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Human Capital Resources: A review and direction for future research

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Abstract: This article reviews the literature on human capital resources and develops a conceptual model incorporating social capital, relational capital and knowledge as the components of human capital resources and linking these to competitive advantage. Scholars from various disciplines expanded our understanding of human capital as important organizational resources but research in this field remains fragmented. Building on past research this review contributes to existing knowledge in human capital resources by introducing an integrated conceptual framework comprising of both micro-level human capital and macro-level strategic human capital resources. In so doing it provides alternative definitions for human capital resources with the aim to make their assessment and understandability more meaningful and clearer than what has been offered so far. Moreover, by bringing knowledge, social capital and relational capital under human capital, this review encourages a dialogue among scholars from various disciplines to investigate the creation and accumulation of strategic human capital resources holistically.

Keywords: human capital resources, competitive advantage, firm performance, resources-based view, social capital, relational capital, knowledge

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1 Introduction

The overall aim of this paper is to introduce a multilevel theoretical framework which brings various firm-level people-dependent intangible resources together and offers an alternative research avenue for understanding the creation, development and utilization of Strategic Human Capital Resources (SHCRs). While doing so, this article brings together different viewpoints offered by scholars from diverse academic domains about the utility of Human Capital Resources; it argues in favour of adopting a holistic approach in defining the nature of people-dependent intangible resources and their relationship with competitive advantage.

Human Capital (HC) is considered as an important organizational resource for sustained competitive advantage (SCA) because it is difficult to imitate by competitors (Barney, 1991; DeNisi et al., 2003). HC is embedded in human resources and it stems from individual-level characteristics including knowledge, skills, training, education, state of health and so on (Felin and Hesterly, 2007; Ployhart and Moliterno, 2011; Wright and McMahan, 2011; Pattie et al., 2012). At the individual- or micro-level, HC is the set of inseparable personal attributes which enhance individuals' performance potential (Barney, 1991; Ployhart and Moliterno, 2011; Jayawarna et al., 2014). The aggregate- or macro-level HC is the sum of HC of all those individuals involved in an organization, unit or team. It is the macro-level HC which contributes to SCA if utilized effectively (Crook et al., 2011; Arend, 2015). In this article, the terms '*firm performance*', '*competitive advantage*' and '*sustained competitive advantage*' are sometimes used interchangeably because a sustained continuation in each of the first two lead to the achievement of the last one.

The idea of HC was first introduced in the early seventeenth century by scholars with finance and economics backgrounds. William Petty (1623-1687) used HC to estimate national wealth which economists and financial professionals applied for about a century; Adam Smith (1723-1790) focused on the abilities of society as a whole rather than individuals; von Thunen (1783-1850) was interested in human life as a valuable asset; whereas William Farr (1807-1883) provided a scientific procedure of determining monetary value of human beings by calculating the present value of an individuals' net future earnings (Kiker, 1966; AVSI, 2008).

While scholars recognized the value of HC in the early seventeenth century, Human Capital Theory (HCT) as an organized discipline of knowledge started only in the late 1950s (Kiker, 1966; Blaug, 1976; Baptiste, 2001; Lazear, 2009) when some scholars argued that human knowledge, education, skills and state of health have economically productive potential (Mincer, 1958; Schultz, 1961; Becker, 1962). This review, therefore, takes into account literature from 1950s onwards. Since then, two concepts dominated the field of HCT: first, learning capabilities of individuals are at least as productive and economically useful as that of other forms of capital (Livingstone, 1997) for individuals, their employers and the societies they belong to; and second, HC needs to be developed, updated and replaced on a continuous basis because like other resources it too has the potential of eventually becoming obsolete (Schultz, 1961). Contrary to the pre 1960s belief where ownership of physical capital was considered the main source for individual incomes, Becker (1962) argued that intangible resources in the form of education, knowledge, skills and health play a vital role in increasing individuals' real incomes. Consequently, scholars used two methods to assess HC: the cost-of-production method and the capitalized-earnings method (Kiker, 1966), which raised a fundamental question of whether the private cost of

education and training should be considered as investment or consumption (Schultz, 1961; Blaug, 1976).

Subsequently, a paradigm shift in the literature of HCT occurred in the early 1970s because of increased demand and social pressure for higher education and training (Blaug, 1976; Becker, 1996). Since then HC research evolved as a dynamic body of knowledge. Another major shift occurred in the last decade of the twentieth century when scholars argued that firms achieve competitive advantage by developing, accumulating and using firm specific abilities on both individual- and firm-levels (Baptiste, 2001; Lazear, 2009).

While scholarly investigation on different types of HC at various levels over the years has indeed increased our understanding about the nature and importance of these resources for firm-level competitive advantage, it is less clear in the literature how firms develop and maintain their strategic HC base. Part of the problem is the fragmented nature of past research where scholars explained the underpinnings of HC at micro-foundational levels from only their own disciplines' standpoint.

For example, some researchers in the past argued that HC is fundamentally comprised of two components called explicit/codified HC and tacit HC (Schultz, 1961; Blaug, 1976). Assessment of explicit HC is relatively easy as it is acquired and accumulated through formal education and training. However, evaluation of tacit HC is difficult because it is embedded in people and it is not visible unless voluntarily exhibited through work performance. Others believed that HC comes from two different domains referred to as cognitive and non-cognitive (Heckman, 2000; Ployhart and Moliterno, 2011; Jayawarna et al., 2014). Cognitive HC includes general mental ability, intelligence, capacity to learn, knowledge and experience which is obtained through education, training and practical work. Non-cognitive HC refers to personal traits such as ability to control emotions and influence others, dependability, reliability and personal preferences. Cognitive and non-cognitive HC are what a person "can do" versus "will do" respectively (Ployhart and Moliterno, 2011:133).

Drawing on past research it is recognized that HC does not belong to any one particular discipline. It rather falls into many disciplines including business and management, strategy, entrepreneurship, education, political economics, psychology, sociology and human resources management. Yet, as given above, these various disciplines have approached the same resource from their own narrow lenses only which has resulted in divergent ideas and jargons with regard to creation and assessment of this resource. In other words, while different perspectives from different disciplines do offer a range of interpretations of HC, they offer overlapping and sometimes potentially confusing explanations leading to unnecessary polarization between and across disciplines. These overlapping definitions and explanations make assessment of these resources burdensome. In this article the term 'people-dependent intangible resources' refers to firm-level resources which stem from individual-level characteristics including knowledge, skills and abilities.

Table 1 (next page) presents a bird's eye-view of these resources and summarizes the results of the literature reviewed for this article. Rows 1 to 8 show how different scholars asserted that HC affects a firm's ability to achieve and sustain competitive advantage more than other resources. Next, it implies that social capital (SC) (rows 9 to 17) and knowledge or knowledgebase (the two terms are used interchangeably) are positively related to competitive advantage. Moreover, it illustrates that how some scholars believe that some of these resources become inputs for creation of other resources (rows 16 and 19 to 21).

Table 1: Relationship of people-dependent intangible resources with firm performance

Row	Relevant theme, statement or phrase	Source(s)
1	HC affects innovation and innovative adaptability	(Mahsud et al., 2011),
2	Micro-level HC enhances individuals' performance potential	(Barney, 1991; Ployhart and Moliterno, 2011)
3	A positive relationship exists between education/experience and the level of earnings/productivity of individuals	(Blaug, 1976; Livingstone, 1997)
4	Differences in individuals' incomes are due to HC	(Becker, 1962)
5	HC is comprised of explicit/codified and tacit knowledge	(Schultz, 1961; Blaug, 1976).
6	HC helps firms to achieve the ability of ambidexterity and SCA	(Barney, 1991; Hatch and Dyer, 2004).
7	It is a widely accepted fact that HC is the main resource for SCA	(Crook et al., 2011)
8	Unit-level HC is responsible for generating SCA	(Nyberg et al., 2012; Crocker and Eckardt, 2014)
9	SC is a source for sustained competitive advantage	(Arregle et al., 2007)
10	Family SC contributes positively and significantly to firm success and sustainability.	(Danes et al., 2009)
11	It is implied that SC affects firm performance and that SC exists in the form of relationships, interdependencies and connections	(Coleman, 1988; Bubolz, 2001; Danes et al., 2009).
12	SC is the stock of trust and goodwill between an entrepreneur and the wider society, and is a source for SCA	(McPherson, 2010)
13	Belief systems and culture are parts of SC	(Cousins et al., 2006; Danes et al., 2008)
14	Using RC, firms learn how to deal/negotiate with other firms or individuals	(Welbourne and Pardo-del-Val, 2009; Liu et al., 2010).
15	Knowledge plays a vital role in a firm's long-term financial prosperity	(DeNisi et al., 2003; Gonzalez Padron et al., 2010; Teece, 2010)
16	Knowledge base of the firm has its roots in the resource-based view, and it is a source for sustained competitive advantage	(Crook et al., 2011).
17	Knowledge is one of the most valuable strategic resources for creating competitive advantage	(Dai and Liu, 2009)
18	Knowledge exists in tacit and explicit forms	(Ipe, 2003; Wang and Wang, 2012)
19	HC stems from HRs in the form of knowledge, skills, abilities and shared values	(Hatch and Dyer, 2004; Wright and McMahan, 2011)
20	Managerial dynamic capabilities depend on managerial HC, managerial SC and managerial cognition	(Kor and Mesko, 2013)
21	State of health of the workforce, their common belief systems and firm-level practices (which represent the culture of the firm) are parts of firm-level HCRs	(Becker, 1962; Blaug, 1976)

