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Open Innovation and Dynamics Comptabilities: An Empirical Study

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Abstract:

The aim of this study is to explore how dynamic capabilities (DC) will enable firms to building open Innovation (OI).

It also aims to develop a theoretical framework and conduct an empirical study across pharmaceutical sector to investigate the relationship between open Innovation and dynamic capability.

The research utilizes causality models and suggests a conceptual schema subsequent to a comprehensive analysis of the literature linked to open Innovation Field.

A sample of 120 managers and employees of Algerian pharmaceutical company is used. The SEM is used to analyze and approve the proposal of the conceptual schema.

The Results of the empirical research show that Dynamic capability is positively and significantly related to open innovation.

Keywords: Open Innovation, Dynamic Capability, SEM.

Jell Classification: O36, O39, C54.

1. Introduction :

Open innovation has become one of the key approaches to technology management since its introduction to the literature some fifteen years ago (chesbrough, **2003,2006,2004**). Yet there is surprisingly little written about how open innovation fits into the larger strategic management of the enterprise.

The dynamic capabilities framework, which emerged a few years earlier and explicitly, recognizes the concept of combining internal and external resources can provide the required perspective (Teece,**2016**, **2017**). The framework provides a model of how firms can create sustainable competitive advantage. It also incorporates evolutionary and other theories of the firm and of strategic management to answer the most fundamental issues in strategy research, such as why firms differ and how they build and maintain competitive advantage.

Open Innovation and dynamic capabilities have a lot in common. They are both quite general and require contextual specifications. They have organizational as well as managerial implications, and they can be applied at the business unit, enterprise, or ecosystem level. But there are also critical differences. While open Innovation is essentially a set of processes, the dynamic capabilities framework is a systemic theory of strategic management that encompasses not only processes but also corporate governance, managerial decision-making, and the sources of competitive advantage.

The purpose of this paper is to study is to study the relationship between open innovation and dynamic capabilities in Algerian pharmaceutical company through a case study at saidal on the employees of the corporation.

Based on these considerations, we aim to answer the following research question:
How do capabilities in the practice of open Innovation relate to dynamic capabilities? To answer this question, we must understand the capabilities related to practice of open Innovation with dynamic capabilities (sensing, seizing and transforming) as a source of competitive advantage.

To increase the understanding on these phenomena (open Innovation and dynamic capabilities) through our study, qualitative method and grounded theory were used, according to the criteria proposed.

According to the literature review the main hypothesis of the research was that: Dynamic Capability positively effects open Innovation.

2. Literature review and hypotheses:

2.1. Resources based-view.

According to Penrose, the pioneer author of resource based-view, the firm is defined as "a set of internal resources that can be exploited in different ways have the ability to organization through interaction and the combination of all the financial and human resources available". These resources can support the implementation of enterprise strategy mainly including enterprise assets, comprehensive ability, enterprise owned information and knowledge .

Wernerflet and Barney was contributed in the development of this theory by clarifying sources of sustainable competitive advantage, were explained the resource as "anything that can be considered as strength or a weakness for the organization". [1]

The theory has seen several additions, particularly the development of knowledge based-view "kBV(Kathleen, **1996**) and those based on competencies "CBV" (Prahalad, Hamel **1990**), without neglecting the origins of the theory.

The two approaches are based on certain resources; the intangible resources are more easily interchangeable. Teece found out that a resource is the foundation of open innovation especially complementary resources the enterprise need. Other scholars believe that the implementation of cooperative innovation between enterprises is based on the introduction of technology and market knowledge .

The organization's resources are the main component of the theory of resources "RBV" it can be one of the determinants of open innovation. According to Barney, "Resources are defined as a set of assets and capabilities and organizational processes and characteristics of the organization and its information's and knowledge controlled by the organization and allow it to design and implement strategies that will improve its operations and competences".

