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Organizational Innovation Factors, Capabilities and Organizational Performance in Automotive Industry

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ABSTRACT

The purpose of this study is to investigate the effects of external and internal innovation factors on organizational performance directly and through innovation capability in Iranian auto parts industries. This research used the quantitative research method and used the survey technique to gather data from 275 Iranian auto part manufacturing companies. The collected data was analysed using the structural equation modelling (SEM) based on Partial Least Squares (PLS) technique. The empirical results showed that the inclusion of organisational innovative capability has a profound effect on organisational performance of the selected Iranian auto parts companies. The findings have several theoretical and practical implications. The use of the resource-based theory for the Iranian manufacturing context is relevant and can be enhanced with different dimensions of innovation capability. In practical sense, Iranian auto part manufacturing organization should engage more in enhancing their innovation capability which will in turn magnify the role and effect of external and internal organizational factors.

INTRODUCTION

The increasing dynamics in business landscape, such as changing market demands, diminishing product or service lifecycle and technological complexities, makes creating and sustaining competitive advantage a difficult feat for most organisations. The importance of innovation in paving way for business growth has been discussed in many literatures, including governmental reports and industrial white papers. Such an importance stems from the definition of innovation itself which is defined as the use of different resources in a combinative manner to seek differentiation in a competitive market (Dodgson et al., 2006). A similar trait exists in the automotive

industry. In the last century, the growth of the automotive industry has been spectacular. Statista (2018) reported a significant growth of worldwide sales of passenger cars of nearly 79 million as of 2017, with the United States and China accounting for the biggest market for car sales and production. Multinational car manufacturer such as Ford, Toyota, Volkswagen and Daimler are amongst the largest automobile producer in 2016. Com-panies such as Bosch, Continental, Denso and Magna on the other hand dominated the auto-motive parts supplier domain. In terms of employment, the European automotive market accounts for about 12 million job while the United States and Japan recorded 8 million and over 5 million jobs (Albers et al, 2010). The enormous employment opportunity in the automotive in-dustry correlates with its business performance over the years. Felton and Reinhart (2011) reported automotive industry profit of EUR41 billion in 2007 which increased to EUR 54 billion in 2012.

1. IRANIAN AUTOMOTIVE INDUSTRY

Iran has long recognised the impending benefit of engaging into the automotive industry. The invitation for western corporations to commence a local automative industry in the 1960s paved way for the growth of a strategic economic growth industry. The Industrial Development and Renovation Organisation of Iran (IDRO) demonstrated the importance of domestic car manufac-turing firms such as SAIPA and Iran Khodro as biggest automotive manufacturer which owned more than 79% of Iran's total market share (ILIA, 2016). The contribution of the Iranian automotive industry to economic growth has been accounted to 4% of Iran's GDP and employs 12% of the country's workforce (Kalbasi, 2015). The International Organisation of Motor Vehicle Manufac-turers (OICA) reported that Iran ranks 16th place out of 20 world's biggest car manufacturing countries as of 2018. Such a rank is contributed by Iran's automotive industry formation, comprising of two primary sectors, namely the Original Equipment Manufacturing (OEM) suppliers, which produce parts for automakers, and the After-Market Parts Manufacturers (AMPM), which produce replacement parts for vehicles (Bagheri, 2015). Apart from local supply, Iran is also expor-ting locally manufactured cars to its neighboring countries. In 2009 for example, Iran exported automobiles (cars and components) worth of USD470 million. This increased to USD520 million by 2012. In the subsequent years however saw a decline in the export values, primarily due to the economic crisis due to currency devaluation. In 2013, the export value fell to USD 263 million and further to USD243 million in 2014 (ILIA, 2016).

Iran's automotive industry plays an important role in the country's economy after oil, gas, and petrochemicals, but because of out-dated machinery and lack of efficient management in the field of innovation and control of the domestic market by government, they are not able to attend global markets. However, Iran, with its natural resources and experienced and educated scientists and engineers, has a great potential for innovation growth, but it has not been valuable due to the weakness of the national innovation system, and the share of the organizational sector in innovation activities is weak and should be strengthened. So, managing and using a variety of innovations is a major challenge in today's businesses that needs proper training. In addition, the Industries and Mines Deputy Minister (2009) emphasize on innovation and creativity in Iranian automotive industries to have strong, permanent and dynamic presence in the international markets due frequent complaints about the poor innovative products by Iranian automakers. Also, lack of research on the roles of internal and external factors exist in building innovative capability of auto parts manufacturers in the Republic of Iran. So, such an examination will provide insights into how Iran's auto part manufacturers could grow, especially by leveraging on their internal and external factors, thus achieving positive business performance. Such insights will assist Iranian auto companies, in specific, and the government, in general, to set platforms to escalate innovation within the industry and meet global competition.

2. LITERATURE REVIEW

The various definition of innovation was presented by Schumpeter (1934), who is also known as the 'Godfather of innovation' (Tidd and Bessant. 2018) as; new product, new process innovation, opening new market, new sources of raw materials and changes in industrial organization. Also, it introduced as new ideas (Tinnesand, 1973), organization's creativity and business performance (Kuhn, 1985; Badawy, 1988). In point of Lassen (2007), innovation categorized as product innovation, process innovation, organisational innovation, technological innovation, service innovation and technological innovation. Studies by Chen et al., (2015) suggested the elements of internal and external factors influencing innovation. The internal factors of the organization affect the process of innovation, while the external factors of the organization expand the power of competition and supply tailored to the needs of customers and stakeholders. To this end, the next sections review the external and internal factors that could potentially influence an organisation's innovative capability.

External organization innovation factors. The importance of several external issues highlighted as driving innovation within corporations. Issues such as market demands (Malerba et al., 2007), global competition (Sheth, 2004), technology intensity (Benner and Tushman, 2003), product life cycle (Cooper, 2005) and competitive advantage are cited.