Abbreviations

HC - Human Capital

HRs - Human Resources

RC - Relational Capital

SC - Social Capital

SCA - Sustained/Sustainable Competitive Advantage

The above table also shows that how an explanation used by one author or discipline for one resource overlaps, in terms of its impact on competitive advantage, with other resources defined by other authors or disciplines. For example, it seems from rows 7, 9, and 15 that HC, SC and knowledge respectively affect a firm's ability to achieve and sustain competitive advantage individually and independently. Surely, these resources do not act alone. They complement each other and are contingent on each other (Coleman, 1988; Burton-Jones and Spender, 2012). In addition, the above table shows that how some scholars consider some intangible resources as parts of HCRs which others construe as SC and knowledge respectively (rows 20 to 21 and 5 and 18). The relationships of these resources with the aggregate HC and between each other are graphically presented in Figure 1 later in this article.

As mentioned previously, the overall aim of this review is: to suggest a holistic research approach towards organizational level SHCRs and other people-dependent intangible resources which complement each other in order to grasp the implications of the relationships between them, as portrayed in the framework (Figure 1). To this end, future theorizing and empirical investigation will be required to consider the following four important research questions. (1) How does individual-level human capital cause creation and accumulation of unit-level Human Capital Resources? (2) How the aggregate-level HC is related to a firm's ability to achieve and sustain competitive advantage? (3) How does individual-level HC act as an underpinning for the creation and accumulation of other firm-level people-dependent intangible resources? (4) How and under what conditions firm-level people-dependent intangible resources affect competitive advantage and become inputs for the creation and accumulation of HCRs and vice versa?

Appropriate explanations of these broad questions will not only strengthen existing knowledge but also will provide new insights in understanding how firms create, develop and utilize these resources to meet their strategic objectives. Next I discuss the methodology adopted in this review. This is followed by a detailed explanation of HCRs as the rootstock for other intangible resources. The article then explicates the conceptual framework that is developed in this review along with the firm-level intangible resources that are presented in the framework.

2 Research Methods

This is a review article which depends on past research work and focuses on the impact of HC and other people-dependent intangible resources including Social Capital, Relation Capital, and Knowledge on competitive advantage of firms. The review builds on scholarly investigation made in various fields including, but not limited to, business and management, strategy, entrepreneurship, education, political economics, psychology, sociology and human resources management. Google Scholar was used as the search engine. To begin, a search was carried out for eight keywords: "*Competitive advantage*"; "*firm performance*"; "*Human Capital*"; "*Human Capital Theory*"; "*Resource-based view*"; "*Social Capital*"; "*Relational Capital*"; and "*Knowledge*". The search resulted in over a million items for each keyword. In order to narrow down the search results, the following criteria were employed using the "*Advanced search*" features: "*Find articles: with the exact phrase*"; "*where my words occur = anywhere in the article*"; "*Return articles dated between = 1950-2015.*" Moreover, the above eight keywords were combined into the following seven keywords: "*Competitive advantage, firm performance*"; "*Competitive advantage, Human Capital*";

“Competitive advantage, Human Capital Theory”; *“Competitive advantage, Resource-based view”*; *“Competitive advantage , Social Capital”*; *“Competitive advantage, Relational Capital”*; and *“Competitive advantage, Knowledge”*.

The new search produced a list of 108, 218, 12, 226, 51, 3 and 94 items for the above seven keywords respectively, a total of 712 items. This method of searching for relevant published research material is similar to the methods adopted by Turner et al. (2013) and Doherty et al. (2014) in their literature review articles on Ambidexterity and Social Enterprises respectively. Since the focus of this study was on unit-level and multi-level people-dependent intangible resources, further sifting was necessary based on the relationship between competitive advantage and the seven combined keywords mentioned above. This was done by scanning the abstracts and conclusions in the above mentioned 712 literature sources.

Subsequently, it was noticed that although some of the sources did mention the above keywords, the contents in them were not found relevant to the overall purpose of this review. For example, some journal articles discussed firm performance in a context other than people-dependent resources such as firm size and SCA, CEO compensation and firm performance, HC in the top management team and its impact on organizational performance and parent company culture and subsidiary performance. Such sources were excluded. However, some materials, which have not explicitly mentioned the above keywords in the abstracts and/or conclusions but paid considerable attention to them and their effects on competitive advantage elsewhere in the body such as in introductions and/or discussions were included.

Consequently, 56 research sources were finally selected to read in detail and to deal with in light of the overall objective of this review. Important information from each source, such as: author and year of publishing; literature area; type of research (empirical, theoretical, conceptual); independent/dependent variables; main findings; research gaps indentified; future research directions given; and limitations mentioned were entered into a bespoke MS-Access database. During the writing-up, a reverse search technique was also employed i.e., additional sources (mostly journal articles) were identified based on the citations of the reading materials which were already included and read for this review (Doherty et al., 2014). Particular emphasis was given to those areas which produced substantially few results during the advanced search process (e.g., Relational Capital and Knowledge). Moreover, the search engine (Google Scholar) was regularly checked for any scholarly updates for the aforementioned keywords. Subsequently, a total of 76 sources (70 journal articles, two books, one working paper, one conference paper, one report and one online source) were finally included in this review (cf. Table 2).

Table 2: Sources of referenced literature

Name of source	Frequency	Name of source	Frequency
Academy of Management Journal	1	Journal of Economic Literature	1
Academy of Management Review	3	Journal of Leadership & Organizational Studies	1
Adult Education Quarterly	1	Journal of Management	9
American Journal of Sociology	1	Journal of Management Inquiry	4
British Journal of Management	2	Journal of Management Studies	2
European Urban and Regional Studies	1	Journal of Operations Management	1

Expert Systems with Applications	2	Journal of Socio-Economics	1
Family Business Review	1	Journal of World Business	1
Group Decision and Negotiation	1	Long Range Planning	1
Human Resource Development Quarterly	1	Management Science	1
Human Resource Development Review	1	Personnel Psychology	1
Human Resource Management Journal	1	Policy Options	1
Industrial and Corporate Change	1	R&D Management	1
International Business Review	1	Research in Economics	1
International Journal of Entrepreneurial Behaviour & Research	1	Strategic Change	1
International Journal of Management Reviews	2	Strategic Management Journal	9
International Small Business Journal	1	Strategic Organization	3
Journal of Applied Psychology	1	The American economic review	1
Journal of Business Venturing	1	The Journal of Political Economy	5
Journal of Developmental Entrepreneurship	1	Working papers (1), conference papers (1), books (2), reports (1), online sources (1)	6
Total sources = 76			

3 Review of the Literature

3.1 Human Capital Resources: defining the concept

From a narrow understanding of HC as a bundle of individual-level characteristics, HC scholars recently defined unit-level HC as the aggregate individual-level knowledge, skills, abilities and other characteristics (KSAOs) (Ployhart and Moliterno, 2011). Although this definition has expanded our understanding, it is potentially confusing due to the use of the term “other characteristics.” Because some researchers do not consider some individual-level characteristics as part of their human capital or human capital resources (Ployhart et al., 2014), while others believe that individual-level HC endowments are made-up of all individual-level characteristics including the state of health of the workforce and their common belief systems as well as firm-level practices representing the culture of the firm (Becker, 1962; Blaug, 1976). The latter understanding better suits with this review because it implies that individuals with better health, motivation and a work-aligned attitude will potentially outperform their co-workers who lack such characteristics even if they possess same or similar qualifications, knowledge, training and skill levels. For example, a customer assistant in a retail environment with a reasonably good physical and mental health as well as with a relatively high level of motivation towards her work will certainly perform better than a colleague who has similar personal characteristics but has relatively poor health or motivation towards her work for whatever reasons. This example can be relevant to other sectors or types of works.