In addition, several authors consider that one of the main purposes for organizations implementing dynamic capability is to obtain the key resources needed to enhance the competitiveness of the organizations . [2]

2.2. The theoretical fondation of the research variables:

2.2.1.Open innovation:

The term open innovation was introduced and popularized by henry chesbrough in **2003**, a berkeley professor at University of California. Chesbrough (**2003**) describes a paradigm shift from a closed to an open innovation model. He defines open innovation as "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation respectively. Open innovation is a paradigm that assumes firms can and should use external ideas as well as internal ideas and internal and external paths to market, as the look to advance their technology".[3]

Chesbrough**(2003)** explains that in closed innovation models, research projects are launched from the science and technology base of the firm. They are further developed internally and eventually, some projects are selected for further work where after the successful projects are chosen to go through to the market. This approach to innovation is called "closed", because research projects can only enter the process via one way, namely

at the beginning from the firm's internal base. Finally, when a project is developed, it can only exit the process in one way, by going into the market.[4]

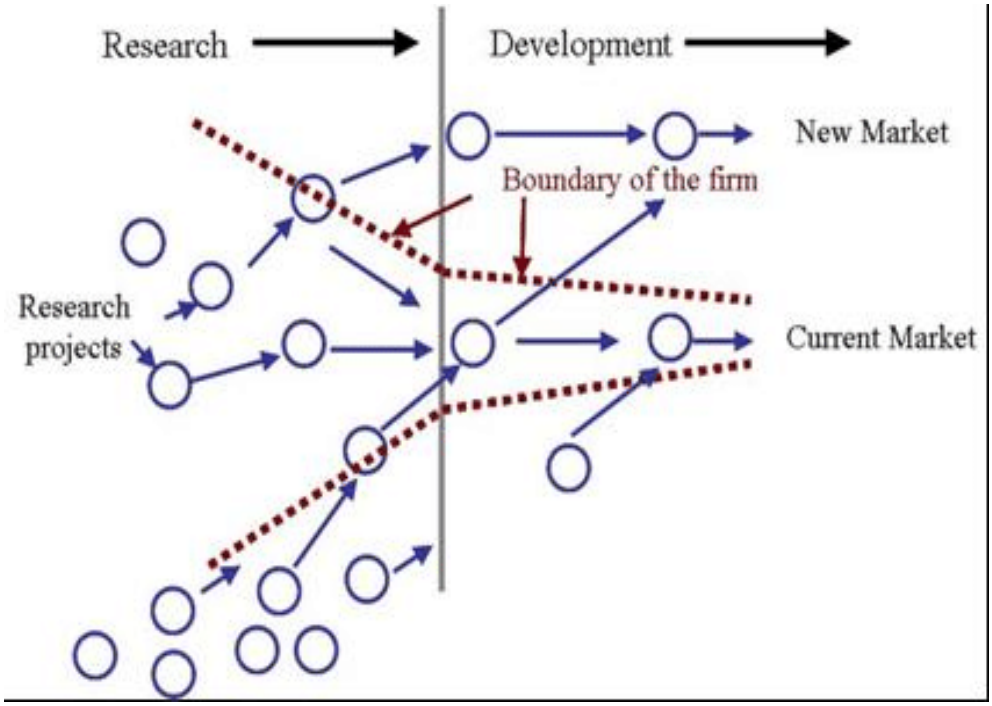
According to chesbrough **(2004),**organizational innovation differs from closed innovation systems In several ways. First of all a research project in Ol models can enter the innovation process, not only at the beginning from the firm's science and technology base.

This could be the technology base of other firms, but also the base of scientific institutions like universities.

Second, during the development phase in Ol, knowledge can enter the process by getting it from external sources. Acquiring knowledge from other firms through technology insourcing is an example of this.

