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# The impact of intellectual capital on the competitive advantage: Applied study in Jordanian telecommunication companies

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ABSTRACT

This research investigates the impact of intellectual capital components on the competitive advantage in the Jordanian telecommunication companies. The empirical findings indicate that the relational capital and the structural capital have positive impact on competitive advantage. Both the relational capital and the structural capital account for 48.4% of the competitive advantage. It is unexpected to find that the human capital does not have a significant direct impact on competitive advantage. However, it is valid to state that the human capital indirectly and significantly influences competitive advantage as it is embedded in the relational capital. The effect of the relational capital on competitive advantage is moderated by gender and age. The effect is strongest among younger men. In the case of the structural capital its effect is moderated by gender only such that the effect is slightly stronger for females rather than males.



## 1. Introduction

Although there is a wide consensus that intellectual capital (IC) influences firm's competitive position in a variety of industries, some researchers argue that its effect may be industry specific (Edvinsson & Malone, 1997; Bontis, Keow, & Richardson, 2000; Jaradate, Al-Samralie, & Jadallah, 2012; Firer & Williams, 2003; PekChen, 2005). During the last decade, studies on intellectual capital have continued to grow using different methods of analyses in different contexts (Sharabati, Jawad, & Nick, 2010). Thus, plenty of convincing conceptions have been forwarded in support of the need to understand the role of the intellectual capital in the knowledge intensive industries and advanced technology (Petty & Guthrie, 2000; Fernandez, Diaz, Rodriguez, & Simonetti, 2015). In the last decade the emergency of the knowledge economy has been attributed to a widespread recognition of the IC as a determining factor that drives innovation and economic growth. Intellectual capital offers a potential source of sustainable competitive advantage (Hayton, 2005). Although it is difficult to accurately measure intellectual capital as an essential intangible resources, its added value remains undisputed. Further, most research on intellectual capital and its relationship with performance has been conducted in western business settings. Meanwhile, although a few researchers have participated in highlighting the impact of IC in such intensive knowledge industry as Telecommunications, their contributions in general on the IC literature are very limited (Bontis, 2004; Seleim, Ashour, & Nick, 2004; Al-Rousan & Al-Ajlouni, 2010; Sharabati et al., 2010; Zeglat & Zigan, 2014). Thus, the purpose of this research is to investigate the impact of intellectual capital on the competitive advantage in Jordanian Telecommunication companies. One of the main reasons to examine this industry in Jordan is that telecommunication is considered to be one of the most knowledge-based intensive industries (Bradely, 1997). It is believed to be highly innovative (Chen, Zhu, & Xie, 2004), and rapid growth sector (Hermans, 2004). The telecommunication sector has a significant contribution to the Jordanian economy, representing 14% of the Kingdom's GDP in 2014. This sector represents an opportunity for the Kingdom to increase its competitive advantage over its neighboring Arab countries in the Region. Jordan is considered to possess the vital elements for information technology hub in the region. The ICT exports reached USD 324 million in 2013 and 85% of these exports were targeted to Arab countries. Furthermore, the employment rate in this sector is continually increasing and the employment number increased to 18,000 in 2014 (Jordan Investment Commission, 2015). It is for this reason that this research focuses on the telecommunication sector in

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Jordan.

## 2. Literature review

### 2.1. Intellectual capital

Intellectual Capital has been considered as a crucial factor in business by many, and formally valued by practically no one (Bontis, 1998). The impetus for this state is a set of challenges of how tacit knowledge and collective intelligence embedded in human capital, and organizational processes (Nonaka & Takeuchi, 1995; Bontis, Dragonetti, Jacobsen, & Roos, 1999; Wang, Yen, & Liu Gloria, 2014).

