

**The Impact of Market Sensing Capability and Organizational  
Connectedness on Knowledge Exploration and Exploitation in Algerian  
Electronic Industry- the Moderating Role of Competition Intensity - A  
PLS-SEM Approach.**

أثر قدرة الاستشعار السوقي والترابط التنظيمي على استكشاف واستغلال المعرفة في قطاع  
الصناعة الإلكترونية في الجزائر: الدور الوسيط لشدة المنافسة: مقارنة PLS-SEM

Riad AICHOUCHE \*

Oum El Bouaghi University, [riad.aichouche@univ-oeb.dz](mailto:riad.aichouche@univ-oeb.dz)

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Abstract

This study investigated the effect of market sensing capability and organizational connectedness on knowledge exploration and exploitation and the moderating role of competition intensity. This study tests the possible effects of the three processes of market sensing (sensing, sense-making, response) without ignoring the causal relationships between them and the direct and indirect effects of organizational connectedness on knowledge exploration and exploitation. The Sample size consists of 169 questionnaires from Condor company. To test the study hypotheses, we adopted structural equation modelling on related data using PLS-SEM approach. The study revealed that all direct effects are positive and significant except for the relationship between organizational connectedness, sensing and knowledge exploitation. Moreover, the study examined all possible indirect effects. Finally, the results found that the relationship between response and knowledge and exploitation is moderated by competition intensity.

**Keywords:** Market Sensing Capability; Organizational Connectedness; Knowledge Exploration and Exploitation; Competition intensity.

\* Corresponding Author

ملخص

تهدف هذه الدراسة في استكشاف أثر قدرة استشعار السوق والترابط التنظيمي على استكشاف واستغلال المعرفة والدور الوسيط لشدة المنافسة. تختبر هذه الدراسة الآثار المحتملة للعمليات الثلاث لاستشعار السوق (الاستشعار، صناعة المعنى، الاستجابة) دون تجاهل العلاقات السببية بينها والآثار المباشرة وغير المباشرة للترابط التنظيمي على استكشاف المعرفة واستغلالها. يتكون حجم العينة من 169 استبياناً من شركة كوندور. لاختبار فرضيات الدراسة، اعتمدنا نمذجة المعادلة الهيكلية على البيانات باستخدام نهج *PLS-SEM*. أوضحت الدراسة أن جميع التأثيرات المباشرة إيجابية ومعنوية باستثناء العلاقة بين الترابط التنظيمي والاستشعار والاستغلال المعرفي. علاوة على ذلك، فحصت الدراسة جميع الآثار غير المباشرة المحتملة. أخيراً، وجدت النتائج أن العلاقة بين الاستجابة والمعرفة والاستغلال يتم تعديلها من خلال شدة المنافسة.

الكلمات المفتاحية: قدرة استشعار سوقي، ترابط تنظيمي، استكشاف واستغلال معرفة، شدة منافسة.

## 1. INTRODUCTION

Dynamic abilities are essential in a today's constantly changing business environment. A firm's dynamic capabilities determine the speed and degree of resource alignment with customer needs and objectives, and the modern firms must be able to identify any potential new possibilities continuously, as well as to adapt its structure and culture to handle various threats and opportunities as they occur (Teece, 2018)

Market sensing as one of the organizational capabilities is a rapidly growing area of research in the market orientation literature (Olavarrieta & Friedmann, 1999) stated that sensing capability is one of organization's knowledge-related resources. Thus, it is considered an important intangible resource that influences superior performance and competitive advantage. In addition, market sensing enables firms to service their consumers better and upgrade industrial systems (Olavarrieta & Friedmann, 1999). Moreover, this ability is related to seeking and exploring new areas (Dias & Lages, 2021) and exploiting the existing ones. As a result, it is important to investigate the relationship between sensing capacity and knowledge exploration or exploitation.

Furthermore, Organizational connectedness and the ability to coordinate and reset are part of the dynamic capabilities that help organizations respond quickly to various changes. Popadiuk and Bido (2016) stated that connectedness is beneficial to the development of trust and collaboration among individuals. In addition, it enables employees to have a thorough grasp of modifications and enhancements to products, processes, and current markets. Therefore, some studies showed that organization connectedness can be a crucial dynamic capability and it has a relationship with knowledge exploration and exploitation.

In terms of added value, this study adds to the existing literature by proposing a model for investigating the impact of both the effect of market sensing capability and organizational connectedness on knowledge exploration and exploitation as well as the moderating role of competition intensity. This paper is structured as follow. The second section deals with a literature overview and a theoretical framework that includes hypothesis development. The third section describes the part of data collection and the measurement and structural model tests, the fourth section presents the study results. The final section contains the discussion, limits, conclusion and future research propositions.

## **2. Literature review and Hypothesis Development**

### **2.1 Market sensing capability.**

(Day, 1994) stated that market sensing includes collecting, interpreting, and using market information. Thus, market sensing entails gathering critical data that may subsequently be utilized to build appropriate strategies for effectively responding to dynamic and constantly changing market circumstances. Market sensing capability also assists organizations in identifying market possibilities before their rivals (Adel Saleh M & Aimin, 2015). As a result, market capacity is comprised of three fundamental elements (**Sensing, Sense-Making, Response**). In order to evidently demonstrate the effect of market sensing capability on knowledge exploration or exploitation. This study tests the possible effects of the three processes of market sensing (sensing, sense-making, response), without ignoring the causal relationships. For example (Day, 2002; Lindblom, 2008)

#### **2.1.1 Sensing**

Sensing is the process used to collect information about customers, rivals, and any other important force in an organization environment (Lindblom, 2008).

