a detailed understanding of the phenomenon under investigation. Silverman (2009) further suggests that this sampling strategy is a method that is typical of a case study methodology. As such, the criteria for the sample selection are illustrated in Figure 4.3.

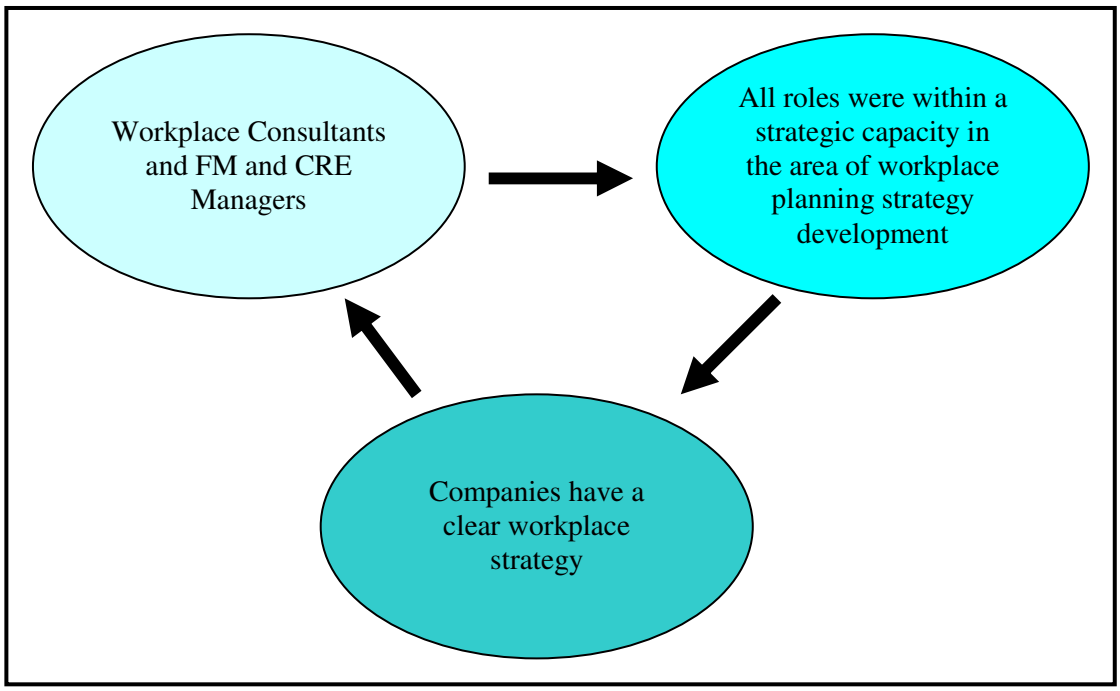


Figure 4.3: Interview Research Sample.

In total, 20 interviews were conducted, representing ten industry groups, between January and March 2010. Table 4.1 presents the number of interviews undertaken according to the various industry groups.

Industry Groups	**No. of Interviews**
Software	2
Beverages	1
Mining	1
Telecommunications	2
Airline	1
FM Company	3
Academia	3
Workplace Consultants	5
Furniture	1
Energy	1

Table 4.1: Semi-structured in-depth interview sample according to industry groups

Two approaches to select the respondents were chosen: the employment of an online business social networking site called LinkedIn, and recommendations (snowball sample).

a) Online business network

LinkedIn is a legitimate internet site which serves to connect people in the business sector. For the purposes of this research, connections to business profiles were established among the researcher and professionals in workplace development and research, as well as FM and CRE managers. Profiles were reviewed to seek out potential interviewees that met the sample criteria as set out above. To further the search, the researcher joined a number of group forums with a particular focus on the workplace. These groups include: CoreNet Global Workplace Community, European FM Community, Occupiers Journal: discussing performance with the property occupier, Workplace Innovation group. The researcher was not linked directly to the majority of the potential respondents, so an email was sent via the LinkedIn intranet email system. Of 25 emails sent, 11 interviews were confirmed, which resulted in a response rate of 44%.

b) Recommendations

The second approach for identifying potential respondents was through 'word of mouth' or snowball sampling. Snowball sampling refers to the "process of accumulation as each located subject suggests other subjects" (Babbie, 2010:208), and in this context, interviews were conducted based on recommendations and referrals. One respondent from LinkedIn was very interested in this research and offered to put the researcher in contact with his colleagues in the industry. The researcher provided the sample criteria, and the participant emailed a number of people stating the purpose of the research and to make contact with the researcher if interested. 12 responses were received and nine interviews were arranged. Three interviews could not be arranged due to busy schedules and time constraints.

4.7 Futures studies methods

A substantial part of this research, firstly, explores the potential changes affecting the development of the future workplace, and secondly, examines how futures studies can be employed by all those involved in workplace provision to manage uncertainty in workplace strategy development. By adopting and adapting the prospective through scenarios process, an array of futures methods were employed in the 'Workplace of the Future' study[66], and include: horizon scanning; strategic conversations; futures workshops, and CLA.

4.7.1 Horizon scanning

The horizon scanning technique was employed in this study to monitor workplace developments, trends and changes in the medium to long-term future. Horizon scanning is an effective technique to scan or track developments in global, regional, national and local environments as it offers a flexible approach that many research techniques do not; the process not only encourage the analysis of a wide range and extensive list of information and communication sources, but also promotes the scanning of unorthodox sources of information that might not be usually consulted in conventional research methods such as the documentary review (Gannon and Ratcliffe, 2005).

Multiple sources of information were scanned and analysed. They included: journals in the workplace and futures field such as the facilities journal, the journal of facilities management, the CRE journal, the futures journal and the foresight journal; electronic sources such as blogs, business forums, company website downloads (Unwired), and online workplace TV; unorthodox magazines such as Wired; official reports of CoreNet, Royal Institution of Chartered Surveyors (RICS), British Institute of Facilities Management (BIFM), European Facility Management Network (EuroFM) as well as local and regional government publications; and finally, previous documented futures exercises such as Ireland's national workplace strategy (NCPP, 2005) and the Future workspace (Schaffers *et al*., 2005). This technique is used as a starting point for preliminary research prior to the strategic conversations and futures workshops.

[66] This project was undertaken by the researcher in collaboration with Johnson Controls Global Workplace Solutions from May 2007 through to September 2009.

4.7.2 Strategic conversations

A strategic conversation is a special form of in-depth dialogue that encourages two-way expert participation to take place between both the interviewer and interviewee. It differs from other types of interviews in that the interviewer takes a more "active" and "creative" role than normally permitted during traditional approaches to interviewing (Ratcliffe, 2002b). Undertaking strategic conversations encourages an in-depth discussion of complex issues that may not be addressed as easily during more structured interviews because they allow for the incorporation of experience and insight, as well as detailed factual information (Gannon & Ratcliffe, 2005). Strategic conversations are today recognised as a critical component of futures work.

The strategic conversations were held at the outset of the scenario planning process, i.e. before each futures workshop. Like the semi-structured in-depth interview, a list of broad questions were prepared in advance, and sent to each interviewee prior to the strategic conversation so that they could have time to reflect on the issues and themes that might arise in the conversation. The questions were open and evocative in nature in order to trigger divergent thinking, and were based on the 'seven questions' approach set out in Lindgren and Bandhold (2003) (see appendix three for a full list of the strategic conversation questions).

Since a number of futures workshops were undertaken to explore several themes, such as the global, sustainable and smart workplace, the strategic conversation questions were adapted to seek an understanding of the workplace under each of these themes. At the outset of each strategic conversation and semi-structured in-depth interview, the researcher stressed to the interviewee that confidentiality was, and still remains, the highest priority. The strategic conversations lasted between 45 minutes and one hour. In total, 15 strategic conversations were conducted, of which two were conducted face to face, with the remaining conducted over the phone. All of the interviews were recorded and transcribed following each conversation.

4.7.3 Futures workshops

Futures workshops are one of the most effective methods for the exploration of the future, and the collection of rich, detailed data in a short intense time-frame. They serve as opportunities for stakeholders from different sectors of society to meet and discuss issues of common concern in a creative milieu (Jungk & Mullert, 1987; Gannon & Ratcliffe, 2005), regardless of power relations (Platt & Cooper, 2005). Participants, in this context, were carefully guided through a rigorous process that opened up and structured their thinking about the future workplace. On top of that, the futures workshops in this study were undertaken to assess the feasibility of using futures tools and techniques in the context of workplace strategy development.

a) The workshop process

Three workshops were conducted over a period of a year and a half, with workshops in May 2007, November 2008 and May 2009 respectively. Each workshop adopted a one-day format (see appendix four for one-day workshop agenda sample). Prior to each workshop, the strategic question, time line, workshop agenda and briefing pack, presentation of the futures process and methods were decided by the researcher, while the collaborating company organised the venue and participant invitations since Johnson Controls Global Workplace Solutions' reputation and client network is far more influential than the researcher's. Nevertheless, the sample requirement was discussed and confirmed by the researcher and collaborating project co-ordinator before any invitations were issued.

On the day of each workshop, the participants were guided through the futures process. The general structure of the workshop was based on the 'Prospective Through Scenarios' process developed by the Futures Academy in DIT. It is a combined methodology for exploring and shaping the future which draws upon the Anglo-American technique of scenario planning and the French futures method of 'La Prospective'[67]. The 'Prospective through Scenarios' process involves the creation of a

[67] The prospective refers to a "much wider approach and activity than other futures methodologies as it comprises not only of the study of the future, and an evaluation of alternative outcomes against given

single preferred future vision known as the 'prospective'. To start, a strategic question is set that identifies the underlying purpose of the workshop. Following the development of a set of plausible yet thought provoking scenarios, decisions are wind tunnel tested[68] and future proofed against them, ensuring they are robust in the long term and more likely to achieve the desired vision: the prospective (Gannon and Ratcliffe, 2005; Saurin & Ratcliffe, 2011).

The process involves a number of iterative stages, and offers a highly flexible and participatory approach, so that the final output represents the common views of all those involved in the process. Figure 4.4 illustrates the 'Prospective Through Scenarios' process upon which the workshop structures were based. Owing to the flexible nature of the process, workshops can be easily adapted in terms of the range of methods and techniques that can be used to suit the requirements of any group or organisation (see section 5.9 and 5.10 for the presentation and analysis of how the methodology evolved during the 'Workplace of the Future' study).

policy decisions, but also the will to influence the future and to shape it according to society's wishes" through the development of a preferred future vision (Ratcliffe, 2008:221).

[68] This refers to examining how each decision might look in each scenario, what the implications might be and whether or not there are any deficiencies.

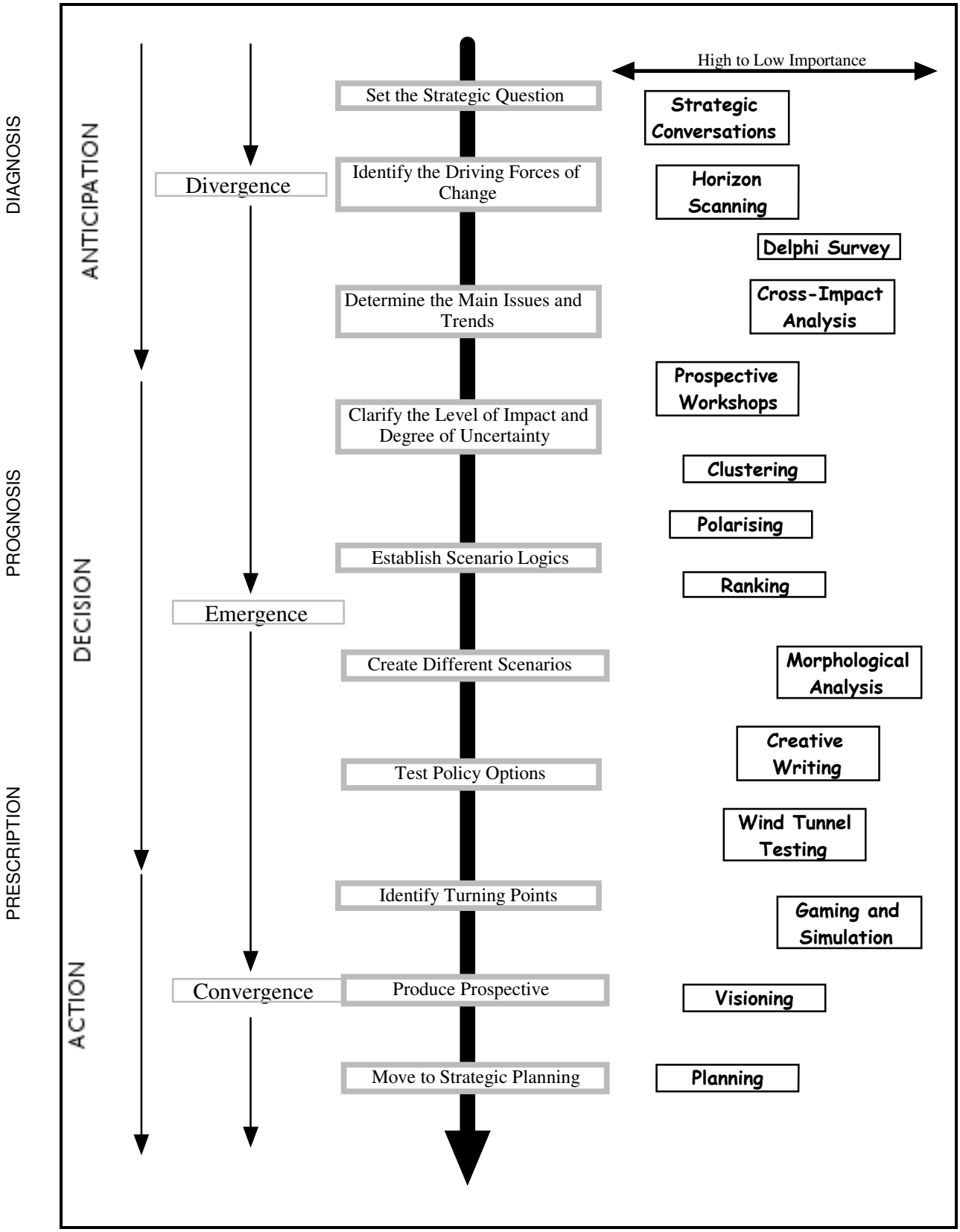


Figure 4.4: Prospective through Scenarios
Source: Ratcliffe and Sirr (2003) The Futures Academy

b) The role of the researcher within the workshop.

The role of the researcher changed considerably over the course of the three workshops. In the first workshop, the process was facilitated by an expert futurist as the researcher had just been introduced to the futures workshops concept, and thus lacked the appropriate experience to fulfil this role. Instead the researcher employed the participant as observer approach (Gold, 1958). This technique allows the researcher to gain a more holistic understanding of the context and the phenomena under investigation, by, for example, allowing the researcher to check definitions of terms used in the workshop, observe discussions of topics that might not be presented to the whole group at the end of the brainstorming session, and provide the researcher with a source of questions to be addressed by participants and interviewees (Kawulich, 2005).

By the second and third workshop, the researcher was co-facilitating the futures process. The facilitator does not actively take part in the workshop, but acts as a catalyst to help the participants to achieve the goals of the workshop and high performance in their work (Galt *et al*., 1997). The role of the facilitator is to harness different participant types, such as passive and energetic actors to encourage more effective communication during the event in the hope of creating a common language. Above all else, facilitation allows the researcher to observe the interaction between participants, build a rapport with them by offering encouragement and support, and, in this context, improve the process by observing whether or not the methods are effective.

4.7.4 Strategic conversation and futures workshop samples

Participant access and selection for the strategic conversations and workshops was a relatively simple task, largely thanks to the substantial client and employee database of the collaborating company and their reputation in innovative research development. In addition, strategic conversations were conducted based on recommendations and referrals; similar to the semi-structured in-depth interview sample approach adopted in section 4.5.3b. According to Gannon and Ratcliffe (2005), reverting to the 'usual suspects' should be avoided in strategic conversation and workshop participant selection. Instead, a diverse mix of key actors in the field of workplace provision representing different interests is selected to help ensure that a) there is sufficient

divergent thinking; and, b) there is a variety of competences incorporated into the process to optimise the depth and breadth of knowledge generation. Table 4.2 illustrates the grouping of actors that participated in the strategic conversations and workshops.

Grouping	Strategic Conversations	Workshop One	Workshop Two	Workshop Three
In-house CRE/FM	3	4	5	7
Senior managers		1		1
Architects	2	1	1	1
Academics	4	7	5	1
Space planner/designer			1	1
Workplace consultants	3	1	1	3
Research & Development	2	2	2	
IT Specialists				2
Sociologist	2	1	1	1
Johnson Controls Employee (International)	3	11	8	6
Total	**19**	**28**	**24**	**23**

Table 4.2 Actor grouping of strategic conversation and workshop participants

For a futures workshop to be successful, it is suggested that there should be between approximately 20-30 participants (Gannon & Ratcliffe, 2005). Prior to each workshop, the collaborating project manager sent out 40 invitations to potential workshop participants, and received: a 70% response rate with 28 positive replies for workshop one; a 60% response rate with 24 positive replies for workshop two; and, 58% response rate with 23 positive replies for workshop three. Similarly, the collaborating company provided a list of potential strategic interviewees for the researcher. Out of a total of 27 emails, 15 positive responses were received, resulting in a response rate of 56%. This sample is representative of a UK perspective, but a number of workshop and strategic conversation participants from different parts of the world, such as continental Europe, Asia, the USA, were included in the sample in order to understand workplace developments in the different spheres of influence.

4.7.5 Qualitative futures questionnaire

Prior to the first and second workshop, a qualitative research questionnaire was prepared and distributed through email to workshop participants in order to provoke thought at the outset of the futures process and, secondly, collect additional primary

data about the attitudes, beliefs and opinions concerning the future workplace. This data seeks to complement the information gathered from the strategic interviews and the futures workshops. Adhering to the qualitative element of the research, each questionnaire consisted of nine open ended questions to express their views without any influence from the interviewer or pre-specified questions. The questions related to various aspects of future workplace development, such as the drivers of change according to the DEGEST technique (Demography, Economy, Governance, Society and Technology), and the main opportunities and threats facing the future development of the workplace (a copy of the first questionnaire is set out in appendix five).

Using the same purposive sample criteria as the strategic conversations and futures workshops set out in 4.7.4, the population sample for the first workshop amounted to 64 individuals to include not only the workshop participants, but also Johnson Control employees and clients who could not attend the workshop. Out of the 64 questionnaires distributed, the initial response rate was 14%, with nine returned completed. A week before the workshop, a reminder email was sent, and nine more emails were returned, giving a total response rate 28%. The population sample for the second questionnaire consisted of 24 individuals as it was sent to all the participants invited to the workshop. The response rate was 41%, with a total of ten questionnaires returned. Feedback from some respondents at the workshop suggested that the questionnaire was time consuming, while the future oriented questions were difficult to answer, both of which could have had a negative impact on the response rate of the questionnaire.

4.7.6 Causal layered analysis

CLA is a futures method[69] that guides participants in examining the future through multiple levels of understanding. Participants not only use language and data to define the trends and issues shaping the future, but are also encouraged to focus on deeper levels of beliefs, social causes, metaphors and worldviews (Inayatullah, 2004). As mentioned in section 3.13.4, CLA, consists of four layers in which to explore the future: Litany, Social Causes, Discourses/Worldview, and Metaphor/Myth. In the context of

[69] CLA is used by many as both a methodology and method, but in this research it was only used as a method.

this study, however, the CLA method has been adapted by the Futures Academy, and now consists of three layers:

1) **Empirical** (obvious events, trends and issues);
2) **Interpretative** (underlying forces and reasons); and
3) **Exploratory:** (analysis of worldviews, cultures and values.

Moving beyond the rationalist framework of current workplace research, CLA was employed in this study to go further than this superficial analysis of workplace planning and development, and explore the past and present workplace within new worldviews and philosophies, to create new alternative workplace futures.

4.8 Complementary instruments for data collection.

A number of other methods were instrumental in complementing and enriching the data collected through the primary research methods mentioned above. The research brings together key concepts of foresight and conventional techniques and combines them with technical and external human intervention, such as the use of an artist, web forum discussions, and story telling.

4.8.1 Illustration

Visual art is a thought-provoking method used to stimulate thinking and dialogue in order to cultivate understanding. By using arts-based practices, participants connect on emotional and visceral levels creating a sense of empathy, which is a necessary precondition for challenging stereotypes (Leavy, 2009). As such, this method is useful in futures workshops as participants attend these events with deep-rooted assumptions, and visual art can prompt ‘thinking outside the box’, a requirement of the futures process. Employed in the final workshop, a team of artists illustrated the imaginative ideas, thoughts and opinions captured during the brainstorming sessions on a mural wall in the conference room. This method boosted the confidence of the participants to the extent they became increasingly engaged in their group discussions, and above all else, more creative as their thoughts emerged in visual form on the wall. Figure 4.5 is an

example of the visual art output from the workshop (see appendix six for other illustrative examples from the workshop).

Figure 4.5: Visual art output from a futures workshop

4.8.2 Web forum discussions

As the scope and nature of the internet shifts coupled with the growth in computer literacy, Wilt *et al*. (2011) observe how these factors are contributing to the growth in web-based research. The internet affords a rich resource of information and potential research participants, and the employment of on-line methods for conducting research is increasing in popularity largely thanks to their convenience, low cost and speed (Barchard and Williams, 2008). In this context, asynchronous web forum discussions were generated, in the group Occupiers Journal (Open Group) for Real Estate Occupiers, Service Providers and related professionals on the LinekedIn business network, to evaluate the viability of using futures methods in response to ongoing workplace transformations. The researcher began the discussion by posing a question[70],

[70] Can strategic long term thinking help FM and CRE practitioners define, manage and meet the challenges of the changing workplace?

and a discussion ensued based on the opinions and ideas of the group members. Though a group discussion like this may be public, an ethical issue emerges as the participants may feel they are part of a trusted community and use the space to divulge sensitive data (Eynon *et al*., 2008). To overcome this, the researcher communicated to the participants that some data would be fed into a larger body of research, establishing "netiquette" (Denscombe, 2007:50) before the discussion.

4.8.3 Storytelling

Storytelling is a fundamental form of human communication, and can "transform society by utilizing stories to create social change" (Lockwood, 1996:64). Storytelling gives a narrative account of an event or an experience, and can illuminate complex social phenomenon in a holistic and sensitive manner (Webster & Mertova, 2007). Furthermore, it is an invaluable technique for problem solving, critical reflection and skill development (Labonte & Feather, 1996). As such, this method was instrumental in conveying the ideas, thoughts and opinions that emerged during the workshops in order to create two sets of plausible scenarios and a vision of the future workplace. The scenarios and vision represent the perspectives of a collective group, and not just of an individual, demonstrating a breadth of knowledge generation, and thus improving the quality and rigour of the work.

4.9 Data analysis and presentation

Qualitative data analysis is concerned with meanings, and the way researchers understand patterns of behaviour (Denscombe, 2007). Within interpretive research, the process of data analysis is based on segmenting and reassembling data into a coherent whole (Boeije, 2010) as the researcher navigates back and forth through the data, and records points of significance related to the research questions and objectives of the research (Denscombe, *ibid*; Wink, 2008). At the outset of the analysis phase in this research, the researcher became immersed in the data by reading and rereading interview and strategic conversation transcripts, documents and field notes. The next

stage involved open coding[71] and categorising individual sections of text describing various aspects of the research problem, from which themes and relationships, as well as patterns and processes, commonalities and differences emerged.

The empirical data of this research is presented in three parts. Part one of chapter five scans the potential of changes affecting the future development of the workplace, by analysing and presenting the results from the strategic conversations and futures questionnaires. The data gathered from the semi-structured in-depth interviews, web forum discussions and documentary review is presented in the second part of chapter five, and provides a rich and detailed account about the different ways of thinking about, and planning for the future in workplace strategy development. The analysis of this data promotes discovery in that it highlights the need for a more innovative, yet systematic approach towards the study of the future in workplace planning. In the second part of chapter five, the data from the strategic conversations initiates the scanning of potential changes of the future workplace. In part three, the results from the futures workshops, CLA, illustration, and story telling are presented to demonstrate how the foresight technique of scenarios can assist all those in workplace provision to address change, complexity and uncertainty in the workplace.

4.10 Quality and trustworthiness of the study

A fundamental approach in any research study is to incorporate mechanisms that ensure the quality of the research, its process and its findings. Since this research is viewed through the lens of the interpretative paradigm, quality is addressed through Lincoln and Guba's (1985) notion of trustworthiness, and its related criteria: credibility, transferability, dependability and confirmability. Creswell (2007) recommends that these criteria be met particularly in case study research. The following sections describe the steps taken by the researcher to build a foundation for quality and trustworthiness in this study.

[71] Open coding is an analytic process through which concepts are identified and their properties and dimensions are discovered in data (Strauss and Corbin, 1998: 101).

4.10.1 Credibility

Credibility corresponds to internal validity in quantitative research (Shenton, 2004). It refers to the truth value of the findings, and exists when the researcher's findings are compatible with the perceptions of the people under study (Holloway, 1997). Credibility, in this research, is achieved through persistent observation and prolonged engagement during the futures workshops which enables the researcher to improve the futures process by verifying, for example, whether the methods in the process are effective or should be changed. On top of that, data generated from the interviews, strategic conversations and workshops is recorded and transcribed to ensure the trueness of accounts. Triangulation is another check on the truth value. In this study, however, crystallisation was employed as the researcher used more than three methods of data collection. This procedure reduces researcher bias since the substantiation of claims is linked to data instances from multiple sources. During the analysis phase, member checks were employed to verify the findings through feedback from participants to whom the findings and interpretations of the study were sent. Finally, some of this research has been peer reviewed in the following two journals, Journal of Corporate Real Estate and Foresight Journal. Questions and observations from peer scrutiny enabled the researcher to refine and develop a greater understanding of the research design, and strengthen arguments in the light of comments made.

4.10.2 Transferability

Transferability, the alternative term for external validity or generalisability, is concerned with how the findings in one context can be transferred to similar situations (Holloway, 1997), while acknowledging the research focus as idiographic[72] rather than the nomothetic[73]. If it is accepted that each case is unique in qualitative research, transferability is rendered less valuable. However, Denscombe (2007) argues that the case is an example within a broader group, and thus transferability should not be rejected. The case study, in this context, uses the commercial office as an example of how futures studies can be applied in workplace strategy development, but factories,

[72] This approach refers to the particulars of a single case and is usually identified within the interpretive traditions of social inquiry.
[73] This approach refers to multiple cases in order to demonstrate law-like generalisations and is usually indentified with quantitative approaches with the natural sciences. .

schools, third level institutions and hospitals may be the subject of the same discipline. To make this possible, a thick description is provided that describes accurately and in detail the strategic conversation process, their results and the futures methodological frameworks in order to provide peers and readers with a clear picture of the phenomenon under investigation. Furthermore, purposive sampling enables the researcher to maximise the range of information collected, and to provide rich detail about the changing workplace and the application of futures studies in workplace strategy development.

