

## **SURVEY THE EFFECTS OF INTELLECTUAL CAPITAL AND ABSORPTIVE CAPACITY ON INNOVATION CAPABILITY (CASE STUDY OF SAIPA COMPANY IN TEHRAN)**

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The purpose of this research is to describe the effects of intellectual capital (IC) and Absorptive Capacity (ACAP) on Innovation capability (INC). Through a comprehensive literature review constructs were developed. Structural equation modelling (SEM) used to test research hypotheses based on a sample of 160 top and middle managers of SAIPA Company in Tehran. The data collection instrument of this research was standard questionnaire. The reliability of this questionnaire was proved by Cronbach's  $\alpha$ . The results showed that IC have a significant effect on ACAP and innovation capability. Path coefficients of human capital (HC) and potential ACAP (0.40) showed that HC have a biggest impact on potential ACAP than organisational capital (OC) and social capital. Also path coefficients of OC and actualised ACAP (0.30) showed that OC have a biggest impact on actualised ACAP than HC and social capital. Finally, loading of product innovation (PR INV) was 0.50 and it showed that PR INV is the best variable and measurement for describing INC in SAIPA Company.

*Keywords:* Intellectual capitals (IC); absorptive capacity (ACAP); innovation capability (INC); structural equation modelling (SEM).

### **Introduction**

Lack of innovation can be seen as representing a gradual decline. Using innovation capabilities, organisations can better respond to the competitive environment. Innovation is an area receiving a great deal of attention from companies in the current fast changing business environment. Realising that most competitors within an industry have acquired the same level of competence in areas of management, such as operations, human resources, marketing and strategy; many

firms have begun to look to innovation as a key differentiating factor for competitive. It is complication for an organisation to create internally all the required knowledge to obtain the required innovation because of environmental uncertainty. Thus, the organisations must be able to acquire and exploit new knowledge for implementing in technological innovations. The fundamental solution to create innovative capabilities is using organisation's intellectual capacity. Organisations can use the IC and absorptive capacity (ACAP) for innovation capabilities creation. In addition, many factors influence an organisation's ability to absorb knowledge generation. There is a need for a deeper exploration into the nature of such factors, organisation's absorptive capacity, and to assessing their effects on INC. As a result, knowledge is a very important resource for preserving valuable heritage, learning new techniques, solving problems, creating core competences, and create new technologies. IC has been identified as a set of intangibles (resources, capabilities, and competences) that drive organisational performance and value creation (Roos and Roos, 1997; Bontis, 1998; Bontis *et al.*, 2000; Marr and Roos, 2005; Subramaniam and Youndt, 2005). Several previous studies of innovation claim that the firm's IC and ACAP have a significant influence on the ability to innovate. The foundation of a company's competitive advantage is to make use of its ACAP to develop unique competitive abilities. There are many studies on INC aiming at developed by the concept like intellectual capital, as well as trying to identify the capabilities needed that allow the firm to innovate (Zawislak *et al.*, 2009; Yam *et al.*, 2011; Forsman, 2011; Alves *et al.*, 2011). However, they make no suggestions on how to achieve this. In addition, other related studies present little discussion on how to manage the intellectual capitals and improve or develop absorptive capacity. We define ACAP as the employees' ability and motivation to obtain external knowledge and the willingness to use this knowledge in the firm's INC. ACAP emphasises the ability to obtain knowledge and the level of effort used to transform it for use. Thus, in this study, we want to describe the effects of IC on ACAP and INC. Finally, to identify the literature gap in this area, we should say that SAIPA Company can with its intellectual capabilities, increase innovation in their products and services and move in the event of customer needs.

### **The necessity and importance of research**

Today, the issue of innovation is one of the crucial issues that especially, automobile manufacturing involved in their survival depends on it. Therefore, it is a necessary guideline for automaking companies to increase their innovation capabilities. The need for innovation is recognised in all over the world, and no manager cannot neglect to show long-term commitment to innovation. Therefore, the way to INC is

the use of intellectual property. So, SAIPA Company can with its intellectual capabilities, increase innovation capabilities in their products and services.

## **Literature Review**

### **Intellectual capital**

IC has received considerable attention from academics. The economist Galbraith (1969) was the first to propose the IC concept, and described IC as behaviour that requires the exercise of the brain. IC was not understood as static intellect, but rather as demanding dynamic intellect-creating activities. In fact, IC is a set of intangible assets that create value for the organisation (Survilaite *et al.*, 2015). In another definition, IC is applied knowledge in the organisation (Cricelli *et al.*, 2014). A review of previous studies finds that, IC has been identified as a set of intangibles (resources, capabilities, and competences) that drive organisational performance and value creation (Roos and Roos, 1997; Bontis, 1998; Bontis *et al.*, 2000; Marr and Roos, 2005; Subramaniam and Youndt, 2005). It is assumed that competitive advantage depends on how efficiently the firm builds, shares, leverages, and uses its knowledge. This study defines IC to be the sum of all knowledge firms utilise for competitive advantage (Nahapiet and Ghoshal, 1998; Seetharaman, 2004; Subramaniam and Youndt, 2005). Specifically, a systematic interpretation of IC is adopted by identifying three main components: human capital (HC), organisational capital, and social capital, all of which have been frequently cited in the literature (Nahapiet and Ghoshal, 1998; Youndt *et al.*, 2004; Subramaniam and Youndt, 2005).