That is, the intangibility nature of IC leads itself to difficulty for understanding and managing within the entire organization. Actually, most scholars and managers have only vague concepts about how to manage invisible resources based on nurturing and developing human capital, structural capital and relational capital. This elusive intangibility of IC involves more rigorous conceptualization of IC as a discipline both in theory and practice (Bontis, 1996; Bontis et al., 1999; Calabrese, Costa, & Menichini, 2013). Initially, the work of particular researchers, such as Brooking (1996), Edvinsson and Malone (1997), Bradely (1997), Stewart (1997), Sveiby (1997) and Bontis (1998) was a major contribution to bring the concept to the forefront. The conceptual term "intellectual capital" is frequently used in an all-encompassing fashion (Petty & Guthrie, 2000).

Edvinsson and Malone (1997) assert IC as the value of intangible assets or knowledge that can be the difference between the book value and the market value (Brooking, 1996; Sveiby, 1997; Pablos, 2003) or all nonmonetary and nonphysical resources. Stewart (1991) explained intellectual capital as the intellectual material of knowledge, information, intellectual property, experience that can be utilized to create wealth. Bontis (1998), Curado and Bontis (2007), Tovstiga (2009) defined IC as encompassing human capital, relational capital and structural capital. Further, researchers have been decomposing IC in order to simplify its measurement and evaluation. Edvinsson and Malone (1997) argued that IC is stemmed on just two bases, human capital and structural capital. Structural capital is further divided into organizational capital and customer capital. The organizational, capital consists of process and renewal capital. Sveiby (1997) addressed an ultimate model of intangible assets monitor composed of internal structure, external structure and core competences. More precisely, the premise of IC is that it manifests all forms of hidden value associated with a company's intangible assets. Thus, recent research describes IC as a set of relational (Customer-relation) capital, structural (internal) capital and human capital (Mehralian, Rasekh, Akhavan, & Ghatari, 2013; Wang et al., 2014; Seleim et al., 2004). Often the concept of intellectual capital refers to knowledge capital, knowledge assets or intangible resources even if there is an assets of intangible nature that do not logically subset of the entire intellectual capital and its major three categories (human, structural and relational) (Petty & Guthrie, 2000). This research follows the framework that views IC as a synergic integrated set of human capital, structural capital, and relational capital.

#### 2.1.1. Human capital

Human capital comprises all business capabilities embedded in employees and not owned by the organization (Hsu & Fang, 2009). It is the individual knowledge stock of an organization as represented by its employees (Bontis, Crossan, & Hullan, 2002). Mehralian et al., (2013) described human capital as the key element of intellectual assets and one of the most important sources of firms' competitive advantage. In this context, human capital refers to the resources which include tacit knowledge, skills and experience of the employees (Kamukama, 2013), or an organization's members possess individual tacit knowledge (Bontis & Fitz-enz, 2002). The notion of the human capital (talent capital) associated with innate ability, intelligence, creation and talent brainpower (Butter, Valenzuela, & Quintana, 2015). It is the core component of intellectual capital and the main source of intellect, innovation, and invention (Seleim & Bontis, 2013).

#### 2.1.2. Structural capital

Structural capital contains explicit knowledge or codified knowledge artifacts. It is embedded in systems, databases and programs (Edvinsson & Malone, 1997) unlike human capital, structural capital (SC) comprises mechanisms and structures of the organization that support employees' productivity or performance (Bontis, 1998; Mehralian et al., 2013). It is the pool of knowledge and supportive infrastructure for human capital and relational capital. Bontis (1998) highlighted that without structural capital, intellectual capital would just be human capital. Organizations with strong structural capital can find a better fit with its human capital to relational capital. The combination of these competencies is often referred to as intellectual capital (Herremans, Isaac Robet, Kline Theresa, & Nazari Jamal, 2010).

#### 2.1.3. Relational capital

Relational capital represents embedded knowledge in customer preferences including suppliers and relationships with partners (Yitmen, 2014). At its core, RC is concerned with the mobilization of knowledge and relationship resources through social structure (Hsu & Wang, 2012). It is the broaden concept of customer capital (Bontis et al., 1999). The extant literature views relational capital as knowledge embedded in all relationships between an organization and its stakeholders. Thus, customer capital is considered by many as a subset of the relational capital (Hsu & Wang, 2012; Saxena, 2015). Further, RC is an intangible asset based on nurturing and developing high quality relationships with employees, customers, partners, suppliers, competitors, and other stakeholders that positively influenced performance and competitive advantage.

