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THE STRATEGY PROCESS OF IRISH QUANTITY SURVEYING FIRMS OPERATING WITHIN A TURBULENT BUSINESS ENVIRONMENT

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Rapid technological changes and market fluctuations create a turbulent business environment that poses significant challenges to the strategy process of Quantity Surveying (QS) firms. A turbulent environment refers to the existence of high levels of uncertainty, unpredictability, volatile demand and changing growth conditions within an industry. The strategy process is complex and becomes more problematic in the face of a turbulent business environment. To date, studies focusing on QS practices seldom investigate the impact of a rapidly changing environment on the strategy process within these firms. This study aims to address this gap by investigating the impact of environmental turbulence on the strategy process and strategic choices made within Irish QS firms. This paper presents findings from the first of a two-phase data collection process, which adopts a quantitative approach based on data collected from a survey of senior management in Irish QS firms. The paper provides insight into the characteristics of the strategy process of QS practices operating in a turbulent business environment and outlines strategic choices made at the top management level of these practices. The paper contributes by identifying the impact of turbulent business environment on the strategy process of QS practices.

Keywords: strategic, planning, process, turbulent, environment, quantity surveying

INTRODUCTION

The construction industry is complex and highly changeable due to discontinuous demand, market uncertainty, supply chain complexity and the heterogeneous nature of the output. In Ireland, the construction industry has undergone significant change over the last number of years however, while there is considerable evidence pertaining to the effect of economic fluctuations on the construction industry (Tansey *et al.*, 2014), less emphasis has been placed on the impact of economic turmoil on the strategic decision-making process and strategic choices of QS firms. Environmental turbulence refers to increasing volatility, uncertainty, and instability in the business environment of organisations (Yasir *et al.*, 2017, 1150; Wong, 2014), the drivers of which include technological instability; and market fluctuations (Day and Schoemaker, 2016). Market fluctuations have also given rise to skills shortages (Murphy, 2018), which affect the choices available to QS practices.

The strategy process is a sequence of events and changes at the corporate and business levels that lead to critical outcomes in organisations (Huy and Guo, 2017). The

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strategy process of QS practices operating in unstable business environments requires strategic choices at both the corporate and business level to operate effectively in a disruptive setting.. Corporate level choices are the options available to the chief executive officer and the board of directors while business level choices refer to the decisions of senior managers or senior executives based on the decisions of the top management (Castañer and Yu, 2017). Despite the fact that studies by Tansy *et al.*, (2014) focus on the response strategies of Irish contracting firms, investigations into the strategy process of QS practices operating in complex and unstable conditions are scarce.

LITERATURE REVIEW

The construction industry is significant to the socio-economic development in Ireland by contributing to the various sectors of the Irish economy. Despite the significant contribution of the Irish construction industry, the financial crisis has negatively affected its performance over the last ten years due to the recent prolonged economic recession (Nolan and Voitchovsky, 2015). QS practices, which are critical to the performance of the Irish construction industry are also facing the challenges created by the economic instability. QS practices are professional service firms engaged by clients to undertake cost management roles during construction project delivery (Lu *et al.*, 2019). Cost management in the construction industry comprises cost-related activities during project delivery, right from inception through successful completion and user occupancy (Ashworth, 2010). The traditional roles of QS practices include preliminary cost estimate, design-stage cost plan, tendering, cost control and preparation of variations and final account (Towey, 2012). Apart from the traditional cost estimating and cost planning functions, the roles of QS practices in construction project delivery have evolved into new responsibilities such as life cycle costing, mediation, adjudication or arbitration, value engineering, risk analysis, insolvency services, programme and project management and facilities management (Ashworth *et al.*, 2013). Both the traditional functions and emerging roles of QS practices have been affected by turbulent business environment discussed in the section below.

