


Deriving Intellectual Capital Bottom-Line in Professional Service Firms: A High Performance Work Practices Perspective

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ABSTRACT

The contribution of professional service firms (PSFs) has always been phenomenal in the knowledge economies. Given the ever-increasing focus on achieving knowledge-based transformations, the effectiveness of these firms is highly attributed to the knowledge capabilities embedded in their staff and how efficiently they are utilized in firm's optimal benefit. In view of growing services sector, it is vital for these firms to implement high performance work practices (HPWPs) so as to maintain high-quality services and meet competing client needs. However, the systematic implementation of these practices in the intellectual capital (IC) context is not fully developed. Hence, this research suggests a linkage mechanism on how HPWPs support IC development in the professional service firms. By operationalizing these practices as ability-, motivation-, and opportunity-enhancing bundles, the results indicate a positive effect on intellectual capital and the findings offer practical insights to the managers in service firms on building their knowledge capital and deriving competitive advantage.

KEYWORDS

High Performance Work Practices (HPWPs), Intellectual Capital (IC), Knowledge Assets, Professional Service Firms (PSFs), Strategic Human Resource Management

INTRODUCTION

HRM scholars and practitioners argue that the competent workforce contributes to firm performance and industry competitiveness because of the knowledge and competencies possessed by them as a result of firm's intellectual capital development (Sikora et al., 2016). This viewpoint gave rise to the growth of Strategic Human Resource Management (SHRM). In support of this argument, Fareed et al. (2016) claim that skilled and competent human resource helps organizations successfully compete in a business environment. According to the Resource-Based-View (RBV), quality human resource is central to developing robust human capital, leading to a sustained competitiveness of the

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firm (Barney, 1991). Marimuthu et al. (2009) highlight that successful organizations craft strategies that not only help them build their human resource capabilities but also support the achievement of business goals through improved productivity and efficiency. However, achieving this requires firms to capitalize on the employees, ensuring that they are equipped with the required skillset to undertake their roles efficiently.

In this regard, Jennex (2020) also expounds that an effective KM strategy serves two purposes. First, it aids in guiding the representation of the right knowledge contents in terms of its appropriate capture, storage and utilization. Second, it helps align knowledge management strategy with the firm's competitive strategy. Although, both tangible and intangible assets are needed by the firms to demonstrate and successfully develop competitive strategies, however, today knowledge-based economies are focusing more on Intellectual Capital (IC) as critical for strategic management of organizational knowledge in order to survive in a complex business environment (Aryee et al., 2016; Crhová & Matošková, 2019). Moreover, IC when viewed from strategic HRM perspective, it focuses on re-aligning the intellectual knowledge assets of a firm in line with its core strategies. This makes the efficient management of knowledge resources indispensable for the firms if they ought to leverage these resources in deriving a sustained competitive advantage (Jennex 2020; Smith et al., 2010).

In view of the above, this research accordingly contributes to strategic HRM and IC literature by examining and addressing the central research question i.e. '*How AMO bundles of HPWPs Guide Intellectual Capital Development In the Professional Service Firms?*'. This is to say - *how HPWPs impact the intellectual capital bottom-line in Professional Service Firms (PSFs)?* Accordingly, this paper is structured as follow. Section-2 gives a substantial understanding of the literature review and is followed by Section-3 that highlights the research model along with associated hypotheses. Section-4 discusses research design detailing data collection methods, research participants and measurement scales. Section-5 entails data analyses and results. Finally, Section-6 sums up the paper by presenting overall discussions, highlighting implications and limitations followed by the conclusion.

THEORETICAL BACKGROUND

High Performance Work Practices (HPWPs)

In the extant literature, HPWPs have been identified by varying names such as High Performance Work Systems, High Involvement Work Practices, Strategic Human Resource Management Practices etc. (Fareed et al., 2016; Arthur, 1994). HPWPs refer to a set of practices involving a blend of self-managed work teams and socio-technical systems (Wood, 1996). In the eyes of Nadler et al. (1992), HPWPs constitute a cluster of people, work processes, technologies and information synergized in a manner to reap optimum benefit from their combination. HPWPs usually involve comprehensive staffing policies, employee performance management, rewards & recognition system, training and continuous development etc. Each of these is aimed at building and enhancing employee skills and attitude needed to effectively execute their core responsibilities (Fareed et al., 2016; Huselid, 1995). Appelbaum et al. (2000) consider HPWPs as modern employee development initiative such as self-directed teams, employee trainings, performance-based pay, job security, reduced status distinction etc. Zacharatos et al. (2005) determined various HPWPs such as effective teams, contingent reward policy, selective hiring, decentralized decision making, transformational leadership and information-sharing.

Although, the modern information-sharing tools, communication systems and collaborative technologies support organizational work activities, nevertheless, these technological capabilities would not effectively serve the purpose if the staff is not adequately skilled and motivated to adopt them (Fareed et al., 2017; Messersmith & Guthrie, 2010). This is because of the indispensable role of organizational human resource towards persistently achieving corporate goals. So there is an increasing consensus that managers can enhance employee performance & creativity at the workplace by motivating them to take discretionary efforts and participate in the decision making (Appelbaum

et al., 2000). This managerial approach enhances employees' flexibility and competency thereby playing a pivotal role in deriving organizational performance (Combs et al., 2006; Huselid, 1995).

Consistent with the objectives of this research and considering the underlying research question, the researchers have identified certain number of HPWPs. The rationale behind their selection and methodological choice is discussed in the section 3 & 4 of this paper. As a whole, it can be expected that successful empirical validation of the identified practices would help achieve IC development goals.

AMO Bundle Perspective in HPWPs

In the SHRM literature, there is broad agreement that the effect of bundles of HPWPs on firm effectiveness is far more than the individually applied practices (Kianto et al., 2017; Youndt & Snell, 2004). To this end, Appelbaum et al. (2000) underscored that a blend of three bundles of HRM practices constitute a holistic system of HPWPs. They termed these bundles as: Ability-enhancing practices (A) such as training, learning opportunities etc; Motivation-enhancing practices (M) e.g. employee autonomy, reward based on performance, merit-based promotions etc., and Opportunity-enhancing practices (O) that provide employees an opportunity to fully utilize their skills such as employee communications, information sharing, grievance procedure etc. The AMO model serves as an important framework in categorizing the individual practices and determining their combined impact in bundles. According to Appelbaum et al., (2000), an appropriate arrangement of AMO bundles enables higher level of employee satisfaction and commitment to work which consequently spurs higher performance, productivity and creativity at the workplace (Kehoe & Wright, 2013).

HPWPs in Professional Service Firms (PSFs)

The HPWPs effect on firm performance is quite evident in the recent literature such as Tregaskis et al., (2013), Messersmith & Guthrie (2010), Huselid (1995) etc. to name a few. However, the research on the implementation of HPWP in Professional Service Firms (PSFs) is reasonably insufficient and still in its early stages except some studies like Fu et al. (2017; 2015) and McClean & Collins (2011). Prior research has mostly covered manufacturing and routinized firms. Hence, PSFs offer an important context for examining the effects of HPWPs on organizational intellectual capabilities as their success is predominately reliant on the knowledge capabilities and skills of their staff (Fu et al., 2017).

In general, Professional Service Firms are characterized by the virtue of their niche way of offering customized and specialized services to the clients and hence rely on the idiosyncratic skills and problem-solving abilities of their professional staff. By applying their knowledge and expertise, staff members not only contribute to organizational knowledge base but also help build client relationships (Løwendahl, 2005). Besides, by virtue of having key knowledge about the products, services and processes, staff play a vital role in achieving long term growth and sustainability of the firm (Jennex, 2014). This ability to derive knowledge-based competitive advantage serves as the most critical factor towards the success of these firms, making the investigations of IC phenomena highly relevant in the context of service firms.