### 2.2. Intellectual capital and competitive advantage

Organizations possess various numbers of resources that affect their performance. These resources can be tangible or intangible assets that have a direct or indirect impact on their competitive advantage (Omerzel & Gulev, 2011). The Intellectual capital can be regarded as intangible assets or knowledge assets within organizations (Choong, 2008; Grimaldi, Cricelli, & Rogo, 2012). The knowledge asset is either static that means the available stocks (knowledge) within the organization (Sveiby, 1997) or dynamic (the flow) that is the result of knowledge progression in the stock communication (Ross et al., 2005). Furthermore, Nahapiet and Goshal (1998) have stated that the intellectual capital is created through the combination and exchange of intellectual resources that may be represented as explicit or tacit knowledge within organizations.

Knowledge is the most important resource in organizations and is considered to be a fundamental base in creating competitive strategies, national and global growth and profitability (Wong, 2005; Ruzzier, Antoncic, Hisrich, & Konecnik Ruzzier, 2007). In his research, Quinn (1992) has asserted the importance of knowledge stressing the fact that the intellectual resources and the service capabilities of the company are greater of importance than its tangible resources. Therefore, the intellectual capital represents a vital source of knowledge and knowing within organizations. The role of strategic management is not only to allocate the intellectual

capital at organizations but also to find new ways to transform the intangible assets (Teece, 2007). Organizations with diverse knowledge and human creativity are more likely to be innovative acquiring a high competitive advantage (Grimaldi et al., 2012).

The globalization and the technological development have urged organizations to compete intensely in such a challenging environment (Hitt, Keats, & De Marie, 1998). Accordingly, organizations have to differentiate themselves and execute tasks differently in order to prosper in the market. Therefore, the competitive advantage does not occur from producing the final products and services to the customers but it comes about from the resources that produce them. Competitive advantage will not be continuous unless organizations use their resources effectively and efficiently to deliver a value to a specific segment in the market (Hunt & Moran, 1995). This urges an organization to develop value creating strategies from its sources for sustainable development (Porter, 1980; Barney, 1991).

It is argued that organizations can substitute tangible assets and resources but they are unlikely to do that with intangible assets. Tangible assets are not sources of sustainable competitive advantage because they can easily be imitated and substituted (Hall, 1992). In contrast, intangible assets, such as organizational culture and product reputation are hardly substituted and provide sustainable value and competitive advantage for the organizations (Grimaldi et al., 2012; Pearson, Pitfield, & Ryley, 2015). The sustainable competitive advantage requires scarce, unique, non-tradable and durable resources in the company (Barney, 1991; Amit & Schoemaker, 1993).

Several formations were provided to explain the essentials for competitive advantage in organizations. For example, the VRIN framework explains vital issues for sustainable development. The framework suggests that organizations should have resources that offer value, rare, imperfectly imitable so they cannot be copied by competitors and not have substitutes that could be easily used by competitors (Henkel, Bider, & Perjons, 2014). In addition, the Resource-Based-Vue (RVB), stressed that the competitive advantage could be achieved based on the characteristics of the organization's resources (valuable, rare, inimitable and non-substitutable) and on the ability of the organization to effectively make use of them (Barney, 1991; Hall, 1992; Collis & Montgomery, 1995). Furthermore, the Knowledge-based view (KBV) emphasized and described the type of resources available at organizations and categorized them as knowledge nature or knowledge processes (Grant, 1991, 1996). Therefore, the competitive advantage in the company could happen only by the integration of external market opportunities with the internal sources and abilities of the organizations (Grimaldi et al., 2012).

