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CONSORTIUM OF HIGHER EDUCATION RESEARCHERS
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**Reconciling organisational realities with the research mission
of the Irish Institutes of Technology**

Conference Track : Current condition and future of basic research in universities – structural conditions

Deirdre Lillis

1. Introduction

A key principle in systems theory is that a system, such as a Higher Education Institute (HEI), will self-correct and stabilise to align itself with its overarching ‘*system goals*’, irrespective of interventions. System goals may be explicit and obvious, such as published performance indicators, however change initiatives can often fail because the initiative is acting against some underlying, implicit and/or hidden system goal. In addition, if one accepts the premise that people will work toward what is recognised and rewarded then the measures of performance used within a HEI are likely to be important forces for change in their own right.

Set against a national policy context, this paper investigates the research mission of one Irish Institute of Technology (IOT), covering an 8 year timeframe from 1997-2006. Adopting systems theory principles, the ‘*espoused theory*’ of the Institute with respect to its research mission, as articulated in its mission statement and strategic plan, is compared with the reality of the ‘*theory-in-use*’ (Argyris and Scion 1996). Theory-in-use reflects what happens on the ground in terms of organisational structures and culture, ongoing decision making, resource allocation *etc.*. The main data sources used in the study are documents (*e.g.* Institute publications, proceedings of Governing Body, Academic Council, senior management team, *etc.*) and interviews with n=17 members of the management team.

The paper concludes that although the research mission of the IOTs is increasing in importance, many internal organisational issues are preventing progress. These need to be addressed before the latent research potential of the IOTs can be fully realised.

2. The role of Higher Education in Ireland’s Celtic Tiger economy

The OECD has called Ireland’s economic performance in recent years ‘*exemplary*’ (OECD 2006) and in the period known at the ‘*Celtic Tiger*’ from 1993 to 2001 the Irish economy grew at an unprecedented rate. Investment in tertiary education is cited as being the key factor in Ireland’s economic growth (OECD 2004). Four reasons have been identified as causing the Celtic Tiger economy (i) multinational investment (ii) increases in labour productivity and increasing labour supply from (iii) groups who had been previously underrepresented in the workplace and (iv) from the return of Irish emigrants (Fitzgerald 2007). If these reasons are accurate, then the primary contribution made by the Irish higher education system to the development of the Celtic Tiger economy was through its supply of skilled graduates to the workforce

(at all levels from 2 year higher certificates to postgraduate degrees). If these reasons are accurate, it is worth noting that the Celtic Tiger economy did not arise directly from the research outputs of Irish HEIs, at either basic or applied research level, a factor worth considering when developing future policies.

Ireland has a relatively recent research infrastructure by international standards but it is growing and government investment in research will increase significantly in the coming years. Shattock and Temple note that the traditional national strategy for fostering economic innovation is to invest heavily in research-intensive urban universities (Shattock and Temple 2006). These '*invention-oriented strategies*' focus on basic research and investing these strategies in isolation does not guarantee innovation without appropriate technology transfer processes and would be detrimental to regional development. Shattock and Temple contend that invention-oriented strategies are far too narrow and that more '*innovation-oriented*' strategies are necessary which focus on the application of existing knowledge in novel ways (Shattock and Temple 2006). Such strategies are located at the applied research and technology transfer end of the research spectrum.

3 The research mission of the Irish Institutes of Technology

Ireland has a binary system of higher education with a traditional university sector and an IOT sector. Boyer observed that the work of universities centres on four main activities: discovery, teaching, application and integration (Boyer 1990). If a traditional research-intensive university places its emphasis at the discovery end of the scale, then the IOT sector can generally be said to emphasise teaching, application and integration. The divisions between the sectors have become somewhat blurred in recent years however.

The IOTs were established by the Department of Education and Science (DoES) in the 1970s with the mission of contributing to the technological, scientific, commercial, industrial, social and cultural development of the State with reference to the particular region in which they are situated. The 14 IOTs have an applied, professional teaching focus primarily, providing programmes from craft to PhD level. The IOTs are relatively homogenous by international standards and operate within a national framework for quality assurance, funding and human resources issues. Recent developments have seen a number of Institutes being given the authority to award PhDs within the National Qualifications Framework of Ireland (NQAI 2001). Dispersed as they are throughout Ireland, the Irish Institutes of Technology (IOT) have a key role to play as the engines of growth in their regions. The Institutes have a clearly stated research function in their legislative framework (Government of Ireland 1992) which states that they will engage in and exploit research, development and consultancy work.

The IOTs have evolved to do research within this legislative framework, with some (modest) infrastructural support. Although expenditure on research in the sector is growing, their research activity is much smaller than that of the Irish universities. Government policy for research in the IOTs can probably best be summarised in the statement "*it is clear that the IOTs can develop into an effective technology resource, focused on collaboration with local industry on the basis of applied research and technology development*" (Government of Ireland 2006).

