

THE IMPACT OF DYNAMIC CAPABILITIES ON INSTITUTIONAL MATURITY VIA CMMI

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ABSTRACT

Purpose: the ultimate aim of this paper is to highlight the impact of dynamic capabilities on institutional maturity at the NGOs in the southern Palestinian Governates.

Methodology: This paper was completed using a structured survey and the descriptive analytical approach. We targeted NGOs in the southern Palestinian governates with a capital of more than 2 million shekels, an age of organization is more than 15 years, and a staff of more than 30 people. To carry out this research, a stratified random sample of 346 employees with administrative tasks and responsibilities was chosen. The selected organization has a different field of work, Health, and Rehabilitation, Education, Social Development, Culture Women's affairs, Youth and sport, and Endowment. SPSS version 26 was used to analyze the collected data.

Finding: the outcome of the research is twofold. the result revealed three types of dynamic capabilities for the maturity of the organization through the CMMI, reconfiguration capabilities namely sensing, seizing, and reconfiguration capabilities. CMMI helps to standardize the organization's process to better performance operation. Dynamic capabilities have a positive effect on institutional maturity at the targeted NGOs in the Southern Palestinian Governates.

Practical implications: The findings have practical significance and draw managerial focus on the importance of (1) investing DCs, (2) CMMI e as significant factors in increasing institutional maturity

Keywords: Dynamic capabilities, Institutional maturity, CMMI

1.0 INTRODUCTION

Continuous environmental conditions, such as technological innovation, new regulations, and business trends, generate new business opportunities while potentially rendering existing strategies outmoded (Rialti et al.,2019). Furthermore, organizations will eventually respond to changes anytime their performance is impeded, and it's always expected that organizations will do something to defend their current market position (Buzzao, & Rizzi,2021). Over the last few decades, the dynamic capabilities (DCs) perspective has emerged as one of the most vibrant methods for strategic management. Whereas an increasing number of studies have

argued that, given the growing importance of strategic management, organizations should integrate business models into their organizational processes (Fabrizio et al.,2022).

In spite of the growing body of research on dynamic capabilities and competitive organizations, there is no clear answer as to why organizations continue to fail (Teece et al.,1997). The market's dynamic reality and competitors' capacity for innovation makes it difficult for businesses to achieve their objectives and maintain long-term competitive performance, so the competitive advantage is an important concept in both strategic management studies and organizational best practices (Lacerda,2018).

Teece (2014) asserted that the DCs view was developed as a general framework for gathering knowledge of an organization's competitive advantage in the face of strong innovation-driven and frequent global competition. Dynamic capabilities denote an organization's ability to integrate, build, and reconfigure internal and external skills in response to quickly changing business environments (Teece,2018).

DCs is the assessment and modification factor that enables the organization to evaluate desired changes for the resource base and their ability to remain competitive, particularly in the face of a volatile market environment (Weking et al.,2019). The absence of dynamic capabilities is viewed as an external and internal threat, which can impair the organization's ability to maintain best practices in constantly changing environments (Mikalef et al.,2019).

Moreover, institutional maturity can be defined as the condition of being complete, perfect, and ready through business process maturity models, the concept of maturity is typically linked with the business model. While maturity is defined as the extent to which organizations utilize processes that contribute to the achievement of their goals, an organization's maturity can be assessed based on the capability of its processes. (Wetering al.,2017; Teece et al., 1997).

The model utilized (CMM/CMMI) is the most widely used framework in practice. Because of the difficulties, hesitation, and creativity in most marketplaces and competitive environments, organizational reconfiguration, rapidly developing technology, and vague environment modification have become key themes in management studies (Baía & Ferreira,2019).

Meanwhile, in occupied Palestine, a non-governmental organization (NGO) is a non-profit organization that performs organizational tasks and responsibilities independently of any government. NGOs, also known as civil societies, are society, national, and international organizations that work to achieve political or social goals such as humanitarian efforts or environmental protection.