Intellectual capital provides resources and capabilities to create sustainable competitive advantage in organizations. Unless an organization uses Intellectual capital, it will not be able to obtain competitive position in a specific market or industry. Without competitive advantage, firms have limited reasons to exist in a business (Pearson et al., 2015). However, previous research rarely examined the relationship between Intellectual capital and competitive advantage. Much of the recent research has focused on the potential impact of the Intellectual capital on the business performance (Sharabati et al., 2010; Bontis et al., 2000; Hsu & Wang, 2012; Seleim & Bontis, 2013; Hsu & Fang, 2009). Thus, the current research is based on the premise that a firm's competitive advantage and added value predominantly will depend on Intellectual capital components (human capital, structural capital and relational capital). Bradley (1997) posits that Intellectual capital as an integrated whole is far more important than human capital in economic growth, the creation of wealth and competitive advantage. According to the resource-based view sustained competitive advantage is influenced by intellectual resources that are intangible, valuable and hard to imitate and reside within an organization (Kamukama, 2013).

## 3. Research model and hypotheses

Researchers have examined Intellectual capital and its relationship with innovation, performance and organizational learning capability (Hsu & Fang, 2009; Yitmen, 2014). Furthermore, the extensive literature stresses on the contribution of the Intellectual capital components to firms performance in different context and settings (Tovstiga & Tulugurova, 2009; Seleim & Bontis, 2013; Saxena, 2015; Pearson et al., 2015). Meanwhile, although few researchers have participated in addressing and highlighting the influence of the Intellectual capital components on the firms' competitive advantage, their contributions in general on the IC are very limited (Kong & Prior, 2008; Kamukama, 2013; Pearson et al., 2015). Based on the literature this research examines the relationship between Intellectual capital components and competitive advantage. Fig. 1 illustrates the proposed research model. Theoretically, this model posits that there is a positive effect of intellectual capital components: human capital (HC) structural capital (SC) and relational capital (RC) on the firm competitive advantage. This research posits that although intellectual capital components show clear impact on the firm's competitive advantage their contributions are not equally important in influencing competitive advantage of the firm (Bontis, 1998; Jaradate et al., 2012; Kamukama, 2013). Human Capital (HC) covers human resources including cumulative tacit knowledge represented by competencies (com), learning and education (LE) and innovativeness and creativity (Bontis, 1998). Research findings of Bontis (1998), Sharabati et al., (2010), Hsu and Fang (2009), Bontis et al., (2000) revealed that the human capital had significant effects in most industries. Hence, the following research hypothesis is proposed:

**H1**. Human Capital positively affects competitive advantage.

Structural Capital (SC) refers to the supportive infrastructure for IC. It encompasses company's structure and business processes (CSBP) information systems and databases (ISD), research and development (RD), and style of management and company's culture (SMCC) (Bontis, 1998). Based on the literature, the following research hypothesis is proposed:

**H2**. Structural capital positively affects competitive advantage.

Relational Capital (RC) represents the firm's relations with stakeholders, namely customers and external stakeholders (CSK), Strategic Partners (SP), and Customers and Suppliers Relations (CSR) (Roos & Roos, 1997; Bontis, 1998). Relational capital is also known as customer capital or social capital. It refers to the actual intangible resource embedded within relationships network of the firm. As a result, this capital acts as a multiplying resource that creates value by connecting all IC components with other stakeholders (Kong & Prior, 2008). Hence, the following research hypothesis is proposed:

**H3**. Relational Capital positively affects competitive advantage.

Intellectual capital components have been found to impact firm competitive advantage (Edvinsson & Malone, 1997; Stewart, 1997; Bontis, 1998, 2001; Pablos, 2002; Pearson et al., 2015). The current research views competitive advantage as a sum of Low Cost (LC) services, Differentiation and Innovation (DI) and Perceived Service Quality (DSQ). Because this research is based on the perceptual measures the authors examined the differential moderating effects of the intellectual capital components on the