4.10.3 Dependability

Dependability, the alternative term for reliability, involves "accommodating changes in the environment studied and in the research design itself" (Toma, 2006:416), and documenting the methods and methodological choices of the emergent research design for external inspection (Lincoln & Guba, 1985). If a study is to be judged dependable, Holloway (1997) states that it must be consistent and accurate. An 'audit trail' (Lincoln & Guba, *ibid*) can facilitate this. Denscombe (2003:274) states further that this should entail an explicit account of:

- the aims of the research and its basic premises (purpose and theory)
- how the research was undertaken; and,
- the reasoning behind key decisions made.

The audit trail, in this context, is implemented throughout this chapter by clearly indicating the source of data, its collection method, data management and preparation, and analysis. As such, peers and readers are now able to carry out an "inquiry audit" so that they can follow the path of the research (Holloway, 1997: 161) in order to enable a future researcher to repeat the work.

4.10.4 Confirmability

Confirmability, the alternative term for objectivity, refers to the neutral stance of the researcher in order to ensure the findings are the result of the experiences and ideas of the informants and not an outcome of the biases and subjectivity of the researcher (Holloway, 1997; Shenton, 2004). Throughout this chapter, reflexivity has been suggested as an approach to consider the role of self in qualitative data analysis.

Personal reflexivity involves an in-depth exploration of the ways in which the researcher's personal history, interests, experiences, and beliefs have saturated and shaped their inquiry (Ryan, 2005; Klenke, 2008). Although the researcher, in this context, tried to remain objective throughout the research process, one particular issue can be distinguished that may have led to researcher bias: the researcher's strong support for the futures process which may have influenced participants' responses. Besides that, the researcher kept a journal throughout the process to enhance reflexivity.

4.11 Summation

In this chapter a detailed account of the research philosophy, research strategy and methods for data collection and analysis was provided. The research is viewed through the lens of the interpretative paradigm as the research focuses on ideas, opinions and attitudes about the future workplace. It concludes with the following insights.

1. This methodology demonstrates that qualitative research is appropriate for examining the development of workplace strategies.
2. The employment of a case study strategy in this research clearly indicates that the research problem can be investigated from two distinct perspectives, conceptual and practical, from which all the necessary data can be captured.
3. The analysis of the data is consistent with a comparative interpretive approach as the researcher navigates back and forth through the data to ensure data congruence among the different research collection methods.
4. The verification strategies, such as audit trail, recordings and transcription, are in line with what is expected in qualitative research to ensure the trustworthiness of the work.

Data generated from the semi-structured in-depth interviews, web forum discussions, strategic conversations, futures questionnaire and workshops, as well as documentary review supports the conceptual and exploratory phase of the research by examining how the force, issues and trends shaping the future workplace and how the future is constructed in workplace strategy development. Data from the futures workshops, CLA, illustration, storytelling, observation and horizon scanning provides the practical backdrop for the application of futures studies in workplace strategy development.

Having summarised and discussed how this research is executed in this study, the following chapter presents a description and subsequent analysis of the core findings generated from this research methodology.

5. The Workplace of the Future: Empirical Results

The previous chapter described the methodology employed to collect the data in this study in order to investigate the research questions set out in section 1.5. This chapter presents an explicit account of the results of the case study based on an in-depth analysis of experiences and opinions of key actors in workplace strategy development. The objectives of this chapter are to:

- identify the potential changes of the future workplace;
- examine how the future is constructed in workplace policy and practice; and,
- investigate how a scenarios approach could be employed to establish strategies for tomorrow's workplace.

Within each objective, various themes emerge, and are examined. The outcomes derived from these findings are subsequently used as a backdrop in order to develop a framework for workplace planning based on the Prospective Through Scenarios process that assists facilities managers in dealing with change and complexity in the development of workplace strategies.

5.1. Scanning the potential changes of tomorrow's workplace

Based on a comprehensive review of the literature as shown in chapter two, it has been established that the workplace is in a state of transition that is having a profound impact on the way in which organisations plan, design, finance, occupy, use and manage the workplace. Since change remains the one constant in the workplace, all that is certain is the workplace of the future will be very different from that of today. As such, this section examines the interrelated forces, issues and factors that will determine the future shape and performance of the workplace. Based on an analysis of the strategic conversation, futures questionnaires, and semi-structured interview data as well as the three 'workplace of the future' reports (see appendix seven for unabridged versions), five general themes were identified as follows:

- the current and future workplace
- the global workplace;
- the sustainable workplace;
- the smart workplace; and,
- the effects of these potential changes on the role of the FM.

The proceeding sections compare the current and future workplace, analyse the key driving forces of change, the progress of future workplace development, together with an examination of critical areas of concern in implementing policies and recommended policy directions. The section concludes with a discussion regarding the effects of such potential change on the role of the FM.

5.1.1. Current and future workplace

All of the strategic conversation respondents were asked to describe the current and the subsequent future workplace from which a direct comparison could be facilitated between the two groupings. With regard to the work environment, a clear vision of change occurs over a 20 year time frame to suggest that the current uncertain, passive, banal workplace will diminish as the hybrid (virtual and physical), fluid and effective workplace evolves.

While the majority of respondents believed that the workplace is an integral part of a business and its operations, the current status of the workplace does not fully reflect this belief. Hierarchy, designated territory, traditional, paradoxical, badly managed, cluttered and passive all are words that respondents used to describe the current workplace.

Despite the shift from cellular offices to open plan, one respondent identified a link between hierarchy and territory, suggesting that the "executives, partners, and some managers continue to harness the expectation of owning office space". Another respondent highlighted that most employees still work in designated space: "most white collar workers[74] have a designated territory within the workplace that encourages the employee to physically work in that place. The traditional relationship between the workplace and the physical location, however, is breaking down, but we are still in the accelerating part of the curve". The paradoxical workplace refers to how the FM and CRE industry is engaged in long-term workplace and work style changes but decisions continue to be based on short-term business realities. This trend is likely to continue as many respondents feel that the complex fabric of the workplace, particularly external influences and the fast-paced dynamism of the workplace, is not understood by many

[74] These workers usually perform job duties in an office setting (Scott, 2012)

stakeholders in workplace provision. As such, the workplace remains as a passive setting for work.

By contrast, respondents tended to see a more positive future. Flexible, advanced and interdependent, efficient, effective, diverse, hybrid and small scale describe the future workplace in 2030. Facilitated through technology, many respondents believed there will be fewer large facilities as "workers choose to work where they want, when they want and how they want"; and, flexible space will be utilised to adapt to a wide range of different work situations: "broadband will become as important as rent". A small number of interviewees asserted that the workplace will be shaped by users together with management and FM and RE experts in order to create a more efficient and effective workplace for the organisation.

The link between the physical and virtual workplace will become more seamless and fluid, enabling work autonomy and self-determination, increased interaction and freedom from bureaucracy perhaps to develop and express workers creativity more positively. Finally, one respondent articulated that there could be "fewer office days, but not an 'office less' future" highlighting the role of the workplace as a space that fulfils the workers social and cultural needs: "if the members of an organisation don't gather together somewhere from time to time then the bonds of that group must be weaker, and will weaken fatally if they never meet".

The results from the different time frames suggest that the traditional workplace is in decline as the collaborative, vibrant and open workplace vision evolves to promote newer styles of activity based working and interaction in what are now just traditional workplaces. But there are significant obstacles to overcome. Perhaps the main difference that distinguishes the future workplace from the current one is the need to develop a mindset that can tackle the conscious design of workplace systems – people, processes and places. To understand how the workplace is changing towards the future vision, it was deemed necessary to investigate the driving forces of change, issues and policy areas impacting future development of the workplace; each of which are presented in the following three sections.

5.1.2 Global workplace

The world is becoming increasingly complex, more competitive and better connected (Saurin *et al.,* 2008). As such, crucial issues on a global level should be understood as they are likely to impact on workplace development in the future. Based upon the data gathered from five strategic conversations, 18 completed futures questionnaires, a futures workshop (28 participants), a number of sub-themes emerged around the issue of the global office, and include:

- Driving forces of change affecting global workplace solutions.
- Progress of future workplace development.
- Priority areas for future workplace development.

5.1.2.1 Driving forces of workplace change

Driving forces are the external factors that are causing, or might cause, changes in the workplace system and FM practices. These factors are external to the stakeholder system of interest in that they are considered to be beyond the control of those involved in workplace provision. According to Dewulf *et al.* (2003), driving forces can be categorised according to their predictability:

- Mega-trends are well established driving forces and do not have a tendency to shift over the planning term.
- Risks are unpredictable driving forces. They have a strong impact on development but their effects are uncertain.

Table 5.1 groups the responses of both the strategic conversations (SC) and questionnaires respondents from which the global drivers affecting the future development emerge. Based on the frequency of responses, five of the most dominant forces are described in each category.

Mega-trends	**Description**
Demography	As the world population grows, each new generation affects the workplace and FM industry and the traditional values of work, by revolutionising the way work is undertaken: more women working and having a career, increased part-time working and changed health care provision.
Technology	The use of network communication is becoming ubiquitous. In particular the use of virtual rather than physical interfaces in many aspects of work is changing the way business is conducted and how organisations relate to their physical facilities.
Globalisation	Thanks to the freedom of the market, organisations are creating legitimate access to local, national and international markets. This has created increased competition and improved market positioning while prompting innovation and entrepreneurialism.
Sustainable Development	The global economy is outgrowing the capacity of the earth to support it. For the property professions, sustainability and corporate social responsibility (CSR) are fast becoming mainstream business imperatives.
Talent War	A scarcity of skilled employees at a time of increased globalisation and competition.
Risks	**Description**
An Act of God	Haley's Comet going off course and moving towards the earth.
Bureaucracy	Countries that are heavily governed can lose out in the global race for innovation.
China's Future	Will China dominate world trade, energy resources, innovation and security, and close the door to the Western world by becoming a sustainable self contained community? This depends on its future stability.
Not enough resources	Dwindling supplies of natural commodities will impact the design and development of space leading to more sustainable workplaces, but legacy building stocks could lead to difficulties in regenerating big commercial cities.
Pandemic/Technology risk	Threats such as bird flu and the technological risk of viruses and sabotage could have enormous implications on the workforce if there is no extreme event preparation in place.

Table 5.1 Grouped strategic conversation and questionnaires responses for the global drivers of workplace change.

At the organisational level, several SC respondents (29%) highlighted a significant service operation management issue in that there are different drivers of workplace change for different industries, such as health, education, as well as public and private

sectors, and FM is applied differently in each: “In the education sector, for example, they have no money to support the maintenance and upkeep of their facilities yet they trade through space. I have a seminar in this meeting room and people pay thousands of pounds to come here and it is not what they expect”. It was widely acknowledged by the respondents that the cost base driver between the public and private sectors, for example, is fundamentally different in that the private sector has more available funds to manage the workplace. In spite of this, one of the SC respondents believed that strategic opportunities might arise in the public sector as management looks to outsource a predominantly in-house activity. At the regional level, drivers of workplace development differ between countries highlighting push factors, such as competition, cultural and legislative issues. These differences must be recognised when scanning potential drivers of change in workplace development.

Since the scope of this research is centred on the commercial office, the SC interviewees were asked to identify the most common push factors for workplace change at this level. According to the majority, workplace change is driven from the top down as the organisation grows, contracts or diversifies, suggesting space is not stable over time. Another motivation behind workplace change is cost efficiency. It is split into two categories:

1. The workplace is seen as a cost/overhead rather than an investment particularly when the cost of space in prime locations is rising. The FM team must try and reduce it as one respondent puts it: “there is an issue with the high cost of facilities in relation to poor utilisation rates”.
2. The FM team focus on cost efficiency as they see it as an important “ingredient” in business development, and will ultimately have a significant impact on the core business bottom line.

In one case, workplace change in a SC respondent’s company was driven by the needs of the users. They were involved in the design process to improve the value of the workplace to business. Although 71% of SC respondents believed that while the user might be consulted they have little influence in reality. Given the results of greater uncertainty in the commercial market, greater institutional flexibility around leasing is driving change in the workplace, as is the need to work smarter and faster in the competitive knowledge economy.

A couple of SC respondents asserted that another motivation is organisations who promote their organisational brand and culture to attract and retain talent. Although, according to one SC interviewee, the knowledge around the role of offices in attracting talent is limited: "they sort of know the importance of the workplace in drawing in workers, but they can't quite put their finger on what is important". Another factor, recognised by all of the SC respondents, is mobility. Driven by technology advances, home based working and telecommuting is increasing, giving rise to the "double use of space or hotdesking". According to one SC respondent, however, there is a lack of research and commercial examples that illustrates the effectiveness of distributed working models, which will inevitably slow down the progress of the future workplace.

5.1.2.2 The progress of workplace development

The literature (Saurin & Ratcliffe, 2007) indicates varying types of organisations that have a direct impact on the progress of workplace development. They include:

- *Traditional*: This organisational structure is typically characterised by bureaucracy, hierarchies and status-own space designation. Upper level teams are responsible for the management and decision-making process in the organisation. Silo management is prevalent in workplace management.
- *Team-based*: A non-traditional organisation, it has a flatter organisational structure to the traditional organisation, and lower level teams are involved in management activities. Creativity, collaboration, mutual trust, shared leadership and knowledge-led are key characteristics of this structure.
- *Agile*: Typically, work is valued as an activity and not a place, with a focus on performance rather than attendance. Property is no longer owned and managed by silos. Flexibility is key as fast-paced change is embraced based on the demand for space.

When asked to discuss the impact of such structures on the likely progress of future workplace development, all of the SC respondents agreed that the first theme represents the status of many organisations today and is likely to slow down progression. A general feeling emerged that in the current austere climate many FM teams and senior managers need to fully understand the value, impact and cost of holding and occupying space to their business. As such, the majority of SC respondents (71%) felt the latter two organisational structures enable greater progress. One respondent also stressed that

the workplace will become more advanced as the interdependence between people, process and place is nurtured and understood, but it is claimed that "people who have a wider perspective on the term workplace will be more radical in their thinking to make this transition happen".

Of those canvassed in the futures questionnaire, the likely future progress is affected by two different factors, which are categorised into two groups: the potential opportunities that arise if greater workplace progress is undertaken (Table 5.2); and, the threats that affect the future development of the workplace (Table 5.3).

Themes	**Opportunities**
Cost	The future successful development of the workplace could lead to the reduction of costs related to property holdings and occupancy.
FM	Continued progress could lead to strong economic growth in the FM service industry.
Operations	Operations are likely to become an important management activity.
Knowledge	There will be increased knowledge generation to build, retrofit and manage creative working environments.
Communication	The office will become an effective interpersonal meeting space.
Technology	ICT advance will further facilitate the transition to flexible workplaces.
Work/Space relationship	There will be variation and task-related tuning of workspace.
Work-styles	Flexible working will complement new emerging lifestyle changes.
Integration	Further integration of design issues in change management will be enhanced.
People	Greater diversity in the workplace will exist.

Table 5.2: Potential opportunities arising from workplace progress.

By contrast, the questionnaire respondents identified an array of issues likely to threaten the future workplace. These barriers must be understood and broken down in an effort to secure the likely future progress towards a sustainable and smart working environment.

Themes	Threats
Globalisation	The assumption that the business "load" will remain in the UK/European catchment area.
Mindset	The inability to overcome entrenched professional positions and influence decision-makers to invest in longer-term sustainable solutions.
History	Legacy issues leading to the unlikely replacement of existing, cost draining workplaces.
Design	The standardisation of workplace solutions.
Work	Antiquated thinking regarding flexible working.
Regional differences	The lack of knowledge concerned with different cultural expectations; for example, the marked differences in workplace settings in the UK and Germany.
Attitudes	Negative corporate attitudes leading to limited flexibility and creativity, coupled with financial restrictions can threaten the real value of the workplace.
Trends	The development of the workplace is based on fads and fashions.
Fear	Global threats of conflict and terrorism.
End users	Lack of user involvement.

Table 5.3: Potential threats impacting future workplace development.

Such challenges will greatly influence the successful development of the future workplace. To address these issues, 50% of the SC respondents agreed that a transformational mindset shift is required of all those involved in workplace provision. One SC respondent stated that this will be made easier as the link between the workplace and the core business become closer aligned over the next 20 years and organisational goals and values become increasingly explicit and embedded in the artefacts and services of the corporation.

5.1.2.3 Priority areas for future workplace development.

The SC respondents and workshop participants identified five key factors around which workplace decisions should be contextualised in the future. Among them were:

- Knowledge Capital.
- Workplace Culture.
- Quality of Life
- Technology and the Environment.
- Large Scale Governance.

An important concern raised by respondents was knowledge capital management. Representatives from the FM and CRE group highlighted the challenge of managing intangible elements in the service environment; this includes not only the collection and utilisation of tacit knowledge, but also the organisation, management and leadership of employees who are not in the physical workplace on a regular basis. Although FMs are typically stewards of managing the physical asset of the organisation, the transition towards a knowledge and information orientation raises the concern of the importance of FM in the broader business perspective. A consensus of respondents believed the scope of the FM will broaden to address this issue, but the industry must demonstrate that supporting staff from a service perspective adds value all the way along the business chain.

To achieve this, one SC respondent suggested the importance of understanding the life-cycle of FM, while another SC respondent stated that the workforce will lead FM in this way: "FM must learn to understand the needs of the new generational workforce". One workshop participant highlighted how innovation potential in FM is very different between the FM that has experience and no education versus those with experience and education; the latter approach enables analysis of problems resulting in the potential for added value and competitive advantage. In addition, an SC respondent expressed the view that there is a growing expectation of how the FM deals with the concept of obsolescence with the onset of knowledge capital management.

The majority of the SC respondents expressed the opinion that other value aspects of the traditional office environment should not be lost and a much better understanding of issues like culture, symbolism and branding that have largely been taken for granted, is needed. This is seen in the varying organisational attitudes towards space: on the one hand, space is limited in how it supports social and cultural processes; and on the other, space is utilised to enhance productivity and express the corporate culture. The former approach is the most dominant in current workplace environments, with only a few examples of the latter. Another important issue that was raised by one respondent from the research and development group was the need for more attention and understanding around the value of informal contact within organisational processes and how it can be replicated on-line. 50% of SC respondents believed that space and culture are

intertwined, with one respondent stating: “space must go hand in hand with new attitudes to management”.

To a lesser extent, 28% of SC respondents discussed the issue of quality of life in the workplace. Given the austere measures organisations are currently taking to survive in an uncertain market, there has been an intensification of work. The respondents agreed that a renewed focus on work/life balance issues is required. Specifically, one SC respondent believed that the existing arrangements in many organisations have been inflexible to deal with the ongoing changes on the corporate landscape. If utilised correctly, it is asserted that employee performance would be driven by results-based output rather than input. Lifestyle facilities in the work environment respond to the issue of work/life balance by facilitating staff to work flexibly, virtually and remotely from the home, office or elsewhere from which “mutual trust, employee empowerment, loyalty, self-management, and autonomy” arise.

The issues of technology and environment were discussed by the SC respondents. While these themes could be treated as individual areas for policy analysis, it has emerged from the data that they are interrelated. One SC respondent suggested that the environmental agenda in workplace development is “a tick-box exercise, driven by regulatory industry sector requirements”. Placing this situation in context, one SC interviewee criticised the environmental focus in relation to workplace planning: “just because they cut carbon, reduce their water usage and reorganise their waste plan; those actions do not drive workplace planning, they are just issues that have to be dealt with in the process”. Nevertheless, 50% of SC respondents highlighted that if space is used more effectively, less space equates to less carbon which equates to less cost. When asked how to facilitate this, connectivity was said to be key, particularly as the use of network communication is becoming ubiquitous and issues of security and speed, robustness and price are resolved.

The last issue raised by respondents was large-scale governance. Many respondents (57%) felt that corporate governance will become a significant challenge over the next 10-15 years as the integrity of corporations, financial institutions and markets are essential to maintain confidence and economic activity. Given the reasons for the economic downturn and the shifting value system in Europe towards self expression

that prioritise environmental and social issues (WVS, 2007; O'Brien, 2009), several SC interviewees (42%) believed that there are significant signs that ethical business practice and corporate social responsibility (CSR) are on the up-turn, but companies are only at the cusp of the wave of change. According to the representatives from the workplace consultants and FM and CRE group, FMs should be at the front line managing CSR initiatives that deal effectively with the organisation's environmental, energy and community issues which can be attributed to increased public consensus and shareholder expectation on "greening" portfolios: "FMs need to manage these issues more directly than ever before".

As outsourcing increases, specialist FM organisations must adhere to the same accountability measures as every other organisation. Members of a global FM organisation in one workshop group (32%) raised the issue of regulation to address accountability and governance issues. Due to recent corporate scandals and the associated decline of public trust in accounting and reporting practices, they highlighted the issue of the perceived benefits and costs of implementing, for example, the Sarbane-Oxley Act[75] in the US: "the employment of this approach is affecting our organisation. Adhering to section 404 requires us to document, in rigorous detail, our procedures to ensure the accuracy of our financial statements, but it costs billions of dollars in auditing and legal costs which far outweighs whatever safeguards investors might gain". They stated that excessive intervention "can suppress creativity in the organisation and cause operational difficulties. What we must do is find a balance between legislation and best practice".

At the workplace level, there is a widespread lack of vision and leadership in setting the future direction of the workplace. The majority of respondents (85%) attributed this to the fact that "FMs have no voice in the boardroom" and the fragmentation of workplace management control which enables the continuation of silo management in workplace development. According to two SC respondents, there are only poor processes and practices regarding effective and meaningful FM participation in planning for the future workplace. To address this issue, there was a call for a vertical and horizontal integrated approach to be established between all those involved in the service supply chain (such

[75] Sarbanes Oxley was identified as an auditing facility, employed in the US, to monitor accountability and awareness of governance issues.

as designer, developer and operations manager), and across FM, HR and IT departments. The literature states that FMs can become the driving force behind this approach, through strategic conversations and futures workshops (Saurin and Ratcliffe, 2011), as effective property professionals do not wait to be told what the plan is; they actively seek out strategic insight (O'Mara, 1999:56).

5.1.3 The sustainable workplace

Sustainability is not just part of a market cycle, nor simply a significant event, it is a structural shift in how people think about and do things (Ratcliffe, 2008). As discussed in section 2.9, the impetus for delivering action on sustainable development is accelerating worldwide. There is a growing realisation that sustainability will impact upon the likely nature of the future workplace. From the analysis of data derived from five strategic conversations, ten futures questionnaires and a futures workshop (24 participants), a number of sub-themes relating to sustainability, the workplace and the implications for all those involved in workplace provision were identified. They include:

- Challenges facing those involved in sustainable workplace provision.
- Catalysts for creating the sustainable workplace.
- Areas of future strategic concern.

5.1.3.1 Challenges facing those in sustainable workplace provision.

The SC respondents and workshop participants identified five significant challenges that will affect the future development of the sustainable workplace. They include:

- The Conventional (Taylorist) Office.
- Acceptance.
- De-socialisation of the workplace.
- Energy.
- Performance Measurement and Targets.

One respondent representing the architect sample asserted that the conventional office building is no longer a stable building type. It was emphasised that they are causing further environmental degradation because they are a product of a supply chain that is

uni-directional, feedback free and antiquated in nature: “this Anglo-Saxon supply chain of services could be catastrophic in terms of sustainability and workplace design”. On top of that, it was argued further that this challenge is exacerbated by the self-serving belief of architects that new buildings are the inevitable answer to whatever problems the clients have to address. In the future, however, the same respondent, supported by others, believed that there will be a switch of accent from the present supply chain approach to a demand chain attitude, and the fixations with “new build over reviving old”; “more rather than less”; “large not small”; “prescriptive as opposed to emergent” will be reversed.

Identified by a workshop participant, another challenge that will effect the future development of the sustainable workplace is the failure to accept the need to build sustainable facilities to address environmental issues, such as climate change. Despite the existence of good examples of high profile commercial buildings meeting high green standards, such as Bank of America tower in New York and Wessex Water Building in the UK, many organisations do not follow the example they set: “examples of this kind of development tend to be rather isolated”. According to several workshop participants, this can be attributed to the fact: there is a lack of clarity around the term sustainability: “Sustainability means different things to different people. For an individual business or growing economy it means sustaining the business and noting environmental costs, and yet the global definition may be one of survival of the species”; “there is a lack of interest in sustainable development at the boardroom level”; “individuals and FMs managers are not green aware as they have not got there head around the scale of this problem”; and, “the retrofitting process is extremely expensive”.

Another challenge raised by the majority of SC respondents was the de-socialisation of the workplace. It was widely acknowledged that as climate change, carbon accounting, and increased travel costs become real issues for organisations, distributed working and workplaces will become more prevalent in the future: “there will be a shift from a physical place built on relationships to a virtual office space built on nothing”. The respondents believed that the challenge will be harnessing informal interaction and the coffee machine culture as they are important elements of the emerging knowledge economy: “the value that some organisations see is creativity which is released in the physical workspace, but it can disappear if we are not careful and we get too excited

about home-working". As flexible working increases, another challenge arises, as one SC respondent stated "the utilisation rate gets worse, and if you are going to focus purely on the physical office, and not understand how employees work and utilise the workplace, then the space utilisation issue will not be addressed adequately". One workshop participant puts it: "the design and support of future work activities should be the new focus – not just building and gear". The overarching challenge, therefore, is to evaluate and understand change in the workplace beyond the scope of FM to include HR and IT.

The majority of SC respondents expressed the opinion that energy cost reduction will become a significant challenge in the future "as energy becomes more expensive through a series of step changes". One SC respondent stated that "workplaces with a high level of energy consumption will become ineffective for the organisation in the long-term, and thus depreciate in value. The disposal of these kinds of assets will become an increasingly difficult task as organisations begin to look for energy rated workplaces". The challenge is "to consider the workplace energy issue in the long-term and rethink current decisions that are driven by immediate concerns".

Performance measurement was identified by a workshop participant as challenging the successful development of the future sustainable workplace. The participant from the academic sample expressed the opinion that in the absence of any green international definition of what we mean by green building and workplace, two main building rating systems lead the way in setting benchmarks, BREEAM (UK) and LEED (US and Canada), upon which many performance measurement systems are based. However, it was argued that the dominant influence of these systems can lead an organisation to set a standard in the benchmarks that might not be right for the organisation reaching its environmental performance level: "if you start looking at BREEAM, there are issues about how they assess, rate buildings and how they use weightings and measurement systems, in many ways simplistic but they factor and become the standard. So that is a problem, the standard you make in the benchmarks may not be right".