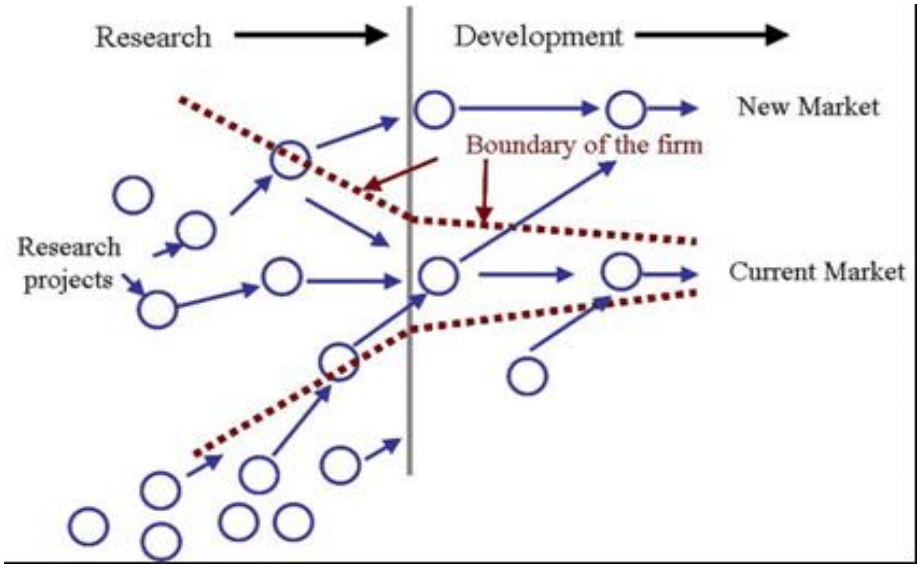
Third, during the development phase of Ol, knowledge is developed, but not every piece of knowledge will be useful for the firm. Some pieces of knowledge simply do not coincide with its current.[5]

Fig1: Open Innovation



Source : Cornell Brent. T, Open innovation strategies for overcoming competitive challenges facing small and mid-sized enterprises, Doctorat thesis of management Maryland University College, 2012,p18.[6]

Fig2: Closed innovation



Source : Cornell Brent. T, Open innovation strategies for overcoming competitive challenges facing small and mid-sized enterprises, Doctorat thesis of management Maryland University College, 2012,p18.[7] Gassmann Oliver, Enkel Ellen, ChesbroughHenny, "The Future Of Innovation" R And D Management, 01-09. , 2010 .p 5.[8]

- ✓ The outside-in processes, enriching a company's own knowledge base through the integration of suppliers, customers, and external knowledge sourcing can increase a company's innovativeness.
- ✓ The inside-out processes, the external exploitation of ideas in different markets, selling IP and multiplying technology by channeling ideas to the external environment.
- ✓ The coupled process, linking outside-in and inside-out by working in alliances with complementary companies during which give and take are crucial for success.

Table 1: Open Innovation types and mechanisms

Open innovation type	Description	Mechanisms
Outside-In (Inbound)	Involves opening up a company's own innovation processes to many kinds of external inputs and contributions.	In licensing intellectual property. - Scouting. - Crowdsourcing - Intermediaries - Competitions and tournaments. -communities
	Involves allowing unused and under-utilized ideas and assets to go outside	Out licensing intellectual property and technology. - Donating intellectual

Inside-Out (Outbound)	the organization for others to use in their businesses and business models.	property and technology. - Spin-Outs - Corporate venture capital - Corporate incubators.
Coupled	Involves combining purposive inflows and Outflows of knowledge to collaboratively develop and/or commercialize an innovation.	Strategic alliances - Joint-ventures - Consortia - Networks - Ecosystems - Innovation platforms.

Source :Bogers, M, « A beginner's guide to open innovation », Global innovation magazine Vol 1(2), pp4-8, 2014.[9]

2.2.2. Dynamic capabilities :

Dynamic capabilities refer to "firms ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments". Dynamic capabilities encompass "the management of capabilities and resources all functions of the firms, with the overall objective to get a competitive advantage. In reviewing the prior studies on dynamic capabilities, we noticed that
scholars tend to measure diverse phenomena under the concept of dynamic capabilities including R&D, innovations, technology management, knowledge management, inter-organizational cooperation, decision-making, market research, alliances, networking, assets and reputation.[10]

For example, karna et al, (**2015**) examined strategic human capital management and sense-making capabilities, and Li and Liu (**2014**) studied timely decision-making capabilities and change-making capabilities. Moreover, Drnevich and Kriauciunas (**2011)** examined the development of new products, services and business processes, as well as
dynamic capability heterogeneity. Malik and Kotabe (**2009**) investigated organizational learning, reverse engineering and manufacturing flexibility, while masher and mowery (**2009**) examined dynamic capabilities through R&D organizational practices (including intra-team diversity, inter-team diversity and co-location), along with information technology (IT) management practices.[11]

