

High Performance Work Systems and Firm Performance: The Moderator Role of Industry and Organizational Characteristics

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DECLARATION

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of a degree of Master is entirely my own work, that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, 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.

Signed: _____ Jing Liu ID No. _____

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DEDICATION

Dedicated to:

My parents, and brother, whose support and best wishes kept me going throughout the course of my studies

ACKNOWLEDGMENTS

I would like to thank everyone who helped me on my research. First, I offer particular thanks to my supervisors, Professor Patrick C. Flood and Ms. Margaret Heffernan, for their immeasurable advice and support, in the course of this work.

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ABSTRACT

This thesis examines the impact of High Performance Works Systems (HPWS) on firm labour productivity and innovation. Considerable studies have proved that investment in HPWS is associated with superior organizational performance (Huselid, 1995; Authur, 1994; Delery and Doty, 1996; Guthrie, 2001). However, there is still no agreement on whether High Performance Work Systems are universally applicable or contingent on certain circumstances.

This thesis contributes to the universal versus contingency debate by testing the moderating effect of contextual factors on these relationships. Following a theoretical review of HPWS literature, a conceptual framework was developed which introduced moderator variables to explain the HPWS-performance link. This was guided by contingency theory and empirical work related to environmental fit (Burns & Stalker, 1994; Youndt et al., 1996). Industry growth and industry dynamism were chosen as industry level moderators while labour investment represents a firm level moderator. The data used in this study was collected from a national general manager and HR manager survey which was conducted in 2006. A sample of 132 matched responses from both GM and HR managers were used in the analysis. The results show that the implementation of HPWS is associated with an increase in both labour productivity and innovation.

Further analysis was conducted to test the moderating effect between HPWS and a number of contextual factors including industry characteristics and organisational characteristics on firms' labour productivity and innovation. Regression results show that industry level characteristics have a moderating effect on the HRM-performance link: industry growth moderates the relationship between HPWS and innovation but has no significant moderating effect on HPWS-labour productivity relationship. Industry dynamism was found to have a moderating effect on the relationship between HPWS and labour productivity but no significant interaction effect was found on innovation.

At the firm level, results show that firms' labour investment moderates the relationship between HPWS and labour productivity. Similarly an effect was found on the relationship between HPWS and workforce innovation. This study provides some indications for further research in the fields of HRM and contextual factors and their interaction effect on performance.

CHAPTER ONE INTRODUCTION

1.1 Introduction

The core objective of this study is to test the moderating role of industry/firm characteristics on the relationship between high-performance work systems (HPWS) and firm performance. It is widely accepted that firms who use sophisticated human resource management initiatives such as high-performance work systems achieve above average performance (Huselid, 1995; Pfeffer, 1994; Guthrie, 2001). As the reason for this positive relationship, there are two main competing perspectives, the universalistic perspective and the contingency perspective. The first perspective suggests that the best HRM practices can be used in any organisation and will produce positive results irrespective of firm conditions (Pfeffer, 1998; Huselid, 1995; Wood and Albanese, 1995). The contingency perspective proposes that the extent (or even the direction) of the effect of HRM on firm performance will depend on a firm's context or environmental conditions (Burns and Stalker, 1994; Lawrence and Lorsch, 1967). This study aims to establish which perspective is more appropriate.

Another important reason for carrying out this research is that most of the studies investigating the relationship between HRM and performance were conducted from a direct or mediating perspective. Researchers have done much research on the direct relationship between human resource management and performance (Huselid, 1995; Guest and Hoque, 1994; MacDuffie, 1995; Cappelli and Neumark, 2001). Further studies have been carried out on the mediating effect of factors on the

relationship between HRM and organisational performance, which is referred to as the ‘black box’ problem (Evan and Davis, 2005; Purcell et al., 2003). Research on the moderating effects of contingency factors on the HRM-Performance link is relatively scarce. Guthrie (2001) tests the moderating effect of industry characteristics on the HRM-performance relationship based on the data from US and New Zealand, and found supportive evidence for the contingency perspective.

This study will pursue this method of testing the moderating effects of industry characteristics and further organisational factors on this HRM-performance link in an Irish context.

1.1 Objectives of the Research

The two main objectives of this study are to

- Explore the effect of HPWS on firm performance, in particular labour productivity and work force innovation.
- Explore the moderating effect industry and organisational characteristics on the relationship between HPWS and firm performance.

The resulting research questions are as follows:

- (a) What are the effects of HPWS on labour productivity?
- (b) What are the effects of HPWS on workforce innovation?
- (c) Do industry characteristics moderate the relationship between HPWS and labour productivity?
- (d) Do industry characteristics moderate the relationship between HPWS and workforce innovation?

(e) Do organisational characteristics moderate the relationship between HPWS and labour productivity?

(f) Do organisational characteristics moderate the relationship between HPWS and workforce innovation?

1.2 Overview of the Thesis

Chapter two reviews the literature on HPWS and organisational performance. Two theoretical foundations in particular are presented: the resource based view and social capital theory. Then, two main perspectives about HRM and firm performance are reviewed: The universalistic perspective and the contingency perspective. This chapter continues with a discussion of empirical evidence surrounding the relationship between HRM and performance. At the end of this chapter two hypotheses are proposed.

Chapter three focuses on the industry and organisational characteristics and their influence on the implementation of HPWS. Industry characteristics in this study include industry growth and industry dynamism. With regard to firm level characteristics, labour investment was chosen as a suitable variable. Each discussion of these variables is followed with a hypothesis.

Chapter four presents the methodology adopted by this study. A positivist approach was taken and quantitative methods were employed in this research. The research design and research process are introduced after the discussion of methodology, and a definition of variables is then discussed.

Chapter five present the final results of this study. It begins with a discussion of the strategy employed to analyse the data. Later, results in this chapter show support for many of the hypotheses, the main effect hypothesis is fully supported, the moderating effect is partially supported - that industry growth moderates the HR-innovation relationship, and industry dynamism moderates the HR-labour productivity relationship. As to the firm level moderator, labour investment moderates the relationship between high performance work systems and firm performances; both labour productivity and workforce innovation. However its effect is negative with regards to the hypothesis.

Chapter six presents the discussion of the final results. Some findings of this research are consistent with previous studies, For instance, the positive impact of high performance work systems on firm performance is supported; but there are some interesting findings in my study. The overall results of this study support both the universal and contingency debate. The general conclusion of positive effects of high performance work systems on firm performance across over more than 13 industries perfectly supports the 'best practices' argument that high performance work systems have positive impact on firm performance universally. Meanwhile, the relationship between high performance work systems, industry and organisational conditions, and firm performance significantly support the contingency perspective that the extent and the direction of effects were dependent on a firm's context or environmental conditions. In conclusion, the findings of this research support both perspectives; this is also consistent with the conclusion of Doty and Delery (1996).

The final chapter ends this thesis with some discussion of contribution and limitations. This study contributes to the extant theory in a number of ways, but because of tensions regarding time limits and data access, there are also some limitations within this study, which provide some implications for further research. With the experience of this research, further study should be taken based on a robust theoretical foundation, while the introduction of a longitudinal approach will result in more precise conclusions.

CHAPTER TWO: HIGH PERFORMANCE WORK SYSTEMS AND FIRM PERFORMANCE

2.1 Introduction

The main objective of this chapter is to explain the relationship between high-performance work systems (HPWS) and firm performance. This chapter is arranged as follows. It begins with a definition of HPWS and a discussion of the theoretical foundations of HPWS in strategic human resource management (SHRM). In particular, the resource based view and human capital theory are highlighted as key rationales. It continues with a detailed discussion of the HPWS-performance linkage. Two primary theoretical perspectives about this relationship will be reviewed. The contingency perspective regarding the relationship between HRM and performance, which is one of key rationales of this research, is highlighted for discussion in further chapters. The chapter ends with an overview of empirical studies concerns with the relationship between HPWS and performance.

2.2 High Performance Work Systems

It has been widely accepted that people and management of people are key elements of competitive advantage (Boxall and Purcell, 2003; Pfeffer, 1998). Firms in this competitive environment seek to understand how their human resources can be managed for competitive advantage. Research in this field increasingly focuses on the impact of bundles of human resource management practices on firm performance. This differs from early researches which emphasised the effect of individual HR practices on performance. Considerable studies have found positive relationships

between so called high-performance work systems or strategic HRM and organisational performance (Arthur, 1994; Huselid, 1995; Huselid and Becker, 1996; Ichniowski, 1990; Pfeffer, 1998; Guest et al, 2003).

High Performance Work Systems (HPWS) is a set of interrelated HR practices 'designed to enhance employees' skills, commitment, and productivity in such a way that employees become a source of sustainable competitive advantage' (Datta et al., 2005: 136). But as there is no single agreed definition of HPWS (Boxall and Purcell, 2003), different labels have been used to describe these sophisticated human resource practices, for instance, high involvement work practices (Lawler, 1986; Guthrie, 2001), high commitment management (Beer et al., 1985; Wood and Albanese, 1995), high performance work organisation practices (Osterman, 2000, Thompson and Heron, 2005), innovative HR practices (MacDuffie, 1995; Ichniowski, Shaw and Prensushi, 1997). In this study, HPWS is employed as an umbrella term encompassing all of the above phrases.

Despite lack of precise definition, scholars in HRM have consensus that these HR systems have something in common, for example, they agreed that HPWS includes rigorous recruitment and selection procedures, incentive compensation systems, training and development activities, employee participation, flexible work arrangements and job security (Arthur, 1994; Huselid, 1995; Ichniowski, Shaw, and Prensushi, 1997; Jackson and Schuler, 1995; MacDuffie, 1995; Pfeffer, 1994, 1998). The common theme of these practices is that organisations can achieve 'high performance' (Gittell, 2009: 1) through the use of these innovative practices which can leverage employee's abilities and commitment (Arthur, 1994; Huselid, 1995;

Jackson and Schuler, 1995; Milgrom and Roberts, 1995; Pfeffer, 1994), especially when they are used in bundles, because bundles of HR practices integrated and reinforced with each other, create mutually reinforcing effects that facilitated employee's skills acquisition (MacDuffie, 1995; Batt, 2000; Ichniowski, Shaw and Prennushi, 1997).

Another controversial issue in high performance work systems concerns the linkage to performance. There are several trends about how high performance work systems connect to organisational performance. Considerable studies found direct positive relationships between high performance work systems and firm performance. Studies supporting these arguments found that these bundles of human resource practices impact firm performance, such as labour productivity (Arthur, 1994; Huselid 1995; Datta et al., 2005), shareholder value (Pfeffer, 1998), market value per employee (Huselid, 1995). Patterson et al (1997) conducted a study among a panel of over 60 small to medium sized single-site manufacturing businesses, they found that HR practices are most powerful predictors of change in productivity and profitability. Thompson (1998) in his study of aerospace industry found that firms with higher levels of value-added per employee have extensive use of HR practices. Other studies by a variety of authors, in both manufacturing industry and service sector, reported similarly positive results (Arthur, 1994; MacDuffie, 1995; Ichniowski, Shaw and Prennushi, 1997; Delery and Doty, 1996).

Another trend has seen attempts to understand the mechanisms through which high performance work systems work influence performance (Delery, 1998), this mechanism has been labelled the 'black box' (Ramsay, Scholarios, and Harley,

2000; Boselie et al., 2005). Many scholars, such as Becker and Gerhart, (1996), Dyer and Reeves (1995), Guest, (1997), Wright and Gardner (2003), and Boselie and his colleague (2005), have all called for research to examine the ‘linking mechanism’ and the ‘mediating effect of key variables’ (Boselie et al., 2005, p. 77) in the relationship between HRM practices and organisational performance. Some scholars have introduced internal and external factors as the mediator in this relationship. The mediators include motivation, retention, social climate, trust and loyalty. The explanations of why and how HPWS connect with firm performance rely on theories of strategic human resource management. The following section will discuss the theoretical foundations for the HRM-performance link.

2.3 Theoretical Foundations for HPWS and Performance

2.3.1 The Resource Based View

The main contribution of the resource-based view lies in the notion of competitive advantage. The resource-based view suggests that a firm can create sustainable competitive advantage through developing its unique resources and capability (Barney, 1991; Barney, 2001). Barney (1991) distinguishes between competitive advantage and sustained competitive advantage, the key point is that whether it is able to copy by other rivals. He further argued that in order to generate sustained advantage, resources must meet the following four criteria: the resource must be of value, rare among a firm’s current and future competition, it must be not easy to imitate by rivals, and cannot be substitute. The resource based view, which is used as a theoretical foundation for human resource management, is based on the assumptions that firm resource distributed heterogeneously and remained stable over

time (Barney, 1991; Morris, Snell and Wright, 2005). In Barney's view, the resources of a firm include both tangible and intangible assets, for instance, machines, management skills, organisational processes and routines, and information and knowledge (Barney, 2001). A statement about the so called 'resource' made by Amit and Schoemaker (1993) suggested that the 'resource' can be divided into resource and capabilities. According his view, the resources are tradable and non-specific to firm, while capabilities are firm specific and always work with resources. Makadok (2001) defined capabilities as 'a type of resource, specifically an organisationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm' (p389). Barney (1991) classified resource into three categories, physical capital resource, human capital resources, and organisational resources. Physical capital resources include firm's plant and equipment, raw materials, human capital resources include workers' training, experience, relationships, and organisational capital resources include a firm's structure, routine, and planning, control and recording systems (Allen and Wright 2008, Snell and Dean, Bailey et al., 2000). These later two groups of resource are soft resource and closed to the notion of 'capabilities'. According to Amit and Schoemaker (1993), these resources are valuable, non-tradable and difficult to copy by competitors. The resource based view shifts the emphasis of performance management away from industry structure which is proposed by Porter (1985) to the management of a firm's human capital resource and organisational (Barney, 1991).

The resource based view foster the development of strategic, it turns the concern from external factors to firm's internal resources (Wright et al., 2001). Some authors

have argued that the resource based view provided theoretical rationale for the link between human resource and competitive advantages (Wright and McMahan, 1992; Wright, McMahan, and McWilliams, 1994). In Wright and his colleague article, they distinguished the human resource and human resource practices, the human resource practices which could be easily copied by other competitors cannot generate sustainable competitive advantage itself. They further argued that human resource with high level of skills and motivations have potential to become a source of sustainable competitive advantage. In contrast, a HR system which is different from individual HR practice with the characteristics of causally ambiguous and synergistic could be unique and difficult to imitate by rivals. Similarly, Barney stressed the unique historical conditions of firm resource (Barney, 1991), since the strategic resources of a firm are developed over time, there is no possibility for current or future competitors to meet such condition. 'the performance of a firm does not depend simply on the industry structure within which a firm finds itself at a particular point in time, but also on the path follows through history to arrive where it is' (Barney, 1991: 108).

According to the resource based view, firms should look into their internal resources, both physical and intellectual, for sources of competitive advantage (Allen and Wright, 2008).

2.3.2 The Human Capital and Abilities, Motivation and Opportunity (AMO) Theory

Human resource practices can influence a firm's future return through the embedding of resources in people which is called investing in human capital (Becker,

1962). The core concept of human capital is that people possess skills, experience, and knowledge that have economic value to firms (Snell and Dean, 1992). This human capital theory was first proposed by Schultz (1960) to examine the economic value of education, but more recently it has been used in the human resource practices field. Firms attain human capital through recruiting employees with high level of skills and knowledge, much of these skills and knowledge are intangible, including such abilities as solving problems, coordinating, and making decisions in new situations (Becker, 1962). These intangible skills and knowledge constitute idiosyncratic resources which create competitive advantage to firms (Barney, 1991). Human capital is of value to a firm but it is transferable, it is embodied in employees, who are free to move from one place to another, especially for employees with general human capital (Becker, 1964; Parnes, 1984; Jacoby, 1991). The contribution of human capital to a firm's performance largely depends on employees' willingness to perform. This is consistent with the AMO theory (abilities, motivation and opportunity to participate) proposed by Appelbaum et al (2000) and Bailey et al (2001). The AMO theory states that a firm's performance is a function of employees' ability, motivation and opportunity to participate. Firms can generate competitive advantage through improving employees' ability, motivation and provide employees opportunities to participate in value creation, which will result in higher productivity and better organisational performance (Appelbaum et al 2000; Bailey et al 2001; Miller and Le Breton Miller, 2005). This theory explains how the HPWS functions from the individual employees' perspective.

2.4 HPWS and Firm Performance

The relationship between HPWS and firm performance is another controversial issue. Two primary perspectives describe this relationship. The universal or 'best practices' perspective advocates a direct relationship between HPWS and firm performance (Youndt et al, 1996). All firms who adopt these bundles of HR practices will perform better than those who do not. The contingency perspective asserts that the relationship between HPWS and firm performance is influenced by other contingency variables (Youndt et al, 1996). From Youndt's point of view, these two perspectives appear not to be competing but to be complementary. Many scholars in the HRM area have tested the HPWS-firm performance relationship to try to clarify the debate, but still have not reach a consensus (Arthur, 1994; Huselid, 1995; Ichniowski, Shaw, & Prensushi, 1997; Jackson and Schuler, 1995; MacDuffie, 1995; Milgrom and Roberts, 1995; Pfeffer, 1994; Datta et al., 2005).

