

Human Resource Management Practices in Irish High-Tech Start-Up Firms



MARY A. KEATING *
MARIABRISE OLIVARES *

ABSTRACT

Human resource management and entrepreneurial research have rarely been combined, with little clear literature in the area of human resource management in entrepreneurial firms. Meanwhile, the sustainable growth and viability of emerging high-tech firms is critical to the well-being of the Irish economy. This paper reports on the results of an empirical study on the organisation-building aspect of entrepreneurial firms, specifically the human resource practices within Irish high-tech start-ups. The research findings are benchmarked with findings from the Stanford Project on Emerging Companies (Baron and Hannan, 2002).

Key Words: Entrepreneurship; Human Resource Management; Empirical Research; Irish High-Tech Companies.

INTRODUCTION

This paper reports on the human resource practices (HRPs) within Irish high-tech start-ups (IHTSUs) as human resource management (HRM) research within an entrepreneurial context is an emerging area of academic research. This can be explained by the fact that

* *School of Business, Trinity College,
Dublin, Ireland*

small and emerging firms rarely have the financial and managerial resources to support a human resource specialist and much of the management of people is informal and difficult to research. Current research literature on HRM in entrepreneurial firms 'appears to be rich in prescriptions, limited in sound descriptive surveys, and sparse in analytical research' (Heneman et al., 2000: 20). A further challenge to understanding HRM in entrepreneurial firms is the fact that entrepreneurial research itself is multidisciplinary and therefore quite fragmented. However, people-related issues are crucial to understanding the organisation of entrepreneurial firms in general and of knowledge intensive start-ups in particular. It is increasingly recognised that, although innovation might be the product of one brilliant mind, the process of design, production and distribution depends on the effective creation and management of a workforce.

Recently, there has been a focus in both Irish policy and in the media on the need to address managerial challenges to the growth and entry of entrepreneurial firms into international markets. Indeed, IHTSUs face particular managerial obstacles due to the size of the Irish market, which require them to internationalise at an early stage. A greater understanding of the HRM aspect of the organisational building process of IHTSUs could represent a constructive step forward in ensuring their growth and successful penetration of international markets. This paper focuses on understanding the entrepreneurial process, especially the management of people in emerging firms to ensure their sustainable growth. Secondly, the paper highlights the lack of overlap between the literatures of HRM and entrepreneurship pertaining to the management of people and concurs with the need for a more holistic approach to studying entrepreneurship. Finally, the findings of an empirical replication study are presented on HRPs within IHTSUs which are benchmarked briefly with findings from the SPEC: the Stanford Project on Emerging Companies (Burton, 1996; Baron and Hannan, 2002).

THE NEED FOR A STUDY OF HUMAN RESOURCE PRACTICES IN IRISH HIGH-TECH START-UPS

Entrepreneurship is presently transforming Irish business culture and therefore is an entity very worthy of study. Ireland is ranked second

to Sweden in the number of entrepreneurs per head of population in Europe (Fitzsimons et al., 2004) and ranked sixth out of the twenty-nine OECD countries in terms of overall entrepreneurial propensity (McGovern and McGready, 2002). Indeed, 7.2 per cent of the country's population is now engaged in starting a new business and 4.8 per cent of the population partly or fully owns a business (Maher, 2002). Much of this entrepreneurial activity is clustered around high-tech-based industry (such as the software industry), but also in telecommunications, pharmaceuticals and electronics. However, the proportion of employment by Irish small- and medium-sized enterprises (SMEs) remains lower than the EU average. The European Observatory of SMEs found that Irish SME job creation rate (11 per cent) is below the European average (15 per cent) for growing companies (Goodbody Economic Consultants, 2002). Kennedy (2003) noted that only twenty-four Irish software companies from a total of more than 700 have a turnover greater than €2 million, a figure that he believes will not sustain them to compete in export markets. Indigenous software companies have tended to be fairly small with an average of fifteen employees in 1995 (O'Gorman et al., 1997). Unlike their American and British counterparts, a defining characteristic of Irish high-tech firms is that they internationalise at a very early stage of their development (Garavan et al., 1997). The average time that it takes Irish companies to engage in international activity is 2.56 years (Brennan and Garvey, 2004). In their study of the indigenous software sector, Brennan and Garvey (2004) found that 14 per cent of its respondents could be classified as 'born global', having engaged in international activities from inception, and 29 per cent were involved within two years of founding. This poses a unique set of challenges, especially managerial, to Irish firms. This issue has not been sufficiently addressed in the literature as researchers are only now beginning to question if the Irish entrepreneurial process might be different from that in the United Kingdom or the United States. To date, no research has been conducted on the employment practices of these firms in Ireland. Furthermore, much of the information referred to by Irish academics is based on the US high-tech market, which, in adopting a universalistic approach, fails to recognise the environmental contingencies facing IHTSUs due to market size and culture.