5.1.3.2 Catalysts for creating the sustainable workplace.

It was widely agreed by the SC respondents that these challenges are not only a supply side problem. Sustainability is not only about buildings; the building approach is necessary but not sufficient. One respondent argued that even if a significant amount of new office building construction and retro-fitting was undertaken it would still not solve the "green" problem. Rather, emphasis should be placed on changing the behaviour of individuals: "the green profile of an organisation is not only the sum of the buildings, but also the sum of the green profile of each of employee. If you shift the mindset at the individual level, the individuals will start to change the environment". In addition, another respondent considered fear and panic as a catalyst for change towards the sustainable workplace.

The futures questionnaire respondents identified an array of catalysts that would transform the traditional work environment to tomorrow's workplace driven by the imperative of sustainability. They are listed as follows:

1. The integration of corporate social responsibility (CSR) and triple bottom line accounting processes into the organisation's business culture.
2. The business case for sustainable workplaces is robust enough to convince business leaders they are a source of long-term competitiveness.
3. Extra costs and taxation of traditional workplaces.
4. Leadership that genuinely engages FM, HR and IT to act for the combined good of the business.
5. Consumer and customer pressure on corporations to consider societal and environmental factors in their decision-making.
6. General compliance with standards as government intervention increases through legislation, regulation and monitoring.
7. The expectation of generation Y looking for more freedom and flexible ways of working.
8. Growing number of training programmes to enhance awareness and understanding of the sustainable development imperative.
9. Social media is democratising and could radically change current rigid and controlling organisational structures and practices. Their adoption could lead to emergent, self-directed sustainable working practices.

10. Insecurity of energy supply and increasing innovation in energy efficiency technology.

There was a general consensus among workshop participants from the academic sample that the sustainable workplace should become a business imperative given the significant part buildings and workplaces play in energy consumption today. In the future, several SC respondents (60%) believed issues relating to sustainable development will not be addressed on an ad-hoc basis; instead, they will become increasingly integrated at both the strategic and operational level of workplace management.

5.1.3.3 Areas of future strategic concern.

The SC respondents and workshop participants identified five themes on the future development of the sustainable workplace. They include:

- The changing role of FM.
- Compliance and accountability.
- Awareness.
- Changing behaviour.
- Technology.

The role of the FM will change significantly over the coming decade. One workshop participant argued that optimising the environmental performance of single products in the workplace, such as office furniture, room structures, flooring, lighting, HVAC and building shells is not enough; the necessary radical improvements will only be achieved by adapting a system-oriented view on integrated products and workplace activities. In doing so, the role of FM "will become work activity management which takes an overall system view, and will be supported by new quantitative tools that will track the impacts related to the activities and improvements, and also qualitative tools that assist in the understanding of needs and changing behaviour". In such a new role FM "can contribute to effectively avoiding risks of immediate improvements in one activity area being overcompensated by higher risks in another". According to one SC respondent, FM will deliver a bespoke set of services to the organisation, avoiding a one-size-fits-all approach in developing the future sustainable workplace.

Two workshop participants from the CRE/FM sample raised the issue of compliance with regard to the future development of the sustainable workplace. For sustainability to become a business imperative, they stated that at present it is difficult to achieve because of the strong need to strive for growth and profit; the two fundamental drivers of business: "it is difficult to turn the tide of change effectively without disrupting one of these dynamics – profit, design, and the business" and "there is this whole balance to be struck, creating a dilemma for us". One workshop participant stated "against the backdrop of shareholder investment, the driver has to come from a higher level to want to make people change their outlook towards the green issue. It will probably come through mandatory compliance and legislation".

One way this approach can benefit organisations, as another workshop participant stated, is through the convergence of global construction standards through proper legislative channels, particularly in the case of multinational property portfolios: "working for a global organisation we see countries with much higher standards in terms of construction, and as a result of the uneven application of building standards the company ends up paying a high price with an assortment of different workplaces that may not add value to the company". According to one SC respondent, "political leadership is required that will be prepared to treat the environment as seriously as going to war". One SC respondent stated, however, that over regulation could become quite restrictive for organisations, and result in a standardised approach to sustainable workplace design: "an attempt should be made to combine both voluntary and mandatory approaches to address the sustainability issue". As a result of growing legislation over the coming decades, the participants believe that more and more organisations will be held accountable for the way in which they engage in their business. One workshop participant expressed the opinion that the "whole workplace supply chain will become the responsibility of the organisation as full carbon accounting comes into effect".

For sustainability to be embraced by both organisations and workplace providers, the motivation must come from an awareness of the importance of sustainability for the business. One SC interviewee pointed out that organisations and individuals need to understand where the real truth, "the hard facts on sustainability", is obtained, and establish objective sources of information. Education was identified, by the majority of

informants (80%), as a significant factor that will play a pivotal role in making the vision of a sustainable future a reality. Organisational learning will also be important in imparting knowledge, skills and values of sustainability through the different generations to enable organisations recognise opportunities and assist them to effectively pursue new ventures. Another respondent stated that research on the validity of the business case of green investment will continue. However, several workshop participants (29%) also recognised the growing conflict between economic expansion and sustainable development in the emerging markets of India and China, making the future transition to a world of responsibility and wisdom increasingly difficult as these countries believe they have a right to prosper like their Western counterparts.

Another conflicting issue, identified by the majority of SC respondents (60%), was behavioural change, the cornerstone of sustainable development and practice. It was widely agreed that a commitment to an existing course of action creates inertia to change. To overcome this, behavioural change must occur at the individual level in order to shift the societal mindset towards a longer and wider sustainable future by making sustainable policy and practice simple to understand and implement. In doing so, one SC respondent stated that highlighting the value of personal contribution and reward systems will encourage individuals to change. By contrast, several workshop participant (12%) believed to a lesser extent that there will need to be a series of disasters before any real behavioural change in energy consumption and sustainable activities becomes politically and socially possible: “selfishness of individuals and societies will dominate behaviour worldwide”. Nevertheless, one SC interviewee believed that collaborative leadership can empower employees to make the necessary change as this type of leadership can “foster accountability and responsibility at all levels within strong and connected organisational communities”. Also, it encourages communication between top management and “everyone along the business value chain in an effort to capture their critical knowledge to drive the organisation forward”.

Another issue, cited by the majority of SC respondents and workshop participants, was the impact of ubiquitous, powerful and reliable IT on the future development of the sustainable workplace. 33% of workshop participants stated that the sustainability debate and ubiquitous IT should drive the step change towards fewer buildings that will be used more intelligently and intensively: “Buildings should actually equal a vehicle

for communication to become a social interactive space". But they argued existing work structures and styles struggle to support and utilise new technologies: "future technologies are already here; many businesses are just not changing old working habits and so not taking advantage of the potential these tools offer to transform the world of work". In essence, people and place are no longer important; rather it is the link between people and communication which will become increasingly significant. In the future, there needs to be more clarification on what is meant by virtual collaboration as well as increased emphasis on measuring and evaluating teleworking and computerised services impact on the design and management of the workplace and on the performance of the organisation. One SC respondent even stated that "videoconferencing will become as interactive as human interaction is today".

5.1.4 The smart workplace

As referred to in sections 2.8 and 2.9, technology is beginning to play a major role in enabling new ways of working and collaboration at work. Technological solutions for the workplace and for employees have increased so dramatically that what is new today is frequently already out of date tomorrow. This scale of technological change creates the need to reflect on potential interrelated trends, factors and forces that determine the future shape of the smart workplace in order to align the workplace with these changes and optimise its performance. From an analysis of data derived from nine strategic conversations and a futures workshop (23 participants), a number of sub-themes were identified that will impact on the future development of the smart workplace:

- Significant trends.
- Policy themes that enable decision-makers to exploit opportunities and prepare for threats that the future may bring.
- Likely threats that could deter workplace decision-makers from developing the smart workplace.

5.1.4.1 Trends affecting the future development of the smart workplace

Despite the fact that the rate of technological change is patchy and unpredictable, it was widely accepted among SC respondents that technology is becoming a key enabler shaping the workplace. Technological products are becoming smarter, smaller and more

convenient to facilitate a rise in mobile working and the provision of a greater choice of location, as is the advancement of cloud computing services[76]. On top of that, social networking, while not yet embraced by organisations, will become an important tool for managing communication and socialising in organisations in the future. Several SC respondents (44%) attributed the lack of social network utilisation to the existing intergenerational issue in the workplace and the lack of understanding around the benefits of such tools: "there are multiple generations in the workplace and baby-boomer managers are not as familiar with this type of technology, so many companies continue to ban these tools as they are seen as a distraction to the actual work being undertaken which in the end reinforces control over the workers and limits creativity".

The issue of RE was raised by the majority of SC respondents (78%). Given the current economic crisis, one respondent asserted this situation will stimulate a discontinuity in how organisation perceive and utilise RE: "it will become devalued as the need to have a physical location is minimised". Supporting this statement, several SC respondents (33%) asserted that large iconic buildings are used to impress employees, but with the onset of virtualisation of business processes, individuals, clients and companies are undertaking business based on the appearance of their website rather than demonstrating their wealth through their RE portfolio: "people now judge on quality more than size". Effective branding will become key to a smart workplace strategy, and the focus will shift from "iconisation" to efficient service delivery to promote an effective and successful organisation.

One respondent from the in-house CRE/FM sample, however, claimed that the workplace will not change dramatically as "workplace decision-maker perceptions will not change that much, and offices and buildings will continue to be used as manifestations of wealth and power". This latter point suggests the continued influence of the property industry. It was stated further that corporate business operations will change dramatically as "technology such as web conferencing and global call systems enable effective improvements".

[76] Cloud computing services include the delivery of software, infrastructure and storage over the internet based on user demand and facilitate interaction to serve customers, partners and suppliers (Hurwitz et al., 2012)

It was widely agreed among respondents that culture and a sense of belonging will play an important role in the continued development of the smart workplace. Space will become an important tool to organisations as they embrace knowledge work, but one respondent asserted that workplace planners and designers must understand the psychology of how people behave in the workplace better: “how do we get the right balance between autonomy and interaction in the workplace”. The majority of respondents agreed that the one workstation per person paradigm will be replaced by a wide variety of workspaces with less space per person and more interactive working environments through the effective application of ICT. The sense of belonging will be maintained as “the prime emphasis within the corporate workspace will be interaction, with the office becoming primarily a place to have face-to-face communication which stimulates creativity and synergy between different teams and functions”.

Table 5.4 below presents the grouped strategic conversation and workshop participant’s responses of the top ten trends affecting the future development of the smart workplace.

Smart Workplace Trends	Description
Economics	With the unpredictability of financial markets, there is growing recognition of the added value contribution from knowledge workers to the future prosperity of the global economy.
Employment	There is a growing demand for flexible working arrangement, with a move away from employees to people who have a less rigid relationship with the organisation creating a freelance culture.
Society	Competition in a globalised business world is creating a 24/7 work-style culture.
Technology	The majority of the global population will be connected to the internet by 2025, creating an emerging digital generation.
Environment	The internet is creating awareness of planetary preservation problems. Younger generations are looking to employers to execute their environmental responsibilities.
Office Design	There is an increasing push to create spaces that foster the health and well being of staff in an effort to reduce turnover and absenteeism, but they are in the minority.
Governance	As the youth enter the workforce, they will begin to trigger innovation in management practices and workplace design because of their social connectedness and the way in which they utilise technology.
FM	The focus of FM will shift from building provision to workplace services provision in order to manage networked enterprises of shared collaborative facilities and offices.
Global	As the trend towards globalisation increases, the drive to avail of low cost labour pools increases as organisations come under constant pressure to compete, and protect the bottom line.
Demography	Multiple demographic generations are working together in the workplace, and there is a growing technological disparity between baby boomers and generation X and Y.

Table 5.4 Top trends driving change towards the smart workplace.

5.1.4.2 Smart workplace policy themes

The SC respondents and futures workshop participants identified five policy themes that enable decision-makers to exploit opportunities and prepare for threats that the future may bring. They include the following:

- Communication and collaboration.

- Environmental and social well-being.
- Leadership.
- Integration and technology.
- Education and skills.

In the future, technology will enable the interrelationship between communication, media and collective action to solve problems within and among organisations: “a certain kind of sharing enriches others; undertaken not out of altruism but organisational self interest”. At present, however, it was widely accepted by the SC respondents that many organisations do not understand the true value potential of collaboration and collaborative knowledge work: “we say we do knowledge management, we use a lot of knowledge related terms, but when you look at the actual knowledge creation processes, we actually do very little”. According to a workshop participant’s research, collaborative working can increase productivity significantly, but the reason for collaborative inaction is attributed to the fact the business case is unknown and organisations are reactive in nature: “we copy the best practices, we react, we look at what others are doing and we try to do the same thing. We sort of lurk behind, but driving a vehicle by looking in the rear view mirror is not a good solution. If we are to compete successfully we must do things differently”.

Currently, there is limited support for these activities in the workplace, and the cost focus is reinforced. The thought provocateur stated further that what gets measured gets managed, and includes network capacity, office hours, service level agreements, pounds per square metre, and excludes collaborative and knowledge activities and processes: “this is a problem - one cannot truly support collaborative global decision-making team by managing bits”. To overcome this obstacle, it was agreed that a holistic view of the workplace should enable broad work practices that spread across a number of disciplines, such as connectivity, technology interoperability, new work practices, and FM in an effort to identify the benefits of the knowledge creation process and boost creation, acquisition and exploitation of knowledge.

Another policy theme identified by informants related to the environment and social well-being. There were conflicting responses on the impact technology will have on the environment and the workplace. On the one hand, one SC respondent asserted that there

is a growing concern for the environment and workers are demanding more efficient workplaces and will select potential employers based on the environmental agenda. In addition, environmental drivers, coupled with increased mobility and technological advances, will limit excessive travel and increase home-working: “people are becoming much more virtual as the concern for the environment increases”.

On the other hand, and to a lesser extent, 22% of respondents believed that growing mobility will lead to difficulties in travel planning. As personalised travel increases, public transport authorities will find it more difficult to manage this trend compared to regular commutes, which suggests a counter argument for the ecological trend. On top of that, one respondent from the research and development sample asserted that there will be a low carbon footprint in the workplace, and it will be higher at home. In terms of well-being, a workshop participant asserted that knowledge workers will continue to choose flexible, self employment contracts to give them control over where they work and with whom as well as improve their work/life balance, and thus create “mosaics of individualised and atomised work experiences, performed from a range of workplaces”.

The SC respondents identified leadership as an important priority in developing the future smart workplace. Together with mobility, technology could enable a shift in work management: “managers are beginning to measure in terms of outputs, rather than hours”. Several respondents, however, asserted that the generation gap in management practices, those that are technology savvy and those that are not, is slowing this trend down, as limited technological understanding is replaced with control: “unless today’s Generation Y really do turn into managers who are paragons of trust and self assurance, able and willing to support distributed, autonomous and collaborative working practices, then it is my view that there will be no widespread transformation of work”. The majority of respondents believed that hierarchical authority is not adequate to face these ongoing changes. One respondent asserted that “It is no longer possible to figure it out from the top alone”. This suggests that all change is grounded in new ways of thinking in management and managers and employees will have to learn to work differently than they have in the past. Even at the workplace level, there was a strong call for FM to embrace complexity and uncertainty, but this will occur only when the FM, IT and HR functions merge together.

An area of future concern, raised by workshop participants, was technology integration. Successful technology integration accommodates the technology physically, functionally and culturally (Herman Miller 2002, 2011). It was widely acknowledged that as communication technologies provide an unprecedented opportunity to transform work, successful technology integration will become a seamless part of the knowledge creation process. According to many respondents, however, the acceptance of change is a major requirement for this type of integration. One workshop participant highlighted the importance of focusing on the life cycle cost of technology as hardware and software technological platforms are continuously and rapidly evolving. An assessment is required to identify what are the high value added processes and when is it important to gather resources together in a physical or virtual setting: "certain events, such as workshops, would be difficult to replicate in a virtual environment with the tools that we have available now, so there is extra value in coming together physically at the same time".

As virtualisation detaches services and features from physical hardware platforms and enables employees to undertake work activities from any device, this may have cost, spatial and service reliability implications for the organisation: "as it is easier to manage infrastructure if you don't have to deal with all the different end points and just manage the services centrally". At the FM level, one respondent from the IT sample asserted that managing shared collaboration facilities and offices creates a need for service concepts that effectively integrates technology into work processes, and ensures interoperability and access across different platforms and types of devices in order to enable more fluid interactions between people in different organisations, different settings and in different situations: "I know a lot of integrators who are currently exploring these service concepts that free the user from having to deal with the technology itself". If successful, the respondent argues that it could change the city landscape, on which shared facilities are in abundance and "employees can join their community". Another respondent from the consultant sample expressed the opinion that corporate workplaces will need to be fully integrated with home offices. In corporate and shared workplaces secure wireless access will become the standard expectation, from which the need for a robust corporate and public network arises.

Finally, a consensus of SC respondents identified education and skills as critical factors in the future development of the smart workplace. Technological integration is an ongoing process and demands continual learning. One respondent suggested that this type of e-learning could be facilitated through "networked work updates courses". In addition, employees will be up-skilled as organisations adapt new technologies and demand more from their office space. According to several respondents, as this space is managed more intensely, workers must be taught how to utilise it effectively in order to reap the benefits of the smart workplace development. By embracing the smart workplace ethos, one informant argued that traditional skills may be lost.

5.1.4.3 Threats against the successful development of the smart workplace

All of the SC respondents were asked to identify the real and potential threats affecting the development of the smart workplace over the coming decades. The majority of the informants agreed that economic factors, such as cost cutting measures, will continue to threaten the development of this type of workplace as businesses grapple to save money in difficult economic times leading to less resources available to those who manage the workplace: "companies are abandoning workplace development projects in order to save money, but it is during this time where most savings can be made in the long term". One respondent attributed this to the continued organisational perception of the workplace as a cost rather than an investment. A different type of economic threat was highlighted by one informant as the link between unemployment, cost-cutting and its implications on the talent war: "as unemployment rises, there are less employees and less money is spent on improving the workplace. Once the economy improves, talent wars begin and potential employees will walk if they do not like the image of the real estate".

Technological threats identified by the respondents related to security and cost.
The majority of respondents believed that technology security is a major threat against the development of the future workplace as knowledge capital and intellectual property become valuable assets to organisations and individuals. Intellectual property and identity theft and the vulnerability of technology to potential terrorist attacks make technology security a high priority. In addition, one respondent raised the issue of the cost of migration to new IT platforms.

Resistance to change is an issue that could impact the development of the smart workplace, and an SC respondent attributes it to the conservatism of managers and the extent to which they want to continue working in conventional ways and in traditional work environments. This type of resistance creates or exacerbates issues such as employee dissatisfaction for example: “managers normally ask why change is necessary, and change is needed when companies start to lose their talent as employees leave the company because it does not have flexible friendly working environments”. Identified by another SC respondent, historical culture is another threat where managers perceive the workplace as a tool for management control reinforcing hierarchical structures and elitism in organisations.

Other threats identified by the SC respondents include the following aspects: an unstable world in which bomb threats, crime, terrorism, power failures, natural disasters and the like are threatening the safety of the workplace environment; the human factor whereby computer systems and related technology in the workplace are advancing more quickly than the capacity of employees to use them correctly; and finally, the lack of understanding about how to manage social engagement beyond the boundaries of the workplace: “how do you manage the issue .

5.1.5 Various perspectives relating to FM and change

Based on responses from 20 in-depth semi-structured interviews, the respondents identified two perspectives relating to FM and the changing workplace. The key themes are considered under the following two categories.

5.1.5.1 The impact of workplace change on the role of FM

According to the majority of respondents (70%), workplace change seems to be making a positive impact on the role of FM in workplace provision. They agreed that the role of FM is becoming increasingly visible as its scope broadens to encompass both building management and work activity management (similar results were captured in section 5.1.3.3 under the changing role of FM). The FM role now requires two skill sets:

1. Technical competencies to manage and maintain buildings, such as contract practice, and project financial control and reporting.

2. A skill set in the procurement and effective management of business resources (people, property and technology).

Many respondents (60%) believed that the shift in focus from building maintenance management to work activity management will diminish the silo effect across departments as the FM function becomes increasingly aligned with the IT and HR departments in an effort to "understand the technological and social aspects in workplace provision". This trend is occurring within large organisations, such as energy companies, but to a lesser extent in small to medium enterprises (SME). While important, emphasis on the technical skill set continues to dominate in the FM profession. One interviewee asserts that education and training must change from a technical focus to a service provision focus. While there is a shift in the norm on the baseline, it is important to remember that these changes are still on the accelerating part of the curve of change, which might explain the responses in the next section.

5.1.5.2 The reaction of the FM to workplace changes

Many interview respondents (60%) cited negative terms to describe the FMs current reaction to ongoing changes in the workplace such as "reactive", "slow", and "inflexible". 35% of interviewees felt the FM role in its modern guise has a long way to go to deal effectively with workplace change, with one respondent even suggesting "they would rather that these things would go away". To a lesser extent, one representatives from the FM grouping believed that FMs respond very well to this change, with many taking the lead.

A representative from the academic sample asserted that if the work of Duffy and Becker (discussed in section 2.3) had been followed, the FM role may well have developed into a management function that responds to and anticipates workplace changes rather than continue within the dominant mechanistic management paradigm mentioned in section 3.4: "FMs are all hung up on cutting costs in the workplace and cramming people in to workspace and then are surprised when it does not work".
The majority of interviewees (85%), when asked about the rationale behind this reaction, responded that a lot of FMs do not earn the say strategically, and "get shuffled

down the food chain of the organisation". Asked for the key reasons for this, the most cited factors included:

1. Individuals and organisations' perception and understanding of the FM function is often prejudice by semantics.
2. The workplace is often considered a secondary issue by the organisation.
3. Some FMs, not all, do not fully understand the value they generate from the assets, and subsequently fail to mange the workplace in a way that adds value to the organisation: "trying to promote something with limited understanding is somewhat problematic".

Unless the physical assets of the workplace are part of the core business[77], according to the majority of interviewees (60%) in-house strategic FM is typically "patchy" at best, with one interviewee even describing the term as an "oxymoron". In spite of this, one respondent stressed that leading edge companies who see the office as a component of their overall business strategy, are looking to the property function rather than the HR function to develop new working practices, but they are in the minority. Furthermore, by factoring in a third party FM providers perspective, a strategic FM dichotomy emerges. FM is strategic when an FM operation is outsourced; while typically senior management does not perceive in-house FM strategic: "facilities and property are the second highest cost in the organisation, after HR costs. For that reason alone, I think FMs need to be seen on the board of management".

To make this happen, communication, education, leadership and determination were cited as the key factors. One interview respondent suggested that to become increasingly proactive the FM function must assist the organisation to understand the connection between what the workplace and its impact on business performance, by "teaching them how to become good story tellers" as what is intuitively obvious to the FM is not to the organisation. It was generally agreed, however, that since workplace decisions are discussed at board level, and FMs are often forced to wait for senior management to buy into new ideas, "the FM has a tendency to give up at that stage and revert back to their old reactive ways".

[77] An example are large retailers, such as supermarkets, shopping centres, retail units.

While strategic input remains a weakness in the FM industry, many respondents (50%) believed that redefining FM to "business resource management" could assist the industry in moving away from the "bogs and brushes" stereotype. Above all else, it was generally felt that a necessary transformation is required to shift the prevailing FM and organisational mindset in how it perceives, understands and develops the workplace: "FMs need to rethink how they manage workplace by embracing complexity and unpredictability".

5.1.6 Scanning the potential changes of tomorrow's workplace: a discussion

Analysis of the strategic conversations highlights a clear vision of change over the coming decades that suggest the traditional workplace will diminish as the hybrid, fluid and effective workplace evolves, reinforcing what is indicated in chapter two. Based on an analysis of three themes – the global, sustainable and smart workplace, the results attribute this to the fact that the workplace is constantly subject to driving forces, threats and complex interdependencies from both inside and outside the organisation that makes change necessary.

An analysis of the data relating to the global workplace identified five areas of concern effecting its future development: knowledge capital management, workplace culture, quality of life, technology and the environment, as well as large scale governance. The first three themes relate to how the FM industry manages the production and human side of the enterprise in the workplace. The identification of the following challenges indicates that the FM and organisation struggle to view the workplace in a holistic way suggesting there is an overall lack of systems thinking and futurity when making workplace decisions:

- the challenge of managing intangible elements in the service environment;
- culture, symbolism and branding continues to be taken for granted in workplace provision, and culture will become increasingly difficult to manage with the advent of distributed working; as well as,
- current work-styles and workplace arrangements are limited to facilitate an improved work/life balance in the organisation.

Corporate governance is a key area of concern going forward in workplace development. It seems that organisations are failing to grasp that if the workplace is viewed strategically, it can create myriad opportunities for companies to enhance their performance. The SC and semi-structured interview results echo this sentiment by indicating that there is limited FM alignment with strategic vision. Clearly, there is a growing need for senior FMs to be heard at the board level. These results indicate that a mechanism is required to act as a catalyst to initiate dialogue between stakeholders. To address this, effective FMs should actively seek out strategic insight, through the employment of strategic conversations and futures workshops, to enable FMs to tap into expertise at all levels of the company and communicate the necessary data back into the strategy development process. This process encourages greater collaboration between vertical and horizontal functions of the organisation as well as across the service supply chain, thus creating an effective workplace.

As the global context for business continues to change at an unprecedented rate, it was observed that sustainability will be a key driver of change on the corporate landscape at every level and across sectors over the coming decades. The future workplace will have to reflect the sustainability imperative as the historic separation between competitive strategy and social awareness breaks down. The findings indicate that the conventional building type is no longer a stable building type to address this issue. Other challenges that must be overcome include:

- the acceptance that the current wave of action to tackle environmental issues and the uneven application of performance measurements and targets will not suffice to address the sustainability issue in workplace provision;
- balancing the production of creativity and the provision of distributed workplaces;
- understanding change beyond the scope of FM to include HR and IT; and,
- viewing workplace issues, such as energy consumption, in the long-term.

To drive sustainability forward in the workplace, there appears to be a strong correlation between increased government intervention and the development the development of the sustainable workplace, which suggests that without this intervention the likelihood of a sustainable workplace reduces. However, an issue was raised in the global workplace section under large-scale governance which indicates that excessive

government intervention could stifle creativity and prompt operational difficulties unknowingly. Under both the global and sustainable themes, it was stated that a balance should be found between legislation and best practice. For best practice and voluntary actions to occur, motivation has to come from awareness and understanding of the importance of sustainability for the business and its facilities. This can be achieved through education, organisational learning, collaborative leadership and an emphasis on changing the behaviour of individuals.