2.4.1 The Universalistic Perspective

The universalistic perspective of HRM is also known as the 'best practice' approach, and claims that there exists a bundle of best HRM practices which can be used by any organisation irrespective of industry, size, workforce or product market. It will lead to positive outcomes for all types of firms when it is implemented. The work of Pfeffer (1998), Huselid (1995) and Wood and Albanese (1995) have found empirical evidence to support this view. But some scholars argued that this 'best practice' approach is about the relationship between individual HRM practices and firm performance rather than the bundle of practices (Gooderham et al., 2008). They point out several single practices that will improve firm outcomes for all types of companies. For example, job rotation, quality circles and TQM (Osterman, 1994).

On the other hand, researchers who advocate this ‘best practice’ suggests that human resource practices should be combined and work together to maximize its impact (Delery, Doty, 1996; Gooderham et al., 2008). The combination of HRM practices which is called high performance work systems or high involvement work systems have been shown to have a positive effect on firm performance (Guthrie, 2001; Datta et al., 2005). The universalistic perspective, especially the ‘bundle of practices’ notion share the same view that the vertical fit perspective is an important consideration to consider in the HRM - performance linkage. However, this perspective is not without criticism. It has been criticised for failing to consider the context in which these practices are used.

The following contingency perspective which is known as ‘best fit’ approach has paid much more attention to this issue.

2.4.2 The Contingency Perspective

This perspective on HRM is also known as ‘best fit’ approach and proposes that the extent (or even the direction) of the effect of HRM on firm performance will depend on a firm's context or environmental conditions (Burns and Stalker, 1994; Lawrence and Lorsch, 1967; Thompson, 1967). It questions the ‘best practice’ approach and suggests that ‘best practice’ may not be appropriate for all situations and other approaches may have greater success in impacting on organisational performance. Best fit HRM attempts to fit HRM systems to a number of contingencies including business strategy, competitive circumstances and national business systems (Youndt, Snell, Dean and Lepak, 1996; Truss, 2001).

The Resource-based view, which is regarded as an important theoretical foundation for HRM and performance relationship, is criticised for a lack of definition of boundaries or the context in which it will hold (Priem and Butler, 2001). These authors point out that little effort has been made to establish the appropriate contexts for the Resource based view (Delery and Doty, 1996; Boxall and Purcell 2000). This contingency examines the resource and capabilities from a context point of view. It should be a way to overcome the criticism about boundary issues. This perspective advocates that firm's resources and capability should be consistent with other aspects of the company (Delery and Doty, 1996). Resources and capabilities are not valuable themselves; they have to be applied to context (Barney, 1991; Yang, 2005). This contingency is further proved by a number of studies. One famous example is Guthrie's (2001) study of New Zealand companies. Another one is Datta et al (2005) testing the moderating effects of industry characteristics on HRM-performance linkage.

The two perspectives on the linkage of HRM and performance seem to be competing with each other on the surface. But Youndt et al. (1996) argued that they can also be complementary.

2.5 Empirical Evidence on HRM and Firm Performance

Firm performance can be evaluated from several perspectives, organisational outcomes such as job satisfaction, turnover and innovation, economic outcomes such as profitability, productivity, and many other factors (Nikandrou, Cunha, and Papalexandris 2006). The most widely used indicators for firm performance are productivity and innovation (Huselid, 1995; Pfeffer, 1998; Appelbaum et al., 2000,

Datta et al., 2005, Ramamoorthy et al, 2005; Fitzgerald, Flood, O'Regan and Ramamoorthy, 2008). Studies related to these two outcomes will be examined in the following table.

Table 2.1 – Overview of Studies of the Relationship between HRM and Performance, Universalism and Contingency Debate

AUTHOR	HR PRACTICES	HR SYSTEM	PERFORMANCE VARIABLE	MODERATOR	FINDINGS
Delery and Doty (1996)	7HR practices Internal career opportunities, training, appraisal, profit sharing, participation, job description, job security.	Market-type system and internal system	Return on assets Return on equity	Firm strategy	Strategic factors moderate the relationship between HRM and organisational performance
Youndt et al (1996)	6 administrative HR Practices 9 human capital enhancing HR practices	Administrative HR system and Human capital enhancing HR system	Machine efficiency Customer alignment Employee productivity	Firm's Manufacturing strategy	Strategy cluster moderating the relationship between HR practices and performance Support Contingency argument
Huselid (1995)	13 HR practice	Employee skills and organisational structures; Employee motivation	Labour turnover Productivity Corporate financial Performance Tobin's q +	Internal fit : HR policy consistency External fit: Differentiation /focus Strategic HR index	Modest evidence for internal fit and few evidence for external
Hoque (1999)	22 HR practices	High involvement practices	Commitment Job satisfaction Flexibility of staff Job mobility Quality of work Quality of staff Labour productivity	Business strategy	High involvement practices is most successful in those firms that adopt lean production strategy

			Quality of service Financial performance		
Guest and Hoque (1994)	21 practices Good and lucky : more than 12 HR practices Bad and ugly: fewer than 11 HR items	HRM practices	Labour turnover Disputes Quality Commitment Quality of staff Labour mobility Productivity Absenteeism	Strategic integration	HRM practices have positive influence on some outcomes (labour turnover, disputes and quality).
Guerrero and Barraud – Didier, 2004	Four HRPs thirty-eight items	High-involvement practices	economic profitability		HRPs practices have stronger impact on performance when they are used in bundles than when they are studied individually.
Michie, and Sheehan (2003)	7 practices	Flexibility work practices,	Innovation activities		High commitment work practices positively relate to innovation, but the ‘low road’ labour flexibility practices are negatively correlated with innovation.
Datta, Guthrie and Wright (2005)	18 HR practices cover Staffing, training, performance management, communication and participation.	High performance work systems (18 items)	operational performance Labour productivity	Industry characteristics -Industry growth -Industry dynamism -Industry capital intensity -Industry product differentiation	High performance work practices indicated is positively associated with firm productivity. All industry characteristics except industry dynamism moderate the HR-performance relationship

2.5.1 HRM Practices and Labour Productivity

One of the most famous studies about the relationship between HRM practices firm performance was conducted by Huselid (1995). He tested the existence of a linkage between high performance work practices and firm performance using data from 816 publically owned companies. He used three indicators (turnover, stock value and profitability) to represent firm performance. The findings of his research indicate that high performance work practices had a significant impact on labour productivity and employee turnover.

Large scale research about the HR - performance relationship in UK was conducted by Ramsay, Scholarios and Harley (2000). This research was conducted among the UK small and large organisations, and consisted of data based on the 1998 Workplace Employees Relations Survey (WERS 1998). This research tested the relationship between the use of HRM practices and organisational performance outcomes. Performance measures in this study included firms' financial performance, labour productivity, and quality of products and service. The study found that high performance work practices had positive effects on workplace performance. High performance work practices were positively associated with increased labour productivity, financial performance and quality of product service. This study also found a positive association between greater use of HRM practices and the number of employees' positive job experiences.

Guthrie (2001) conducted a firm-level research study in New Zealand, using a sample consisting of 164 firms. He intended to examine the relationship between

high involvement work practices and firm performance, including employee retention and productivity. The findings of this study showed that firms that feature extensive use of high involvement work practices experience an increase in productivity. Another example was conducted by Datta Guthrie and Wright (2005). They tested the moderating effects of industry characteristics on the relationship between HPWS and firm's labour productivity. The result of this study supported some of their hypotheses, while the results also show a strong positive relationship between HPWS and labour productivity

The studies detailed above examine the relationship between HRM practices and productivity, and show support for the resource based view and AMO theory that employees can be resourceful to the company. They also suggest that when employees are managed well, they can contribute positively to the company's productivity. However, there are still relatively few studies that identify a positive relationship between HRM and firm performance. This may be due to various reasons such as methods of data gathering and analysis. However, the studies presented above have showed adequate evidence to support the argument that HRM practices, if used well, are much more likely to have a positive impact on productivity outcomes.

H1a: Extensive use of high performance work systems (HPWS) will lead to an increase in firm labour productivity.

2.5.2 HRM Practices and Innovation

Introduction to Innovation

Innovation is regarded as a change in the thought process for doing something, or developing something new that can prove useful (McKeown and Max, 2008). It can be defined in various ways. Schumpeter defined innovations as being at the heart of the entrepreneurial role: the creation of a linkage between new ideas and markets (Gallouj and Weinstein, 1997). Hislop (2005) defined innovation as ‘a deliberate and radical change in existing products, processes or the organisation in order to achieve a competitive advantage over competitors’. From this definition we can figure out that there are several aspects of innovation: (1) the introduction of something new, including new products or services, new technology or new forms of organisation; (2) a process aspect, this means that there are activities/stages such as goal formulation, design and organisation, implementation and monitoring; (3) development with radical leaps or incremental innovation; (4) the goal of innovation activities is to gain advantages for the organisation (de Leede and Looise, 2005).

The literature surrounding innovation focuses on indentifying the main domains of innovation and how to measure it. Because of its wide usage and a wide variety of definitions, there are several classifications of innovation domains. For example, Damanpour and Evan (1984) state that innovation includes technological innovation and administrative innovations. Technological innovations contain both product or process innovation. Tidd, Bessant and Pavitt (1997) propose three domains in innovation: product, service and process innovations. Boer and During (2001)

identifies three types of innovation. Product innovation includes development of new products and/or services, while process innovations means the introduction of new production or service technologies, The third innovation is concern with organisational innovations, meaning the creation of new organisational forms and/or management practices; Avermeate et al. (2003) distinguishes four main domains of innovation, namely product, process, organisational and market innovation. Product innovation includes any product, service or idea that is generally perceived as new. Product innovation may also emerge as a result of changes in the organisational structure or strategy. Process innovation includes adaptation of the existing production systems and may include introducing new infrastructure and the implementation of new technologies. Damanpour (1992) categorises product and process innovation as technical innovation, since they concern basic work activities. Organisational innovation, also referred to as administrative innovation, includes changes to a wide range of activities in an organisation such as marketing, purchases, sales, administration, management and staff policy (Damanpour 1992). Lastly, the market innovation domain includes exploitation of new territorial markets and the acquisition and addition of new markets (Avermeate et al. 2003).

Research in the field of innovation have not been limited to the concept and domains of innovation, but also related this process of innovation to time and the extent of innovation in the firms involved. Rogers (1995) found five kinds of firms according to the extent of innovation adopted: innovator, early adopters, early majority, late adopters and laggards. Firms profiting from innovation activities will be different according to the timing and extent of firm adoption of innovation. Generally, early

adopters have more significant benefits from innovation than laggards (Rogers, 1995; Subramanian and Nilakanta, 1996, Dobni, 2006).

Innovative organisations support creative activities through offering employees the freedom to work independently in pursuit of new ideas (Scott and Bruce, 1994; Dobni, 2006). Employees' skills and knowledge are important factors to firms' successful innovation, since the human element is involved in the whole innovation process (Jimenez-Jimenez and Sanz-Valle, 2005).

HRM Practices and Innovation Performance

The relationship between HRM and innovation has been generally studied in the literature. HRM practices are regarded as good predictors of innovation (Shipton et al., 2006). Fay, West and Birdi (2003) conducted a study of several manufacturing firms in UK. He attempted to figure out whether HR practices have the potential to predict organisational innovation. The measure of innovation in this study involved products, production technology and production processes. The results supported his proposal that HRM practices appear to positively predict innovation in products and production technology when firm size and profitability were controlled. This study also suggested a longitudinal effect of HRM on innovation. A similar study was conducted by Shipton et al (2005), who found that HRM practices accounted for 20per cent of the variance for product innovation and 25 per cent of the variance for innovation in production technology, even though they did not gain a significant HRM / innovation relationship. Another study was conducted by Laursen and Foss (2003), based on data from a Danish survey of 1900 business firms. They used principal component analysis, and indentify two HRM systems which are conductive

to innovation. The first factor included seven out nine HRM practices that matter equally for the ability to innovate. The second factor consists of firm internal and external training, which was found to be conducive to innovation. The study also indicated that ‘while the adoption of individual HRM practices may be expected to influence innovation performance positively, the adoption of bundles of complementary HRM practices could be expected to affect innovation much more strongly’ (Laursen and Foss, 2003 :257)

There is still further empirical evidence that supports the argument that HRM practices have a positive influence on innovation. For instance Michie and Sheehan, (1999) find an empirical link between HRM practices and innovation performance. Laursen and Foss (2003) found that the application of new HR practices is related to innovation performance, and furthermore, that the relationship will be stronger when all the individual HR practices are combined in to a single system. Jimenez-Jimenez and SanzValle (2008) reported a positive relationship between HRM practice and innovation performance based on the data from a survey of 173 Spanish firms.

Overall, these empirical studies above suggest that the adoption of HRM practices may enhance firm innovative ability and innovation performance through increasing employees’ skills, knowledge, and abilities. Based on the theoretical foundations and empirical evidence concerning the relationship between HRM and firm innovation, it is appropriate to propose that:

H1b: Extensive usage of high performance work systems (HPWS) will lead to an increase in work force innovation

CHAPTER THREE:

INDUSTRY AND FIRM CHARACTERISTICS AND THE IMPLEMENTATION OF HPWS

3.1 Introduction

The previous chapter outlined two primary perspectives exist concerning the link between human resource management and firm performance: the universal perspective and the contingency perspective (Youndt et al., 1996). The contingency perspective, which is more complex, proposes that ‘in order to be effective, an organisation’s HR policies must be consistent with other parts of the organisation’ (Delery and Doty, 1996: 803). Wood (1999) defines this as ‘fit’, and identifies four kinds of fit: internal fit, organisational fit, strategic fit and environment fit. US-based practitioners have been slow to adopt the ‘best practice’ perspective and have begun to pay attention to the relationship between HRM and the organisation’s contextual conditions (Jackson and Schuler, 1995). According to their study, HRM is affected by internal and external context, and internal factors including technology, structure, size, organisational life cycle stage, and business strategy, while the external contextual factors include legal, social, and political environments, unionisation rates, labour market conditions, industry characteristics, and national cultures.

Empirically, a host of studies have paid attention to firm strategy-a contingent factor that influences relationships between HRM and performance (Boxall and Purcell, 2000; Datta et al., 2005; Wood, 1999). Other scholars such as Lepak et al. (2003) consider technology an important factor that may contribute to the HPWS - firm

performance relationship. Contextual factors are mainly limited to control variables such as age, sector and unionisation. This chapter aims to investigate other contextual factors that may moderate this relationship, both internal and external.

3.2 Environmental Fit and Industry Characteristics

3.2.1 Industry Level Factors and HPWS

According to the Structure-Conduct-Performance paradigm (Bain, 1956), industry/firm structure and environment will influence the opportunities and threat which face the firm (Porter, 1980, Barney, 2001) These options and constraints will further determine what kind of strategies and actions will be employed to deploy firm's internal resources to achieve above normal profit. In this study, the emphasis here is from a HR perspective on the firm's strategic and operational actions. It has already been shown that generic strategy is associated with particular HRM policies and configurations (Miles and Snow, 1984; Fombrun et al., 1984). It is proposed in this thesis that industry structures, which determine firm strategies and actions, also influence the deployment of HR strategy and practices.

Huselid (1995) contends that the use of SHRM may improve firm performance, but this assertion is not applicable for all firms, environmental volatility will influence the SHRM adoption. He also hypothesises that some contingency factors such as firm size, research and development (R&D) intensity, prior firm growth, capital intensity, and union coverage, as well as environmental stability all influence the adoption of SHRM. Based on the previous researchers (e.g.Huselid, 1993; Datta et

al., 2003), several contingency factors and their interaction with high performance work system will be analysed.

3.2.2 Industry Growth and the HPWS-Performance Link

Industry growth is an important industry characteristic and is prominently appears in the industrial organisational and strategic management literature (Datta and Rajagopalan, 2003). Industries experiencing a higher than average growth rate are either characterised by entrepreneurial decision making, or their growth stage (Anderson and Zeithaml, 1984; Hill and Jones, 1998).

At the growth stage, the first priority is attracting highly skilled employees to sustain this high growth rate; this is because of the ‘war for talent’ in labour markets and product and market uncertainty (Galbraith 1983; Kochan and Barrocci, 1985; Kochan et al., 1984; and Milkovich, Dyer and Mahoney, 1983). Firms in uncertain markets have to pay more attention to product improvements and modifications in order to meet customer’s preferences. Firms in such industries or growth stages need large amounts of skilled and motivated employees in order to transform ideas into marketable products (Schuler and Jackson, 1989). This transformation process needs employees’ innovation in decision making processes, quality circles, and other team work (Kochan and Chalykoff, 1985). In this stage, extensive training and development that aim to enhance employees’ skills, ability, and knowledge are necessary to guarantee the product improvement programme. Meanwhile, a big challenge of firms at this stage is to retain skilled employees, because firms’ ‘human capital resources’ are not only a source of sustainable competitive advantage (Barney, 1991), but also attractive to competitors. Firms are dependent upon ‘having

the right employees at the right place' (Jackson and Schuler, 1989 p: 92). Therefore, providing good compensation packages and more job security to employees is important for firms in a high growth industry. In addition, firms in high-growth industries or in their growth stage will face uncertain market conditions. Human resource management must therefore pay more attention to human resource planning (Miles and Snow, 1978).