Therefore, I argue that the phrase knowledge, skills and abilities (KSAs) is a more representative term than KSAOs when we refer to the building blocks of HCRs. Because the term “abilities” encompasses a wide variety of individual-level characteristics including (but not limited to) status of health, degree of self-motivation and understanding of shared values embedded in people. These characteristics contribute in the process of creating, accumulating and developing HCRs. Moreover, drawing on various definitions offered by scholars from multiple disciplines (e.g., Mincer, 1958; Becker, 1962; Blaug, 1976; Wernerfelt, 1984; Barney, 1991; Teece et al., 1997; Ployhart and Moliterno, 2011; Nyberg et al., 2012; Ployhart et al., 2014; Wright et al., 2014; Arend, 2015), I offer the following comprehensive definitions of HCRs.

Human Capital is comprised of knowledge, skills and abilities (KSAs) possessed by individuals which has the potential to affect individual-level performance.

Human Capital Resources are those unit/firm-level people-dependent intangible resources which stem from individual-level KSAs, which the unit/firm does not solely own/control but has access to, and which have the potential to affect unit/firm-level operational performance.

Strategic Human Capital Resources (SHCRs) are those Human Capital Resources which have the potential to affect the achievement of strategic goals of a unit/firm, e.g., competitive advantage.

The above definitions imply that higher levels and better quality of these characteristics and resources will result in better performance at both individual- and unit/firm-levels. How HCRs have been used historically is discussed next.

3.2 Human Capital Resources and Competitive Advantage: a retrospective view

The premise of Human Capital Theory is that individuals with higher levels of HC are better off economically and socially than their counterparts who possess lesser/poorer levels of HC (Becker, 1962; Blaug, 1976). On a macro-level, firms employing people with high levels of knowledge, skills and abilities outperform their competitors who lack such employees in their workforce. This perception is the reason that contemporary researchers emphasize more on firm-level HCRs than individual level HC as they argue that the combined effect of firm-level HCRs results in superior financial performance in the long term (Mahsud et al., 2011; Wright et al., 2014) which helps the firm in achieving and maintaining competitive advantage over rivals (Barney et al., 2011).

The above argument has been put forth by others as: unit-level (or firm-level, also referred to as macro-level) HCRs are more useful than individual-level (also called micro-level) HCRs are because they bring greater benefits to the firm’s operations when exploited properly (Ployhart and Moliterno, 2011; Nyberg et al., 2012; Fulmer and Ployhart, 2014). While focusing on useful resources for superior firm performance Wernerfelt (1984), although he did not use the term human capital directly, implied that

firms may earn above average returns if valuable and rare resources are deployed in business operations in a way that competitors are unable to do so. This notion was echoed by other researchers including Barney (1991) leading to the concept of resource-based view (RBV) of the firm. The RBV later became resource-based theory (RBT) (Barney et al., 2001) and is highly regarded as a competitive advantage framework. He concludes that firms need a variety of resources, including intangible ones, to achieve strategic objectives.

Since the idea of resourced-based view of the firm was floated in the 1980s and 1990s and the resource-based theory in the early 2000s, a vast array of research in the strategic management and related disciplines (Barney et al., 2011; Crook et al., 2011) mushroomed arguing that firm performance is contingent on the quality and use of HC. In particular, a vast amount of research in large organizations has argued that HC has the potential to outperform competitors (Crook et al., 2011) due to its nature as a heterogeneously distributed resource among firms. Scholars also argued that HC helps firms to achieve the ability of ambidexterity and sustainability in order to obtain competitive advantage positioning over rivals if they are valuable and rare and if they are made inimitable and non-substitutable through firm-specific HRM protective mechanisms (Barney, 1991; Hatch and Dyer, 2004). Ambidexterity is the ability of a firm to simultaneously exploit existing resources/competencies and explore new resources/competencies necessary to perform business operations efficiently and effectively (Kauppila, 2010; Mahsud et al., 2011).

While economists, psychologists, and strategic human resource management scholars agree that superior HCRs are positively related to long-term firm- as well as individual-level performance, the significance of this relationship is disputed by some scholars. For example, Newbert (2007) posits that: there is only limited and modest evidence that HC is significantly related to firm performance; and that this evidence varies based on the nature of the selected independent variables and the theoretical basis that are adopted by each empirical study. He concludes: only 33% HC, 20% knowledge and 33% experience were related to firm performance; although overall 71% of the tests relating a specific capability to performance were found.

In contrast, Crook et al. (2011) argued that HC is the main source for SCA. In their meta-analytical enquiry of 66 past studies around RBV/RBT and impact of HC on firm performance and SCA, they found that HC is positively related to firm performance and that this relationship was slightly stronger in longitudinal studies than studies which relied on cross-sectional data. They noted that HC is 71% more strongly related to performance for specific measures of HC than general measures and more than 70% strongly related to operational performance measures than global performance measures. Specifically, they argued: (1) there exists a positive relationship between HC and firm performance; (2) the value of HC increases as it becomes firm specific, therefore, observational focus should be on specific HC instead of general HC; and (3) there may be other factors affecting firm performance such as physical resources and price/cost regimes; therefore, performance should be assessed for specific value chain activities within the firm in order to reflect the impact of HC on these specific activities.

Crook et al. (2011) disagree with Newbert for three reasons. (1) Selecting a small sample (only seven articles for HC) and cross-sectional nature of studies may not capture true nature and effects of HC because HC develops over longer periods of time. (2) The trading nature of HC in the factor markets is different than other forms of capital and is more complex than previously thought. That is, people with high levels of

general HC can attract highest bidding insofar as their costs roughly become equal to the value they can add. Whereas individuals with firm-specific HC may not be able to earn wages according to their value as they cannot transfer all of such HC to another employer without losing at least part of it to where it was developed (Hatch and Dyer, 2004). (3) Finally, the appropriability of HC as individuals with highest levels of HC can leverage highest wages by themselves, if not by their managers or employers, as well as the sharing nature of profits generated from the use of individual-level HC among several other stakeholders. The next section discusses how these important and useful resources are created and developed.

3.3 Creation and Accumulation of HCRs

Research explicates that micro-level HC is created at individual level in the form of education and training as a result of individuals' efforts (Blaug, 1976), whereas HC at unit-level is created through learning-by-doing (Hatch and Dyer, 2004). The ability of human resources to learn firm-specific skills (firm-specific HC) through learn-by-doing is in turn supplemented by increased learning capacity of the firm (Hatch and Dyer, 2004) and firm-level efficiencies. For example, managers having experience in a particular firm (tacit HC) may use organizational resources in an efficient and productive way and may save time and money for their employers resulting in improved overall financial performance (Jones et al., 2007; Crook et al., 2011). Therefore, it is asserted that the process of explicit/tacit HC creation is a function of organizational procedures. In other words, strategically formulated HR policies within a firm facilitate HC creation, development and deployment as HC begins to flourish from human resources in the form of knowledge, skills, abilities (Hatch and Dyer, 2004; Wright and McMahan, 2011; Burton-Jones and Spender, 2012). Specifically speaking, there are generally three avenues available for a firm to create/accumulate firm-level HC.

First, by recruiting new employees through the selection function of HRM based on the firm's requirements (Zidan, 2001; Hatch and Dyer, 2004; Ployhart and Moliterno, 2011). As HC embedded in new workers comes mainly from education, more- or better-educated workers have more or better HC than less- or poorly-educated counterparts. This form of HC may not be the main source for competitive advantage because it can be imitated or substituted easily by rivals. However, firms may generate competitive advantage by selecting workers through screening process (Blaug, 1976) where their specific qualifications and skills match with firm-specific business requirements. Furthermore, firms may also select individuals who have motivation and potential to learn firm-specific knowledge/skills eventually leading them to acquire firm-specific tacit HC (Coff and Kryscynski, 2011).

Second, firms acquire tacit HC by providing their workforce with appropriate firm-specific training (Hatch and Dyer, 2004) by which employees learn their duties quickly and thus contribute to the overall firm performance. Competitors, however, may be able to imitate both the training programmes and the resultant HC in the long term but at the cost of money and time. In such scenarios, firms whose HC is imitated or substituted by competitors may develop their HC base on an ongoing basis through firm-specific dynamic training programmes and thereby may remain ahead of their competitors (Hatch and Dyer, 2004).

Third and final, firms can create/develop firm-specific HC through effective deployment of human resources, i.e., making available right people to perform their functions in a right way at the right time. Trained managers with high levels of HC

within units/firms will be able to assess the skills of available human resources and assign them tasks accordingly (Hatch and Dyer, 2004; Zahra et al., 2006). These firms will be able to generate competitive advantage and make their managerial skills potentially inimitable as competitors who do not have such experienced managers in place will find it difficult to effectively deploy their workforce (Zahra et al., 2006). Next I discuss assessment of HCRs as historically their assessment remained as important as these resources themselves (Schultz, 1961; Kiker, 1966; Blaug, 1976; Newbert, 2007).