To understand change beyond the scope of FM and make the necessary improvements to develop the sustainable workplace, the results indicate that a system-oriented view of the workplace is required by those involved in workplace provision. In this way, the role of FM will shift towards a new focus on work activity management. The results from the semi-structured in-depth interviews indicate that workplace change is driving this transformation, and that FMs now require a hybrid of technical and strategic skills going forward; thus diminishing the silo-effect across departments as the FM function becomes increasingly aligned with the human and technological enterprise of the organisation. Ironically, the current FM response to workplace change can be said to be slowing this progress down as it is reactive and passive.

Technology has become a key enabler shaping the future workplace. It can facilitate a context-specific, dynamic environment that transcends the physical boundaries of the office. The results indicate that at present the true value of collaborative knowledge work has not been identified, and consequently space does not embrace these types of activities. If issues such as cost, intergenerational conflict between those who are tech-savvy and those who are not, the conservatism of managers and technology integration are resolved, in the future, the current rationalist workplace concept will be replaced, through the effective application of IT, by an environment that consists of a wide variety of workspaces with less space per person with secure wireless access the standard expectation. Emphasis in this workplace will be on interaction to maintain a sense of belonging, while the corporate workplace will be fully integrated with home offices. A trend away from employee to freelance, flexible contractual relationships with staff is probable. Again a systems-view is required to manage this.

5.2 Constructing the future in workplace policy and practice

The research, upon which this section is based, explored the issue of change, complexity and the future in the context of workplace policy and practice. A series of in-depth semi-structured interviews (20) and a web forum discussion were conducted to capture deeper insights on the subject, and the following themes emerged: the general perceptions of decision-makers towards the future, the actors involved in workplace strategy development, the methods used and the factors impeding and encouraging long-term future oriented thinking in the workplace planning context.

5.2.1 The general attitudes of decision-makers towards the future

While most interviewees (75%) agreed that the long-term future should be considered in workplace strategy development, the reality is somewhat different. It was also felt that the questions relating to the future and workplace strategy development were ahead of its time in the industry. Overall, two types of responses were observed: the long-term future is never considered; and the FM considers the future, but the organisation does not.

a) The long-term future is never considered.

The interviewees who held this view were representatives of the academic, workplace consultants, telecommunication and software sample groups. It was generally agreed that workplace decisions are reactive, and based on a short-term decision-making orientation to develop, produce and distribute corporate standards requested by the organisation. One interview respondent from the telecommunications industry placed strong emphasis on the fact that organisational change is too fast and dynamic to consider the long-term future in workplace strategy development: “I think, from my understanding, a lot of corporate occupiers find it very difficult to support future-oriented thinking, especially when there is so much change going on; maybe as the economy recovers, companies will be able to see where they are going”.

Poor communication between the core business (CEO and business unit managers) and the facilities team renders it increasingly difficult to plan for the long-term future when the strategic information from the core business that is required to create effective accommodation strategies is not filtered back into the property function. This is largely attributed to the current support function status of property teams. Furthermore, one respondent argued that very few organisations develop workplace strategies that warrant long-term thinking, except perhaps on occasion when there is an opportunity to undertake a corporate relocation to new headquarters: "it is then when you can make a quantum leap forward in terms of your workplace strategy. In reality, however, when the average FM is just managing the existing portfolio, and doing their best within the property constraints of that portfolio, then the long-term future is rarely considered".

To foster long-term thinking in workplace provision, one interview respondent recommended taking a longitudinal view of monthly and yearly patterns of accommodation decisions which assists FMs and REs to guide senior managers in determining options for workplace strategy development. By laying them out in a timescale, it is argued that a forward looking view arises when an assessment of the combined patterns is undertaken, from which plausible and possible scenarios are created. Another interviewee expressed the need to break out of conventional FM wisdoms to achieve the workplace benefits by shifting the dominant pattern of language in the FM industry and organisations: "Conventional wisdoms, paradigms and patterns are created from excepted conversations that are changed by creating different conversations. Futures thinking is one good tool for creating different conversations".

b) The FM considers the future, but the organisation does not.

The FM/RE managers from the mining, telecommunications, airline, furniture and energy industries agreed with this statement. 30% of the interviewees asserted that the property function considers the future in workplace development and management since the physical assets of the organisation, by nature, are long lasting and static; and, tenure and procurement as well as occupation and utilisation decisions taken today are likely to have far-reaching consequences. It was generally agreed that the average future planning time line is between three to five years, and sometimes even to ten years. It

was argued that the employment of a time horizon beyond ten years is uncommon, as change and uncertainty become increasingly unpredictable and complex. A web forum participant argued further that strategic thinking and vision should provide the framework in which to operate tactical plans: “People see strategy as long term but good strategy will have flexibility to enable re-direction and reaction to changing circumstances, risks and opportunities”.

30% of the interviewees critically expressed the opinion that the long-term view is not adopted by senior management as organisations continue to change both their form and function: “the FM sends their long-term proposal to the board, and the senior management takes a twelve month view”. The implication of this organisational attitude, as discussed by one interviewee, leads to translating current user needs into “locating the right office with the most competitive lease prices”. It is argued further that while it might seem like the organisation is considering the long-term future of the business by providing a new office/workplace, the cost focus creates a solution that is only valuable for the organisations’ short-term problems and thus the property team might be left to manage a workplace that does not meet the future business requirements. One interviewee identified bad governance as driving this attitude: “mediocre executives are terrified of any change in the event it might expose their weaknesses and skills problems”.

In this context, several interviewees (15%) believed that forward thinking should start at the senior management level of the organisation and channel down the chain of command. It was indicated that even if future-oriented planning and strategy was at the heart of senior facilities and property management, without senior management buy in, future-oriented thinking is lost. This suggests a lack of understanding around the concept of futures thinking, and how it can be applied in this context. Another interviewee stated that when the workplace is not viewed strategically, opportunities for companies to enhance their performance - such as increased productivity and worker motivation as well as the potential to enhance the organisation’s “bottom line, culture and branding, and competitive advantage” – are greatly reduced.

5.2.2 Actors involved in future-oriented workplace strategy development

The previous section highlighted the lack of forward thinking in workplace provision as well as the difficulties facing FM and CRE managers when considering a long-term obligation in workplace strategy development. Nevertheless, the majority of respondents (75%) believed that there are pockets of innovative, progressive thinkers in the industry who are beginning to challenge traditional corporate assumptions, past habits and conventions in workplace provision, and effectively integrate the workplace into the overarching goals and objectives of the organisation, from which the veritable value of the workplace arises. Three categories of actors were identified in the process of interview analysis, and include: regional actors, organisations, and individuals.

The actors embracing forward thinking in workplace strategy development vary from region to region. In the U.S., one interviewee asserted that workplace innovation is driven by architects "the Gendler's of this world", and design oriented organisations. In Asia, another interview respondent stated that "FM and project management based companies drive creativity in workplace development by bringing together different ideas and concepts from the different Asian regions". And finally, 25% of interviewees believed that creativity in European workplace development is driven by workplace consultants in an increasingly sophisticated property market.

At the organisational level, the workplace consultant sample agreed that large organisations[78] , such as the BBC, Nokia, Microsoft, Alcatel Lucent, British Telecom (BT), DEGW, and PWC are driving progressive thinking in workplace provision. This is attributed to a number of factors: large companies have greater resources at their disposal, such as larger budgets and manpower; typically, they have a diverse portfolio of RE assets; and, they can successfully integrate the workplace into their overall business strategy. Programmes, such as BT Agile Working programmes and the Alcatel-Lucent activity-based planning are changing how the future workplace will be developed. According to most of the interview respondents (90%), however, forward thinking companies, such as those listed here, are in the minority. But this may be

[78] A large organisation is one with 250 or more employees.

changing as one informant argued further that “the recession has absolutely shredded the workplace rulebook, and there is now a huge competitive commercial opportunity for forward thinking in workplace planning which includes an integrated view across all functions”.

At the individual level, Chris Kane from the BBC was mentioned by four interview respondents, while one interviewee mentioned Philip Ross as individuals who use the workplace to increase business, competitiveness and agility, while cutting property costs and environmental impacts at the same time. The representatives from the workplace consultant sample all agreed that creativity in workplace development is coming from outside the organisation rather than from in-house property teams since outsourced third-party service providers, with expertise in co-ordinating and advising HR, IT and FM, can take a strategic view forward when their clients can not; thus providing a supply change advantage for the astute consultant to understand changing patterns of work-styles and workplaces better than their clients in both the public and private sector.

To a lesser extent, FM and CRE practitioners who have developed an expertise in workspace planning perform forward thinking. Representatives from the academic, workplace consultants, beverages and telecommunications sample attribute this to the fragmentation of FM and CRE management across organisations and regions. It seems there is no single defining role in an organisation that performs strategic thinking in workplace development, owing in part to varying FM structures in different organisations: “some companies have a property department and facilities department, and sometimes they work together and sometimes they do not; in smaller organisations, many do not have a property department, they only have office managers”. Nevertheless, it is important to observe that two interviewees from the FM Company and airline sample, both of whom work outside of Europe, believed that strategic FM and property managers embrace forward thinking in workplace strategy development and implementation.

5.2.3 Methods used to incorporate the future in workplace decision making

As mentioned in section 3.3, the commitment to space is long-lasting, and any real estate decision taken today will have long-term consequences. As such, the interviewees were asked to identify the methods that are employed to incorporate the future in workplace current decision-making and planning. While two interviewees asserted that all too often there are no methods used to incorporate the future in workplace strategy development, the remaining interviewees (90%) identified an array of tools, and the responses have been distinguished into three categories, namely: internal tools and processes, research and other methods.

a) Internal tools and processes

A few interview respondents (15%) described the methods employed to incorporate the future into workplace planning as "hap-hazard", "ill-defined" and "unreliable". The remaining interviewees (85%) agreed that strategic analysis of the future workplace is evaluated by employing the 'predict and provide' model. This approach forecasts future workplace demand scenarios in a linear way. By gathering historic data from the following methods: TUS, cost analysis, portfolio analysis, physical architect studies, floor planning and floor density analysis, the trends are typically projected forward using different statistical analysis tools and techniques of observation. According to one interviewee, the annual budgeting process is the driving force behind this approach as it "incorporates how many people each department is likely to have, which departments are growing and contracting, where the organisation is going to need people, how many people is the organisation going to need in certain areas and geographies".

The continued employment of these methods (outlined above) indicates that the future development of the workplace is based on the rationalisation of the physical workplace (the cost of space, a lease and design) and not on the effective utilisation of space. One of the interviewees argued that even if staff and stakeholder engagement methods, such as user participation in design, employee satisfaction surveys, pre and post occupancy evaluation, basic measurement surveys to determine the way people use the building,

are considered, they are placed at the bottom of the FM managers' priority list, as the way people use space is the least understood area for most professionals. The interviewee further asserted that this issue is usually related to the difficulty of evaluating and monitoring the less tangible aspects of the workplace, such as: "such as popping over to someone's desk and spending five minutes with them rather than booking a meeting room". As referred to in section 3.5, Haynes and Price (2004) state that complex adaptive thinking, a fundamental perspective of futures thinking (Bishop, 2008), can be used to address this issue.

Only one interview respondent from the airline sample admitted to building for the future today through LEED certification: "we create a single installation that supports all of our office requirements so we can stop filling up landfills with construction debris". Furthermore, analysis of the web discussion results, identified lease agreements and request for information (RFI) obligations as tools that push the workplace provider to consider a more long-term obligation.

b) Research

Representatives from the workplace consultants, academic, software, telecommunications and beverage sample use research to incorporate the future into workplace decision-making and planning processes. Workshops are utilised to brainstorm ideas, opportunities and risks in future workplace developments, while 'day in the life' stories, idea sessions and mock-ups help organisations, individuals and groups to see new possibilities in the workplace. Another analytical tool is a pathfinder group. Unlike pilot studies which imply if it fails one goes no further, pathfinder groups suggest you are the first group moving to a new solution and everybody else is going to follow that group: "if we implement change, and take something forward we have we have not employed before, then we will path find the solution first".

c) Other Methods

While there was general consensus amongst the informants (90%) that foresight techniques, such as scenario planning, should be used in workplace decision-making and planning processes to deal with future risks and uncertainties, it was observed that workplace consultants are more likely to utilise futures studies tools and techniques as they are not absorbed by the day to day and the month to month pressures and budget constraints of the business. One interviewee from the telecommunications sample, however, argued that there is a role for future-oriented planning in property management but the challenge is aligning this type of thinking with the core business strategy: "at the end of the day, property and facilities is no different to transport; it is an enabler for an organisation to deliver a suite of products and services, and in task by nature it must follow from the business strategy".

To overcome this, many of the interviewees (55%) believed regular dialogue about the future between key stakeholders, such as board members, employees, and suppliers, is appropriate. In addition, another interviewee stated that education and training is critical when trying to incorporate the future into workplace decision-making and planning process: "you can create the best workplace but if you don't educate people to use it properly, it doesn't go anywhere".

Another issue that was raised by a participant in the web forum discussion was how FM and CRE activities are influenced by the outward facing views of the property industry. They argued that workplace strategy should be based on holistic business requirements, and involve engagement, communication and understanding of the organisations objectives and direction. CRE and FM teams should translate business opportunities and objectives into supporting property/fm services: "that is their value- add". Given that individual companies have unique visions and overall strategies, this indicates that there is no-one-size-fits-all approach for developing and implementing workplace strategy as the property industry might have one to believe. Nevertheless, another interviewee stressed the need for a mechanism that would act as a catalyst for initiating dialogue and debate about the future, the workplace and organisational strategy.

5.2.4 Methods to anticipate change and complexity

Chapter two indicates that the workplace is constantly subject to pressures from both inside and outside the organisation that makes change necessary. When asked if there are methods to anticipate this change and complexity, the interview responses varied significantly.

40% of interviewees considered change management an effective tool to fulfil this task. This approach, however, is about accepting and managing change as it happens and not about anticipating and understanding the impact of future change. This indicates a substantial difference between change management and future studies concepts. These responses illustrate a lack of coherence and understanding around the concept that future change can be anticipated and its impact understood. To a lesser extent, a few informants (20%) believed that there were no methods in place to enable all those involved in workplace provision to anticipate change and complexity, with one interviewee even admitting that they were not sure what the question meant. If they exist, the methods are ad hoc and one participant believes they revolve around the mantra "we build it so they will come", meaning that employees have to accept change whether they like it or not.

Three different types of methods that assist all those involved in workplace provision to understand future change, uncertainty and complexity in the workplace were identified by the workplace consultant sample. They include:

1. Informal groups, who are managed by advisors and consist of 10-15 members, meet two to three times a years and talk about the future, change and uncertainties within the context of the workplace. DEGW has established one such group called the Workplace Forum.
2. Creating flexible workplace solutions is another method to combat uncertainty and unexpected change. This entails considering the physical (layouts), functional (hot-desking, shared offices) and financial (the ability of an occupier to exit) flexibility of a workplace (Dewulf *et al.* 2003). It seems to be a popular

approach among workplace planners as one interviewee stated that flexible workplace solutions are now recognised as an important requirement in property management: "it is just good practice with not much science around it". However, one interview respondent believed that major changes render flexibility inefficient and costly: "Short-term changes are picked up by implementing these flexible workplace strategies, but major changes in the direction of say more than 25% of the headcount are much more difficult to cope with". In the web forum discussion, one participant discussed a similar sentiment in that a well communicated and flexible business focussed workplace strategy will assist the tactical and day to day management of the estate, especially in challenging times of constant change.

3. Technology, connectivity and outreach[79] are of paramount importance for identifying weak signals and preparing for change in the workplace. One interviewee, however, suggests that "the classic internet usage policy of not being able to utilise social media platforms and the internet in general is ludicrous, and is slowing down transformational change in the workplace". This indicates a lingering reliance on 'command and control' management practices. To overcome this issue, "trust-based workplaces" are necessary where the employee is empowered to take control of their work life from which a positive placebo affect on the organisation arises.

These methods remain relatively new in the context of workplace strategy development, and further research is needed to supply evidence that will demonstrate the benefits of these approaches. The results indicate, however, that these methods are not effective to deal with long-term future change and complexity in strategy development.

5.2.5 Factors inhibiting and encouraging future-oriented workplace strategy

Another aim of the interviews was to identify various factors inhibiting and encouraging future-oriented thinking and planning in workplace strategy development. An

[79] It is an effort by individuals in an organisation or group to connect its ideas or practices to the efforts of other organisations, groups, specific audiences or the general public (Wikipedia, 2011).

understanding of these factors is required to address these issues as they arise in the development of the futures framework for the FM industry. While some of these factors were discussed in earlier sections, they are discussed in this section in a different context. From an analysis of the interviews, a number of factors were identified within each category (inhibiting and encouraging). They are presented in figure 5.1.

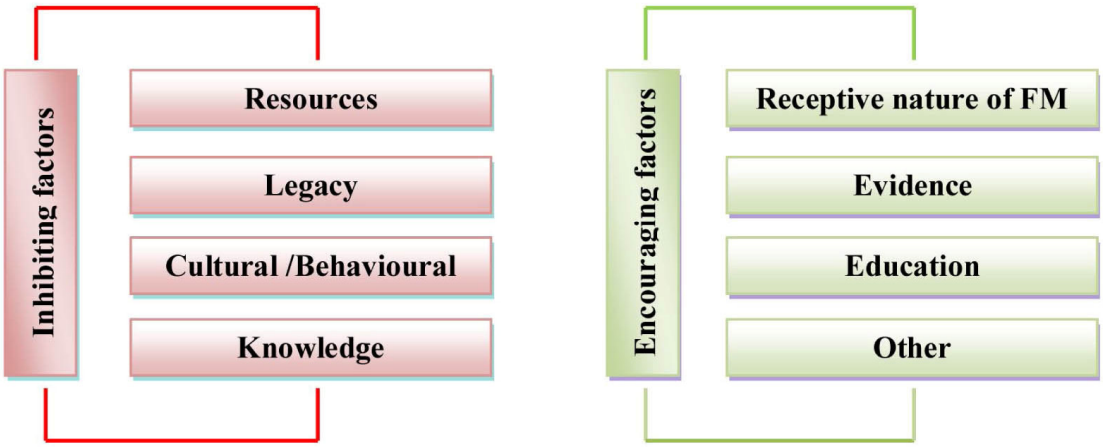


Figure 5.1: Categories of factors inhibiting and encouraging future-oriented workplace strategy development.

a) Inhibiting factors

Resources. The majority of interviewees (65%) agreed that property decisions made today will impact the workplaces' future performance for many years to come. In light of the recent economic crisis, however, many companies are now reluctant to take a long term view in general and invest in current and future workplace solutions: "they are in fire-fighting mode trying to cut-down costs and close the deficit". As such, many of the FM/CRE managers (77%) cited cost as a significant factor inhibiting the assessment of the long-term consequences of workplace strategies. Two interviewees highlighted a knock-on effect of this cost focus is the lack of adequate funding for property teams. Moreover, one interviewee argued further that this cost-cutting focus is rendering the FM increasingly reactive, as property/FM teams are forced to reduce services that do not have much cost-saving impact in the long term and also scale down workplace initiatives.

When asked why there was no propensity to employ futures studies methods, given that long-term strategies could have mitigated many issues that arose from the current economic downturn, a number of interviewees (20%) representing the workplace consultant sample identified another cost perspective. Organisations consider futures thinking a cost that does not provide short-term value to their workplace solution, and therefore "refuse to pay for it". Referring back to section 3.6, however, research indicates a strong correlation between scenario planning and improved financial performance of an organisation from which a stronger competitive position emerges for the organisation. In addition, lack of time was cited as another factor affecting future-oriented workplace strategy development. One interviewee stressed that the FM is generally "stretched beyond imagination, and the idea of doing something like futures thinking is just too much as we just don't have the time".

Legacy. It was widely acknowledged by the interviewees (65%) that there is a barrier of expectation inhibiting long-term thinking in workplace strategy development. Organisations do not expect FM and property providers to take a strategic view. It is not just companies with a low expectation, one interviewee from the beverage sample argued that FMs are not convinced they are the right team for the job as they do not have the right capabilities. There is a lack of "critical FM leadership", which is a significant factor blocking future-oriented thinking. One interviewee criticised the amount of corporate levels a property decision must go through before it is authorised: "FM people themselves are the biggest obstacles. We are too hierarchical. There are too many people to get through". An informant from the workplace consultant sample argued further that the FM legacy provides a platform for workplace planners and FM/CRE managers to continue to engage existing conventional wisdom and habits (the cost per square metre), and consider workplace planning in terms of the physical space only; reinforcing silo management in workplace provision.

Thanks to the legacy in the FM business, short-termism is prevalent, and several interviewees identified it as one of the factors inhibiting long-term risk assessment in workplace planning. According to one informant, finding solutions to present-day issues take precedence over future risk assessment: "there is always a problem to be dealt with

today; so, taking your eye off the horizon and looking at the immediate is actually the real hurdle to overcome". Other legacy obstacles identified by informants include the following:

a) The confused perception around the role of the facility and property function.

b) The perceived duration of contract cycles (one to five years).

c) Limited understanding beyond service agreements and efficient improved best practices.

d) The commercial property industry is slow to react and adopt to change, and do so only when forced by occupiers and tenants or by green legislation and regulation.

Cultural/Behavioural factors. An interviewee pointed out that the concept is "too vague" and "intangible" for FMs to accept, while another stated that there is limited appreciation of its benefits owing to the fact that they cannot be "demonstrated through good metrics – if we do X, we will save Y". Resistance to change was also highlighted as a barrier to future-oriented thinking in workplace planning. This can be linked to the legacy issues surrounding FM. Another interviewee indicated that the slow pace of cultural change can impede futures thinking: "we just don't say tomorrow, you must give up your desk and work remotely. You have to empower employees with the right tools, such as software, various work locations, the skills to mange distributed workers effectively".

Knowledge. Another factor identified as an obstacle to future-oriented thinking is related to knowledge. Several interviewees (15%) attributed this issue to limited and uneven FM training and education provision: "Most people come into FM through a plethora of different routes. Even though institutions like BIFM are trying to promote training programmes for learning and development in the FM industry, they are not there yet to change the skill set of tomorrow". Another issue that was observed by the researcher was the lack of understanding around how futures studies could be applied as an empirical framework to determine long-term risk and uncertainty in workplace provision. Some interview responses (55%) from the FM/CRE manager sample

believed that long-term thinking of this kind was based on prediction, with one respondent pointing out that "my perception is that we will be inaccurate that far ahead[80]". One interviewee even expressed the opinion that the uncertainty of the future is a factor inhibiting future-oriented workplace planning and decision-making, which highlights the deeply ingrained short-sighted nature of the FM and property provider and a difficulty comprehending the futures process.

b) Encouraging factors

The receptive nature of the FM industry. 40% of interviewees agreed that the FM industry is receptive to new ideas, such as futures thinking in workplace strategy development, with one respondent even stating that "the FM industry is starving for this type of innovation". Several respondents (15%) attributed this to the need to bridge the gap between facilities practitioners and the core business. One interviewee asserted that the application of futures in this context could be used as a competitive tool in seeking to become leading edge: "It will appeal to the company that wants to be different, and take advantage from that rather than the mainstream. This is not a negative. I don't mean it is a niche or peripheral tool, but it is about companies that are looking to increase their market share, spread their operations. Companies are looking to do things differently".

Evidence. An important factor raised by several interviewees encouraging future-oriented thinking is related to providing evidence. There was a general consensus (80%) that identifying the benefits and the true value of long-term thinking in workplace strategy development is required. Senior managers and facilities managers want a clear business case with demonstrable success stories of future-oriented practices before they implement these solutions; as one interview states "there is nothing business men like better than track records".

[80] In the context of 20 or 30 years ahead

Education. For future-oriented thinking to be implemented in workplace strategy development, several interviewees (35%) pointed out that the FM industry needs to be trained in how to apply the concept in this context, as there is a need for "understanding the importance of observing and tracking external trends and how they affect workplace development". In addition, one respondent from the workplace consultant sample asserted that "academia should take the lead, and add this type of forward thinking to the curriculum". Another interviewee from the academic sample stated that the learning profile of "the new calibre of FM managers" should be based on "collaborative learning across disciplines to encourage integrated and critical thinking amongst FM/RE, architectural and business students. We already have initiatives like this in place".

Other. The interviewees identified two 'other' factors related to encouraging future-oriented thinking in workplace strategy development: lessons learned and develop a new mindset. Several interview respondents (15%) highlighted the need to learn lessons from the recent economic crisis. They asserted that this crisis alone should enable future-oriented thinking among organisations and workplace providers in an effort to develop more robust workplace solutions to withstand and mitigate the impacts of any future critical risks and uncertainties: "it is an enabler for us to forward think". Another interviewee (workplace consultant) expressed the need for a change in mindset to encourage future-oriented thinking in workplace provision. They asserted that companies must be persuaded to incorporate a workplace strategy within the overall corporate strategy: "it is seeing the investment in the property asset as a positive contribution to business rather than simply as an overhead cost that is unavoidable and is only there to be minimised".

5.2.6 Constructing the future in workplace policy and planning: a discussion

The analysis of the semi-structured in-depth interview data suggests there are two types of attitudes toward the future in workplace strategy development: the long-term future is never considered; and, FM considers the future, but the organisation does not.

The first attitude, in section 5.2.1a, is attributed to the fact that organisations experience rapid change on an ongoing basis. What these respondents fail to grasp, however, is that

where business volatility is the norm, a greater case for developing future-proofed strategic accommodation plans arises. As such, futures thinking is a platform from which FMs can think systemically about the workplace to provide solutions to enhance productivity, reduce costs, reduce the environmental impact, respond to unpredictable markets, and exploit new technologies (McGregor, 2000; Beltran Canepa, 2011). The interviewees also attribute this attitude to the lack of communication between the core business and the facilities teams. This suggests that workplace provision, as referred to in section 5.1.5.1, is rarely considered an important element of the overall business strategy. Alternatively, it could mean that the company does not have a clear vision or overall strategy leading to fragmented information trickling down the structural ranks of the organisation. Futures studies, as discussed in section 3.6, can facilitate dialogue to make not only the long-term workplace strategy, but also the overall business strategy explicit.