As mentioned earlier, our paper is grounded in the dynamic capabilities and open innovation theories (Bogers et al, **2014**, chesbrough, **2003**, Teece 2007, **2020**). More explicitly Teece (**2012**) defined dynamic capabilities as a set of capabilities comprised of sensing, seizing and transforming. However, teece et al, (**2020**) in their most recent contribution split seizing into two separate groups of capabilities-orchestrating and value capture-that resulted in four groups of dynamic capabilities: sensing, orchestrating, value capture and transforming. (Teece,**2020)** ranked in three components: sensing, seizing and transforming. In the sensing process, scanning, learning and interpreting activities are

identified, which allows access to information and knowledge that can create opportunities (Dobelin& Galina**, 2019**). The organization depends on individual creativity and is based on organization processes of search, interpretation and creation. Therefore, we seek the identification, development, co-development an evaluation of threats and technological opportunities in relation to customer needs.[12]

In seizing, companies seize what was obtained during sensing activities and represent the company's ability to respond to the environment (Dobelin& Galina, **2019**). Thus by detecting a new technological or market opportunity, it should be capitalized through new products, processes, or services. This almost always requires investments in development and marketing activities, mobilization of resources to meet needs and opportunities and capturing value. When making investments, it is necessary to create strategies around investment decisions, set the time, increase the advantages of return and leverage products and services from one application to another.

In the transforming process, the organization seeks continuous renewal that is transformation or change . This component seeks to help the organization to configure the organizational culture to accept high levels of internal change through decentralization and flexibility and implementation of modern techniques of human resources, knowledge management and learning mechanisms .[13]

In this context dynamic capabilities relate to complex routines and organizational mechanisms, or in simple routines and management mechanisms. Both are active in the company sequentially or simultaneously in the form of dynamic packages and it is necessary to have a complete and interconnected view as a whole to understand dynamic capabilities.

2.2.3. Open Innovation and dynamic capabilities:

Teece (**2007**) noted that dynamic capabilities empower the open Innovation process with the ability to reach beyond internal and external organizational boundaries to access different resource types and to orchestrate them to fit the open Innovation process through sensing seizing (orchestrating and value capture capabilities) and transforming. [14]
Investigated whether firms with strong dynamic capabilities develop more open Innovation processes than firms with weak dynamic capabilities.

Based on a multiple-case study Grimaldi et al. **(2013)** concluded that dynamic capabilities should support open Innovation strategies for the firm to be competitive under the pressure of the current business environment. Furthermore, the authors indicated that firms need to be able to sense new partnership opportunities and source of external knowledge, better seize commercialization opportunities and finally transform internal and external resources to support open Innovation and firm competitiveness.

Later, **(**Teece,**2017**) indicated that the seizing (orchestrating and value capture) capabilities, which are responsible for implementation and getting things done, might be augmented by adopting open Innovation processes. Open Innovation processes-outside-inside-out-support internal efforts to handle Innovation effectively. For example, depending on the need, a firm might spin-off, spin-out or out-license technology to further develop it outside the incumbent firm (inside-out open Innovation strategy). [15]

Bogers et al. **(2019)** matched dynamic capabilities (sensing seizing and transforming) With open Innovation strategies (outside-in and inside-out). They stated and that sensing dynamic capabilities underpin the outside-in open Innovation strategy through scanning, identifying sense-making and selecting valuable external knowledge and technology. In addition through their sensing capabilities, firms may detect and establish inter-organizational collaboration with relevant stakeholders, such as research institutions, start-ups and other technology firms.

A less discussed external source knowledge for which the sensing capabilities of the firm's open Innovation processes might benefit are customers. Integrating customer's Feedback as early as possible into the Innovation process helps firm to save time and to achieve a better fit to the market. In our research, therefore, we not only regard customer engagement as one of the variable of open Innovation, but also consider the position of customer as an essential external source of information. In conclusion, a firm's sensing capabilities are crucial under the current business environment for it to be able to detect the vast amount of diverse knowledge and technology that exists, to assess these against the firm's business needs, and to select the ones with the most potential to fit their needs while leaving aside the not relevant ones.