Turbulent Environment

A turbulent environment refers to the existence of high levels of uncertainty, unpredictability, demand volatility, and changing growth conditions within an industry. The strategy process is complex and becomes more challenging due to uncertainties posed by the disruptive business environment. The challenges of the disruptive business setting may be addressed by increasing knowledge of both top and middle-level managers on strategy process and alertness (Yasir *et al.*, 2017). Alertness is the ability of business organisations to identify new economic opportunities that do not have prior recognition by other economic actors (Stolyarov II, 2005). Wong (2014) investigates the impact of environmental turbulence on entrepreneurial orientation and found that a turbulent business environment has a significant influence on entrepreneurial innovativeness. Entrepreneurial innovativeness in this paper refers to the ability of business leaders to adopt new methods, ideas, and strategies for organisational management and operation in order to develop new products or improve existing products or service (Khandwalla, 1987). The findings of Yasir *et al.*, (2017) and Wong (2014) specifically focus on entrepreneurs in the manufacturing sector, thus, this research focuses on QS practices whom must pay attention to the instability in their business setting.

Dess and Beard (1984) classify disruptive business settings as 'munificence'; 'complex'; and 'dynamic'. Environmental munificence refers to conditions of growth in organisations due to the availability of economic resources (Boyne and Meier, 2009). Environmental complexity refers to external circumstances that impose a burden on the organisation (Miller and Page, 2007). Furthermore, studies by Andrews *et al.*, (2005), Fernandez (2005), and Heinrich and Fournier (2004) establish that complexity hurts the performance of organisations. Dynamism refers to the unpredictability or the rate of change and innovation in an industry as well as the unpredictability of its customers' actions (Li and Liu, 2014). Thus, unpredictability creates a challenging business environment for firms with adverse consequences on their strategy formation and overall performance, which require an understanding of the strategy process in a disruptive business environment and its impacts on strategic choices in QS practices.

Scholarly investigations on the turbulent environment of organisations delve into both internal and external environmental conditions. The internal conditions include organisational culture, the type of management, and organisational structure that affect the functioning of the firm. External conditions involve economic, political, social and technological factors that arise from outside the organisations but have a significant impact on their operation and management. However, this warrants further research due to increasing disruptive conditions within and outside the business settings (McKelvie *et al.*, 2018; Vecchiato, 2015), it is crucial to delve into QS practices and turbulent environment below.

QS Practices Operating in Turbulent Environment

QS practices face several challenges in their service delivery to clients in the construction industry. The challenges of QS practices include fragmented processes in the construction industry, estimation of sophisticated design, tedious work, time pressure, and an image problem (Lu *et al.*, 2019). The economic recession created a turbulent business environment for QS practices.

Furthermore, the turbulent business environment creates challenges for QS practices such as skills shortage due to loss of talents to other geographical locations with better job prospects; difficulty in accessing capital for expansion and growth, internationalisation, and fee competition (Frei, 2010). In Ireland, the economic recession created a turbulent business environment that poses challenges to Irish QS practices such as skills shortage, high construction cost, tender price inflation, and high demand for construction services (Murphy, 2018; SCSi and PwC, 2017). Though studies have investigated the impact of the economic and financial crises on the QS profession, including Irish QS practices, there is a limited analysis and discussion on the nature of strategic choices in QS practices. Thus, this paper focuses on strategic choices; strategic change, and the impact of the turbulent business environment on QS practices in Ireland.

The Strategy Process

The strategic process entails the strategic choices that organisations make in order to reach their goals. Strategic choices focus on decision-making about the future and the response of firms to the business environment (Johnson *et al.*, 2008). Corporate strategy is the determination of organisational goals to reach the desired future state (Porter, 1998). Strategic choices at the corporate level include growth, stability, retrenchment, and combination. Strategic choices at the corporate level are critical to the effective use of resources and the direction of business level strategies to create a

competitive edge over rivals (Barney and Clarke, 2007). The business level strategy focuses on how a particular unit of a business organisation competes in an industry and how the organisation seeks to achieve its corporate choice (Bowman and Helfat, 2001). Strategic choices at the business level consist of price leader, differentiation, focus, and stack in the middle (Porter, 1998). The increasing uncertainties in business settings create challenges for making effective strategic choices in QS practices; hence, the paper adopts the research method below to explore the strategic options of QS practices in Ireland.