The second attitude implies that the long-term future is considered by the FM, but not by the organisation. It highlights minimal cohesion between workplace planning at the FM level and strategic planning at executive level, especially in the long-term context. Future workplace trends are linearly projected based on assumptions: about how the organisation will grow and function over time (Dewulf *et al.,* 2003), and that the future is an extension of the past. This approach renders prediction important. As rapid pace of change and complexity increases, however, prediction becomes even more difficult and the inevitability of future risks and sudden economic, social, environmental and political disruptions become more likely. It can be argued, therefore, that this view of the future is flawed as it fails to consider future risks and uncertainties that may impact workplace development. As referred to in section 5.2.3a, the methods used to determine the future in current workplace policy and practice reinforce the view that the 'predict and provide' approach is still the dominant method to determine future workplace requirements. The results denote that there are no foresight techniques employed in the workplace strategy development process to explore alternatives to minimise uncertainty.

The literature indicates that traditional methods (referred to in sections 1.3 and 3.5) are unable to assist FMs to anticipate and manage future change and complexity as they do

not consider the wider economic, social, environmental and cultural context within which the organisation operates (Harrison *et al*. 2004). Change management was regarded as an effective method, in section 5.2.4, to deal with change and complexity in workplace provision. However, this technique is about reacting to change and not preparing for it so one can be assume it is an inappropriate tool to address this issue. To a lesser extent, it was believed that there are no methods in place.

Only workplace consultants highlighted methods that could potentially deal with change and complexity in workplace provision namely: dialogue, flexible workplace solutions, and technology, connectivity and outreach. While effective dialogue is important to examine change and complexity, in this case the discussions are not structured and the approach is not rigorous in dealing with this issue. As a result, important changes and weak signals might not be identified. Flexible workplace solutions and technology, while important, only address change in the short-term and issues like limited technology integration can act as a brake rather than a springboard for change.This analysis indicates, above all, that there is no structured and systematic approach for long-term thinking in workplace strategy development.

The results also indicate that there are pockets of innovative, forward thinking individuals and organisations that are enjoying the true value of integrating the workplace into the overall business strategy, but they are in the minority. As highlighted in section 5.1.5.2, this can be attributed to the fact that in-house FM teams are unable to take on a strategic leadership role as they simply do not have a voice in the organisation. The results in section 5.2.2 indicate that innovation in workplace strategy development is occurring outside the organisation, where outsourced third party FM providers and workplace consultants are adopting a strategic view. These results suggest a reactive-proactive conflict between the two groups. It seems that in-house FMs are a component of the organisation that are there to maintain the status quo, while the outsourced FM organisations are employed to revolutionise and enhance the workplace for the organisation. However, it is critical that the in-house FM becomes proactive because they have the potential to have a more in-depth knowledge of the organisation's

processes, structures and activities[81]; a vital knowledge component in managing the long-term effectiveness of the workplace. Both groups should be proactive in order for the workplace to reach its true potential within the organisation.

A number of factors were thought to be inhibiting future-oriented workplace decision-making, such as resources, legacy, cultural and knowledge barriers. It was recognised that the lack of necessary resources was one of the main obstacles in future-oriented planning and decision making. The existing work pressures do not allow many decision-makers to give time and resources to such activities, even if they recognise their importance. As organisations remain in fire-fighting mode to ensure the bottom line in the short-term, the provision of adequate funding for property teams is reduced. This 'business-as-usual' approach may not be enough to sustain competitiveness over the long-term. Recent research (Saurin *et al*. 2008; Saurin & Ratcliffe, 2011) suggests that by developing a capacity to explore the future, companies may be in a better position to prepare for things to come, identify where they want to be tomorrow and develop strategies to achieve this future vision.

It was recognised that the marked lack of understanding around futures studies as a concept and an empirical framework to create effective workplace strategies was a significant barrier for future-oriented planning and decision-making in this context; thus highlighting the need for this research. Another obstacle includes the legacy of FM. Current FM structures do not provide the capacity for strategic thinking in workplace provision. This is linked to the short-term thinking traditions in the industry, the failure to clearly link the added value of facilities to the core business, and the perceived confusion around the role of the property function. As such, FMs lapse into old habits and conventions and resistance to change is ultimately reinforced.

To overcome the barriers impeding future-oriented thinking in workplace strategy development, the interview data analysis offers a number of factors that can encourage

[81] More so than the workplace consultants whose knowledge is limited to the information with which they are supplied on an ad hoc basis. The strategic FM has a greater body of knowledge to work with as they are immersed in the day- to-day running of the company.

this behaviour, such as evidence, education. Companies continue to demonstrate the need for evidence before applying a new management paradigm. This implies that decision-makers are waiting for someone else to take the lead so in-house facilities teams and workplace consultants need to find their 'leadership voice' as what is intuitively obvious to them is not obvious to the board. To achieve this, all those involved in workplace provision must be educated and/or trained to develop a capacity to lead collaboratively and think strategically "big" in an effort to become the boards trusted advisor. The results suggest that the FM industry is receptive enough to make this happen.

5.3 A scenarios approach to establish strategies for tomorrow's workplace

The third part of this chapter presents and analyses the findings of 'The Workplace of Future' study undertaken to fulfil the empirical element of the research. The study is systematically examined in relation to the following aspects: the background to the research; testing an evolving methodology; and the limitations of the methodology. The study outputs are based on qualitative data derived from three futures workshops, futures questionnaires and strategic conversations with leading experts in the field of workplace provision.

5.3.1 Background to the 'The Workplace of Future' study

Changes experienced in the very concept of the workplace, driven by IT and its impact on global business, are real and accelerating, and promise fundamental transformations in the relationships between the individual, work and the workplace. Future change needs to be anticipated and managed to ensure the successful development of sustainable, smart workplaces and work-styles. Too many managers, however, are rather limited in their ability to fulfil this task (Saurin Ratcliffe, 2011). Workplace planning is based on linear forecasts of past trends or on a plan for a single most likely future, one that is addressed in the corporate plan. These 'business as usual' tactics render the effective management of workplaces in a period of sustained uncertainty increasingly difficult, especially when confronted with unfavourable situations for

which the organisation is quite unprepared. Often the crisis is one of several futures that could have been easily anticipated; and if it had been, the organisation could have prepared itself to face the challenge.

Against this backdrop, Johnson Controls Global WorkPlace Solutions and the Futures Academy (DIT) collaborated together to explore what lies ahead for all those involved in workplace provision over the next two decades. Using the 'Prospective Through Scenarios' process, this research had four overarching objectives:

- To identify the interrelated forces, issues and trends that will have long-term implications for the development of smart and sustainable workplaces.
- To develop a set of possible and plausible future scenarios.
- To create a single preferred future vision of the workplace.
- To redefine the current role and position of global, sustainable and smart workplace solutions by adopting a holistic futures approach.

The study commenced in May 2007, with two subsequent workshops in 2008 and 2009. Following an initial meeting with the collaborators, the study aims and expected outcomes were clarified, along with other issues such as: timeline (2030), number of workshops (3), location and identification of participants. Three phases of research were undertaken, with each stage corresponding to the following themes: 1) global, 2) sustainable, and, 3) smart workplaces. During the 'prospective through scenarios' process[82], the participants produced three scenarios, three nested scenarios and a vision, from which an array of action agendas were subsequently identified in an effort to build a roadmap for robust future-proofed workplace solutions. The final output of the research was a set of comprehensive future workplace reports.

5.3.2 Testing an evolving methodology

This section describes three 'Prospective Through Scenario' methodological frameworks employed during each phase of the study. A description of each is presented, which consists of:

[82] The methodology was based on the 'Prospective Through Scenarios' process described in Chapter 4 section 4.6.3. Each methodological framework was designed and adapted by the researcher.

1. A step-by-step theoretical account of each methodological framework.
2. An explanation of how the process evolved during the course of the study.
3. An illustration of outcomes generated in this research.

As mentioned before, each phase is centred on three futures workshops. The workshops, however, are only one part of the process. During each phase, other futures methods, such as environmental scanning, strategic conversations, futures questionnaires, illustration and storytelling, were employed to generate additional data to feed into each one of the workshop products (futures research reports).

a) First phase of research: the global workplace

The specific aim of the first workshop was to examine the current positioning and future of the global challenges faced by those in the field of workplace provision over the coming two decades. Figure 5.2 illustrates the main steps of the 'prospective through scenarios' process employed during this phase. The process involves a number of interactive and creative stages that combine the use of various futures methods and techniques.

1. Set the strategic question

Setting the strategic question helps to identify the underlying purpose of the work being carried out. The strategic question must be clearly identified, as it will have important implications for the workshop outcomes; a well-defined, well-researched and specific strategic question will produce the best results (Lindgren and Bandhold, 2003). Following a series of strategic conversations and an in-depth documentary review, the strategic question was set as:

How can the FM community prepare for the future of the workplace considering the following driving forces:

- Knowledge Capital.
- Workplace Culture.
- Technology and the environment.
- Quality of Life.
- Large Scale governance

The participants used this question to guide their discussion and debate throughout the day.

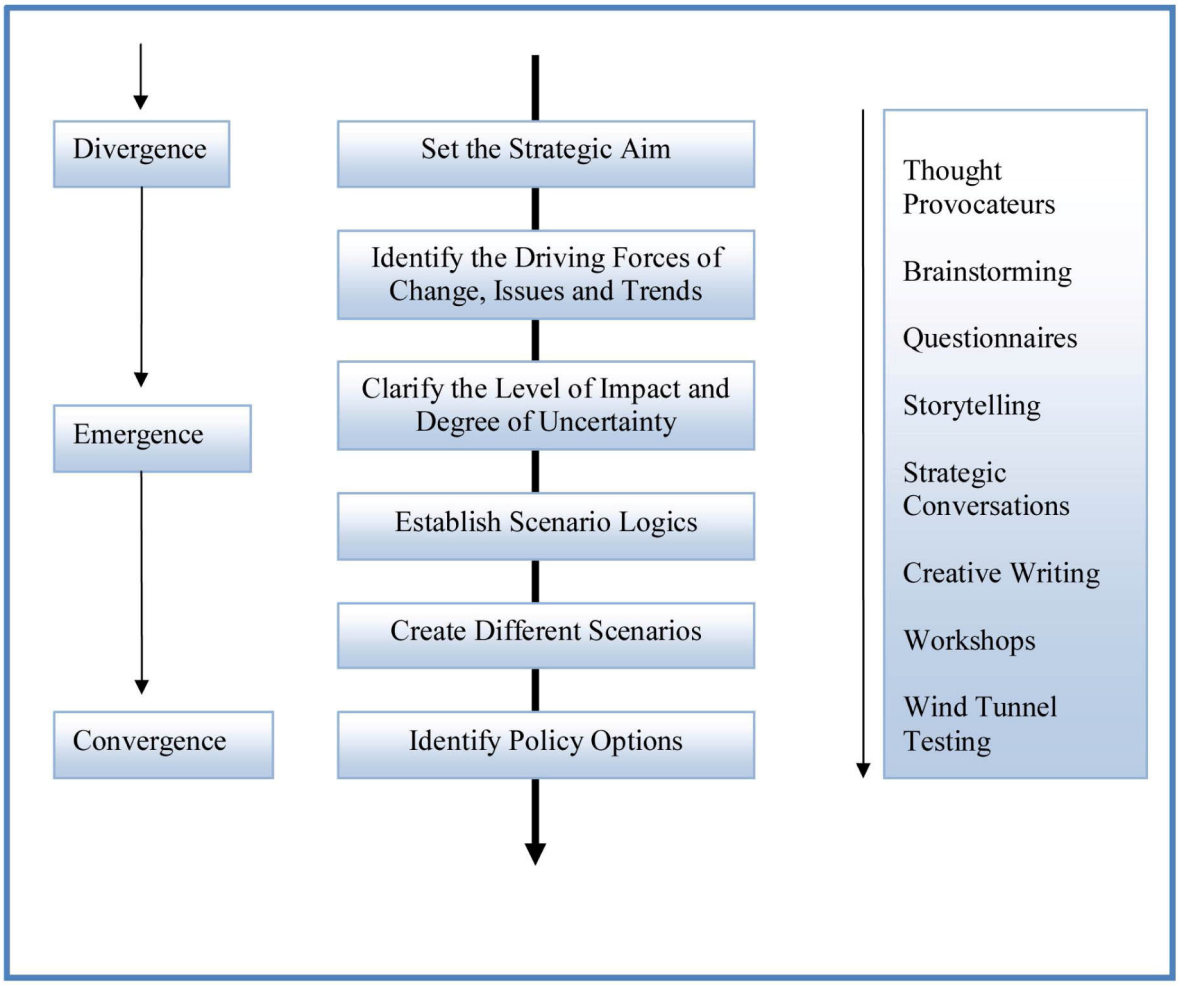


Figure5.2: Prospective Through Scenarios process phase one

2. *The thought provocateur session*

At the outset of the workshop, a small number of experts in the field of workplace service provision and FM were asked to provide a short reflection to provoke thought at the outset of the workshop. They were asked to give their personal view of what the workplace might look like 10, 15, 20 years ahead, and in addition highlight a number of significant actions that might be done now by the FM community to influence that change in a preferred direction (see appendix eight).

3. *Identify the driving forces of change, issues and trends*

The exploration of the future started with the identification of a broad ranging set of driving forces of change, issues and trends in the external environment driving or steering change in one way or another. Ultimately, it is the driving forces of change, issues and trends that shape and propel the story lines described in the scenarios (Schwartz and Ogilvy, 1998). The main trends, drivers and issues were identified using the DEGEST framework.

During the workshop, the facilitator divided the participants into three groups and allocated two of the six sectors to each group. To help structure the discussions further, the groups were asked to list as many driving forces of change, issues and trends at three different spatial levels, namely: meta (global), macro (regional) and micro(workplace). Following a forty five minute brainstorm, each group was asked to nominate a reporter to present the discussion outcomes in order to prompt a discussion from the whole group so as discuss whether the ideas exhibit enough foresight for effective strategic thinking. Section 5.1.2.1 lists and analyses the most pertinent global driving forces of change, issues and trends facing the organisations and the property industry over the coming two decades and beyond.

4. *Identify pivotal uncertainties and establish the scenario logics*

The next stage of the process involved identifying the 'pivotal uncertainties'. These were the issues that were most likely to play a critical role in the future; they had a direct impact but their outcome was unknown. The participants identified the pivotal uncertainties that had the highest impact on the strategic question and the highest level of uncertainty over the potential outcome. Although they had been identified as the most uncertain issues, they indicated a potentially high level of risk for the future that needed to be examined. The following pivotal uncertainties were identified as:

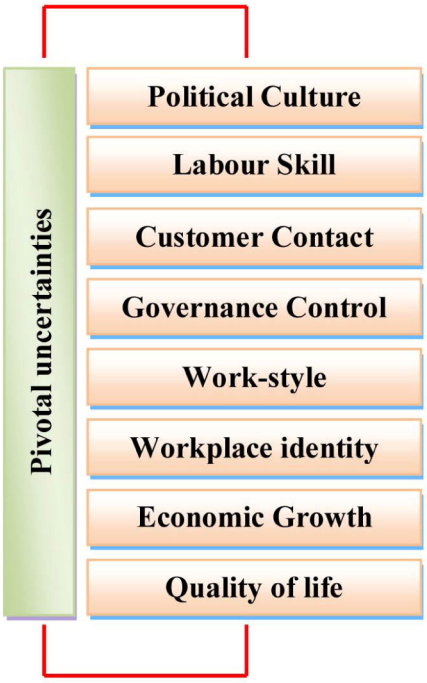


Figure 5.3. Pivotal uncertainties of the future workplace

Pivotal uncertainties were then used to build the scenario logics. Scenario logics are the basic building blocks from which the final scenarios will eventually evolve. The logical rationale and structure for the scenarios were established at this stage. The logics provided the themes for the scenario's plot. During this stage, the participants selected two key uncertainties that they thought might play prominent roles in the future as follows:

- Economy: High Economic Growth versus Low Economic Growth[83].
- Success in the Workplace: Collaboration versus Competition[84].

Subsequently, the facilitator polarised and articulated them into a scenario matrix, the 2x2 matrix approach (See figure 5.4) in accordance with the work of Schwartz and Ogilvy, 1998; Ringland, 2002; van der Heijden, 2006. Three divergent scenarios emerged in each quadrant of the cross.

[83] At one end of the axis, high economic growth suggests profitable organisations enabled by increases in productivity and changing demand for new product and services. At the other end, low economic growth is rife, and societal and environmental concerns become its by-product.
[84] At one extreme, the culture of collaboration has changed business models and how people work by enabling innovation through the exchange of ideas and thoughts Knowledge is the key market driver. At the other extreme, work is undertaken by the individual; command and control is the dominant management practice, reinforcing hierarchies in organisations. Trust is an issue and communication between workers is at a minimum.

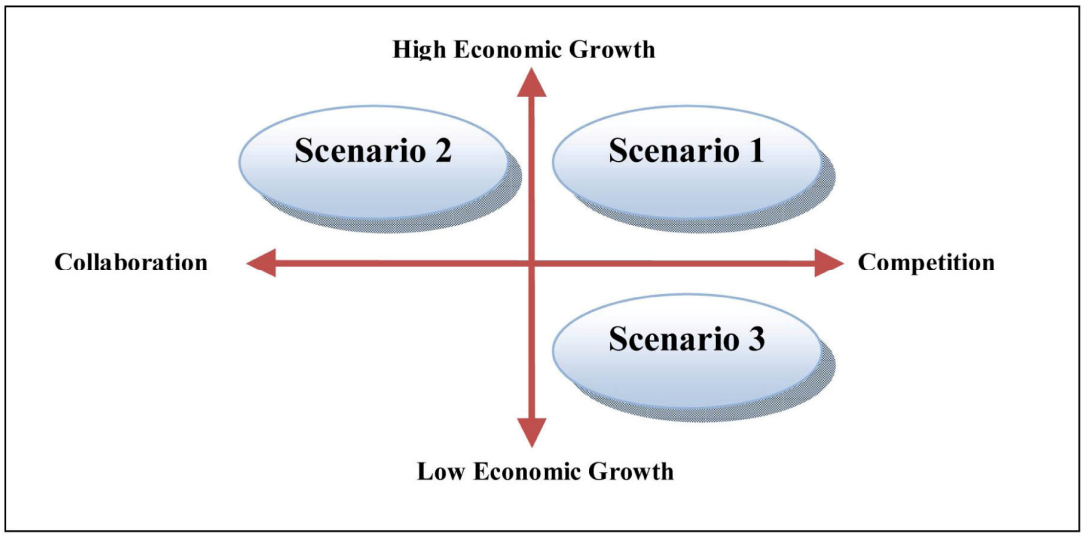


Figure 5.4: Scenario logics framework

5. *Create different scenarios*

Having established the framework structure for the scenarios, the next stage was to flesh out the scenario plots in order to produce useful, coherent and creative narratives about the future. The scenarios should be evocative, provocative and innovative; have a beginning, a middle, and an end; an approximate time-line; key events that make them happen; early indicators of change and an exciting title (Lindgren and Banhold, 2003).

The workshop participants were provided with scenario design guidelines (see appendix nine), and produced the outline for each of the scenarios in a one hour long brainstorming session. Following the workshop, the researcher further elaborated the narratives. The scenarios developed at this stage are outlined as follows:

Jazz – A Global Market by 2030: the workplace is a network.

This scenario assumes an unprecedented acceleration of economic growth, relentless pressure for short-term gains and fierce competition on a global scale, driven by rapid technological advances and further market integration. It is a world where entrepreneurship, innovation and individual responsibility are favoured. Free market reforms have moved governments everywhere to downsize, deregulate and privatise.

Wise Counsels – A Secure World by 2030: the workplace is a community

This scenario assumes global economic stability and an effort to attain environmental balance and social progress. Institutional improvements worldwide facilitate sustainable development. It is a world where collective, collaborative and consensual action is favoured. Knowledge has become the key resource. Physical property is no longer the most important asset. Rather, the emphasis is placed on intellectual property.

Dantesque – A Fragmented World by 2030: the workplace is a fortress

This scenario assumes global economic stagnation, cultural difference and insecurity. Emphasis on distrust, retrenchment and reaction leads to widespread social unrest, conflict and environmental degradation. Instability is widespread across the globe as regions become increasingly disjointed from each other. Racism is rife. The attitude that dominates this world is based on the phrase 'each to their own'.

6. Identify policy options

A fundamental part of the process was identifying a set of robust core strategies that were capable of withstanding a wide variety of alternative possible futures. This stage involved two important steps:

i. agreeing approximately five broad policy 'themes' or headings; and,

ii. identifying a range of specific action agendas under each of these headings.

Following a brief group discussion, the workshop participants agreed that the five headings in the strategic question represented the most important policy themes surrounding workplace strategy development. Under each of these themes, the participants were asked to identify action agendas that could assist workplace decision-makers to understand and anticipate impending change in uncertain and complex market conditions. Table 5.5 provides a sample list of the policy themes and action agendas identified by workshop participants (for a full list see appendices).

Knowledge Capital	Create a platform to accurately and systematically manage knowledge and sharing in FM and RE. Link FM, RE, Services and Technology into one service management model to provide facilitation of work (not facilities). Educate the workforce, particularly at management level. Develop protocols for new relationships with flexible employees: address trust and loyalty issues. Provide a user guide for employees using home as a workplace. Build on knowledge capital to increase value output in FM and RE.
Workplace Culture	Promote dialogue to understand wishes and worries. Provide training forums for mobile employees to use space (office or home). Incorporate employee well-being into business plans. Develop the social enterprise, and its related software to decrease isolation felt by mobile workers. Develop a tool kit for managers to understand and appreciate the benefits of flexible working; this should breakdown barriers.
Technology and the Environment	Develop models of sustainable, not time consuming practices, such as the integration of written texts into voice messages. Research and apply alternative energy sources to fossil fuel in an effort to power facilities. Increase mobile 'home' workers service management. Improve telephone/conference call quality to reduce the impact of business travel. Place corporate social responsibility high on the business agenda. Reduce the impact of FM service delivery on the environment.
Quality of Life	Offer FM packages to freelance and contract staff. Recognise that the profile and needs of the workforce are changing and must be addressed. Develop a workplace solution that improves the senses of smell, sound and light to mimic a home environment. Trust in social networks to enhance the quality of in both the workplace and home. Consider life-style services as an inherent component of service delivery models. Reconsider work/life balancein the context of the organization and how much it impacts on recruitment, retention and well-being.
Large Scale Governance	At the corporate and national level promote how scenarios can be proactive for the company and individual. Resist excessive intervention and regulations as bureaucracy can stifle creativity in workplace development. Increase transparency of information. Clarify the legal status of the 'mobile worker' in order to protect them. Embrace city FM through business park management and education. Increase FM accountability.

Table 5.5 A list of policy themes and action agendas

b) Second phase of research: the sustainable workplace

The need to develop a sustainable workplace strategy emerged as an important research priority during the first phase of research from which the next workshop brief emerged. The specific aim of the second workshop was to explore the future workplace, looking specifically at sustainability and corporate social responsibility in the field of workplace provision.

During this research phase, the primary researcher refined the methodology by adapting certain stages of the 'Prospective Through Scenarios' process to ensure the process remained energetic and responsive to the needs of the client. The changes made to the methodological framework in phase two are outlined as follows:

- an alternative futures method was used to categorise the drivers, issues and trends –CLA;
- three more scenarios were produced, but they were nested within the global scenarios produced in the previous workshop;
- ten challenging questions facing workplace managers were identified and answered.

Figure 5.5 illustrates the main steps involved in the development of sustainable workplace scenarios.

1. Set the Strategic Question

Following an in-depth analysis of the first report and a series of strategic conversations, the strategic question was set as:

What might the future sustainable workplace look like in 2030?

The thought provocateurs then presented their personal view about the sustainable workplace over the coming decades to the participants.

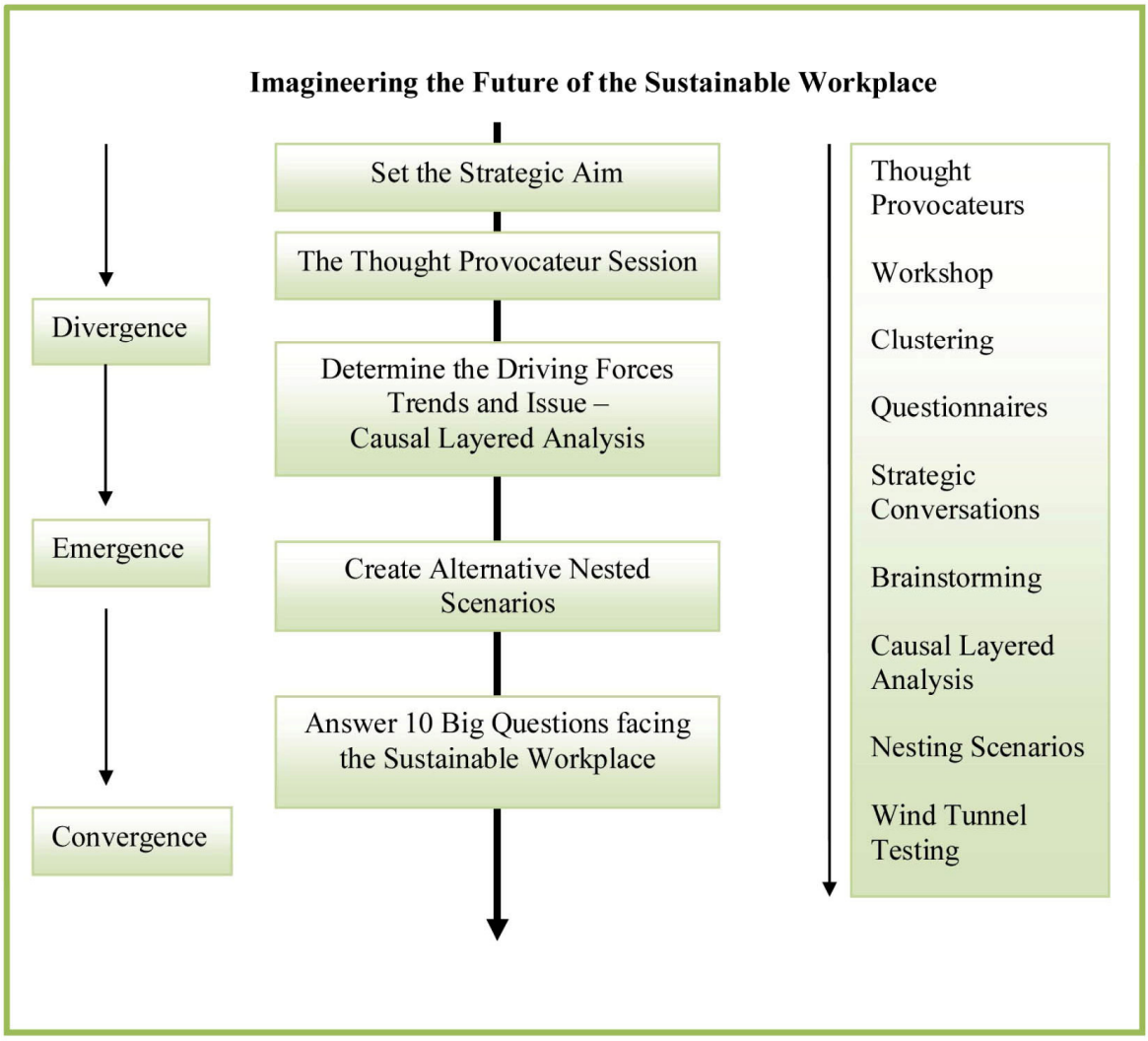


Figure 5.5 Prospective Through Scenarios process phase two

2. *Using CLA to determine the driving forces, issue and trends*

The facilitator instructed the participants to explore the sustainable workplace at three different levels:

4) **Empirical** (obvious events, trends and issues);
5) **Interpretative** (underlying forces and reasons); and
6) **Exploratory:** (analysis of worldviews, cultures and values.