4 Applying systems theory to the IOTs

National policy suggests that the research role of the IOTs is set to take on increasing importance in coming years. The IOT sectoral capacity for support for enterprise development was recently assessed and the following issues which need to be addressed across the sector were highlighted : (i) prioritisation of research areas (ii) full articulation and promotion of areas of research interests and (iii) increase in inter-institutional collaboration (Forfas 2007). Internally, within Institutes, there are structural issues surrounding teaching staff workloads, research management infrastructures, development of expertise in IP management, provision of seed funding, research overhead funding *etc.*. These are common issues which surface in the strategic plans of the various Institutes.

This paper delves further however to some of the less obvious and more fundamental issues relating to how the Institutes are structured, with particular reference to internal and external performance measurement processes in one IOT. The strength of such performance measurement processes is such that it can actively mitigate against the development of a strong research capacity within each IOT.

Applying systems theory means taking a holistic view of the entire interrelated system and its connections to the external environment (Senge 1990). It is a step beyond the causal theory of cause and effect and by adopting a systems theory approach, the focus is on interrelationships at the macro-level of the organisation. This in turn which facilitates identifying patterns of behaviour which occur time and again. Feedback is a key concept and Senge contends that it is either balancing or amplifying (Senge 1990). A key principle is that a system will always attempt to self-correct and stabilise to align itself with its overarching system goals irrespective of interventions. New strategies can often fail because the change initiative is acting against some underlying, implicit and sometimes hidden system goal.

4.1 What are the *real* measures of performance?

The mission statement of the Institute is to “*excel in teaching, research and development work for the benefit of students, industry and the wider community*” which suggests an equal weighting to all three activities and research forms one of eight strategic goals of the Institute’s strategic plan.

As part of the research, informants were asked what they thought the main measures of performance in the Institute were. The responses to this question can be categorised as those that thought (i) student numbers were the main measure of performance (n=9) and (ii) there were either no meaningful measures or that it was too difficult to measure (n=6). The predominance of student numbers as the main measure of performance is striking in the responses. The immediate responses of n=7 informants were unequivocal for example :

“*Student numbers*”

“*Numbers, numbers. Are you getting numbers in or whatever*”

“*The key measure is the number of students*”

“*We seem to be driven by student numbers*”

“*I suppose numbers of students applying would be the main one*”

“*Bums on seats*”

“*Student numbers I would say would be our main measure.*”

It is interesting also to note that although research is part of the mission statement and formed a large part of the strategic plan only n=2 informants cited research activity as measures of performance. One informant noted that “*There appears to be a huge focus in some ways on research and yet people involved in research aren’t appropriately rewarded for their involvement*”. Informants were also asked if they thought the main measures of performance were linked to the strategic plan. There were mixed responses to this with about half the informants relatively certain that measures were **not** linked to the strategic plan

“People will stand up in public and say we have a mission statement which states that ‘to excel in this that and the other thing’ and that’s fine but ... I think people have to be measured by their actions and it invariably comes back to student numbers and that stifles I think other initiatives”

Although an Institute may state that research is a strategic goal (its espoused theory), if the underlying targets by which its performance is measured (the theory-in-use) are not related to research, the system will self-correct to meet the real system goal (Figure 1). In addition, if one accepts the premise that people will work toward what is recognised and rewarded then the measures of performance used in the Institute are likely to be important forces for change in their own right. Senge notes also that these implicit system goals are also built into existing power relationships (Senge 1990). Schools and departments with large and stable student numbers are likely to hold more power within a HEI and have less impetus to change the status quo. Uncovering and changing these sometimes hidden system goals is therefore key to bringing about real change.

Figure 1 – Systems Theory Diagram



4.2 Walking the talk ?

Brunsson contends that an element of hypocrisy is inherent in all organisations which “*talk in a way that satisfies one demand, decide in a way that satisfies another and supply products in a way that satisfies a third*” (Brunsson 1989). Espoused theory is the theory which is advanced to explain or justify a pattern of activity – theory-in-use is the actual performance of that pattern of activity.

Notwithstanding this espoused theory of the mission statement and strategic plan in relation to research, discussions in relation to the Research goal at the main decision making fora from 2001-2006 were tracked as part of the research (Table 1) to shed some light on the theory in use.

Table 1	
Tracking discussion of Research at main decision making fora	
[Data source : Minutes of Meetings of GB, AC, Exec]	
2000-2006	Research
<i>Keywords used in search (derived from strategies in SP)</i>	Research, Postgraduate, Centres of Expertise, Supervision, R&D, Publications
<i>Governing Body</i>	13
<i>Academic Council</i>	Every meeting through report from sub-committee

The level of discussion around the Research strategic goal in the Governing Body appears to be quite low for example (it was minuted at the Governing Body n=13 times in 5 years). At the risk of sounding facetious, by way of comparison, the issue of campus car parking was raised more times. Although research was discussed at a sub-committee of the Academic Council it can be said the teaching mission predominated in this crucial forum throughout the 8 years of the study. It must be stressed that this is a quantitative assessment only based on the number of unique times the Research goal was discussed. This is in no way definitive but it is a useful insight none the less and suggests some mismatch between the espoused theory and theory in use.