### *Human capital*

HC has been defined as the knowledge, skills, and abilities residing within and utilised by individuals (Schultz, 1961). HC is the primary component of IC (Edvinsson and Malone, 1997; Stewart, 1997; Bontis, 1998; Choo and Bontis, 2002), since, human interaction is the critical source of intangible value in the intellectual age (O'Donnell *et al.*, 2003). In fact, HC is the knowledge of an organisation that employees create it by the competence, attitude and intellectual agility (Cricelli *et al.*, 2014). In the post-capitalist society, it is safe to assume that anyone with any knowledge will have to acquire new knowledge every 4–5 years, or else become obsolete (Drucker, 1981). In terms of desired workforce properties, the characteristics of HC are creative, bright, and skilled employees, with expertise in their roles and functions, and who constitute the predominant sources for new ideas and knowledge in an organisation (Snell and Dean, 1992).

### *Organisational capital*

Organisational capital (OC) has been defined as the institutionalised knowledge and codified experience residing within firms utilised through databases, patents, manuals, structures, systems, and processes (Youndt *et al.*, 2004). OC represents the organisation's capabilities to meet its internal and external challenges. The components of OC include infrastructure, information systems, routines, procedures, and organisational culture for retaining, packaging, and moving knowledge (Cabrita and Vaz, 2006). At the organisational level, knowledge is generated from internal operations or from outside sources communicating with the corporate structure. The information technologies adopted by organisations support management of intellectual assets to improve employee value creation. Management can provide physical space such as meeting rooms, cyberspace such as a computer network, or mental space such as common goals to foster interactions in organisation. Moreover, it was found that when organisations used their preserved knowledge through structured periodic activities, they intensified their knowledge (Katila and Ahuja, 2002), and produced a path dependent rule of reinforced their ACAP (Cohen and Levinthal, 1990). OC reinforces knowledge ACAP and influences an organisation's incremental innovative capabilities.

### *Social capital*

Social capital (SC) is defined as the knowledge embedded within, available through, and utilised by interactions among individual and their networks of interrelationships (Nahapiet and Ghoshal, 1998). The concept of SC was originally used in community studies to describe relational resources embedded in personal ties in the community (Jacobs, 1965). An organisation's SC enhances the quality of group work and richness of information exchange among team members and can reinforces the knowledge ACAP in organisation (Subramaniam and Youndt, 2005). SC and knowledge ACAP have been shown to have a positive relationship given that SC directly affects the combine-and-exchange process and provides relatively easy access to network resources and influences an organisation's incremental innovative capabilities (Nahapiet and Ghoshal, 1998).

### **Absorptive capacity**

Cohen and Levinthal (1990) defined ACAP as 'the ability to recognise the value of new information, to assimilate it, and apply it to commercial ends. They assumed that a firm's ACAP tends to develop cumulatively, is path dependent and builds on existing knowledge: 'ACAP is more likely to be developed and maintained as a

byproduct of routine activity when the new knowledge domain that the firm wishes to exploit is closely related to its current knowledge base. A wide stream of literature (Andersén, 2012; Martinkenaite, 2012; Andersen and Kask, 2012; Tseng *et al.*, 2011) argued that ACAP defined as “the capability of recognising, assimilating, and applying external knowledge”. While Zahra and George (2002) provided another turn to the definition, they are separating the ACAP structure into two main dimensions: potential ACAP (the capability to acquire and assimilate knowledge) and realised ACAP (the transformation and exploitation of knowledge). In addition, they suggested that the switching from assimilation step to transformation step regard as a transformation from potential ACAP to realise absorptive capacity.

### *Acquisition*

Acquisition capability refers to an organisation’s capability to recognise diagnosis and obtain specific knowledge that is externally generated and significantly to its activities (Jung-Erceg *et al.*, 2007). Acquisition has significant opportunities to the regeneration of organisations. First, by acquisition capability, organisations can get rapid entry to particular knowledge and skills that may have already been developed in the other organisations. Second, acquisition furnishes the advantage of obtaining the ownership and direct hold of new knowledge and capabilities that are owned by the target firms (Martinkenaite, 2012). As a result of rapid changes in the manufacturing technologies which stimulates organisations to participate in knowledge acquisitions (Amiryany *et al.*, 2012). Acquisitions of new knowledge can add value to an organisation’s competitive advantage because the innovation of the organisation is improved through the transferred strategic capabilities, and that not only enhance the organisational performance, but also elevate as more internal research and development (R&D) efforts to generate new knowledge (Liu, 2010).

### *Assimilation*

Assimilation capability denotes to an organisation’s capability to process, analyse, explain and comprehend the information, knowledge and skills acquired from external sources (Kamal and Flanagan, 2012). Assimilation process as the vivid evolution of knowledge (Yolles *et al.*, 2011) considered the essential component in the organisational learning and an integral factor for competitive advantage (Fletcher and Prashantham, 2011) that because organisations do not configure relationships with other parties just to acquire valuable and strategic resources, but also to enhance inter-organisational learning (Jung-Erceg *et al.*, 2007). Developing

ACAP oftentimes requires a participation in a value network to exchange knowledge among persons and refine their ideas.