Internal innovation factors. Internal organization innovations refer to the factors that motivate organizations to innovate such as intellectual capital (IC) and organizational culture. IC is commonly defined as the sum of an organization's resources encompassing collective tacit knowledge, human skills, experience and any intellectual resource that can contribute to value creation for the organization (Bontis, 2003). When physical assets and financial capital are no longer the resources that facilitate competitive advantage, IC becomes the only differentiating factor that provides a competitive market position to an organization. Bayburina and Golovko (2009) divided IC to human capital, client capital, network capital, process capital and innovation capital. The concept of IC as general, accepted to three primary interrelated components: human capital, structural capital and relational capital. Organisational culture (OC) as internal drivers is a phenomenon with different dimensions that includes processes, products and results of material and spiritual activities of human that are transmitted non-biological from one generation to another. This article views OC from an integration perspective and treats OC as an independent variable and followed the below culture's dimensions that have applied by Zheng (2009). These cultures' dimensions are dominant characteristic, organisational leadership, management of employees, organizational glue, strategy emphasis, criteria of success.

Organization innovation capabilities (OIC). Innovation capability is significantly related to volume flexibility, product mix flexibility, unit manufacturing cost, and speed of new product introduction (Peng et al., 2008). OIC have been defined as a firm's collective physical facilities, skills of employees and firm capacity to deploy its assets, tangible or intangible to perform a task or activity to improve performance. According to investigation of Saunila et al. (2014) OIC has seven dimensions: participatory leadership culture refers to the actions and perquisites created by the managers that facilitate and motivate innovation; Ideation and organizing structures related to the structures and systems that successful innovation requires, meaning the generation, development and implementation of innovations, and the ways how the work tasks of the organization are organized; Work climate and wellbeing represent the wellbeing of the employees and further the work climate for innovation development; Know-how development refers to the development of employee skills and knowledge that are needed in developing innovation capability; External knowledge aspect highlights the importance of the proper behavior of exploiting external networks and knowledge to the overall organizational innovation capability; Regeneration means an organization's ability to learn from earlier experience and to use that experience to create innovations and develop their operations; Also, employees' individual activity in developing innovations is needed to form the organization's overall innovation capability.

Organizational performance (OP). The performance of an organization is reflected in the actual organizational output when compared with the intended organizational outputs, goals, or objectives. DeGroote (2011) mentioned financial performance consists of sale, market share and profitability while operational performance consists of speed to market and customer satisfaction. Organizational performance is the most important criterion in evaluating organizations, their actions, and environment. The classical approach to performance measurement, as described by the Sink and Tuttle (1989) model claims that the performance of an organizational is complex interrelationship between six performance criteria: effectiveness, efficiency, quality, productivity, innovation and profitability (Van Aartsengel and Kurtoglu, 2013)

Innovation and organization performance in automotive industry. Firm performance can be described as enterprise performance, corporate performance or business performance and can be measured based on the balanced scorecard, activity-based costing, total quality management, economic value, integrated strategic measurement and macro business performance, like growth, profitability and stock prices. Firm performance measures include sales per employee, exports per employee, growth rate of sales, total assets, total employment, operation profit ratio and return on investment. Innovation as process in research, product development, manufacturing, marketing, distribution, servicing and later product upgrading and adaptation and vital for creating value for the business and to economic growth. When the automotive industries are focusing on innovation strategies involving technology leadership, will be able to achieve average profit margins. Campello and Giambona (2011), stated that the intangibles asset is that give companies a competitive advantage, like brand, supply chain efficiency and innovation.

3. RESEARCH MODEL AND HYPOTHESES

The purpose of this study is to investigate the effect of external and internal factors of innovation on organizational performance directly and through innovation capability. In the study five factors of organizational innovation namely technology advances, globalization, competitive pressure, demanding customers and shortening product life cycles adopted from Cooper (2005) that have been accepted as external innovation factors and intellectual capital and organisational culture as internal innovation factors as independent variable and the subsequent effects on the firms' organisational performance as dependent variable while the organisation innovation capability mediate this relationship. Moreover, Resource –based theory has been adopted as the main theoretical farm to justify and to interpret the proposed relationships in the theoretical framework .The main objectives proposed are:

- To identify the influence of external and internal organizational innovation factors on organizational innovation capability in Iranian-auto-part manufacturers;
- To determine the effects of innovation capability on organizational performance in Iranian-auto-part manufacturers.
- To examine the mediating effect of organizational innovation capability on the relationship between external and internal organization innovation factors and organizational performance in Iranian-auto-part manufacturers.

The theoretical framework variables derived and adopted from previous research models; Saunila et al. (2014), Zheng's (2009) and Zerenler et al. (2008). Therefore, the proposed framework of research is presented in Figure 1:

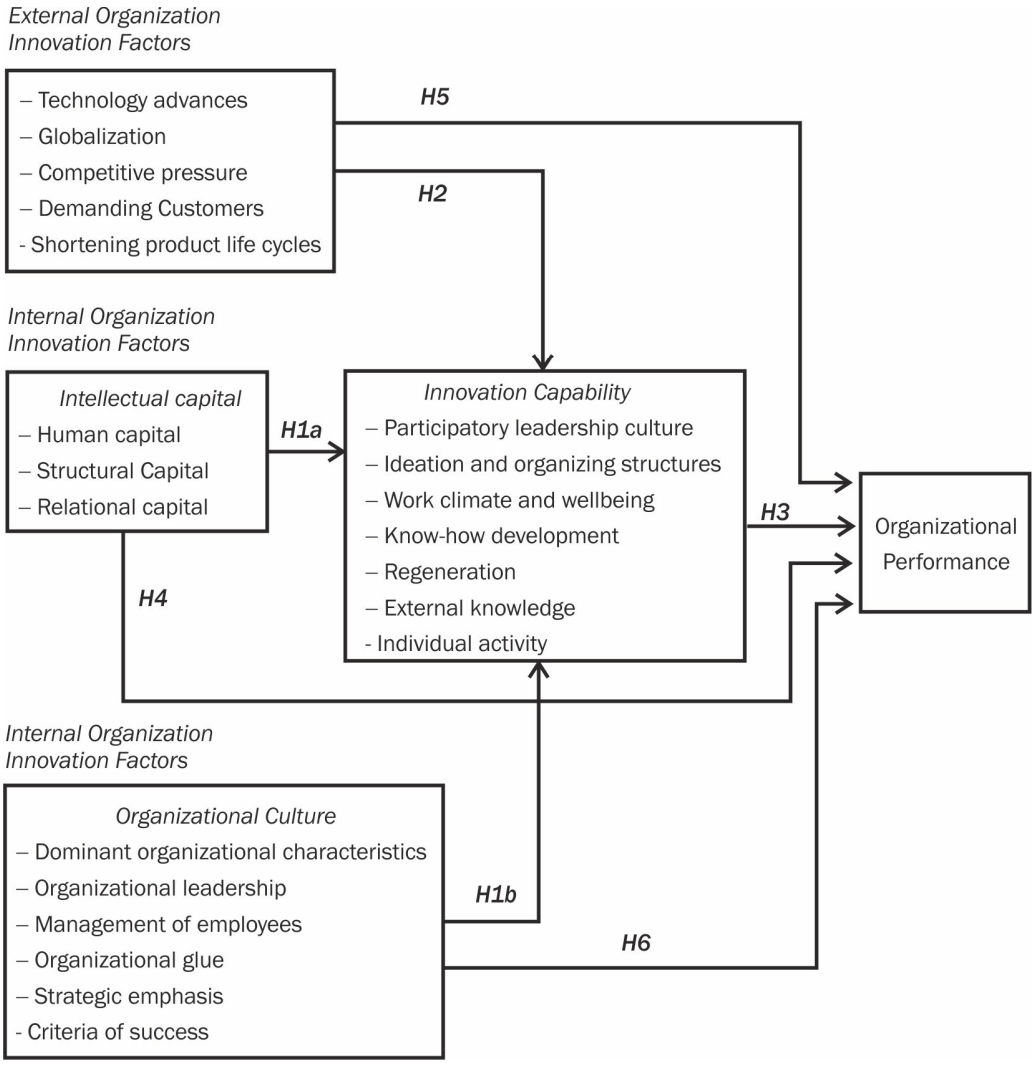

Figure 1: Proposed Framework of Research

Intellectual Capital and Organizational Innovation Capability. Intellectual capital is defined as a knowledge that can turn into value. Ashton (2005) divided intellectual capital into human capital, relational capital and structural capital. Human capital is an important source of innovation and creation in an organization. Relational capital refers to the knowledge value lied in marketing channels in an organization that is created by business trends. Also, customer capital makes the company connected to competition, enabling companies for competition (Louis and yang , 2004). Therefore, organization with strong structural capital can provide good conditions for utilizing human capital, allowing it to be used optimally to absorb customers and produce new goods (Lopez and Sanz, 2008).

H1a: There is a positive relationship between intellectual capital and organizational innovation capability.

Organizational Culture and Organizational Innovation Capability. According to Chang and Lee (2007) , both innovative culture and supportive culture have a significantly positive effect on administrative and technical innovation. Bates and Khasawneh (2005) examined the relationship between organizational learning culture, learning transfer climate and organizational innovation, showing that organizational learning culture predicted learning transfer climate and both these factors accounted for significant variance in organizational innovation.

H1b: There is a positive relationship between Organization Culture and Organizational Innovation Capability.

External innovation factors and organisational innovation capability. Many scholars have demonstrated that there is a positive and significant relationship between organizational external factors, and organizational innovativeness capability. According to Zheng Model (2009) external factors including technology advances globalization, competitive pressure, demanding customers, shortening product life cycles have positive and significant effect on organizational innovation capability. The Iranian Auto part manufacturers are poised for innovation as the external issues forces for changes to be established, including product innovation. Thus, the following hypothesis is formulated:

H2: There is a positive relationship between organizational external factors and organizational innovation capability.

Organisational innovation capability and organizational performance. Most of the studies mentioned that firms with a high level of innovation capability have higher levels of productivity and economic growth (Cefis and Ciccarelli, 2005). The study by Rhee et al. (2010) concluded that innovation capability has a positive influence on performance. These results show that performance can be derived from the propensity for innovation. Sanz-Valle et al. (2011), reported a positive and significant relationship between organizational innovation capability and organizational performance. Innovations capability themselves have an effect on operational performance with regard to productivity, lead times, quality, and flexibility (Armbruster et al., 2008).

H3: There is a positive relationship between organizational innovation capability and organizational performance. Intellectual Capital and Organizational Performance. There are enough evidences of positive effect of intellectual capital on firm performance. Chen, et al. (2005), showed positive correlation of intellectual capital on organisation performance and market value. Thus, the more companies devote capital and resources for managing their intellectual capital, the higher they improve their intellectual capital and organizational performance.

H4: There is a positive relationship between intellectual capital and organizational performance.

External Innovation Factors and Organizational Performance. A firm that has superior capability to exploit external innovation factors are capable to develop better innovate products. Brittain and Freeman (1980) posit that as the environment becomes more complex, firms seeking to gain competitive advantage over other firms. Many enterprises are continuously attempting to develop new and innovative ways to reinforce their competitiveness.

H5: There is a positive relationship between organizational external innovation factors and organizational performance.

Organizational Culture and Organizational Performance. Most of the researchers in organizational culture study have found a constructive relationship between organizational culture and performance. Stewart (2007), mentioned that profitability is any organizational goal and cultural norms in an organization strongly affect all who are involved in the organization. Besides the market competition, both innovation and a cohesive culture determine the appropriateness of a firm's activities that can contribute to its performance. Inherently, organizational culture is not only an important factor of an organization, it is also the central force which drives superior business performance. Barlow (1999), mentioned that the organizational structure and culture has an impact on the construction firms" response to innovative ideas and its ability to transform these ideas into possibly successful products.

H6: There is a positive relationship between organizational culture and organizational performance.