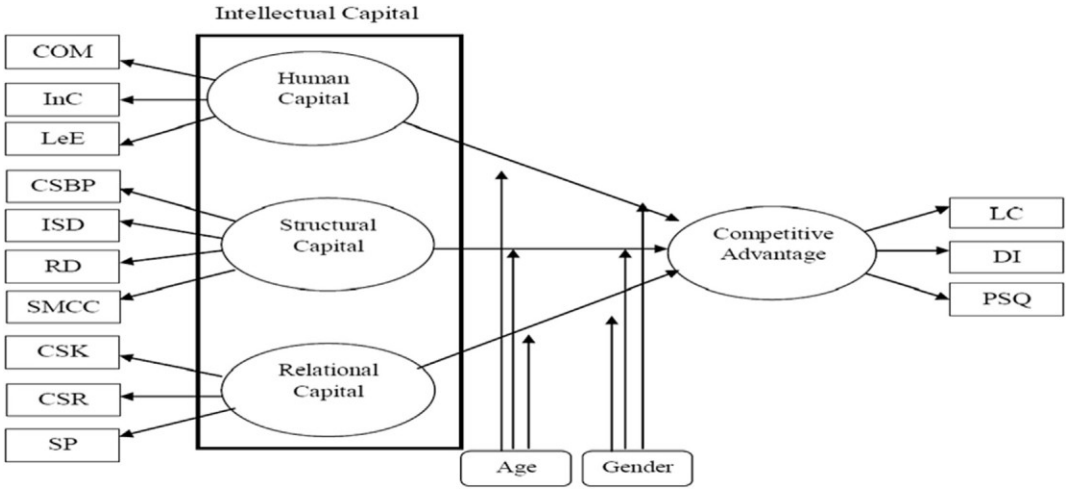


**Fig. 1.** Research conceptual model.

competitive advantage. The research posits that gender and age moderate the relationship between intellectual capital components and competitive advantage. Hence, the following research hypothesis is proposed:

**H4**. The effect of intellectual capital components on the competitive advantage will be moderated by gender and age.

## 4. Methodology

### 4.1. Sampling

This research aims to investigate the impact of the intellectual capital on the competitive advantage in the Jordanian telecommunication companies. A number of research hypotheses have been proposed to examine the extent to which intellectual capital components (human capital, structural capital and relational capital) can explain competitive advantage in the targeted companies. The Jordanian communication sector was chosen as the entire population and the unit of analysis was composed of all managers, consultants and professionals in the three major Jordanian telecommunication companies (Zain, Orange and Umniah). The total target population was about 297 and the research sample was 199. A quantitative survey research appeared to be appropriate in examining this perceptual based research measures.

### 4.2. Measurement

Most of the measures were adapted using multi item scales from prior research. In particular, intellectual capital constructs scales were adapted from Sveiby (1997) and Bontis (1998). Porter (1985) and Sharma (2005) scales were used to measured competitive advantage. Each sub-construct was operationalized with ten items that measured employee's perception of that construct. All research constructs were measure with a five-point Likert type scale. The face validity of the scale was assessed by a panel of experts. Two rounds of reviews with a panel of judges were done. The first round was with (10) academics and a group of professional from telecommunication companies in Jordan. The second round was conducted with language professionals to ensure the use of clear language in English and Arabic survey versions.

## 5. Data analysis and results

Among the respondents, 50.3% were male and 49.7% were female. The majority of the respondents (94.9%) were between 20 and 49 years old and approximately 80.4% of them had university education level. Meanwhile, the majority of respondents (66.8%) have working experience between 5 and 15 years. Table 1 describes the demographic profile of the respondents.

Smart PLS version 2.0 was used for data analysis. It is a second-generation tool, referred to as partial least squares structural equation modeling (PLS- SEM) (Hair, Hult, Ringle, & Sarstedt, 2014). Smart PLS utilizes a component-based approach to structural equation modeling. Further, a PLS path model consists of two elements: measurement model (Inner model) and structural model (outer model). The measurement model provided the results related to reliability and validity of the scales and the structured model represented the relationships (paths) between the research constructs.