By contrast, firms in mature industries or declining industries (Anderson and Zeithaml, 1984) face stable or decreased customer demand and competitors. At this stage, less employee participation is needed for product improvement and modification demands. Firms in this stage tend to adopt a cost-reduction strategy. Correspondingly, HR practices at this stage tend to be routine, so it is unnecessary for the introduction of innovative and costly human resource practices. In summary, industry growth will affect the relationship between high performance work systems and firm performance by influencing adoption of HRM practices. It is reasonable therefore to suggest that.

H2a: Industry growth will moderate the relationship between high-performance work systems and labour productivity, with the relationship being stronger in high growth industries.

H2b: Industry growth will moderate the relationship between high-performance work systems and innovation, with the relationship being stronger in high growth industries.

3.2.3 Industry Dynamism and HPWS-Performance Link

In the strategic management literature, the environment is viewed as an important contextual factor that may impact the firm's strategic direction (Child, 1972; Hamel and Prahalad, 1994). The stability of the environment (industry dynamism) is reflected in the rate and continuity of change within an industry (Dess and Beard 1984). The information uncertainty perspective (Duncan, 1972; Weick, 1979) maintains that greater environmental dynamism will lead to greater environmental uncertainty (Duncan, 1972; Milliken, 1990), and increased difficulty in decision-making (Mintzberg, 1990).

When there is greater change in an environment, executives may face uncertain situations, and they will generate more complex strategies (Li and Simerly, 1998). In addition, under conditions of greater industry dynamism, the effectiveness of monitoring employees' behaviour will be extremely difficult, even impossible. The difficulty and uncertainty associated with dynamic environments require firms to consider not only their strategy, but also their HR deployment. High performance work systems under this condition, is primarily concerned with promoting the organisational capability to adapt to a changing environment (Snell, Youndt, and Wright, 1996). In a dynamic, unpredictable environment, organisations might achieve this through 'organic' (Burns and Stalker, 1961) HR systems that develop human capital pools with a broad range of skills and willingness to engage in a wide variety of behaviour (Wright and Snell, 1998). In dynamic environments, strategic HRM should increasingly promote organisational flexibility by using decentralisation practices in information processing, in order for the firm to achieve a dynamic fit, (Teece et al., 1997). This is vitally important to multinational

companies in particular with larger, diversified, and geographically dispersed divisions, because they are operating in global market with a variety of societies or cultures. It is reasonable to propose that:

H3a: Industry dynamism will moderate the relationship between high-performance work systems and labour productivity, with the relationship being stronger in more dynamic industries.

H3b: Industry dynamism will moderate the relationship between high-performance work systems and innovation, with the relationship being stronger in more dynamic industries.

3.3 Firm level characteristics and HPWS

Besides the influence of external factors such as industry characteristics that have mentioned above, there are a number of internal contextual factors that may affect adoption of HRM (Jackson and Schuler, 1995). The most widely studied firm level factor is a firm's business strategy. Chang and Huang (2005) found an innovative strategy has moderating effect on the relationship between HR practices and organisational performance. Similar results were found in the study by Michie and Sheehan (2005). These two studies support the contingency perspective, because these two studies both proved that the impact of human resource practices on firm performance is contingent on other factors (e.g. firm strategy). In this study, the author aim to explore another of firm level factors in a similar way.

3.3.1 Labour investment and HRM-performance link

According to the work of Tsui and his colleagues, labour investment should be regarded as an important indicator for the employment organisation relationship. Tsui et al. (1995) identified two types of employment organisation relationship, pure economic and social exchange. The pure economic approach with a feature of short-term economic inducements can only get a very limited contribution from employees with specified obligation. In the contrast, the social exchange approach provides employees with both monetary reward and consideration of employee's well being and career development (Tsui, Pearce, Porter, and Tripoli, 1997). In this social exchange relationship, employees gain job security from employers, they are willing to learn knowledge and skills for more complex job assignment, and to take more action beyond the basic duties, because they do believe that their investment will be well reciprocated. Walton (1985) and Arthur (1992) termed this approach a commitment model. High performance work systems which include job security component also aim to enhance employees' commitment and further improve organisational performance. Labour investment which is also called labour cost is commonly understood as monetary rewards to employees, it could be a complementary approach to high performance work systems, because high performance work system emphasise job security, employee commitment, and contingent compensation but pay little attention to the pay level. According to a firm's business and HR strategy, the labour cost is fixed at some level in a specific period, and could be seen as a firm level characteristic. It will affect the relationship between HR practices and firm performance. Tsui, Pearce, Porter, and Tripoli (1997) later extend the employment organisation relationship to four types, in contrast with

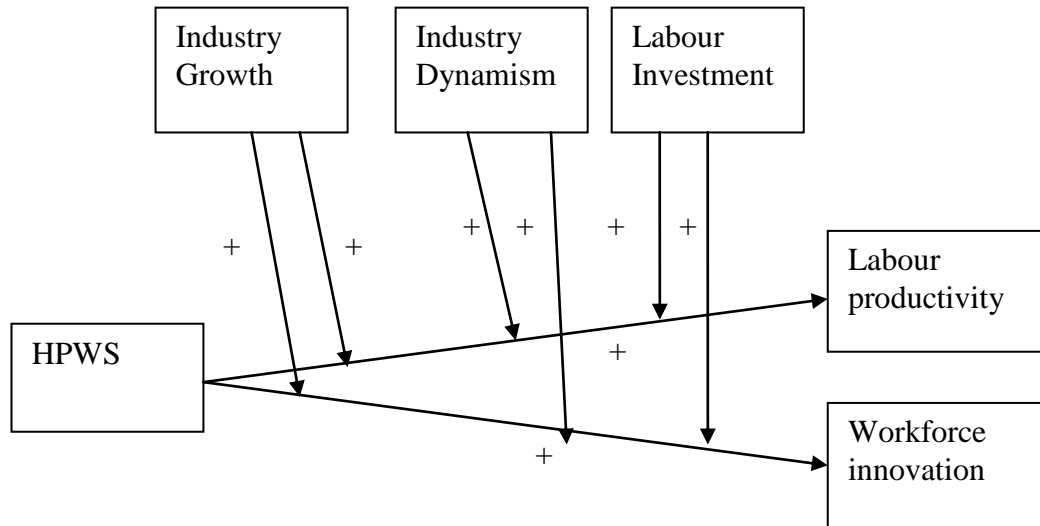
the balanced exchange relationship; they further discussed unbalanced exchange relationship, which includes overinvestment and underinvestment exchange. The overinvestment relationship refers that employee take only a specified set of obligation, but the employer offers very well rewards, on economic perspective, it means a lot monetary stimulation. They found that employees in both the overinvestment and mutual investment relationship had higher performance on core tasks, higher citizenship behaviour, and higher affective commitment than underinvestment approaches. It mean, more monetary investment in employee is associated with desired employee outcome, which will lead to super organisational performances. Based on the above rationale, it might be reasonable to propose that the higher investment in employee in firms with extensive use of high performance work systems will gain higher level of labour productivity and innovation.

H4a: Labour investment will moderate the relationship between high-performance work systems and labour productivity, with the relationship being stronger in more labour investment firms.

H4b: Labour investment will moderate the relationship between high-performance work systems and innovation, with the relationship being stronger in more labour investment firms.

Based on the above rational and hypothesis the perceived research model is represented below

Figure 3.1 Conceptual Research Model with Hypotheses



CHAPTER FOUR RESEARCH METHODOLOGY

4.1 Introduction

This chapter explores the methodological strategy and approach employed to address the research questions and related hypotheses in this study. The chapter contains three sections. The first section describes the epistemological and ontological foundation of this research, and focuses on two epistemological positions: positivism and interpretivism. The second section outlines the research strategy. This section ends with a discussion of the appropriateness of adopting a positivist position, along with quantitative research methods. The third section describes the research design, measurement tools, and the research process.

4.2 Ontological and Epistemological Considerations

All research is underpinned by a set of belief systems or world views, which are called research philosophy. The research philosophy contains important philosophical assumptions about the ways in which people view the world. It is more important to understand the research philosophy and paradigms underpinning a piece of research, before embarking on research project (Guba and Lincoln, 1994: 105), because philosophy provides ‘foundations’ for research and guides social scientists towards adopting appropriate strategies and methods to conduct research (Benton and Craib, 2001:1).

Burrell and Morgan (1979) developed a scheme of different philosophical assumptions related to four sub- disciplines of philosophy to conceptualise the

nature of social science, ontological assumptions about the nature of reality, epistemological assumptions about the nature of knowledge.

Ontology is concerned with the nature of reality; different positions reflect different perceptions of the 'characteristics of existences' (Willis, 2007:9). The central point of ontological debate here is the question of whether the social world can be considered as objective entities that have a reality external to social actors, or whether they can and should be considered as social constructions built up from the perceptions and actions of social actors (Saunders, Lewis, and Thornhill 2003). These positions are referred to respectively as objectivism and subjectivism. Objectivism considers the social world as a tangible, objective reality which exists as strongly as the physical world and external facts to individuals' perceptions. On the other hand, subjectivists have an opposite view to social world, they stress that individual perceptions create reality and social world constitute only names, concepts and labels in our mind, to help us to understand how individuals construct reality. Social phenomena are productions of individual consciousnesses and their actions (Remenyi, 1998). Different ontological positions can lead to various different positions on many issues. Objectivism refers to the foundation of social research conducted in a natural manner, while if the researchers formulate a research problem based on the subjective position, an emphasis will be placed on involvement of social actors. Each case will lead to different approaches to research design and data collection strategy.

4.2.1 Epistemological Consideration

Epistemology concerned with the nature of knowledge, whether knowledge is hard, real, and in a general form, or it is soft, subjective, and generated from unique individual experience (Saunders, Lewis, and Thornhill 2003:103). Epistemology is a crucial foundation for research in both natural and social sciences. The essential issue of epistemology in social research is that whether the social world can be studied according to the principle of natural science (Saunders, Lewis, and Thornhill 2003; Bryman and bell, 2007). This leads an epistemological debate: positivism and interpretivism. Positivism and interpretivism are two competing positions on epistemology; the following table 4.1 displays their characteristics.

Table 4.1 Two Dominate Positions on Epistemology

Assumptions	Positivism	Interpretivism
Reality	Objective Perceived uniformly through the senses Governed by universal laws	Subjective Created Interpreted
Human beings	Rational Obeying external laws With no free will	Creators of the world Assigning meanings to the world Not restricted by external laws Creating systems of meaning
Sciences	Based on strict rules and procedures Deductive Nomothetic Based on sense impressions Value free	Common sense Inductive Ideographic Based on interpretations Value driven
Purpose of research	To explain facts, causes and effects To predict To emphasis facts and prediction	To interpret the world To understand social life To emphasis meaning and understandings

Source: Sarantakos (1993)

Positivism is based on a more objective ontology, which treat reality as objective and external to the researcher's perception (Craig, 1998). The central statements of positivism are that reality can be observed by independent researchers, that findings captured by researchers are universal and researches under investigation are based on strict scientific and value free procedures and stress on logic and mathematics in science (Burrell and Morgan, 1979; Cox and Hassard, 2005). The meaningful statement of reality is derived from hypotheses development and testing.

In social science, positivism is an umbrella term which advocates scientific laws and the use of prediction as a key criterion to explain social phenomenon (Marcuse, 1941; Glynos and Howarth 2008). Positivists try to put 'put the study of human social life on a scientific footing by extending the methods and forms of explanation which have been successful in the natural sciences' (Benton and Craib 2001:28). The procedures for seeking the truth is conducted in a 'value free' way, positivists adopt a realistic perspective, the reality is viewed as objective exist independently not depend on the interpretation of researchers. Correspondingly, a researcher in a positivist study adopts an 'outside' position (Glynos and Howarth 2008).

Positivism adopts a 'realistic ontology' whereby reality is viewed as objective, and is taken to exist independently of the thoughts and language which researchers use to describe it. It is out there to be discovered (Nonaka and Peltokorpi 2006). This objectivistic position adopts a stance 'outside' the social phenomena it seeks to explain (Glynos and Howarth 2008). The positivist ontology, therefore, is based on the view that 'there are objective facts about the world that do not depend on interpretation or even the presence of any person. From this perspective social science is (or should be) value-free' (Glynos and Howarth 2008: 75).

Another feature of positivism is the universal findings. The findings of positivist studies are based on a large sample of observations, a strict and scientific procedure, and they are the highest form of knowledge (Nonaka and Peltokorpi 2006). But this statement arise a limitation of positivism, since the finding are base on researchers' observation, our knowledge of reality is confined to what we can see. We can only verify observable phenomena and their relations but cannot confer truth on unobservables. Opponents always criticize positivism's inability in explaining certain social phenomenon. The voice is associated with an advocate of subjective approach and interpretative philosophy (Polanyi, 1961)

In contrast to positivism, interpretivists assert that the social world cannot be understood as objective, this is a philosophically rooted in subjective ontology and the view that social world is constructed by individuals' cognition. In order to understand this assumption, knowledge is regarded as multiple sets of interpretations that are parts of the social and cultural context in which it occurs. Thus interpretivist assumptions focus on social actors' experience and consciousnesses, which are comprised of the reality of the social world; the purpose of interpretivist research enquiry is to interpret and better understand the social world; as the interpretation and understanding of researchers vary from each other, findings of this research is unique and may be influenced by the researcher's own interests (Firestone, 1987).

4.2.2 Research Paradigm, Methodologies and Methods

Different ontological and epistemological assumptions have direct implications for the research paradigm and methodology (Burrell and Morgan, 1979). According to Sarantakos (1993:30) in terms of research paradigms, two dominant methodologies

emerged, quantitative methodology and qualitative methodology. For many writers, quantitative and qualitative research differs in terms of their epistemological and ontological foundations, and in other respects. The differences between these two methodologies are summarised in table 4.2

Table 4.2 Fundamental Differences between Quantitative and Qualitative Research Strategies

	Quantitative	Qualitative
Principal orientation to the role of theory in relation to research	Deductive; testing of theory	Inductive; generation of theory
Epistemological orientation	Natural science model, in particular positivism	Interpretivism
Ontological orientation	Objectivism	Constructionism

Source: (Bryman and Bell, 2003)

Quantitative methodology is based on positivism, and emphasises quantification in data collection and analysis of those data. By contrast, qualitative methodology is based on interpretivism, and focuses on words rather than quantification in data collection and analysis. The former methodology is a nomothetic approach and places an emphasis on the importance of ‘systematic protocol and technique’ and rigorous hypotheses testing processes (Burrell and Morgan, 1979:6); while qualitative methodology comprises an ideographic approach, and focuses on ‘getting inside’ situations in order to ‘unfold its nature and characteristic’ during the study (Burrell and Morgan, 1979:6). Both these methodologies have their strengths and weaknesses. It is not appropriate to say one is better than another, as the adoption of a methodology is influenced by many other factors for example, ontology, epistemology, values, theory and practical considerations (Bryman and Bell, 2003).

Quantitative research has been the dominant strategy for business research, in the human resource management area; positivism is still an influential and widely used research paradigm. It is possible to explain the relationship between human resource management and the performance, but impossible for word analysis (Marchington and Wilkinson, 2005).

4.3 Positivism Paradigm in HRM Research

Creswell (2003) suggested that the choice of a paradigm employed by researchers depends upon the ways in which previous studies have been adopted in similar situations, existing theories in the area, research questions, known variables, and the extent to which validated measures have been developed to assess those variables. In addition, practical factors such as time constraints, access opportunities and availability of resources should also be taken into account. The search for a measurable link between HR practices and organisational performance currently preoccupies academics and practitioners (Fleetwood and Hesketh, 2006). In this field, Karami, Rowley and Analoui (2006) explored the nature of methodologies employed in 120 articles published in 20 leading management journals between 1991 and 2000. This study found that, despite the wide range of methods employed in management research, ‘the dominance of questionnaires as data collection tools suggests a leaning towards positivism’. Wall and Wood (2005) suggest that large samples, and long term quantitative research, including partnerships among researchers, practitioners and government communities is a reflection of the question addressed.

There are criticisms about this positivist approach. Some researchers suggested that it is possible for surveys to demonstrate the links between HRM and performance, but a positivist approach does not explain why this phenomenon occurs (Marchington and Wilkinson, 2005; Remenyi et al., 1998). Others criticise positivist approaches for reducing situations and isolating discrete variables for analysis, since most of the situations in organisation are more complex and require a more flexible and integrative approach (Remenyi et al., 1998; Miller, 1999). Benton and Craib, (2001) criticise positivist for reducing humans to objective entities, they argued that human beings should be incorporated into research, science human beings have feelings and interpretation, their interaction with researchers in the study cannot be ignored. Gill and Johnson who support this view suggested that ‘human beings ...interpret and perceive meaningful actions and are able to reflect and monitor these actions, thus provide the sources of explanation of human action in social science research’ (1991: 126).

Positivists might respond, however, that no methodology is without flaws or criticism, and there is no perfect measure that can cover everything about people or a phenomenon, this does not necessarily mean that there is no point or value in adopting this approach because of some flaws. Thus, researchers are reminded that, ‘what is required of measurement is that it reflects adequately the variable of interest within the model that is being employed’ (Miller, 1999:5).