Intellectual Capital (IC)

Intellectual Capital (IC) refers to a cumulative sum of organizational resources, comprising of its knowledge, skills, competencies, experience and intellectual property that collectively add value to an organization (Bontis, 2002; Roos et al., 1998; Stewart, 1997). IC facilitates competitive market positioning of a firm particularly when its physical assets are no longer able to achieve sustainable advantage. This is because IC capabilities are unique & non-substitutable and vary from firm to firm, so the investment in IC depends on the type of the firm (Kong & Thomson, 2009). An organization attains optimum IC potential when it acquires intellectual capabilities comprising of human capabilities, work processes, structural capabilities and organizational culture (Kamaluddin & Rahman, 2016).

Various scholars have worked on IC dimensions. Subramaniam & Youndt (2005) proposed human, organizational & social capital as IC dimensions. However, the researchers such as Bontis (2002),

Nahapiet & Ghoshal (1998), Roos et al. (1998), and Stewart (1997) proposed Human, Structural & Relational capital as IC dimensions. These dimensions are also in coherence with the dimensions suggested by the Meritum Project (European Universities Consortium). Following the broad consensus, the researchers took into account the dimensions proposed by the later scholars.

- **Human Capital:** It incorporates tacit knowledge, skills, experience, competencies, talents, and innovativeness of organizational human resources (Roos et al., 1998). An organization can't own human capital but it can only be hired and the organization is created by its individuals, not the organization itself (Stewart, 1997; Nonaka & Takeuchi, 1995). According to Grassenick & Low (2004), new employees possess human capital when they become part of an organization thereby contributing to the organizational memory and vice versa case when they leave the organization. This is due to the fact that talent, skills and tacit knowledge of the individuals can't be retained when they are no more part of the organization (Bontis, 2002; Roos et al., 1998). Hence, owing to their being in possession of unique knowledge and competencies, the organizational human resource forms the basis of its competitiveness (Jennex, 2014). This makes human capital the most important intellectual capital dimension (Chen & Wang, 2013).
- **Structural Capital:** Also labeled in literature as organizational capital, it represents supportive infrastructure, systems and physical assets that facilitate knowledge, learning and routine work activities in an organization (Chen & Wang, 2013). It is basically a sum total of knowledge capabilities that are retained by an organization even after its members have left the organization (Grassenick & Low, 2004). Some common examples include organizational information systems, automation tools, knowledge databases, organizational work culture, routine processes, management capabilities, intellectual property and anything that results in a value creation for the organization (Kong & Thomson, 2009). For an organization, structural capital facilitates the development of infrastructures and mechanisms to assist individuals in making most of their intellectual capabilities, leading to improved organizational performance (Bontis et al., 2000).
- **Relational Capital:** Also often termed as customer capital, it denotes the relationship maintained by an organization with its external-stakeholders and the opinion held by them about the organization coupled with communication and exchange of knowledge between both the parties (Bontis et al., 2000). In particular, it involves customer loyalty and goodwill, mutual trust, business collaboration and long-term relationships of the firm with its suppliers and partners, understanding of legal matters, knowledge of regulatory issues, competitors' intelligence etc. (Rehman et al., 2019; Kong & Thomson, 2009).

HPWPs and Intellectual Capital Development

The literature acknowledges that HPWPs serve as the guiding mechanism for promoting human capital of an organization (Chen & Wang, 2013). It has been recognized that HPWPs stimulate employee performance and creative thinking by enhancing their key competencies such as knowledge, skills and abilities. Firms implement these practices in bundles with an aim to hire, train, develop and retain their employees. These elements are hard to imitate by the opponents owing to the strategic nature of HPWPs implementation (Messersmith & Guthrie, 2010; Kehoe & Wright, 2013). Although, the role of HPWPs in achieving performance outcomes has been phenomenal, nonetheless, researchers argue that the linking mechanism between these practices and intellectual capital development is still less explored (Jiang & Liu, 2015). As mentioned earlier, IC clearly combines organizational knowledge in three interrelated components viz. human, structural & relational capital (Roos et al., 1998), these components offer a well-structured framework for effectively applying the strategic HRM practices (Fareed et al., 2016). Accordingly, these practices, when integrated into organizational thinking can promote all IC dimensions, leading to overall growth of IC (Youndt & Snell, 2004).

HPWPs and Human-Capital Development

Human capital resides in the minds of employees as their tacit knowledge and skills which are inculcated via a series of HRM initiatives such as: employee hiring, placement, training & development (Chen & Wang, 2013). The pool of human capital resources grows when an organization inducts new staff members. However, the human capital embedded in the newly-inducted staff is not aligned according to the firm requirements (Grasenick & Low, 2004). To this end, Hatch and Dyer (2004) argue that the human resource acquired by an organization must go through organizational adjustments before their abilities could be optimally reaped to best meet the needs of the new environment. They further highlighted that the previous experience of new employees might also impact their abilities, restricting the ‘unlearn’ and ‘re-learn’ of the knowledge at the new workplace. This implies that human capital transitioning through individual movement from one organization to another is not as easy as perceived. Thus, organizations require focusing more on fostering the human capital as mere recruitment of human resource wouldn’t serve the purpose of gaining competitive edge (Kong & Thomson, 2009).

HPWPs and Structural-Capital Development

The role of HPWPs is also critical towards the growth and development of structural capital. Hatch & Dyer (2004) claim that employee learning activities within a firm support the creation of firm-specific human capabilities which are hard to imitate by the competitors as they are unique and exclusive to the firm (Hitt et al., 2001). Other key components of structural capital, for example, organizational work culture, routines and innovative capabilities also help enhance human capabilities and maintain inimitability of the firm. Therefore, HR managers, in addition to human capital, should also take into account the structural capital of a firm while designing and implementing human resource strategies (Kong & Thomson, 2009).

HPWPs and Relational-Capital Development

An organization can’t work in the state of isolation, it often has to interact with the external stakeholders such as clients, customers, suppliers, partners etc (Kong, 2009). Relational capital represents how an organization interacts with external agents by utilizing its in-house human and structural capitals to create sustainable value (Kong & Thomson, 2009; Pablos 2004). Relational capital in fact helps an organization know more about the dynamics of external knowledge embedded in the stakeholder relationships. Through effective implementation of HPWPs, organizational pool of human-capital assets can be augmented to enhance the overall human resource quality and effectiveness (Kuchеров & Manokhina, 2017). This high-quality human resource can potentially play a key role in gaining market knowledge and enhancing network of relationship with the external stakeholders (Kong, 2009). This improved market intelligence and external network of stakeholders could be applied by a firm in revisiting its competitive strategies and priorities (Rehman et al., 2019). Thus, relational capital can be thought of as prime mover of strategic innovation.

Resource Based View (RBV) – An Underlying Linkage Mechanism

The Resource-Based-View (RBV) of an organization expounds that it is fundamental for an organization to possess valuable resources and these must be unique, inimitable, non-substitutable and exceptional to the firm to create sustainable value for the organization (Barney, 1991b; Wright & McMahan, 1992). RBV further states that it is prime responsibility of the HRM department to ensure achievement of corporate objectives through its human resources, having a potential to contribute to the organizational goals. Employees in an organization possess varying level of competencies and motivation, which when utilized effectively, can result in long-term competitiveness of the firm (Haslinda, 2009). As a result, a firm must invest in its employees by imparting training and developing their core skills, thereby supporting them to accomplish their tasks effectively and resulting in a competitive market

advantage (Sikora et al., 2016; Crhová & Matošková, 2019). It is challenging to frequently replace employees as not all of them enjoy same level of expertise and adaptability to adjust in a complex environment and add value to the firm (Cardy & Selvarajan, 2006). Consequently, the contribution of RBV to Strategic HRM and IC literature has been enormous in terms of its theoretical expansion, empirical research and managerial practice (Sikora et al., 2016).

RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

Research Model

Research literature on HPWPs highlights a large number of HPWPs. These practices have been evolving from time to time and their application and effectiveness vary from one culture to another (Posthuma et al., 2013). Usually, business firms choose a certain number of these practices that fit their organizational culture and keeping in view the strategic performance outcomes they intend to drive e.g. firm performance, innovation capabilities, business system success etc. to name a few.