### 5.1. Measurement model

Given that all measures are reflective, individual item reliability, construct reliability, convergent and discriminant validity of all

**Table 1**
Demographic profile of respondents.

| Characteristics | Frequency (N = 199) | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 100 | 50.3 |
| Female | 99 | 49.7 |
| Total | 199 | 100% |
| **Age** | | |
| Less than 30 | 46 | 23.1 |
| 30–39 | 99 | 49.8 |
| 40–49 | 44 | 22.1 |
| 50- above | 10 | 5.0 |
| **Education** | | |
| Diploma | 14 | 7.0 |
| Bsc | 160 | 8.4 |
| Msc | 25 | 12.6 |
| Experience | | |
| 1–5 years | 39 | 19.6 |
| 5–10 years | 80 | 40.2 |
| 11–15 years | 53 | 26.6 |
| 16 above | 27 | 13.6 |

items should be examined. Reliability measures were examined first using individual item reliability and internal consistency or reliability of the scale. Individual item reliability was evaluated in terms of the standards loading of each item onto its underlying variable. According to Vinzi, Chin, and Henseler (2010), loading values of each item should be at least equal to or higher than 0.7 and the squared loading ($R^2$) should be equal to or higher than 0.5. All factor loadings were greater than 0.7 and extremely significant at level ($\alpha = 0.05$). A filtration process was carried out for items that did not reach this value to maintain parsimony (Hair et al., 2014). The item of low cost was eliminated because it has the lowest loading (0.37).

Cronbach's alpha coefficients were used to assess the reliability of the research constructs. Loading of all items were highly correlated with a Cronbach's alpha $\geq$0.7. In addition, the composite reliability of all constructs was above 0.8.

Convergent validity was evaluated by examining the composite reliability and the average variance extracted. Composite reliability values between 0.70 and 0.90 can be regarded as satisfactory and an average variance extracted value of 0.50 or higher indicates that the construct explains more than half of the variance of its indicators. As shown in Table 2, all measures exceed the recommended thresholds (Fornell & Larcker, 1981; Hair et al., 2014).

Table 3 illustrates the correlation matrix of the model constructs and the square roots of the average variance extracted. Discriminant validity was measured to specify that the square roots of the AVE (highlighted in bold) are more than the correlation between the construct and the other constructs (Smith, Duchessi, & Garcia, 2012).

### 5.2. Structural model

The structural model examines the overall explanatory power ($R^2$), path coefficients (β) and significance level. Overall, the research model accounts for 0.484 of the variance in the competitive advantage. A path coefficient (β) is the standardized regression coefficient, where an absolute (β) value of 0.5 or more indicates a large effect, values of around 0.3 medium and values of less than 0.1 a small effect (Cohen, 1988). As shown in Fig. 2 and Table 4 the relational capital and structural capital have been found to exert statistical significant effect on the competitive advantage with path coefficients at 0.252 and 0.427 respectively. Table 4 summarizes results of the purposed hypotheses. All relationships were significant at the 0.05 level ($P < 0.05$), except the relationship between human capital and competitive advantage.

**Table 2**
Reliability and convergent validity.

| Constructs | Cronbach's alpha | AVE | CR | $R^2$ |
|---|---|---|---|---|
| Human capital | 0.771 | 0.684 | 0.866 | |
| Relational capital | 0.752 | 0.660 | 0.852 | |
| Structural capital | 0.834 | 0.671 | 0.890 | |
| Competitive advantage | 0.732 | 0.787 | 0.881 | 0.484 |