The Mediating Effects of Organizational Innovation Capability. Organizational Innovation Capability is an organization's overall innovative capability, tendency to willingness to change, receptivity to newness, new ideas, experiment and innovation to develop a firm competitive advantage. OIC can improve organizational performance, creating differentiated, competitiveness and enhance firm goal as a long-term survival. Also, it plays a role to support new and novelty ideas. The results indicated that there is a positive and significant relationship between organizational innovation factors and organizational performance. Moreover, an organizational innovation factor has positive and significant relationship with organizational innovation capability. Furthermore, organizational innovation capability has positive and significant effect on organizational performance. Similarly, the results indicated that there is a positive and significant relationship between intellectual capital and organizational performance. Moreover, intellectual capital has positive and significant relationship with organizational innovation capability. Furthermore, organizational innovation capability has had positive and significant effect on organizational performance. And finally, the results designated that there is a positive and significant relationship between organizational culture and organizational performance. Moreover, organizational culture has positive and significant relationship with organizational innovation capability. Furthermore, organizational innovation capability has positive and significant effect on organizational performance. A similar stance is made for the Iranian auto part manufacturers. Organisational innovation capability for the Iranian firms would mediate the influence of innovation factors toward organisational performance. While the direct effects can also be experienced, the mediating effect is expected to be larger due to the fact that a combined mutually reinforcing elements of innovation capability and the factors would be greater. Thus in line with Baron and Kenny (1986) criteria the following hypotheses are formulated:

H7: The relationship between organizational innovation factors and organization performance mediated by organizational innovation capability.

H8: The relationship between intellectual capital and organizational performance is mediated by organizational innovation capability.

H9: The relationship between organizational culture and organizational performance is mediated by organizational innovation capability.

4. METHODS

The questionnaire has been adapted from previous studies as Zheng (2009), Cameron and Quinn (2006), Saunila et al (2014 - See Appendix 1), and confirmed by panel of experts and then, checked wording and grammatically by academic professor and Iranian postgraduate student and finally, analyzed content by using pilot test. The respondents of the study are managers of the Iranian auto part manufacturing companies. According to Morgan table (1970), the sample size is 265 and Yamane formulas (1967) is 272. As can be seen, there are just little differences between sample sizes based on Morgan (1970) table and the sample size calculated by the formula that proposed by Yamane (1967). Therefore, the sample size for this study (N= 850) will be 272. This study gathered data using self-administered questionnaire that utilized a 5-point Likert scale ranging from 1 to 5. The survey was posted to the respondents to collect the data. The researcher sought the participation of 300 firms under the supplier company category. The researcher made phone calls to the CEOs of targeted companies and explained about the research intention and data gathering process. Assurance was provided to them that information collected will be kept confidential and only the outcome of the analysis will be used without naming any of the companies. A total of 300 questionnaires were distributed. A total of 275 participants took part in the survey. This represents a response rate of 91% indicating a good participation rate.

The data analysis was separated into two phases: preliminary data analysis and evaluation of the structural model. The first part of the examination entails descriptive analysis of the respondent's profile and other related aspects. This involves coding and editing of data, identification and

treatment of missing data, outlier examination including univariate and multivariate examination, examination of normality, homoscedasticity, multicollinearity and non-response biasness. The collected data was analysed using the structural equation modelling (SEM) based on Partial Least Squares (PLS) technique. Two models were estimated using Smart PLS software that is the direct effect of the external and internal organisation innovation drivers toward organisational performance and the mediator effect of the organisational innovation capability between the innovation drivers and organisational performance.

4. RESULTS

Test of Normality. The normality of the data test is done prior to running the structural equation modelling (SEM) test. The normality was tested using the skewness and kurtosis analysis. For normal data, both skewness and kurtosis should be around a range of -2 to +2. The results for all items in a skewness and kurtosis analysis indicated that they were in a range of -2 to +2, showing normality of the data. The Shapiro-Wilk statistics (Shapiro and Wilk, 1965) and Kolmogorov-Smirnov were also considered for each constructs. (see Appendix B)

Outliers. The univariate outliers were identified by considering frequency distributions of Z scores of the observed data (Kline, 2005). However, no univariate outlier was identified for this study, because it utilized a 5-point Likert scale ranging from 1 to 5. The imputed data outliers were identified using univariate (histograms, box-plots and standardised Z score). According to Ibid., for a large sample size, an Absolute (Z) > 3.5 indicates an extreme observation. The result showed that the standardised (z) scores of the imputed variables ranged from –3.39 to 2.51, indicating that none of the variable exceeded this threshold. This is shown in Table 1.

Table 1. Examination of outliers

	Minimum	*Maximum*		*Minimum*	*Maximum*
Zscore (OID.M)	-2.91	2.40	Zscore (OC.CS.M)	-2.68	2.28
Zscore (IC.HC.M)	-2.76	2.07	Zscore (OIC.PL.M)	-3.10	1.90
Zscore (IC.SC.M)	-2.47	2.50	Zscore (OIC.IOS.M)	-3.17	2.44
Zscore (IC.RC.M)	-2.99	2.06	Zscore (OIC.WCW.M)	-3.39	2.38
Zscore (OC.DC.M)	-2.68	2.51	Zscore (OIC.KD.M)	-2.57	1.96
Zscore (OC.OL.M)	-2.50	2.42	Zscore (OIC.REG.M)	-3.30	1.85
Zscore (OC.ME.M)	-2.29	2.33	Zscore (OIC.EK.M)	-2.09	2.33
Zscore (OC.OG.M)	-2.80	1.98	Zscore (OP1.M)	-2.83	2.21
Zscore (OC.SE.M)	-2.28	2.16			

Multicollinearity. The multicollinearity issue for continuous and dummy variables was checked before running the model. Multicollinearity refers to a situation where it becomes difficult to identify the separate effect of independent variables on the dependent variable because there is exists strong relationship among them. In other words, multicollinearity is a situation where explanatory variables are highly correlated (Pallant, 2013). As stated by Pallant (2013), a lower tolerance of below 0.1 and the larger variance inflation factors of above 10 specifies the existence of multicollinearity. The results in Table 2 exhibits that largest variance inflation factors value was 1.835 that propose lack of multicollinearity within exogenous construct.