As mentioned earlier that the effect of HPWPs when applied in bundles is far more than the individually applied practices (Youndt & Snell, 2004). Hence as part of this research, a number of practices were identified after extensive review of literature with each having a potential to influence the intellectual capital of a firm. We, however, limited the number of these practices to eight and categorized them in Ability, Motivation & Opportunity bundles. Some of these are commonly applied practices (such as Employee Empowerment, Knowledge Sharing, Training & Development, Performance Based Reward) while others are relatively new (such as Shared Leadership, Teamwork Quality, Interpersonal Trust) and hence need substantial empirical validation (Rehman et al., 2018; Posthuma et al., 2013). These practices were empirically tested within three AMO bundles of practices.

Needless to say, HPWPs are primarily applied by HRM department of an organization on its employees as an organizational initiative, yet there are some practices whose effective application is more dependent on employee voluntary behaviour for example, Employee Knowledge Sharing, Interpersonal Trust in this case (Wu et al., 2011). Accordingly, a brief explanation of these practices within AMO bundles is given in the subsequent section (Figure 1).

Hypotheses Development

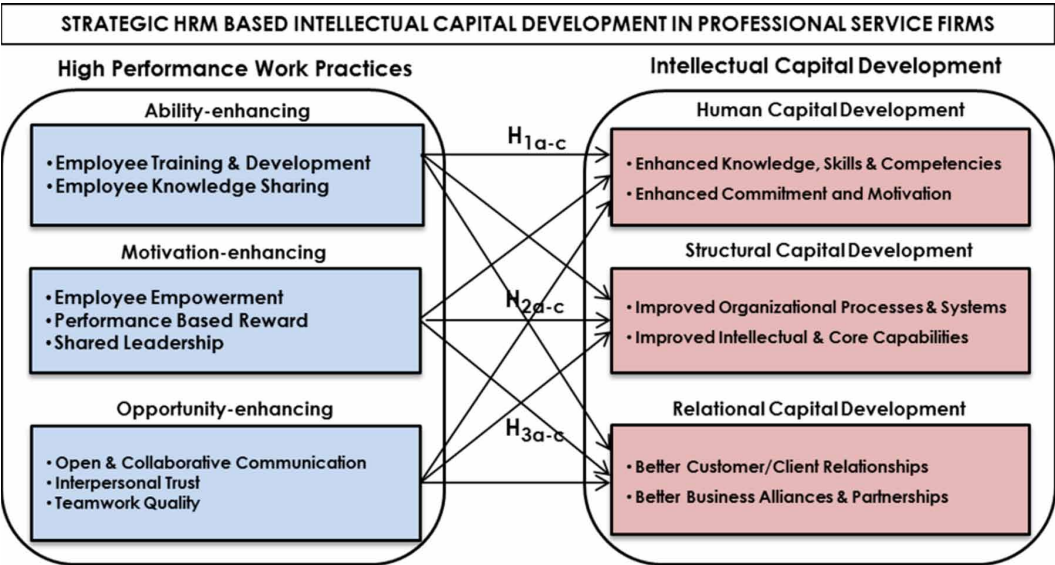
This research is primarily aimed at investigating the effect of (Ability, Motivation & Opportunity)-enhancing bundles of HPWPs on intellectual capital development. A brief explanation of each work practice within its corresponding bundle is given in the IC context of the service firms followed by the relevant hypotheses development.

Ability-Enhancing HPWPs and Intellectual Capital

The most relevant practices in this category having potential to promote intellectual capital in PSFs include: Employee Training & Development and Employee Knowledge Sharing.

- ***Employee Training & Development:*** In an organizational context, the term training & development is frequently used which refers to organizational initiative towards enhancing employee learning with an aim to achieve better performance (Robert et al., 2000). In view of Bartlett (2001), training is a planned managerial effort that results in a desired set of shared behaviors and motivations. It involves the concept of paying for knowledge that rewards employees for the competencies gained and applied at the workplace (Wanga et al., 2011). Employee trainings contribute to the development of their core skills and capabilities that consequently add to organizational knowledge capabilities (Schuler & MacMillan, 1986). Researchers argue improved organizational performance and productivity as the justifications behind imparting trainings (Bartlett, 2011).

Figure 1. Research model



- **Employee Knowledge Sharing:** A voluntary behavior of an individual that enables exchange of knowledge (explicit or tacit), ideas, information and experiences with another individual or group of people is referred to as knowledge sharing (Obeidat et al., 2017). However, ensuring smooth sharing of knowledge is not easy as it necessitates strong willingness to collaborate with the others (Ling et al., 2009). Knowledge enablement between the employees reaps multitude of benefits to an organization such as creation of new knowledge, building competencies, solution to complex problems, generation of new ideas, fostering creativity, understanding customer needs etc (Rehman et al., 2019; Akbar & Khan, 2016). To facilitate knowledge flow among the employees, organizations need to ensure that employees feel morally obligated to knowledge sharing (Fathi et al., 2011; Al-Alawi et al., 2007). Welch & Welch (2008) argue that employees receiving knowledge from their colleagues are naturally motivated to reciprocate sharing of knowledge. Employees mostly share knowledge with the individuals they are familiar with and consider trustworthy.

Therefore, it can be hypothesized within Ability-enhancing HPWPs that:

- H_1 : Ability-enhancing HPWPs significantly influence the human capital in PSFs.
- H_2 : Ability-enhancing HPWPs significantly influence the structural capital in PSFs.
- H_3 : Ability-enhancing HPWPs significantly influence the relational capital in PSFs.

Motivation-Enhancing HPWPs and Intellectual Capital

The most relevant bundle within Motivation-enhancing HPWPs include: Employee Empowerment, Performance Based Reward & Shared Leadership. These are briefly described in the IC context below:

- **Employee Empowerment:** It refers to degree of autonomy given by the managers to their employees. Primarily, it defines the level of discretion or authority that can be exercised by the employees in relation to their routine roles and responsibilities (Wanga et al., 2011). Employee empowerment practices involve enabling decision making processes at various levels of an

organization in line with its set goals (Robert et al., 2000). The underlying assumption behind empowerment process is to delegate decision making authority to the employees in an effort to keep employees motivated and enhance performance (Wanga et al., 2011). Some of the other desired outcomes of employee empowerment are employee job satisfaction and employee engagement. These serve as the basis for retaining the skilled human resources and hence maintaining the human capital of the firm.

- **Performance Based Reward:** Rewarding high-performing employees is considered an important managerial approach toward influencing individual behavior and work related performance (Peltokorpi, 2011). Reward system is usually extrinsic & intrinsic in nature. Extrinsic rewards are more tangible in nature and given to the employees in recognition of their outstanding performance which may include higher pay, bonuses, extra incentives, promotions etc. However, not all employees can be motivated through monetary rewards. They also expect intrinsic rewards which they can get in the form of better working conditions, workplace flexibility, job satisfaction etc (Sajeva & Svetlana, 2014). The intrinsic rewards, however, are less tangible and more subjective as they create employee perception on the value of their job (Peltokorpi, 2011). Therefore, performance rewards, if initiated properly, could be instrumental in enhancing firm performance by keeping staff motivated.
- **Shared Leadership:** It refers to a leadership behaviour involving collaborative processes spread across organizational members and teams wherein leadership emerges from the teams and members lead each other to accomplish set objectives (Simone et al., 2017). The shared leadership is characterized by an environment wherein all member of a team exercise leadership behavior and collaborative decision making for achieving collective outcomes (Carson et al., 2007). Although, the process involves informal team processes occurring in parallel within the teams, it doesn't eliminate vertical leadership concepts. Every team member exercises leadership functions and shares responsibilities with the other members, and based on their level of knowledge and competencies, leadership role changes within the team in line with the nature of task and situation (Simone et al., 2017). This perception of leadership necessitates shared responsibility and involvement of all team members in decision making process, enabling everyone to act as a mentor within the team (Hoch, 2014).