For this research, the positivist approach and quantitative method might be more appropriate than others. This study aims to explore the impact of high performance work systems on firm performance, and the moderating effect of contextual factors on this HRM-performance relationship. There are a large number of researches

examine HRM-performance relationship, but most of them have not succeeded in establishing a causal relationship between HRM and performance outcomes (Cascio 2007). Most of these studies used correlational relationships rather than causal relationship; even though they agree that the use of human resource practices is associated with an increase in performance. Because there are a large number of factors that may lead to performance increase, some of the variables may not be able to be observed because of our knowledge of reality. Alternative approaches have been discussed to study the HRM and performance relationship, for example, interpretative and critical realistic. Nevertheless most of the studies on the relationship between HRM and performance link are based on positivistic approaches. In this study, the author is aware of the limitations and tries to minimise any problems that might be caused by the positivist approach. To reduce the influence of human beings', the measurement of performance variables and contextual factors are based on secondary data. Moreover, this research is consistent with the mainstream research methods in business studies, by adopting a survey to estimate the implementation of high performance work systems in each company.

4.4 Research Design and Process

This study is based on a previous project, which was conducted during 2005- 2006 by seven team members from two universities and sponsored by the National Centre of Partnership and Performance (NCPP) in Ireland. The implementation of HPWS in the target firms was obtained from this NCPP survey, while other data related to industry and firm level characteristics was obtained from various other sources. For example, HPWS implementation among companies, firm level moderators and other

organisational information was collected from HR managers, general managers. Objective company performance data comes from the Business World database and industry level moderators were taken from the Central Statistics Office.

This study employed a survey-based methodology to collect HR implementation and other related firm level information. This survey was conducted in June 2006, and shared the same strategy with studies by other scholars (Selvarajan et al., 2007; Guthrie, 2001; Flood et al., 2005; Datta et al., 2005)

The target sample included indigenous Irish companies and foreign-owned companies listed as among the top 1000 companies in Ireland from Business World. 1005 companies were contacted to participate in this survey. This survey was sent directly to HR managers and general managers or CEOs of each company. The cover letter explained that the survey was sponsored by National Centre for Partnership and Performance (NCPPI). The questionnaires asked for information on human resource management practices, firm turnover, and other firm characteristics. Both HR managers and general managers were asked to complete questionnaires on their own part, or forward to other employees who were in a position to respond. After a number of reminder letters and calls to companies, 241 companies response from either HR managers, general managers or both of them. Due to missing responses on some items that are vital for later analyses, some companies with missing response were deleted. 132 companies completed both questionnaires, resulting in an overall response rate of 13.2 per cent. This is acceptable when compared with other survey-based HR studies. According to a review of Becker and Huselid (1998), similar studies have a response rate with an average of 17.4 per cent (Guthrie, 2001).

Information provided in the HR survey indicated that, 70 per cent of the respondents were from HR functions, with titles including human resource manager, human resource director and personnel manager. Twenty per cent of respondents were from other senior executives, for example, CEOs, managing directors, and 10 per cent were other executives, financial officers and operating managers. For the GM survey, 70 per cent of respondents were senior executives, with titles including managing director and CEO, and 30 per cent were other executives, HR managers, financial officers and operating officers.

4.5 Measurement of Variables

4.5.1 High Performance Work Systems

There are several approaches to measuring high performance work systems in the literature (Delaney, Lewin, and Ichniowski, 1989; Huselid, 1995; Guthrie, 2001; Datta et al., 2005). The measure used in this study was based on the work of Guthrie (2001) and Datta et al (2005). Questionnaires regarding high performance work systems consist of 18 items covering most subjects regarding human resource management, for instance, staffing and recruitment, training and development, communication and participation, performance appraisal and remuneration.

Respondents in this survey were asked to describe the implementation of high performance work systems and other organisational characteristics in their firms. Since the use of HR practices varies across departments or employee groups in each firm (Huselid, 1995), questions concerned the use of employees. Group A comprised production, maintenance, service and clerical employees, while group B comprised executives, managers, supervisors and professional/technical employees. Employees

were asked to estimate the proportion of employee groups covered by each HR practice on a continuous scale. The scores range from 0 (make no use of HPWS) to 100 per cent (make full use of them) (Guthrie, 2001). Using the proportion of employees covered by each HR practice in each occupational group, and the number of employees in each group, the author computed a weighted average for each practice, and then these scores were converted to Z-scores (Guthrie, 2001). The Cronhach's Alpha for this measure was .85. The sample of high performance work systems questionnaires and average scores of 18 items are presented in Table 4.3.

Table 4.3 HPWS in Irish Companies

Staffing:	
What proportion of your employees.....	Pct. Score
Are administered one or more employment tests (e.g., skills tests, aptitude tests, mental/cognitive ability tests) prior to hiring?	24.19%
Are hired on the basis of intensive/extensive recruiting efforts resulting in many qualified applicants?	57.67%
Hold non-entry level jobs as a result of internal promotions (as opposed to hired from outside of the organisation)?	34.37%
Hold non-entry level jobs due to promotions based upon merit or performance, as opposed to seniority?	44.99%
Training & Development:	
What proportion of your employees.....	Score
Have been trained in a variety of jobs or skills (are "cross trained") and/or routinely perform more than one job (are "cross utilized")?	53.72%
Have received intensive/extensive training in company-specific skills (e.g., task or firm-specific training)?	73.58%
Have received intensive/extensive training in generic skills (e.g. problem-solving, communication skills, etc.)?	37.23%
Performance Management & Remuneration:	
What proportion of your employees.....	Score
Receive formal performance appraisals and feedback on a routine basis?	67.32%
Receive formal performance feedback from more than one source (i.e., feedback from several individuals such as supervisors, peers etc.)?	20.57%
Receive compensation partially contingent on <i>group</i> performance (e.g., profit-sharing, gainsharing, team-based)?	34.44%

Are paid primarily on the basis of a skill or knowledge-based pay system (versus a job-based system)? That is, pay is primarily determined by a person's skill or knowledge level as opposed to the particular job that they hold	28.16%
Communication & Participation:	
What proportion of your employees.....	Score
Are involved in programmes designed to elicit participation and employee input (e.g., quality circles, problem-solving or similar groups)?	36.88%
Are provided relevant operating performance information (e.g., quality, productivity, etc.)	72.22%
Are provided relevant financial performance information?	68.04%
Are provided relevant strategic information (e.g., strategic mission, goals, tactics, competitor information, etc.) ?	67.41%
Are routinely administered attitude surveys to identify and correct employee morale problems?.	37.63%
Have access to a formal grievance/complaint resolution procedure	96.17%
Are organized in self-directed work teams in performing a major part of their work roles?	36.09%
	Average score
HPWS Index	48.81%

4.5.2 Performance measures

Labour productivity

Labour productivity was recognised as a crucial indicator of organisational outcomes (Delery and Shaw, 2001), and is most frequently used in similar studies (Huselid, 1995; Koch and McGrath, 1996; Guthrie, 2001; Boselie and Dietz, 2003; Datta et al., 2005). In this study, labour productivity is defined as total output divided by labour inputs (Samuelson and Nordhaus, 1989), which indicates the effectiveness of a firm's human capital in creating output/value, and also bridges the 'soft' HRM and 'hard' financial outcomes (Boselie and Dietz, 2003). A logarithm of sales per employee was used as a measure of labour productivity. The data on these items such as sales and number of employee were collected from the questionnaires from both HR manager and general managers. It should be noticed that this approach is criticised for not considering the long term profitability and labour cost

increases accompanied with revenue generation, although scholars still agree that it is a 'necessary condition' (Guthrie, 2001).

Workforce Innovation

Another indicator of firm performance is workforce innovation itself. This is a very broad concept and, as a result, various classifications of innovation have been developed and applied in the economic literature (Cumming, 1998; Grunert et al., 1997; Johannessen et al., 2001). Lundvall (1992) defined innovation in four dimensions: new products; new techniques; new forms of organisations; and new markets. Innovation has been studied extensively, but there is still no generally accepted way of measuring innovation. Some research is based on published R&D expenditures and patent data (Breschi, 1999; Malerba and Orsenigo, 1995), while others rely on measurements derived from survey among companies (Diederent et al., 2000).

Workforce innovation in this study was measured by financial results derived from product and services innovation, respondents were asked to estimate: "what proportion of your organisation's total sales (turnover) comes from products or services introduced within the previous 12 months?". The answer to this question was multiplied by total sales in order to yield an estimate of sales revenue generated by new sales. This scales figure was then divided by the number of employees to obtain the measure of workforce innovation-an indication of per capita sales derived from recently introduced products or services (Flood et al., 2005, 2008).

4.5.3 Moderator variables

Industry sectors: Target companies in this study were divided into ten sectors according NACE Rev. 1.1 and NACE Rev.2 (European industrial activity classification) and sectors and distribution of the firms are presented in Table 4.5

Table 4.4 Industry Sectors and Distribution of ‘Top 1000 Companies’

Industry Sectors	NACE code	Number of companies
1. Agriculture	1-3	29
2. Energy and Water	10-14,40	13
3. Chemicals and Non-fuel minerals	24,26,28	81
4. Metal manufacturing and engineer	27,29-35	82
5. Other Manufacturing	15-22,23,25,36,27	204
6. Construction	45	107
7. Destruction, Catering, Transport etc.	50-52, 55	218
8. Transport and communication	60-64	79
9. Finance, Business Services	65-71	120
10. Other Services	72-93	72

Industry growth

Industry growth was measured by the average five-year annual growth rate. This is a widely used approach in measuring industry growth (Hambrick and Abrahamson, 1995; Rajagopalan & Datta, 1996). However, considering the transfer pricing effects of multinational companies, we take the average of Gross Value Added (GVA) of five years (2000-2005) as the final industry growth figure, data for GVA of each sector was obtained from dataset available in CSO (Central Statistics Office) of Ireland.

Industry dynamism

Industry dynamism is an important indicator in measuring environmental stability. It is also called industry volatility in other studies (Slevarajan et al., 2007). It will have strong influences on firm strategic decision. Many approaches have been applied to measure industry dynamism. Some researchers relied on the survey-based approach (Slevarajan et al., 2007), while others, such as Keats and Hitt (1988) and Youndt et al., (1996), adopted quantitative methods. In this industry, the author followed Keats and Hitt's approach (1988), using two steps; first, natural logarithms of sales for each industry for the three years were regressed against time, and then, antilogarithms of standard errors from these models were calculated.

Table 4.5 Descriptive Statistic on Moderator Variables by Industry Sectors

Industry Sectors	Average Industry growth	Average Industry dynamism
Agriculture	0.031199	1.144888653
Energy and Water	0.128144	1.132448394
Chemicals and Non-fuel minerals	0.048037	1.115132909
Metal manufacturing and engineer	-0.00609	1.11436797
Other Manufacturing	0.051049	1.113571228
Construction	0.053286	1.070691056
Destruction, Catering, Transport etc.	0.042187	1.061613955
Transport and communication	0.125127	1.089235964
Finance, Business Services	0.060179	1.07329365
Other Services	0.06706	1.087094177

Labour cost/ labour investment

The measure of labour cost was taken from responses to the following survey items, the respondents were asked to estimate the ‘percentage of total annual operating expenses accounted for by labour costs in your organisation?’. This question was asked separately for both HR managers and general managers. A weighted average of these separated estimates was computed to represent the overall average rate of labour investment/cost for each firm.

4.5.4 Control variables

The following control variables were used during the regression analysis:

Firm size: number of employees is used to indicate firm size. Both general managers and HR managers were asked to estimate ‘total number of your employees in your local organisation’. To calculate this figure, a log transformation of the mean of both respondents’ replies was used.

Firm strategy: in this study, 11 items were used to assess the current position of target organisation relative to its competitors. In such a way it is possible to measure the extent to which a firm pursued a cost leadership strategy ($\alpha=.739$).

Firm unionisation: this measure was taken from the question ‘what proportion of your workforce is unionised?’ a weighted average of response for group A and Group B was used to compute unionisation.

CHAPTER FIVE: ANALYSIS AND RESULTS

5.1 Analyses strategy

Hypotheses 1 in the study posits the main effect of high-performance work systems on outcome variables. We used multiple regressions to test these hypotheses.

Hypotheses 2 to 4 in the study posit the moderation effect of industry characteristics and organisational characteristics. In order to test this moderating effect, we conducted moderated regression analyses suggested by Pedhazur (1982). In the first step, we entered the firm size, firm strategy, and level of employees' unionisation variables as covariates. In the second step, we entered the perceived high-performance work systems and industry and firm-level characteristics. In the third step, we entered the interaction variables between the perceived high-performance work systems and industry/ organisational-level characteristics. We used an F-ratio test for the incremental variance for examining the significance of the betas to test for the main and moderating effects.

5.2 Analysis Results

This section presents the results of the multiple regression models and moderated regressions that are proposed in this study. The multiple regression models were intended to test the positive effects of high-performance work systems on both outcome variables. The moderation effects model, which is the key element of this study, was conducted to examine industry/ organisational characteristics moderating the above positive relationship. Table 5.1 presents the means, standard deviations and correlations among variables used in the study.

Table 5.1 Mean, Standard Deviation and Correlation

	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9
1. Labour productivity	5.7200	1.14583	1								
2. Workforce innovation	3.1187	1.60555	.732**	1							
3. High-performance work systems	48.8109	19.95226	.366**	.381**	1						
4. Industry growth	.0538	.03079	.130	.003	.142	1					
5. Industry dynamism	1.0948	.02352	-.132	-.126	.135	.011	1				
6. Firm size	5.7138	1.03114	-.577**	-.273*	.125	-.037	.178	1			
7. Firm strategy	3.3962	.48095	-.224	-.226*	.017	-.116	.239*	.277**	1		
8. Firm unionisation	28.5391	29.58052	-.042	-.035	.021	-.052	.366**	.245*	.153	1	
9. Firm labour investment	36.4708	17.66954	-.299*	-.161	.131	.217*	-.074	.151	.170	-.138	1

* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

*** Correlation is significant at the 0.001 level (1-tailed).

Table 5.2 presents the results of the regression analyses with labour productivity and workforce innovation as dependent variables to test the main effects models posited by hypotheses 1 and the moderating effect models posited by hypotheses 2, 3, 4

Table 5.2 Results of Multiple Regressions with Two Outcome Variables

Variables	Labour productivity			Workforce innovation		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Step 1: control						
Firm size	-.466*** .087	-.495*** .084	-.459*** .083	-.183 .140	-.268 .145	-.229 .142
Firm strategy	-.062 .183	-.110 .178	-.106 .176	-.289 .292	-.395 .308	-.476 .299
Firm unionisation	.002 .003	.004 .003	.001 .003	-.001 .005	.003 .005	-.001 .005
Step 2: independent						
high-performance work systems	.015*** .004	.019*** .004	.035*** .009	.016* .007	.024*** .007	.058*** .015
industry growth	.682 2.748			-4.810 4.390		
industry dynamism		-2.642 3.828			-5.860 6.601	
labour investment			.017 .014			.047 .024
Steps 3 interaction						
industry growth X HPWS	.211 .140			.736** .224		
industry dynamism X HPWS		.421* .184			.411 .317	
Labour investment X HPWS			-.001* .000			-.001* .000
Intercept	7.758*** .721	10.790** 4.061	7.312*** .746	4.642*** 1.152	.11.186 7.003	3.570** 1.270
R ²	.411	.439	.459	.280	.202	.249
Δ R ²	.018	.040	.030	.105	.018	.062
F for ΔR ²	8.613***	9.666***	10.455***	4.808***	3.144**	4.094**

* is significant at the 0.05 level.

** is significant at the 0.01 level.

*** is significant at the 0.001 level.

5.3 Findings of Main Effect

In Table 5.2, the second step shows six regression models that relate to two outcome variables. Hypothesis 1 relates to the relationship between adoption of HPWS and firm performance, including labour productivity (H1a) and workforce innovation (H1b). Correlation findings in Table 5.1 show a positive relationship between HPWS and both performance indicators. The standardised coefficient beta (B) for HPWS was used following previous studies (Huselid, 1995; Becker and, Gerhart, 1996).

Regression results in Table 5.2 also show significant positive associations between HPWS and firm performance, with ($\beta=0.34$; $p<.05$) against workforce innovation and ($\beta=.383$; $p<.001$) against labour productivity. In practical terms, this means a one-standard deviation increase in HPWS is associated with a .34 increase in workforce innovation and a .383 increase in labour productivity. These findings are consistent with previous studies, for example Huselid (1995), Laursen and Foss (2003) and Datta et al. (2005). The findings are supportive of hypothesis 1 in this study; that the use of high-performance work systems will lead to an increase in labour productivity and more benefit derived from workforce innovation.

Labour productivity in this study is defined as sales revenue per employee (Huselid, 1995, Guthrie, 2001), the results regarding the main effects suggested that companies with extensive usage of HPWS will gain an increase in revenue per employee. When other factors are held constant, firms will gain a 1.8 per cent increase in productivity. This provides an encouragement for a firm to adopt HPWS,

as there is strong evidence that high-performance work systems are associated with higher labour productivity.