The strongest direct effect on the competitive advantage was relational capital (0.427), indicating the important role of the relational capital in predicting a firm's competitive advantage. Regarding moderation effects for different relationship in the structural model, split sample analysis and plots are conducted to specify the pattern of relationships. Thus, *t*-statistics, component weight and observed significance value have been calculated to evaluate differences in path coefficients across models. When computing the structural model for different gender categories the relationship between relational capital and competitive advantage is stronger for males (β = 0.557, *t*-value = 3.558) rather than females (β = 0.305, *t*-value = 1.960). For structural capital the relationship indicates a slightly stronger effect for females (β = 0.305, *t*-value = 2.783) rather than males (β = 0.21, *t*-value = 2.257). Similarly, the impact of the relational capital and on the competitive advantage is moderated by age. Significant differences are observed between age groups of less than 30 years old (β = 0.754, *t*-value = 3.111, p-value = 0.002), 30–39 years (β = 0.298, *t*-value = 3.301, p-value = 0.02) and other age categories: Age between 40 and 49 (β = 0.389, *t*-value = 1.429, p-value = 0.154), and age 50- above years (β = 0.276, *t*-value = 0.161, p-value = 0.872).

It is clear that relational capital has a greater impact on the competitive advantage for younger rather than older employees. While the impact of structural capital on the competitive advantage is not moderated by all age categories respectively (t = 0.407, p-value = 0.684; t = 1.774, p-value = 0.077; t = 0.505, p-value = 0.614; t = 0.356, p-value = 0.722).

## 6. Discussion and implications

The empirical findings indicate that structural capital and relational capital have positively affected competitive advantage. Both relational capital and structural capital account for 48.4% of competitive advantage, indicating that a firm's investment in relational and structural capital significantly affects its competitive position in the market and industry structure. Relational capital has more obvious impact on the firm's competitive advantage than structural capital. In this context, it is somewhat surprising to find that human capital does not have a significant direct impact on competitive advantage. However, it is valid to suggest that human capital indirectly and significantly influences competitive advantage as it is embedded in the relational capital. The finding that RC and SC affect competitive advantage is consistent with Hsu and Fang (2009) study. They found that RC is the greatest factor among IC components in Taiwanese design companies. Structural capital is the second factor and human capital is the last one. Further, Wang and Chang (2005) found that IC elements directly affect performance with the exception of human capital. Human capital indirectly affects performance through the other three elements: innovation capital, process capital, and customer capital.

As predicted the effect of relational capital on competitive advantage was moderated by gender and age, and the effect was strongest among younger men. In case of structural capital, its effect on competitive advantage was moderated by gender only such that the effect was slightly stronger for females than males. Thus, intellectual capital has been a source of competitive advantage. The

**Table 3**
Discriminant validity.

| Constructs | Competitive advantage | Human capital | Relational capital | Structural capital |
|---|---|---|---|---|
| Competitive advantage | **0.887** | | | |
| Human capital | 0.533 | **0.827** | | |
| Relational capital | 0.662 | 0.607 | **0.812** | |
| Structural capital | 0.631 | 0.774 | 0.746 | **0.819** |
| AVE | 0.787 | 0.684 | 0.660 | 0.671 |