Seizing capabilities, on the other hand, are about executing identified and selected potential open Innovation ideas well. Open Innovation is not about outsourcing the research and development (R&D) to third parties (Bogers et al. **2019**), rather, it is more about enhancing the internal Innovation capabilities and contributing to the current business model or exploring a new business model. Thus, through seizing dynamic capabilities, firms invest in internal R&D practices while leveraging outside-in and inside-out open Innovation strategies. We also regard both pecuniary and non-pecuniary investments in the internal R&D projects as significant variable of open Innovation.

These are also related with the firm's tolerance of risk while executing internal R&D projects. There are a number of risks related with open Innovation initiatives, for example collaborators can leak some trade secrets, the orchestration of multiple cooperating parties might fail, and there can be challenges related with complexity and openness.

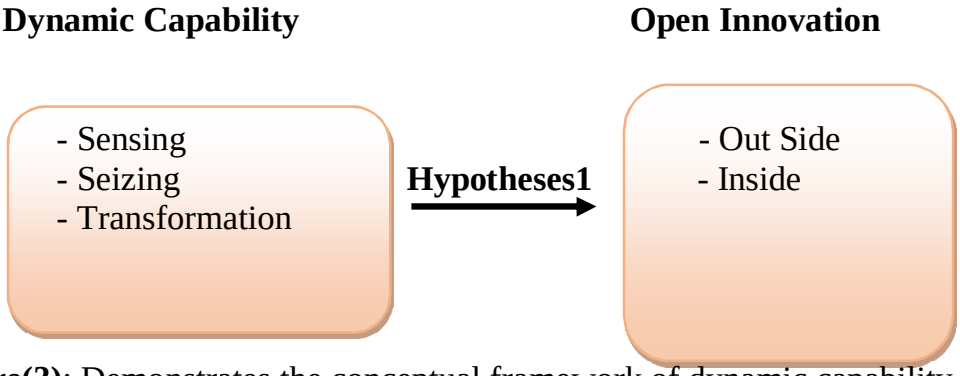
Finally, open Innovation is underpinned by transformation dynamic capabilities that are responsible for realigning the firm's organization (structure)
and culture in order to support inter-and intra –organizational cooperation and effectual knowledge management. Transformation Capabilities are in particular
useful when a new business line is introduced that requires a major revision of the current business model followed by critical changes in the organization design.

This is especially true with large incumbent firms that have one or more legacy business lines strongly protecting their identity, and effectively hindering intra-organizational cooperation and internal flows of knowledge. To reflect this under-researched phenomenon we introduce a third component of open Innovation: Inside-in processes, Inside-in open Innovation is responsible for internal collaboration among a firm's units and thus involves assuring a better flow of internally created knowledge and transformation of the organization

to better integrate external knowledge. Teece (**2020**) in his recent work stated that "strong dynamic capabilities enable effective open Innovation practices" and in turn assure the competitive performance of the firm.

2.3. Conceptual framework and hypotheses :

Fig 3: Research Framework



Figure(3): Demonstrates the conceptual framework of dynamic capability relationship with open Innovation, several research have the same view point indicating that dynamic capabilities have a direct effect on open Innovation(chesbrough; **2003**, Teece, **2017, 2020**). Based on these researches illustrated above, the fallowing hypothesis is adapted:

H_1: Dynamic Capability positively effects open Innovation.

3. Research Methodology :

3.1. Data Collection tool :

The purpose of the field study is to explore the relationship between DC and open innovation in the Algerian pharmaceutical company. For the purpose of testing the above stated hypotheses a questionnaire was designed, including an Innovation scale adapted from previous studies which have been used and validated for studies in Innovation management comprising 16 items. This questionnaire was tested in a pilot study on **20** managers in SAIDAL GROUP, and it was revised according to the feedback obtained from these 20 managers ant the experts of the group.

3.2. Data Analysis tool :

Data obtained through questionnaires was analyzed through the SPSS version **22.0** and AMOS version **22.0** SPSS was used to analyze the preliminary data, and AMOS for structural equation modeling (SEM) for the measurement model analysis and structural model to test the proposed hypothesized model. Selected statistical methods were employed to analyze data and achieve the research objectives.