Accordingly, it may be hypothesized within Motivation-enhancing HPWPs that:

H₄: Motivation-enhancing HPWPs significantly influence the human capital in PSFs.

H₅: Motivation-enhancing HPWPs significantly influence the structural capital in PSFs.

H₆: Motivation-enhancing HPWPs significantly influence the relational capital in PSFs.

Opportunity-Enhancing HPWPs and Intellectual Capital

The most relevant HPWPs identified within this category are: Open & Collaborative Communication, Interpersonal Trust and Teamwork Quality. These are briefly discussed in the IC context below:

- **Open & Collaborative Communication:** Open communication facilitates transfer of tacit knowledge among the organizational members. Organizations embracing norms of open communication manage to effectively overcome the barriers to knowledge exchange, motivating their employees to share their feelings and experiences (Tyagi et al., 2017; Akbar & Khan, 2016). The more employees interact and collaborate with each other, the more they share their inner thoughts. Hence, in order to enhance organizational knowledge capabilities, employees should be encouraged to freely collaborate and speak their mind through sustained communications (Lawn et al., 2015).

- **Interpersonal Trust:** According to Mäki (2015), organizational members participate in communication and knowledge sharing activities based on the level of trust that exists between them. A trusting relationship is crucial for exchange of knowledge, mutual cooperation and interactions among the individual (Al-Alawi et al., 2007). It serves as a vital ingredient of a competitive business environment by empowering individuals to willingly collaborate and exchange knowledge. In the absence of feelings of trust, employees don't feel obligated to interact and share their knowledge (Mäki, 2015; Welch & Welch, 2008).
- **Teamwork Quality:** One of the key elements contributing towards effective and high-performing teams is teamwork. Success of a team is based on how interactive the communication between the team members is (Budijanto, 2013). To further enhance the effectiveness, Hoegl & Gemuenden (2001) added qualitative aspect in the notion of teamwork by introducing the concept of Teamwork Quality (TWQ). According to them, the concept of TWQ describes quality of interaction among the team members and how effectively they collaborate for achieving common goals. The six dimensions of TWQ proposed by Hoegl and Gemuenden (2001) are: communication, coordination, balance of member contribution, effort, mutual support and cohesion (Budijanto, 2013).

Hence, we may hypothesize within Opportunity-enhancing HPWPs as:

H₇: Opportunity-enhancing HPWPs significantly influence the human capital in PSFs.

H₈: Opportunity-enhancing HPWPs significantly influence the structural capital in PSFs.

H₉: Opportunity-enhancing HPWPs significantly influence the relational capital in PSFs.

RESEARCH METHODOLOGY

Research Data Collection

The data for this research were collected via online survey questionnaire. The quantitative approach to data collection is widely utilized in hypotheses testing and empirically validating the research model. This method of enquiry helped in answering the key research question governing the relationship between HPWPs and IC in the context of service firms.

Research Participants and Sample Size

Participants for this research were invited from 30 identified Australian Professional Service Firms (PSFs). An anonymous online survey links was emailed to the HR departments/Contact Persons in these firms with a request to entertain 20 employee responses per firm. This allowed online surveys being circulated to a maximum of 30x20=600 employees within the chosen firms.

Research Measures

This research utilized existing measures from the previous relevant studies. Most of the measures for the survey questionnaire were adapted from the prior studies with minor changes. However, the measures for two relatively new HPWP constructs (i.e. Teamwork Quality & Shared Leadership) were adapted from the relevant studies after making necessary changes. The operationalization of constructs using the previously-validated items enhanced research credibility and reliability. Items were measured through 5-point based Likert scale with 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree. Table 1 gives an overview of the research constructs operationalized in the model framework along with the details of the studies they were adapted or developed from. The specific details of the measures/items within these constructs are given in the end (Appendix A).

Table 1. Research measures

Constructs/Measures	Number of Survey Measures	Measures Adapted/Developed from the Studies
High Performance Work Practices		
Employee Training & Development	2	Messersmith and Guthrie (2010)
Employee Knowledge Sharing	2	Kianto et al. (2017)
Employee Empowerment	2	Guthrie et al. (2009) Lepak & Snell (2002)
Performance Based Reward	2	Kehoe and Wright (2013) Takeuchi et al. (2009)
Shared Leadership	2	Hsu et al. (2017); Hoch (2014)
Open & Collaborative Communication	2	Soo et al. (2017)
Interpersonal Trust	2	Singh (2004)
Teamwork Quality	2	Hoegl & Gemuenden (2001)
Intellectual Capital Development		
Human Capital	3	Fu et al. (2017) Kianto et al. (2017) Subramaniam & Youndt (2005)
Structural Capital	3	
Relational Capital	3	
Total	25	

DATA ANALYSES AND RESULTS

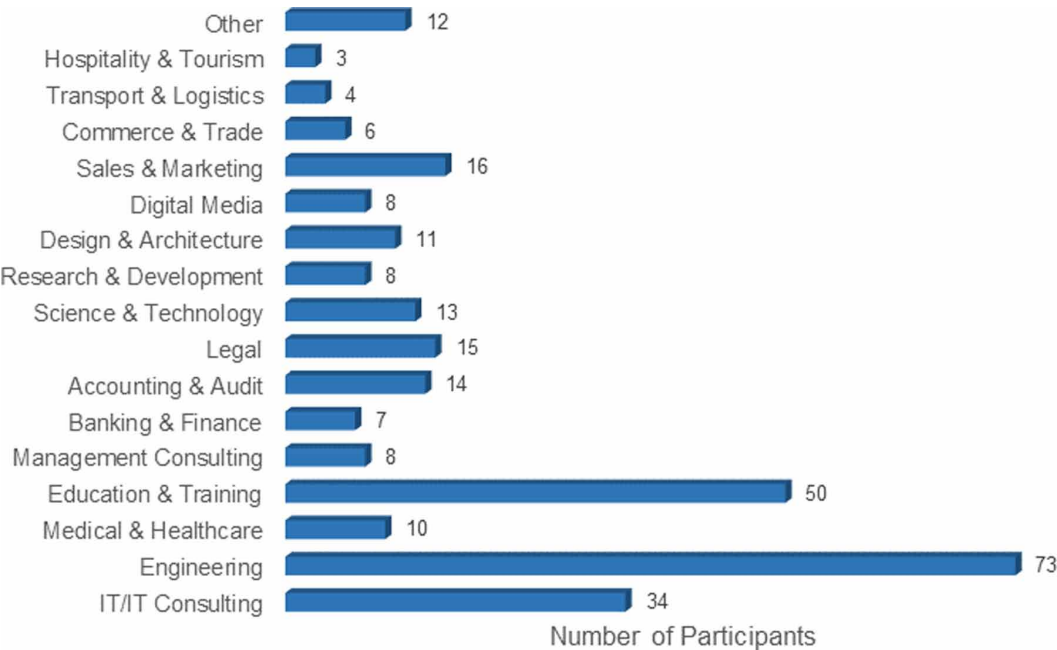
Data Analysis Approach

The collected data were analyzed using a multivariate statistical approach in two steps. The first step involved descriptive data analysis with an aim to ascertain readiness of data for analysis at the multivariate level. This included review of participants' demographic information along with calculation of means and standard deviation. In the second step, variance based Structural Equation Modelling using SMART-PLS was utilized to perform in-depth analysis and test the hypotheses (Ringle et al., 2014).

PLS is a powerful multivariate technique that allows simultaneously evaluation and testing of the 'measurement model' and 'structural model' with minimal error, hence enabling the researchers to determine item validity and causality of the relationships between various model constructs (Sarstedt et al., 2017; Hair et al., 2014). Besides, it also offers ease of simultaneously analyzing both formative & reflective factors within a research model. Hair et al. (2011) claim that PLS based SEM technique eliminates the need to gather large datasets and calculate normality of the data, thereby avoiding distributional assumptions governing nominal, ordinal or scaled data. PLS based SEM is better suited than covariance based SEM approach in the testing and measurement of research model (Henseler et al., 2014).