In Palestinian territories, the obvious question is how NGOs can find a standard or international scale of their process maturity when tried to compare to other public agencies. This study is centered on these issues. By observing administration managers in Palestinian non-governmental organizations, this study aims to fill a research gap by providing an overview of the impact of dynamic capabilities on institutional maturity in the Southern Palestinian Governorates.

2.0 RESEARCH PROBLEM

In general, NGOs in the southern Palestinian governorates face numerous challenges and complications as a result of the environment. The rapidly shifting and dynamic external environment in all economic, financial, and technological environments, to which new challenges have been added in addition to its ongoing challenges, particularly the creation and spread of the new coronavirus throughout the world. In order for non-organizations to face these challenges, it is necessary to search for administrative and organizational tools and practices that work to develop Its processes and its ability to obtain best practices through the application of models that verify institutional maturity. The researcher sought preliminary indicators to accurately define the study within the framework of defining and formulating the problem. The researcher drew on a variety of sources. The most important sources for identifying the problem were (the pilot study and previous literature), and came up with the following main question: what is the impact of dynamic capabilities on institutional maturity in the Southern Palestinian Governorates?

3.0 LITERATURE REVIEW

3.1 Dynamic Capabilities

The dynamic capabilities approach develops from the firm's resource-based view (RBV), which tries to describe the conditions under which firms gain a competitive advantage through the use of their resources and capabilities (Barney, 1991). The RBV has been critiqued as a static theory that is insufficient to explain a firm's long-term competitive advantage in today's changing environments (Teece et al. 1997).

Teece and Pisano (1994) propose the idea of DCs to overcome the RBV's static nature limitation. DCs have quickly gained attention as a potential source of gaining and maintaining competitive advantage in organizations.

The term dynamic refers to the ability to renew ordinary capabilities in order to attain consistency with the changing business environment, whereas capability refers to a firm adapting, integrating, and reconfiguring both internal and external organizational abilities, resources, and competencies to meet the changing environment's requirements (Dierickx & Cool, 1989).

According to Teece (2007), dynamic capabilities are the ability to (1) sense and shape opportunities and threats, (2) seize opportunities, and (3) maintain competitiveness by improving, merging, protecting, and, when required, reconfiguring the company's intangible and tangible assets (Khan et al.,2019).In brief, dynamic capabilities are sensing, seizing, and reconfiguring capabilities that are supported by micro foundations made up of specific skills, methods, and organizational activities (Teece,2018).

Sensing capabilities are a collection of activities that include scanning, acquiring knowledge, and interpretation. Sensing activities are focused on understanding customer requirements, latent demand, market growth, and supplier and competitor responses (Amit and Schoemaker (1993). Furthermore, the activities that concentrate on the deployment of that opportunity that has been defined as conducive to competitive advantage are referred to as seizing capabilities.

The mobilization of external and internal resources and competencies is required for seizing. Teece emphasizes that firms must be able to make good investment choices, develop suitable business models, improve technological competencies, and maintain assets in order to effectively seize opportunities (Sabahi, & Parast,2020).

3.2 Institutional maturity

In recent decades, many researchers have debated the topic of maturity. Maturity is defined as a state of finalization, excellence, or readiness (Paulk et al.,1991). Maturity, according to Merriam-Webster, is a procedure, a system of processes to create something, and a sequence of choices and actions that result in goals or final outcomes (Gökalp& MartinezI,2021).

For the advancement of management sciences, it has been discussed in a variety of ways that maturity is a metric to decide an organization's capabilities in examining a specific discipline stage. (Kosieradzka,2017).While two factors influence strategic management maturity. The first is to enhance the processes for putting the strategic plan into action. The second factor is leadership maturity, as the two factors interact and have an impact on the organization's accomplishment of institutional maturity (Kerzner,2019).

Regardless of institutional maturity, institutional maturity takes place when an organization's strategic management application is more developed and advanced. In order to be successful in today's global market, organizations must attain a high level of attainment by implementing maturity models (Paulk,2009).

According to Feiler and Humphrey in 1991, the TQM movement gave to the notion of process maturity, which is defined as a mature process that improves performance by ensuring consistency in process completion. Increasing this maturity refers to improved performance in process capabilities. (Kostiukevych and colleagues, 2020).