Workforce innovation is another important indicator of organisational outcomes. In this study, workforce innovation is defined as gains that are derived from the introduction of new services and products within the last twelve months. This indicator reflects a workforce's creative ability and work motivation. The finding for this indicator also supports the AMO theory proposed by Appelbaum et al (2000) that the adoption of HPWS facilitates employees' ability, motivation, and opportunity to participate in pursuing organisational goals. The regression result against workforce innovation shows a significant increase in workforce innovation. With other factors held constant, a one-standard-deviation increase in the usage of high-performance work systems is associated with a 10.5 per cent improvement in workforce innovation. This evidence should encourage practitioners to adopt HPWS more extensively in their companies in order to get more benefits from workforce innovation.

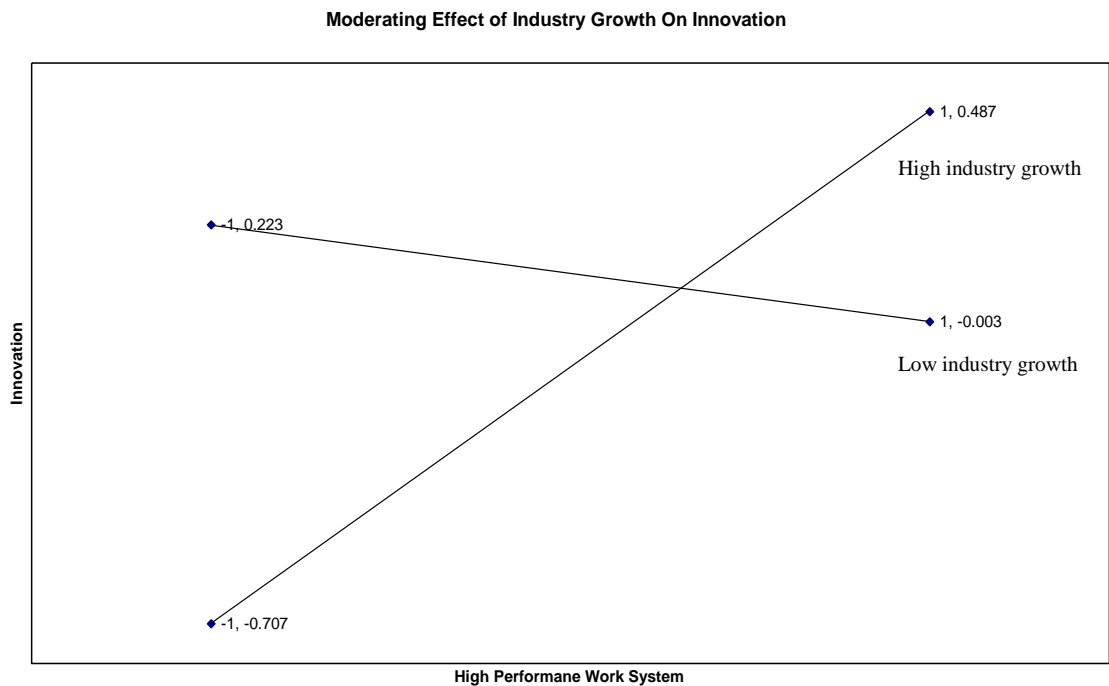
5.4 Findings of Moderating Effect

5.4.1 Industrial-Level Moderating Effects

Results in Table 5.2 also show the relationship between interaction terms and outcome variables. In model 1, we introduced the interaction term of high-performance work systems and industry growth, the result in model 1 shows that the interaction term between high-performance work systems and industry growth was not significant in the regression model against labour productivity, suggesting that industry growth does not moderate the relationship between high-performance work

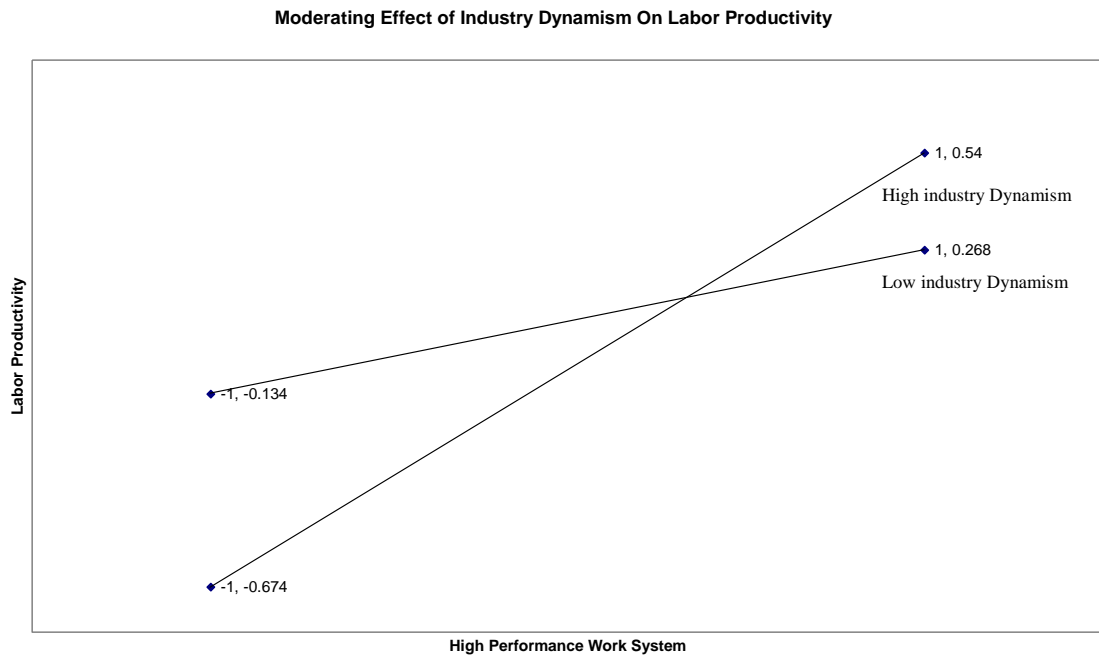
systems and labour productivity. Hypothesis 2a was not supported by the results. While, hypothesis 2b was supported by model 4, which shows that industry growth has a moderating effect on the relationship between HPWS and workforce innovation. With a significant coefficient at ($\beta=.736$; $p<.01$), the standardised coefficient beta for the interaction of HPWS and industry growth was ($\beta=.355$; $p<.01$). In practical terms, this meant that in high growth industries, while other factors held, a one standard deviation increase in high-performance work systems is associated with a 5.9 per cent increase in workforce innovation (see Figure 5.1). In contrast, in low growth industries a one standard deviation increase in high-performance work systems is associated with a 1.1 per cent decrease in workforce innovation. This means that it is much more appropriate for higher growth industries to adopt high-performance work systems, rather than lower.

Figure 5.1 Moderating Effect of Industry Growth on the Relationship between HPWS and Workforce Innovation



Hypothesis 3 tests the moderating effects of industry dynamism on the HRM-performance linkage. The regression results shown in Table 5.1 indicate that this hypothesis is partially supported; that industry dynamism has a moderating effect on the relationship between high-performance and labour productivity. The coefficient of interaction of HPWS and industry dynamism was ($\beta = .421$; $p < .05$), the standardised coefficient beta for the interaction of HPWS and industry growth was ($\beta = .203$; $p < .05$). In practical terms, this means that in more dynamic industries, with other factors held constant, a one standard deviation increase in high-performance work systems is associated with a 6.1 per cent increase in labour productivity (see Figure 5.2). On the other hand, in less dynamic industries one standard deviation increase in high-performance work systems is associated with a 2.0 per cent increase in labour productivity. The extent of this increase in labour productivity in more dynamic industries is much more significant than in less dynamic industries. This means that it is much more economic for dynamic industries to adopt a high-performance work system, especially for those large companies. In conclusion, if a firm wishes to achieve high level of labour productivity, it is more appropriate to invest in more, rather than less, dynamic units when they have a limited HR investment budget.

Figure 5.2 Moderating Effect of Industry Dynamism on the Relationship between HPWS and Labour Productivity



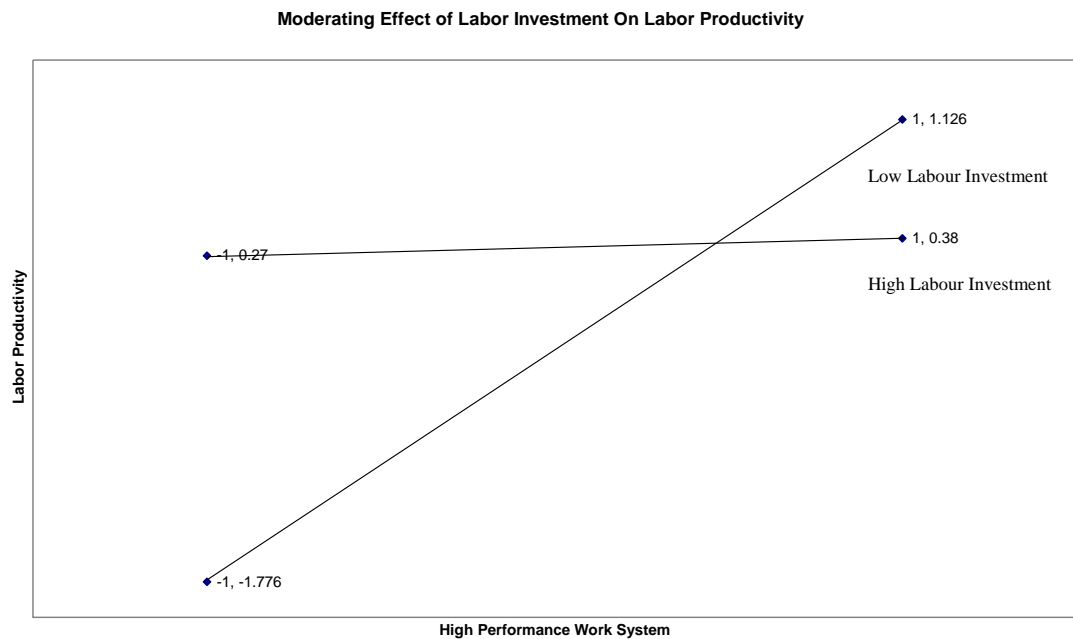
However, the result in model 5 shows that interaction between high-performance work systems and industry dynamism was not significant in the regression against workforce innovation, suggesting that industry dynamism does not moderate the relationship between high-performance work systems and workforce innovation. Accordingly, hypothesis 3b was not supported by the results.

5.4.2 Organisational-Level Moderating Effects

As indicated in model 3, the interaction term comprised of high-performance work systems and firm labour investment was negatively significant in the regression model ($\beta = -.001$; $P < .05$), suggesting that firm labour investment moderated the relationship between high-performance work systems and labour productivity. An interaction plot shows (Figure 3) that firms which made less use of high-performance work systems and invest more money in human capital tended to have

higher labour productivity than similar firms which have less labour investment. However, firms with greater usage of high performance work systems and less investment in human capital tended to obtain higher labour productivity than firms that have more labour investment. This result rejects the third hypothesis that firm labour investment moderated the relationship between high-performance work systems and labour productivity, with a stronger relationship in higher labour investment firms. The coefficient of interaction of HPWS and labour investment was ($\beta = -.001$; $p < .05$), the standardised coefficient beta for the interaction of HPWS and labour investment was ($\beta = -.998$; $p < .05$). In practical terms, this meant in firms with less investment in labour investment, with other factors constant, one standard deviation increase in high-performance work systems is associated with a 14 per cent increase in labour productivity (see Figure 3). On the other hand, in firms with more investment in labour cost, a one standard deviation increase in high-performance work systems is associated with hardly any increase in labour productivity. The extent of the increase in labour productivity in less labour investment firms is much more significant than in firms which have more such investment. This means it is significantly more economic for a firm with less investment in labour cost to adopt a high-performance work system than it is for firms with more investment in labour cost, especially for large companies. In conclusion, if a firm wants to achieve high level of labour productivity, it is more appropriate to invest in units with less labour investment when they have limited HR investment budget.

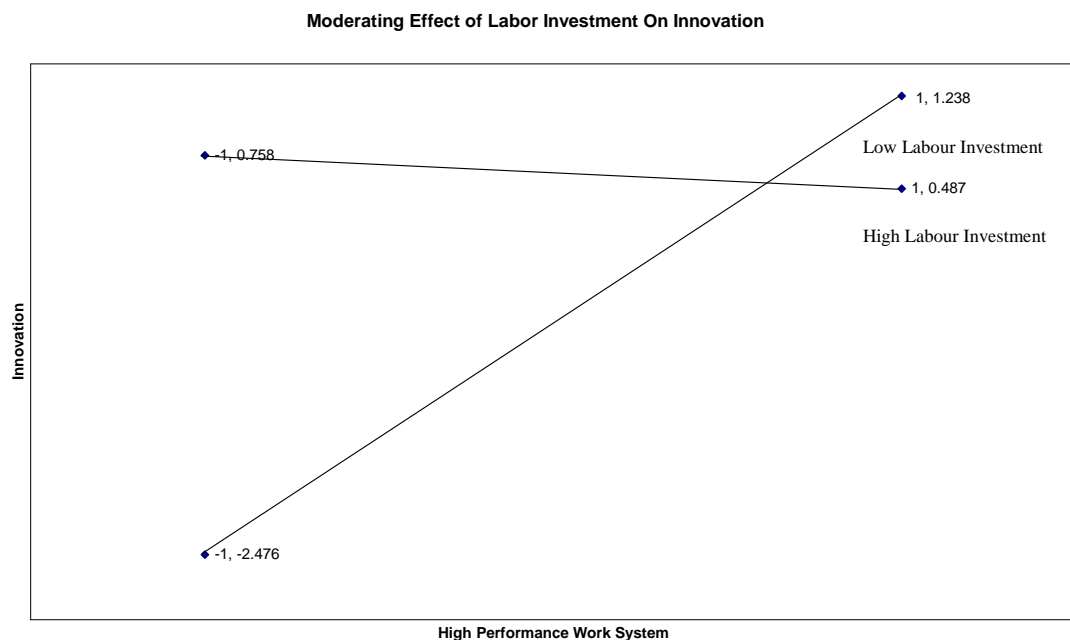
Figure 5.3 Moderating Effect of Labour Investment on the Relationship between HPWS and Labour Productivity



On the other hand, as indicated in model 6 the interaction between high-performance work systems and firm's labour investment was also negatively significant in the regression model. The coefficient of interaction of HPWS and labour investment was ($\beta = -.001$; $p < .05$), the standardised coefficient beta for the interaction of HPWS and labour investment was ($\beta = -.698$; $p < .05$). In practical terms, this meant that in firms with less investment in labour, all other factors being equal, a one standard deviation increase in high-performance work systems is associated with an 18.3 per cent increase in workforce innovation (see Figure 5.4). On the other hand, in firms with more investment in labour, a one standard deviation increase in high-performance work systems is associated with a slight decrease in workforce innovation. The extent of an increase in workforce innovation in less labour investment firms is much more significant than those firms with more labour investment. This means it is considerably more economic for firms with less

investment in labour cost to adopt a high-performance work system than it is for firms with more investment in labour cost. This difference is more obvious for those large companies with multiple units. In conclusion, for a firm which wants to achieve workforce innovation, it is more appropriate to invest in units with less labour investment when they have a limited HR investment budget.

Figure 5.4 Moderating Effect of Labour Investment on the Relationship between HPWS and Workforce Innovation



5.5 Conclusion

The primary objective of this research is to investigate the moderating effects of industry and organisational characteristics on the relationship between HPWS and firm performance in an Irish context. Using data from 132 companies and secondary data from official websites, a regression result shows that several hypotheses were partially supported.