### *Transformation*

Transformation capability basically refers to an organisation's capability to integrate the newly acquired knowledge with the existing knowledge through a bundle of procedures that facilitate utilisation of integrated knowledge (Flatten *et al.*, 2011). Organisations try to gain both tacit and explicit forms of knowledge because these forms are indispensable to create new knowledge and they complemented each other (Kamasak and Bulutlar, 2010). On the other hand, the basis of transforming knowledge from tacit form to explicit form and vice versa is manifested by the interaction among individuals and groups; and that can embodied in the release of individual's tacit knowledge into the shared documents and reflection on that explicit textual knowledge (Feghali and El-Den, 2008).

### *Exploitation of knowledge*

Exploitation capability essentially indicates an organisation's capability to implement the transformed knowledge into its production and operations to maintain continuous growth (Kamal and Flanagan, 2012). Liu and Hsu (2011) assumed that the exploitation of present knowledge resources and capabilities can result in innovation and sustainable competitive advantage. However, some organisation may have the capacity to transfer knowledge but a less skilfull to exploit knowledge externally generated due to many obstacles, involving, organisation's resistance to change, deficiency of effective knowledge sharing techniques and the difference between the new external knowledge and the organisation's prior knowledge (Bierly *et al.*, 2009). Innovation does not depend on knowledge alone, but on how to apply it. Therefore the way of acquired, retained, transferred and applied knowledge lift the attention of researchers from analysing knowledge as a source to analysing organisation's capabilities that generate internally new knowledge and merge it with other resources for creating innovation; either formally through coordination, formalisation with partners, or informally through socialisation process (Martinkenaite, 2012) based on the dual role of ACAP to generate knowledge internally and to enable organisations to identification, absorption and assimilation knowledge from external sources (Michailova and Jormanainen, 2011). ACAP in this context represents the organisation's capability to search for necessary external knowledge and then

recombined it with previous knowledge in order to meet market requirements and such capability necessitates certain conditions to be met:

- (a) The capability to diagnose urgent external knowledge;
- (b) The capability to take advantage of this knowledge and combined it with prior knowledge; and
- (c) The capability to activate this knowledge and directed it towards future innovation.

### **Innovation Capabilities**

To exist and to thrive, every organisation must have some specific capabilities. Innovation may be in various forms such as product or process innovation, radical or incremental innovation, administrative or technological innovation, etc. innovation could be defined in terms of something that is invented for the first time and is commercially successful (Ibrahim *et al.*, 2009). Innovation is often described in terms of changes in what a firm offers the world (product/service innovation) and the ways it creates and delivers those offerings (process innovation). While there are many ways a firm can achieve a competitive advantage, two of the most important in dynamic markets are innovation and strategic flexibility (Francis and Bessant, 2005). Innovation is a critical activity for companies and firms that do not innovate risk being eliminated from the market. Reviewing the classifications of innovative capability in previous studies, this study categorises it into:

- (1) The technical aspects of innovation; and
- (2) The management aspects of innovation.

In the technical aspects of innovation, Marquis (1969) indicates that innovation can be divided into:

- (1) Radical innovation;
- (2) Incremental innovation; and
- (3) Systems innovation.

Betz (1993) adds another type of innovation called next-generation technology innovation. Furthermore, Samson (1991) classifies innovation into three categories:

- (1) Product innovation (PR INV);
- (2) Process innovation (PRS INV); and
- (3) Managerial and systems innovation.



Based on Samson's concept of innovation categories, Tsai *et al.* (2001) define a firm's INC as including PR INV, process innovation, and managerial innovation. The first definition, PR INV, is that a firm can provide differentiated or new products/services in the market and obtain satisfaction from customers. In this definition, product improvement and new product development which can satisfy customers is the basis of PR INV. This PR INV may include three categories: radical innovation, incremental innovation and system innovation in the new product development process. On the other hand, PRS INV is a process in which a firm can provide a better manufacture or service process than current operation in order to achieve better performance. Also Tsai *et al.* (2001) describe how a method of generating modification or a new process in a current operational step or procedure can offer a capability for innovative process. By doing so, a new process may reduce operational costs or generate more production for a firm. In the same vein, PRS INV belongs to the area of technical innovation. Management innovation is a capability that improves a firm's performance by implementing new managerial regulations, systems, and methods, etc. Therefore, knowing how to increase a firm's managerial functions and mechanisms in terms of improving managerial efficiency becomes an innovative capability. In this regard, management innovation is the management aspect of innovation.