Since maturity is a common idea in many business scenarios, the capability to achieve superior efficiency is best described by combining the maturity concept with a process capability.

Despite the fact that the concept of maturity is frequently associated with business practice, worldwide research has shown that various types of businesses are gradually becoming more conscious of the maturity of their procedures as a whole and rationally optimizing the maturity process using business process maturity models (Mihajlovi et al 2021; Kostiukevych et al., 2020).

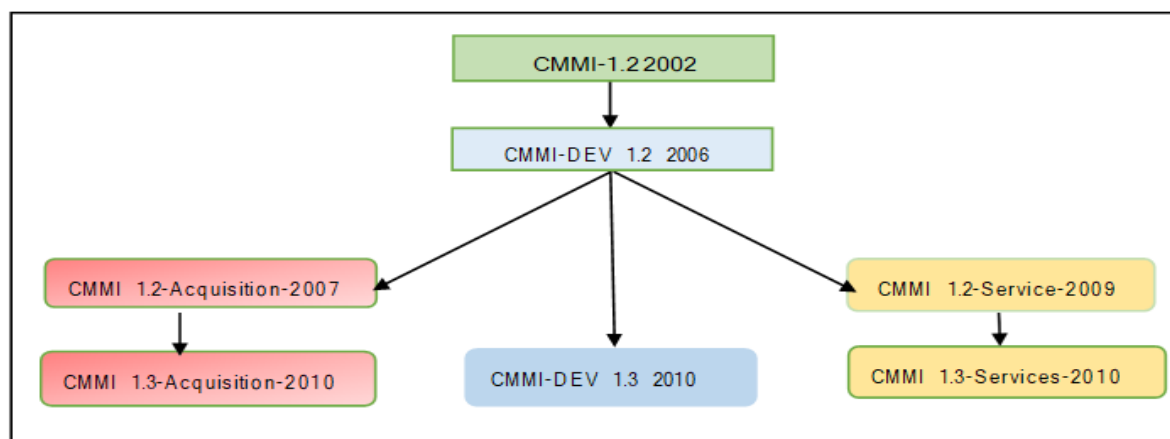
3.3 Capability Maturity Model Integration (CMMI)

The CMMI model is among the most recent and effective models for getting better and assessing the performance of development organizations. It is an appropriate method for directing initiatives to improve processes in software design and other fields such as product acquisition, systems engineering, , team management, and research and development (Kosieradzka, 2017).

CMMI, according to Singh and Singh Gill (2020), is a set of best methods for the continuous improvement of organizations in various sectors that can use to improve productivity, eliminate errors, streamline operations, and ensure the operational predictive ability. The CMMI was developed by SEI to offer a collection of systematic high-level qualitative standard practices that may be employed as a benchmark model for software design by small and medium-sized businesses (SMEs) during their continuous improvement cycle (Iqbal et al.2018).

According to Khraiweh (2020), CMMI models are categorized as constellations. Each cluster is dedicated to a specific theme, such as acquisition (ACQ), development (DEV), or services (SVC). The CMMI Model Foundation (CMF) refers to the elements that are shared by all CMMI models, and the practices of the area are shared by all models. The CMMI-DEV v1.3 standard clarifies both service and product development activities. (Abu-Baker and colleagues (2019). See the table below (1) simplifies the development of CMMI processes for acquisition, software development, and service. Figure 1

Figure 1 Development of CMMI



Source: Ayyagari & Atoum 2019.

Organizations can choose from any of the existing options based on their business objectives, and each model encompasses all core functions (Abu-Baker et al (2019). CMMI has been converted into ten languages to support governments and organizations in their economic development. The CMMI Institute stated in 2017 that about 2,237 organizations around the world received CMMI assessment ratings in 2016, representing a 16% increase in the number of finalized appraisals.

According to Ayyagari and Atoum (2019), CMMI identifies 'what' operations are predicted but does not clarify techniques for completing those activities. According to Gökalp and Martinez (2021), maturity models do not clarify what activities software development companies should take to achieve the CMMI process area. As a result, these organizations lack defined approaches to CMMI deployment. The CMMI framework is used to define a firm's ability to deliver a qualified product.