#### **2.1.2 Sense-Making:**

According to Schoemaker and Day (2009) sense-making refers to the interpretation of information, and it is more closely associated with "weak signals". This is a challenging aspect that takes an excessive amount of time. Therefore, it is crucial to understand changing market opportunities and trends better before they are fully evolved. This type of knowledge is regarded critical in the firm's operations, particularly where market and industry trends are more likely to shift and market prospects may alter on a continuous basis (Adel Saleh M & Aimin, 2015).

#### **2.1.3 Response:**

In the response phase, we are dealing with the action part. The response is when we use collected and explained information to make suitable decisions (Lindblom, 2008). This is an important step since it reflects the quality of the last two phases.

### **2.2 Knowledge exploration and knowledge exploitation:**

Every organization strives to balance exploration and exploitation. Because it is important to select effectively among best routines, practices and forms.

But also, it is essential to look for new alternative ones, particularly in high competition markets (March, 1991). Specifically, Popadiuk noted that about 37% of the studied organizations have no specific orientation of being explorers or exploiters, and 40.3% are ambidextrous. (Popadiuk, 2012). Therefore, the competency trap occurs without a harmonious arrangement between the two types. When an organization focuses more on the current core competencies, although there is a need for other appropriate competencies or strategies, that is, an excessive focus on exploitation, the organization falls into the trap of competency (Type I). When organizations are affected by excessive focus on innovation, they fall into the trap of excessive exploration (competency trap type 2) (Liu, 2006).

### **2.3 Market sensing capability and Knowledge Exploration**

Through environmental sensors, the organizations are trying to look for future markets and competition, especially by searching and interpretation of weak signals and making proactive responses. Market sensing is a critical part of learning (learning about competitors, consumers...). It is not market research or collecting and interpreting market data (Ardayan, 2016). Additionally, organizational learning is more about developing new knowledge. Furthermore, through market sensing capability, over time, organizations may constantly enhance their knowledge of and experience with their clients and decreasing the cost by understanding their needs (Adel Saleh M, 2014). Hence,

*H1: Market-sensing capability has a positive and significant impact on knowledge exploration.*

### **2.4 Market Sensing and Knowledge Exploitation**

When organizations focus on exploitation, they deal more with existing knowledge, primarily implicit. Thus, the focal point here is not unprecedented innovations but improving the actual situation and ensuring continuity (Popadiuk & Bido, 2016). However, market sensing reveals a failure to fully leverage the actual organization capabilities in some cases, which leads us to the second hypothesis.

*H2: Market-sensing capability has a positive and significant impact on knowledge exploitation.*

### **2.5 Organizational connectedness, knowledge exploration and exploitation:**

Jaworski and Kohli (1993) argued that connectedness is one of the market orientation antecedents related to interdepartmental dynamics, which refers to the degree of interaction (formal and informal) between the different organization parts. For Popadiuk and Bido (2016) this term comprises of successful "cross-functional teams", strong enough to overcome the organization's diverse thinking ways or sub-cultures, or the essential coordination within the organization to assure cross-functional team members' conflicts. Popadiuk and Bido (2016) also concluded that there is a positive impact of organizational connectedness on both exploration and exploitation (Popadiuk & Bido, 2016); these results were against the hypothesis concerning exploration.

*H3: Organizational connectedness has a positive and significant impact on knowledge exploration.*

*H4: Organizational connectedness has a positive and significant impact on knowledge exploitation.*

It is also expected that the sense-making variable will play a mediating role for the impact of organizational connectedness on exploration or exploitation. Individuals make shared meaning about significant organizational issues and then focus on either exploring new trends or exploiting existing capabilities or knowledge. Thus:

*H5: Sense-making significantly mediates the relationship between organizational connectedness and knowledge exploration or exploitation.*

### **2.6 Moderation role of competition intensity:**

Competition intensity is a vital characteristic in emerging economies (Ju & Zhao, 2009). This term attempts to measure the impact an organization has on other organizations' survival (Ju & Zhao, 2009). The effect of competitive intensity can be illustrated in the number of rivals and the competition fields (Jansen, Van Den Bosch, & Volberda, 2006). With low competition intensity, an organization (even if it is not a market oriented) may generally work because the clients don't have too many choices (Jaworski & Kohli, 1993). Thus, a certain level of market pressure is required for an organization to explore knowledge (to accept the risk) according to the Schumpeterian view (Arvanitis & Woerter, 2015). In addition, knowledge exploration activities are expensive and increasing the price. Mainly,

competition makes organizations more likely to exploit.(Arvanitis & Woerter, 2015). Thus, competition is more about rare and distinctive resources in hypercompetitive environments. Therefore, the competitive intensity increased in highly competitive markets. This situation reduces the capability of predicting and anticipating future market trend. Accordingly, unsteady environmental conditions generate more pressure and efforts in strategic level. Therefore, the suggested hypotheses are as follows:

H6. *Competitive intensity significantly moderates the relationship between market sensing capability and knowledge exploitation.*

H7. *Competitive intensity cannot moderate the relationship between market sensing capability and knowledge exploration*

The following figure represents the theoretical model of the study.