3.4 Assessment of Human Capital Resources

Assessment of HC/HCRs has remained a contentious issue in the literature. Economists, psychologists, strategists and sociologists do not disagree on the importance of HCRs and the need of a valid and reliable mechanism for their assessment in order to understand their effects on competitive advantage (Schumann, 2002; Wright and McMahan, 2011). However, these scholars from different disciplines have confined their investigations to their specific domains only in determining the effects of either types (specific versus general) or levels (individual versus collective) of HCRs without taking both aspects into account and without coordination between disciplines. As a result, there is no consensus as to what type of HCRs and at what level should they be assessed. Economists usually tend to use monetary- or economic-orientated indicators and focus more on individual-level and general than firm-level and specific HCRs (Mincer, 1958). Because they tend to believe that individuals with higher levels of general HC are more capable of earning higher wages in the job market than those who have lesser levels of HCRs (Hitt et al., 2001). Conversely, social scientists believe that assessing HC from economic and individual-level perspectives only would not represent the true value of HCRs (Livingstone, 1997; Baptiste, 2001). They argue that social returns have to be given equal importance in assessing the value of HCRs on individual- and unit/firm-levels. Moreover, some social scientists are inclined to use cognitive variables in assessing the level and usefulness of HC (Ployhart and Moliterno, 2011; Wright and McMahan, 2011).

A significant point where social researchers disagree with economists is that, without taking into account unit-level and specific HCRs, it will be difficult to: (1) explain an individual's contribution to firm performance as an isolated resource; (2) assess the increased performance of a firm based on increased individual-level HCRs due to their increased qualifications, trainings and experiences; and (3) determine how HCRs are created and developed at firm-level (Wright and McMahan, 2011; Burton-Jones and Spender, 2012).

Ownership of these resources has been another obstacle in understanding and assessing them and their effects on competitive advantage. Some scholars (e.g., Becker, 1996) suggest that in an ideal situation, the benefits generated by an individual through his/her specific HC should go to that individual only. In practice, however, these benefits are shared as compensation to the employee and profits to the employer. The sharing of these benefits may lead the employee to adopt an opportunistic behaviour, depending on the employee's satisfaction about the compensation being offered, and may contribute to performance where his/her own objectives are satisfied (Becker, 1996; Wright and McMahan, 2011) and thereby putting the firm at potential risk of competitive disadvantage. Similarly, other scholars (e.g., Ertug and Castellucci, 2015) have recently argued that organizations should place higher value on those resources

(human resources in this case) which are required more than other resources at a given point in time to achieve and maintain competitive advantage. The above viewpoints make us to believe that according to some economists (like Becker) HC is owned by individuals as it originates primarily from personal efforts whereas some social researchers argue firm-level HC is owned by the firm as it is the unit-level HC which contributes to SCA and which is generated at firm-level through HR policies (Hatch and Dyer, 2004; Wright et al., 2005; Wright and McMahan, 2011).

The above vexed concepts and the polarization between the epistemological positions, i.e., which indicators of HC should be assessed - social or economic or a combination; what should be the unit of assessment of HC - the effects of investment (education/experiences) and the outcomes of investment (knowledge/skills) (Schumann, 2002; Unger et al., 2011); what type of HC should be considered in evaluating its effects on competitive advantage - specific versus general; and who owns these intangible resources - individuals or their employers; are challenges for researchers and practitioners in at least two areas. First, the transferability of HC among employees or from employees to firms and vice versa; and second, the development, applicability, reliability and future research direction.

It is perhaps due to the above mentioned disagreements among scholars and disciplines that some contemporary researchers in strategy and strategic human resources management disciplines have emphasized on the need to explore the impact of unit-level HC on firm performance (Crocker and Eckardt, 2014; Fulmer and Ployhart, 2014; Ployhart et al., 2014; Wright et al., 2014). Or, perhaps it is due to the unique importance of these resources that the above scholars have referred to some of these resources as strategic human capital resources, as discussed and defined earlier in this article. They seem to believe that HC should be assessed at the unit-level because the two levels of HC (individual and unit) complement each other at various levels within a team/unit/firm and it is the unit-level HC which affects firm-level performance outcomes. Nevertheless, little has been done in terms of providing/offering a theoretical pathway which can guide future scholarship to assess HCRs and other people-dependent intangible resources at multiple levels within firms and across units. This is where this article contributes to the HC and related bodies of knowledge as it offers a multi-resource conceptual framework for assessing HC (at micro- and macro-levels) and other people-dependent firm-level resources and their impact on the firm's ability to achieve sustained competitive advantage.

4. Conceptual Framework - a possible future research pathway

Firms make use of a number of tangible and intangible resources in executing business activities and achieving strategic objectives. While it is important to investigate the impact of all the tangible and intangible resources on firm performance, it is not practically possible to discuss all of them in a single piece of scholarly work. Therefore, a discussion about the impact of tangible resources on a firm's ability to succeed and achieve competitive advantage positioning is not in the remit of this article. Moreover, while "*Human Capital is a general term that refers to all of the resources that individuals directly contribute to an organization: physical, knowledge, social and reputational*" (DeNisi et al., 2003, p. 6), the focus in this review article remained on interpersonal skills. Thus, it has not been possible to include all of the resources related to individuals, such as their physical strengths. In addition, other intangible resources, which were considered but not included in the conceptual framework, are dynamic

capabilities (Teece et al., 1997; Zahra et al., 2006; Protogerou et al., 2012; Kor and Mesko, 2013); organizational reputation and reputation of individuals including CEOs and top management teams (Roberts and Dowling, 2002; Ertug and Castellucci, 2015).

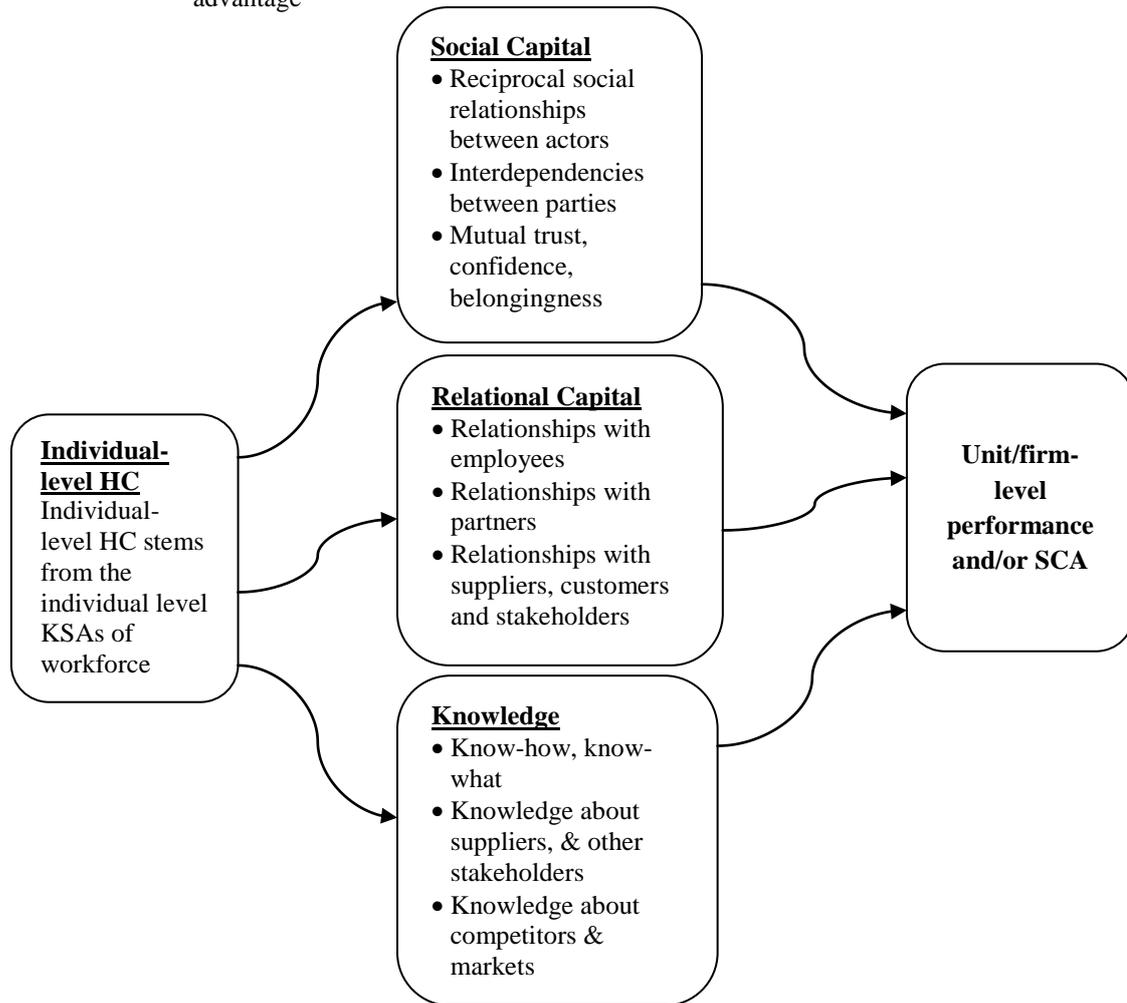
Specifically, this article focuses on individual-level human capital (knowledge, skills and abilities) and organization-level human capital resources such as social capital, relational capital and knowledge of the firm. This is typically because these resources originate from characteristics of individual actors and they become strategic resources when their impact is taken into account on unit/firm-level. Moreover, although they are researchable constructs individually in their own right, their impact can be better understood if studied collectively, or a combination of them at the same time because they do not necessarily work in isolation. They rather complement each other and cause each other's growth within the firm.