In overall, there aren't as many models and methodologies for evaluating the performance of non-profits as there are for the private market. Financial performance measurements, such as return on assets, liabilities, or profitability ratios, cannot be utilized by non-governmental organizations (Abu-Baker et al.2018)

This process necessitates a thorough understanding of how non-governmental organizations (NGOs) organize and measure performance, in addition to which performance aspects lead to successful financial performance, efficiency, and effectiveness.

4.0 THEORETICAL BACKGROUND

DCs is defined as an advanced ability that can be used by an organization's leading policymakers to intentionally redesign the organization's competencies, according to scholars (Teece, 2007). The CMMI and CMM also can be described as a method that utilizes a variety of tools and methods to assess an organization's ability to grow w along an evolution path from immature to mature, efficient, and beneficial (Hu and Gao,2019).

Furthermore, process maturity models are distinct in that they do not directly concentrate on operational capabilities in terms of an organization's core processes (Gutierrez et al., 2018). As a result, incorporating a set of recognized dynamic capabilities into the management system typically necessitates collaboration from both individuals in the organization and any entities operating in the organization's environment via the CMM or CMMI (Gupta et al., 2020).

This is reasonable because these capabilities are supposed to be valuable, rare, imperfectly imitable, and non-substitutable. Instead, process maturity models deal with operational capabilities that represent support processes to dynamic capabilities that relate to specific management processes (Iqbal et al.2018; Teece, 2016).

This is understandable given that these abilities are thought to be useful, unique, imitate, and non-substitutable. Process maturity models, on the other hand, deal with core competencies that reflect support processes as opposed to dynamic capabilities that correspond to specific organizational activities (Iqbal et al.2018; Teece, 2016).

DCs are an instrument that has become increasingly popular over the last few decades. It is a theory, and resource-based perspectives in organizations are connected to capability development. CMM contains specific procedures, areas, and enablers that refer to the ability to complete an organized collection of tasks to accomplish a certain result (Forstner et al,2014).

Experts explain the impact of DCs and their results on organizational activities when using the CMM in various ways. These findings should be taken as preliminary research and interpreted appropriately. For example, Felsberger's (2022) study discovered that digital techniques can reconcile dynamic capabilities to provide organizations with lengthy constant improvement to gain a competitive advantage in achieving institutional maturity via the CMM and CMMI.

According to Lee and Chen (2019), applying CMMI has a positive impact on DCs and increases the process of ongoing improvement. According to Lookman et al. (2022), CMM has influenced DCs to improve organizational innovation. According to the findings of Ayyagari's 2019 study, the CMM is valid and beneficial for enhancing organizational DCs.). Relay on this logic we draw the following question

Q1: What is the impact of dynamic capabilities (sensing-seizing-reconfiguration) on institutional maturity at the targeted NGOs?

5.0 METHODOLOGY OF RESEARCH

5.1 Sample size

A study's sample size should be sufficient regarding efficiency, predictive ability, dependability, and flexibility. overall, raising the sample size will strengthen the statistical results' quality. According to researchers, the sample size should be five to ten times the number of factors to be tested (Yang et al.,2020). We obtained a list from the Ministry of Interior that includes the service type, size, and age of the organizations under the investigative process.

The list indicated 66 organizations that have a capital of more than 2 million shekels, more than 30 employees, and have been in operation for more than 15 years. As a result, we have 33 organizations under investigation. It is worth noting that the social development sector led the way with 18 targeted NGOs, followed by the health sector with about 8, and the other sectors with 1 to 2. The Ministry of Interior also provided all locations, phone numbers, and email information.