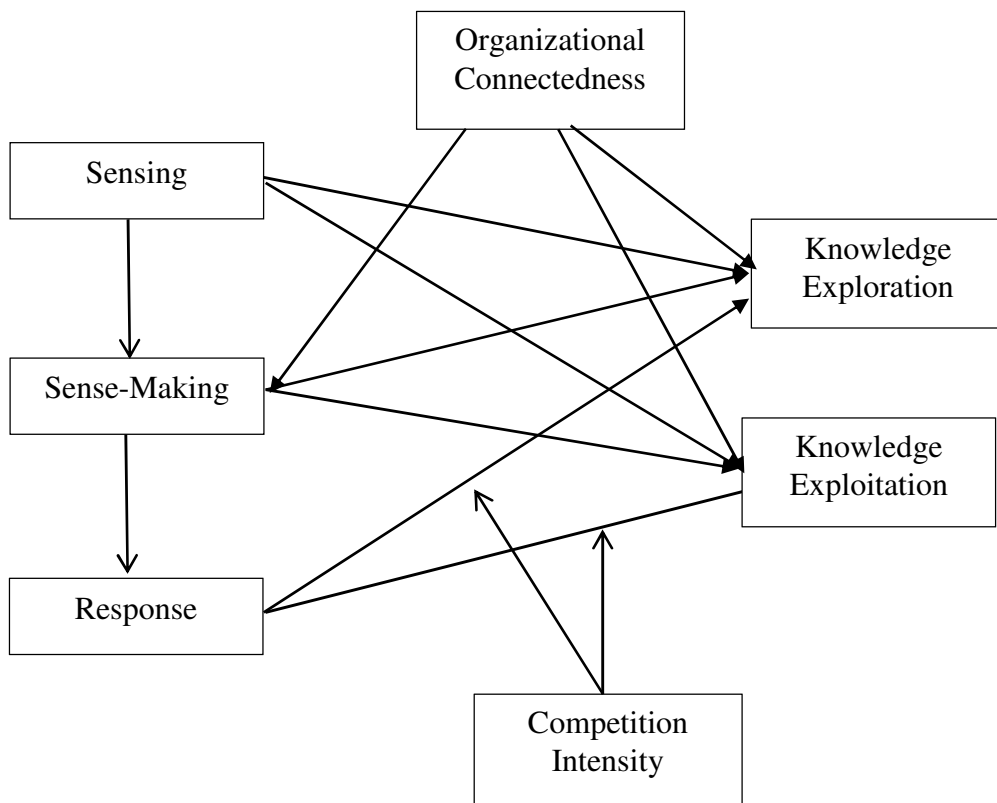


Figure 1. Research Framework

### 3. Research method

#### 3.1 Data Collection and Analysis approach

PLS-SEM is a preferred technic in social sciences studies because it can deal with complex models. Moreover, with correct application, it is considered a "safety buoy" in some difficult research situations.(Hair Jr, Hult, Ringle, & Sarstedt, 2016) (Akter, Fosso Wamba, & Dewan, 2017). This study was supported by 169 responses from the managers of Condor company located in Bordj Bou Arreridj, whereas this Wilaya comprises the most prominent enterprises involved in the electronic industries, such as Condor, Geant, and others.

When there are specific difficulties in the data, it is well-known to utilize the method of PLS-SEM to test a hypothesis since the assumptions of CB-SEM are not always met. (Hair Jr et al., 2016)

#### 3.2 Measures

In this study, the developed questionnaire is based on the previous studies. A scale of a seven-point Likert-scale is used to measure the study variables (1- strongly disagree, 7- strongly agree). All study variables are reflective constructs. The following table presents the source for each construct.

Table 1. study variables measuring

| Construct                    | Reflective or formative | source  |
|------------------------------|-------------------------|---|
| Exploration                  | Reflective              | (Jansen et al., 2006; Popadiuk & Bido, 2016)      |
| Exploitation                 | Reflective              | (Jansen et al., 2006; Popadiuk & Bido, 2016)      |
| Organizational connectedness | Reflective              | (Jaworski & Kohli, 1993; Popadiuk & Bido, 2016)   |
| Competition intensity        | Reflective              | (Auh & Menguc, 2005)                              |
| sensing                      | Reflective              | (Ahmed & et al., 2017; Day, 1994; Lindblom, 2008) |
| sense making                 | Reflective              | (Ahmed & et al., 2017; Day, 1994; Lindblom, 2008) |
| response                     | Reflective              | (Ahmed & et al., 2017; Day, 1994; Lindblom, 2008) |

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Market sensing  
capability

Reflective

(Ali, Spillan, & DeShields Jr,  
2005; Day, 1994)

### ***3.3 Measurement model tests***

In SEM, measurement or outer model assessment is a critical part. SEM based research must provide a supporting argument to justify the appropriateness of items or constructs inclusion in the model.

Following the guideline of (Hair, Sarstedt, Ringle, & Mena, 2012) there is a difference between the evaluation of reflective and informative models. The reflective model assessment includes internal consistency reliability, convergent and discriminant validity, while internal consistency is not suitable for formative models' assessment. As all constructs of the proposed model are reflective ones, the following discussion deals with the three assessment elements.