MANAGING PEOPLE IN ENTREPRENEURIAL FIRMS: A PAUCITY OF LITERATURE

In the late 1980s Gartner (1988), in stating, “‘Who is an entrepreneur?’ is the wrong question”, shifted the focus of entrepreneurial studies away from the entrepreneur. His question resulted from the apparent failure of the Traits Approach to produce any significant advances in the understanding of entrepreneurship. Entrepreneurship as a field of research is multidisciplinary, drawing on different academic disciplines which reflect differing perspectives, thus making it difficult to give a complete picture of the field (Fayolle, 2003). Debates on definitions abound and Venkataraman suggested that ‘to many the field of entrepreneurship is a mystery’ (Venkataraman, 1997). Subsequent literature on entrepreneurship has been based on the belief that in order to understand and encourage the phenomenon of entrepreneurship, there is a need to focus on the process by which new organisations are created and sustained rather than on the individual who creates them (Gartner, 1988). Indeed, according to Gartner entrepreneurship research should follow the same path as that taken by Mintzberg and others in managerial behaviour research by observing entrepreneurship in the process of creating organisations (Mintzberg, 1994; Mintzberg et al., 1995; Mintzberg and Waters, 1985). This approach would, according to Gartner (1988), lead to answering questions such as ‘what are the specific organisation creation skills that an entrepreneur should know’. Following Gartner’s lead, the study of entrepreneurship moved out of the realm of psychology and sociology and began to explore, in more depth, aspects of economics and, for the first time, began to look into the aspect of management.

A common activity of all organisations, especially those wishing to grow, is the management of people. Indeed, ‘it is people who sustain new firms, create new industries and new markets, and shape the overall impact of innovations’ (Anderson and Kleingartner, 1987: vii). Yet, research on the role of HRM in the entrepreneurial process is only beginning to emerge. HRM and entrepreneurial research have rarely been combined in the literature and there is no clear literature in the area of HRM in entrepreneurial firms. Heneman et al. (2000), following an extensive review of the literature, stated that ‘human resource theory and the research being conducted may not be congruent with actual human resource issues challenging SME practitioners in the

field' (Heneman et al., 2000: 12). A survey from the Irish Software Association in 2002 identified 'the dirty dozen problems facing small businesses' in Ireland: labour costs and skill shortages ranked within the top five most prominent obstacles to firm growth (Delaney, 2002). Similarly, research conducted by the Kauffman Centre for Entrepreneurial Leadership in 1998 in the United States showed that 'human resource management issues are of significant professional and personal concern to young entrepreneurs and they are actively seeking new information about these topics' (Heneman et al., 2000: 14). Human resource research has not focused on studying small emerging firms, choosing instead to focus on bigger, more established organisations that due to their size are more likely to have human resource departments. Similarly, entrepreneurial research has tended to neglect human resource issues due to their association with bureaucratisation and formalised structures which are perceived to be the antithesis of growth-oriented start-ups. Yet, as the Western world moves towards more knowledge-intensive industry, competitiveness will increasingly depend on the management of the relational bases of members of organisations, making culture, attitudes, values and commitment to employees more important to success than ever in all firms, whether big or small (Snell et al., 2002). There is a need therefore to address this gap in both entrepreneurship and human resources (HR) literature by commencing to research the role of employment practices in the entrepreneurial firms.