The following few paragraphs explain the model presented in Figure 1 (next page). This is followed by explications of each of the unit/firm-level human capital resources presented in the model. These are the three constructs in the middle column which are based on individual-level human capital, also referred to as people-dependent intangible factors/resources. They provide underpinnings for unit/organizational-level performance and or sustained competitive advantage.

Although this conceptual framework is drawn from a wide array of past research, it is based specifically on the works of Hatch and Dyer (2004), McKelvie and Davidsson (2009) Ployhart and Moliterno (2011), Nyberg et al. (2012) and Wright et al. (2014). Moreover, the framework presented in this article is an extension of past research. However, in contrast to previous research, this article argues that a better way of understanding the overall impact of people-dependent intangible resources on firm performance and competitive advantage is by bringing these resources together and analyzing: (1) how they complement each other; and (2) how they contribute to the overall success of the firm individually and collectively.

The one side arrowed links in Figure 1 indicate the direct relationships between these variables which may exist at different levels within an organization or across different teams, departments and divisions (Wright et al., 2014). While these relationships are shown as one directional in this model for the sake of simplicity, in practice it is very likely these relationships are continuous and bidirectional. The resources in the middle column (Figure 1) i.e., bundle of unit/firm-level people-dependent intangible resources can also be referred to as strategic human capital resources, may complement each other. They are directly and positively related to firm performance and sustained competitive advantage, as shown by the arrowed lines between the bundle of these resources on the left hand side and the unit/firm-level performance and/or SCA on the right hand side. In other words, this bundle of resources and HCRs are primarily created as a result of KSAs possessed by individuals working in a team/unit/firm. These resources, in return, may complement unit-level HC formation and development and thus create a virtuous circle of creation and accumulation of human capital resources at both individual- and unit/firm-level.

Figure 1: Conceptual Framework: a virtuous process of firm-level people-dependent intangible resources creation, accumulation and their impact on firm performance and competitive advantage



Notes:

1. The box on the left hand side represents individual-level human capital characteristics that provide bases for unit-level human capital resources
2. The elements mentioned in each box in the middle column are non-exhaustive and may include many more variables depending on each research question
3. Sizes and shapes of all boxes and arrows are irrelevant

For example, a team of individuals with high levels of human capital - in the form of knowledge, skills and abilities (KSAs) such as education, training, experience and so on - working together will accumulate higher levels of unit- or firm-level intangible resources in the form of social capital, relational capital and knowledge due to their aggregate human capital. Such a team will be able to establish better relationships with internal stakeholders such as colleagues, super- and sub-ordinates and also with external stakeholders such as customers, suppliers and so on than a team of people with lesser or poorer levels of human capital. Consequently, such a team will contribute more to the overall success and prosperity of the firm which may benefit the firm in various ways including increased profits, improved reputation and enhanced customer loyalty. All these improvements may eventually lead to organizational success and competitive advantage positioning. The success of the firm in turn will benefit individual members of the team, may be in the form of increased wages and higher moral, which may help them in at least three areas. First, to gain more

knowledge from each other and from external sources; second, to improve their relationships with internal and external stakeholders; and third, to have more motivation for further learning. The incremental levels of KSAs will be fed back into the bundle of people-dependent intangible resources (that is, social capital, relational capital and knowledge) which in turn can enhance the firm's ability to maintain competitive advantage positioning. This cycle of improvement at individual staff member levels and at the unit/firm-level may continue for long periods of time giving the firm to enjoy sustained competitive advantage over rivals as long as the virtuous circle is maintained and not broken. This is a hypothetical example and there can be many more examples of similar nature both in theory and practice, which future theorizing can explore.

The framework is based on the belief that individual-level KSAs are the building blocks of unit-level human capital resources which include social capital, relational capital, and knowledge of the firm, in this model. The specific impact of these resources on firm performance and competitive advantage are discussed next which provides a logical justification why they have been included in this conceptual framework.

4.1 Social Capital

Social Capital (SC) in organizations exists in the form of relationships, interdependencies and connections among actors based on mutual trust, confidence and respect in a reciprocal way (Coleman, 1988; Bubolz, 2001; Arregle et al., 2007; Danes et al., 2009; Ivy et al., 2015). Because of its nature, social capital in a given organization is valuable, unique and cannot be replicated totally by any other organization. According to the resource-based view of the firm, any resource of this nature leads a firm to sustained competitive advantage (Barney, 1991). In particular, social capital within a firm facilitates information flows and knowledge creation/sharing/accumulation, thereby contributes directly to firm performance in the form of reduced transaction costs (Arregle et al., 2007). The amount of social capital between social groups (also called bonding social capital) is determined by how closely members are connected within a given social group and with the wider society or across firms/groups/communities (also called bridging social capital) (Coleman, 1988; Lassalle, 2008; McPherson, 2010; Ivy et al., 2015). From an entrepreneurial point of view, social capital comes from two sources: internal - the level of trust and goodwill between an entrepreneur and their own social group; and external - the stock of trust and goodwill between an entrepreneur and the wider society (McPherson, 2010).

Bubolz (2001) argues that human capital is a prerequisite for economic, social and physical capital development. Similarly, Evans and Syrett (2007) have argued that social capital is a prerequisite for economic development and economic development in turn, especially in a local context, is a source for further development of social capital. In other words the level of social capital in a firm is contingent on the existing levels of human capital. Although human capital causes creation and development of social capital, social capital facilitates further creation and development of human capital as closer ties between actors encourage them to share information and learn from each other ultimately leading to the creation and development of human capital.

4.2 Relational Capital

Relational Capital (RC) is a type of social capital which exists in the form of the amount of trust, respect and reciprocity between the actors (Nahapiet and Ghoshal, 1998; Cousins et al., 2006; Danes et al., 2008). Since relational capital is an important organizational intangible resource and can be researched independently therefore, it is mentioned in the framework separately from social capital. Scholars (e.g., Welbourne and Pardo-del-Val, 2009) have posited that firms with high performance work systems in place are able to negotiate and develop collaborative agreements with other companies based on their relationships with their own employees, employees of other firms and with other businesses. Due to their nature of homogeneity across firms such relationships can help a firm to achieve sustained competitive advantage. Moreover, while establishing and expanding relational capital base firms learn how to deal/negotiate with other firms or individuals effectively and thereby increase their chances of long term firm performance (Welbourne and Pardo-del-Val, 2009; Liu et al., 2010).

Similar to the level and quality of human capital within a firm, which affects innovation and innovative adaptability (Mahsud et al., 2011), relational capital also affects a firm's innovative adaptability (Gubbins and Dooley, 2014) and thereby affects long-term firm performance directly. Taking this argument further, Welbourne and Pardo-del-Val (2009) interviewed 382 CEOs and Vice Presidents and found that relational capital positively affects firm performance. They suggest that firms employing high performing work systems tend to (re)configure their relationships with other firms, employees and stakeholders rapidly in response to changing business environments and resource structures. Alternatively, based on the knowledge acquired through networks, high performance firms adjust their business strategies according to the perceived presence of unique business opportunities and threats.

Like other people-dependent intangible resources, relational capital is a valuable resource for all firms irrespective of their size (Rowley et al., 2000; Liu et al., 2010; Mahsud et al., 2011). Nevertheless, smaller firms place more value on this type of resource than larger firms do (Macpherson et al., 2004; Welbourne and Pardo-del-Val, 2009). Because smaller firms tend to manage relationships more effectively as they have to deal with fewer and simpler internal procedures and they have fewer collaborative relationships with external entities than the complex relationships larger firms have with multiple firms of various sizes (Rowley et al., 2000). Moreover, smaller firms have fewer resources than larger firms do therefore, smaller firms need to join forces together to engage in a continuous process of innovation and take advantage of available opportunities through negotiations and collaborative networks (Welbourne and Pardo-del-Val, 2009). This is a concept also called weak ties and it is positively related to firm performance (Rowley et al., 2000). Finally, firms of any size can benefit by establishing partnerships/alliances, both local and international and can increase their relational capital base and the ability of ambidexterity which are positively related to sustained competitive advantage (Kauppila, 2010; Liu et al., 2010).