RESEARCH METHOD

This research adopts a mixed method comprising quantitative and qualitative approaches. The quantitative approach used a structured survey questionnaire while the qualitative used semi-structured interviews to collect data from senior managers in Irish QS firms. This paper focuses on the quantitative aspect, which is the first phase of the research while the second qualitative phase is ongoing.

The target participants are registered senior QS members of the Society of Chartered Surveyors Ireland (SCSI). The questions in the survey questionnaire were both open-ended question which seeks to ascertain the drivers of strategic change and closed-ended questions with variables adapted from the review and synthesis of the literature on the turbulent environment; the strategy process in a turbulent environment and the strategic response of organisations. The questions focused specifically on the impact of the turbulent environment on Irish QS firms and the various strategic responses that Irish QS practices adopt in order to survive in a turbulent environment.

During the design of the survey questionnaire, a turbulent environment was defined in terms of uncertainties, and this ensured that respondents easily understood and related their experiences with the term 'turbulent environment.' This approach to the definition of a turbulent environment during the questionnaire design is consistent with Singla *et al.*, (2018); Yasir *et al.*, (2017); Day and Schoemaker (2016), that define a turbulent environment as market fluctuations; rapid technological changes; complexity and volatility.

The nominal and 5-point Likert scales were used to measure the responses of participants in the survey. The purposive sampling technique and online survey tools were used to administer the questionnaire to 350 participants obtained from the database of SCSI after a thorough cleaning to ensure that only the desired participants were selected for the survey. The exclusion criteria for the cleaning of the database include Qs working in public institutions; educational institutions; non-construction organisations; QS that are self-employed; and Qs working outside Ireland.

Purposive sampling is a careful selection of participants due to the suitability of their qualities and experiences for a particular study (Etikan *et al.*, 2016). In this study, senior Qs were selected for participation because of their position in top management and who have several years of experience in the strategic planning process in their firms. One hundred and two usable questionnaires were returned for analysis with a response rate of 26 per cent. Descriptive statistics were used to undertake the analysis of the data collected. The specific descriptive statistical tools used include percentages; mean; median and standard deviation.

DISCUSSION OF RESULTS

Strategic Choices: Corporate and Business Level Strategies

This section of the paper focuses on the strategic choice of QS practices at the corporate and business levels. The strategic choices examined in this section are crucial for decision-making in QS practices, especially those operating in a disruptive business environment by focusing on the choices in table 1 below.

Table 1: Corporate and business level strategies in QS firms

A. Corporate Level Strategy	Percentage (%)
1. Seek to maintain our current market position, despite a rapidly changing the competitive environment	37.37
2. Seeking to expand into new growth sectors/markets	42.42
3. Rationalising/downsizing current practice in pursuit of increased efficiency	9.09
4. Combination of two of the above	11.11
Total	100
B. Business Level Strategy	
1. Strive to achieve low cost of service provision than competitors	17.53
2. Differentiate services from rivals to make it appealing to clients	53.61
3. Focus on a narrow segment of the market with lower cost	5.15
4. Concentrate on a narrower segment of services	10.31
5. Combine two of the strategic options above	13.40
Total	100

Table 1 indicates that corporate decision makers in QS practices are seeking to expand into new growth sectors or markets of the construction industry. In addition to the expansion, QS firms are focusing on maintaining their current market position, despite a rapidly changing competitive environment. Expansion into new markets and sectors has the potential to increase the client base of QS practices as they have the opportunity to be engaged by more clients than their competitors and its benefits are noted by Rottig and Oliveira (2019) such as increasing sales, profits, new markets, stocks, customers, and financial viability of the business. In table 1, more than half of the QS practices involved in the study differentiate their services from that of their rivals, to make their services more appealing to clients.