Table 2. Calculation of Variance Inflation Factors (VIF)

	OIC	*OP*
IC	1.491	1.548
OC	1.784	1.835
OIC	1.452	1.268
OID	1.357	1.388

Non-response. Non-response is a major challenge facing studies using surveys as a method of data collection. Atif et al., (2012) recommended that researchers should conduct a non-response bias analysis, regardless of how high or how low the response rate is achieved. The Mann-Whitney-U-test was used for non-response biasness. This was computed by considering the dissimilarity between early and late respondents with respect to the means of all the variables. The results introduced in Table 3 demonstrate that noteworthy amount in any construct is at the very least or equivalent to 0.5 likelihood value. In this way, non-response bias is not a concern in the present study.

Table 2: Observing Non-Response Biasness through Mann-Whitney-U-Test

	Mann-Whitney U	*Wilcoxon W*	*T*	*p value*
OID.M	8223	18093	-1.863	0.062
IC.HC.M	8865.5	18735.5	-0.888	0.374
IC.SC.M	9009.5	18879.5	-0.671	0.502
IC.RC.M	8771	18641	-1.034	0.301
OC.DC.M	9354.5	19224.5	-0.146	0.884
OC.OL.M	9137	19007	-0.478	0.633
OC.ME.M	9399	19269	-0.078	0.938
OC.OG.M	8499.5	18369.5	-1.45	0.147
OC.SE.M	8871	18741	-0.883	0.377
OC.CS.M	8437	18307	-1.548	0.122
OIC.PL.M	8573	18443	-1.335	0.182
OIC.IOS.M	8622.5	18492.5	-1.259	0.208
OIC.WCW.M	8961	18831	-0.745	0.456
OIC.KD.M	8108	17978	-2.054	0.04
OIC.REG.M	8691.5	18561.5	-1.162	0.245
OIC.EK.M	9258.5	19128.5	-0.292	0.77
OP1.M	8647	18517	-1.219	0.223

Common Methods Bias. The common method bias test was performed to investigate the presence for common method variance (Table 4). Harman's (1976) single-factor test approach was used for this purpose. The first factor accounts for only 27.86% of the overall variance, which indicates that common method variance likely does not affect the results.

Table 3: Common Method Variance

Initial Eigenvalues			*Extraction Sums of Squared Loadings*		
Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
26.475	**27.868**	27.868	26.475	27.868	27.868

Discriminant Validity. Discriminant validity showcase if a measure is not unduly related to other similar yet distinctive constructs. Correlation coefficients between measures of a construct and measures of conceptually different constructs are usually given as evidence of discriminant validity. If the correlation coefficients are high, this shows lack of discriminant validity or weak discriminant validity, depending on the theoretical relationship and the magnitude of the coefficient. On the other hand, if the correlations are low to moderate, this demonstrates that the measure has discriminant validity (Henseler and Fassott, 2010). The results of the discriminant validity at construct and item levels shows no discriminant validity.

Structure Model Results. Once the reliability and validity of the outer models is established, several steps need to be taken to evaluate the hypothesized relationships within the inner model.

This aspect of PLS-SEM is different from CB-SEM in that the model uses the sample data to obtain parameters that best predict the endogenous constructs. As a result, PLS-SEM does not have a standard Goodness-of-Fit statistic (Henseler and Sarstedt, 2013). Instead, the assessment of the model's quality is based on its ability to predict the endogenous constructs. The following criteria facilitate this assessment: *Coefficient of determination (R^2), cross-validated redundancy (q^2), path coefficients, and the effect size (f^2).*

Prior to this assessment, the researcher needs to test the inner model for potential collinearity issues. As the inner model estimates result from sets of regression analyzes, their values and significances can be subject to biases if constructs are highly correlated (Hair et al., 2012). While the Fornell-Larcker criterion usually discloses collinearity problems in the inner model earlier in the model evaluation process, this is not the case when formatively measured constructs are involved. The reason is that the AVE which forms the basis for the Fornell-Larcker assessment is not a meaningful measure for formative indicators. Therefore, collinearity assessment in the inner model is of pivotal importance when the model includes formatively measured constructs.

Model 1 (without Mediation). The first seven hypotheses (H1a, H1b, H2, H3, H4, H5 and H6) were tested in this model estimation. Post running a PLS model, estimates are provided for the path coefficients, which represent the hypothesized relationships linking the constructs. Path coefficient values are standardized using a range of -1 to + 1, with coefficients closer to +1 representing strong positive relationships and coefficients closer to -1 indicating strong negative relationships. Although values close to -1 or +1 are almost always statistically significant, a standard error must be obtained using bootstrapping to test for significance (Helm et al., 2009). After verifying whether the relationships are significant, the researcher will consider the relevance of significant relationships. (Figure 1).