3.3. Sample of the Study :

The revised version of the questionnaire was used in the field study which was conducted through **150** questionnaires distributed to the employees SAIDAL GROUP. This sample was derived from a population of **4000** employees. A total of **120** questionnaires were obtained and found to be valid for the analysis. This sample in total represents **03%** of the Algerian pharmaceutical company.

3.4. Characteristics of the Sample :

The answers to the questions mentioned in the survey questionnaire indicated that respondents represent :

- A variety of age categories.
- The majority of respondents have a university level (Bachelor, Master).
- Most of them are top and middle management because of the nature of the organization.
- Most of them have a long experience.

Table 2: Characteristics of the Sample

	Moyenne	Ecart Type	Variance
	Statistiques	Statistiques	Statistiques
Age	3.1417	.91022	.829
Niveau	4.0083	.49359	.244
Anciennete	3.5333	1.35308	1.831
Fonction	3.0833	.44122	.195

Source :SPSS 22

4. Results Of Structural Equation Modeling (SEM) :

The structural Equation modeling (SEM) is used to test the hypothesized causal relationships in the theoretical model by using AMOS **22.0**. The two-stage approach of SEM analysis (the measurement model and the structural model) recommended by (Hair el al **2010**) was adopted. In the measurement model (first stage), this analysis specifies the causal relationships between the observed variables and the underlying theoretical constructs by using confirmatory factor analysis (CFA). Following this, the structural model (second stage) was conducted to specify the causal relationships between the underlying exogenous constructs and endogenous constructs. Exogenous constructs included DCwhereas endogenous construct covered OI. Analyses and results of these two stages are further discussed next.

4.1. Confirmatory Factor Analysis.

The process of CFA to assess a latent constructs includes two steps:

4.1.1. Measurement Model:

The measurement model was measured by using the Maximum likelihood (ML) estimation techniques. Table **3** shows fit indices that assess the specification of the model. Results revealed that the values of some indices are not consistent with the recommended values of the fit indices, indicating the need for further refinement of the model.

Then, in order to improve the overall fit, the modification index (MI) is checked, which indicated high error covariance between Item (**O15**) and (**O16**) (MI) = **24.774**). So it is meaningful to reestimated with the covariance between erros of **O15** and **O16** (**e31** and **e32**) specified as a free parameter, refer to revised model **1**. Similarly, revised model **2** was reestimated with the covariance between erros of **O11** and **O12** (**e27** and **e28**, ML=**18.412**) specified as a free parameter. Then the model three was reestimated by using the

standardized residual values and modification indices. The Goodness-of-fit indices of revised model **3** in the fifth row of table **3** Show the statistics improvement and the acceptable model fit to data.

Table 3: GoognessOf Fit Indices For Measurement Model

Model	Initial	Revised Model(1)	Revised Model(2)	Revised Model(3)	Levels Of Acceptable Fit
N° of Observed Items					
X^2	344,98	147,910	16,206	19,08	
Df	27	14	08	13	
X^2/df	12,77	10,565	02,026	01,468	$01 < x^2/df < 03$
SRMR	00,03	00,041	00,014	00,01	$\leq 0{,}10$
RMSEA	00,31	00,284	00,093	00,06	$\leq 0{,}10$
GFI	01,630	00,748	00,963	00,965	$\geq 0{,}90$
AGFI	00,383	00,496	00,872	00,877	$\geq 0{,}90$
CFI	00,808	00,818	00,989	00,996	$\geq 0{,}90$
IFI	00,809	00,820	00,989	00,996	$\geq 0{,}90$
TLI	00,745	00,727	00,979	00,990	$\geq 0{,}90$
AIC	380,98	175,910	56,206	43,08	Lowest Possible
CAIC	449,15	228,934	131,956	104,28	Lowest Possible

Source :amos 22

4.1.2. Reliability And Validity Assessment Of The Measurement Model:

Following the identification of the reliability and the validity of the constructs were measured prior to testing the structural model. The reliability was assessed by using three types of reliability : Cranach's alpha, reliability for the composite of measures of a latent variable (CR) and average variance extract (AVE) from a set of measures of a latent variable.

The Validity was assessed by using convergent validity, discriminate validity and nomological validity.