### Research Theoretical Basis

In connection with the effect of IC and ACAP on INC, diverse research has been done. A survey by Kostopoulos (2011), it is recognised that INC and ACAP have a significant relationship with each other. In another study, entitling the survey of the effect of IC on ACAP which was conducted by Engelman (2015), it is recognised that the capabilities of acquisition, assimilation and exploitation of knowledge are influenced more decisively by organisational capital, followed by HC. The ability of transformation of knowledge is influenced evenly by organisational and HC, and more moderately by social capital. In turn, the ACAP influences innovation, and each of its dimension has a different impact. Knowledge acquisition and exploitation have a more intense influence. On the other hand, the results of Xiaobo and Sivalogathan (2013) show that IC is the basic factor in INC creation. According to research, theoretical basis provide conceptual models and assumptions. Moreover, there are many studies on INC aiming at developing the concept like intellectual capital, as well as trying to identify the capabilities needed that allow the firm to innovate (Zawislak, *et al.*, 2009; Yam *et al.*, 2011; Forsman, 2011; Alves *et al.*, 2011).



## Conceptual Model of Research

Based on the above discussion, this study proposes a conceptual model, illustrated as the research framework in Fig. 1. The three components of IC affect directly potential and realised absorptive and then affect the INC indirectly by the mediating roles of potential and realised absorptive capacity. According to the literature, this model states that SAIPA Company can with its intellectual capabilities, increase innovation in their products and services and satisfy customer needs. In fact, SAIPA Company with utilisation of ACAP and IC can promote INC. The process of influence of IC and ACAP on INC is shown in Fig. 1.

Based on the conceptual model in Fig. 1, the research questions were determined in below:

- Q1: How to develop unique competitive abilities by making use of absorptive capacity?
- Q2: How to manage intellectual capital?
- Q3: How to develop absorptive capacity?

According to the conceptual model in Fig. 1 and research questions, the research hypothesis were determined in below:

- Hyp1: HC has positive effects on potential ACAP.
- Hyp2: OC has positive effects on potential ACAP.
- Hyp3: SC has positive effects on potential ACAP.
- Hyp4: HC has positive effects on actualised ACAP.
- Hyp5: OC has positive effects on actualised ACAP.
- Hyp6: SC has positive effects on actualised ACAP.
- Hyp7: Potential ACAP has positive effects on INC.
- Hyp8: Realised ACAP has positive effects on INC.

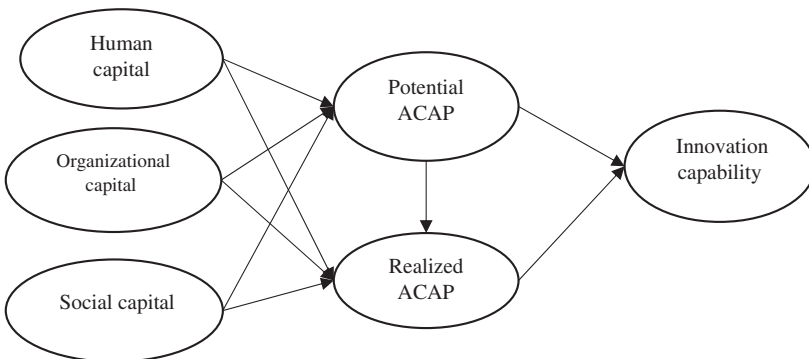


Fig. 1. Conceptual model of research.

**Research methodology**

The research objective is applied and the type of data is quantitative and it is considered as survey studies. The research population consists of top and middle managers of the SAIPA Company in Tehran. Based on Morgan’s table, the 160 managers were selected as research sample. The data were collected using a questionnaire. The covariance-based structural equation modelling LISREL software has been used for data analysis. All hypotheses have been evaluated at 95% confidence level. The *t*-statistics more than 1.96 indicate significant effects of exogenous variables on endogenous variables. The structural equation model in this research has been divided into two sub models namely measurement model and path model. The measurement model shows the relationship between latent constructs and their observed variables. And the path model shows the effects of exogenous latent constructs on endogenous latent constructs. Finally the hypotheses have been tested by path coefficient of path model.

**Data analysis and results**

Table 1 displays the exogenous constructs of the conceptual model and the alpha coefficient for reliability testing of the measures.

Table 1. Exogenous constructs of conceptual model and the alpha coefficient.

Construct	Variables	Description	Cronbach’s $\alpha$
IC	HC	Employees are highly skilled.	.90
		Employees are widely considered the best in our industry.	
		Employees are creative and bright.	
OC	SC	Employees are experts in their particular jobs and functions.	.87
		Organisation uses patents and licenses as a way to store knowledge.	
		Much of organisation’s knowledge is contained in manuals, databases, etc. . . .	
SC	SC	Organisation’s culture (stores, rituals) contains valuable ideas, ways of doing business, etc. . . .	.79
		Employees are skilled at collaborating with each other to diagnose and solve problems.	
		Employees interact and exchange ideas with people from different areas of the company.	
		Employees share information and learn from one another.	

Based on Table 1 in the reliability analysis, the Cronbach's  $\alpha$  are all greater than 0.7 and the reliability of exogenous constructs and their measures approved.

Table 2 displays the endogenous constructs of the conceptual model and the alpha coefficient for reliability testing of the measures.

Table 2. Endogenous constructs of conceptual model and the alpha coefficient.