HRM refers to all of those activities associated with the management of employment relationships in the firm (Boxall and Purcell, 2003). Fundamentally, focusing on particular human resource practices fails to appreciate the more strategic or holistic aspect of HRM which only becomes evident when human resource practices, policies and procedures are treated as systems of employment and looked at within the context of the organisation and the institutional environment as a whole (Burton, 1996). From this contingency perspective, there are a number of descriptive frameworks that attempt to link employment/human resource practices to different organisational contingencies – stage-of-growth, business strategy and organisational structure. One of the most cited models from a stage-of-growth perspective is that of Greiner (1972, 1998), whose model of organisational growth associates employment practices with an organisation's

stage of development. Greiner’s (1998) model of organisational growth identified five stages of organisational evolution and revolution. Entrepreneurial and emerging firms are located within the initial start-up stage or ‘Phase 1: Creativity’ in which small, emerging organisations are driven by an entrepreneurial culture with an emphasis on developing the product and the market. Organisations at this stage are characterised by having a founder who is entrepreneurial, where communication with employees is informal and where long hours of work are rewarded by promises of ownership. Table 1 depicts the first two stages (Phases 1 and 2) of Greiner’s growth model in terms of a series of dimensions: management focus, organisational structure, top management style, control systems and management reward emphasis. Founders in Phase 1 often ‘disdain management activities’ (Greiner,

**Table 1: Greiner’s Model of Organisational Growth
Phases 1 and 2**

Category	Phase 1	Phase 2
Management focus	Make and sell	Efficiency of operations
Organisation structure	Informal	Centralised and functional
Top management style	Individualistic entrepreneurial	Directive
Control systems	Market results	Standards and cost centres
Management reward emphasis	Ownership	Salary and merit increases
Crisis	Leadership 50 per cent of new businesses fail because owner(s) will not yield control	Autonomy Individual managers know more than corporate management

Source: Adapted from Greiner (1972).
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1998: 60; Greiner, 1972) and the company has a low level of centralisation and formalisation (Miles and Snow, 1984). A common problem encountered by firms at the pre-growth/Phase 1 stage of development is the inability to grow due to the lack of top management ability (Drucker, 1994) or the inability to access adequate human capital that will ensure sustainable growth. Leadership in the case of the entrepreneurial firm is crucial as the founder depends on the effective communication of his/her vision to bring the required resources on board and ensure that all members involved are working towards the same goal – growth (Bhide, 1994). However, as the company grows and the need for formal management and new business techniques becomes apparent, the organisation enters what Greiner (1998) calls a ‘crisis in leadership’: the founder has become burdened with unwanted managerial responsibilities and the company is considered to require a manager who has the necessary knowledge and skill to introduce new business techniques to allow the organisation to grow (Greiner, 1972). The transition from Phase 1: ‘entrepreneurial’ (whereby all decisions are informal and closely linked to the individual founder) to Phase 2: ‘management’ (defined as formal procedures and structures within an organisation) that occurs as the organisation grows often leads to a crisis in control in which the need for coherent systems and professional or technical management are exposed (Kao, 1991). In Phase 2, organisational structure and job assignments are introduced in conjunction with accounting systems, budget, and work standards, as well as more formal communication structures (Greiner, 1972, 1998). In a more recent review of his work in the *Harvard Business Review*, Greiner described his model linking organisational growth stages to managerial practices as ‘robust’ (Greiner, 1998).