In the research model, HPWPs were modelled as formative factors within the Ability-Enhancing, Motivation-Enhancing and Opportunity-Enhancing constructs. This is because HPWPs bundle was comprised of multi-dimensional factors, covering various referent groups. While Intellectual Capital (that comprised Human, Structural and Relational elements) was modelled as reflective construct. Moreover, PLS-SEM analysis also enabled to draw additional insights from the same data via

Figure 2. Participating firms



Importance-Performance Map Analysis (IPMA). The results of the IPMA are detailed in the next section.

Descriptive Data Analysis

The firms that participated covered Engineering (Telecom, HVAC, Civil design) services (73%), Education and Training services (50%), IT/IS consulting (34%), Sales and Marketing services (16%), and the rest included Legal services, Accounting and Audit services, Medical and Healthcare services, etc. Figure 2 presents an exhaustive list of service firms that participated in the study.

Majority of participating firms were large scale firms (46%), followed by medium sized (25%) and lastly small scale firms (22%) (Figure 3).

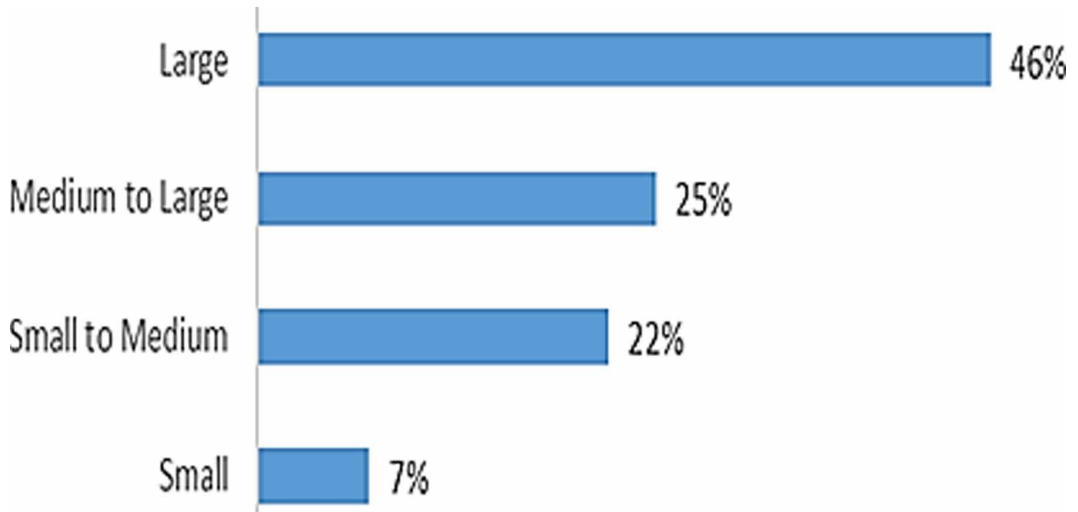
For further clarification on firm size, participants were requested to indicate the number of employees in their firms. In Figure 4, it is shown that majority of participating firms have a population of over 1000 employees (36.3%). Other firms included a population of 501 – 1000 employees (20.2%), 201 – 500 employees (13.7%), 101 – 200 employees (8.2%) and 25 – 100 employees (21.6%).

Among the respondents, 60% were male while 36% were female. Many were between 26 to 35 years of age (46%), while others were 36 to 45 years (25%) and above 45 years (14%). Participants' work experience was mainly 1 to 3 years (26%), while others had 4 to 6 years of experience (19%), 7 to 10 years of experience (21%), 11 to 15 years of experience (16%) and over 15 years of experience (18%). Respondents were mainly operational employees (52%). Others were supervisors (13%) and senior managers (10%). In terms of their education, most of them possessed master degree (48%), while other held bachelor (31%) and PhD degree (10%).

Measurement Model

The model reliability and validity were determined via convergent validity, discriminant validity and the internal consistencies i.e. Cronbach α (Hair et al., 2017). Convergent Validity determines whether the measures within the same construct are actually related or representative of the construct.

Figure 3. Size of participating firms



Accordingly, as recommended by Hair et al. (2014), the Factor Loadings, Composite Reliability (CR) and Average Variance Extracted (AVE) were utilized to determine Convergent Validity. Following the conventions, the researchers set values for both factor loadings and CR at > 0.7 , while for AVE at > 0.5 . Accordingly, Table 2 and Figure 5 show the measurement model results. It was clear that the values obtained were greater than the values recommended for the Factor Loadings, CR and AVE, highlighting adequate convergence validity. Item loadings are shown in Figure 5. In the research model, the 'Ability-Enhancing, Motivation-Enhancing and Opportunity-Enhancing' HPWPs are the formative constructs and hence can't be analysed in the process. However, the validity of formative constructs via their weights was determined as significant (i.e. p value < 0.05). Besides, collinearity was also assessed which resulted in all the inner VIF values to be less than 5 and 3.3, indicating that collinearity was not a concern (Hair et al. 2017).

Moreover, with an aim to understand the relationships between the variables, Discriminant Validity assessment was done using Heterotrait Monotrait (HTMT) correlation ratio. The HTMT method is considered best among the other methods and is recommended due to its ability to get higher sensitivity and specificity as compared to the cross loading criterion. The HTMT method recommends a threshold value of 0.85 (Kline 2011), while other methods suggest a 0.9 threshold (Teo et al., 2008). Therefore, a threshold of more than 0.85 in HTMT implies that discriminant validity is

Figure 4. Number of employees

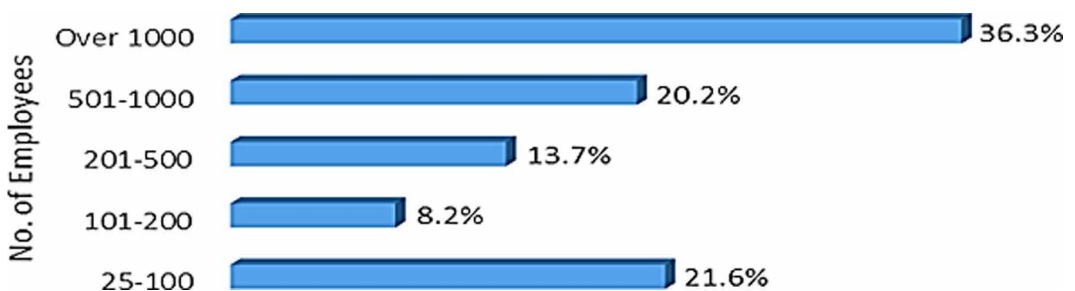


Table 2. Measurement model reliability and validity assessments

				Discriminant Analysis - HTMT Result		
Intellectual Capital	C-alpha	CR	AVE	Human Capital	Relational Capital	Structural Capital
Human Capital	0.72	0.81	0.61			
Relational Capital	0.77	0.84	0.69	0.498		
Structural Capital	0.71	0.83	0.62	0.585	0.582	
C-alpha: Cronbach's Alpha CR: Composite Reliability AVE: Average Variance Extracted						

lacking. The Table 2 as shown below presents HTMT results where all the values were lesser than its threshold. Hence, discriminant validity was sufficiently achieved.