4.3 External reporting

The IOTs have to report on their performance to a wide range of stakeholders (*e.g.* funding agencies, quality assurance agencies, national productivity agreements, *etc.*). If some or all of these external reporting mechanisms, particularly those linked to funding, pay and accreditation status, are not paying attention to the research mission, work on research is unlikely to be valued within an IOT. These represent hidden goals which act as a moderating or stabilising force on change initiatives (Senge 1990).

The main internal and external reporting mechanisms include (i) the annual Programmes and Budgets process for the DoES on which funding was based and (ii) reporting requirements for quality assurance for Higher Education and Training Awards Council (HETAC) which determines accreditation status (HETAC 2002). The Sustaining Progress Action Plan is also included as it is linked to pay increases through national productivity agreements (Government of Ireland 2003). The Governing Body, Academic Council and management team are included as the main internal decision making fora. Table 2 outlines whether the main measures of performance used in these reporting mechanisms are in alignment with the Institute's strategic goals (Alignment is taken to mean that the measures used would shed light on the achievement of strategic goals).

Table 2 shows that there is a heavy emphasis in both internal and external performance reporting mechanisms on the Learners and Programmes goals (in the form of measures for student numbers and courses). There is a significant misalignment with respect to the Research goal. Performance on research is reported only to the Academic Council Sub-Committee for Research and on a quinquennial basis to HETAC.

Table 2 Alignment between Institute reporting mechanisms and Institute's strategic goals									
Reporting mechanism	Main measures used	Learners	Programmes	Staff	Research	Funding	Learning Environment	Quality	Mgmt & Ops
EXTERNAL PERFORMANCE REPORTING MECHANISMS									
FUNDING Programmes and Budgets (DoES) -	Quantitative measures in relation to Courses; Staffing; Non-pay budgets; Fees; Other income; Capital expenditure; Student numbers; Retention; Accommodation	■ Major (student numbers)	■ Major (courses)	■ Some (Staffing levels, THAS)	■ Minor	■ Some (other income)	■ Some (physical space)	■ Minor	■ Minor
ACCREDITATION STATUS HETAC	Delegated Authority Criteria (Accreditation Status) : Operations and management; Physical resources; Quality assurance procedures for programmes, assessment, staff recruitment and development,	■ Major Explicit criteria for DA	■ Major Explicit criteria for DA	■ Major Explicit criteria for DA	■ Some DA for research is a separate process	■ Minor	■ Major Explicit criteria for DA	■ Major Explicit criteria for DA	■ Major Explicit criteria for DA
PUBLIC SECTOR REFORM Sustaining Progress Action plan (From 2003)	Productivity agreements – linked to pay increases. Objectives of Sustaining Progress relating to industrial relations climate, modernisation and flexibility, Partnership processes, MIS systems, PMDS systems etc:	■ Minor (n=1 action items)	■ Major (n=5 action items)	■ Major (n=7 action items)	■ Minor (n=1 action items)	■ Minor (n=0 action items)	■ Major (n=6 action items)	■ Major (n=5 action items)	■ Major (n=10 action items)
INTERNAL PERFORMANCE REPORTING MECHANISMS									
Governing Body	Student numbers; Staff appointments; Campus development; Courses; IR climate	■ Major	■ Major	■ Some Staffing levels, IR, recruitment	■ Minor	■ Minor	■ Major	■ Some	■ Some
Academic Council	Student numbers; Courses; Research; Quality Assurance; Student Affairs; Mgmt & Operations (Planning)	■ Major Student numbers, retention	■ Major Courses	■ Minor	■ Major R&D sub-comm	■ Minor	■ Major Student affairs sub-com	■ Major Quality sub-comm	■ Some Planning sub-comm

5 Conclusions

It is clear from national policy initiatives in Ireland that there will be an increasingly important role for research within the IOT sector, primarily at the applied research/technology transfer end of the spectrum. Notwithstanding this, there are significant sectoral challenges with respect to research infrastructure and funding, the prioritisation and promotion of strategic areas of research and inter-institutional collaboration. There are also a number of institutional structural issues which need to be addressed internally within each IOT. If an Institute decides to pursue a meaningful strategy for the development of its research capacity, it must develop an institutional vision which explicitly addresses the relative importance of research with respect to the predominant teaching function. Only then can it tackle the hidden system goals which are embedded in internal performance measurement and external performance reporting processes. These system goals must first be recognised for what they are and then held up for active and meaningful debate. Internal performance reporting mechanisms that reflect strategic priorities must then be developed and consistently applied.

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