Within the literature on the interface between entrepreneurial firms and HRM, one empirical study was found to focus on the particular issue of HRM in entrepreneurial firms. The Stanford Project on Emerging Companies (SPEC) focused on organisational blueprints in high-tech start-ups in the Silicon Valley. SPEC was initiated in 1994 as a 5-year longitudinal study ‘of how employment systems emerge and evolved in high-technology firms’ (Burton, 1996: 1). ‘Having tracked nearly 200 companies during the ups and downs of the recent high-technology roller coaster, SPEC is in a unique position to assess which companies actually proved able to

endure and prosper and why, particularly now that the ride seems to have become a lot bumpier' (Baron and Hannan, 2002: 9). The SPEC project is the most extensive empirical research study investigating human resource practices in entrepreneurial firms. It proposed a typology of employment models (star, commitment, engineering, bureaucracy and autocracy) which depicted how entrepreneurial start-ups deal with people management on the basis of three dimensions: attachment, selection and control. These models are set out in Table 2 and described briefly.

The Star employment model or approach to HRM describes an approach based on recruiting top talent, providing employees with challenging work and relying on autonomy and professional control. The Commitment model relies on familial ties to the organisation (love), employee selection is based on cultural fit and the model uses peer-group control. The Engineering model selects employees based on specific task abilities, provides employees with challenging work and uses peer mechanisms to control. The Bureaucracy model attracts employees based on work or opportunities for development. It selects employees based on their qualification for the specific task and uses formalised control mechanisms. The Autocracy model is based on the principle of 'you work, you get paid' and control of employees is achieved through close personal supervision. Finally, SPEC also identified Aberrant or non-type models, which described approaches to employment that did not conform to the above models.

Table 2: SPEC Typology of Employment Models

Employment Model	Attachment	Selection	Control
Star	Work	Potential	Professional
Commitment	Love	Values/Fit	Peer
Engineering	Work	Skills/Task	Peer
Bureaucracy	Work	Skills	Formal
Autocracy	Money	Skills	Direct control

Source: Adapted from Baron and Hannan (2002).

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SPEC concluded that 'initial choices made by entrepreneurs become imprinted indelibly on their nascent organisations, determining the developmental path the enterprise is likely to experience down the road' (Baron and Hannan, 2002: 18). Changes in employment blueprints were found to be destabilising to young start-ups affecting employee turnover, performance and growth (Baron and Hannan, 2002; Baron et al., 2001; Burton, 1996b). Through their longitudinal study, the SPEC team was able to link their employment typologies to a series of organisational events, specifically the choice of competitive strategies (innovators, enhancers, marketers, technology-marketing hybrid and cost minimiser). Secondly, they found that levels of employee diversity varied according to the choice of employment model. Thirdly, they were able to make some predictions on the rate of change of CEO based on both the choice of employment model and its subsequent change (Hannan et al., 2006, 1996; Baron et al., 1999). Finally, SPEC linked the entry to initial public offering (IPO) to the choice of employment model (Baron and Hannan, 2002). Overall, SPEC argued that emerging firms with employment models that adopt an integrated approach to human resource practices underpinning their business strategy show greater survival rates and performance (Baron et al., 1996; Baron and Hannan, 2002). The SPEC findings highlight the importance of informing entrepreneurs of the effect that initial human resource practices and their subsequent management can have on the successful development of the firm. An objective of this study is to ascertain if the SPEC employment model typologies apply to IHTSU firms, across cultural contexts.

In conclusion, apart from the SPEC study, there is a dearth of research profiling human resource practices in emerging and entrepreneurial firms in general, and even less research focusing on the relationship between strategy, human resource practices and entrepreneurial firms. No research of this nature exists in Ireland. Thus, there is a need for more diffusion between human resource and entrepreneurial research so as to increase the potential learning from an integrative approach in understanding how to promote the sustainable development of entrepreneurial firms.