Structural Model

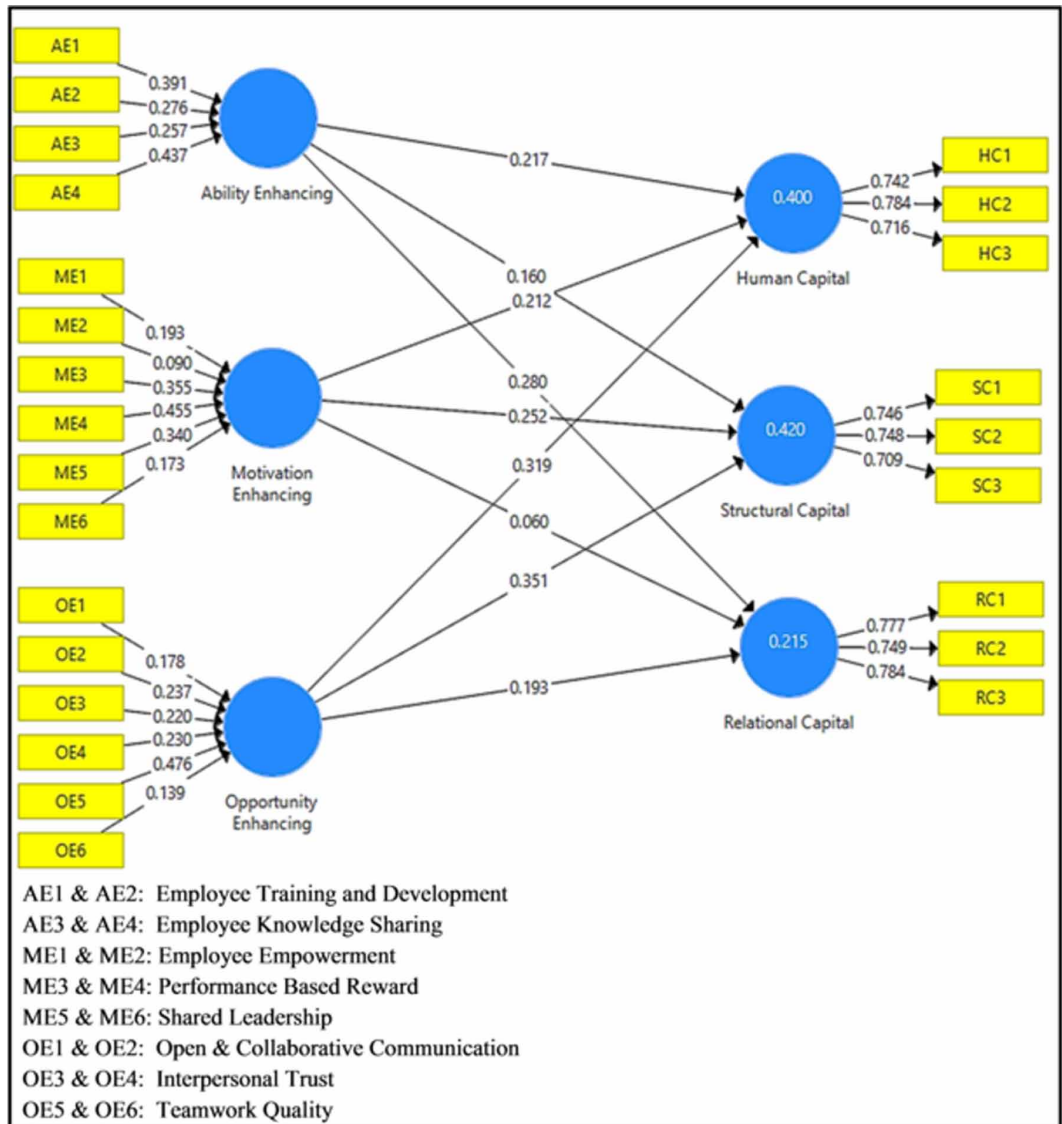
The Figure 5 demonstrates structural model testing followed by the Table 3 which highlights result of the hypotheses. The structural model assessment was done via coefficient of determination (R^2 value). The significance of path co-efficient along with path estimates and t-statistics were identified using the bootstrapping technique. These helped in measuring the hypothesized relationships.

AE1 & AE2: Employee Training and Development
 AE3 & AE4: Employee Knowledge Sharing
 ME1 & ME2: Employee Empowerment
 ME3 & ME4: Performance Based Reward
 ME5 & ME6: Shared Leadership
 OE1 & OE2: Open & Collaborative Communication
 OE3 & OE4: Interpersonal Trust
 OE5 & OE6: Teamwork Quality

As evident from Figure 5, the dependent constructs, Human, Structural and Relational Capital explained approximately 40%, 42% & 22% of the variance respectively. Also, the evaluation of the Q^2 value (Geisser, 1974) was carried out to assess predictive relevance. After running the blindfolding procedure (Henseler et al., 2014), the endogenous construct Q^2 value (0.31) is higher than the zero threshold, hence representing a substantial predictive relevance. From the overall analysis, it was found that HPWPs with AMO bundles demonstrated a positive impact on various intellectual capital dimensions. All hypotheses are therefore supported.

According to the evidence provided in Table 3 and Figure 5, ability enhancing HPWPs positively influence human capital ($\beta=0.217^{***}$), structural capital ($\beta=0.160^{**}$) and relational capital ($\beta=0.280^{***}$) thus supporting hypotheses H1, H2 and H3. We particularly found that ability enhancing HPWPs have a stronger influence on relational, followed by human and lastly the structural capital of the firm. We also found that motivation enhancing HPWPs positively influence human capital ($\beta=0.212^{***}$), structural capital ($\beta=0.252^{***}$) and relational capital ($\beta=0.060^{**}$) thus supporting hypotheses H4, H5 and H6. These results indicate that motivation enhancing HPWPs have a stronger influence on structural capital followed by human capital and lastly relational capital. The last observation indicates that opportunity enhancing HPWPs positively influence human capital ($\beta=0.319^{***}$), structural capital ($\beta=0.351^{***}$) and relational capital ($\beta=0.193^{**}$) thus supporting hypotheses H7, H8 and H9. This indicates that the Opportunity enhancing HPWPs have a stronger

Figure 5. Structural model testing



influence on structural followed by human and lastly the relational capital. In particular, the human capital is more strongly influenced by opportunity enhancing HPWPs. In the same manner, structural capital is also strongly influenced by opportunity enhancing HPWPs, while relational capital is more strongly influenced by ability enhancing HPWPs.

Importance–Performance Map Analysis (IPMA)

The remarkable aspect of PLS-SEM analyses is that it additionally takes into consideration the comparative performance and importance of each model constructs from the viewpoint of its other constructs. This technique is called Importance-Performance-Map-Analysis (IPMA). This two dimensional information regarding importance and performance of a particular construct is specifically helpful in drawing meaningful conclusions and guiding managerial actions. It primarily enables

Table 3. Hypotheses testing

Hypotheses		Sample Mean (M)	Standard Deviation (SD)	T Statistics	P Values	Whether Accepted?
H1	Ability Enhancing -> Human Capital	0.219	0.059	3.659	0.00	Yes
H2	Ability Enhancing -> Structural Capital	0.154	0.069	2.309	0.021	Yes
H3	Ability Enhancing -> Relational Capital	0.28	0.072	3.885	0.00	Yes
H4	Motivation Enhancing -> Human Capital	0.214	0.062	3.397	0.001	Yes
H5	Motivation Enhancing -> Structural Capital	0.266	0.068	3.688	0.00	Yes
H6	Motivation Enhancing -> Relational Capital	0.064	0.071	1.99	0.03	Yes
H7	Opportunity Enhancing -> Human Capital	0.323	0.058	5.476	0.00	Yes
H8	Opportunity Enhancing -> Structural Capital	0.354	0.065	5.38	0.00	Yes
H9	Opportunity Enhancing -> Relational Capital	0.199	0.076	2.536	0.012	Yes

researchers to concentrate on performance enhancement of the constructs having high-importance in terms of their ability to explain targeted constructs but are relatively low performing (Ringle & Sarstedt, 2016; Höck et al., 2010).

In the Figures 6-7, the horizontal-axis denotes the ‘importance’ (total effects) of each constructs, whereas the vertical-axis highlights the ‘performance’ of all the dependent factors on a 0-100 scale. The higher the value, the better the performance. For example in the Figure 6, “AE2” at 73.7 is performing better than all others items for the target construct “human capital”. Conversely, the item “OE5” in the same target construct has an importance (total effect) of 0.15, which is higher than the others. This implies that the managers when aiming to enhance the performance of the target construct (i.e. promote human capital), their primary focus should be to enhance the performance delivered by “OE5”, as the importance of this item is highest of all but demonstrates a relatively low performance i.e. 43.3 (Figure 8 and Tables 4 and 5).