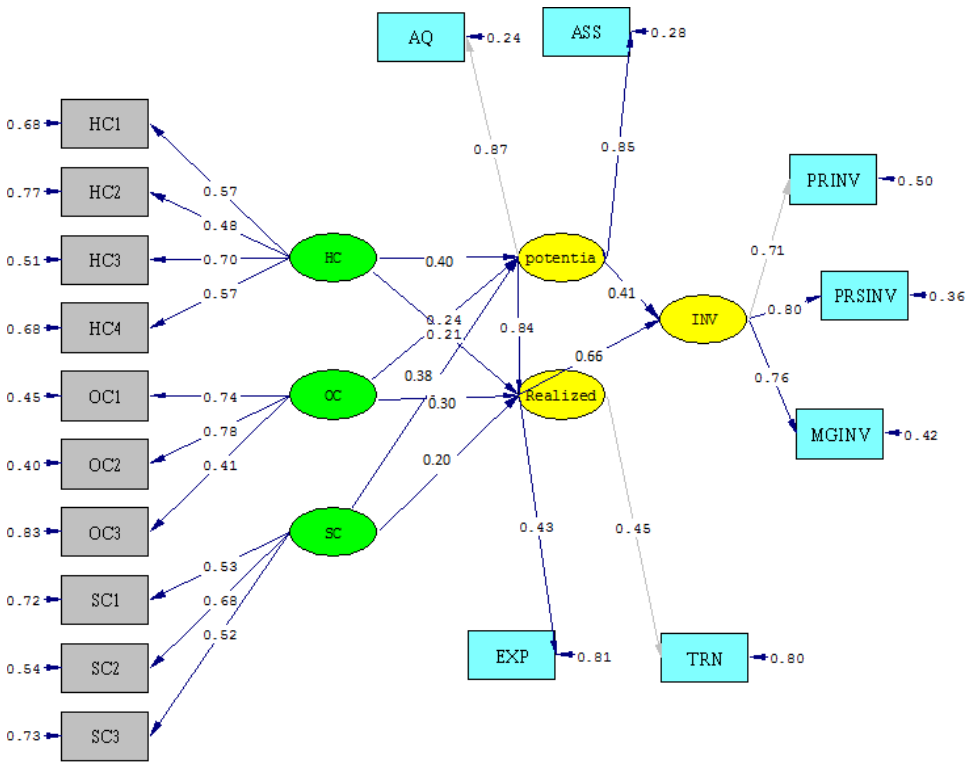
Potential (ACAP)	Acquisition (AQ)	The search for relevant information is every-day business in firm. Management motivates the employees to use information sources. Management expects that the employees deal with information beyond industry.	.81
	Assimilation (ASS)	Ideas and concepts are communicated cross-departmental. Management emphasises cross departmental support to solve problems. Management demands periodical cross-departmental meetings to interchange new developments, problems, and achievements.	.87
Realised (ACAP)	Transformation (TRN)	Employees have the ability to structure and to use collected knowledge. Employees successfully link existing knowledge with new insights. Employees are able to apply new knowledge in their practical work.	.95
	Exploitation (EXP)	Management supports the development of prototypes. Firm regularly reconsiders technologies and adapts them accordant to new knowledge.	.89
INC	PR INV	Developing new products and services well accepted by the market. Launching new products or services faster than competitors.	.90
	PRS INV	Different operation procedures to hasten the realisation of the company's goals. Develop more efficient manufacturing process or operation procedure. Provide products and services according to the demands of the customers.	.88
	Managerial innovation (MG INV)	Change the division of work among different departments according to the needs of market management. Adopt new leadership approaches to lead all staff towards task completion.	.76

Based on Table 2 in the reliability analysis, all Cronbach's  $\alpha$  are greater than 0.7 and the reliability of endogenous constructs and their measures approved.

### Research Findings

In order to determine relationships between variables of the conceptual model proposed structural equation model addressing the study objectives is evaluated using LISREL 8.52 (Jöreskog and Sörbom, 1989) and the research hypotheses are tested by *t*-tests of the path coefficients. The standard coefficients of structural model has been shown in Fig. 2.