A stratified random sample was used to accomplish this research. Probability sampling is also referred to as random sampling or chance sampling. Every item in the universe has an equal chance of being included in the sample under this sampling design (Pandey & Pandey,2021). The study targeted 346 administration employees with different managerial tasks. See table 1

Table (1) the suitable sample size from each sector of the target NGOs

Name	The number of organizations that meet the requirements	Number of employees	computed stratified sample
Social Development	18	1726	172
Health	8	952	95
women's Affairs	2	337	33
Education	2	206	20
Endowments	1	150	15
Youth & Sport	1	32	3
Culture	1	78	8
Total	33	3481	346

Prepared by author

6.0 DATA COLLECTION

A survey research approach is frequently related to quantitative studies or quantifiable data since it collects data across multiple cases and variables utilizing questionnaires or structured interviews to examine patterns. A structured questionnaire was used as the primary tool in our research to collect the necessary data. The required questionnaire count is 346, and 350 copies were distributed to the sample group. No names were mentioned, and participants were not compensated for taking the survey. A follow-up phone call and gentle email reminders were sent to a few organizations whose contact information was available to make sure that everything was ordered and to ask them to contact us when they were ready. Noting that the Likert scale from 1-10 was applied to the questionnaire.

Table 2 Categories for Likert responses

Approval level	1		10
	Very strongly disagree	>>>>	Very Strongly agree

Prepared by author

7.0 DATA ANALYSES

To examine the conceptual framework and conduct preliminary data analysis, the researcher follows the Social Sciences Statistical Package (SPSS) version 26. To check the reliability and validity of the pilot analysis, tests were conducted in which the minimum and maximum value ranges were derived from previous research methodology literature. The results were statistically analyzed using statistical packages after data coding and processing. We utilize two pieces of statistical software to analyze our data. For preliminary analysis, we use SPSS and its AMOS package to test our structural equation model. IBM SPSS Statistics, as an integrated family of products, is one of the world's leading statistical software applications. AMOS (Analysis of Moment Structures) is an SPSS package used primarily for determining goodness-of-fit in confirmatory factor analysis.

8.0 DISCUSSION

As the dimensions affect the dependent variable in a substantial and statistically significant way, there is a positive effect of dynamic capabilities (sensing-seizing-reconfiguration) on institutional maturity. Pearson correlation coefficient (0.724), indicating the existence of a medium relationship between Dynamic capabilities and institutional maturity. The coefficient of determination was 0.525, indicating that 52.5% of the change in (institutional maturity) is due to the effect of (sensing-seizing- reconfiguration), and the remaining 47.5% is due to other factors influencing (institutional maturity). See table 3 below

Results of the simple regression analysis test for the Dynamic capabilities (sensing-seizing-reconfiguration) have a direct positive effect on institutional maturity

Multiple linear regression model between Dynamic capabilities and institutional maturity

independent variables	Unstandardized Coefficients)B(T	Sig.)R()R²(The significance of the model is at the level of 0.05		
						F	significance level	Result
(Constant)	2.344	8.498	.000	0.724	0.525	113.3	0.000	sig
sensing	.261	5.058	.000					
reconfiguration	.193	4.087	.000					

Effect equation: institutional maturity = 2.344+0.261 *(sensing)+0.193*(reconfiguration) +0.204*(seizing)

-When increasing *(sensing) by one unit leads to increasing the dependent variable (institutional maturity) by (0.261).

-When increasing *(reconfiguration) by one unit leads to increasing the dependent variable (institutional maturity) by (0.193).

-When increasing *(seizing) by one unit leads to increasing the dependent variable (institutional maturity) by (0.204).

The research revealed that there is a positive effect of dynamic capabilities on institutional maturity at the targeted NGOs in the Southern Palestinian Governates.

Consistent with Iqbal et al.2018, who asserted that DCs support the maturity models that rely on specific management processes. Also, According to Agenjo et al (2018), organizations that are using CMMI, expand rapidly.

To develop and refine improvement options, Ayyagari (2019) demonstrates merging CMMI and dynamic capabilities. CMMI implementation, with dynamic capabilities, enhances changes in the culture and structure of the organization in order to increase capacity and profit.

Moreover, Teece (2014) considers Dynamic Capabilities to be one-of-a-kind; they must be created and learned as a part of organizational culture. According to Eisenhardt and Martin (2000), they are DCs are repeatable processes, and CMMI can help the development of Dynamic capabilities. CMMI is also a maturity framework that provides a set of best practices for improving work procedures, particularly in software organizations using the DCs approach (Ajenjo et al.,2018).