The value of cranbach's Alpha for all constructs axceeded the suggested level of **0.70**(Hair, **2010**),[16]and the values of CR were quite high (greater than **0.60**) (Hair, **2010**). Similarly, the measures of AVE suggested satisfactory reliability (greater than **0.50**) (Hair, **2010**).

Therefore, as showed in table **4** Cranbach's Alpha, CR and AVE indicated an acceptable level for the reliability of underlying constructs.

As for validity, the convergent validity was supported by AVE of each factor is $' > 0.50'$. Also, discriminate validity was achieved because the AVE for each construct is higher than the square of correlations between it and any other constructs in the model (see Table **5**).

Finally, nomological validity was supported because the correlation between the constructs is positive and significant(see Table **6**).
Therefore, the results indicated that the validity of the model was well accepted.

Table 4 : Reliability And Convergent Validity Of Constructs

Construct	Items	Standarised	C.Aplpha	CR	AVE
DC	DC1 DC2 DC3 DC4 DC5 DC6 DC7 DC8 DC9	,816 ,895 ,943 ,772 ,921 ,903 ,992 ,880 ,779	,968	,953	,775
OI	OI1 OI2 OI3 OI4 OI5 OI6 OI7	,822 ,849 ,746 ,841 ,783 ,782 ,835	,976	,880	,654

Source :amoss 22

Table 5: AVE and the Square of Correlation for Discriminant Validity

	DC	OI
DC	,772[a]	
OI	,359	635[a]

Source :AMOSS 22

Note :[a]. Indicate average variance extraction, numbers below The diagonal represent the square of construct correlation.

Table 6: Correlation between Model Factors ForNomological Validity

	DC	OI
DC	1,000	
OI	,599	1,000

Source :AMOSS 22

Structure Model :

Following the validation and acceptable level of all constructs in measurement model, the structural model was conducted to examine the hypotheses and to specify the relationships among latent constructs in the research model.

4.1.1. Goodness-of-fit indices of structural model :

Goodness-of-fit indices and other parameter estimates were examined to assess the hypothesized structural model. The fit indices show that the hypothesized structural Model

provided acceptable fit with the data. The absolute fit measures and the incremental fit measures indicate goodness-of-fit the Model. Table **7**shows the goodness-of-fit statistics of the structural Model.

Table 7: Goodness Of Fit Indices For Structural Model

Model	Initial	Levels Of Acceptable Fit
N° OF Observed Items		
X^2	01,852	
Df	01	
X^2/df	01,852	$01 < x^2/df < 03$
SRMR	00,003	≤ 0,10
RMSEA	00,080	7 ≤ 0,10
GFI	00,992	≥ 0,90
AGFI	00,923	≥ 0,90
CFI	00,998	≥ 0,90
IFI	00,998	≥ 0,90
TLI	00,988	≥ 0,90
AIC	19,852	Lowest Possible
CAIC	53,939	Lowest Possible

4.2. Hypothesis testing :

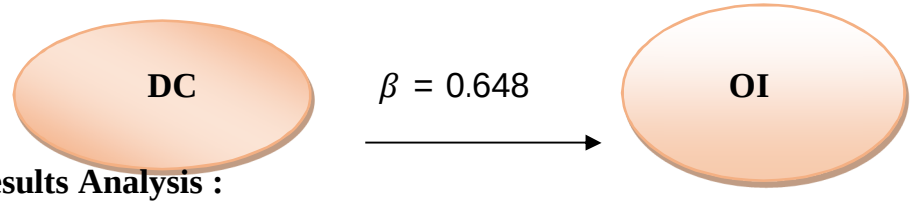
The results of testing the structural Model indicated that the hypothesized path is a positive and significant. The standardized estimate for hypothesis is statistically significant ant show support for the hypothesis.

Accordingly, hypothesis was accepted; these results are presented in table **8**.

Table 8: Results Of Hypothesis Testing

Hypotheses	Path	Path Coefficient	t-Value	Assessment
H1	DC ⟶ OI	,648	6.813***	Supported

Fig 4: (SEM) Specification and relevant Hypotheses



4.3. Results Analysis :

The Assessment of the validity, reliability and goodness-of-fit of the hypothesized Model of this study showed the following results:

- ✓ Confirmatory Factor Analysis (CFA) was conducted and the results showed that constructs used in the revised measurement Model three possessed reliability, convergent, discriminant and nomological validity.
- ✓ The structural Model Was assessed, the results revealed that the standardized estimate for Hypothesis, H1 is statistically significant and show support.
- ✓ The results demonstrated that DC has a strong and positive significant effect on OI ($\beta = 0.648$).