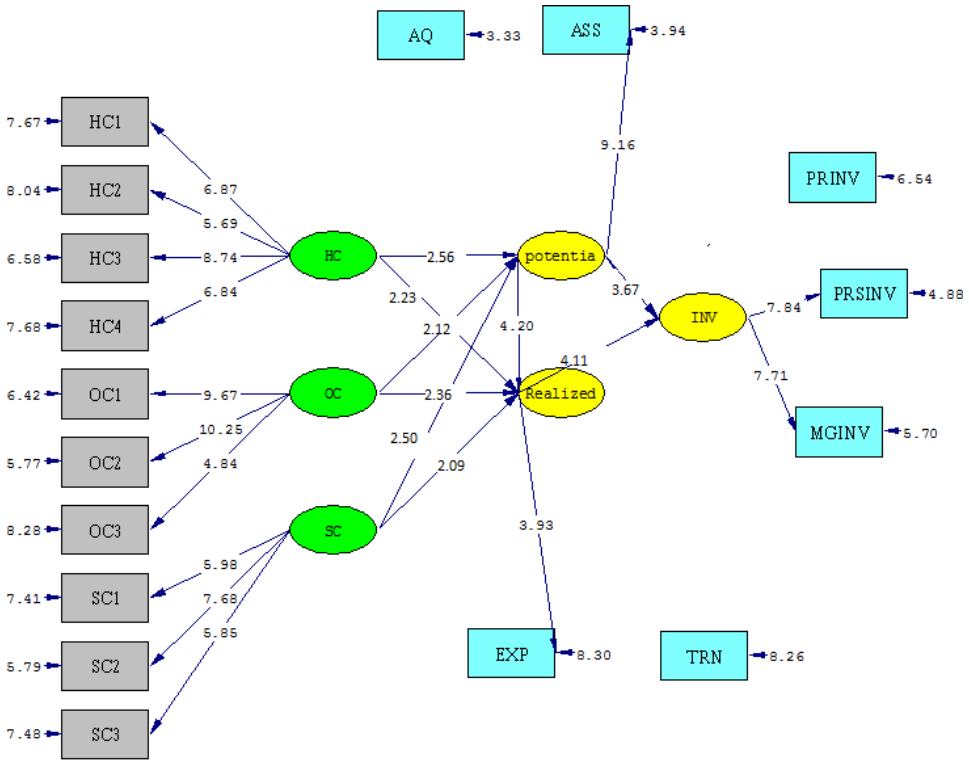
As seen in Fig. 2, all standard loadings and path coefficients are positive. The standardised parameter loadings between the latent constructs and their observed variables were utilised as measures to assess the measurement model that has been shown in Fig. 3.



Chi-Square=172.23, df=107, P-value=0.00007, RMSEA=0.064

Fig. 2. Standard coefficients of structural model.

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Chi-Square=172.23, df=107, P-value=0.00007, RMSEA=0.064

Fig. 3. *t*-value of model.

As seen in Fig. 3, all variables had *t*-values greater than  $\pm 1.96$  at 0.05 level of significance, suggesting that the variables and latent constructs were closely related. The standard coefficient and priority of measures for exogenous constructs based on  $R^2$  has been shown in Table 3.

The standard coefficient and priority of measures for endogenous constructs based on loadings has been shown in the Table 4.

For hypotheses testing the relationship can be assessed by examining the structural path coefficient and the *t*-value significant at the  $p < 0.05$  level.

The results of hypotheses testing have been shown in Table 5.

Based on Table 5, the path coefficients and *t*-values, suggesting the positive effect of exogenous constructs and endogenous constructs. Thus, all relationships are significant at the 95% confidence level and all of the hypotheses are supported.

Goodness-of-fit indices, such as goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), normed fit index (NFI), non-normed fit index (NNFI), root mean square residual (RMR), and root mean square error of approximation

Table 3. Priority of measures for exogenous constructs.

Construct	Measures	Loading	Priority
Human capital (HC)	Employees are highly skilled.	0.57	Second
	Employees are widely considered the best in our industry.	0.48	Third
	Employees are creative and bright.	0.70	First
	Employees are experts in their particular jobs and functions.	0.57	Second
OC (OC)	Organisation uses patents and licenses as a way to store knowledge.	0.74	Second
	Much of organisation's knowledge is contained in manuals, databases, etc....	0.78	First
	Organisation's culture (stores, rituals) contains valuable ideas, ways of doing business, etc. . .	0.41	Third
	Employees are skilled at collaborating with each other to diagnose and solve problems.	0.53	Second
	Employees interact and exchange ideas with people from different areas of the company.	0.68	First
Social capital (SC)	Employees share information and learn from one another.	0.52	Third

Table 4. Priority of measures for endogenous constructs.

Construct	Measures	Loading	Priority
Potential (ACAP)	Acquisition (AQ)	0.87	First
	Assimilation (ASS)	0.85	Second
Realised (ACAP)	Transformation (TRN)	0.45	First
	Exploitation (EXP)	0.43	Second
INC	PR INV	0.50	First
	PRS INV	0.36	Third
	Managerial innovation (MG INV)	0.42	Second

(RMRSE) are used in order to assess the fit of the data to the theoretical model (Bagozzi and Yi, 1998). The Criteria of adequate fit for individual indices are shown in Table 6.

Table 6 indicates that a GFI index of 0.88 was calculated. An RMR value of less than 0.05 is offered by Bagozzi and Yi (1998) as evidence of acceptable overall model fit, and 0.064 was observed for the model in this study. These measures meet the tabulated threshold criteria, and therefore support the model.

Table 5. The results of hypotheses testing.

No.	Hypotheses	Path coefficient	t-value	Result
Hyp1	HC has positive effects on potential ACAP.	0.40	2.56	Supported
Hyp2	OC has positive effects on potential ACAP.	0.24	2.12	Supported
Hyp3	SC has positive effects on potential ACAP.	0.38	2.50	Supported
Hyp4	HC has positive effects on actualised ACAP.	0.21	2.23	Supported
Hyp5	OC has positive effects on actualised ACAP.	0.30	2.36	Supported
Hyp6	SC has positive effects on actualised ACAP.	0.20	2.09	Supported
Hyp7	Potential ACAP has positive effects on INC.	0.41	3.67	Supported
Hyp8	Realised ACAP has positive effects on INC.	0.66	4.11	Supported

Table 6. Model goodness of fit indices.