The researcher divided the participants into three groups and allocated a spatial layer to each group. To help structure the discussion further, the groups framed the drivers, issues and trends using the DEGEST framework. Following a forty five minute brainstorm, the groups were asked to nominate a reporter to present the discussion outcomes. By combining the data from the three layers of reality, the researcher was

able to move to a greater level of understanding in the data analysis as new strata of meaning were discovered and developed. Table 5.6 categorises some of the pertinent drivers, issues and trends under the three layers – see report 2 in appendix seven for a full list of CLA drivers, issues and trends.

	Empirical	**Interpretative**	**Exploratory**
Demography	Encourage knowledge interactions between diverse generations	Demographic challenges producing significant economic pressures such as income inequality	Fear of individualism and difference
Economy	There is a challenge between cost of sustainability and payback	Emergence of China and India onto the global marketplace becoming significant consumer markets	Alternative worldview is ecological economics which focuses on the 'dynamic and spatial interdependence between human economies and natural eco-systems
Governance	Inertia to change	Increase in the representation of traditionally under-represented groups in trade union membership	The threat of widespread theocracies through widespread fundamentalist thinking will be ever present
Environment	Unsustainable transport systems	Increased cost and decreasing availability of urban space is leading to more high rise buildings	What is the accepted truth about the environmental status of our planet?
Society	Time for equality at work	Increased emphasis on quality of life, there is a shift away from materialism and an awakening of spirituality	Purpose of work – why did people go to work and what are we going for now?
Technology	Introduction of energy efficient technology in a complex system	Newly advanced holograpghic technology is being developed that will power a new generation of pocket sized digital video projectors	Technology is an enabler and educator

Table 5.6 Examples of drivers, issues and trends identified using CLA

3. *Create alternative nested scenarios*

The output of phase two was the development of three nested divergent scenarios. A nesting scenario amounts to using the framework of a previously formed scenario and creates a more focused scenario within that general framework. As such, three sustainable workplace scenarios were developed in the global scenario logic framework illustrated in figure 5.2. Again, the facilitator instructed each group to create a scenario narrative framework within 45 minutes. Following the workshop, the researcher fleshed out the scenarios for the report.

Hive (within Jazz)

This scenario assumes a fast paced competitive economy characterised by deregulation and privatisation. The corporate office no longer exists as major disasters cause knowledge workers to take refuge in home-working. The new workplace structure is the 'hive', where employees work in spaces called 'bubbles' that integrate home, work and social life. 'Smart' thinking, design and development become particularly relevant to the technology sector as the demand for customised accommodation and facilities increase.

Eco-office (within Wise Counsels)

This scenario assumes a stable knowledge based, global economy based on collaboration and consensus, and focused on environmental balance social progress. Eco-offices emerge that are similar to hotels which provide good services to improve the work/life balance and attract the top talent. The emergence of virtual business environments creates a shift towards a decentralisation of many organisations.

Gattaca (within Dantesque)

This scenario assumes a fragmented, disjointed and insecure world in which economic stagnation emphasises cultural and racial differences. The corporate hierarchical structure is now more prominent and the workplace is similar to a production line in a manufacturing plant. The corporate society has emerged as an all-fearing entity. It controls its employees, by using technology such as

finger printing, retinal and genetic identification to control access and information.

4. *Identify ten major questions affecting the development of the sustainable workplace*

By way of a round table discussion, the facilitator initiated a dialogue between workshop participants to encourage the identification of the ten most pertinent questions that face all those in workplace provision. In doing this, challenges, opportunities and threats were highlighted that will inevitably have an impact on the successful development of the sustainable workplace. The discussion lasted 30 minutes and the researcher chose ten of the most dominant themes from the discussion and placed them on a power-point slide. The facilitator then divided the participants into pairs. Each pair was assigned a theme and instructed to develop a pertinent question around each theme. The questions include:

1. How can we move from a world of information, regulation and blame to one of awareness, responsibility and wisdom?
2. How can we promote a proper knowledge and awareness of the sustainable imperative by means of education through the different generations?
3. How best can legislation incorporate incentivisation towards sustainability?
4. How can we create a collaborative leadership framework to initiate a sustainable strategic vision?
5. How do we create sustainable behavioural change where people genuinely want to have a positive impact on the environment?
6. How will the concept of the sustainable workplace be changed or shaped to accommodate emerging markets and the consequent cross cultural markets/challenges?
7. Do we live to work or work to live?
8. Can sustainability be made financially viable?
9. How does the FM community make sure that the communication channels and processes are in place and working properly?
10. How can we implement sustainable technological innovation to provide an integrated work culture towards a positive impact on people, planet and profit?

Following the workshop, the researcher answered these questions, employing the following methods namely, documentary research, strategic conversations and any additional information from the workshops and futures questionnaires. The output was presented in the final report 'Towards Tomorrow's Sustainable Workplace: Imagineering a Sustainable Workplace Future'.

c) Third phase of research: the smart workplace

The need to explore the impact of technology on the future workplace emerged as an important research priority in both the first and second research phases from which the final workshop brief emerged. The objective of the third and final workshop was to explore the impact technology will have on the future development of the workplace. The primary methodological focus of this phase is based on the final step of the 'prospective through scenarios' process – produce the prospective, as it was not used in the latter workshops. A preferred vision was created based on the notion that the future can be influenced and shaped according to society's wishes. To create the prospective, the researcher adjusted the process again, and Figure 5.6 illustrates the main steps employed during this phase. The changes made to the framework in phase three are highlighted as follows.

- A thought provocateur (expert) was assigned to one of five groups to guide discussions during the brainstorming sessions.
- Challenges, issues and trendes were categorised using a different approach called STEEP (Social, Technology, Economic, Environment and Political).
- Participants created one preferred future vision of the Smart Workplace.

1. Set the strategic aim

In the third and final stage of research, the main aim of this project was to explore a preferred future vision of the Smart Workplace, while considering the following questions:

- How will our world of work be transformed through technologies?
- What would be the impact of future technologies on the shape and form of our workplace?

- How will they affect employee's productivity and creativity?
- How should property occupiers and owners, managers and service providers respond to these changes?

Again, five experts in the technology sector prompted the participants thinking in the thought provocateur session.

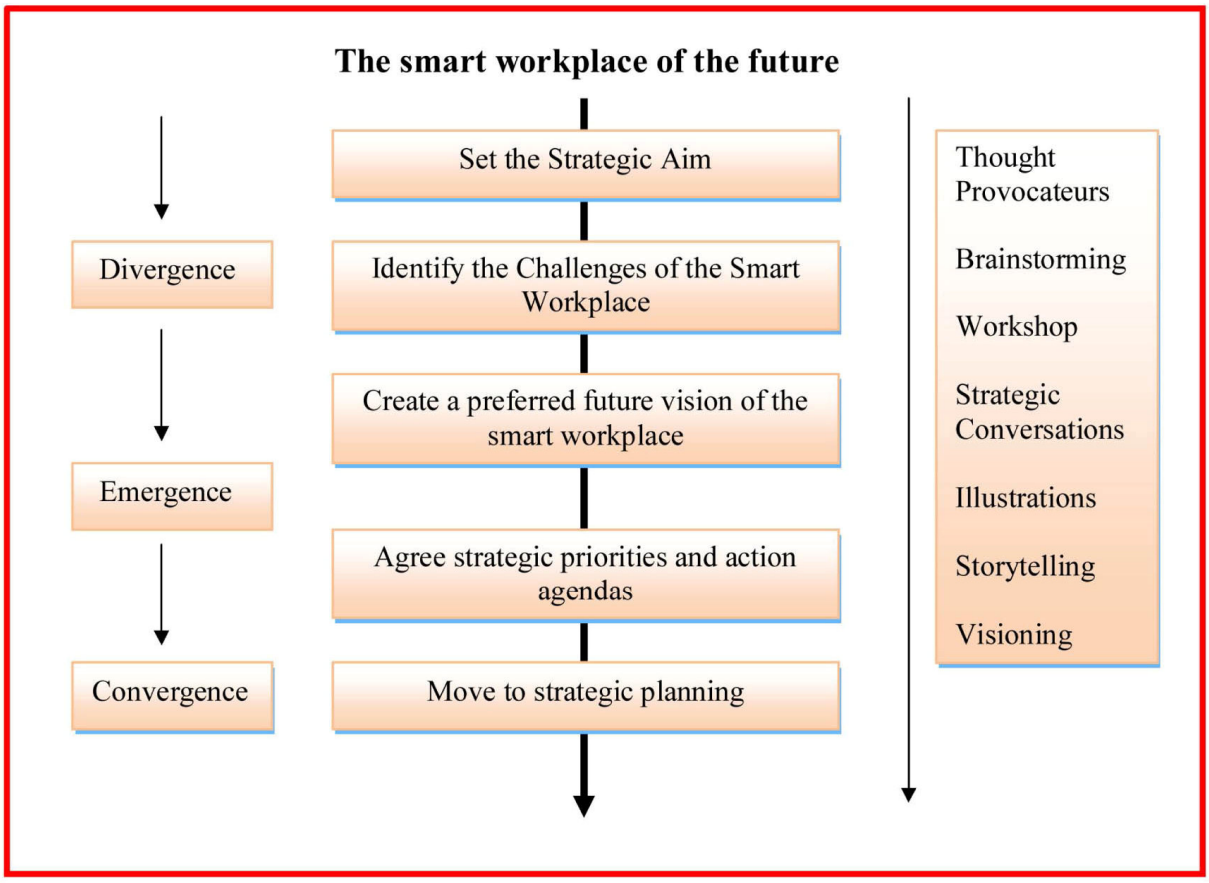


Figure 5.6 Prospective Through Scenarios process phase two

2. *Identify the Challenges of the Smart Workplace.*

The facilitator divided the workshop participants into five groups, and assigned one thought provocateur (experts) to each group for the day. In addition, the facilitator allocated a sector from the STEEP framework - Social, Technology, Economic, Environmental, Political, to each group in order to identify the challenges, opportunities, threats and factors that will affect the future development of the smart workplace. Each group had 45 minutes to complete this task, and table 5.7 summarises some of the challenges highlighted during this workshop.

Society	External factors, such as 9/11 or the industrial revolution can trigger significant change in society and the challenge is how our society reacts to it. The shift towards the virtual workplace puts pressure on the organisational culture and behaviour. Seizing the opportunities created in the 21st century social infrastructure that is based on ideas, information, knowledge and intelligence. The overlapping of the social, family and community group, the professional and intellect group and the commercial group blur the boundaries in the workplace.
Technology	The need to make money and more money. Growing gap between savvy and non savvy technology users. Overcoming the issue of managing risk in the short and long range. Managing shared collaboration facilities and offices as users do not want to spend time 'fiddling' with technology. City centre consolidation; fluid interaction and connectivity between spaces, mobile workers and cities.
Economy	Make the business case for new workplaces and works styles. Difficult to see a world where office space is not required to do more for business processes. New economic paradigm that relates to resource productivity and not human productivity. Capitalism may collapse as it does not allow prices to tell the economic truth. Costs impact of non office location and the cost of change towards the smart workplace.
Environment	Self sufficient energy need is growing. Growing mobility of employees could go against the sustainable trend of travel. Changing behaviour towards waste, CO2 emissions. An increasing demand for integrated high-performance buildings that are efficient, and create spaces that foster the health and well-being of the employee. Encouraging an exploratory attitude in green technology and behaviour research.
Politics	Avoiding politics at work that affects the overall performance, efficiency and productivity. Educating the technology ignorant workers perpetuates. Overcoming resistance to change as behaviour will not change until it is essential and easy. Ensuring the employee playing field is level to avoid hierarchical and envy-led behaviour. Complying with legislation that can effect building construction and promote energy efficiency

Table 5.7 Challenges facing workplace providers developing the smart workplace

3. Produce the Prospective

Producing the prospective was the crux of this workshop process. It considered the patterns and inter-relationships that emerged between the challenges and opportunities in session one, as well as the possible future conditions, from which a preferred future

vision could emerge. The vision considered a number of factors in order for it to be robust, creative, and most importantly, thought provoking (Bezold *et al*., 2009):

- It should represent best dreams, hopes, desires, and aspirations.
- It must be plausible but bold enough to enable people to go beyond what they think are there personal limits.
- Must be achievable in the specified timeframe.

During this visioning exercise, each group was asked to imagine themselves in the 'smart' workplace of 2030, and examine it from the following perspectives:

- shape, form and location;
- the way people will work;
- how will people communicate and collaborate;
- what technology will be used; and,
- what will be the implications on cities, the urban landscape, RE, FM and people.

While the groups were brainstorming the vision, an artist illustrated the imaginative ideas, thoughts and opinions captured during the session on a mural wall in the room. The method boosted confidence to the extent that workshop participants become increasingly engaged in discussion. A vision emerged, entitled a 'Day in the Life of a Smart Worker in 2030'. It assumes that technological achievements have reshaped the role of the corporate office to become an enabler of smart effective work characterised by rich communication and collaboration functions.

A day in the life…

Nina arrives at her business park where her club office is located. The business park is a mixed blend of corporately owned and public spaces. While walking to her customisable space of choice, her voice controlled mobile device starts the range of on-demand integrated FM&IT services she requires based on her personal profile. When she arrives at her workspace, she arranges her documents with a flick of the finger, and studies a few key graphs that have arrived together with a video message.

4. Agree Strategic Priorities and Action Agendas

Like workshop one, participants identified five broad strategic priorities, and supported by several action agendas, to assist facilities managers and workplace service providers to move towards the preferred future smart workplace that has been created. The following strategic priorities were highlighted by participants as areas of importance in order to successfully move towards their preferred future vision of the smart workplace: Communication and collaboration; Environment and social well being; Leadership; Integration and technology; Education and skills. The participants then identified action agendas within each policy field, all of which are set out in table 5.8.

Communication and Collaboration	Deliver on interoperability. Measure and manage the benefits of collaboration, not just costs related to collaboration. Be aware of whether your incentive mechanisms promote collaborative mindset or not. Integrate business and social networking to create accessible virtual meeting places.
Environment and Social well-being.	Develop an environment that supports sustainability and CSR strategies. Deliver a cultural shift so environmental activities are the norm. Ensure employees will be managed and guided in the virtual world too. Continue to demonstrate leadership.
Leadership	Focus on identity, the sense of belonging, team building and education. Use leadership skills to demonstrate the process of vision creation. Invest financially in smart space. Focus on policy building and lobbying to deliver the whole process across all levels of the organisation.
Integration and Technology	To solve interoperability issues, there is a need for broad, open, comprehensive standards to make this work. Consolidate actions across three dimensions: awareness, usability and training. Work/life balance management principles to relieve the struggle for people with too many devices. Understand the return on IT investment , in terms of IT systems and related iniatives.
Education and Skills	FM needs to reinvent itself and move towards managing the workplace rather than just technical aspects. Agree to collaborate with IT and HR departments. Educate the boardroom above all else. Teach younger generations more skills than ever before.

Table 5.8 Strategic priorities and action agendas to achieve a smart workplace.

5. *Move to Strategic Planning*

The process of envisioning the future workplace can be outlined in three main stages: strategic thinking, strategic planning, and strategic implementation. The overall study focused on the strategic thinking phase. The 'prospective through scenarios' process created a bridge or a kind of 'scaffolding' between strategic thinking and strategic planning across which ideas and action could continue to pass. The process contributed to strategic planning and management by (van der Heijden *et al*., 2002):

- Creating wide awareness of the imperative requiring change;
- Guiding the formation of operational plans;
- Enlisting key players who have the power to act; and
- Establishing coherence in management action through development of a shared view.

As an element of strategic thinking, foresight enriches the context within which workplace strategy is planned, developed and executed.

5.3.3 Critique of an evolving methodology

During the workplace of the future study, the researcher modified the 'prospective through scenarios' process for each of the workshops – global, sustainable and smart. Following the series of workshops, the researcher interviewed four workshop participants in order to obtain feedback about the futures process (see appendix ten for topic guide). Each interviewee attended all three workshops. A number of underlying reasons were highlighted by the interviewees and the researcher's own observation to explain why this occurred.

Firstly, the key to managing this research effectively was a flexible research design. During the study, the process became refined and responsive to account for the needs of the client. The researcher introduced new futures methods at each stage of the process to ensure that participants who attended more than one workshop did not tire of the process and exhaust their thinking, but also engaged well with new participants. One of underlying goals of the evolving research design, therefore, was to cater for both 'old' and 'new' workshop participants. The client described how the emergent and adaptive research process injected new energy into each phase of the research.

Secondly, the combination of all three phases of research provides a composite picture of the future workplace that is far more comprehensive and robust than any of the stages individually. In the first workshop, the generic 'prospective through scenarios' process was presented. To avoid repetition, there was space to enhance the methodology creatively. As the client gained a greater understanding of the process, more resources became available to use novel and innovative techniques, such as illustration and thought provocateurs, all of which encouraged bigger and bolder thinking from the participants and enhanced their workshop experience. While, these workshops enabled the researcher to re-think, re-evaluate and reflect on the methodology and inspire a more robust and productive process, the emergent research design exposed the participants to new thought processes and techniques - lateral thinking, imaginneering and layered analysis – that opened up their minds to thinking about the future.

While this evolving methodology may be beneficial in providing a framework to foster long-term thinking in the field of workplace provision, it does come with its limitations.

5.3.4 Prospective Through Scenarios limitations

The CRE and FM sectors are traditional, and retrospective in nature (Ratcliffe, 2008). Accuracy and quantitative research is the norm in these industries, yet the process employed in this study is subjective and qualitative which is a limitation in itself. In this research, communicating the message of futures thinking was challenging and problematic. When the first report was launched in the CRE and FM fields, there was a demand for statistical data to complement the qualitative output of the futures report. Consequently, during the second and third stage of the study, the client conducted a survey amongst its clients to generate statistical data on the sustainable and smart workplace that complemented the qualitative data of the workplace of the future study. This would further suggest that futures studies is being misinterpreted as a predictive science.

The methodology used in this study is informed by the solid discipline and academic rigour of futures studies. Having been applied in the context of the FM industry, a difficulty arises; maintaining the balance between rigorous intellectual discipline and practice in a sceptical and political FM environment. According to two interviewees, the

FM industry is too pragmatic, operational and reactive. It lacks a broad, forward thinking mindset as this culture is too deeply ingrained. Feedback confirms this; some, not all, members of the FM community have found the output of this study difficult to grasp. In this respect it is not so much the limitation of the methodology, but the limitation of the FM industry. To be competitive in an ever changing environment, transformative strategies are essential for creating a flourishing, sustainable and responsible workplace and built environment.

Although the process was facilitated effectively during the study, some improvements can be made to it. Particular attention should be paid to the following.

- Logistics - during the brainstorming exercises in the first and second workshop, participants were asked to use break out areas off the main room. It was later discovered that the participants did not want to leave the main room as it broke the flow of thinking. Based on this information, the participants in the third workshop were broken into groups at the very start of the day and remained in groups in the common area for the whole day. The benefits of doing this were: no time was lost in separating the groups by sending them to other areas of the building; and, the flow of thinking remained fluid.
- Thought Provocateurs - The link between the thought provocateurs and the group discussions was found to be weak. Feedback suggested the discussions did not reflect what was said at the beginning of the workshop in the thought provocateur session.

Despite these limitations, this project has engendered widespread media and industrial interest, not just in the UK, but on an international scale. The response to the Workplace of the Future study output indicates that it has triggered something – opened mindsets, prompted debate – to challenge preconceived notions within the industries of commercial RE and FM; it demonstrates that conversation facilitates change.

5.3.5 A scenarios approach for tomorrow's workplace strategy: a discussion

The overarching benefit of this strategic foresight exercise has been to stretch the boundaries of the participant's mindset in order to challenge their preconceived notions about workplace strategy development, particularly in relation to the future. Based on an analysis of the 'Workplace of the Future' study, the following findings have emerged also:

- foresight, and more specifically, the 'prospective through scenarios' process, can assist FMs to holistically and systemically explore, explain and enact change in a reactive and technically oriented environment;
- this process promotes a more informed, structured and imaginative understanding of the long-term stewardship of the workplace;
- strategic thinking on a continuing basis can effectively inform and influence strategic workplace planning and policy formulation; and,
- a reflexive and flexible methodology can add value to this process.

The process provides a platform for greater stakeholder engagement which is often more important than the outcome itself. Mobilising a diverse range of actors, stakeholders and decision-makers, with a common purpose to collaborate in thinking, talking, planning and acting, creatively and differently, together, in exploring the future of the workplace as sites of significant societal transformations, is frequently as valuable as the particular results from the effort. In addition, this process has sought to redress the deficiencies in workplace planning and strategy development, especially in such areas as strategy, systems-thinking and cross-functional competencies.

In the following chapter, the implications of these results for the FM industry are discussed further, from which the futures framework is created and presented.

6. Conclusions, Recommendations and Future Research

The final chapter of this research ties together all of the data derived from the previous chapters in order to demonstrate how the workplace can be actively sustained to stay effective for the organisation in the long-term. This chapter, therefore, has four objectives to:

- summarise the research and evaluate the way in which the research was undertaken;
- discuss the conclusions that arose in this research and their associated theoretical, practical and methodological implications for organisations, facilities and management;
- offer a number of recommendations to guide the FM industry in creating future-proofed workplace strategies and policies;
- formulate a futures framework for workplace management engagement and strategy development; and,
- provide insights for future research.

The concluding remarks of this chapter present and discuss a proposition that may influence the development of robust, innovative workplace strategies and policies for organisations and the FM industry in general.

6.1 Summary of research

This research arose from an observed gap in the existing body of knowledge, located at the convergence of a number of disciplines and fields of enquiry: design, organisational theory, FM, futures studies, and a personal research interest in leveraging organisational change through effective workplace provision. By using a qualitative approach, this research set out to study the futures of workplaces as sites of significant societal transformations in the future. The central research questions explored the changing nature of the workplace, and examined how the employment of the futures studies concept in workplace strategy development can, not only foster long-term thinking, but also anticipate rapid change, and manage complexity and uncertainty in workplace decision-making, as well as align the changing needs of the organisation with emerging opportunities in the workplace sector. To this end, the overarching aim of this research

was to assess the feasibility of applying futures concepts and methods to the workplace strategy development process. To achieve this aim, the research was divided into two phases.

The first phase of the research, a documentary review, produced the rationale for this research in chapter two and three respectively. Chapter two explored the changing context of the workplace from past, present and future perspectives. Futurists believe that to understand the future, one needs to understand the past (Inayatullah, 2004), while the present holds the potential for future change and development (Krawczyk, 2006). Chapter three examined the limitations in existing workplace decision-making practices to address rapid change, complexity and uncertainty, and set out to highlight the myriad benefits of the futures studies approach to overcome this issue, by investigating the general concepts, purposes and limitations of futures studies and the potential alliance between futures studies and workplace strategy development.

The second (empirical) phase of research presented the case study as set out in chapter five. The chapter was divided into three sections. Based on data derived from strategic conversations, futures questionnaires, workshops and environmental scanning, the first section (5.1) presented the results from the scan of the potential changes of the future workplace. A clear vision of change over a 25 year period was identified. In addition, the workplace was examined on multiple levels – global, sustainable and smart, from which potential changes and interrelated forces affecting the future development of the workplace emerged.

The second part of the case study, section 5.2, examined how the future is constructed in workplace strategy development and planning. Based on the analysis of data from semi-structured in-depth interviews and web forum discussions, the construction of the future in current workplace decision-making practices was discussed. This examination enabled further understanding of what is needed to encourage and facilitate the creation of a new transformational mindset that is essential for creating a flourishing, sustainable and responsible workplace and built environment.

In the third and final section (5.3), a study entitled ‘Workplace of the Future’ was examined to illustrate how a scenario planning approach, the Prospective Through

Scenarios process, can be utilised in a real world context to establish strategies for the future workplace. The study was discussed in relation to its origins, its evolving methodological frameworks, and the benefits and limitations of using such an approach. This section provided a clear insight into how the workplace can be explored on multiple levels – global, sustainable and smart, as well as how increased stakeholder communication, through the application of multiple futures methods, can improve the process of workplace strategy development and planning. On top of that, the study provided the foundations for the development of a futures toolkit approach, designed to assist all those involved in workplace management, and the FM industry specifically.

6.2 Overarching research conclusion

The fundamental role of the FM/RE senior manager is to facilitate the core business by skilfully providing physical space to solve immediate as well as long-term accommodation problems despite uncertainty, change, and inadequate information (Duffy & Tanis, 1997; Dewulf *et al*., 2003). Given that the workplace is constantly subject to not only internal pressures, but also wider economic, social, environmental and cultural forces, anticipating future workplace change, and managing its associated complexity and uncertainty, is a vital dimension underpinning the successful transition – to new work-styles, patterns and locations. In examining this context, however, there is no established conceptual framework to draw on and very little previous work with which to draw comparison. Instead, the findings corroborate the argument set out in chapter one that existing approaches in workplace planning are extremely limited in their ability to fulfil this task. If this issue is not addressed, the research asserts that the organisation and the FM profession will expose themselves to significant future risks if they are not prepared for increased change and complexity in the workplace. The research concludes, therefore, that an innovative and more creative approach is required to ensure that decisions made today are robust to withstand tomorrow's uncertainties and futures studies can facilitate this.