Mikalef et al. (2020) discovered that DCs are applicable in a wide range of process areas indicating organizations' existing data maturity levels, and can provide significant insights to assist them in optimizing their capabilities. Wetering et al (2017) showed that DCs has a positive effect on information maturity, while teece(2018) revealed that DCs help in achieving business model innovation.

We had to first validate the measurement scales that would be used to assess the dependent and independent variables in the Palestinian context. All independent and dependent constructs that test reliability and validity have undergone factor analyses. The standardization. All factor loadings were significant ($p.05$) and generally above the threshold levels (0.50). (Tavakot & Dennick,2011). The items' remaining standardized factor loadings are close to or greater than 0.80 . Cronbach's alphas above 0.890 indicate that the items have strong internal consistency (Bujang,2018). In the following sections, we will go over the findings from our research model's hypothesized relationship. Dynamic capabilities (sensing, seizing, and reconfiguration) have a direct positive impact on institutional maturity.

1. Institutional maturity, as the dependent variable, is significantly and statistically significantly affected by the Sensing capability dimension. Pearson correlation coefficient (0.661) indicates that there is a medium relationship between (Sensing capability and institutional maturity). The coefficient of determination was 0.437 , indicating that Sensing capability accounts for 43.7% of the change in (institutional maturity), while other factors account for the remaining 56.3% .
2. Seizing capability has a significant and statistically significant effect on institutional maturity, as the dependent variable. Pearson correlation coefficient (0.634) indicates a medium relationship exists between (Seizing capability and institutional maturity), The coefficient of determination was 0.402 , indicating that Seizing capability accounts for 40.2% of the change in (institutional maturity), while other factors account for the remaining 59.8% . (institutional maturity).
3. Institutional maturity, as the dependent variable is affected in a substantial and statistically significant manner by the dimensions Reconfiguration. Pearson correlation coefficient (0.652) which indicates the existence of a medium relationship between (Seizing capability and institutional maturity), The coefficient of determination was 0.425 , which means that 42.5% of the change in (institutional maturity) is due to the effect of Reconfiguration, and the remaining 57.5% is due to other factors affecting (institutional maturity).

The majority of the literature on dynamic capabilities struggles that a rapidly changing environment is required for the practice and effect of dynamic capabilities, but there is little empirical evidence to support this claim. Our contribution also relates to the uniqueness of our research sample, which encompasses important sectors of the targeted NGOs. According to Laaksonen, & Peltoniemi, (2018), DCs should be empirically studied across a broader sample of business sectors and industries. Unlike the existing literature, which focuses on high-tech firms, this enhances our contribution by investigating the dynamic capabilities impact among diverse organizations on institutional maturity. We contribute to the literature by creating and empirically testing a conceptual model that includes both dynamic and institutional maturity modeled along a specific path. Based on the literature review, we designed dynamic capabilities as an independent variable and institutional maturity as a dependent variable. Finally, most DC studies are theoretical or exploratory in scope. The purpose of this research is to conceptualize and improve existing operational definitions. New measures were developed while keeping the environmental context of developing countries in mind. The new measures were tested and approved using a variety of statistical techniques.

9.0 CONCLUSION

The current study sought to investigate the impact of dynamic capabilities on institutional maturity, To achieve this goal, We propose an inside-in component of maturity models, based on a literature review, to support the implementation of CMMI. Furthermore, the findings of the study show that our proposed component of DCs is a significant predictor of institutional maturity.

Finally, by proposing and testing a conceptual model, this paper contributes to the literature on dynamic capabilities and institutional maturity by demonstrating that dynamic capabilities directly influence institutional maturity via the CMMI. Organizations should practice dynamic capabilities based on the role of CMMI as most sectors in Palestine operate in a particularly rapidly changing environment to achieve institutional maturity

As a result, Palestinian managers ought to consider specific programs for improving the recommended maturity models such as CMMI, either through internal or external consultants. Finally, this study made an important contribution to achieving superior best process practices in dynamic and uncertain market environments.

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