High Performance Work Practices (HPWP) and Innovative Behaviour in R&D Organizations

Dr Arnifa Asmawi
Faculty of Management, Multimedia University, Cyberjaya, Malaysia
Email: arnifa asmawi@mmu.edu.my

Mohd Shafiq Mohd Hanafi
Faculty of Management, Multimedia University, Cyberjaya, Malaysia
Email: mshafiqmfgra@gmail.com

Dr Kok-Wai Chew
Faculty of Management, Multimedia University, Cyberjaya, Malaysia
Email: kwchew@mmu.edu.my
High Performance Work Practices (HPWP) and Innovative Behaviour in R&D Organizations

ABSTRACT: As Malaysia aims to become a high income nation in year 2020, it is aggressively moving from a manufacturing-based to a knowledge-based economy, focusing heavily on research and development activities (R&D). Despite various incentives, the R&D performance indicators are showing a declining trend. Thus, there is an urgent need to increase the quality of R&D workforce in Malaysia. This paper focuses on how HPWP can become a managerial instrument to shape innovative behavior in R&D organizations. The study identifies four HR practices that when simultaneously deployed, they can create synergistic effects and eventually lead to achievement of organizational goals. Understanding how these practices operate will enable managers to select the most effective HPWP to shape innovative behaviour in R&D organizations.

Keywords: Strategic HRM, innovation, organizational performance

R&D IN MALAYSIA

In this century, economic growth is driven by the application of new technologies (Greenstone, 2011). Research and development (R&D) is a key function that develops these new technologies. R&D becomes a competitive advantage to industries as it generates innovative products, processes and services; creates new globalised markets and pushes technological boundaries. Nobel laureate Professor Robert Solow (1956) explained mathematically that, in the long run, a nation’s economic growth in gross national product (GNP) per worker will be due more to technological progress than to mere capital investment.

Malaysia aims to become a high income nation in year 2020. To achieve this vision, it is aggressively moving from a manufacturing-based to a knowledge-based economy. In a knowledge economy, high R&D investments, innovation and creativity are the crucial factors to boost
productivity and competitiveness. Thus, the Government of Malaysia has introduced various programs and incentives to intensify R&D capabilities in different sectors of the economy. As a result, there is an increasing trend in the size of R&D workforce in Malaysia (Malaysian Science and Technology Information Centre [Mastic], 2015). The number of researchers has increased by more than 200% in year 2012 (75,257 headcount) from year 2008 (31,442 headcount). There is also a corresponding increase in the number of published scientific papers from Malaysia. In year 2011, the total number of scientific papers from Malaysia was 6673, which is 224% more than the year 2008 figure of 2972 papers (Malaysian Science and Technology Information Centre [Mastic], 2012). While these numbers are very encouraging, other R&D performance indicators are showing an opposite trend. There is a marked decrease in the total number of paper citations. The total number of citations made from Malaysian published papers has remarkably decreased from 14,369 in year 2009 to 1859 in year 2011 (Malaysian Science and Technology Information Centre [Mastic], 2012). Number of patents is also an indicator of R&D performance. In year 2009-2014, the number of patent granted from Malaysia was only 1,697 compared to 13,374 patents granted to foreign applications respectively (OECD, 2013). Hence, it is natural to find that Malaysia is paying more for the usage of intellectual property than generating revenue from their own intellectual property (Malaysian Science and Technology Information Centre [MASTIC], 2014).

Thus, there is an urgent need to increase the quality of R&D workforce in Malaysia. While the R&D enterprise can acquire the most sophisticated equipment, it is the researchers themselves who will create new knowledge and develop ideas into innovative products and applications. The 10th Malaysian Plan (2011 – 2015) and the New Economic model both stress on the importance of human capital development to increase the country’s innovation capacity (Asmawi and Chew, 2015). The 10th Malaysian Plan specifically gives a special emphasis to enable productivity by concentrating on skill development, particularly in term of upskilling the current workforce to facilitate industries. In addition, the government is dedicated to invest in creativity focusing on R&D.

This conceptual paper focuses on how high performance work practices (HPWP) can become a managerial instrument to shape innovative behavior in R&D organizations. Specifically, the
subsequent section will discuss on the concept of innovative behavior. This is followed by a discussion on how HPWP can be adopted in order to enhance innovativeness in R&D organizations. The final section will be on conclusions and recommendations.

**INNOVATIVE BEHAVIOR**

Innovative behaviour refers to a type of behaviour that is directed towards the initiation and application (within a work role, group or organization) of new and useful ideas, processes, products or procedures (Farr & Ford, 1990). Innovative behavior can be in the form of developing a new or enhanced products or services, suggesting new methods to improve processes or seeking more superior technologies. Jenssen (2000) and Carmeli, Meitar and Weisberg (2006) describe innovative behaviour as a multiple stage process which can be further segregated into three consecutive parts. ‘Idea generation’ is the first stage where an individual recognizes a problem, for which he or she generates new ideas and solutions. The second stage is ‘Idea promotion’ where the individual works to promote the new ideas and garner supports both from inside and outside the organization. Finally, ‘idea realization’ or ‘idea implementation’ is when the individual realizes the ideas or solutions by producing a prototype model of the innovation that can be experienced, applied and used within a work role, a group, organization or general public as a whole.