A REPLICATION METHODOLOGY TO THE STUDY OF EMPLOYMENT PRACTICES IN IHTSUs

The aim of this study was to replicate aspects of the Stanford Project on Emerging Companies in order to map HRPs in emerging firms in Ireland. In using replication as a research tool, the aim was to assess the role of HRPs in high-tech start-ups by building on prior research endeavours. Replication is defined as having a different research person attempt to test a framework or theory that has already been tested in a different environment (Mack, 1951). It is only recently that researchers have noted that there is a 'desperate need for replication' (Hunter, 2001), based on the belief that replication is an excellent tool to ensure reliability and validity of research and of rigorous theory development (Singh et al., 2003). This study pursued a literal replication by adhering closely to the SPEC methodology with minor amendments being introduced to ensure the study's applicability in the Irish context, as well as to increase the response rate. This methodological approach was adopted in the belief that the stronger the basic design, the stronger the inference that might be drawn from the replication (Schafer, 2001).

The first challenge in replicating the methodology was to compile an inclusive database of the high-tech firms in Ireland. Following the SPEC methodology the database was constructed based on a set of strict criteria. All firms were in the high-tech industry and were categorised within one of five possible segments of high-tech activity: computer related, manufacturing, semiconductor related, telecommunications and medical related. The study was limited to firms in the Republic of Ireland that were no more than ten years of age at the time of the study and firms had to have at least ten employees when approached. Therefore, for this study, a start-up is defined as a firm no more than ten years old with at least ten employees operating in the high-tech industry segments as set out above.

Firms meeting these criteria were identified by consulting and combining the databases of governmental agencies such as Enterprise Ireland (<<http://www.enterprise-ireland.com>>) and County Enterprise Boards (<<http://www.etradebusinessireland.com>>); college entities such as Trinity Enterprise Centre (<<http://www.irishscientist.ie>>), UCD/Nova enterprise centre (<<http://www.ucd.ie/nova>>), Invent/DCU

enterprise centre (<<http://www.invent.dcu.ie>>); and private databases such as Hot Origin (<<http://www.hotorigin.com>>) and Kompass (<<http://www.kompass.com>>). Newspapers were also continuously checked for references to companies that might fit the profile. A total population of 196 companies were identified, with the average size of the firms being thirty-five employees, the largest having 260 employees. The Irish population of high-tech companies was almost 60 per cent smaller on average than comparative SPEC firms. The average age of an IHTSU was six years old. In order to collect information about the firms' earliest days, archival data was gathered on the name, names of the management team (mainly founder, CEO and HR manager when possible), address, contact information (email address), activities, international presence, year of founding and size of all participating Irish firms.

In replicating the SPEC methodology, this study adopted a two-pronged approach to the collection and analysis of the employment practice data by first collecting quantitative information from the two surveys (total population) and then qualitative information from the interviews (sub-sample). Two e-surveys were sent out to the original population of 196 companies. One survey targeted the founder of the firm with questions relating to the founding milestones of the firm. A total of fifty-five founders responded to this survey, which corresponds to a 29 per cent response rate. The second survey was aimed at the person responsible for HRM/employment practices in the firm. The latter survey asked respondents to provide quantitative information on the use of certain human resource practices, policies and systems. Forty-one of these human resource surveys were received, which corresponds to a response rate of 21 per cent.

The response rates for both the founder and the HR surveys were considered positive. Two face-to-face qualitative interviews were conducted with a sub-sample of firms in order to get an in-depth understanding of how and why the firms had implemented the employment practices, policies and procedures stated in the surveys. Fifteen companies were interviewed but only eleven interviews were completed (both founder and HR interviews were conducted) and considered relevant based on the initial criteria for participation in the study. The purpose of these qualitative interviews

was to assess the impact of the HRPs in IHTSUs using the interview protocols set out by SPEC. Data was analysed according to the SPEC method of analysis (see Burton, 1996: 8–25) in order to establish if the employment typologies could be identified in the Irish firms.

FINDINGS: HRPs IN IHTSUs

The information gathered from the e-surveys of both founders and the person responsible for HR provides an insight into the types of HRPs, policies and procedures in existence in IHTSUs. Table 3 presents the findings for communication, socialisation and training practices. The findings from SPEC (Burton, 1996) are also presented for comparative purposes.

