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Measuring Strategic Management Maturity: An Empirical Study in Turkish Public and Private Sector Organizations

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***Abstract*—**Strategic Management is highly critical for all types of organizations. This paper examines maturity level of strategic management practices of public and private sector organizations in Turkey, and presents a conceptual model for assessing the maturity of strategic management in any organization. This research focuses on R&D intensive organizations (RDO) because it is claimed that such organizations are more innovative and innovation is a critical part of the model. The Strategic management maturity model (S-3M) is basically composed of six maturity levels with five different dimensions. Based on 63 organizations, the findings reveal that the average maturity of all organizations in the sample group is three out of five. It corresponds to the stage of 'performed'. Results simply show that the majority of organizations from various industries and sectors implement strategic management activities; however, they experience multiple challenges to optimize strategic management processes and integrate organizational components with business strategies. Briefly, they struggle to become an innovative organization.

***Keywords*—**Strategic management, innovation, developing countries, research and development.

I. Introduction

THE subject of strategic management has been notably studied in related literature for decades. The importance of strategy has been highlighted by practitioners as well. Strategic management is concerned with formulating business strategies and planning how those strategies are to be put into effect. In actual practice, strategic management revolves around the following separate tasks: 1- Determining the long-term direction of the organization; 2- Assessing the external environment and competitive position; 3- Establishing the overall objectives, goals and strategic; 4- Determining resources requirements; and, 5- Establishing the foundation for tactical and operational plans and programs [1].

Briefly, strategic management has three main phases: 1-Analysis, 2-Formulation, and3-Execution. Crittenden and Crittenden [2] present a model of strategy implementation which is consisting of eight levers. The eight levers are classified into structural variables and managerial skills.

- Structural variables are:
- *Actions* – Who, what, and when of cross-functional integration and company collaboration.
- *Programs* – Instilling organizational learning and continuous improvement practices.
- *Systems* – Installing strategic support systems.
- *Policies* – Establishing strategy supportive policies.
- Managerial skills are:
- *Interacting* – The exercising of strategic leadership.
- *Allocating* – Understanding when and where to allocate resources.
- *Monitoring* – Tying rewards to achievement.
- *Organizing* – The strategic shaping of corporate culture.

The intent here is not to examine strategic management in depth. Rather, the aim is to analyze maturity level of strategic management in a particular group of organizations in developing countries.

R&D has always been considered a domain of firms in technologically advanced and economically developed countries [3]. R&D in developing countries (DC) has figured less prominently. Most research has concentrated on technology transfer to these countries, and import advanced technologies from abroad [4], [5]. There is still a lack of studies concerning the maturity of the strategic management activity of RDOs in developing world. Data on strategic management practices of R&D institutions in DC is scattered and only a few countries outside advanced economies receive research attention. Therefore, this study seeks to contribute by the filling of the gap between strategic management and R&D in DC. In this sense, it suggests a framework to determine maturity of strategic management in public and private sector organizations.

The purpose of the research is to give an overview about the strategic management activities in RDOs of Turkey. The main contribution of this paper is to the highlight maturity level of strategic management in a developing economy and in certain types of organizations. Obviously, further researches are needed for more detailed results and comprehensive conclusions.

A. Developing Countries

Historically, countries have been classified based on their economic conditions. Many different institutions have proposed various classifications such as industrialized, developed, advanced, developing, less developed, and undeveloped.

While there is no common formula to determine which country is developed or emerged, the so-called BRIICS (Brazil, Russia, India, Indonesia, China, and South Africa) are considered some of the largest emerging markets [6]. Other commonly identified emerging markets include Mexico,

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Argentina, Poland, Turkey, and South Korea. All of these countries are growing rapidly and their societies are undergoing big transition. Since significant socio-economic and political reforms are undertaken, the nations become important players in their region and world affairs.

Understanding how organizations in different countries adapt, resist and generally manage themselves may be one of the key success factors for global business activities in the new century. However, most of the theoretical and empirical studies of organizations and management issues have been developed based on samples from industrialized countries or firms and organizations established in these countries [7]. North [8] and Olson [9] claim that successful national business systems of industrialized countries may not be successful in other parts of the world.