4.3 Knowledge of the Firm

Knowledge has become one of the most important sources for SCA (DeNisi et al., 2003; Dai and Liu, 2009; Liu et al., 2010) as the accumulation and utilization of knowledge contributes as a driving force for the development and growth of the firm.

Knowledge is defined as “*information that has been combined with experience, context, interpretation, and reflection*” (Davenport et al., 1997, p. 1). Similar to HC, knowledge exists within a firm or individuals in two forms: tacit knowledge and explicit knowledge. The former form of knowledge is acquired through experience while the latter through education and training (Ipe, 2003; Gale and Vance, 2012; Wang and Wang, 2012). Knowledge acquisition is the extent to which a firm learns the know-how (experience-based knowledge) and know-what (task-based knowledge) from internal and external sources (Ipe, 2003; Liu et al., 2010). External sources of knowledge creation are alliances and collaborative relationships between firms, individuals or both, whereas internal sources are individuals and units within a firm (Ipe, 2003; Liu et al., 2010).

Knowledge is created through a process called knowledge-sharing where the knowledge owner shares their knowledge with others through a form of messages or practices that are understood/matched by belief systems and experiences that people hold (Ipe, 2003). Once acquired, knowledge has to be shared with and disseminated to an increasing number of individuals (Liu et al., 2010) in order to create a collective knowledge base because it is the shared knowledge that has an impact on firm-level efficiencies (Jones et al., 2007). This line of enquiry has been empirically tested by Wang and Wang (2012) in a survey of 226 managers from 89 high technology firms. They found that knowledge sharing has a direct positive relationship with firm performance, in addition to having a positive impact on innovation, which is also positively related to overall firm performance.

Law and Ngai (2008), however, found in their research of 134 manufacturing, wholesaling and retailing firms that knowledge sharing has an indirect positive relationship with firm performance. Whether the relationship is direct or indirect, knowledge affects firm performance and helps organizations to innovate and adopt innovation. In other words, through knowledge and knowledge sharing, firms combine, connect and integrate their knowledge base and invoke a kaleidoscopic thinking and generate breakthrough ideas that lead to innovation and SCA (Zhou and Li, 2012).

To encourage and facilitate knowledge sharing, firms, managers and executives should create working environments and develop appropriate strategies and programmes that are conducive to learning and managing knowledge (Law and Ngai, 2008; Wang and Wang, 2012). This is because in uncertain and insecure situations individuals may be reluctant to share their knowledge due to fear of losing power that comes with knowledge or fear of potential punishment or little or no expected benefits in return for sharing their knowledge with others (Ipe, 2003; Gubbins and Dooley, 2014). Therefore, knowledge sharing primarily happens when the owner has a personal motivation and perceives no risk in sharing her/his knowledge with others, in addition to having an opportunity available to do so such as in-house trainings, formal and informal meetings with peers and super- and/or sub-ordinates.

There are two different processes involved in sharing both tacit and explicit knowledge (Wang and Wang, 2012; Zhou and Li, 2012). These are (1) externalization and combination - through this process knowledge possessed by individuals and groups is converted into organizational or collective knowledge; and (2) internalization and socialization - through this process knowledge possessed by the firm is transferred to individuals or teams/groups of individuals. Explicit knowledge is usually shared between individuals and the organization and across individuals through externalization whereas tacit knowledge is shared through internalization or through internal knowledge integration mechanisms.

5 Discussion

Building on extant research which argues that human capital begets human capital (Mahsud et al., 2011) and success breeds success (Dierickx and Cool, 1989), this review article posits that human capital, social capital, relational capital and knowledge of the firm affect organizational performance and the ability to achieve and sustain competitive advantage if exploited appropriately. These people-dependent intangible resources complement each other within a given organization. Unger et al. (2011) found that entrepreneurial human capital affects the creation and development of employee/subordinate human capital and vice versa. Evans and Syrett (2007) have argued that the creation and development of social capital and economic development are dependent on each other. Bubolz (2001) believes that human capital is a prerequisite for development of social capital and in return social capital complements further creation/accumulation of human capital. Denrell et al. (2013) asserted that the chance of achieving superior performance at present or in the future is path dependent in addition to a systemic difference in capabilities, random events (chance) and a process of cumulative advantage.

The above arguments lead to the belief that: (1) the overall performance of the firm depends on existing stock of human capital; (2) human capital resource levels determine stock of other people-dependent intangible resources; and (3) success at present or in the future generally depends on the success history of the firm. These concepts are well established in the existing literature but in a fragmented manner as each one of them have been researched distinctively separately. That gives the impression that they are standalone resources. Hence, the big picture has been missed or has not been understood properly. This article attempts to bring these resources together to provide readers and future researchers with an opportunity to visualize: how they are interconnected; how and in what conditions they depend on each other; and how they can provide a firm with strong underpinnings for achieving and sustaining competitive advantage.

Moreover, the creation of human capital resources is a function of social capital, relational capital and knowledge (already discussed). Indeed the other way round may also be true. Alternatively, these intangible resources, in turn, emanate from human capital which stems from individual-level characteristics. Firms create these unit/firm-level intangible resources through various HRM processes including recruitment, training and deployment. Although this concept has been discussed already in the literature (Hatch and Dyer, 2004; Wright and McMahan, 2011), extant research focused on human capital only. Other forms of people-dependent intangible resources have not been investigated in terms of human capital being a rootstock from where other people-dependent resources burgeon. This process of people-dependent firm-level intangible resources creation and accumulation and their impact on firm performance and competitive advantage is visualized in the conceptual framework in Figure 1 (already discussed).

An implication of the conceptual framework presented in this article is that, a new firm might have a stock of these resources or a combination of them in place already but may not achieve competitive advantage status in the short term. Nevertheless, by adopting a strategy of effective utilization of these resources the firm may enjoy competitive parity in the medium to short term, i.e., the firm performs at least as good as that of its competitors. Moreover, the firm can enjoy sustained competitive advantage by adopting a strategy of developing heterogeneous

capabilities/resources and by protecting these capabilities/resources over a period of time. These two strategies are referred to as low-crunch tradition and high crunch tradition respectively in the resourced-based view body of literature (Denrell et al., 2013). According to the former tradition, the firm will be able to accumulate these firm-level critical resources over time by adopting various strategies including: recruitment of appropriately educated and trained staff; training staff in-house according to specific needs and environment of the firm; retaining valuable staff; empowering managers; accumulating knowledge; establishing appropriate relations with both internal and external stakeholders; and establishing appropriate trade ties with other businesses and individuals. According to the latter tradition, the firm can protect these and other intangible resources through isolating mechanisms such as first mover advantage, switching costs, network externalities and learning curves.

In addition, the need to introduce the integrated multi-resource model (presented above in Figure 1) was because extant research almost unanimously argues that people-dependent intangible resources contribute positively to firm performance, there is little explanation available in the literature about the following two phenomena: (1) these resources depend on each other for their creation and development; and (2) they stem from characteristics possessed by individuals which provide underpinnings for a bundle of firm-level strategic resources which have the potential to cause competitive advantage over rivals. For example, Gonzalez-Padron et al. (2010) hold knowledge responsible for sustained competitive advantage; Kor and Mesko (2013) as well as Arregle et al. (2007) think social capital is responsible for sustained competitive advantage; Welbourne and Pardo-del-Val (2009) as well as Liu et al. (2010) posit that relational capital is related to sustained competitive advantage; whereas majority of researchers (Barney, 1991; Heckman, 2000; Barney et al., 2001; Barney et al., 2011; Mahsud et al., 2011) argue that human capital causes sustained competitive advantage. A bird's eye-view of these somehow overlapping interpretations is given in Table 1 (already discussed). All these arguments may be, and perhaps they are to a large extent depending on the context, true in their own right. But past scholarship focused only on individual sub-sets of the overall people-dependent firm-level resources.