According to Scott and Bruce (1994), innovative behaviour is the outcome of four interacting systems- climate for innovation, leadership, individual and teamwork. Organizational climate is a set of properties of the work environment, perceived directly or indirectly by the employees, that is assumed to be a major force in influencing employee behavior (Ivancevich, Konopaske & Matteson, 2007). It is the recurring patterns of behaviour, attitudes and feelings that characterize life in the organization (Isaksen & Ekvall, 2007). At an individual level, this concept is known as individual psychological climate.

An innovative climate is when employees perceive that firms encourage change, creativity and problem solving in the workplace (Koys & DeCotiis, 1991; Amabile, Conti, Coon, Lazenby & Herron, 1996). Innovative climate is also described in the form of rewards and recognition for excellent
performance and also by organizational willingness to experiment with innovative ideas (Abbey & Dickson, 1983). A highly innovative climate has been shown to have a relation to high organizational performance, such as increased market share, bigger sales volume, improved ability to implement complex work designs and more (Isaksen & Ekvall, 2010). In a study of idea generation among middle management, it was found that organizational climate dimensions play a decisive role in motivating the workforce to think creatively and augment organizational performance by having radical product innovations” (Shah & Ali, 2011, p. 438).

**Leadership** is another factor that can enhance or inhibit innovative behaviour. Based on the Leader-member exchange (LMX) theory (Graen & Scandura, 1987), Scott and Bruce (1994) argue that mature leader-follower interactions (or high-quality leader member exchange) that are characterized by trust, mutual liking and respect, are found to have positive relationship with individual innovative behaviour. Individuals having high quality relationship with their leaders are likely to perceive that they are provided support and greater autonomy by their organizations. In addition, participative leadership style is also positively linked to innovative behaviour. Participative leaders give their team members the opportunity to express individual ideas and suggestions, allow them to set collective goals and strategies, and also consider their opinions before making important decisions. Thus, through regular interactions, members will understand the message that innovation-supportive behaviours are valued and expected within the team (Odoardi, Montani, Boudrias & Battistelli, 2015)

**Individual** factors also have an impact on innovative behaviour. These individual-level factors are identified as knowledge expertise, problem-solving style, personality and motivation (Sarooghi, Libaers & Burkemper, 2015; Mumford & Hunter, 2005; Amabile et al., 1996). Knowledge expertise refers to individuals with the scientific knowledge and skills required in the conversion of new ideas into innovative products. Specific problem-solving style also determines how individual approaches innovation. Scott and Bruce (1994) proposed two dimensions of problem-solving style- Systematic and intuitive. Systematic thinking style uses rationality and logic, and it tends to conform to existing routines, rules and procedural boundaries. Systematic problem solver is likely to create conventional solutions to problems. In contrast, intuitive problem-solving is when problems are approached from
multiple domains simultaneously, less attention on rules and procedures; and more focus on creative imagination and intuition. As intuitive problem solver is able to tackle a problem from diverse domains of thoughts, he or she tends to come out with novel solutions (Isaksen, 1987) which are more relevant in innovative environments such as in R&D organizations. Different individual personalities tend to have an influence on innovative behaviour. Individuals possessing traits such openness to experience, conscientiousness, flexibility and criticality are more suited in creative and innovative pursuit (Mumford & Gustafson, 1988). Finally, as innovative activities often take place in a complex environment, intrinsic motivation plays a crucial role to sustain the creativity and passion of individuals.

Creative and innovative ideas are often spawn from interaction of individuals in teams. Teams bring together different people with diverse perspectives, personalities, skills and expertise; which would then enhance the team’s synergistic ability to handle complex tasks and generate innovative solutions. In order to achieve maximum synergistic effect, attention must be given to structural factors such as team diversity (West & Anderson, 1996). Team diversity in terms of function, tenure, education, knowledge, skills, or expertise are crucial for idea generation, as these traits bring diverse perspectives and knowledge sets (Perry-Smith, 2006). However, other studies have shown that team diversity increases conflict and erodes team cohesiveness, leading to less social integration and communication breakdowns, which are all important for effective idea implementation (Knight et al., 1999).

HIGH PERFORMANCE WORK PRACTICES (HPWP)

Originating from the field of strategic human resource management (SHRM), high performance work practices (HPWP) is a bundle of relevant human resource practices which positively affect employee attitude, motivation and performance (Sels, De Winne, Maes, Delmotte, Faems, & Forrier, 2006) and ultimately leads to attainment of organizational goals. Compared to the conventional human resource practices which are transactional in nature, the bundles of HPWP are internally fit and produce synergistic effects in which certain practices reinforce one another to increase organization
efficiency and effectiveness (Becker & Gerhart, 1996). HPWP increase organizational effectiveness by creating conditions where employees become highly involve in the organization and work hard to accomplish its goal, in another words, by increasing employee job satisfaction and commitment to the organization (Eisenberger, Cummings, Armeli & Lynch, 1997). Based on these arguments, HPWP is a relevant contemporary HR practices that are transformational and flexible enough to address the complex innovation processes in R&D organizations.