With regards to the socialisation of employees, Irish companies exhibited a widespread use of regular company-sponsored events with 85 per cent of participants stating the adoption of this practice.

Table 3: Communication, Socialisation and Training Practices in IHTSUs and SPEC Firms

Communication, Socialisation and Training Practices	IHTSUs (N = 36) (%)	SPEC (N = 69) (%)
Company-wide electronic mail	97	26
Regular company-sponsored events	85	58
Regular company-wide meetings	84	52
In-house training	81	22
Mission or values statement	64	19
Employee orientation programme	57	26
Employee suggestion system	50	10
Newsletter or other correspondence	43	6
Regular employee moral survey	25	4
Involvement programmes	19	12
Job rotation	16	6

The low scores recorded for employee involvement programmes (19 per cent) and regular employee moral surveys (25 per cent) can probably be explained by the small size of the Irish firms in the population, implying that the induction of new employees is accomplished more informally.

Interestingly, 64 per cent of companies were found to have a mission and value statement. This, coupled with the significant attention paid to communication practices, suggests that Irish high-tech companies make explicit efforts to communicate the organisation strategy and culture to their employees. The communication practice most widely used in the IHTSUs was email. However, this finding is not as significant as it would have been at the time when Burton conducted her study (looking at a population whose founding dates were 1984–1991), as the use of email is now a common occurrence in all businesses. Other open communication and participative management practices for which Irish high-tech companies rated quite positively include holding regular company-wide meetings (84 per cent), newsletters or other type of company-wide correspondence (43 per cent) and explicit employee suggestion programmes (50 per cent).

Finally, an 81 per cent use of in-house training suggests that Irish high-tech founders ensure that their employees acquire the necessary skills to work within their organisation. This finding contrasts with the limited use of job rotation. In comparison with SPEC companies, IHTSUs exhibit a higher percentage of implementation for all the communication and socialisation practices. Worthy of comment is the difference in the use of mission or value statements between Irish high-tech and Silicon Valley firms. Secondly, there is also a marked difference in investment with regard to in-house training, where Irish firms overwhelmingly surpass SPEC firms. This could be associated with the shortages in specialised skills identified in Ireland (Delaney, 2002), coupled with the need for cutting-edge start-up firms to train workers in specific technical areas. Alternatively, there may be a greater appreciation of training in Irish firms due to the efforts of agencies like Forfás.

With regards to formalisation practices as set out in Table 4, IHTSUs exhibit significant levels of established procedures: non-compete agreements, written job descriptions, written performance

Table 4: Formalisation Practices in IHTSUs and SPEC Firms

Formalisation Practices	IHTSUs (N = 36) (%)	SPEC (N = 69) (%)
Written job descriptions	91	12
Intellectual property/non-compete agreements	81	51
Personnel manual or handbook	75	16
Organisation chart	74	23
Background checks of prospective employees	73	20
Written performance evaluations	70	39
Standard contract for exempt employees	66	12
Employment grievance or complaint form	44	4
Standardised employment application	31	27
Human resource information systems	29	7
Written affirmative action plans	0	7

evaluations, organisation charts and employee handbooks. Not surprisingly given the nature of the industry, 81 per cent of the participants had a formal intellectual property/non-compete agreement. IHTSUs also exhibit a significant degree of formalisation with regards to HR policies and procedures. 91 per cent of the participants have written job descriptions, which could reflect the impact of Irish employment legislation on IHTSUs. 73 per cent invested in background checks of prospective employees and 75 per cent had personnel manuals or handbooks. Furthermore, and probably more significantly, was the percentage of respondents that engaged in written performance evaluations (70 per cent), as the latter are the basis for ensuring that the goals of the organisation are achieved. A comparison between Irish and SPEC firms suggests that overall Irish firms exhibited much higher levels of formalised procedures.

Finally, with regards to compensation practices as set out in Table 5, Irish firms demonstrated a preference for individual rewards.