In addition, the framework presented in Figure 1 is also aimed to represent a holistic picture of people-dependent intangible resources and encourage scholars to pay some attention to the whole rather than confining themselves in explaining parts of this bundle of resources in isolation. In other words, it may serve as a point of departure from competing, divergent and disconnected research agendas and encourage a dialogue among scholars from different disciplines in order to provide a direction for future theorizing and empirical investigation about the creation, assessment and implications of these resources. The objective of this review is neither to close the debate on individual human capital resources as determinants of firm performance (Mahsud et al., 2011) nor to provide a solution to human capital resource scholars in assessing them and in evaluating their individual impact on a firm's competitive advantage positioning. Furthermore, this review does not propagate that each piece of relevant research should include all of these resources (cf. Figure 1). It only suggests that any one resource, or a combination of them, can be investigated in relation to their impact on firm/unit-level competitive advantage. At the same time, researchers from all relevant disciplines need to recognize that the impact of any of these intangible resources can be affected by inclusion or exclusion of others of similar nature. Therefore, it is my hope that this model will encourage scholars from various disciplines to talk to each other and advance this line of enquiry to increase our

understanding how these important resources are created and how they can be effectively deployed for long term firm performance and competitive advantage.

It might be worthwhile to clarify that why this article keeps referring these resources as ‘people-dependent resources.’ As already explained in this article, human capital theorists believe that firm-level human capital comes from individual-level characteristics. That implies that unit-level human capital fundamentally originates from human resources within a firm. Similarly, social capital refers to the stock and nature of individual-to-individual, individual-to-firm and firm-to-firm relationships. Thus social capital primarily stems from individual-to-individual level relationships at gross roots level. Likewise, relational capital comes from formal and informal agreements or ties between and across individuals and firms. These agreements, whether at individual- or firm-level, are also established and managed between individuals or groups of individuals. Finally, human knowledge refers to the messages being shared and understood between and among individuals or groups of individuals. It is due to the involvement of human beings in building and accumulating of these intangible firm-level resources this article refers to them as ‘people-dependent resources.’

This article does not suggest merging these various people-dependent resources into one resource. It rather argues that they originate from the same source of individual characteristics, they are interrelated, they depend on each other for their creation and accumulation, they complement each other at various levels and they should be considered as a necessary bundle of critical firm-level resources required for achieving long term competitive advantage. Moreover, they do not exist in isolation nor do they affect firm performance as standalone resources. They are owned, to a large degree, by individuals. Their aggregate levels, however, are accessible to a team/unit/firm to be utilized in a unique way in order to achieve high performance levels and competitive advantage.

6 Conclusion

Human Capital, as a resource, has been a fascinating area for management experts, strategists, economists, psychologists and social scientists since the beginning of Seventeenth century. Various scholars attempted to prove their own viewpoints about the importance of this resource by looking through a narrow lens within their own disciplines. Historically, economists focused on individual-level human capital as a source of superior performance. Social scientist and strategy scholars, however, believed that it is the unit-level human capital which causes firms to achieve and sustain above average performance and competitive advantage. Disagreements also continued in the areas of measurement/assessment of human capital as well as its ownership. Since 1960s, particularly, a vast amount of research exploded in this field whereby researchers investigated the relationship of human capital resources with firm performance but in a fragmented way. Contemporary human capital scholars, nevertheless, argue that some forms of unit-level human capital are in fact strategic resources as they cause competitive advantage in the long term.

This review is an attempt to take this line of enquiry further and contribute to the existing literature by offering a multilevel integrated framework, which includes other firm-level people-dependent intangible resources namely social capital, relational capital and knowledge of the firm. In meeting this objective, this review offered comprehensive definitions of human capital resources encompassing all characteristics

at both individual- and unit-levels. Further theorizing on these comprehensive definitions might help future scholarship to adopt meaningful and clear methods of the assessment of these resources. In addition, this review raises a number of future research questions for scholars from various disciplines. Finally, this review article calls for a dialogue amongst scholars in furthering this field of knowledge so that we could understand how people-dependent intangible resources complement the creation/accumulation of each other and how they, together as well as separately, cause above average firm performance and sustained competitive advantage.

References

- Arend, R. J. (2015) Mobius' edge: Infinite regress in the resource-based and dynamic capabilities views. *Strategic Organization*, 13 (1), 75-85.
- Arregle, J. L., Hitt, M. A., Sirmon, D. G. and Very, P. (2007) The Development of Organizational Social Capital: Attributes of Family Firms. *Journal of management studies*, 44 (1), 73-95.
- AVSI (2008) *Human Capital, a Resource for Development: The Experiences in the World of three Italian NGOs: AVSI, ICU and Monserrate*. Milan, Italy: Italian Ministry for Foreign Affairs.
- Baptiste, I. (2001) Educating lone wolves: Pedagogical implications of human capital theory. *Adult Education Quarterly*, 51 (3), 184-201.
- Barney, J. (1991) Firm resources and sustained competitive advantage. *Journal of management*, 17 (1), 99-120.
- Barney, J., Ketchen, D. J. and Wright, M. (2011) The future of resource-based theory revitalization or decline? *Journal of Management*, 37 (5), 1299-1315.
- Barney, J., Wright, M. and Ketchen, D. J. (2001) The resource-based view of the firm: Ten years after 1991. *Journal of management*, 27 (6), 625-641.
- Becker, G. S. (1962) Investment in human capital: A theoretical analysis. *The journal of political economy*, 70 (5), 9-49.
- Becker, G. S. (1996) The economic way of looking at behavior: The Nobel lecture. *The Journal of Political Economy*, 101 (3), 385-409.
- Blaug, M. (1976) The empirical status of human capital theory: a slightly jaundiced survey. *Journal of economic literature*, 14 (3), 827-855.
- Bubolz, M. M. (2001) Family as source, user, and builder of social capital. *Journal of Socio-Economics*, 30 (2), 129-131.
- Burton-Jones, A. and Spender, J. C. (2012) *The Oxford handbook of human capital*. Oxford UK: Oxford University Press.
- Coff, R. and Kryscynski, D. (2011) Invited editorial: drilling for micro-foundations of human capital-based competitive advantages. *Journal of Management*, 37 (5), 1429-1443.
- Coleman, J. S. (1988) Social capital in the creation of human capital. *American journal of sociology*, 95 (Supplement), S95-S120.
- Cousins, P. D., Handfield, R. B., Lawson, B. and Petersen, K. J. (2006) Creating supply chain relational capital: the impact of formal and informal socialization processes. *Journal of Operations Management*, 24 (6), 851-863.
- Crocker, A. and Eckardt, R. (2014) A Multilevel Investigation of Individual-and Unit-Level Human Capital Complementarities. *Journal of Management*, 40 (2), 509-530.
- Crook, T. R., Todd, S. Y., Combs, J. G., Woehr, D. J. and Ketchen Jr, D. J. (2011) Does human capital matter? A meta-analysis of the relationship between human capital and firm performance. *Journal of Applied Psychology*, 96 (3), 443-456.
- Dai, O. and Liu, X. (2009) Returnee entrepreneurs and firm performance in Chinese high-technology industries. *International Business Review*, 18 (4), 373-386.

- Danes, S. M., Lee, J., Stafford, K. and Heck, R. K. Z. (2008) The effects of ethnicity, families and culture on entrepreneurial experience: An extension of sustainable family business theory. *Journal of Developmental Entrepreneurship*, 13 (03), 229-268.
- Danes, S. M., Stafford, K., Haynes, G. and Amarapurkar, S. S. (2009) Family Capital of Family Firms Bridging Human, Social, and Financial Capital. *Family Business Review*, 22 (3), 199-216.
- Davenport, T. H., De Long, D. W. and Beers, M. C. (1997) *Building successful knowledge management projects*. Cambridge: Center for business innovation.
- DeNisi, A. S., Hitt, M. A. and Jackson, S. E. (2003) *The knowledge-based approach to sustainable competitive advantage: Managing knowledge for sustained competitive advantage: Designing strategies for effective human resource management*. San Francisco: Jossey Bass
- Denrell, J., Fang, C. and Zhao, Z. (2013) Inferring superior capabilities from sustained superior performance: A Bayesian analysis. *Strategic Management Journal*, 34 (2), 182-196.
- Dierickx, I. and Cool, K. (1989) Asset stock accumulation and sustainability of competitive advantage. *Management science*, 35 (12), 1504-1511.
- Doherty, B., Haugh, H. and Lyon, F. (2014) Social enterprises as hybrid organizations: A review and research agenda. *International Journal of Management Reviews*, 16 (4), 417-436.
- Ertug, G. and Castellucci, F. (2015) Who shall get more? How intangible assets and aspiration levels affect the valuation of resource providers. *Strategic Organization*, 13 (1), 6-31.
- Evans, M. and Syrett, S. (2007) Generating social capital? The social economy and local economic development. *European Urban and Regional Studies*, 14 (1), 55-74.
- Felin, T. and Hesterly, W. S. (2007) The knowledge-based view, nested heterogeneity, and new value creation: Philosophical considerations on the locus of knowledge. *Academy of Management Review*, 32 (1), 195-218.
- Fulmer, I. S. and Ployhart, R. E. (2014) "Our Most Important Asset" A Multidisciplinary/Multilevel Review of Human Capital Valuation for Research and Practice. *Journal of Management*, 40 (1), 161-192.
- Gale, J. and Vance, C. M. (2012) Cross-Cultural Knowledge Sharing for Competitive Advantage An Interview With Nigel J. Holden. *Journal of Management Inquiry*, 21 (4), 397-403.
- Gonzalez Padron, T. L., Chabowski, B. R., Hult, G. T. M. and Ketchen, D. J. (2010) Knowledge management and balanced scorecard outcomes: exploring the importance of interpretation, learning and internationality. *British Journal of Management*, 21 (4), 967-982.
- Gubbins, C. and Dooley, L. (2014) Exploring social network dynamics driving knowledge management for innovation. *Journal of Management Inquiry*, 23 (2), 162-185.
- Hatch, N. W. and Dyer, J. H. (2004) Human capital and learning as a source of sustainable competitive advantage. *Strategic management journal*, 25 (12), 1155-1178.
- Heckman, J. J. (2000) Policies to foster human capital. *Research in economics*, 54 (1), 3-56.
- Hitt, M. A., Biermant, L., Shimizu, K. and Kochhar, R. (2001) Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of management journal*, 44 (1), 13-28.
- Ipe, M. (2003) Knowledge sharing in organizations: a conceptual framework. *Human Resource Development Review*, 2 (4), 337-359.
- Ivy, J., Larty, J. and Jack, S. (2015) Searching for Relevance NGO–Donor Relationships in a Geographically Isolated Community. *Journal of Management Inquiry*, 24 (3), 280-299.
- Jayawarna, D., Jones, O. and Macpherson, A. (2014) Entrepreneurial potential: The role of human and cultural capitals. *International Small Business Journal*, 32 (8), 918-943.