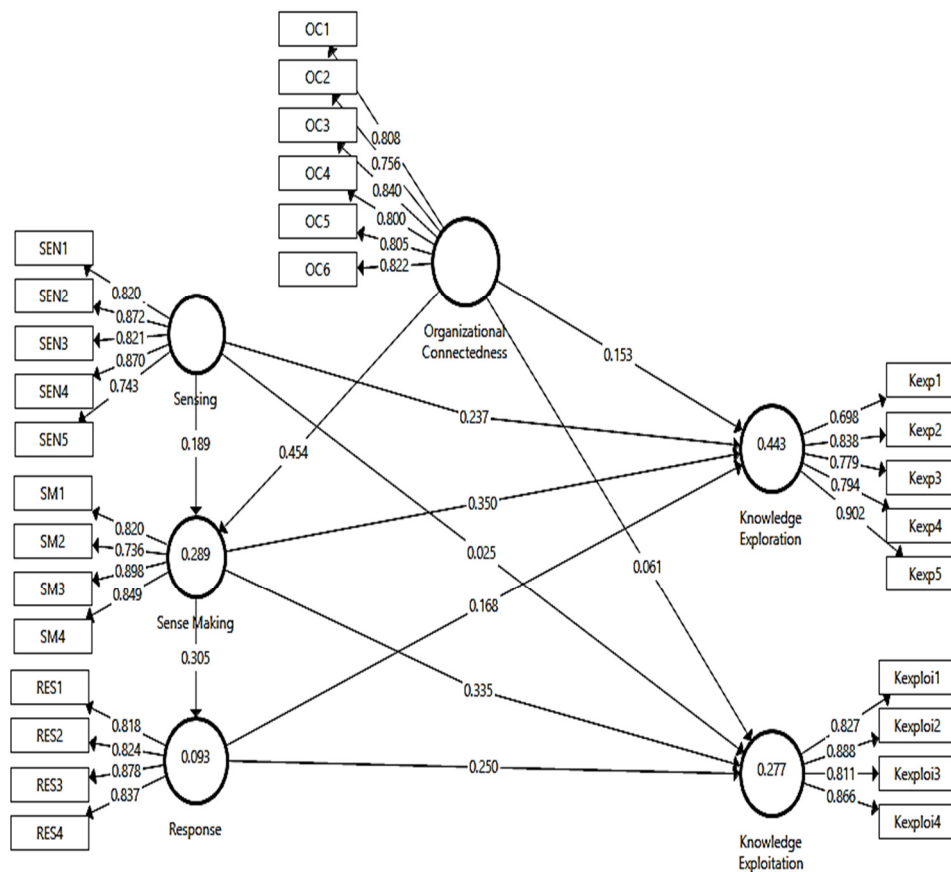


Figure 2. Study model results using Smart PIs

### 3.4 Internal Consistency Reliability and Convergent Validity

The most commonly used index to assess the internal consistency reliability is Cronbach's Alpha of Nunnally (1978). Usually, a value above 0.70 indicates that the measurement model is reliable. However, the value of composite reliability (CR) is a more appropriate alternative due to Cronbach's Alpha limitations (Afthanorhan, 2014; Hair Jr et al., 2016). As can be seen, all Cronbach's alpha coefficients are above the threshold of (0.70), and CR coefficients are above 0.70 and below (0.95). Thus, the results confirm the internal consistency reliability.

Table 2. Construct Reliability and Validity

|                              | Cronbach's Alpha | CR    | AVE   |
|------------------------------|------------------|-------|-------|
| Knowledge Exploitation       | 0.872            | 0.911 | 0.720 |
| Knowledge Exploration        | 0.862            | 0.901 | 0.648 |
| Organizational Connectedness | 0.892            | 0.917 | 0.649 |
| Response                     | 0.861            | 0.905 | 0.705 |
| Sense Making                 | 0.847            | 0.897 | 0.685 |
| Sensing                      | 0.883            | 0.915 | 0.683 |
| competition intensity        | 0.844            | 0.893 | 0.677 |

Also, each construct's AVE coefficients are similarly above 0.70 as threshold.

### 3.5 Discriminant validity

According to (Hair Jr et al., 2016) discriminant validity refers to the degree that a latent variable is empirically different from other latent variables. Firstly, we need to check the cross-loading table. As well known, the factor loading indicators of any construct should be higher than those of other latent constructs. As illustrated from the table, factors are loaded more on their respective constructs. Also, all factors' loadings are significant at  $p \leq 0.05$ .

Table.3 Discriminant Validity- Cross Loading

|         | Knowledge Exploitation | Knowledge Exploration | Response | Sense Making | Sensing | Organizational Connectedness | competition intensity |
|---------|------------------------|-----------------------|----------|--------------|---------|------------------------------|-----------------------|
| Kexp1   | 0.698                  |                       |          |              |         |                              |                       |
| Kexp2   | 0.838                  |                       |          |              |         |                              |                       |
| Kexp3   | 0.779                  |                       |          |              |         |                              |                       |
| Kexp4   | 0.794                  |                       |          |              |         |                              |                       |
| Kexp5   | 0.902                  |                       |          |              |         |                              |                       |
| Kexplo1 |                        | 0.827                 |          |              |         |                              |                       |
| Kexplo2 |                        | 0.888                 |          |              |         |                              |                       |
| Kexplo3 |                        | 0.811                 |          |              |         |                              |                       |
| Kexplo4 |                        | 0.866                 |          |              |         |                              |                       |

|      |       |
|------|-------|
| RES1 | 0.818 |
| RES2 | 0.824 |
| RES3 | 0.878 |
| RES4 | 0.837 |
| SEN1 | 0.820 |
| SEN2 | 0.872 |
| SEN3 | 0.821 |
| SEN4 | 0.870 |
| SEN5 | 0.743 |
| SM1  | 0.820 |
| SM2  | 0.736 |
| SM3  | 0.898 |
| SM4  | 0.849 |
| OC1  | 0.808 |
| OC2  | 0.756 |
| OC3  | 0.840 |
| OC4  | 0.800 |
| OC5  | 0.805 |
| OC6  | 0.822 |
| CI1  | 0.816 |
| CI2  | 0.775 |
| CI3  | 0.875 |
| CI4  | 0.822 |

Secondly, another important criterion in discriminant validity must be established is Fornell-Larcker criterion, which entails that the square root of the AVE of any latent variable must be higher than the correlation coefficient with other latent constructs (Hair Jr et al., 2016). This implies that any latent variable explains its own variance better than the variance of other latent variables (Ab Hamid, Sami, & Sidek, 2017).