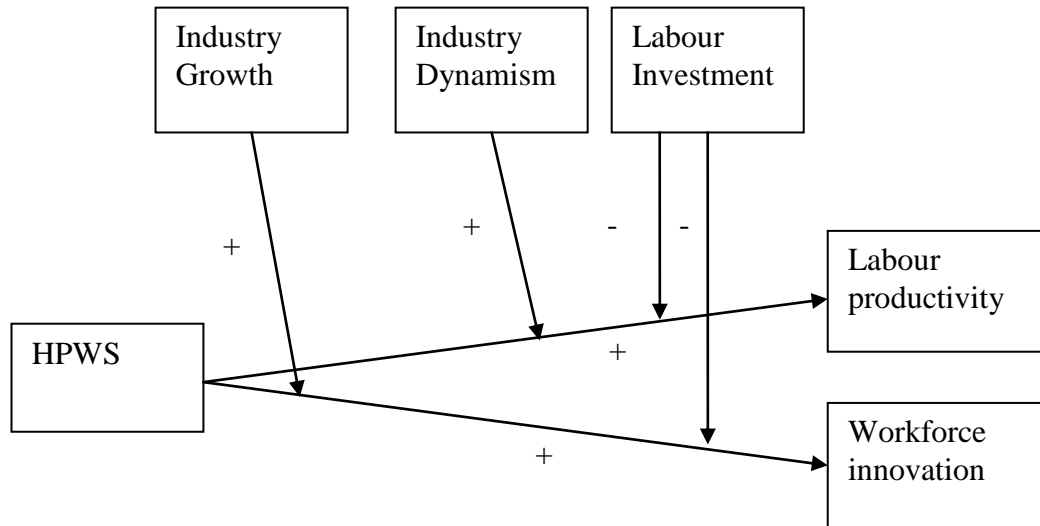
Table 5.3 Summary of Findings

Hypotheses	Findings
<ul style="list-style-type: none"> ● HPWS will have positive effect on a firm’s labour productivity, in such a way that greater use of HPWS will receive higher labour productivity (H1a). 	Supported
<ul style="list-style-type: none"> ● HPWS will have positive effect on a firm’s innovative ability, in such a way that greater use HPWS will receive higher profit from work force innovation (H1b). 	Supported
<ul style="list-style-type: none"> ● Industry growth rate will moderate the relationship between HPWS and labour productivity in such a way that a higher use of HPWS will result in higher labour productivity when the industry growth rate is higher rather than lower. (H2a) 	Not Supported
<ul style="list-style-type: none"> ● Industry growth rate will moderate the relationship between HPWS and innovation in such a way that a higher use of HPWS will result in higher innovation when the industry growth rate is higher rather than lower (H2b). 	Supported
<ul style="list-style-type: none"> ● Industry dynamism will moderate the relationship between HPWS and labour productivity in such a way that a higher use of HPWS will result in higher labour productivity when the industry dynamism is higher rather than lower (H3a). 	Supported
<ul style="list-style-type: none"> ● Industry dynamism will moderate the relationship between HPWS and innovation in such a way that a higher use of HPWS will result in higher innovation when the industry dynamism is higher rather than lower. 	Not Supported
<ul style="list-style-type: none"> ● Firm labour investment will moderate the relationship between HPWS and labour productivity in such a way that a higher use of HPWS will result in higher labour productivity when the firm labour investment is lower rather than higher (H4a). 	not supported
<ul style="list-style-type: none"> ● Firm labour investment will moderate the relationship between HPWS and innovation in such a way that a higher use of HPWS 	not supported

will result in higher innovation when the firm's labour investment is lower rather than higher (H4b).	
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Certain hypotheses were supported in this research, while others were not. A positive relationship between HPWS and firm performance was fully supported (H1a, H1b). Similar significant relationships were found between the interaction of organisational characteristics and HPWS and performance relationship (H4a, H4b). The moderating effects of industry characteristics were not fully supported; results show that industry growth has a moderating effect on the relationship between HPWS and workforce innovation (H2b) but has no significant effect on the relationship between HPWS and labour productivity (H2a). In contrast, industry dynamism has a moderating effect on the relationship between HPWS and labour productivity (H3a) but has no significant effect on the relationship between HPWS and workforce innovation (H3b).

Figure 5.5 Revised Conceptual Research Models with Findings



CHAPTER SIX

DISCUSSION OF FINDINGS

6.1 Introduction

This chapter aims to subject the research findings to a detailed analysis, with reference to the literature discussed in chapters two and three. It includes a discussion of key findings that relate to the research questions and hypotheses in the previous chapters. It begins with explanations relating to the main effects of HPWS on firm performance. This is followed by a detailed discussion of the moderating effects of both industrial level and firm level characteristics on the relationship between HPWS and firm performance.

6.2 Main Effect of HPWS on Firm Performance

The results regarding the main effects in this study revealed that the adoption of HPWS has a positive effect on a firm's labour productivity (H1a) and workforce innovation (H1b). These findings are consistent with some previous studies, for instance, MacDuffie (1995), who conducted a single industry study in 62 assembly plants in the US and found that plants with innovative work systems and HR systems had superior labour productivity and quality compared to traditional ones. A similar study conducted by Huselid (1995), also indicates that HPWS had a significant impact on workforce productivity. Datta, Guthrie and Wright (2005) conducted a study based on 132 manufacturing firms and found positive effects of HPWS on labour productivity. The positive effects of HPWS on labour productivity were also found in other countries. For example, Guthrie (2001) found evidence in New Zealand companies that strong use of high involvement work practices will

yield an increase in labour productivity. Flood et al., (2005, 2008) designed a cross sectional study covering 13 sectors to examine the effectiveness of high performance work systems in Ireland, with the results generally supporting the hypothesis that greater use of HPWS is associated with higher labour productivity. Ramsay et al., (2000) use a national employee survey from the UK, and proved that HPWS is positively associated with higher labour productivity.

It is also said that the effectiveness of HPWS is significant in manufacturing firms, rather than services firms. Because manufacturing firms are generally capital intensive firms, they are dominated by production technology (Park et al., 2010), manufacturing firms need more knowledge workers to use these high technologies. This conclusion may be derived from the fact that research on the effectiveness of human resource management from its earliest inception were mainly conducted in manufacturing sectors, such as auto assembly and steel production plants, and metal working plants (Arthur, 1994; MacDuffic, 1995,; Huselid, 1995, Youndt et al., 1996; Ichniowski et al., 1997). Only a few studies have examined the effect in services firm (Batt, 2000; Doty and Delery, 1996). This study contributes to the empirical research by conducting a cross-sectional study which involved 13 sectors. The positive result in this study partly supports the universalist perspective.

Another issue that should be noted is that, early studies about the effect of HPWS on firm performance mainly focused on the direct relationship. Recently a trend has emerged that sees more scholars trying to open the 'black box'; to investigate the mechanisms through which HPWS works (Ramsay et al., 2000). There is a diversity of mediators and mechanisms through which HPWS works on firm performance.

Huselid (1995) used a sample of 1000 firms to test the effects of HPWS on firm performance, and found that employee turnover and productivity mediate the relationship between HPWS and corporate financial performance. Ramsay et al., (2000) received a similar result based on WERS 98 data, which workers' outcomes mediate between the HPWS and performance. Ostroff and Bowen (2000) take culture as an important mediating variable of the HPWS and performance relationship. Harris and Ogbonna (2001) conducted a mediating study in UK firms; the result shows that HPWS and firm performance were mediated by a firm's market orientation. Collins and Clark (2003) found that top management teams' social networks linked HPWS and firm performance. A widely accepted mediating variable was proposed by Youndt and Snell (2004), who recognise intellectual capital as an important mediator between HPWS and performance.

The hypothesis 1b aims to test the effect of HPWS on workforce innovation. The results in previous chapters support this hypothesis. Workforce innovation is another important indicator of organisational outcome. In this study, workforce innovation is defined as gains that are derived from the introduction of new services and products within the last twelve months; this indicator reflects the creative ability and work motivation of the workforce. Findings in this study reveal that firms with extensive use of HPWS will experience positive effects on workforce innovative ability. Thus, evidence is consistent with previous studies. For example, Michie and Sheeham (1999) using the WIRS 1990 data, discovered that adoption of HRM practices will be associated with higher innovative ability. Richard and Johnson (2004) conducted

a survey in the US banking industry, and found that firms with greater use of high performance work practices will get more from their innovative activities.

According to the resource based view; a firm's resources can create competitive advantage when they fulfil the following criteria: value, rareness, inimitability (Barney, 1991). While human resources work as a specific resource within the company, it is recognized as a key component in innovation activities. High performance work systems facilitate a firm's innovation activities by selecting suitable workers, providing them with extensive training to enhance their knowledge and abilities, while participation opportunities and decentralising management allow employees to use their knowledge and create new ideas, and the communication activities encourage employees share their own knowledge and further contribute to organisational knowledge and potentially competitive advantage (Matusik and Hill, 1998; Laursen, 2002). This is consistent with the AMO theory in the HRM field proposed by Appelbaum et al (2000). AMO theory proposed that sophisticated human resource management provides employees with abilities and knowledge, and the HR system itself provides employees with a friendly climate and opportunities to encourage employees' participation in decision-making processes and prompt the organisation's innovation activities. The knowledge and abilities provided by the HPWS, together with the specific environment of company, create higher social complexity and causal ambiguity, which would generate sustained competitive advantage through establishing imitation (Snell, Youndt and Wright 1996).

The regression results against workforce innovation shows a significant increase in workforce innovation. This evidence should encourage practitioners to adopt HPWS more extensively in their companies in order to get more benefit from innovative products and services.

6.3 Industry Level Moderating Effects

Parallel with the new trend of research that attempts to open the ‘black box’ by testing mediating variables; there are some scholars that focus on the contingency perspective of the HRM and performance link. They examined the various moderators and their effects on the relationship between HRM and firm performance. In this study, Hypotheses 2 and 3 investigate the contingency perspective of the HRM and performance relationships by testing the interaction effects of industry characteristics and HPWS. Hypothesis 2 examines the moderating effect of industry growth rates on the HPWS-performance link. The results show that only H2b was supported by model 4, which shows that industry growth have a moderating effect on the relationship between HPWS and workforce innovation. A considerable amount of scholars tested contingency and universal perspectives on HRM and performance, and a variety of factors have been chosen as the moderator variables, for instance, business and market strategy (Michie and Sheeham, 2005; Change and Huang, 2005) industry characteristics (Datta et al., 2005), SHRM effectiveness (Richard and Johnson, 2001), technological intensity (Lepak, Takeuchi, and Snell, 2003), firm ownership (Ngo, Lau, and Foley, 2008), capital intensity (Park et al., 2010).

6.3.1 Moderating Effect of Industry Growth

Jackson and Schuler (1995) suggested that the effectiveness of HPWS systems may be contingent upon contextual factors such as business strategies and the nature of the industry, and later organisational structure (Ferris et al., 1999). Jackson and Schuler divided the contextual factors into two categories; internal contextual factors and external factors. Internal contextual factors include technology, structure, size, organisational life cycle stage, and business strategy; while the external contextual factors are legal, social, and political environments; unionisation; labour market conditions; industry characteristics; and national cultures.

Jackson and Schuler further explained that the implementation of some practices may be desirable in given circumstance while totally unfeasible under other conditions. For instance, traditional labour-intensive firms are less likely to adopt innovative HR systems, while capital-intensive firms with advanced manufacturing technology tend to engage in selective hiring, extensive training, performance appraisal, and contingent compensation (Clark, 1993). In a similar vein, firms with a cost leadership strategy are likely to spend less in training and compensation, while in contrast, firms adopting different strategies are glad to adopt training and development practices in order to enhance employees' innovative ability (Jackson et al., 1989).

Back to this study, the industry growth rate was chosen as an external contextual factor. The results show that the industry growth rate moderates the relationship between HPWS and workforce innovation. The interaction plots suggest that companies who adopt extensive HPWS will benefit from the introduction of new

products and services in high growth industries, rather than low growth industries. Meanwhile the moderating effect of industry growth rate was not significant on the relationship between HPWS and labour productivity. As has been mentioned previously, that circumstance will influence the implementation and effectiveness of certain HR practices, either facilitating or impeding it. Buller and Napier (1993) found human resource executives in rapidly growing firms considered staffing and selection to be the most important component of human resource management; indeed certain executives are inclined to hire from outside (Datta and Guthrie, 1994). Here, the emphasis was on rapidly growing firms, but the findings still have implications for firms in high growth industries, since such firms must keep a moderate sales growth at least no less than average level in order to survive. In other words, firms in rapid growth industries are generally thought to have a high sales growth. These firms situated in rapidly changing markets tend to adopt rigorous and intensive recruitment, in order to guarantee that only qualified applicants are hired, while in the meantime internal promotions are strictly based on performance (Olian and Rynes 1984; Slocum et al., 1985). Firms in mature and low growth industries are more careful about maintaining an internal labour market (Kotter and Sathe, 1978). In addition, firms in high growth industries experience a higher level of growth, and are faced with a hypercompetitive market. These features provide organisations with opportunities as well as threats. In order for firms to survive in such an industry, they must change production processes and update services quickly to meet market and customer preferences (Arthur, 1992). High performance work systems provide employees with extensive training opportunities, the participatory mechanisms and decentralised decision making

process encourage employees generate new ideas. Grant (1996) argued that companies reach higher levels of knowledge through information integration. These HR practices ensure that employees can work innovatively to meet customer demands. In conclusion, high performance work systems facilitate innovation activities; firms in high growth industries are more desirable for the implementation of high performance work systems. So the use of HPWS in such firms should lead to significant increases in innovation. Meanwhile, conditions in low growth industries are not appropriate for the innovative HR practices, therefore the result is not significant, and sometimes even negative (see figure 5.1).

There is no significant moderating effect of industry growth on the relationship between high performance and labour productivity, but the statement still applies that the interaction of high performance work systems and labour productivity have a positive relationship (see Table 5.2).

6.3.2 Moderating Effect of Industry Dynamism

Hypothesis 3 tests the moderating effects of industry dynamism on the HRM-performance linkage. Regression results presented in the previous chapter indicated that this hypothesis is partially supported, in that industry dynamism has a moderating effect on the relationship between high performance work systems and labour productivity. It is said that the firms' increase in labour productivity with extensive use of high performance work systems is much more significant in more dynamic industries than those in less dynamic industries.

Industry dynamism is an important indicator, as it reflects the nature of competition. In this study, it is defined as the extent to which a firm faces an environment that is predictable and stable or changing and uncertain. Environmental factors such as uncertainty, technical innovation and changes in the social environment affect human resource strategy (Lengnick-Hall and Lengnick-Hall, 1988). Fombrun (1982) contended that technological innovations have the greatest effect on service jobs and on general retraining, while changes in economic factors have the most direct effect on compensation alternatives and initial employee training. The uncertainty and changes in the environment increase the information processing needs and complexity, which in turn increase the needs for a group of skilled employees and organic HR systems to provide quick responses to fit the uncertainty and changes. High performance work systems provide firms with a sophisticated HR system and flexible information processing channels, and are more appropriate for firms' success in dynamic environments. The cross training practices provides employees with a variety of skills, both generic skills and firm specific skills; the performance based appraisal and gain sharing programme encourage employees to stay with the current organisation; the participatory mechanisms make and decentralised decision making processes enhance employees' loyalty to the organisation. Therefore, a high performance work system is suitable for firms with high industry dynamism. Firms in less dynamic industries with a stable environment and predictable market tend to utilise the traditional HR practices, rather than costly innovative practices.

This is consistent with previous studies (Datta et al., 2005) that imply that industry dynamism has a moderating effect on the relationship between HPWS and labour

productivity. While the result for the moderating effect of industry dynamism on the relationship between HPWS workforce innovation relationship was not significant (H3b), the result indicated that the interaction variable of HPWS and industry dynamism is positively associated with workforce innovation.

This study is trying to reach a general conclusion that industry characteristics will have moderating effects on the relationship between HPWS and firm performance. The sample is based on the ‘top 1000 companies’ database, and covered more than 13 industries in Ireland. There are some results that support the hypotheses. While other variables may have no significant moderating effects on certain relationship, however they are in the ‘right direction’.

6.4 Organisational Level Moderating Effects

Hypothesis 4 tests the moderating effects of organisational characteristics on the HRM-performance linkage. The regressions in the previous chapter indicated that this hypothesis is rejected; the firm’s labour investment/cost has a moderating effect on the relationship between high performance work systems and both labour productivity and workforce innovation. However, the results show negatively significant moderating effects. Firms with low labour costs have a significant increase in labour productivity and sales, derived from workforce innovation when they increase the use of high performance work systems.

Labour investment, which is also called labour cost for the purposes of this study, is defined as ‘the proportion of total operating expenses accounted for by labour costs in your organisation’. In many firms labour costs account for more than 50 percent

of the total costs of doing business (Fombrun, 1982). The labour costs measure used in this research mainly referred to the compensation of employees, comprised of base pay, incentives (Lengnick-Hall and Lengnick-Hall, 1988); and other costs related to motivating, monitoring, and retaining them (Flamholtz and Lacy, 1981). According to the human capital theory (Becker, 1964), people constitute the organisation's human capital. Human resource practices aim to enhance employees' skills, experience, and knowledge, which enable organisations to be productive and adaptable (Jackson and Schuler, 1995). In the meantime, Tsui and their colleagues (1995) see labour investment as an important indicator of the employee-organisation relationship. According to their theory, firms that use pure economic investment with short term stimulation only get limited rewards and specified obligations from employees. But the social exchange approach with both economic rewards and consideration of employees' well being and career will give employers more benefit. The social exchange approach provides employees not only with monetary rewards, but also job security and participative opportunities (Tusi et al., 1995). Employees working in such climates are willing to learn knowledge and skills and contribute to the organisation. According to Maslow's need hierarchy theory, when people attain their basic safety needs, they will pursue higher level needs; high performance work systems satisfy employees' higher order needs such as a sense of achievement and self actualization -thus increasing their commitment and loyalty (Miller and Mogge, 1986), and further encouraging them to contribute to the organisation.