Participants' responses in Table 1 indicates a combination of business level strategic options. This combination consists of differentiation with a narrow segment of services; a low-cost strategy with differentiation; low cost with a narrow segment of the market; and a focus strategy on low cost and a narrow segment of services with a concentration on a narrow segment of services. Thus, this shows that QS practices at operational level adopt more than one option to address a turbulent business environment. At the business level, QS practices seek a higher level of differentiation of their service provision to clients in order to create value and avoid price/fee competition. Thus, corporate level choices in QS practices focus on expanding into new markets and sectors, and their business level choices seek to differentiate professional services offered to clients. In addition to exploring the strategic choices at both corporate and business levels, the next section of this research examines strategic changes in QS practices over the last 5 years.

Strategic Changes Over the Last 5 Years

Table 2 demonstrates that the majority of QS practices involved in the study indicate that their strategy has not changed over the last 5 years. This implies that the majority of QS practices maintain both their corporate and business level strategic choices and are not making strategic decisions that will enable them to respond to a rapidly changing business environment. However, 25 percent, and 12 percent of respondents, respectively, indicate that their strategic choices have changed at the corporate and business level in the last 5 years. Strategic change signifies the purposeful choices of organisational actors' intentions to reach their goals against the backdrop of environmental forces (MacKay and Chia, 2013). Hence, the result in Table 2 below suggests that the majority of QS practices have not made choices over the last five years that will enable them to reach their goals in a disruptive environment.

Table 2: Strategic changes in the last 5 years

Strategic changes over the past 5 years	Yes	No
1. Corporate level strategy	25.25%	74.75%
2. Business level strategy	12.24	87.76

Participants' responses to an open-ended question indicate the drivers of strategic change corporate and business level. The main drivers of strategic change at the corporate level include economic recovery that presents QS practices with more opportunities, internationalisation and the need to diversify into other markets or sectors. The main drivers of change in business level strategy as indicated by participants in this study include the need to focus on new services such as outsourcing; design service and water management.

Impact of Turbulent Environment on Strategic Process

This section discusses the impacts of a turbulent business environment on the strategic processes of QS practices in table 3 below.

Table 3: Impact of turbulent environment on strategic process in QS practices

Impact of Turbulent Environment	Mean	Median	Standard Deviation
1. Impacted how we make key decisions	3.98	4.00	0.81
2. Resulted in a change in our organisational goal	3.70	4.00	0.82
3. Required greater involvement of our staff in the strategy process	3.21	3.00	0.83
4. Reduced the time horizon/cycle for strategic decision making	3.20	3.00	0.85
5. Resulted in greater resource efficiency (e.g. staff, operational costs)	3.61	4.00	0.88

Table 3 demonstrates that a turbulent environment has an impact on the strategic planning process in QS practices, as the mean values of all the variables are above 3.00. Considering the differences between the mean and median values of all the variables in Table 3, the results show that there is less variability in the responses of participants involved in this study suggesting a symmetrical distribution of the data and the absence of outliers. The standard deviation shows there is a consistency of responses for all participants involved in the study. The critical components of a turbulent environment include market fluctuation and rapid technological change. Therefore, the strategy process of QS practices must include choices that address the tender price inflation; financial difficulties, and the allocation of resources.

The results in Table 3 suggest that there is greater involvement of staff in decision making by QS firms. Increased involvement of staff in the strategy process suggests the active participation of individuals in the strategic process of QS practices involved in the study. The involvement of staff in the strategy process leads to the effective gathering of information from staff and other sources that might not be available to senior managers to make choices during the strategy process of QS practices. The involvement of QS practices in research and development culminates with the effective use of the knowledge and expertise of their staff and leads to a reduction in operational costs. According to Perrott (2009), increasing environmental turbulence creates challenging strategic issues that require frequent strategic planning. This phenomenon raises the issues of the time horizon for the strategic planning process in organisations. Respondents note that the strategic planning horizon in QS firms has reduced due to environmental turbulence. A reduction in the time horizon or cycle for strategic decision-making as the result shows in Table 3 indicates that QS practices are operating in environment that is rapidly changing leads to decision-making on ad hoc basis to address issues that emerge.