DISCUSSIONS

This research tests the effectiveness of High Performance Work Practices as a toolkit for intellectual capital development in the Professional Service Firms (PSFs). It is one of the few studies that examines the effectiveness of HPWPs in PSFs as their application was previously overlooked in these firms. From the literature viewpoint, it contributes to the strategic HRM literature in general and enriches the RBV theory perspective in particular by highlighting the effectiveness of HPWPs in building and enhancement of the firm’s intellectual capital. Moreover, by empirically testing specific AMO bundles of HPWP, it is determined how individual practices when combined as bundles stimulate various intellectual capital dimensions and which of these practices PSFs need to implement and sustain in order to build on their intellectual assets and capabilities.

In additions to some new findings, these findings are also in conformity with the existing literature such as Fu et al. (2017), Kamaluddin et al. (2016), Fareed et al. (2016), Oliveira & Silva

Figure 6. Importance-Performance-Map (human capital)

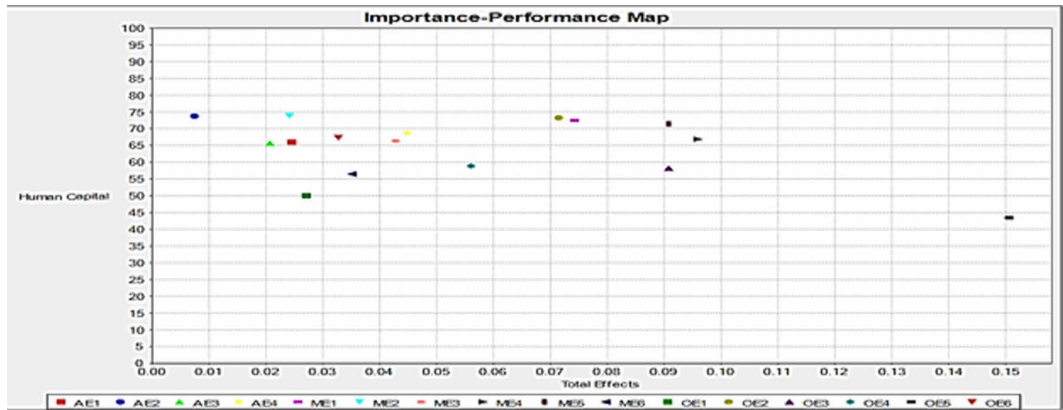
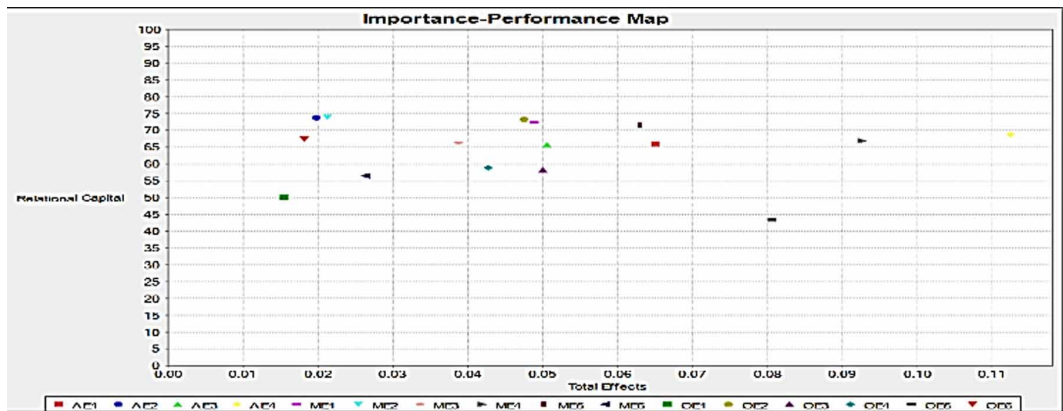


Figure 7. Importance Performance Map (relational capital)



(2015), Smets et al. (2012); Jiang et al. (2012); Messersmith et al. (2010), Youndt & Snell (2004)

Figure 8. Importance-Performance-Map (structural capital)

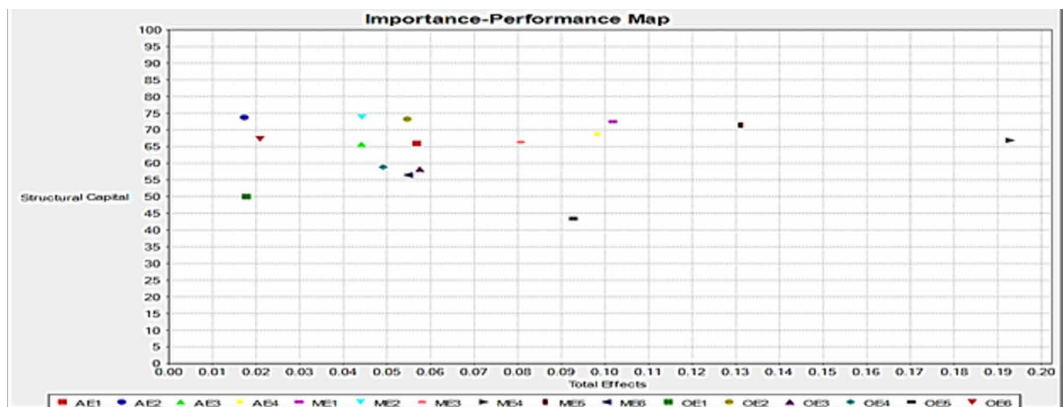


Table 4. IPMA indicator total effects (human, structural, and relational capital)

HPWPs	Total Effect (Human Capital)	Total Effect (Structural Capital)	Total Effect (Relational Capital)
AE1	0.025	0.041	0.046
AE2	0.007	0.012	0.014
AE3	0.021	0.035	0.038
AE4	0.045	0.075	0.083
ME1	0.074	0.094	0.044
ME2	0.024	0.031	0.014
ME3	0.043	0.054	0.025
ME4	0.096	0.122	0.057
ME5	0.091	0.115	0.054
ME6	0.035	0.045	0.021
OE1	0.027	0.016	0.013
OE2	0.071	0.041	0.035
OE3	0.091	0.052	0.044
OE4	0.056	0.032	0.027
OE5	0.151	0.087	0.074
OE6	0.033	0.019	0.016

Table 5. MV performance indicator (human, structural, and relational capital)

HPWPs	MV Performance (Human, Structural & Relational Capital)
AE1	65.986
AE2	73.724
AE3	65.646
AE4	68.707
ME1	72.449
ME2	73.810
ME3	66.327
ME4	66.837
ME5	71.429
ME6	56.463
OE1	50.000
OE2	73.214
OE3	58.163
OE4	58.884
OE5	43.367
OE6	67.347

etc., that confirmed a phenomenal role of strategic HRM practices towards the growth of intellectual capital. Hence, this research also maintains the prominence of strategic HRM practices towards the development of organizational intellectual capabilities. In particular, the findings suggest that if PSFs aim to develop human capital, application of opportunity-enhancing practices would be crucial. If the firms ought to build their relational capital, role of ability-enhancing practices would be phenomenal. Likewise, if the focus is on building structural capital, motivation-enhancing practices should be targeted. Depending on how these practices are utilized, these may hinder or facilitate knowledge transfer and productive employee relationship, leading to development of knowledge capital in the service firms. This research contributes to theory and practice as follow.