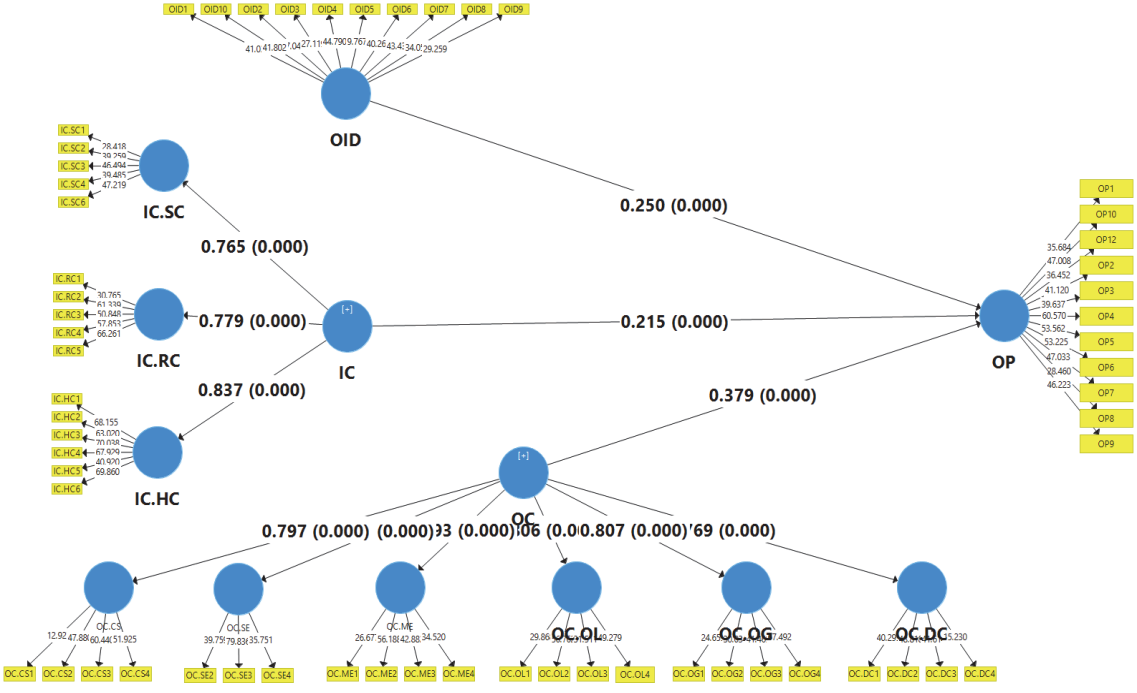

Figure 1. Paths Standardized Coefficient (B) Results of Hypothesis

Source: created by authors

The pertinent question here is that: are the sizes of the structural coefficients meaningful? As stated by Hair et al (2012), many studies overlook this step and merely rely on the

significance of effects. If this important step is omitted, researchers may focus on a relationship that, although significant, may be too small to merit managerial attention.

Model 2 (with Mediation). Model was designed to examine the mediation effect (H7, H8, H9 encapsulating:

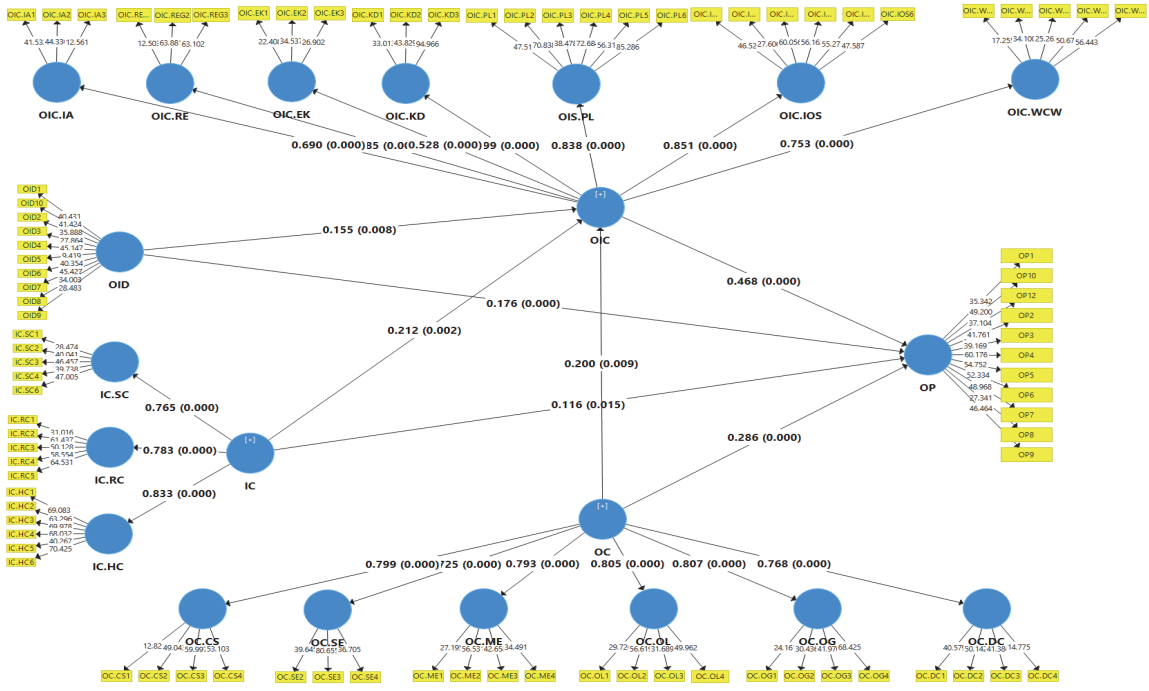

Figure 2. Mediation Model Estimation

Source: created by authors

Test of Mediation. Mediation analysis seeks to go beyond the question of whether an independent variable causes a change in a dependent variable. Table 5 indicate that all the mediating effects on the relationship between OIF, IC, OC and OP have p-value under 0.05. This infers that all of the mediating effects on the relationship between OIF, IC, OC and OP are significant.

Table 4. The Mediating Effects (indirect effect) on the Relationship between OIF, IC, OC and OP

	ab	*SE*	*t values*	*P*	*VAF*	*Results*
H7: OIF → OIC → OP	0.073	0.028	2.576	0.011	29.186	Significant
H8: IC → OIC → OP	0.099	0.032	3.067	0.002	46.101	Significant
H9: OC → OIC → OP	0.094	0.037	2.498	0.013	24.658	Significant

Table 05. Test of Mediation

	Direct Effect		*Indirect Effect*		
Independent Variable	v	P	B	p	Result
IC	0.116	0.015	0.099	0.02	PM
OC	0.226	0.091	0.044	0.013	PM
OID	0.176	0.001	0.073	0.011	PM
					PM: Partial Mediation

According to table 6, both direct and indirect effects of IC, OC and OID were statically Significant at 0.05 level. Therefore, we concluded OID partially mediated the relationship between three variable and organizational performance. A summary of hypotheses results in shown in Table 7 below.