CONCLUSION

The results of this study demonstrate that a turbulent business environment influences the strategy process of QS practices. Four key findings of the study include the strategic choice of QS practices at the corporate level focuses on expansion into new growth sectors/markets; the main strategic option at the business level of QS practices is differentiation of services provided to clients. The study unravelled that majority of QS practices have not changed their corporate and business level strategies over the past five years in order to respond to environmental forces. Strategic change among few of the QS practices is driven by the opportunities of the economic recovery, internationalisation, and diversification into new markets or sectors. These findings differ from existing studies that focus on strategic choice without focusing on whether they have changed concerning the influence of environmental forces on QS practices. A turbulent environment causes changes in organisational goals of QS firms Thus, QS practices need to adopt strategies that enable them to respond to changes in their businesses.

Therefore, this requires the involvement of employees within the firm to ensure their active participation. The ability of QS practices to survive in a turbulent environment depends on their ability to respond to a rapidly changing business setting in order to capture potential opportunities. The response strategies of QS practices operating in a turbulent environment must emphasise four key issues. The first critical issue includes differentiation through the development of new and innovative services that address the challenges of QS practices in a rapidly changing competitive business environment. In addition to developing and seeking a market for new services, QS practices must endeavour to develop strategies that enable them to maintain their existing base of clients. Since this study is limited as far as developing the capabilities of QS practices in disruptive settings is concerned, a future research agenda focusing the dynamic capabilities of QS practices, particularly at the qualitative phase as indicated in the methodology of this paper will be appropriate.

REFERENCES

- Andrews, R, Boyne, G, Law, J and Walker, R (2005) External constraints on local service standards: The case of comprehensive performance assessment in English local government, *Public Administration*, 83(1), 639-656.

- Ashworth, A, Hogg, K and Higgs, C (2013) *Willis's Practice and Procedure for the Quantity Surveyor 13th Edition*, Chichester: Wiley-Blackwell.
- Ashworth, A (2010) *Cost Studies of Buildings 5th Edition*. Harlow: Prentice Hall.
- Barney, J B and Clark, D N (2007) *Resource-Based Theory: Creating and Sustaining Competitive Advantage*. Oxford: Oxford University Press.
- Bowman, E H and Helfat, C E (2001) Does Corporate Strategy Matter? *Strategic Management Journal*, 22(1), 1-23.
- Boyne, G A and Meier, K J (2009) Environmental turbulence, organizational stability and public service performance, *Administration and Society*, 40(8), 799-824.
- Castañer, X and Yu, H (2017) The role of middle and top managers in the strategy process, In: S W Floyd and B Wooldridge (Eds.) *Handbook of Middle Management Strategy Process Research*, UK: Edward Elgar Publishing Limited, 13-32.
- Day, G S and Schoemaker, P J H (2016) Adapting to fast-changing markets and technologies, *California Management Review*, 58(4), 59-77.
- Dess, G and Beard, D (1984) Dimensions of organizational task environments, *Administrative Science Quarterly*, 29(1), 52-73.
- Etikan, I, Musa, S A and Alkassim, R S (2016) Comparison of convenience sampling and purposive sampling, *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4.
- Fernandez, S (2005) Developing and testing an integrative framework of public sector leadership: Evidence from the public education arena, *Journal of Public Administration Research and Theory*, 15(1), 197-217.
- Heinrich, C and Fournier, E (2004) Dimensions of publicness and performance in substance abuse treatment organizations, *Journal of Policy Analysis and Management*, 23(1), 49-70.
- Huy, Q N and Guo, Y (2017) Middle managers' emotion management in the strategy process, In: S W Floyd and B Wooldridge (Eds.) *Handbook of Middle Management Strategy Process Research*. UK: Edward Elgar Publishing Limited, 133-153.
- Johnson, G, Scholes, K and Whittington, R (2008) *Exploring Corporate Strategy*. London: Pearson Education Limited.
- Khandwalla, P (1987) Generators of pioneering innovative management: Some Indian evidence, *Organization Studies*, 8(1), 39-59.
- Li, D and Liu, J (2014) Dynamic capabilities, environmental dynamism and competitive advantage: Evidence from China, *Journal of Business Research*, 67(1), 2793-2799.
- Lu, W, Lai, C C and Tse, T (2019) *BIM and Big Data for Construction Cost Management*. New York: Routledge.
- MacKay, R B and Chia, R (2013) Choice, chance and unintended consequences in strategic change: A process understanding of the rise and fall of Northco Automotive, *Academy of Management Journal*, 56(1), 208-230.
- McKelvie, A, Wiklund, J and Brattström, A (2018) Externally acquired or internally generated? Knowledge development and perceived environmental dynamism in new venture innovation, *Entrepreneurship Theory and Practice*, 42(1), 24-46.
- Miller, J H and Page, S E (2007) *Complex adaptive systems: An introduction to computational models of social life*, Cambridge, MA: Princeton University Press.