Table 5: Compensation Practices in IHTSUs and SPEC Firms

Compensation Practices	IHTSUs (N = 36) (%)	SPEC (N = 69) (%)
Individual incentives or bonuses	87	30
Stock options	71	52
Non-monetary recognition awards	63	13
Knowledge- or skill-based pay	55	30
Workgroup/team incentives or bonuses	42	7
Profit sharing or gain sharing	31	13
Signing bonus	12	14

The results showed that the most common source of compensation used in the Irish high-tech sector is individual incentives and bonuses, with 87 per cent of participants using this method of compensation. The second compensation practice which was most used by the participants was stock options (71 per cent) and the third most cited practice was non-monetary recognition awards. The comparison between Irish and SPEC firms shows that both samples rank the use of stock options equally.

In conclusion, with regard to compensation, IHTSUs are similar to their SPEC counterparts, reflecting the findings of the literature which suggest that start-up entrepreneurial firms tend to reward individual performance with stock options or ownership benefits as an exchange for long working hours (Greiner, 1998, 1972). However, Irish start-ups differ from their SPEC counterparts in evidencing higher levels of formalisation and a more structured approach to communication. Irish high-tech firms were found to implement a variety of regular communication and socialisation practices supporting Bhide’s (1994) findings regarding the leadership role of the founder. According to Heneman et al. (2000) this is due to both the size and the flat structure that characterise entrepreneurial firms, leading to the implementation of practices that promote an egalitarian culture. However, the high incidence and regularity of these practices do not appear to support Greiner’s

view of ad hoc informality. Greiner (1972, 1998) predicted that communications at the start-up phase in a firm would be informal. Yet, the extensive implementation of practices such as company-wide meetings, sponsored events and mission statements, coupled with significant levels of formality with regards to the implementation of certain policies and procedures, suggests a more structured, managed approach in IHTSUs. These practices would appear to correspond more to the second phase in Greiner's growth model, whereby organisations are characterised by more formal communications, an introduction of a functional organisational structure and more centralised management (Greiner, 1998, 1972).

The high levels of formalisation regarding human resource practices and procedures gives rise to some concern regarding path dependence as formal structures are being implemented at an early stage of the organisation's development. Might this impact on Irish high-tech firms' ability to remain innovative and flexible in an ever-changing environment? A longitudinal study would be required to more accurately test whether this pattern reflects the pressures of internationalising quickly for IHTSUs or if this formality reflects institutional practices in Irish HRM.

HUMAN RESOURCE PRACTICES IN IRISH HIGH-TECH START-UPS VERSUS SILICON VALLEY

The qualitative interviews enabled the researchers to gain a greater insight into the characteristics of IHTSUs by revealing that they tend to be managed by the founder, who had senior management experience and formed the founding team based on informal contacts. A more detailed analysis of the sub-sample of firms allowed the researchers to map them onto the SPEC employment typologies to assess the extent to which IHTSUs fit the SPEC patterns. IHTSUs were found to clearly emphasise work as a source of attachment to the organisation and focus on the nature of the task with regards to the selection of employees. IHTSUs face a particular difficulty when selecting sales people and this was due to the nature of the founders who, having come from an engineering background, felt that they did not have the necessary marketing skills to adequately select a sales person. Less clarity was found with regards to how IHTSUs control their employees, being almost equally spread

between professional, cultural and managerial control mechanisms. The mapping of IHTSUs to the SPEC model across the three dimensions gave way to dominance of the 'Engineer' typology within IHTSUs. Overall, eight out of the eleven companies interviewed clearly matched one of the five employment typologies set out by SPEC, which could be taken as a sign of the generalisability of the SPEC model for high-tech start-ups. This research found that the 'Star' and the 'Engineer' model in particular have significant resonance within the Irish high-tech sector as five of the eleven firms could be mapped onto these two models. Both the 'Autocracy' and 'Commitment' models were found within one of the start-up companies. Overall, three companies within the IHTSU sample could not be mapped onto the SPEC framework. These companies could be seen as a sign of either unique cases or of typologies which might be specific to Ireland. However, in order to assess the generalisability of the SPEC typologies to Irish high-tech firms, a greater sample would be required.