6.2.1 Theoretical implications of findings

With the exception of a few most notable pioneers (Becker, 1990; Duffy, 1997; Duffy, 2000; Vischer, 2010), the results of this research indicate that there has been limited

integration between the major theoretical and empirical stances of organisational theory, organisational behaviour, architecture, and design. This means that each element of the workplace – organisational, social, technological and physical environments of work - is treated as the subject of independent studies. The complex interactions and relationships between the elements are thus understood in limited scope and combinations, and impacts of changes in the workplace are not investigated beyond the parameters of each element. The outcome is that most workplace research is positioned within a narrow, rationalist framework where cost reduction is seen as the primary motivation and distinguishing measurement of productivity, thus leading to the continued isolation of physical workplace issues in organisations. If what Cairns (2003) posits in section 2.4 is true that the workplace is a manifestation of multiple socially constructed realities, meanings and interpretations, and the findings support this argument, then the study of the workplace must be undertaken outside the rationalist paradigm (where processes of reduction arrive at a single truth), and seek a new approach that also provides a perceptual and heterotopian understanding of the multiple constructed realities of the workplace.

The findings point towards the need for a new underlying paradigm that not only addresses the heterotopian understanding of the workplace but also considers the separate yet inter-related contexts of the work environment together. The research concludes that the alternative solution is a futures orientation, with strong foresighting capacity, founded on the emerging and robust perspectives of evolutionary and complex adaptive systems thinking, in order to systematically examine the changing workplace in a broader context and develop a rigorous cross-disciplinary basis for a comprehensive theory of knowledge of the workplace, grounded in both the physical and social sciences. Referring back to Barrett and Baldry's (2003) possible relationships between FM and corporate strategic planning (section 3.4), moreover, the findings suggest that this alternative approach provides a platform for FM to create a mutually enhancing integrative relationship with corporate planners as the complex interaction between workplace, organisational culture and business results are systemically explored; a requirement to develop FM as true management at the strategic level, and ultimately begin to underpin FM by a set of theories relevant to the organisational context.

For this to transpire, the research calls for a fundamental shift of mind, whereby organisations operate with a conviction that they can imagine and shape their own destiny, and property and FM professionals are equipped to deal with what is expected in the future – emerging user demands, as well as what cannot be anticipated in workplace provision. It is a mindset that not only embraces collaboration and innovation, but also addresses societal, environmental and economic imperatives. Without this transformational mindset, those involved in the stewardship of property and workplace assets will be at the mercy of forces they cannot simply understand.

6.2.2 Practical implications of findings

Despite the myriad benefits of the smart and sustainable workplace[85], in practice most company workplaces, with the exception of a few forward thinking organisations, are characterised by standardisation, efficiency and hierarchy. As a result, social (relationship development and learning), cultural (values and purpose) and productive (work) processes become increasingly difficult to manage without the support of the physical environment and engenders a fresh set of challenges for the corporation, particularly at a time when the accent of business practice and management is shifting towards one of discontinuity, collaboration, distributed working, sustainability, and holism. This is largely attributed to the fact that many senior executives fail to recognise the reciprocal link between business and the workplace, reinforcing the disconnection between the workplace sector and business at large.

The results of the research indicate that the workplace can be used as a tool for organisational development and change (e.g. new workspace can implement new ways of working and strengthen corporate cultures). For this to occur there is a need to translate strategic organisational decisions to the workplace provision level. One way of addressing this issue is by replacing the traditional 'predict and provide' model with a fresh, holistic, future-oriented approach that strengthens the strategic thinking capacity at this level. Such a process encourages an alternative way of thinking about the future in a rigorous and systematic manner by supporting the view that the future is not an extension of the past and that it unfolds in many different ways. As such, FMs develop

[85] Examples: to attract and retain skilled staff, to stimulate creativity and innovation, and to increase productivity.

an understanding of possible and desirable futures and of how they can prepare for what the future may bring. In this way, futures thinking promotes a longer term proactive outlook amongst workplace decision-makers.

The data in section 5.3 also strongly indicates that a futures approach, more specifically the prospective through scenarios process, can create a platform for greater stakeholder and intergenerational engagement. The research suggests that such a participatory and collaborative approach among stakeholders must be embraced as it not only builds upon the values and wishes of workplace users, the organisation and other actors in workplace provision but also creates a space to influence the future and shape it according to stakeholder's wishes free from vested interest bias and conflict.

From a methodological standpoint, the findings in section 5.3 suggest that change is the one factor in the Prospective Through Scenarios process that ensures participants to think laterally and profoundly in a futures process. As such, it is vital to employ a methodological process that is reflexive and flexible in nature, which ultimately adds value, rigour and energy to the overall success of the research project.

6.3 Recommendations

This section presents an array of recommendations for future action in the field of workplace strategy development. They are categorised into the following groups:

1. Towards a transformational mindset.
2. A proposed framework for workplace planning based on the Prospective Through Scenarios process.
3. Recommendations for the implementation of proposed framework.
4. Future Research.

The first three recommendation categories are specifically linked to the evidence presented in this study, while the last category presents possible avenues for future research.

6.3.1 Towards a transformational mindset.

A significant conclusion of this research is that all those involved in workplace provision, more specifically the FM industry should foster and promote a more informed, structured and imaginative understanding of the long-term strategic stewardship of not only the workplace, but the built environment at large. As such, the following recommendations are required to facilitate the shift towards this transformational mindset, and thus trigger the change in behaviour needed to make that fundamental step.

Create new workplace metaphors. The convergence of developments in technology, economics and society together with the factors pushing change at the organisational level, indicate that a new landscape for business is emerging. To suggest that a tipping point in the relationship between organisations and space has been reached may be premature, but the old certainties of the office as a time limited and controlled environment for individual work have gone. While many of the places, where work is undertaken, will continue to be the office, the underlying dynamic has changed and new metaphors for the role of physical space within the organisations are needed. As such, the following concepts should be introduced into the language of FM and the professions involved in the design and management of the workplace: network, logistics, connectivity, fluidity and bi-directional supply chain.

Foster a culture of foresight in facilities/property management. While all of the participants in the case study agreed that the long-term future should be considered in workplace strategy development (see section 5.2.1), the results indicate a lack of understanding as to why this is so. As such, it is necessary to foster an in-depth understanding of long-term foresight among in-house FM teams, workplace consultants and workplace decision-makers in order to avoid future risks and discontinuities in workplace provision. It is recommended that a formal and continuing foresight team is set up to develop a strategic mindset among FMs and workplace decision-makers. In addition, it is recommended that the long view of the workplace is taken in the context of sustainable development. Examples of companies that have adopted foresight to effectively anticipate events and improve their ability to get ahead of the curve include (Ringland, 2006: 2): Shell who anticipated the fall of communism and its effect on

natural gas prices; Pacific Gas and Electric to prepare for the earthquake in California, and Electrolux identified new consumer markets.

Broaden the scope of FM education. Education is a key aspect for the development of a new mindset. In light of the limitations in section 5.3.4, there is a strong need to educate and retrain FM managers new techniques based on learned theory and concepts that show how space can be used as a strategic tool, as well as how to investigate the impacts of workplace change on a broader scale. The benefits of this will not only encourage thinking about the workplace at a more complex and systemic level, but also address the issue of managing intangible elements of the workplace, specifically relating to the impact physical space on knowledge creation. To do this effectively, relevant programmes in alliance with top academic institutions should be developed to promote thinking at a more profound level. In addition, it is recommended that all senior FMs involved in workplace provision be trained in the application of innovative techniques, such as futures methods, in an effort to implement them into mainstream planning.

Collaborative leadership. Leadership is said to be key to developing visions and strategies of the long-term future in organisations. Yet, in the context of the workplace, there is a widespread lack of vision and leadership in setting the future direction of the workplace (see section 5.1.2.3). The literature and empirical findings attribute this to the fact that leadership is often used as a rationale for not confronting higher levels of FM responsibility to address the ongoing challenges in workplace planning and strategy implementation, and thus breeding an attitude of senior management dependency. Progressive thinkers in workplace provision must be supported by the organisation if it wants to engender a strong competitive advantage over its rivals. To facilitate this, it is recommended that the focus shift towards collaborative leadership within strong and connected communities that foster accountability and responsibility at all scales.

Disseminate futures research and evidence for workplace strategy development. The literature in section 3.4 indicates that, in the workplace context, there has been innovation without dissemination. In addition, the empirical findings in section 5.2.5b suggest evidence is required to promote long-term future-oriented thinking in workplace strategy development, as the innovativeness of futures in a reactive, retrospective FM context could lead to difficulties in the adoption of such approaches. To overcome these

issues, it is necessary to communicate research, through research dissertations, peer reviewed papers, reports, newspaper articles and the like, which focuses on the limitations of existing approaches and the advantages of applying a futures approach to workplace strategy development in order to transform mindsets and prompt debate. Communicating the rationale and benefits of this approach would challenge present FM and property assumptions about the development of the workplace in the future and give credibility to the futures approach. The research should also provide important information about the available methodological approaches, how new methods are employed, particularly in a real world planning context, as well as the identification of the limitations of such approaches.

6.3.2 A proposed futures framework for workplace planning

This section presents the recommendations related to the need for a new framework for workplace planning based on the futures approach Prospective Through Scenarios. Conveying the essence of the conclusions and recommendations, the proposed framework is then presented, which is followed by a discussion of the different stages that constitute the proposed framework. Based on the overarching conclusion in section 6.2 that asserts a new approach toward the future is required to tackle complexity, uncertainty and change, the related recommendations include:

Redefine the term workplace. The term workplace refers to a narrow focus of the office building. The literature (chapter 2) and empirical findings (section 5.1) indicate that the environment within which FM/RE managers operate is complex, multifaceted and ever changing, with many interconnected elements (e.g. new ways of working, enabled by technological advances, are creating new environments of work, be it physical or virtual). As such, the term workplace is inadequate to capture this shifting focus. It is recommended that a redefinition of the term workplace is undertaken, to one that includes all the components that constitute it - organisational, social, technological and physical environments of work. In essence, a definition that incorporates new work environments embraced by new ways of working, new organisational structures and the emerging knowledge economy; perhaps, the term “work-system” is apt. Any realistic attempt to create sustainable, smart work accommodation must take a broader view than just the design and management of the physical space.

Build a framework for the communication and collaboration of managerial stakeholders. To ensure the workplace is managed to support the core business, the workplace strategy should be aligned with the mission and business strategy of the organisation. To achieve this, the results demonstrate that effective collaboration and communication of ideas between workplace stakeholders in both the internal organisation and along the supply chain is strategically crucial in creating the broadest base from which to achieve the best future. It is recommended, therefore, that it is necessary to create a framework into which collaboration and communication is factored. The benefits of such a framework include:

- the exchange of data and information regarding future themes, trends and ideas regarding in different teams, departments, and external sectors;
- the understanding of the business and how it will work now and in the future; the reduced threat of the silo management effect;
- the achievement of a balanced integration of policies, plans and timeframes between organisational and workplace goals; and,
- above all else, the development of a collective, holistic future vision for the workplace.

By examining workplace planning through an interactive process, using the concepts and methods of futures studies, communication and collaboration between managerial stakeholders will be encouraged.

Conduct ongoing horizon scanning. This research concludes that the workplace is constantly subject to not only internal organisational pressures, but also wider economic, social, environmental and cultural forces. This suggests that current business logic is never forever and that there is a continuing need deliberately to question the basic assumptions of the organisation, its purpose, its products and its workplace in a changing external environment. To address this, ongoing horizon scanning, as referred to in section 4.7.1, is required to examine trends in industries and agencies from fields and sectors beyond within which the organisational workplace operates that alerts FM/RE professionals to risks and opportunities in the period ahead. In the context of workplace planning, the collection of this data gives the FM professional a strategic intelligence capacity, which is then used as a basis for future-oriented thinking in workplace strategy development.

Recognise the need to consider alternatives. The results in section 5.2.3a indicate that the view of the future workplace is forecast in a linear way, suggesting there is only one possible future, and that workplace decision-makers know where they are going and how to get there. Given the unprecedented and rapid rate of change, and its associated complexity, however, traditional workplace planning approaches, based on time series data and elaborate quantitative analysis, are increasingly limited in their ability to forecast the future accurately. Managers must recognise that they do not, and cannot, know much of what lies ahead. It is necessary, therefore, to recognise that there is not just one known future, but multiple plausible futures that could unfold out of current trends, cycles, wild card events and the many decisions made or avoided by corporations, government and individuals. It is these alternative futures that must be considered before making a decision in the present day. One way of doing this is to create a variety of scenarios. The findings of 'The Workplace of the Future' study in section 5.3 demonstrate the benefits of utilising a scenarios approach. It generates a better understanding of the uncertainties, trends and drivers of change, and their associated impacts, that are influencing the future shape of the workplace. It encourages deeper questions about the future to be asked; it promotes 'thinking-outside-the-box'; and enables reflexivity and flexibility in decision-making.

Shape a preferred future vision for the workplace. Creating a future vision for the workplace enables the FM professional and workplace decision-makers to address questions such as: is the FM profession capable of managing workplace risk in a globalised world? What opportunities are created in the future development of the workplace? To what extent will technology impact on the future workplace? In so doing, FM/RE professionals define desired workplace futures that they seek to create, from which a shared sense of commitment emerges. To achieve a preferred future, it is important to be able to imagine it. Rushing towards a hazy ideal is wasteful of energy and resources, and to that end, the visual conceptualisation of the future in which the workplace exists, is vital. This research recommends that the Prospective through Scenarios approach instead of the foresight approach is applied in this context to fulfil this task. The reason for this is that the prospective through scenarios approach is underpinned by preactivity (understanding) and proactivity (influencing) compared to the foresight approach which is based only on preactivity.

Based on these recommendations, the following futures framework for workplace strategic planning, based on the prospective through scenarios process, is presented in Figure 6.1. It can be used by the FM/RE department to cope with future uncertainty to develop an overall workplace strategy for the future.

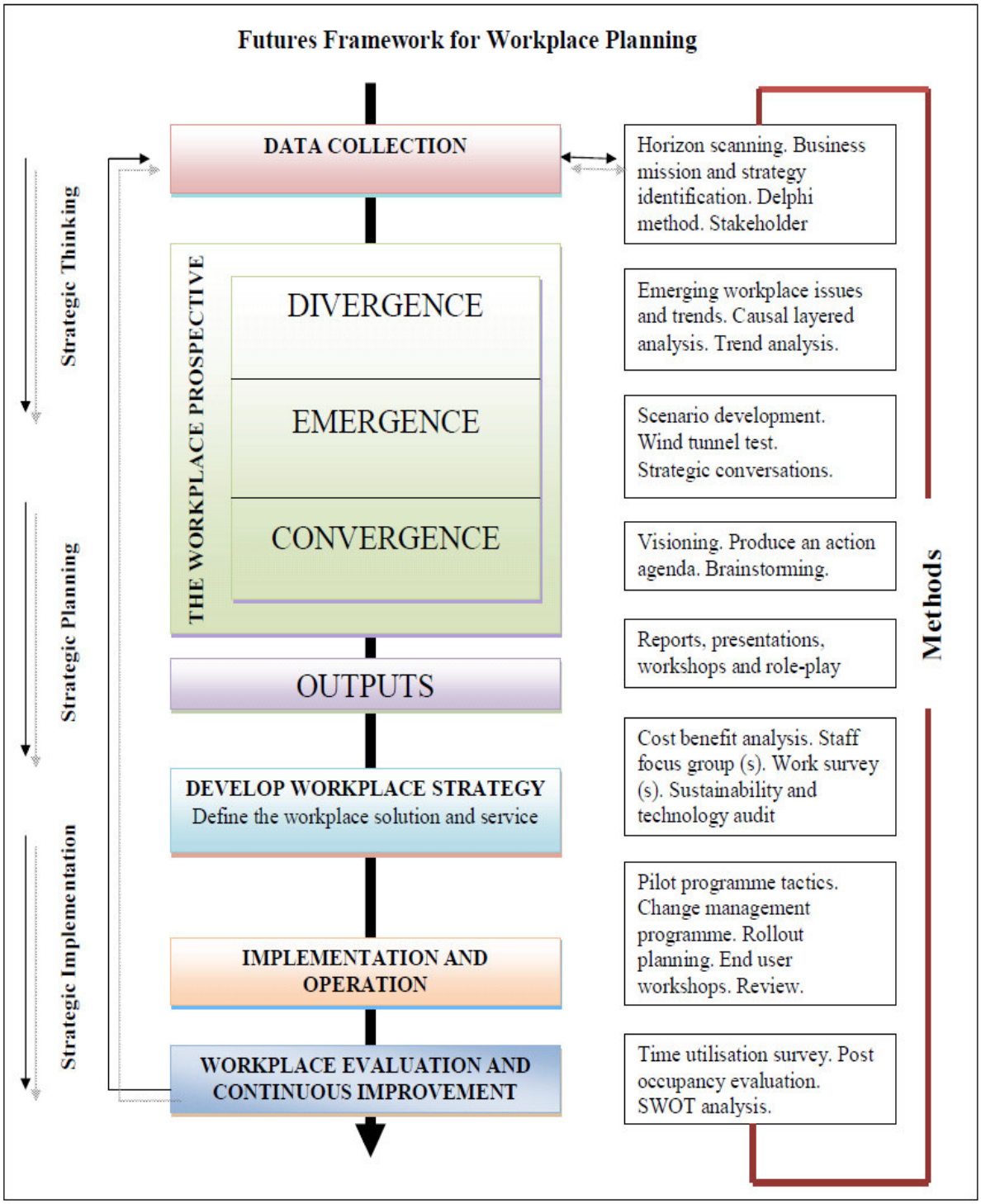


Figure 6.1 Proposed futures framework for workplace planning based on the Prospective Through Scenarios process

The framework is modelled on Voros' (2003) generic foresight process framework (see appendix 11 for a full description), but it differs significantly in the details of the phases. It has been adapted and developed further to incorporate the Prospective Through Scenarios process. The proposed framework now consists of six stages.

1. Data collection: This stage is important as it addresses the issue of poor communication between senior management and FMs (see section 5.2.1a). Through horizon scanning, information on state of the art workplace developments, likely trends and changes in the medium to long-term future, and potential opportunities and threats is collected from a range of sources such as experts in the field of workplace provision, academic literature, on-line business forums and blogs, government publications, unorthodox sources such as Wired magazine, workplace TV, the media and other documented futures exercises. On top of this, there is a requirement to define the business context since the workplace strategy should be aligned with the mission and strategy of the company. As such, data is collected to identify:

- how the business works now and in the future;
- key relationships between and within business units; and,
- descriptions of the business processes.

This information can be gathered through strategic conversations with senior management (section 4.7.2), stakeholder analysis and the Delphi method (section 3.13.2 for further analysis). This data is then fed into the next stage of the futures framework for workplace planning.

2. The Workplace Prospective: This stage constitutes the study of the future workplace. It not only evaluates alternative outcomes against given policy decision, but it also creates a space to influence the future and shape it according to the organisation's wishes. Typically, facilitated in a futures workshop, the workplace prospective is created in three broad steps.

Divergence **–** this step investigates multiple perspectives underpinning workplace development. It identifies the driving forces of change, issues and trends shaping or influencing the future development of the workplace (see section 5.3.2a-3). Participants are encouraged to focus their thinking from the outside-in as opposed to the inside-out

which is what most of us are accustomed to doing. Figure 6.2 captures this divergent thinking.

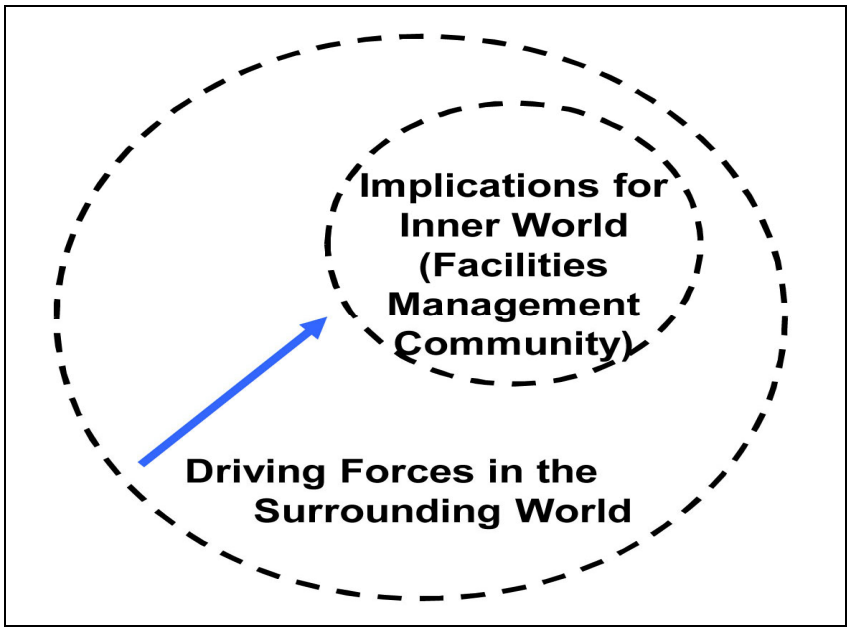


Figure 6.2 Divergent thinking

By employing CLA (section 5.3.2b-2), the participants can take a more in-depth vertical view into the structures, insights and worldviews of workplace development, while trend analysis captures obvious and emerging trends and issues through a horizontal, superficial view.

Emergence – This step is the crux of the process, where key uncertainties are identified to create various views of alternative future images (see section 5.3.2a – 4/5). Through scenario development, FMs can gain insight into the future consequences of certain decisions by testing their strategies in each of the developed scenarios in order to understand the intricate details of each and how they might play out in a range of potential futures.

Convergence – The final step in the prospective through scenarios process concludes by describing a single preferred future that the FM profession aspires to create (see section 5.3.2c). To move towards this overarching goal, the convergence step enables the profession to prepare a strategic roadmap of the future workplace by producing an

action agenda, made up of future-proofed strategies, which might underpin progress and define the evolution and development of the workplace over the next couple of decades.

3. Outputs: Echoing the words of Voros (2003:15), this step intends to "generate an expansion of perceptions and perceived options". In other words, this step promotes new insights and initiates thinking about the myriad options derived from the prospective process prior to any formalised strategy work. It involves presenting the outputs of the prospective process to decision-makers through a variety of techniques, such as workshops, reports, role-play and presentations. Voros (*ibid*) argues that this step is separated from strategy to avoid the possibility of foresight becoming the scapegoat for ineffectual action.

4. Develop workplace strategy: Now that strategic thinking through scenarios has been undertaken, its output is then used to build a kind of 'scaffolding' within which the workplace strategy can be defined and/or reviewed. During this stage, the vision is communicated through a detailed description of the proposed workplace strategy and includes data on the following aspects: location; size, capacity, cost of proposed workplace solution; communication and privacy needs; which teams are working together and where; understanding of IT and work activities as well as service implications; and finally, the identification of the project team, steering committee and workplace partners such as workplace and FM consultants, planner, engineer, and architect if needed to recommend options. Other strategies must be considered at this stage: outsourcing strategy; development of employee workplace services strategy; optimisation of the portfolio/disposal strategies. Ultimately, this workplace strategy should demonstrate added value to the firm through enhanced employee productivity, reduced workplace cost, and flexible workplace solutions while at the same time increase innovation, employee satisfaction and improve support of the core business.

5. Implementation and operation: The aim at this stage is to implement the vision and workplace solution. Firstly, before the entire organisation adopts it, pilot programmes can be set up to test the workplace strategy in order to minimise risk. Subsequently, change management tactics are employed to ensure the successful transition to new work-styles, patterns and locations. One way to ensure a successful change management programme is through end user participation. Workshops with user

representatives can be utilised to discuss the progress of the workplace solution. Once workplace change initiatives have been accepted, the FM/RE director rolls out the detailed project plans. To implement the vision, measurable targets are set and key performance indicators are identified.

6. Workplace evaluation and continuous improvement: The goal here is to evaluate performance of the workplace solution, and identify areas for improvement. The results of the strategy process at this stage is to be constantly fed back into the data collection stage of the futures framework, creating a joined-up loop so that continuous assessments and corrections are possible along the strategic workplace strategy development process.

6.3.3 Recommendations for the implementation of proposed framework

For the successful implementation of the proposed framework for workplace planning based on the prospective through scenarios process, five framework elements have been identified to fulfil this task. The recommendations are related to various aspects of the pre-project stage of the strategic planning process - resources, project team, participation and collaboration, process design - and when taken together renders the implementation of the futures framework in the workplace planning context effective.

Provide the necessary resources. The research concludes that the cost of not employing such an approach, and providing the necessary resources to do so, is far greater than the cost of implementing futures in workplace strategy development. Therefore, it is necessary to ensure that the organisation commits to the long-term provision of resources - time, personnel and funding – in order to implement the proposed futures framework for workplace planning successfully. The smart use of these resources not only paves the way to achieving the preferred future vision of the workplace, but also encourages ongoing education and training in the application of long-term future-oriented thinking in workplace management and provision. The actual amount of resources needed may vary day to day and over time, and for this reason senior management should review on a regular basis.

Create a workplace foresight group. This group is the driver of the strategic foresight process in workplace strategy development. Its size varies according to the scale and complexity of the foresight project, but in the context of workplace planning the group should typically include a project manager from the FM/RE department and HR and IT representatives. For bigger projects, however, workplace consultants, architects, planners, and cost consultants can be added to the project group. The function of the foresight group is to:

- anticipate emerging issues;
- identify unintended consequences;
- get a sense of the big picture;
- draw on a wide range of information sources; and,
- involve all concerned.

Also, it is recommended that trialling this framework in the FM/RE sector should be undertaken to ensure that it is employed correctly and those involved are aware of its potential benefits.

Select participants for the futures process. The research concludes that the integration of people and ideas at all stages and at all levels is a key factor in determining long-term success or failure of the built environment. Participant selection, therefore, is critical to the futures process and should be carefully managed. It is recommended that the workplace foresight group involve a wide body of people from within, and outside, the organisation in strategic thinking and planning of the workplace, including the odd visionary. On top of this, it is recommended that end-user participation, and more specifically intergenerational participation, is facilitated in the workplace planning process so that the various needs of multiple generations in the workplace are heard by decision-makers and stakeholders. By listening to the different generations in the workplace, future visions become shared, innovative, creative and free from vested interest bias commonly associated with senior management mentality. Intergenerational participation can be facilitated through focus groups, work-life and work-style surveys and pilot implementation of workscapes. Subsequently, this information is fed back into the futures process to be addressed by workplace stakeholders and decision-makers.

Design a reflexive and flexible futures process. Future-oriented projects in this context will be effective if they are continuous in nature. This facilitates the detection of emerging threats and opportunities that arise from ongoing environmental scanning and creates a business case to review the workplace strategy when necessary. As such, the research concludes that the design of the futures process should be reflexive and flexible to cater for 'old' and 'new' participants in the process, to inject energy into the different phases of the futures research, and to incorporate feedback of lessons learned in order to inform future projects. In addition, the design of the process should include: a clear statement of research aims, objectives and expected outcomes; a description of various methods intended for use in the process to allow for the necessary resources to be made available; and, a project agenda which highlights key milestones and targets.