Table 7: Results of Hypotheses Testing

Path	*Hypotheses*	*Results*
H1a: IC → OIC	There is a positive relationship between Intellectual Capital and Organisational Innovation Capability	Supported
H1b: OC → OIC	There is a positive relationship between Organisational Culture and Organisational Innovation Capability	Supported
H2: OEF → OIC	There is a positive relationship between Organisational External Factors and Organisational Innovation Capability	Supported
H3: OIC → OP	There is a positive relationship between Organisational Innovation Capability and Organisational Performance	Supported
H4: IC → OP	There is a positive relationship between Intellectual Capital and Organisational Performance	Supported
H5: OID → OP	There is a positive relationship between Organisational External Innovation Factors and Organisational Performance	Supported
H6: OC → OP	There is a positive relationship between Organisational Culture and Organisational Performance	Supported
H7: OIF → OIC → OP	The relationship between organizational innovation factors and organizational performance mediated by organizational innovation capability.	Supported
H8: IC → OIC → OP	The relationship between intellectual capital and organizational performance is mediated by organizational innovation capability	Supported
H9: OC → OIC → OP	The relationship between organizational culture and organizational performance is mediated by organizational innovation capability	Supported

CONCLUSION

The importance of innovation in fostering organizational performance has been researched for many years. The roles of various elements have been examined to determine what influences innovative capability and how translate to business performance, across various countries. A similar stand has not been made for automobile parts manufacturing firms in the Republic of Iran. This study was undertaken with the objectives of examining the significance of external organizational factors and internal factors (comprising of intellectual capital and organizational culture) toward innovative capability. In addition, the mediating effects of innovative capability toward organizational performance was also examined. Using a sample of 275 responding Iranian auto-parts manufacturing firms, important statistical results were obtained using the structural equation modelling (SEM) non-linear regression approach.

The results suggested the significance of all variables of interest in driving innovative capability in the Iranian firms. This implied a strong support to the existing literature which suggested the pivotal roles of external events and internal factors in infusing innovative capability in firms. The roles of intellectual capital and culture seem to be vital in Iran. Similarly, the mediation effect of innovative capability seems to be equally important, suggesting that a direct effect of external factors, intellectual capital and culture toward organizational performance is augmented through the presence of innovative capability as a mediator. Several pertinent theoretical and practical implica-

tions have been suggested in this study. Iran's automobile industry stands to reach greater heights if solid concentration is given to intellectual capital and innovative culture. The imploding economic event in Iran can be shelved if Iranian firms engage in attentive innovative activities, including capability development, cultural settings and efficient management of external issues or events.

Limitation and future research. There are a few limitations to the study that ought to be recognized. The limitation of the study is related to use a sample of Iranian automotive industry for testing the hypotheses. Westwood and L.ow in 2003 mentioned that innovation and creativity vary by different cultures and cautiously generalizable to the automotive industry in other contexts, so, future researchers can repeat this study using other countries and other sampling frame. Also, since in this study has been used a variance-based structural equation modelling (SEM) for data analysis by Smart-PLS software, future researchers may duplicate this study by using covariance-based SEM method by AMOS or LISREL software. Moreover, future researcher can duplicate the study by applying the nonlinear relationship between external and internal organizational innovation factors on organizational performance directly and through organizational innovation capability.

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Appendix A: Scales and development

A1: Items for Measuring Organizational Innovation Factors	
1	The emergence of new technologies is forcing our organization to develop new products/services.
2	The emergence of new technologies is forcing our organization to rethink its business models and organizational designs.
3	Our organization is under pressure to expand its businesses into worldwide geographic.
4	Our organization is under pressure to expand its businesses into international market segments.
5	Our rivals attempt to serve the customers better than we do.
6	Our rivals attempt to take away revenue from our firm.
7	Customers are not satisfied.
8	Customers change their minds.
9	The product cycle is getting shorter and shorter in our organization.
10	We must constantly change the way we are doing things in order to keep up with the pace of new product development.

A2: Items for Measuring Intellectual Capital	
1	For employee training and keeping them up-to date, regular programs are prepared.
2	Employee learning and training has effect on company profitability.
3	Employees are specialized in their professional areas.
4	Employees carry out their organizational tasks to the full.
5	Employees feel proud of company efficiency.
6	Employee work experience and specialization has effect on company productivity and profitability.
7	In this company employees learn from each other.
8	In this company, we reward employees with good performance.
9	In this company, we support research and development activities.
10	In this company, access to information is easy.
11	Procedures of this company support innovation activities.
12	In this company innovation ideas develop and support.
13	In this company transaction, time is best.
14	In this company, new ideas implement.
15	Company maintains a long-term relationship with customers.
16	Relationship of company with customers and suppliers of raw materials influences its productivity and profitability.
17	The company is able to learn add value through its partners.
18	In this company, strategic alliances affect company's productivity.
19	In this company, strategic alliances affect company's profitability.

A3: Items for Measuring Organizational Culture	
1	The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.
2	The organization is a dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.
3	The organization is very resulting oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.
4	The organization is a very controlled and structured place. Formal procedures generally govern what people do.
5	The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.
6	The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking.
7	The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.

8	The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.
9	The management style in the organization is characterized by teamwork, consensus, and participation.
10	The management style in the organization is characterized by individual risk taking, innovation, freedom, and uniqueness.
11	The management style in the organization is characterized by hard driving competitiveness, high demands, and achievement.
12	The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.
13	The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.
14	The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.
15	The glue that holds the organization together is the emphasis on achievement and goal accomplishment.
16	The glue that holds the organization together is formal rules and policies. Maintaining a smoothly running organization is important.
17	The organization emphasizes human development. High trust, openness, and participation persist.
18	The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.
19	The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.
20	The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.
21	The organization defines success on the basis of the development of human resources, teamwork, employee commitment and concern for people.
22	The organization defines success on the basis of having unique, or the newest products. It is a product leader and innovator.
23	The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.
24	The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low-cost production are critical.