Fit indices	Desired level	Actual level
GFI	More than 0.9	0.88
AGFI	More than 0.9	0.83
NFI	More than 0.9	0.89
NNFI	More than 0.9	0.94
CFI	More than 0.9	0.95
RMSEA	Less than 0.08	0.064
RMR	Less than 0.08	0.056

## Conclusions and Suggestions

As shown in the structural equation model, illustrated in Fig. 2, path coefficients of HC and potential ACAP is 0.40, suggesting that HC would have a biggest impact on potential ACAP than OC and social capital. The path coefficients of SC and potential ACAP is 0.38, suggesting that HC would be in second priority of impact on potential ACAP. Also, path coefficients of OC and actualised ACAP is 0.30, suggesting that OC would have a biggest impact on actualised ACAP than HC and social capital. The path coefficients of HC and actualised ACAP is 0.21, suggesting that HC would be in second priority of impact on actualised ACAP. Finally, the path coefficients of actualised ACAP and INC are 0.66, suggesting that actualised ACAP would have a bigger impact on INC than OC and potential ACAP in SAIPA Company.

As shown in the endogenous constructs measurement model, illustrated in Table 4, loading of acquisition capacity on potential ACAP is 0.87 and it shows that acquisition capacity is the best variable and measurement for describing



potential ACAP in SAIPA Company. Loading of transformation capacity on actualised ACAP is 0.45 and it shows that acquisition capacity is the best variable and measurement for describing actualised ACAP in SAIPA Company. Finally, loading of product innovation on INC is 0.50 and it shows that product innovation is the best variable and measurement for describing INC in SAIPA Company. It must be said about the innovation research, this research simultaneously review the effect of IC and ACAP on INC. According to literature review, a study like this review on the effect of IC and ACAP on INC was not found. Also, it must be said about the comparative study with the previous research Kostopoulos (2011), recognised that INC and ACAP have significant relationship with each other. Engelman (2015), shows that capabilities of acquisition, assimilation and exploitation of knowledge are influenced more decisively by organisational capital, followed by HC. The ability of transformation of knowledge is influenced evenly by organisational and HC, and more moderately by social capital. Moreover, based on results of the measurement model, suggest that SAIPA Company search for relevant information in everyday, management motivates the employees to use information sources; management should develop instruments that employees deal with the information beyond industry. SAIPA Company should implements the knowledge management systems for structuring and using collected knowledge in organisational processes, managers should link existing knowledge with new insights and help employees to apply new knowledge practical work. Finally, the author suggest that SAIPA Company develop new products and services well accepted by the market, and launching new products or services faster than competitors.

## References

- Amiryany, N, M Huysman, A Man and M Cloudt (2012). Acquisition reconfiguration capability. *European Journal of Innovation Management*, 15(2), 177–191.
- Andersén, J and J Kask (2012). Asymmetrically realized absorptive capacity and relationship durability. *Management Decision*, 50(1), 43–7.
- Bagozzi, RP and Y Yi (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- Barney, J (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 771–92.
- Betz, F (1993). *Managing Technology: Competing through New Ventures, Innovation, and Corporate Research*. New York: McGraw Hill.
- Bierly, PE, F Damanpour and MD Santoro (2009). The application of external knowledge: Organizational conditions for exploration and exploitation. *Journal of Management Studies*, 46(3), 481–509.

- Bontis, N (1998). Intellectual capital: An exploratory study that develops measures and models. *Management Decision*, 36(2), 63–76.
- Bontis, N, WCC Keow and S Richardson (2000). Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, 1(10), 85–100.
- Cabrita, M and J Vaz (2006). Intellectual capital and value creation: Evidence from the Portuguese banking industry. *The Electronic Journal of Knowledge Management*, 4 (1), 11–20.
- Choo, CW and N Bontis (2002). *The Strategic Management of Intellectual Capital and Organizational Knowledge*. New York: Oxford University Press, Inc.
- Cohen, W and D Levinthal (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128–152.
- Cricelli, L, M Greco and M Grimaldi (2014). An overall index of intellectual capital. *Management Research Review*, 37(10), 541–552.
- Drucker, PF (1981). *Managing in Turbulent Times*. London: Pan Business Management.
- Edvinsson, L and MS Malone (1997). *Intellectual Capital: Realizing Your Company's True Value, by finding its Hidden Roots*. New York: Harper Collins Publishers.
- Feghali, T and J El-Den (2008). Knowledge transformation among virtually-cooperating group members. *Journal of Knowledge Management*, 12(1), 92–105.
- Flatten, TC, GI Greve and M Brettel (2011). Absorptive Capacity and Firm Performance in SMEs: The mediating influence of strategic alliances.
- Fletcher, M and S Prashantham (2011). Knowledge assimilation processes of rapidly internationalizing firms longitudinal case studies of Scottish SMEs. *Journal of Small Business and Enterprise Development*, 18(3), 475–501.
- Francis, D and J Bessant (2005). Targeting innovation and implications for capability development. *Technovation*, 25(3), 171–183.
- Galbraith, JK (1969). *The New Industrial State*. Harmondsworth: Penguin.
- Ibrahim, A, A Zolait and S Subramanian (2009). Organizational innovative capabilities: An empirical study of Malaysian firms. *Journal of Innovation and Business Best Practices*, 1(2), 9–18.
- Jacobs, D (1965). *The Death and Life of Great American Cities*. New York: Penguin.
- Jöreskog, KG and D Sörbom (1989). *LISREL 7 User's Reference Guide*. Scientific Software, Mooresville, IN: Scientific Software.
- Jung-Erceg, P, K Pandza, H Armbruster and C Dreher (2007). Absorptive capacity in European Manufacturing: A Delphi study. *Industrial Management & Data Systems*, 107(1), 37–51.
- Kamal, EM and R Flanagan (2012). Understanding absorptive capacity in Malaysian small and medium sized (SME) construction companies. *Journal of Engineering, Design and Technology*, 10(2), 180–198.
- Kamasak, R and F Bulutlar (2010). The influence of knowledge sharing on innovation. *European Business Review*, 22(3), 306–317.
- Katila, R and G Ahuja (2002). Something old, something new: A longitudinal study of research behavior and new product introduction. *Academy of Management Journal*, 45, 1183–1194.