Employ both qualitative and quantitative methods. In the FM/RE sectors, accuracy, time series data and other quantitative approaches is the norm. This suggests that the FM/RE professionals are pragmatic, operational and reactive. To ensure buy-in from these industries, the research indicates that there is a need to find an appropriate balance between statistical data and the qualitative data of the futures approach. The statistical data should be gathered specifically during the phase when the exploration of the past and current status of the workplace is being undertaken. It is recommended, therefore, that surveys can be utilised to fulfil this task.

6.3.4 Futures Research

This research was undertaken to address the need to study the futures of workplaces as sites of significant societal transformations in the future. Since the study was bounded by several delimitations[86], they give rise to opportunities and insights for further research.

Practical application of the proposed futures framework. While this research bridges the gap between theory and commercial practice by proposing a more holistic and integrative futures framework, designed to assist all those involved in workplace management, and the FM industry specifically, in creating a new transformational

[86] The term workplace referred to the private sector, commercial office in the UK.

mindset that is essential for creating a flourishing, sustainable and responsible workplace and built environment, the testing of such a framework is beyond the scope of this research. The need arises to evaluate its empirical application in a real world context.

Combine different levels of expertise from the public and private sectors. Further research along the same lines could be targeted on the provision of major public workplace developments; bringing together stakeholders from both public and private sectors. As such, civil service, school, university and hospital workplace provision could be made subject to the same phenomenon.

Conduct comparative research between several global 'spheres of influence': Europe, Middle East, Asia and North America. At a global level, workplace management and provision is subject to different driving forces of change with regard to regulation, market perception, locality, functional use and environmental impacts. It would be useful, therefore, to conduct comparisons between different regions to determine, not only the variety of values, cultures and opinions related to workplace provision, but also identify the major regional driving forces of change, issues and trends affecting workplace provision.

Greater knowledge of the workplace resource. It would be useful to better quantify the nature and extent of the changing workplace, by covering many more dimensions of the workplace, such as demographic shifts, knowledge work distribution, complexity and the like, as well as qualify it further through alternative futures techniques such as integral futures studies, in order to form an important step in assessing the changing, complex and uncertainty environment within which the workplace belongs.

Build a collective intelligence network. While there is ongoing research that centres on the link between the provision of physical office space and improved organisational performance, there is a need to apply these findings in a real world context, indicating a fragmented relationship between scholars and industry. One of the key elements of future-oriented planning is collaboration among stakeholders, from which collective intelligence arises. Research into what collective intelligence involves and how it can by

used to enhance workplace strategy development and planning should be undertaken to promote and foster further dialogue and collaboration between these stakeholders.

6.4 Concluding remarks

Few can deny that the global context for business continues to change at an unprecedented rate. The convergence of developments in technology, economic and society that come broadly under the heading of globalisation are creating a new landscape for business. There is also growing awareness that this change is diminishing the old certainties of the office as a time limited and controlled environment for individual work. Several factors are pushing this: the high cost of facilities in relation to poor utilisation rates, the growing pressure to be creative and flexible in the knowledge economy, and changing values towards prioritising sustainability issues. The ubiquitous use of ICT is facilitating radical new dimensions of spatial and temporal connectivity. Typically FMs are not equipped to deal effectively with this new reality in which they find themselves.

Despite the development of a body of literature pertaining to the importance of the physical environment in the organisation, workplace decisions are still made within a rationalist framework of cost reduction, where current user needs are translated into providing the right workplace solution for the right price. To continue on this path, without any consideration for the long-term consequences of workplace strategies on future performance, the evidence in this research suggests that the organisation is left wide open to discontinuous change, and with a workplace not equipped to support the core business during this time of rapid change and growing uncertainty. A result of this is the likely mitigation of long-term workplace effectiveness, productivity, effective service, creativity and innovation as well as declining relationships with employees – a fundamental element of any organisation.

Providing work environments that help workers and organisations realise their potential requires an understanding of the external forces, internal changes as well as potential uncertainties impacting on the current and future workplace. The evidence in this research has found that the employment of quantitative performance metrics with which facilities managers are well used to working is not enough to address the challenges that

arise in this dynamic environment; rather a more imaginative, innovative, and systematic approach towards the future workplace is required. Futures studies offers an array of methods and techniques that can assist facilities managers to address these issues and engage more effectively in the development and implementation of workplace strategies. Perhaps more importantly, the futures studies concept promotes a different way of thinking about the future by reinforcing the notion that it can be shaped by those that imagine it.

It is hoped that this research will make a small step forward in bridging the communication gap between FM professionals and senior management, by proposing a futures framework for workplace planning that acts as a mechanism for communication and collaboration between stakeholders. In so doing, the workplace strategy becomes more closely aligned with the corporate mission and purpose of the organisation, enabling the development of smart and sustainable space for the many, and not the few. Secondly, it is hoped that the framework will assist the FM in effectively anticipating emerging users' demands, and prepare them for discontinuous change and future risks, thus diminishing the cost focus of workplace management. Finally, and perhaps above all else, this research aims to disseminate knowledge and evidence about how new process-oriented approaches that deal with questions of "why?", "how?" and "what if?", combined with quantitative, rational approaches of FM, are necessary to develop a more complete and holistic understanding of the workplace at both the philosophical and practical level.

"Change is the law of life. And those who look to the past or present are certain to miss the future". [John F. Kennedy]

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Publications

The following is a list of publications that have arisen from the research undertaken as part of the Doctorol Thesis.

Peer-reviewed journal papers:

- Saurin, R., and Ratcliffe, J. (2011). Using an adaptive scenarios approach to establish strategies for tomorrow's workplace. *Foresight Journal.* Vol 13 (4) pp.46-63.
- Saurin, R., Ratcliffe, J., Puybaraud, M., (2008). Tomorrow's workplace: a futures approach using prospective through scenarios. *Journal of Corporate Real Estate.* Vol. 10 No. 4. pp. 243-261.

Corporate reports:

- Ratcliffe, J., and Saurin, R. (2007). *Workplace Futures: A prospective through scenarios.* Johnson Controls Global Workplace Innovation: London.

- Ratcliffe, J., and Saurin, R. (2008). *Towards Tomorrow's Sustainable Workplace: Imagineering a Sustainable Workplace Future.* Johnson Controls Global Workplace Innovation: London.

- Ratcliffe, J., Saurin, R., Puybaruad, M., and Kristensen, K. (2009) *The Smart Workplace in 2030.* Johnson Controls Global Workplace Innovation: London.

Conference papers:

- Saurin, R. (2007) Facilities Management Futures. In: *European Facility Management Conference,* Zurich, Switzerland 26-27 June 2007, Zurich: Swiss Federal Institute of Technology.

- Saurin, R. (2008) Imagineering workplaces in the 21st Century. In: RICS *Construction and Building Research COBRA Conference,* Dublin: Ireland 4-5 September 2008. Dublin: Dublin Institute of Technology.

Appendix One – The theoretical legacy on the workplace landscape

Within the broad base of research in the field of organisation studies, there is currently a lack of any wide consideration of the physical context of work within organisation theory. This can be attributed to three influences (Cairns, 2003; Kampschroer and Heerwagen, 2005):

1. The legacy of the Hawthorne experiments.
2. The view of the physical environment as a low-level need or hygiene factor.
3. Strong perceptual bias favouring the social environment

These influences reflect the ways of thinking about the workplace among organisations and wider society, which has resulted in the continued fragmented link between the physical workplace and organisational effectiveness.

➢ The Legacy of the Hawthorne experiments

The Hawthorne experiments examined the relationship between various environmental conditions, such as light intensity and worker efficiency. The hypothesis was that greater illumination would yield higher productivity. Surprisingly, the findings demonstrated that changes to lighting levels, both poor lighting and improved lighting, increased productivity (Roethlisberger, 1941), suggesting that modifications to the physical workplace do not correlate to work performance. Rather, social and human factors, such as receiving more attention than colleagues, performing a novel task and the staff's awareness that they were being watched, impacted positively on productivity. Consequently, social and human factors overshadowed the physical determinants of employee satisfaction and productivity (Sundstrom, 1986). These findings marginalised the importance of the physical structure of the workplace, from which "the primacy of the social over the physical has been the dominant model in organisational theory and behaviour" (Cairns, 2003:97); in essence, creating an air of mutual exclusivity around the two determinants.

- **The physical environment as a low-level need or hygiene factor**

The theoretical contributions of Maslow's (1954) "hierarchy of needs" theory and Herzberg's (1966) "two factor" theory further reinforced this dichotomy. Early theories of motivation focused on satisfaction of human needs. Maslow's (1954) hierarchy of needs is important in this context as it demonstrates the lack of consideration of the physical workplace. The theory has two fundamental concepts: 1) needs are motivators of behaviour, but only when they are unfulfilled; and (2) higher level needs are more successful motivators than low-level needs (Kampschroer and Heerwagen, 2005:328). The physical environment is placed at the lowest level of the "needs pyramid", indicating that the physical environment of work is a low-level motivator, and therefore does not impact significantly on work performance. Yet, recent research indicates that end-users cannot perform to their maximum potential if their basic psychological needs are not met (Oseland, 2009).

Similarly, in Herzberg's (1966) motivation-hygiene (two factor) theory, the work environment falls into the hygiene category. The hygiene factors are not directly linked to job activity; they are necessary to avoid dissatisfaction, but by themselves do not provide satisfaction and motivation factors. Therefore, this theory only yields results if the workplace is in poor physical condition and impacts negatively on employee's motivation and productivity because a good physical workplace creates no motivational gain for employees, nor does it increase productivity.

- **Strong perceptual bias favouring the social environment**

A bias in human perceptions of situations has led to the dominant focus on the social environment at work (Mitchell, 1978; Kampschroer and Heerwagen, 2005). In other words, people are observers of situations and activities, and thus focus attention on other people in a setting and not on the physical features and space attributes. Generally, colours, patterns, furnishings and lighting are noticed, but eventually, attention shifts towards the behaviour of people in that space (Kampschroer and Heerwagen, *ibid*).

Appendix Two - Semi-structured in-depth interview schedule

Part One: The Changing Workplace

1. Can you briefly describe the role you play in workplace planning?

2. What do you believe the workplace to be, and who is responsible for it?

3. What do you think are the major driving forces of change affecting the future development of the workplace?

4. How are facilities managers responding to this change?

5. In your opinion, how important is strategic FM leadership in helping to prepare for change in the workplace?

Part Two: Futures and Strategic FM

6. In your opinion, who performs strategic and forward thinking in workplace planning?

7. Do you believe the long-term future is considered when creating workplace strategy?

8. What methods are currently used to a) incorporate the future into workplace planning, and b) prepare for change, uncertainty and complexity in the workplace?

9. What are the obstacles preventing future-oriented thinking among decision makers in strategic FM?

10. How receptive is the FM industry to new strategic ideas? And, what is needed to encourage future oriented thinking in the industry?

11. Would you use a future oriented approach in your decision-making regarding the workplace?

Appendix Three – Strategic conversation topic guide

1. What are the major trends affecting the development of the workplace?
2. What are the major threats that could affect the future development of the workplace?
3. What are the major challenges that workplace development will face over the next 25 years?
4. What would you see as the priority decisions or areas of concern that will have to be addressed in the near future?
5. What are the catalysts for change towards the successful development of the future workplace?
6. In an ideal world, how do you perceive the future workplace?
7. If nothing stood in your way, if there were no obstacles or constraints, what would you do to direct action towards the desired outcome?

Appendix Four – Workshop agenda sample

GLOBAL WORKPLACE SOLUTIONS: THE FUTURE OF THE WORKPLACE

2nd April, 2007 – Park West One Workshop Agenda

Briefing Session:

09.30 – 10.00 Welcome and Introduction

Session 1:

10.00 – 10.15 Set the Strategic Question
10.15 – 11.00 Determine Driving Forces of Change
11.00 – 11.15 Group Presentations

11.15 – 11.30 *Coffee Break*

11.30 – 12.15 Identify Pivotal Uncertainties for the Future of the Workplace
12.15 – 12.30 Group Presentations
12.30 – 13.30 Create Alternative Scenarios

13.30 – 14.30 *Lunch*

Session 2:

14.30 – 14.45 Group Presentations
14.45 – 15.30 Agree Research and Practice Priorities & Establish Action Agendas for the future of the workplace
15.30 – 15.45 Group Presentations
15.45 – 16.00 Final Thoughts

End of Workshop

Appendix Five – Futures questionnaire sample

Driving Forces of Change in Tomorrow's Workplace

A Questionnaire from Global WorkPlace Solutions and The Futures Academy

The aim of this questionnaire is to collect your thoughts about a range of issues affecting the future of the workplace over the next twenty five years or so.

It intends to stimulate innovative and creative thinking and to prepare participants for an active engagement in the workshop exercise.

Please answer each question in detail and include your own opinions and ideas. There are no correct answers.

All responses will be kept strictly confidential.

Many thanks for your participation

Ruth Saurin MSc
Marie Puybaraud PhD.

November 2007

Discovering attitudes, hopes and aspirations for the future of the sustainable workplace.

Q1. Under the following 5 headings, identify two or three major issues and trends that you feel will affect the development of the future workplace over the next 25 years.

A. Demography

(i)	
(ii)	
(iii)	

B. Economic

(i)	
(ii)	
(iii)	

C. Governance

(i)	
(ii)	
(iii)	

D. Environmental

(i)	
(ii)	
(iii)	

E. Social

(i)	
(ii)	
(iii)	

F. Technology

(i)	
(ii)	
(iii)	

Q2. What do you feel are the major challenges that the workplace will face over the next 25 years or so?

(i)	
(ii)	
(iii)	

Q3. What are the trends or events that have taken place that could have a very strong impact on the future workplace but their effects are uncertain?

(i)	
(ii)	
(iii)	

Q4. What are the major questions hanging over the facilities management industry that will have a direct impact on the future development of the workplace?

(i)	
(ii)	
(iii)	

Q5. What do you believe to be the catalysts for change towards the successful development of the future workplace?

(i)	
(ii)	
(iii)	

Q6. What do you feel are the major threats to the future development of the workplace?

(i)	
(ii)	
(iii)	

Q7. What do you feel are the main opportunities for the successful development of the future workplace?

(i)	
(ii)	
(iii)	

Q8. In an ideal world, how do you think the future sustainable workplace will look like?

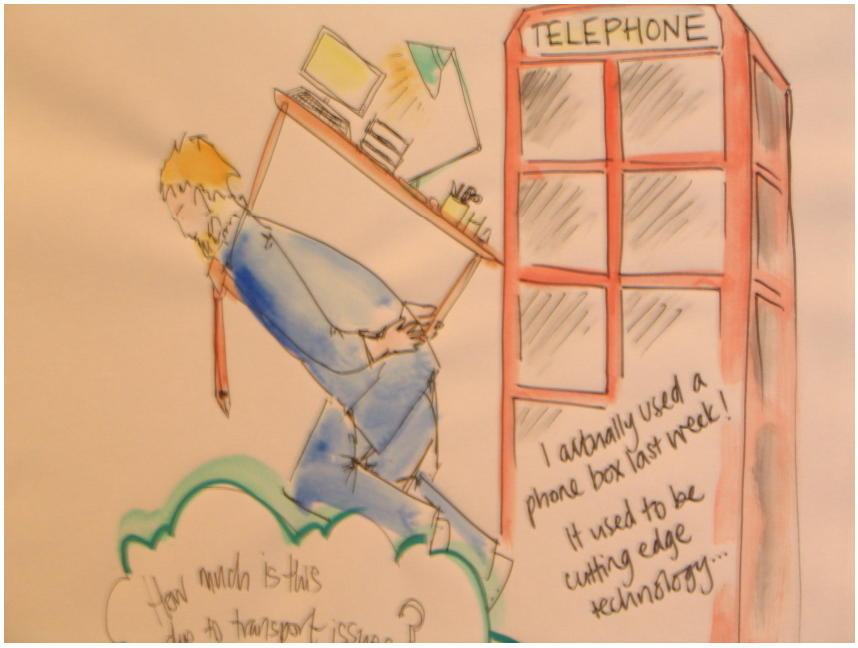
(i)	
(ii)	
(iii)	

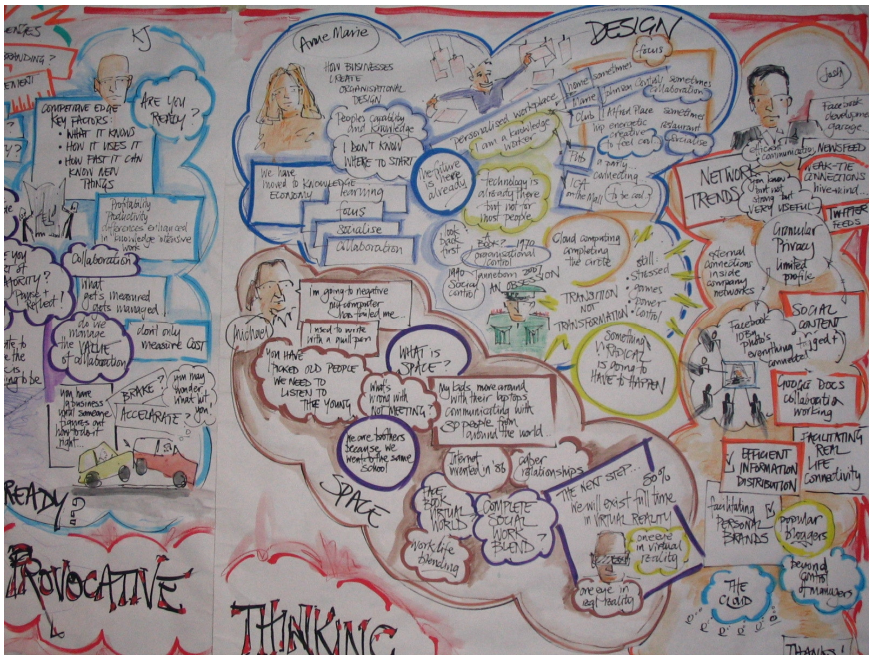
Thank you for your time and assistance!

Please return by email to:

Ruth Saurin
The Futures Academy, DIT.
Tel: 01-402 4041
Ruth.Saurin@dit.ie

Appendix Six – Illustration examples from Workshop






SOCIETY
ECONOMY
ENVIRONMENT
TECHNOLOGY
POLITICAL
CHALLENGES


Technology
change
Workplace
Flexibility
collaborative
creative
Cost
security
Communication
Vision
sharing best practice
CREATIVE
in a box
lack of
awareness
coming the norm
infrastructure
world wide web
corporate
Standards
flexibility
Organisational
change
careful
plan
sharing practices
Creating a
focal point
Flexibility
Constantly
changing
Permanency

Appendix Seven -The ‘Workplace of the Future’ Reports

Appendix Eight – Thought provocateur instruction

Dear ,

Thank you for accepting the invitation to attend the Workplace Futures event next Friday 4th May. I have been advised that you would be prepared to provide a short reflection to provoke thought at the outset of the workshop, and I have been to indicate the framework within which this would take place.

It is hoped that there will be several of these 'thought pieces' giving a personal view of what the workplace might look like 10, 15, 20 years ahead, and what driving forces of change, or significant events, have created that condition. It might also highlight one or two actions that might be done now by the facilities management community to influence that change in preferred direction. The presentation should not exceed five minutes, (and not involve powerpoint). It would also help if your thoughts could be captured on a single page of notes.

Thank you in anticipation. I look forward to seeing you on Friday.

Best wishes,

Appendix Nine – Scenario design guidelines

The scenario should include answers to the following questions:

- What will the workplace look like in the year 2030?
- What role will the facilities management community play in the future?
- What are the most important *changes* that have taken place up to this year?
- What major *opportunities* have occurred since the turn of the century?
- What *threats*?
- What shocks or '*wildcards*' have impacted upon the development of the future workplace?

The scenario should portray the future of the workplace in terms of each of the following six sectors:

1. Society
2. Demography
3. Economy
4. Governance
5. Environment
6. Technology

The scenario should also consider the following factors and actors (Lindgren and Banhold, 2003):

Factors	***Actors***
▪ A beginning, a middle and an end state ▪ An approximate time line ▪ Key events that make things happen ▪ A catchy name	▪ Main players in the field ▪ Large, small and traditional stakeholders ▪ What society is demanding

Your scenario should be challenging, evocative, consistent, and imaginative. It should also be plausible.

Remember, you are not predicting the future – you are trying to *imagine* it.

Appendix Ten – Topic guide for feedback interviews

1) Have you been drawn toward the futures way of thinking now, having experienced the process through the workshops?
2) Do you believe The Prospective methodology is a robust framework in order to support workplace change?
3) Do you think the futures approach has had an impact on they way your organisation now makes decisions?
4) Can you see the Facilities Management industry adopting such a long term approach to decision making?
5) The methodology evolved over the period of the Future of the Workplace study, do you believe this was necessary to do this to achieve the required results?

Appendix Eleven – The generic foresight process framework

The generic foresight process framework was developed, by Joseph Voros of the Australian Foresight Institute, to introduce foresight into the formal strategic planning process of a third-level institution. Based on Mintzberg's (1994) notion of separation between strategic thinking and strategy development and strategic planning, Horton's (1999) foresight process, and Slaughter's (1999) application of strategic foresight, this framework consists of a four-phase structure: inputs; foresight; outputs; and, strategy (Voros, 2003), which is presented in figure 10.1 below.

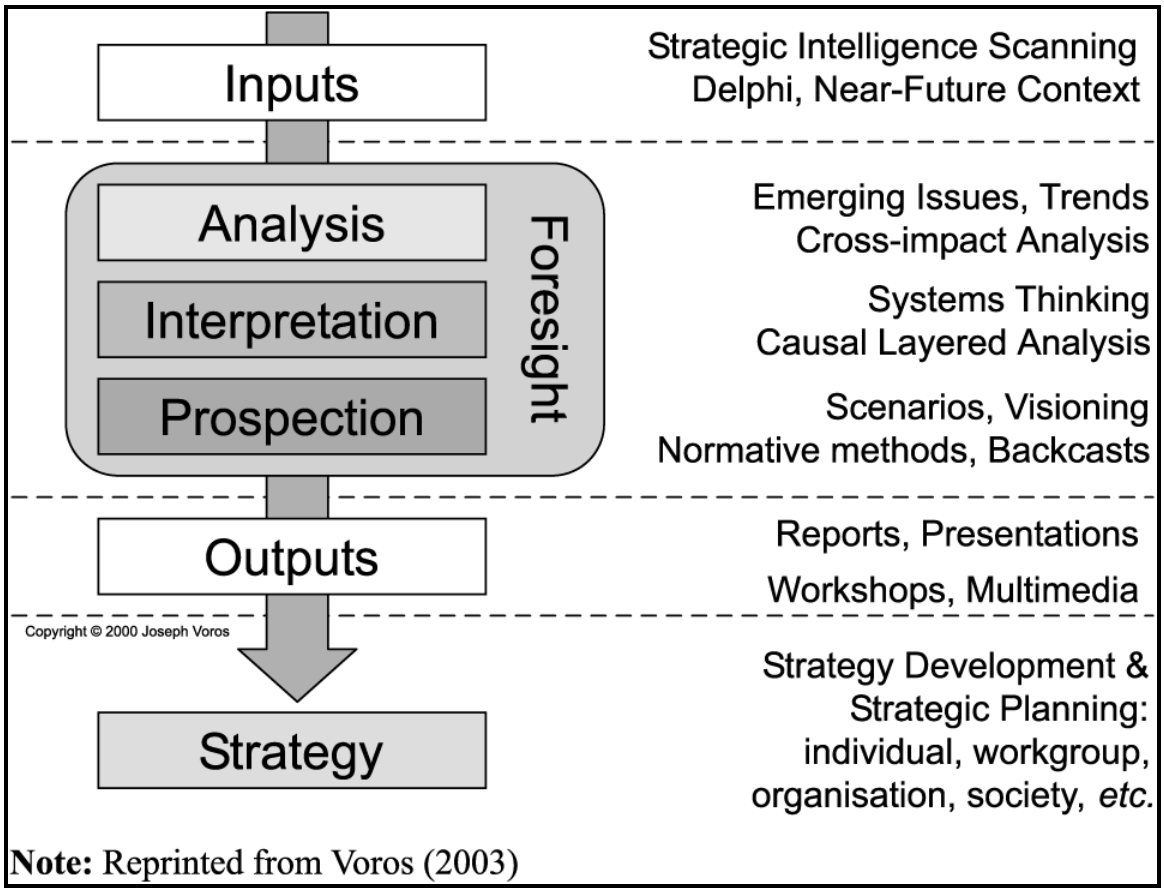


Figure 10.1: Generic Foresight framework - *Source Voros (2003)*

The following section provides an explanation of the four phases of the foresight framework, as well as the methods employed in each (Voros, *ibid*):

1. **Inputs:** This phase refers to the gathering of information and scanning for strategic intelligence. The goal is to look and see what's happening inside the

organisation as well as in the external environment in which it operates so as to understand trends that present threats and opportunities that can impact performance. Multiple tools can be employed during this phase, such as strategic intelligence scanning, Delphi methods and brainstorming.

2. **Foresight:** The second phase of this process involves three sequential activities: analysis, interpretation and prospection. Analysis is considered a preliminary step to more in-depth work. The goal of analysis to create some order out of the significant amounts of information which is normally generated at the input stage. To achieve this, the following methods can be employed: trend analysis and cross-impact analysis. This analysis is then fed into the second step of the foresight stage, interpretation. At this level, a more in-depth examination of structures and insights is investigated to answer the following question – what is really happening? Causal layered analysis and systems thinking are just some of the approaches that can be employed. The final step in the foresight phase is prospection. It involves the examination and/or creation of various views of alternative futures by using the following futures methods: scenario planning, visioning and backcasting.
3. **Outputs:** During this phase, the outputs of the foresight work are presented to generate an expansion of perceptions and perceived options prior to any formalised strategy work. This can be achieved through the utilisation of the following methods: reports, presentations, and workshops.
4. **Strategy:** The final phase of the generic foresight process framework involves creating strategy and directing strategic actions for implementation based on the findings from the output of the foresight phase. The results of the strategy phase should then be fed back into the Inputs phase "so that continuous assessments and course corrections are possible along the strategic journey" (Voros, *ibid*: 16).

According to Voros (*ibid*), the generic foresight process can also be used as a diagnostic tool for examining how foresight work and strategy is undertaken, as well as a design guide for practitioners who want to customise their own foresight project and process.