*Table 4. Latent Variable Correlations (Fornell-Larcker criterion)*

|                                 | Knowledge<br>Exploitation | Knowledge<br>Exploration | Organizational<br>Connectedness | Response | Sense<br>Making | Sensing | Competition<br>intensity |
|---------------------------------|---------------------------|--------------------------|---------------------------------|----------|-----------------|---------|--------------------------|
| Exploitation                    | <b>0.849</b>              |                          |                                 |          |                 |         |                          |
| Exploration                     | 0.449                     | <b>0.805</b>             |                                 |          |                 |         |                          |
| Organizational<br>Connectedness | 0.367                     | 0.485                    | <b>0.805</b>                    |          |                 |         |                          |

|                       |       |       |       |              |              |              |              |
|-----------------------|-------|-------|-------|--------------|--------------|--------------|--------------|
| Response              | 0.389 | 0.425 | 0.535 | <b>0.840</b> |              |              |              |
| Sense Making          | 0.448 | 0.553 | 0.506 | 0.305        | <b>0.828</b> |              |              |
| Sensing               | 0.219 | 0.437 | 0.275 | 0.286        | 0.314        | <b>0.827</b> |              |
| Competition intensity | 0.365 | 0.285 | 0.314 | 0.274        | 0.278        | 0.404        | <b>0.823</b> |

### 3.6 Structural model Evaluation

After confirming the reliability and validity of the model constructs, the following known step is structural or inner model assessment. Because the study's data is obtained using a questionnaire that depended on the same scale (7 points likert scale); the problem of method common bias (CMB) might occur. For that reason, it might impact some assumed relations in the SEM-PLS model. The variance obtained here is not imputable to the model constructs but to the measurement method (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). (Kock, 2015) suggested a threshold of 3.3 for VIF values. As illustrated from Table 5, all VIF values are lower than (3.3)

Table 5. Collinearity Assessment for Inner model: VIF values

|                       | Knowledge Exploitation | Knowledge Exploration | Sense Making |
|-----------------------|------------------------|-----------------------|--------------|
| Connectedness         | 1.741                  | 1.741                 | 1.082        |
| Response              | 1.451                  | 1.451                 |              |
| Sense Making          | 1.415                  | 1.415                 |              |
| Sensing               | 1.291                  | 1.291                 | 1.082        |
| competition intensity | 1.278                  | 1.278                 |              |

unlike the CB- SEM, PLS-SEM misses the goodness of fit indices to evaluate overall model fit.

$R^2$  is widely used as a criterion to evaluate the structural model in PLS-SEM (Hair Jr et al., 2016). There is no generally acknowledged rule about the minimum accepted level of  $R^2$ . According to (Hair Jr et al., 2016) that depends on the model complexity and research context. They suggested that  $R^2$  values of 0.75, 0.50, or 0.25 are considered substantial, moderate, and weak respectively. Moreover, (Cohen, 1988) proposed the values of 0.67, 0.33, and 0.19. In addition, 10% as a minimum accepted level of  $R^2$  suggested by (Falk & Miller, 1992) is widely mentioned in the studies.

Table 6. R-Square of the Endogenous Latent Variables

| Constructs Relation | $R^2$ | Result |
|---------------------|-------|--------|
|---------------------|-------|--------|

|                               |       |          |
|-------------------------------|-------|----------|
| <i>Knowledge Exploitation</i> | 0.277 | Moderate |
| <i>Knowledge Exploration</i>  | 0.443 | Moderate |
| <i>Response</i>               | 0.093 | Weak     |
| <i>Sense Making</i>           | 0.289 | Moderate |

Another recommended test of the structural model is effect size ( $f^2$ ). This test is used to evaluate the change in  $R^2$  value when an exogenous construct is excluded from the model (Hair Jr et al., 2016). Reporting this test is recommended besides  $R^2$  to evaluate the magnitude of the relationships between variables. That helps to demonstrate and determine the overall contribution of the research (do Nascimento & da Silva Macedo, 2016). (Cohen, 1988) suggested the values of 0.02, 0.15, and 0.35 as a small, medium, and large effect size, respectively. It is concluded that the effect size varies between very small and medium depending on the dependent variable.

Table 7. effect size ( $f^2$ ).

|                              | Knowledge Exploitation | Knowledge Exploration | Response | Sense Making |
|------------------------------|------------------------|-----------------------|----------|--------------|
| Organizational Connectedness | 0.003                  | 0.024                 |          | 0.268        |
| Response                     | 0.060                  | 0.035                 |          |              |
| Sense Making                 | 0.111                  | 0.156                 | 0.103    |              |
| Sensing                      | 0.001                  | 0.087                 |          | 0.046        |

After reporting the assessment of  $R^2$  and  $f^2$ , it is important to consider the value of Stone-Geisser's  $Q^2$  (validated redundancy measures). According to (Hair Jr et al., 2016)  $Q^2$  values larger than zero for endogenous latent variable signify its predictive relevance. Consequently, as all  $Q^2$  values are above zero, we do not have a problem with the predictive relevance of endogenous latent variables.

Table 8. Stone-Geisser's  $Q^2$

|                              | SSO       | SSE       | $Q^2 (=1-SSE/SSO)$ |
|------------------------------|-----------|-----------|--------------------|
| Knowledge Exploitation       | 676.000   | 558.813   | 0.173              |
| Knowledge Exploration        | 845.000   | 621.987   | 0.264              |
| Organizational Connectedness | 1,014.000 | 1,014.000 |                    |
| Response                     | 676.000   | 634.602   | 0.061              |

|              |         |         |       |
|--------------|---------|---------|-------|
| Sense Making | 676.000 | 557.290 | 0.176 |
| Sensing      | 845.000 | 845.000 |       |

Ringle (2016) proposed a threshold of 0.10 (do Nascimento & da Silva Macedo, 2016). Therefore, the value of SRMR of the estimated model is 0.10, which indicates the goodness of the overall model fit.