IMPLICATIONS FOR THEORY AND PRACTICE

Theoretical Implications

Theoretically speaking, this research offers a framework to understand the nexus between HPWPs and intellectual capital development within the framework of the Professional Service Firm (PSFs). While most of the previous studies examined HPWPs influence on the firm performance, however, this research carefully identifies IC-enhancing HPWPs and presents an empirically-tested model that implements these practices as AMO bundles to guide IC development in PSFs. Moreover, the HPWPs perspective of IC serves as a critical lens towards understanding the influence of HPWPs on firm's intellectual assets as this relationship was insufficiently investigated in the context of service firms.

In view of its theoretical contribution as a whole, it is suggested that HRM functions designed via a system of empowerment practices constituting employee development and knowledge sharing and backed by the sense of shared leadership, teamwork and trust-based relationship, are fully capable of contributing to and enhancing organizational knowledge capital. This is because empowered and creative workforce is fully motivated to deliver to the fullest of their capabilities. Moreover building and sustaining a creative and engaged workforce is critical to saving cost incurred on hiring and subsequent training of the employees, in particular, saving an organization from losing its hard-created tacit knowledge and human capital.

Managerial Implications

Managerially speaking, the research findings add new perspectives on intellectual capital development and hence suggest following recommendations to HR managers in the Professional Service Firms.

- HR practitioners should adopt and implement recommended set of HPWPs and also identify the ones that best match their organizational resource requirements in order to foster employee development and culture of creativity, thereby serving as a means to achieve intellectual capital development in these firms and sustain a competitive edge over their competitors.
- HR practitioners should undertake a vibrant role in critically and more meaningfully exploring organizational work practices and intellectual capabilities embedded in their employees and organizational systems as this aspect has often been under-utilized in the PSFs. In this direction, this research offers HR managers with a configuration of HPWP bundles having a potential to support the growth of intellectual capital. Hence to make the most of skilled human resource and the organizational knowledge, PSFs should put in place the suggested model framework in order to effectively build on and continually develop their IC capabilities. This is because organizational strategic capabilities would be meaningless if the firms are unable to adequately capitalize on their human resources.
- When designing these practices, HR Managers should tactfully consider a balanced pool of these practices as some of these practices are originally designed to motivate individual behavior, while some of these are meant to influence interpersonal behavior. This aspect is critical for

knowledge-intensive firms like PSFs where employee creativity, motivation, knowledge sharing and interpersonal relationships are extremely important.

- By understanding the effect that HPWPs have on intellectual capital development, managers should be able to accurately measure both intangible and tangible assets of their firms, which in turn would enable them to revisit strategic priorities on further enhancing employee performance and how it ticks the organizational knowledge and intellectual capital bottom-line via improved employee tacit knowledge pool, improved organizational structures, systems and resources and better network of customer/client relationships.
- The positive linkage between HPWPs and firm's intellectual capital call for HR practitioners to invest in these practices as part of their firm's competitive strategy of optimally exploring & exploiting their skilled and motivated staff in the creation of new knowledge and further developing firm's intellectual capital.
- Last but not the least, knowledge innovation, continuous service improvement, exploration of new market opportunities and better client relationships are some of the challenges faced to contemporary service firms. How strategic HRM practices and resources guide achievement of these innovation benchmarks is a question this research has tried to address.

LIMITATIONS

Despite contributing theoretically and practically, this research also needs to be seen from the lens of its limitations. First, the scope of this research was limited to Professional Service Firms (PSFs), therefore, the results may not be equally relevant to other type of routine service or manufacturing firms. Second, this research operationalized HPWPs in bundles, instead of being tested as individual practices. While bundling of HPWP is highly suggested in the literature as their combined effect is more significant than their individual effects, this approach, however, hindered from observing as to which of these individual practices were more relevant for deriving intellectual capital development. Lastly, since the focus of this research was Australian Professional Service Firms, hence, the results might be more relevant to the countries that exhibit cultural values and workplace norms similar to the Australian culture, and perhaps less applicable to the societies that are subject to cultural differences. Nevertheless, furthering the proposed research in an alternative culture and industry context would open new avenues of future research and practice.

CONCLUSION

In view of the above implications and limitations, it can be extrapolated that capitalizing in strategic human resource practices in view of the dynamically-changing and costly nature of HPWPs is not an easy task. Therefore, PSFs must perform cost-benefit analysis when choosing and investing in these practices. Although, organizational intellectual capital is a critical resource for all type of firms, however, PSFs being knowledge-intensive in nature, cultivating and further enriching intellectual capital would be extremely important. As a whole, PSFs need to build on their competitive standing in the market by truly leveraging from their knowledge assets and intellectual capabilities unleashed through a system of HPWPs.

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APPENDIX

Figure 9. Survey questionnaire

HIGH PERFORMANCE WORK PRACTICES
<p>➤ ABILITY-ENHANCING HPWPS</p> <ul style="list-style-type: none"> • Employee Training and Development Our firm offers: <ul style="list-style-type: none"> ○ AE1 - Various kinds of trainings and professional development programs to the employees. ○ AE2 - Mentoring and guidance on work-related knowledge, skills and competencies. • Employee Knowledge Sharing Employees at our firm: <ul style="list-style-type: none"> ○ AE3 - Share knowledge and learn from the experiences of each other. ○ AE4 - Participate in knowledge-sharing and mutual learning activities such as meetings, workshops, discussions, trainings, mentoring etc. <p>➤ MOTIVATION-ENHANCING HPWPS</p> <ul style="list-style-type: none"> • Employee Empowerment: Employees at our firm are: <ul style="list-style-type: none"> ○ ME1 - Encouraged to take actions and participate in the decision making. ○ ME2 - Delegated to exercise discretionary efforts without the involvement of the supervisors. • Performance Based Reward Employees at our firm: <ul style="list-style-type: none"> ○ ME3 - Receive reward/incentive for their outstanding performance and contribution at the workplace. ○ ME4 - Are recognized for their contribution in the form of awards and recognition programs such as letter of appreciation, acknowledgements, employee of month/year award etc. • Shared Leadership Leadership at our firm: <ul style="list-style-type: none"> ○ ME5 - Shares a common purpose and collective responsibility with the employees. ○ ME6 - Makes decisions having consensus of the employees. <p>➤ OPPORTUNITY-ENHANCING HPWPS</p> <ul style="list-style-type: none"> • Open & Collaborative Communication: Employees at our firm: <ul style="list-style-type: none"> ○ OE1 - Are encouraged to freely communicate and interact with each other to collectively achieve set goals. ○ OE2 - Cooperate across various organizational units to solve problems and improve processes. • Interpersonal Trust At our firm: <ul style="list-style-type: none"> ○ OE3 - A considerable level of trust relationship exists between the employees. ○ OE4 - Employees demonstrate mutual trust on the actions and intentions of each other. • Teamwork Quality Employees at our firm: <ul style="list-style-type: none"> ○ OE5 - Frequently communicate & coordinate in teams through emails, phone calls, meetings, conversations etc. ○ OE6 - Work in harmony and mutually support each other in a team environment.
INTELLECTUAL CAPITAL DEVELOPMENT
<ul style="list-style-type: none"> • Human Capital Employees at our firm: <ul style="list-style-type: none"> ○ HC1 Possess required knowledge and skills for successfully performing their job duties. ○ HC2 Possess relevant qualification and experience in their particular job functions. ○ HC3 Possess flexible attitude towards learning new knowledge and adapting changes. • Structural Capital <ul style="list-style-type: none"> ○ SC1 - Most of our firm's data/information/knowledge is stored in the form of electronic records, databases, policy documents, manuals, reports etc. ○ SC2 - Our firm's information systems and IT capabilities efficiently support business processes and activities. ○ SC3 - Our firm protects its intellectual property and organizational knowledge through copyrights/trademarks/design secrets/patents etc. • Relational Capital <ul style="list-style-type: none"> ○ RC1 - Our firm maintains working relationships with its external stakeholders such as clients, customers, end-users, suppliers, partners etc. ○ RC2 - Our firm maintains goodwill, loyalty and better brand image of the clients/customers/end users. ○ RC3 - Our firm successfully negotiates and creates new opportunities for business collaboration and partnership with suppliers and partners.

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