It is reasonable to propose that firms with both extensive use of high performance work systems and labour investment will accrue more and have better firm performance than firms with less adoption of both. But the results represented in Table 5.2 reject these hypotheses. The results indicated that firms with less investment in labour get more increases in labour productivity and workforce innovation when they use high performance extensively. This result seems opposite to the hypothesis, although it should be noticed that the most important effect of high performance work systems on this relationship is to provide employees with job security. The findings of the research reported show some similar results to those previously reported, especially that of the main effect of high performance work systems on firm performance (Huselid, 1995, Guthrie, 2001, Laursen and Foss, 2003, Datta, Guthrie, and Wright, 2005, Flood et al, 2005, 2008). These results are supportive of the ‘best practices’; that human resource practices have a generally positive effect on performance. Meanwhile, other findings regarding moderating effects support the contingency perspective that the extent of positive impacts of human resource practices on firm performance will depend on a firm’s context or environmental conditions. In conclusion, the results of this study provide some support for both perspectives. In addition to seeing generally positive effects of high performance work system practices on firm performance, it also indicated significant contingency effects, with industry /organisational characteristics influencing the degree of the impact of HPWS on labour productivity and innovation.

This study aimed to show that industry characteristics will have moderating effects on the relationship between HPWS and firm performance in a broad range of

industries. The sample is based on the ‘top 1000 companies’ database and covered more than 13 industries in Ireland. There are some results that support these hypotheses. Some variables however have no significant effect on firm performance even though they are in the ‘right directions’. This is a cross-industry study, and thus different from previous studies that focus on single industry such as manufacturing. It is difficult to generalise the conclusion that HPWS are appropriate for all industries, because an HPWS is comprised of individual HR practices. Therefore each practice will have interactions with industry characteristics. To generate a general conclusion on the moderating effects of industry or contextual factors on HR-performance relationship, further studies should attempt to identify the relationship between HPWS and performance in each industry, or try to establish the moderating effects of industry on the relationship between certain HR practices and organisational outcomes.

CHAPTER SEVEN CONCLUSION, LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

7.1 Introduction

This chapter gives an overview of the main findings. The contribution and limitations of the research are discussed, some suggestions for further research displayed at the end of the chapter.

7.2 Overview of the Research

The main objective of this study was to examine the relationship between high performance work systems and firm performance, and the contextual factors that may moderate this relationship. To test the moderating role played by contextual factors on the HR-performance relationship, the research explored both industry level and firm level characteristics. The main effect was tested, based on a self-report survey to HR managers and general managers, with all the HR information and performance information. Secondary data from CSO (Central Statistics Office) provide both industry level and firm level characteristics information. The key findings of the study suggest that high performance work systems have a positive impact on both labour productivity and work force innovation. Industry level and firm level factors have significant moderating effects on certain HR performance relationships.

Results show that extensive use of high performance work systems in Irish companies was associated with an increase in firms' labour productivity. This

finding is consistent with considerable research carried out during the last two decades (Huselid, 1995; MacDuffie, 1995; Ramsay et al., 2000; Guthrie, 2001). It should be noticed that their findings are based on either manufacturing industry or service industries, or only in one sector.

Industry level and firm level characteristics were found to play an important role in moderating the relationship between high performance work systems and certain firm performance. Industry dynamism moderates the relationship between high performance work systems and labour productivity, and industry growth moderates the relationship between high performance work systems and workforce innovation. Firm level characteristics were found have a moderating effect on the relationship between high performance work systems and both labour productivity and workforce innovation.

7.3 Research Contribution

This study contributes theoretically to the universal and contingency debate by testing the main effects of HPWS on firm performance and the moderating of industry and organisational characteristics. Full support is found for the hypotheses posited on the main effects. These findings support the universal perspective and much of the SHRM literature, since this finding is based on ‘top 1000 companies’ database in Ireland which includes more than 13 sectors. Fewer previous researches were conducted based on such a large range of industry sectors.

Secondly, this study examined the moderating effects of industry characteristics on the relationship between high performance work systems and innovation, as previous studies pointed to the moderator role of industry characteristics and

organisational characteristics on the relationship between HR and labour productivity (Guthrie, 2001; Datta et al., 2005).

The third contribution of this study is that it uses the employee-organisation relationship to explain the interaction between high performance work systems and labour investment. Labour investment is not linearly supported regarding the use of high performance work systems, at least not across all the industries, and there might be an 'n' shape effect between labour investment and the use of high performance work systems. Further research should pay attention the relevant issue, such as the relationship between high performance work systems and pay level.

Finally, this study contributes to the research methods by use of two source measures of high performance work systems, this is a useful way to avoid common method bias and provide reliable estimates of HR implementation and firm information.

In addition, the relationship between high performance work systems, organisational characteristics, and outcome variables shed some light on other organisational factors such as firm strategy, firm R&D intensity and firm growth.

7.4 Limitations of the Research

This study has successfully tested the effectiveness of high performance work systems on firm performance, and the moderating effects of contextual factors on this relationship. However, there are still some limitations.

The first limitation regards the sample size; the sample used for this survey includes both indigenous Irish companies and foreign-owned companies in Ireland; 1005 companies were contacted as the potential respondents, and 241 companies

responded, the final useful respondents came from 132 companies result in an overall response rate of 13.2 per cent. Although this response rate is in line with the typical one ranging from 6-20 per cent, the numbers of useful respondents who fall into each industry sector are too small and uneven, and it is therefore difficult to get a further general conclusion for each sector if we control for industry type. A further cross sectional study should make efforts to improve the response rate.

In the same vein, this study uses top 1000 companies as the sample, and as most of these firms are chosen by sales per year and number of employees, this excludes most medium and small size companies, which constitutes a more appropriate representative sample of indigenous Irish industries.

A third limitation of this research is also a suggestion for further research, as workforce innovation is multidimensional and influenced by both internal and external factors. Some of the large innovative projects will achieve payoffs a long time after investment. This study defined workforce innovation by the proportion of total sales coming from products or services introduced within the previous 12 months. It is not long enough for a firm to evaluate the effects of HR systems on innovation. Longitudinal studies for workforce innovation should be introduced in further research. In the meantime, other important measures of innovation such as technology process innovation are not included in this study, because while these innovations may be beyond the scope of this research, they are still a challenge for further research.

Finally, this study uses labour productivity as an indicator, and there is a considerable reason for this adoption (Datta et al., 2005). But this approach does not consider the potential costs that are caused by the use of high performance work

systems. At the same time, the labour productivity will be influenced by other factors, such as market demand, product price, and inflation. Further studies should consider the possibility of taking labour productivity as a mediator between high performance work systems and firms' profitability.

7.5 Directions for future research

Based on the above rationales, further research should pay attention to the following themes.

As mentioned above, the findings of this research, especially the moderating effect shed some light on other industry and organisational factors. Further studies should further explore the impact of other factors such as firm strategy, firm R&D intensity and firm growth on the HR and performance relationship,.

This study uses two variables - labour productivity and workforce innovation to represent firm performance. While these are widely used indicators for firm performance, further should also pay attention to other outcome variables such as employee turnover. Further studies could also consider undertaking more complex research on the moderating effects of contextual factors on the relationship between high performance work systems and firms' profitability, with the labour productivity as a mediator.

Another possibility should be considered regarding controlling industry types to test the extent of moderating effects of the above factors. Although there may not be sufficient samples to do analysis in the research, this is still a potential topic that should be considered.

A further research question emerges from the discussion of the labour investment sector; it is interesting to discover that the firm level variables can be categorised as an industry level factor if we control for the industry types named industrial pay difference, further study should also pay attention to this issue.

7.6 General Conclusion

The research in HRM field has received much attention for the last three decades, but there are still some issues under investigation. Literature on HRM calls for research on the relationship between human resource management and performance.

This study has attempted to explore this relationship and solve the ‘universal and contingency’ debate and has suggested possible directions for future research.

Overall, the research findings of this study established a positive link between HPWS and firm performance. The results supported both the universal and contingency perspectives.

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APPENDIX A: GENERAL MANAGER QUESTIONNAIRE SURVEY



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH



University of Kansas
School of Business

UL - KU 2006 SURVEY OF GENERAL MANAGEMENT PRACTICES IN IRELAND

A research study sponsored by

National Centre for
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If you have questions about any aspect of this study, please contact one of the project directors. Contact information is provided on the front page of the questionnaire.

Would you like a summary report of the findings of the study? Yes_____ No_____

If 'yes', please provide name and address or attach a business card:

Name: _____

Address: _____

Email: _____

I. ORGANISATIONAL CHARACTERISTICS

During 2005-06, what proportion of your organisation's total sales (turnover) was achieved through each of these two strategic approaches? Your answers should total 100%.

- **LOW COST:** Compete on the basis of lower costs (through economies of scale, experience, technology, etc), resulting in lower prices to consumers ____%
 - **DIFFERENTIATION:** Create products or services perceived industry-wide as unique ____%
- Total: 100%**

Please allocate 100 points across the following factors reflecting how your firm's top managers would view each factor's relative importance in achieving competitive success:

- Products or services ____
 - Advertising/marketing ____
 - Employees/workforce ____
 - Technology ____
- Total: 100 Points**

How would you **describe the industry and environment** within which your organisation functions? Where relevant please consider not only the economic, but also the social, political, and technological aspects of the environment. Write a scale number in the space provided beside each statement.

Strongly Disagree 1 2 3 4 5 Strongly Agree

- Very dynamic, changing rapidly in technical, economic and cultural dimensions..... ____
- Very risky, one false step can mean the firm's undoing ____
- Very rapidly expanding through expansion of old markets and emergence of new ones... ____
- Very stressful, exacting, hostile; hard to keep afloat ____
- Actions of competitors are quite easy to predict ____
- Demand and consumer tastes are fairly easy to forecast..... ____
- Very safe, little threat to the survival of my company ____
- The rate at which products or services are getting obsolete in the industry is very slow... ____

The relative importance of different functional activities (e.g., manufacturing, marketing) varies across organisations. Please indicate how your firm's top managers would rate the relative importance of each functional activity in achieving competitive success. Write a scale number in the space beside each function to indicate its relative importance.

Of little importance	1	2	3	4	5	Extremely important
R & D						_____
Manufacturing						_____
Marketing/Sales						_____
Human Resource Management						_____
Finance/Budgeting						_____
Information Systems						_____

Please circle a response on each scale to answer the following questions:

In general, the top managers of my firm favor

A strong emphasis on the marketing of tried and true products or services	1	2	3	4	5	6	7	A strong emphasis on R&D, technological leadership and innovations
---	---	---	---	---	---	---	---	--

How many new lines of products or services has your firm marketed in the last few years?

No new lines of products or services	1	2	3	4	5	6	7	Very many new lines of products or services
--------------------------------------	---	---	---	---	---	---	---	---

In the last few years in my firm

Changes in product or service lines have been mostly minor in nature	1	2	3	4	5	6	7	Changes in product or service lines have usually been quite dramatic
--	---	---	---	---	---	---	---	--

In dealing with competitors, my firm

Typically responds to actions that competitors initiate	1	2	3	4	5	6	7	Typically initiates actions that competitors respond to
Typically seeks to avoid competitive clashes, preferring a 'live-and-let-live' posture	1	2	3	4	5	6	7	Typically adopts a very competitive, 'undo-the-competitors' posture
Is very aggressive and intensely competitive	1	2	3	4	5	6	7	Makes no special effort to take business from competitors

In general, the top managers of my firm have

A strong preference for low-risk projects (with normal and certain rates of return)	1	2	3	4	5	6	7	A strong preference for high-risk projects (with chances of very high returns)
A strong tendency to 'follow-the-leader' in introducing new products/services, technology or management ideas	1	2	3	4	5	6	7	A strong tendency to be ahead of competitors in introducing new products/services, technology or management ideas

In general, the top managers of my firm believe that

Owing to the nature of the environment, it is best to explore it gradually via timid, incremental behavior	1	2	3	4	5	6	7	Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives
--	---	---	---	---	---	---	---	--

When confronted with decision-making situations involving uncertainty, my firm

Typically adopts a cautious 'wait-and-see' posture in order to minimize the probability of making costly decisions	1	2	3	4	5	6	7	Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities
--	---	---	---	---	---	---	---	--

Please indicate the current position of your organisation relative to your direct competitors:

	We are much lower	Same	We are much higher
Product or service cost	1	2	5
Product or service selling price	1	2	5
Per cent of sales (turnover) spent on R & D	1	2	5
Per cent of sales (turnover) spent on marketing	1	2	5
Product or service quality	1	2	5
Brand image	1	2	5
Product or service features	1	2	5
After sales service	1	2	5
Sales growth	1	2	5
Return-on-Sales	1	2	5
Profitability	1	2	5

What proportion of your organisation's total sales (turnover) comes from products or services introduced within the previous 12 months? %

How long has your local organisation been in operation? _____ years.

In what country is your corporate headquarter located? _____

Which of the following categories best describes your **primary** industry sector? (Please tick **one**)

- | | | |
|--|--|---|
| <input type="checkbox"/> Agriculture/forestry/fishing | <input type="checkbox"/> Building & civil engineering | <input type="checkbox"/> Health services |
| <input type="checkbox"/> Energy & Water | <input type="checkbox"/> Retail & distribution; hotels | <input type="checkbox"/> Other services (e.g, R&D, television, radio, etc.) |
| <input type="checkbox"/> Chemical Products | <input type="checkbox"/> Transport & Communication
(e.g., rail, postal, telecoms) | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Metal Mfg. (mechanical, electrical & instrument engineering; data processing machinery) | <input type="checkbox"/> Banking; finance, insurance; business services (e.g., consultancies, PR, legal, etc.) | |
| <input type="checkbox"/> Other Mfg (e.g., food, drink, tobacco; textiles, clothing; paper, publishing; rubber, plastics) | <input type="checkbox"/> Personal, domestic, recreational services | |

Approximately what proportion of your total sales (turnover) is from the above industry? _____ %

Which category best approximates the **percentage of total annual sales/turnover** spent on research & development (R&D) in your organisation? (Please **circle one** category).

- | | | | | | |
|----------|--------|--------|---------|---------|-----------|
| (a) < 1% | (d) 3% | (g) 6% | (j) 9% | (m) 12% | (p) 15% |
| (b) 1% | (e) 4% | (h) 7% | (k) 10% | (n) 13% | (q) 16% |
| (c) 2% | (f) 5% | (i) 8% | (l) 11% | (o) 14% | (r) > 16% |

Which category best approximates the **percentage of your total annual operating expenses** accounted for by labour costs in your organisation? (Please **circle one** category).

- | | | | | | |
|----------|---------|---------|---------|---------|-----------|
| (a) < 5% | (d) 15% | (g) 30% | (j) 45% | (m) 60% | (p) 75% |
| (b) 5% | (e) 20% | (h) 35% | (k) 50% | (n) 65% | (q) 80% |
| (c) 10% | (f) 25% | (i) 40% | (l) 55% | (o) 70% | (r) > 80% |

How do your labour costs compare with your direct competitors?

Our costs are ***much lower*** 1 2 3 4 5 Our costs are ***much higher***

As measures of size:

a. Please estimate the total number of employees in your local organisation:

Three years ago _____

Today _____

b. Please estimate your local organisation's annual sales revenue (turnover):

Three years ago million Euro

Today million Euro

Please use the scale below to indicate your level of agreement or disagreement with each of the following statements. Write a scale number in the space provided beside each statement.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Our employees can expect to stay with the organization as long as they wish..... _____

Our company is committed to a goal of long-term employment security..... _____

If this organization were facing economic problems, employee downsizing would be the last option used _____

During the last two years, has your firm engaged in employee downsizing (redundancies)? Yes _____ No _____

If yes, what percentage of your workforce was made redundant during this time? _____%

Partnership: To what extent do you agree with the following statements?

Strongly disagree 1 2 3 4 5 Strongly agree

There is a high level of trust between management and employees _____

Employees are well informed on the views and concerns of company management _____

Company management are well informed on the views and concerns of employees _____

Partnership: In this organisation...

Workplace partnership is... (Please circle appropriate number)

1	2	3	4	5	6
Non-existent	Largely confined to a few key individuals	Largely confined within formal partnership structures	Evident in at least certain parts	Evident across most of it	Now the norm for working

Partnership: Are there formal arrangements in place for...

Workplace partnership? (Please tick one)

No

No, but under active consideration

Yes How many years has this arrangement been in place? _____

Informing and consulting employees? (Please tick one)

No

No, but under active consideration

Yes, but may require adjustment to comply with forthcoming legislation

Yes, and already largely compliant with requirements of forthcoming legislation

Partnership: To what extent are each of the following issues the subject of discussion between management and employees (and/or their representatives)?

(Please insert appropriate number in space provided)

No discussion 1 2 3 4 5 Very substantial discussion

Production issues (e.g. level of production or sales, quality of product or service)	_____
Employment issues (e.g. avoiding redundancies, reducing labour turnover)	_____
Financial issues (e. g. financial performance, budgets or budgetary cuts)	_____
Future plans (e.g. changes in goods produced or services offered, company expansion or contraction)	_____
Pay issues (e.g. wage or salary reviews, bonuses, regarding, job evaluation)	_____
Leave and flexible working arrangements, including working time	_____
Welfare services and facilities (e.g. child care, rest rooms, car parking, canteens, recreation)	_____
Government regulations (e.g. EU Directives, Local Authority regulations)	_____
Work organisation (e.g. changes to working methods, allocation of work between employees, multi-skilling)	_____
Health and safety	_____
Equal opportunities	_____
Training	_____
Product innovations	_____
Service innovations	_____
Technical innovations	_____
Other (please specify) _____	_____

Please use the scale below to indicate your level of agreement or disagreement with each of the following statements. Write a scale number in the space provided beside each statement.