*Table 9. SRMR Values*

|            | Saturated Model | Estimated Model |
|------------|-----------------|-----------------|
| SRMR       | 0.069           | 0.102           |
| d_ ULS     | 1.909           | 4.224           |
| d_ G       | 0.826           | 0.897           |
| Chi-Square | 777.598         | 810.108         |
| NFI        | 0.756           | 0.745           |

#### 4. Study results

To test the significance of PLS relationships, we need to use one of the resampling methods like the bootstrap since we do not know the distribution of PLS (Garson, 2016). The statistical significance is achieved after computing the path estimates using SmartPLS bootstrapping. Table 10 demonstrates the results.

*Table 10 Path Coefficients of Research Hypotheses*

| Relationship   | Original Sample (O) | Sample Mean (M) | (STDEV)      | ( O/STDEV)   | P Values         |
|--|---------------------|-----------------|--------------|--------------|------------------|
| Organizational Connectedness -> Knowledge Exploitation | <b>0.061</b>        | <b>0.070</b>    | <b>0.086</b> | <b>0.700</b> | <b>0.485(NS)</b> |
| Organizational Connectedness -> Knowledge Exploration  | <b>0.153</b>        | <b>0.152</b>    | <b>0.073</b> | <b>2.081</b> | <b>0.038*</b>    |
| Organizational Connectedness -> Sense Making           | <b>0.454</b>        | <b>0.458</b>    | <b>0.061</b> | <b>7.447</b> | <b>0.000**</b>   |
| Response -> Knowledge Exploitation                     | <b>0.250</b>        | <b>0.250</b>    | <b>0.084</b> | <b>2.960</b> | <b>0.003**</b>   |
| Response -> Knowledge Exploration                      | <b>0.168</b>        | <b>0.171</b>    | <b>0.061</b> | <b>2.766</b> | <b>0.006**</b>   |
| Sense Making -> Knowledge Exploitation                 | <b>0.335</b>        | <b>0.338</b>    | <b>0.070</b> | <b>4.766</b> | <b>0.000**</b>   |
| Sense Making -> Knowledge Exploration                  | <b>0.350</b>        | <b>0.347</b>    | <b>0.072</b> | <b>4.834</b> | <b>0.000**</b>   |
| Sense Making -> Response                               | <b>0.305</b>        | <b>0.310</b>    | <b>0.070</b> | <b>4.362</b> | <b>0.000**</b>   |

|                                      |              |              |              |              |                  |
|--------------------------------------|--------------|--------------|--------------|--------------|------------------|
| Sensing -> Knowledge<br>Exploitation | <b>0.025</b> | <b>0.026</b> | <b>0.074</b> | <b>0.344</b> | <b>0.731(NS)</b> |
| Sensing -> Knowledge<br>Exploration  | <b>0.237</b> | <b>0.238</b> | <b>0.061</b> | <b>3.914</b> | <b>0.000**</b>   |
| Sensing -> Sense Making              | <b>0.189</b> | <b>0.192</b> | <b>0.065</b> | <b>2.888</b> | <b>0.004**</b>   |

Significant at P\*\*\* = < 0.01, p\* < 0.05 ; NS(not significant)

As can be noticed, most of the relationships established in the proposed research model are confirmed, whereas two of the relationships are not significant.

Since the total effects are greater than the direct effects, the indirect effects of the model should be studied

*Table 11. Mediation results*

|   | Direct effect | Indirect effect | Result               |
|---|---------------|-----------------|----------------------|
| Organizational<br>Connectedness -> Sense<br>Making -> Knowledge<br>Exploration  | 0.153**       | 0.159***        | Partial<br>mediation |
| Organizational<br>connectedness -> Sense<br>Making -> Knowledge<br>Exploitation | 0.0615(NS)    | 0.152***        | Full Mediation       |

Note: NS = not significant. \*\*\* p < 0,01, \*\* p < 0,05, \*

Concerning the effect of the moderation variable, we need to extend the previous model. Notably, the competition intensity is introduced as a moderator variable that can be supposed to have a negative impact on the relationship between response and knowledge exploration and exploitation. More specifically, for a higher level of competition intensity, the lower the relationship between response and exploitation and vice versa.