According to Youndt, Snell, Dean, and Lepak (1996), there are four main human resource practices that are bundled up as a set of human-capital-enhancing HPWP. These four human resource practices are staffing, training, performance appraisal and compensation. In the following sections, we will discuss how each of these practices can play a role to shape innovative behaviour in R&D organizations.

Innovative behaviour in R&D essentially involves generation and implementation of technical knowledge which can only be carried out by individuals with high level of technical and scientific knowledge and creativity (Diaz & Gómez-Mejía, 1997; Cheng, Wang, Horng & Huang, 2007). To achieve this, R&D firms need to have a selective staffing policy to attract highly skilled R&D professionals (Ángel & Sánchez, 2009). The staffing procedure must measure specific education level, basic technical skills and scientific knowledge that are critical for the R&D job. In addition, soft-skills such as problem-solving, project management and leadership skills are equally important for R&D professionals. Therefore, it is imperative that HR professionals to incorporate these elements when designing R&D jobs and to strictly assess these measures when selecting new employees.

In HPWP, a proper staffing process has to be bundled with effective training and development programme. As technology changes rapidly, researchers must be continuously updating themselves with new technological development. Thus, they need to be given access to continuous learning and training opportunities (Lau & Ngo, 2004). In addition, teamwork can be further enhanced when team members are able to acquire various soft skills such as team building, problem solving and
communication skills. Developing leadership skills is likewise critical when building an innovative R&D team. R&D project leaders must not just be competent in managing technical aspects of the project. They must also be equipped with appropriate leadership skills that will enable them to mobilise their team members and engage with various stakeholders within and outside the organization. Creativity and innovation can be fostered when researchers are exposed to diverse perspectives and information. Therefore, a climate of learning and knowledge-sharing becomes a beneficial ground for cross-fertilization of ideas within and outside R&D organizations. A knowledge management system which includes knowledge portals, idea banks and communities of practices (COP) can be put in place so that new ideas can be shared and exploited in the organization.

**Performance appraisal** is another important component of innovative-centric HPWP. Performance appraisal is the process of evaluating employees’s existing performance in relation to their performance standards (Dessler, 2015). The purpose of performance appraisal in innovative companies is not just to reward the "good" employees and punish the "bad" ones; the idea is also to help the marginal performers to do better (Gupta & Singhal, 1993). Continuous performance monitoring and appraisal enable the organization to ensure that individual and team performances are in tandem with the overall strategic organizational goals. Apart from that, regular appraisal will provide employees with the necessary feedback to improve their performance. The appraisal process becomes a social learning platform where regular feedback and observations from leaders inform team members of those behaviours that are expected and valued in the team (Dragoni, 2005). As a result, team members are likely to self-regulate their behaviours accordingly (Odoardi, et. al, 2015)

HPWP is not complete without the **compensation** process. To cultivate innovative behaviour and creativity, firms must encourage researchers to take up projects that entail certain level of risks. To persuade risk-taking, HR managers can design innovative incentive plans, above-market compensation, employment security and job assignment flexibility (Ashton & Sung, 2002). In addition, R&D teams can be encouraged to pursue risky R&D efforts through the introduction of R&D incentives such as payment of royalty streams generated from their innovative output (Debackere &
Veugelers, 2005). On the other hand, knowledge-sharing climate can be induced with some financial
incentives. Those who actively share new ideas and those who successfully realise those ideas into
innovative products or services should be recognised and rewarded. Ashton and Sung (2002)
cautioned that when designing a compensation package, HR managers need to strike a balance
between rewards for individual and team-based performance to convey the message that individual
creativity and team synergies are both equally important for innovation.

In summary, R&D organizations can identify a number of key HR practices that when
simultaneously deployed, they can create synergistic effects and eventually lead to achievement of
organizational innovative goals. As these HR practices need to be 'bundled' into relevant sets of
HPWP depending on how they internally fit with each other, HR and R&D managers must exercise
cautions when combining these practices. Understanding how these practices have effect on one
another will enable managers to select the most effective HPWP to shape innovative behaviour in
R&D organizations.

**RESEARCH AND PRACTICAL IMPLICATIONS**

Currently there is very limited empirical research relating HPWP with innovative behavior. Within
the context of R&D organizations in Malaysia, the knowledge on the implementation of HPWP is also
embryonic. Therefore further empirical study is essential in order to examine the HPWP
implementation and its relationship with innovation and innovative behavior. In addition, even though
this study is still at a conceptual stage, it will still be able to guide HR managers to develop coherent
bundles of HPWP that can support the development of innovative behaviour in R&D organizations.
This paper also demonstrates how four key HR practices (staffing, training, performance appraisal and
compensation) are combined together to enhance creativity and innovativeness. In conclusion, by
understanding the implications of HPWP, organizations are able make effective decisions in their
quest to develop exceptional R&D workforce.

**References**


  

  