- Jones, O., Macpherson, A., Thorpe, R. and Ghecham, A. (2007) The evolution of business knowledge in SMEs: conceptualizing strategic space. *Strategic Change*, 16 (6), 281-294.
- Kauppila, O.-P. (2010) Creating ambidexterity by integrating and balancing structurally separate interorganizational partnerships. *Strategic organization*, 8 (4), 283-312.
- Kiker, B. F. (1966) The historical roots of the concept of human capital. *The Journal of Political Economy*, 74 (5), 481-499.
- Kor, Y. Y. and Mesko, A. (2013) Dynamic managerial capabilities: Configuration and orchestration of top executives' capabilities and the firm's dominant logic. *Strategic Management Journal*, 34 (2), 233-244.
- Lassalle, P. (2008) Ethnic Minority Entrepreneurs: communities, social capital, actors' strategies. [Online] Available at: www.uws.ac.uk/workarea/downloadasset.aspx?id=2147488702 [Accessed on 16 August 2013].
- Law, C. C. H. and Ngai, E. W. T. (2008) An empirical study of the effects of knowledge sharing and learning behaviors on firm performance. *Expert Systems with Applications*, 34 (4), 2342-2349.
- Lazear, E. P. (2009) Firm-Specific Human Capital: a skill-weights approach. . *The Journal of Political Economy*, Vol. 117 (5), 914-940
- Liu, C.-L. E., Ghauri, P. N. and Sinkovics, R. R. (2010) Understanding the impact of relational capital and organizational learning on alliance outcomes. *Journal of World Business*, 45 (3), 237-249.
- Livingstone, D. W. (1997) The limits of human capital theory: Expanding knowledge, informal learning and underemployment. *Policy Options*, 18 (6), 9-13.
- Macpherson, A., Jones, O. and Zhang, M. (2004) Evolution or revolution? Dynamic capabilities in a knowledge-dependent firm. *R&D Management*, 34 (2), 161-177.
- Mahsud, R., Yukl, G. and Prussia, G. E. (2011) Human capital, efficiency, and innovative adaptation as strategic determinants of firm performance. *Journal of Leadership & Organizational Studies*, 18 (2), 229-246.
- McKelvie, A. and Davidsson, P. (2009) From resource base to dynamic capabilities: an investigation of new firms. *British Journal of Management*, 20 (s1), S63-S80.
- McPherson, M. (2010) Business practices within South Asian family and non-family firms: A comparative study. *International Journal of Entrepreneurial Behaviour & Research*, 16 (5), 389-413.
- Mincer, J. (1958) Investment in human capital and personal income distribution. *The Journal of Political Economy*, 66 (4), 281-302.
- Nahapiet, J. and Ghoshal, S. (1998) Social capital, intellectual capital, and the organizational advantage. *Academy of management review*, 23 (2), 242-266.
- Newbert, S. L. (2007) Empirical research on the resource-based view of the firm: an assessment and suggestions for future research. *Strategic management journal*, 28 (2), 121-146.
- Nyberg, A. J., Moliterno, T. P., Hale, D. and Lepak, D. P. (2012) Resource-Based Perspectives on Unit-Level Human Capital A Review and Integration. *Journal of Management*, 40 (1), 316-346.
- Pattie, M., Parks, L. and Wales, W. (2012) Who Needs Security? Entrepreneurial Minorities, Security Values, and Firm Performance. *Journal of Management Inquiry*, 21 (3), 319-328.
- Ployhart, R. E. and Moliterno, T. P. (2011) Emergence of the human capital resource: A multilevel model. *Academy of Management Review*, 36 (1), 127-150.
- Ployhart, R. E., Nyberg, A. J., Reilly, G. and Maltarich, M. A. (2014) Human Capital Is Dead; Long Live Human Capital Resources! *Journal of Management*, 40 (2), 371-398.

- Protogerou, A., Caloghirou, Y. and Lioukas, S. (2012) Dynamic capabilities and their indirect impact on firm performance. *Industrial and Corporate Change*, 21 (3), 615-647.
- Roberts, P. W. and Dowling, G. R. (2002) Corporate reputation and sustained superior financial performance. *Strategic management journal*, 23 (12), 1077-1093.
- Rowley, T., Behrens, D. and Krackhardt, D. (2000) Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal*, 21 (3), 369-386.
- Schultz, T. W. (1961) Investment in human capital. *The American economic review*, 51 (1), 1-17.
- Schumann, C. (2002) Measuring Human Capital—Old and New Approaches and Their Suitability for Growth Analysis of Transition Countries. In proceedings of the 10th Conference on The Effect of European Union Expansion on Estonian Economic Policy, pp. 192-199.
- Teece, D. J. (2010) Business models, business strategy and innovation. *Long range planning*, 43 (2), 172-194.
- Teece, D. J., Pisano, G. and Shuen, A. (1997) Dynamic capabilities and strategic management. *Strategic management journal*, 18 (7), 509-533.
- Turner, N., Swart, J. and Maylor, H. (2013) Mechanisms for managing ambidexterity: a review and research agenda. *International Journal of Management Reviews*, 15 (3), 317-332.
- Unger, J. M., Rauch, A., Frese, M. and Rosenbusch, N. (2011) Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26 (3), 341-358.
- Wang, Z. and Wang, N. (2012) Knowledge sharing, innovation and firm performance. *Expert Systems with Applications*, 39 (10), 8899-8908.
- Welbourne, T. M. and Pardo-del-Val, M. (2009) Relational capital: strategic advantage for small and medium-size enterprises (SMEs) through negotiation and collaboration. *Group Decision and Negotiation*, 18 (5), 483-497.
- Wernerfelt, B. (1984) A resource-based view of the firm. *Strategic management journal*, 5 (2), 171-180.
- Wright, P. M., Coff, R. and Moliterno, T. P. (2014) Strategic Human Capital Crossing the Great Divide. *Journal of Management*, 40 (2), 353-370.
- Wright, P. M., Gardner, T. M., Moynihan, L. M. and Allen, M. R. (2005) The relationship between HR practices and firm performance: Examining causal order. *Personnel Psychology*, 58 (2), 409-446.
- Wright, P. M. and McMahan, G. C. (2011) Exploring human capital: putting 'human' back into strategic human resource management. *Human Resource Management Journal*, 21 (2), 93-104.
- Zahra, S. A., Sapienza, H. J. and Davidsson, P. (2006) Entrepreneurship and dynamic capabilities: a review, model and research agenda. *Journal of Management studies*, 43 (4), 917-955.
- Zhou, K. Z. and Li, C. B. (2012) How knowledge affects radical innovation: Knowledge base, market knowledge acquisition, and internal knowledge sharing. *Strategic Management Journal*, 33 (9), 1090-1102.
- Zidan, S. S. (2001) The role of HRD in economic development. *Human Resource Development Quarterly*, 12 (4), 437-443.