- Murphy, R (2018) Employment opportunities and future skills requirements for surveying professions 2018-2021. Available from https://www.scsi.ie/education_events/employment_opportunities_and_future_skills_requirements_for_surveying_professions_report_20182021_ [Accessed 26/06/2019].
- Nolan, B and Voitchovsky, S (2015) *Job Loss by Wage Level: Lessons from the Great Recession in Ireland*. UCD Geary Institute for Public Policy Discussion Paper Series, Geary WP2015/19 Available from www.ucd.ie/geary/static/publications/workingpapers/gearywp201519.pdf [Accessed: 28/06/2019].
- Paroutis, S, Bennett, M and Heracleous, L (2014) A strategic view on smart city technology: The case of IBM Smarter Cities during a recession, *Technological Forecasting and Social Change*, 89(1), 262-272.
- Perrott, B E (2009) Managing strategy in turbulent environments, *Strategic Direction*, 25(5), 1-10.
- Peteraf, M A (1993) The cornerstones of competitive advantage: A resource-based view, *Strategic Management Journal*, 14(3), 179-191.
- Porter, M E (1998) *Competitive Advantage of Nations*. New York: The Free Press.
- Rottig, D and de Oliveira, R T (2019) International expansion of Chinese emerging market multinational corporations to developed markets: A qualitative analysis of post-acquisition and integration strategies, *In: Chinese Acquisitions in Developed Countries*, Cham: Springer, 37-53
- SCSI and PwC (2017) SCSI/PwC Construction Survey Report 2017 Available from <https://www.pwc.ie/publications/2017/scsi-pwc-construction-survey-report.pdf> [Accessed 14/05/2019].
- Singla, A, Sethi, A P S and Ahuja, I S (2018) A study of transitions between technology push and demand pull strategies for accomplishing sustainable development in manufacturing industries, *World Journal of Science, Technology and Sustainable Development*, 15(4), 302-312.
- Stolyarov, II G (2005) *Austrian Economics and Kirznerian Entrepreneurship*, The Free Quebecois. Available from <http://www.quebecoislibre.org/05/051215-2.htm> [Accessed 28/03/2019].
- Tansey, P, Spillane, J P and Meng, X (2014) Linking response strategies adopted by construction firms during the 2007 economic recession to Porter's generic strategies, *Construction Management and Economics*, 32(7-8), 705-724.
- Thompson, A, Peteraf, M, Gamble, J and Strickland III, A J (2014) *Crafting and Executing Strategy: the Quest for Competitive Advantage: Concepts and Cases 19th Edition*. New York: McGraw-Hill Irwin.
- Towey, D (2012) *Construction Quantity Surveying: A Practical Guide for the Contractor's QS*. New Jersey: Wiley and Sons.
- Vecchiato, R (2015) Strategic planning and organizational flexibility in turbulent environments, *Foresight*, 17(3), 257-273.
- Frei, M (2010) Implications of the global financial crisis for the quantity surveying profession Available from www.icoste.org/Frei.pdf [Accessed: 12/06/2019].
- Wong, S K-S (2014) Impacts of environmental turbulence on entrepreneurial orientation and new product success, *European Journal of Innovation Management*, 17(2), 229-249.
- Yasir, M, Majid, A and Yasir, M (2017) Entrepreneurial knowledge and start-up behaviour in a turbulent environment, *Journal of Management Development*, 36(9), 1149-1159.