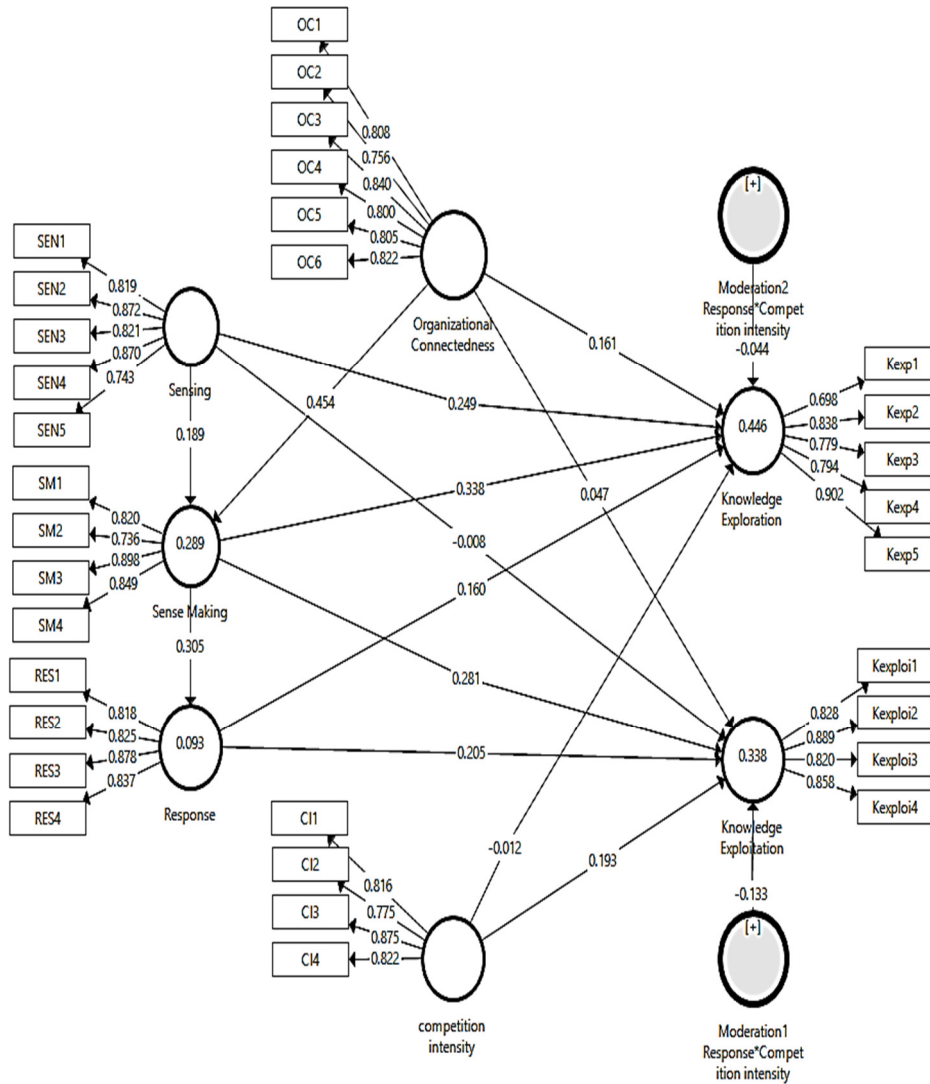


Figure 3. PLS-SEM Model with moderating effect of competition intensity

The coefficient of the moderation variable is negative (-0.133), while the coefficient of the relationship between response and exploitation is (0.205). Thus, with a lower level of competition intensity, the relationship coefficient between response and exploitation increased to become (0.205+0.133=0.338). Figure 4 illustrates that competition intensity dampens the positive relationship between response and knowledge

exploitation. The P-value of the moderation variable coefficient is 0.018, which indicates the significance of the interaction effect. the simple slopes plot

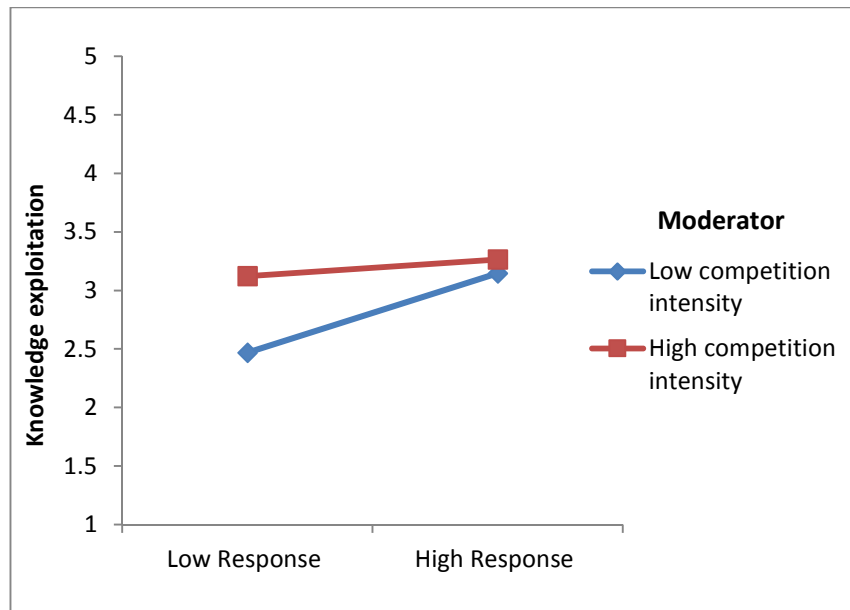


Figure 4. Simple slopes plot for the moderation of competition intensity

##### 5. Discussion, conclusion and study limitations

The purpose of our study was to explore the relationship between market sensing capabilities and organizational connectedness on knowledge exploration and exploitation and the moderating influence of competition intensity.

The study finding supports most of the research hypotheses. First, market-sensing capability has a positive and significant impact on knowledge exploration since all dimensions (sensing P Values < 0.001, sense-making P Values < 0.001, response P Values < 0.01) have a positive effect. This finding is comparable to those obtained by prior research. For instance, Keskin (2006) found that market-oriented firms are more likely to be creative, and the greater an organization's aptitude to understand the market, the better and more successful it is at being creative. Second, H2 Market-sensing capability has a positive and significant impact on knowledge exploitation is partially accepted since that sensing has an insignificant impact (P

Values=0.731); this can be explained that sensing depends more on exploration and on detecting weak signals that express unexpected trends and also searching for patterns of change in the business environment. It is expected to focus more on exploring knowledge. Third, H3 is also supported. The study result revealed that organizational connectedness has a positive and significant impact on knowledge exploration. While H4 is not accepted (P Values=0.485), organizational connectedness has an insignificant impact on knowledge exploitation. We found that this impact is totally mediated (full mediation) through another variable (sense-making), leading to accepting H5. These findings reflect the difficulty managing market capacity. According to (Day, 2002), mastery of all activities related to the market sensing process is exceptional. Thus, the firms must make the necessary efforts to reduce the disabilities associated with those activities and learn more about rapidly changing and volatile markets. Forth, the moderation analysis indicates that competitive intensity only moderates the relationship between market sensing capability and knowledge exploitation. Some studies have shown that the trend toward exploration when an aggressive competition characterizes the business environment can be perilous (Jansen et al., 2006). However, Jansen et al. (2006) concluded that intense competition positively moderates the relationship between exploitation and financial performance. Their justification for this is that organizations typically react based on current products and services (improvement or adjustment) and reinforce the performance of organizational units.