CONCLUSIONS AND RECOMMENDATIONS

Entrepreneurial firms are important to the future competitiveness of the Irish economy. The focus in this paper has been on the study of the management of people as part of the process of enabling sustainable growth and development of these emerging firms. A significant initial finding of this study, arising from the literature review, is that there is a paucity of existing literature on the management of people in the establishment or founding phase of firms and little interest in the management of people in the entrepreneurial literature. This gap highlights the necessity for cross-disciplinary diffusion between these bodies of academic literature. Arising from this identified knowledge gap in the area of HRM in entrepreneurial firms, an exploratory, descriptive and comparative study was undertaken to map human resource practices in IHTSUs.

Research in this arena is in its infancy both in Ireland and internationally. Boxall and Purcell (2003: 190) assert that more research addressing the question of what human resource strategy needs to do to enable the viability of the emerging firm, and secondly what HR might do to help create some form of sustained competitive advantage, is required. This study set out to describe the human

resource practices of IHTSUs. It replicated part of a major empirical project studying the emergence of high-tech start-ups in the Silicon Valley. Therefore, a subsidiary objective of the paper was to compare the Irish findings with those from the Stanford Project on Emerging Companies. A further aim of the study was to establish if the diversity of employment typologies found to exist in the SPEC project firms would exist in IHTSU firms.

The findings of the study on human resource practices suggest that IHTSUs do not behave in an informal ad hoc way as suggested by some scholars (Phase 1: Greiner, 1972) but evidence a more managed and structured approach to the management of their people. In fact when compared to the findings on human resource practices in comparative SPEC firms, it was observed that Irish start-ups demonstrate much higher levels of formalisation and of structured communication and training despite being smaller in size. One possible explanation for this might be the 'imprint of the founder' (i.e. the previous organisational experience that the founder brings to bear on his new organisation). An alternative explanation might be that since Irish firms internationalise at an early stage of their development (Brennan and Garvey, 2004) this external contingency might explain the patterns seen. A final possible explanation could be the differences in institutional frameworks, specifically relating to employment law requirements, between Ireland and the United States. Despite the small Irish sample, the preliminary evidence suggests that the employment typologies proposed by SPEC (Baron and Hannon, 2002) are to be found in high-tech start-ups across cultures. The existence of a number of identifiable discrete typologies gives rise to the question of what causes this diversity of approach among a sample of comparable firms in terms of size, sector and stage of development. Although Baron and Hannon (2002) conclude that the imprint of the founder is an explanatory factor, they have established that typology difference is linked to the business strategy pursued by the start-up. In order to address these questions, a longitudinal study tracking the growth and development of emerging high-tech firms could provide us with answers and insight.

The study reported here is a replication of an aspect of the Stanford project. This approach was adopted in the belief that the

stronger the basic design, the stronger the inference that may be made from replication (Schafer, 2001). However, there are some shortcomings in adopting a literal replication, specifically the ability to adapt the instruments to address different issues. Further it would have been beneficial to adopt a holistic approach by including responses from employees on the existence of the human resource practices in the sample firms.

Finally, the Irish high-tech-based sector, although vibrant, is still in its infancy and therefore proactive nurturing and support is essential. With increasing global competition much remains to be done to ensure the sustainable growth of the sector: 'innate abilities can be complemented by training to enhance the likelihood of the new business' survival and growth' (Enterprise Strategy Group, 2004: 103). Education and training in the management of human resources will play a major role in ensuring that Irish firms are not only able to cope with future changes in the market but also succeed in driving market growth by breaking the €2 million mark that would ensure their sustainable development. Any governmental policy and education programme targeted towards the development of IHTSUs should be based on understanding the unique characteristics of and challenges facing IHTSUs.

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