5. Conclusion

This study provides empirical evidence for the importance of DC on the process of open Innovation; it is supportive of many studies in the literature. The results show that this factor has a positive impact on the open Innovation. We reach conclusion as below :

- The results revealed strong support for Hypothesis H_1. This demonstrates that DC has a positive and significant effect on organizational Innovation. This results is consistent with the research (Teece, 2020).

Eventually, it could be argued that the main contributions to the current study are in :

- This study provided a new conceptual framework with a set of strong Overarching themes concerning the relationship between DC and open Innovation.
- This study is distinguished from the existing empirical work by providing a Model that examines the relationships between DC and OI in pharmaceutical industry.
- This study used sophisticated statistical tools (structural Equation Modeling with AMOS) in testing measurement and structural Models, which have been limited in previous literature.
- The findings give fruitful insights to managers, decision-makers inside SAIDAL GROUP.

Within the framework of the research findings, a number of Practical recommendations for decision-makers in Algerian pharmaceutical company can be made to ensure the role of dynamic capability in supporting open innovation, these are:

- The holistic view of dynamic capability and open innovation in the Corporation.
- Supporting the scientific research and innovation policies in the Corporation, monitoring the annual financial awards for employees given to the best creative idea during the year and allocation of an agreed percentage of the budget of the Corporation, to promote innovation and research.
- Creating work teams characterized by diversity and different point of views. The more diverse these groups are, the more they will gain insights and new ideas that contribute in creative thinking and open innovation.

6. Références

[1] -Barabel Michel, Meier Olivier Et Teboul Thierry, Les fondamentaux du management, Dunod, Paris,2008. P 63

[2] - ZhaiXiaofeng, "The Role of Human Resource Practices in Enhancing Employees' Behaviours and Organizational Learning in Chinese Construction Organizations", Doctoral Thesis Submitted in partial ,2010 .p 45

[3] -Chesbrough, H. W, Open innovation: A new paradigm for understanding industrial innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West (eds.) Open Innovation , 2006. P 25 .

[4] -Chesbrough, H. W, Open Innovation: The New Imperative for Creating and Profiting from Technology. Boston, MA: Harvard Business School Press, 2003. P37.

[5]-Chesbrough, H, Managing openInnovation. Research-Technology Management, 47(1), 23-26, 2004. P 24

[6] -Cornell Brent. T, "Open Innovation Strategies For Overcoming Competitive Challenges Facing Small And Mid-Sized Enterprises", Doctorat Thesis Of Management, Maryland University College ,2012. P18

[7] -ibid,p18.

[8] - Isckia, T. &Lescop, D, " Une analyse critique des fondements de l'innovation ouverte". Revue Française de Gestion, Vol 1(210), 87-98, 2011 .p 93

[9] -Bogers, M, "A beginner's guide to open innovation", Global Innovation Magazine, Vol 1(2), 4-8, 2014. P 6

[10] -Teece, D. J, Hand in glove: Open innovation and the dynamic capabilities framework. Strategic Management Review,1(2), 233–253 , 2020. P 243

[11]- Teece, D.J, Dynamic capabilities and entrepreneurial management in large organizations Toward a theory of the (entrepreneurial) firm. European Economic Review, 86 202–216. , 2016. p 205

[12] -Bogers, M., Chesbrough, H., Heaton, S., &Teece, D. J, Strategic management of open innovation: A dynamic capabilities perspective. California Management Review, 62(1) 77–94 ,2019. P 84

[13] -Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. Journal of Management & Organization, 24(3), 359-368, 2018. P 362

[14]- Teece, D. J, Business models and dynamic capabilities. Long Range Planning, 51(1), 40-49 , 2017. P 43

[15] -Hair Jr Joseph F, Black William C, Barry J. Babin, Anderson RolphE, Multi Variate Data Analyze, Pearson Prentice Hall, Seventh Edition. , 2010. p 66