Strongly Disagree 1 2 3 4 5 Strongly Agree

- Our employees are highly skilled_____
- Our employees are widely considered the best in our industry._____
- Our employees are creative and bright....._____
- Our employees are experts in their particular jobs and functions_____
- Our employees develop new ideas and knowledge_____
- Our employees are skilled at collaborating with each other to diagnose and solve problems....._____
- Our employees share information and learn from one another_____
- Our employees interact and exchange ideas with people from different areas of the company..._____
- Our employees partner with customers, suppliers, alliance partners, etc., to develop solutions .._____.
- Our employees apply knowledge from one area of the company to problems and opportunities that arise in another._____

Please use the scale below to indicate your level of agreement or disagreement with each of the following statements. Write a scale number in the space provided beside each statement.

Strongly Disagree 1 2 3 4 5 Strongly Agree

- The HR department or function has helped to enhance the firm's competitive position ____
- The HR department or function provides value-added contributions to the firm's bottom line ____
- The HR department or function contributes to building or maintaining the firm's core competence... ____
- The HR department or function contributes to building the firm's human capital
(employees, managers) as a source of competitive advantage ____

II. RESPONDENT BACKGROUND

Please indicate the number of years of work experience you have in each of the following areas:

- | | |
|-----------------------------------|-----------------------------------|
| Sales ____ yrs | Information Systems..... ____ yrs |
| Marketing..... ____ yrs | Human Resources..... ____ yrs |
| R & D..... ____ yrs | Engineering..... ____ yrs |
| Operations/Production... ____ yrs | Law..... ____ yrs |
| Accounting..... ____ yrs | General Management..... ____ yrs |
| Finance..... ____ yrs | Other (specify) ____ yrs |

What is your organisational position or title?

How many years have you been in the above position? ____ years

How many years have you been with this organisation? ____ years

How many total years of post secondary/high school education have you attained if any? ____ years

Have you earned a post secondary/high school degree? ...Yes ____ No ____.

If yes, what is the highest degree you have obtained (e.g., associates, BA, MS, etc)? _____

Academic area of above degree (e.g., business, engineering, liberal arts, etc.)? _____

THANK YOU FOR YOUR HELP!
When completed, **please return in the envelope provided** or send to:

PROFESSOR PATRICK FLOOD, KEMMY BUSINESS SCHOOL

APPENDIX B: HR MANAGER QUESTIONNAIRE SURVEY



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH



University of Kansas
School of Business

UL - KU 2006 SURVEY OF HUMAN RESOURCE PRACTICES AND WORKPLACE INNOVATION

A research study sponsored by

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If you have questions about any aspect of this study, please contact one of the project directors. Contact information is provided on the front page of the questionnaire.

Would you like a summary report of the findings of the study? Yes_____ No_____

If 'yes', please provide name and address or attach a business card:

Name: _____

Address: _____

Email: _____

Please provide responses that best describe HR practices in your operations in Ireland during 2005-06.

I. HUMAN RESOURCE PRACTICES

Please answer the following questions *with respect to two broad groups of employees during 2005-06:*

Group A = Production, maintenance, service and clerical employees.

Group B = Executives, managers, supervisors and professional/technical employees.

Group A **Group B**

Staffing: What proportion of your employees

- Are interviewed during the hiring process using structured, standardized interviews (e.g., behavioural or situational interviews), as opposed to unstructured interviews _____% _____%
- Are administered one or more employment tests (e.g., skills tests, aptitude tests, mental/cognitive ability tests) prior to hiring? _____% _____%
- Are hired for entry level jobs based on employment test(s) which have been analysed in terms of the test's ability to predict job success (i.e., the tests have been validated) _____% _____%
- Are hired on the basis of intensive/extensive recruiting efforts resulting in many qualified applicants _____% _____%
- Hold jobs which have been subjected to a formal job analysis to identify position requirements (such as required knowledge, skills or abilities)? _____% _____%
- Hold non-entry level jobs as a result of internal promotions (as opposed to hired from outside of the organisation)? _____% _____%
- Hold non-entry level jobs due to promotions based upon merit or performance, as opposed to seniority? _____% _____%
- Have job security: Employment with the firm is almost guaranteed..... _____% _____%

Please provide responses that **best describe HR practices** in your operations in Ireland during **2005-06**.

Group A = Production, maintenance, service, clerical employees.

Group B = Executives, managers, supervisors, professional/technical employees.

Group A Group B

Performance Management & Remuneration: What proportion of your employees

Receive formal performance appraisals and feedback on a routine basis? _____% _____%

Receive formal performance feedback from more than one source (i.e., feedback from several individuals such as supervisors, peers etc.)?..... _____% _____%

Receive compensation partially contingent on *individual* merit or performance?..... _____% _____%

Receive compensation partially contingent on *group* performance (e.g., profit-sharing, gainsharing, team-based)?..... _____% _____%

Own shares of your organisation's stock (e.g., an employee stock ownership plan)? _____% _____%

Are paid primarily on the basis of a skill or knowledge-based pay system (versus a job-based system)? That is, pay is primarily determined by a person's skill or knowledge level as opposed to the particular job that they hold _____% _____%

In terms of total remuneration (pay and benefits), what is your organisation's position relative to the market? Assume the market is at the 50th percentile and indicate your position relative to this. For example, a response of "40" indicates that you are at the 40th percentile -- 10% below the market. _____% _____%

What proportion of the average employee's total annual remuneration is contingent on performance? _____% _____%

Training & Development: What proportion of your employees

Have been trained in a variety of jobs or skills (are "cross trained") and/or routinely perform more than one job (are "cross utilized")? _____% _____%

Have received intensive/extensive training in company-specific skills (e.g., task or firm-specific training)..... _____% _____%

Have received intensive/extensive training in generic skills (e.g., problem-solving, communication skills, etc.)..... _____% _____%

What is the *average number of hours of training* received by a typical employee *per year*? _____# _____#

Please provide responses that best describe HR practices in your operations in Ireland during 2005-06.

Group A = Production, maintenance, service, clerical employees.

Group B = Executives, managers, supervisors, professional/technical employees.

Group A **Group B**

Communication & Participation: What proportion of your employees

Are involved in programmes designed to elicit participation and employee input
(e.g., quality circles, problem-solving or similar groups)? % %

Are provided relevant operating performance information (e.g., quality,
productivity, etc.) % %

Are provided relevant financial performance information % %

Are provided relevant strategic information (e.g., strategic mission,
goals, tactics, competitor information, etc.) % %

Are routinely administered attitude surveys to identify and correct employee
morale problems?..... % %

Have access to a formal grievance/complaint resolution procedure..... % %

Are organized in self-directed work teams in performing a major part of their
work roles? % %

Other HR Issues:

What proportion of your workforce is unionized? % %

Please estimate your annual **voluntary** employee turnover rate (percent who
voluntarily departed your organisation)..... % %

Please estimate your annual **involuntary** employee turnover rate (percent who
involuntarily departed your organisation – i.e., were discharged)..... % %

Please estimate the average number of days per year employees were absent..... # #

Please estimate the approximate number of full time equivalent (FTE) employees
in your organisation # #

Please provide responses that best describe HR practices in your operations in Ireland during 2005-06.

Group A = Production, maintenance, service, clerical employees.

Group B = Executives, managers, supervisors, professional/technical employees.

	<u>Group A</u>	<u>Group B</u>
Diversity / Work-life balance / Equality of Opportunity: What proportion of your employees		
Receive equality/diversity training	_____ %	_____ %
Would receive their normal, full rate of pay going on maternity leave from this workplace? (Calculate on the basis of female employees only)	_____ %	_____ %
Are afforded any of the following working time arrangements?		
Working at or from home in normal working hours.....	_____ %	_____ %
Ability to reduce working hours (e.g. switching from full-time to part-time employment).....	_____ %	_____ %
Ability to increase working hours (e.g. switching from part-time to full-time employment).....	_____ %	_____ %
Job sharing schemes (sharing a full-time job with another employee).....	_____ %	_____ %
Flexi-time (where an employee has no set start or finish time but an agreement to work a set number of hours per week or per month).....	_____ %	_____ %
Ability to change shift patterns.....	_____ %	_____ %
Working compressed hours (e.g. a 9 day fortnight / 4½ day	_____ %	_____ %
Night working.....	_____ %	_____ %
Are entitled to any of the following?		
Working only during school term-time.....	_____ %	_____ %
Workplace nursery or nursery linked with workplace.....	_____ %	_____ %
Financial help with child-care (e.g. loans, repayable contributions to fees for childcare outside of the workplace, subsidised places not located at the establishment).....	_____ %	_____ %
A specific period of leave for carers of older adults (in addition to time off for emergencies).....	_____ %	_____ %
Belong to the following categories		
Female	_____ %	_____ %
Aged	_____ %	_____ %
50+		
White		
• Irish.....	_____ %	_____ %
• Western European (excl. Irish).....	_____ %	_____ %

	• Eastern European.....	_____ %	_____ %
	• Other white background.....	_____ %	_____ %
Black	_____ %	_____ %
Asian	_____ %	_____ %
Has a long-term disability that affects the amount or type of work they can do.....		_____ %	_____ %

Please use the scale below to indicate your level of agreement or disagreement with each of the following statements. Write a scale number in the space provided beside each statement.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Our employees can expect to stay with the organization as long as they wish..... _____

Our company is committed to a goal of long-term employment security..... _____

If this organization were facing economic problems, employee downsizing would be the last option used _____

During the last two years, has your firm engaged in employee downsizing (redundancies)? Yes _____ No _____
 If yes, what percentage of your workforce was made redundant during this time? _____%

Please provide responses that best describe HR practices in your operations in Ireland during 2005-06.

Diversity / Work-life balance / Equality of Opportunity

Does this workplace have a formal written policy on equal opportunities or managing diversity? Yes _____ No _____

Has a senior manager been designated to champion equality and diversity in your organization? Yes _____ No _____

To what extent is it integrated into overall corporate strategy? (Please circle as appropriate)

Not at all 1 2 3 4 5 To a very great extent

If yes, on which of the following grounds does the policy explicitly mention equality of treatment or discrimination? (Please circle all that are appropriate)

- | | | | | |
|------------|----------------|--------------------|--|--------------------|
| Sex/Gender | Race/Ethnicity | Religion or belief | Membership of the travelling community | Sexual orientation |
| Disability | Age | Marital status | Family status | Nationality |

Other (please specify)

How is the policy made known to employees? (Please circle all that are appropriate)

Part of induction programme	In contract of employment	In staff handbook	Other way (please specify)
Told by supervisor/line-manager/foreman	In letter of appointment	Notice-board	

Have you tried to measure the effects of your equal opportunities policies on the workplace or on the employees at this establishment? Yes _____ No _____

Do you monitor recruitment and selection by any of the following characteristics? If yes, which ones? (Please circle all that are appropriate)

Gender	Ethnic background	Disability	Age	Other, please specify _____
--------	-------------------	------------	-----	-----------------------------

Do you monitor promotions by any of these characteristics? If yes, which ones? (Please circle all that are appropriate)

Gender	Ethnic background	Disability	Age	Other, please specify _____
--------	-------------------	------------	-----	-----------------------------

Do you monitor relative pay rates by any of these characteristics? If yes, which ones? (Please circle all that are appropriate)

Gender	Ethnic background	Disability	Age	Other, please specify _____
--------	-------------------	------------	-----	-----------------------------

Have you made a formal assessment of the extent to which this workplace is accessible to employees or job applicants with disabilities? Yes _____ No _____

Have you made any adjustments at this workplace to accommodate disabled employees? Yes _____ No _____

If an employee needed to take time off at short notice to deal with an emergency involving a child or family member, how would they usually take this time off? (Please circle as appropriate)

Take time off but make it up later	As leave without pay	As sick leave	Other (please specify)
As annual leave	As special paid leave	Is not allowed	Has never been requested

Partnership: To what extent do you agree with the following statements?

Strongly disagree 1 2 3 4 5 Strongly agree

There is a high level of trust between management and employees

Employees are well informed on the views and concerns of company management

Company management are well informed on the views and concerns of employees

Partnership: In this organisation...

Workplace partnership is... (Please circle appropriate number)

1	2	3	4	5	6
Non-existent	Largely confined to a few key individuals	Largely confined within formal partnership structures	Evident in at least certain parts	Evident across most of it	Now the norm for working

Partnership: Are there formal arrangements in place for...

Workplace partnership? (Please tick one)

- No
 No, but under active consideration
 Yes How many years has this arrangement been in place? _____

Informing and consulting employees? (Please tick one)

- No
 No, but under active consideration
 Yes, but may require adjustment to comply with forthcoming legislation
 Yes, and already largely compliant with requirements of forthcoming legislation

Partnership: To what extent are each of the following issues the subject of discussion between management and employees (and/or their representatives)?

(Please insert appropriate number in space provided)

No discussion 1 2 3 4 5 **Very substantial discussion**

Production issues (e.g. level of production or sales, quality of product or service)

Employment issues (e.g. avoiding redundancies, reducing labour turnover)

Financial issues (e.g. financial performance, budgets or budgetary cuts)

Future plans (e.g. changes in goods produced or services offered, company expansion or contraction)

Pay issues (e.g. wage or salary reviews, bonuses, regarding, job evaluation)

Leave and flexible working arrangements, including working time

Welfare services and facilities (e.g. child care, rest rooms, car parking, canteens,

recreation)

Government regulations (e.g. EU Directives, Local Authority regulations)

Work organisation (e.g. changes to working methods, allocation of work
between employees, multi-skilling)

Health and safety

Equal opportunities

Training

Product innovations

Service innovations

Technical innovations

Other (please specify) _____

II. ORGANISATIONAL CHARACTERISTICS

What proportion of your organisation's total sales (turnover) comes from products
or services introduced within the previous 12 months?
_____ %

How long has your local organisation been in operation? _____ years.

In what country is your corporate headquarter located?

Which of the following categories best describes your **primary** industry sector? (Please tick one)

___ Agriculture/forestry/fishing
services

___ Building & civil engineering

___ Health

___ Energy & Water
services (e.g. R&D,

___ Retail & distribution; hotels

___ Other

___ Chemical Products
etc.)

___ Transport & Communication

television, radio,

____ Metal Mfg. (mechanical, electrical & _____ (e.g., rail, postal, telecoms) _____ Other:

 instrument engineering; data _____ Banking; finance, insurance;
 processing machinery) _____ business services (e.g.,
 _____ Other Mfg (e.g., food, drink, tobacco; consultancies, PR, legal, etc.)
 textiles, clothing; paper, publishing; _____ Personal, domestic, recreational
 rubber, plastics) services

Approximately what proportion of your total sales (turnover) is from the above industry? _____ %

Which category best approximates the **percentage of total annual sales/turnover** spent on research & development (R&D) in your organisation? (Please **circle one** category).

- | | | | | | |
|----------|--------|--------|---------|---------|-----------|
| (a) < 1% | (d) 3% | (g) 6% | (j) 9% | (m) 12% | (p) 15% |
| (b) 1% | (e) 4% | (h) 7% | (k) 10% | (n) 13% | (q) 16% |
| (c) 2% | (f) 5% | (i) 8% | (l) 11% | (o) 14% | (r) > 16% |

Which category best approximates the **percentage of your total annual operating expenses** accounted for by labour costs in your organisation? (Please **circle one** category).

- | | | | | | |
|----------|---------|---------|---------|---------|-----------|
| (a) < 5% | (d) 15% | (g) 30% | (j) 45% | (m) 60% | (p) 75% |
| (b) 5% | (e) 20% | (h) 35% | (k) 50% | (n) 65% | (q) 80% |
| (c) 10% | (f) 25% | (i) 40% | (l) 55% | (o) 70% | (r) > 80% |

How do your labour costs compare with your direct competitors?

Our costs are **much lower** **1** **2** **3** **4** **5** Our costs are **much higher**

As measures of size:

a. Please estimate the total number of employees in your local organisation:

Three years ago _____

Today _____

b. Please estimate your local organisation's annual sales revenue (turnover):

Three years ago _____ million Euro

Today _____ million Euro

III. RESPONDENT BACKGROUND

Please indicate the number of years of work experience you have in each of the following areas:

Sales _____ yrs

Information Systems..... _____ yrs

Marketing..... ____ yrs
____ yrs
R & D..... ____ yrs
____ yrs
Operations/Production... ____ yrs
____ yrs
Accounting..... ____ yrs
____ yrs
Finance..... ____ yrs
____ yrs

Human Resources.....
Engineering.....
Law.....
General Management.....
Other (specify) _____

What is your organisational position or title?

How many years have you been in the above position? ____ years

How many years have you been with this organisation? ____ years

How many total years of post secondary/high school education have you attained if any?
____ years

Have you earned a post secondary/high school degree? ...Yes ____ No ____.

If yes, what is the highest degree you have obtained (e.g., associates, BA, MS, etc)?

Academic area of highest degree (e.g., business, engineering, liberal arts, etc.)?

THANK YOU FOR YOUR HELP!
When completed, **please return in the envelope provided** or send to:

PROFESSOR PATRICK FLOOD, KEMMY BUSINESS SCHOOL