However, the findings of this research should be regarded with caution due to some limitations. For instance, the current investigation is limited to a single industrial sector. As a result, the research conclusions have limited applicability outside of the study's specific industrial environment.

#### *REFERENCES*

- Ab Hamid, M., Sami, W., & Sidek, M. M. (2017). *Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion*. Paper presented at the Journal of Physics: Conference Series.
- Adel Saleh M, A. (2014). The Role of Marketing Capabilities in Firm's Success. *The International Journal of Management Science and*

- Business Administration*, 2(1), 57-64. doi:10.18775/ijmsba.1849-5664-5419.2014.21.1006
- Adel Saleh M, A., & Aimin, W. (2015). Building Marketing Capabilities as a Way to Form a Better Global Marketing Strategy. *Journal of International Business Research and Marketing*, 1(4), 22-26. doi:10.18775/jibrm.1849-8558.2015.14.3003
- Afthanorhan, W. (2014). Hierarchical component using reflective-formative measurement model in partial least square structural equation modeling (Pls-Sem). *International Journal of Mathematics*, 2(2), 33-49.
- Ahmed, & et al. (2017). Market sensing, innovation capability and market performance: The moderating role of internal information dissemination. *International Journal of ADVANCED AND APPLIED SCIENCES*, 4(8), 56-67. doi:10.21833/ijaas.2017.08.009
- Akter, S., Fosso Wamba, S., & Dewan, S. (2017). Why PLS-SEM is suitable for complex modelling? An empirical illustration in big data analytics quality. *Production Planning & Control*, 28(11-12), 1011-1021.
- Ali, K., Spillan, J. E., & DeShields Jr, O. W. (2005). The effect of a market orientation on business performance: A study of small-sized service retailers using MARKOR scale. *Journal of Small Business Management*, 43(2), 105.
- Ardyan, E. (2016). Market sensing capability and SMEs performance: The mediating role of product innovativeness success. *DLSU Business & Economics Review*, 25(2), 79-97.
- Arvanitis, S., & Woerter, M. (2015). Exploration or exploitation of knowledge from universities: does it make a difference? *Economics of Innovation and New Technology*, 24(6), 596-623.
- Auh, S., & Menguc, B. (2005). Balancing exploration and exploitation: The moderating role of competitive intensity. *Journal of business research*, 58(12), 1652-1661.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*, (L. Erlbaum Associates, Hillsdale, NJ). In: Erlbaum Associates Hillsdale, NJ.
- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of marketing*, 58(4), 37-52.
- Day, G. S. (2002). Managing the market learning process. *Journal of business & industrial marketing*, 17(4), 240-252.

- Dias, A. L., & Lages, L. F. (2021). Measuring market-sensing capabilities for new product development success. *Journal of Small Business and Enterprise Development*.
- do Nascimento, J. C. H. B., & da Silva Macedo, M. A. (2016). Structural Equation Models using Partial Least Squares: an Example of the Application of SmartPLS® in Accounting Research. *Revista de Educação e Pesquisa em Contabilidade*, 10(3).
- Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*: University of Akron Press.
- Garson, G. D. (2016). Partial least squares: Regression and structural equation models. *Asheboro, NC: Statistical Associates Publishers*.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the academy of marketing science*, 40(3), 414-433.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.
- Jansen, J. J., Van Den Bosch, F. A., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management science*, 52(11), 1661-1674.
- Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: antecedents and consequences. *Journal of marketing*, 57(3), 53-70.
- Ju, M., & Zhao, H. (2009). Behind organizational slack and firm performance in China: The moderating roles of ownership and competitive intensity. *Asia Pacific Journal of Management*, 26(4), 701-717. doi:10.1007/s10490-009-9148-1
- Keskin, H. (2006). Market orientation, learning orientation, and innovation capabilities in SMEs: An extended model. *European Journal of innovation management*, 9(4), 396-417.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (IJeC)*, 11(4), 1-10.
- Lindblom, A. T., Olkkonen, R. M., Mitronen, L., & Kajalo, S. (2008). Market-Sensing Capability and Business Performance of Retail Entrepreneurs. *Contemporary Management Research*, 4(3).

- Liu, W. (2006). Knowledge exploitation, knowledge exploration, and competency trap. *Knowledge and Process Management*, 13(3), 144-161.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organisation science*, 2(1), 71-87.
- Olavarrieta, S., & Friedmann, R. (1999). Market-oriented culture, knowledge-related resources, reputational assets and superior performance: a conceptual framework. *Journal of Strategic Marketing*, 7(4), 215-228. doi:10.1080/096525499346332
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879.
- Popadiuk, S. (2012). Scale for classifying organizations as explorers, exploiters or ambidextrous. *International Journal of Information Management*, 32(1), 75-87.
- Popadiuk, S., & Bido, D. d. S. (2016). Exploration, exploitation, and organizational coordination mechanisms. *Revista de Administração Contemporânea*, 20(2), 238-260.
- Schoemaker, P. J., & Day, G. S. (2009). How to make sense of weak signals. *Leading Organizations: Perspectives for a New Era*, 2, 37-47.
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40-49.