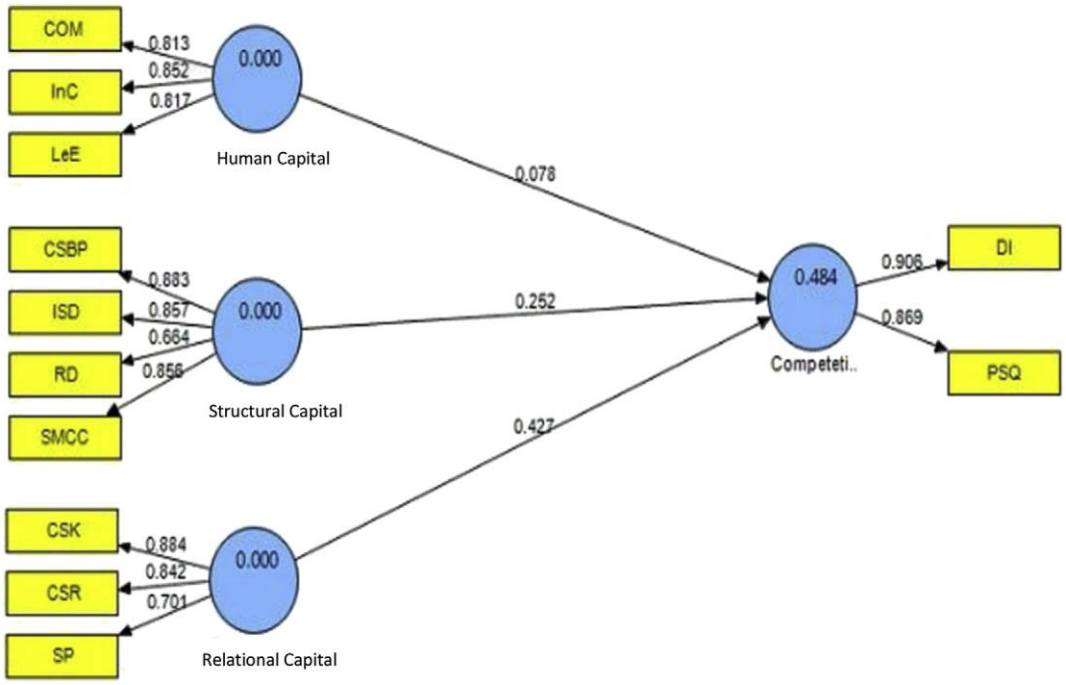


**Fig. 2.** Results of PLS analysis.

**Table 4**
Results of the proposed hypotheses.

| Path | Path coefficient | T-statistics | Sig. | Result |
|---|---|---|---|---|
| Human capital → competitive advantage | 0.078 | 0.835 | 0.934 | Not Support |
| Structural → competitive advantage | 0.252 | 2.042 | 0.029 | Support |
| Relational capital → competitive advantage | 0.427 | 3.713 | 0.000 | Support |

research findings showed that the effect of relational capital and structural capital is significant and positive and this result is consistent with previous findings of Bontis et al., (2000), Kamukama, Ahiauzu, and Ntayi (2001), and Chen et al., (2004), Wang and Chang (2005) and Mehralian et al., (2013). The findings reveal that intellectual capital has significant and positive impact on the competitive advantage of Jordanian telecommunication companies. Thus, the current research findings contribute to practice in a significant way. The research highlights the critical role of the intellectual capital components on the competitive advantage in intensive knowledge-based industry as telecommunication. Managers of the Jordanian telecommunication companies need to be aware about the reasons that human capital has been no longer crucial in influencing competitive advantage. Further, it is a vital to know that current and future sustainable advantage is based on the firm's intellectual components. These are intangible, inimitable and valuable resources. As a result, this can promote managers to improve performance by investing more resources in human capital, relational capital and structural capital.

## 7. Conclusion

This research investigated the influence of intellectual capital components (human capital, relational capital and structural capital) on the competitive advantage in the Jordanian telecommunication organizations. The research findings indicated that relational capital and structural capital have positive effects on completive advantage. However, the construct of human capital did not indicate a significant direct impact on the firms' competitive advantage. As predicted the influence of relational capital on competitive advantage was moderated by gender and age, and the effect was strongest among younger men. In the case of structural capital, its effect on competitive advantage was moderated by gender only such that the effect was slightly stronger for females rather than males.

Despite the importance of this research, it holds some limitations. First, the current research employ cross sectional data survey research design. A longitudinal research may provide further insights on how people perceive intellectual capital components over time. It may also show other relationships among variable at different points of testing. Second, this research was conducted in Jordan that is considered to be a developing country. The result may not generalize to other developed countries. Third, despite the fact that the current research has adequate sample size, the convenient sampling of the research impedes the generalization of findings.

Due to the limitations in the current research, some future research directions are suggested. First, further research should focus on other industries, such as banks and examine the effect of intellectual capital on competitive advantage. Second, researchers can also examine if our results can be generalized to developed countries in the same industry or different one. This will enrich our knowledge on the effect of intellectual capital globally. Third, a longitudinal research is needed to examine the dynamic effect of variables over time.

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