- Konstantinos, K, P Alexandros, P Margarita and I George (2011). Absorptive capacity, innovation, and financial performance. *Journal of Business Research*, 64, 1335–1343.
- Lane, P and M Lubatkin (1998). Relative absorptive capacity and inter-organizational learning. *Strategic Management Journal*, 19(5), 461–477.
- Lee, JN (2001). The impact of knowledge sharing, organizational capability and partnership quality on IS out-sourcing success. *Information & Management*, 38, 323–335.
- Liu, H and C Hsu (2011). Antecedents and consequences of corporate diversification: A dynamic capabilities Perspective. *Management Decision*, 49(9), 1510–1534.
- Marquis, D (1969). The anatomy of successful innovations. In *Innovation*, ML Tushman and WL Moore (Eds.), p. 198, Marshfield, MA.
- Martinkenaite, I (2012). Antecedents of knowledge transfer in acquisitions. *Baltic Journal of Management*, 7(2), 167–184.
- Marr, B and G Roos (2005). *A Strategy Perspective on Intellectual Capital in Perspectives on Intellectual Capital-Multidisciplinary Insights into Management: Measurement and Reporting* (Marr, B. Ed.). Oxford: Butterworth-Heinemann.
- Michailova, S and I Jormanainen (2011). Knowledge transfer between Russian and Western firms: Whose absorptive capacity is in question? *Critical Perspectives on International Business*, 7(3), 250–270.
- Nahapiet, J and S Ghoshal (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23, 242–266.
- O'Donnell, D, P O'regan, B Coates, T Kennedy, B Keary and G Berkery (2003). Human interaction: The critical source of intangible value. *Journal of Intellectual Capital*, 4(1), 82–99.
- Roos, G and J Roos (1997). Measuring your company's intellectual performance. *Long Range Planning*, 30(3), 413–426.
- Samson, D (1991). *Manufacturing and Operations Strategy*. Melbourne: Prentice Hall.
- Schultz, TW (1961). Investment in human capital. *American Economic Review*, 51, 1–17.
- Seetharaman, A, T Lock, K Low and AS Saravanan (2004). Comparative justification on intellectual capital. *Journal of Intellectual Capital*, 5(4), 522–539.
- Snell, SA and JW Dean (1992). Integrated manufacturing and human resources management: A human capital perspective. *Academy of Management Journal*, 35, 467–504.
- Stewart, TA (1997). *Intellectual Capital: The New Wealth of Organizations*. New York: Currency/Doubleday.
- Subramaniam, M and N Venkatraman (2001). Determinants of transnational new product development capability: Testing the influence of transferring and deploying tacit overseas knowledge. *Strategic Management Journal*, 22, 359–378.
- Subramaniam, M and MA Youndt (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48(3), 450–463.
- Survilaite, S, R Tamosuinone and V Shatrevich (2015). Intellectual capital approach to modern management through the perspective of a company's value added. *Business Theory and Practice*, 16(1), 33–41.

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- Tsai, CT, KL Huan and CF Kao (2001). The relationships among organizational factors, creativity of organizational members and innovation capability. *Journal of Management*, 18, 527–66. [In Chinese]
- Tseng, CY, DC Pai and CH Hung (2011). Knowledge absorptive capacity and innovation performance in KIBS. *Journal of Knowledge Management*, 15(6), 971–983.
- Xiaobo Wu and V Sivalogathan (2013). Intellectual capital for innovation capability. *International Journal of Trade, Economics and Finance*, 4(3), 139–147.
- Youndt, MA, M Subramaniam and SA Snell (2004). Intellectual capital profiles: An examination of investments and returns. *Journal of Management Studies*, 41, 335–362.
- Zahra, SA and G George (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185–203.