A4: Organizational Innovation Capability	
1	My work community encourages gaining knowledge through external contacts.
2	We have developed our ways of action by comparing our operations to other organizations.
3	We develop our actions together with our stakeholders (customers, etc.).
4	Co-operation works well in our organization.
5	We have a clear way of processing and developing ideas.
6	The employees get feedback for their ideas.
7	Our reward system encourages ideating.
8	Our organization seeks new ways of action actively.
9	Our organization has the courage to try new ways of action.
10	When experimenting with new ways of action, mistakes are allowed.
11	The employees have the courage to disagree.
12	The managers encourage initiatives.
13	The managers give positive feedback.
14	The managers pass employees' ideas to the upper levels of the organization.
15	The managers participate in ideation and development.
16	The employees are willing to participate in development.
17	It is easy for the employees to adopt new ways of action.
18	The employee's know-how to be critical towards current ways of action when needed.
19	All employees have a possibility for education.
20	We have instructions and responsible persons for work orientation.
21	The employees are encouraged to be multi-skilled.
22	Voluntary learning and development of expertise are supported in our organization.

A4: Organizational Innovation Capability	
23	There are practices for transferring tacit knowledge.
24	In our organization, learning is an investment, not an expense.
25	The employees prosper in our organization.
26	The employees are treated equally.
27	The employees are appreciated for their work.
28	The number of working tasks is suitable.
29	The quality demands and responsibility of tasks are suitable.
30	There is an opportunity for flexible working and working hours in our organization.

A5: Items for Measuring Firm Performance	
Because of innovation capability:	
1	We have developed our ways of action by comparing our operations to other organizations.
2	We develop our actions together with our stakeholders (customers, etc.).
3	Co-operation works well in our organization.
4	We have a clear way of processing and developing ideas.
5	The employees get feedback for their ideas.
6	Our reward system encourages ideating.
7	Our organization seeks new ways of action actively.
8	Our organization has the courage to try new ways of action.
9	When experimenting with new ways of action, mistakes are allowed.
10	The employees have the courage to disagree.
11	The managers encourage initiatives.
12	The managers give positive feedback.

Appendix B: Examination of Normality

Item	Skewness	Kurtosis	Item	Skewness	Kurtosis
OIF1	-0.31	-0.33	**OC.SE4**	-0.53	-0.38
OIF2	-0.22	-0.23	**OC.CS1**	-0.59	0.15
OIF3	-0.14	-0.20	**OC.CS2**	-0.07	-0.18
OIF4	-0.10	-0.30	**OC.CS3**	-0.22	-0.05
OIF5	0.04	-0.66	**OC.CS4**	-0.25	-0.16
OIF6	-0.14	-0.42	**OIC.PL1**	-0.39	0.21
OIF7	0.07	-0.63	**OIC.PL2**	-0.27	-0.33
OIF8	-0.05	-0.31	**OIC.PL3**	-0.40	-0.19
OIF9	-0.26	-0.16	**OIC.PL4**	-0.32	-0.17
OIF10	-0.01	-0.17	**OIC.PL5**	-0.53	0.23
IC.HC1	-0.03	-0.66	**OIC.PL6**	-0.52	0.07
IC.HC2	-0.07	-0.22	**OIC.IOS1**	-0.27	-0.42
IC.HC3	-0.08	-0.14	**OIC.IOS2**	0.15	0.11
IC.HC4	-0.05	-0.36	**OIC.IOS3**	-0.14	-0.18
IC.HC5	-0.28	-0.20	**OIC.IOS4**	-0.11	-0.24
IC.HC6	-0.02	-0.33	**OIC.IOS5**	0.11	-0.21
IC.HC7	-0.23	-0.81	**OIC.IOS6**	0.17	0.00
IC.SC1	0.17	-0.36	**OIC.WCW1**	-0.11	-0.28
IC.SC2	-0.02	-0.36	**OIC.WCW2**	-0.10	-0.41
IC.SC3	0.19	-0.36	**OIC.WCW3**	-0.40	-0.06

IC.SC4	0.20	-0.36	OIC.WCW4	0.06	-0.33
IC.SC5	0.26	-0.22	OIC.WCW5	-0.15	-0.21
IC.SC6	0.06	-0.43	OIC.WCW6	-0.25	-0.09
IC.SC7	0.42	0.42	OIC.KD1	0.17	-0.26
IC.RC1	-0.24	-0.07	OIC.KD2	-0.25	-0.49
IC.RC2	-0.15	0.11	OIC.KD3	-0.32	-0.56
IC.RC3	-0.16	-0.03	OIC.REG1	0.03	-0.77
IC.RC4	0.03	-0.36	OIC.REG2	-0.57	-0.04
IC.RC5	-0.14	0.61	OIC.REG3	-0.55	0.29
OC.DC1	-0.09	-0.46	OIC.EK1	0.24	-0.84
OC.DC2	0.24	0.06	OIC.EK2	0.10	-0.81
OC.DC3	-0.09	-0.34	OIC.EK3	0.12	-0.80
OC.DC4	-0.09	-0.60	OIC.IA1	-0.13	0.01
OC.OL1	-0.04	-0.47	OIC.IA2	-0.23	0.47
OC.OL2	-0.04	-0.08	OIC.IA3	-0.46	0.28
OC.OL3	-0.01	0.12	OP1	-0.26	-0.38
OC.OL4	0.04	-0.62	OP2	-0.29	0.04
OC.ME1	-0.19	-0.35	OP3	-0.29	-0.18
OC.ME2	-0.05	-0.41	OP4	-0.25	-0.09
OC.ME3	-0.12	-0.10	OP5	-0.15	-0.32
OC.ME4	-0.02	-0.11	OP6	-0.23	-0.17
OC.OG1	-0.06	-0.12	OP7	-0.10	0.04
OC.OG2	-0.23	-0.40	OP8	0.02	-0.50
OC.OG3	-0.23	-0.67	OP9	-0.25	-0.04
OC.OG4	-0.04	-0.59	OP10	-0.30	0.14
OC.SE1	-0.14	-0.51	OP11	0.02	-0.62
OC.SE2	0.29	-0.64	OP12	-0.28	-0.04
OC.SE3	-0.24	-0.64			