DCs may vary significantly in many respects, and may be categorized into subgroups in terms of their stage of development [10]. Indeed, there are some common characteristics that have separated these countries from so-called industrialized countries: Uncertainty is a fundamental characteristic of regulatory and economic reality in most DC. Some other main characteristics of organizations in DCs can be listed as the lack of organizational identity, strong resistance to change, concern for survival, the vital role of informal organizations, and goal ambiguity [7].

B. Strategic Management in Public Sector

In many DCs, national governments are forced by multi-lateral development agencies to produce "vision" strategy documents for 2030 or 2050, which are then used to produce mid-term and short-term planning documents. These documents usually contain lists of goals, sometimes with a description of policy instruments, and associated investment costs. Many DCs have whole ministries devoted to creating long-term development plans, but this does not necessarily ensure their quality or relevance [11].

In 1987, Turkey applied to join European Economic Community, and it was declared eligible to join the EU in 1997.Accession negotiations started in 2005 and European Council recognized Turkey as a candidate. As part of the accession process, since 2006, public institutions are obliged to prepare a strategic plan and to prove that they are governed according to this plan by publishing annual performance reports. The Public Financial Management and Control Law (Law no. 5018) was enacted in Turkey in 2002. According to this legal framework, the strategic planning application is identified and is made compulsory for public administration. However, it was launched with all instruments on January 1st, 2006.

Through New Public Management (NPM), the administrative relationship between central and local government has been re-regulated in favor of democratization and localization in public administration. By means of regulations, it is emphasized that the strategic management techniques of the private sector must be utilized for citizen satisfaction exactly like customer satisfaction. It is observed that strategic planning became a primary obligation for public institutions through the NPM reforms [12].

Since the socioeconomic and regulatory uncertainties have had a powerful influence on the nature of administrations in DCs, governmental institutions provide basic goods and services in many cases.

In many parts of the world, governments and public sector organizations have been providing market products and services. For instance, infrastructure facilities traditionally have been constructed and operated by governments of DCs [7]. Because government agencies play a significant role in DCs, this study examines not only private sector organizations; it also includes public sector organizations. Even though most of the literature on strategic management is based on experiences of for-profit organizations [11], in this research, a significant portion of the sample group (76%) is composed of governmental institutions.

This paper is structured in the following way. First, a critical literature review is presented. Then, the research methodology is explained. Subsequently, the results are demonstrated, and finally, the conclusions are disclosed.

II. Empirical and Theoretical Background

Despite the vital role of management systems in the organizations and institutions of DCs, there are few theoretical and/or empirical studies on this topic [7]. Strategic management studies have been mostly focused on the organizations for profit. Also, the available empirical literature of strategy studies in RDOs, especially in DC, is scarce. Additionally, factors that influence maturity of strategic management have been neglected. Lastly, no model for evaluating maturity of strategic management practices, especially in RDOs has been proposed. Therefore, this paper proposes a model that assists executives to identify the maturity of such practices in any country.

A. Maturity Models

Today, many maturity models are based on the Capability Maturity Model (CMM) proposed by Carnegie Mellon University in the late 1980s. Maturity models address a wide range of topics from risk management to business analysis. In related literature, a number of maturity models are introduced to evaluate different aspects of organizations such as corporate performance management [13], business process management [14]-[16], project management [17] and innovation management [18].

B. S-3M

In the research literature, based on CMM, many maturity models are proposed, however, no one is developed for strategic management activities. Only the Balanced Scorecard Institute's framework [19] provides a foundation for determining strategic management maturity. It is very useful for quick assessment, but it mostly targets organizations for profit and it might be a bit complicated for SMEs, and also, innovation is not clearly addressed in the model and there is no direct link between innovation and its' strategic management dimensions. Therefore, this paper has attempted

to provide a simple and structured S-3M which is still in early stage of development. It can be used in any type of organization and industry. One of the biggest differences of S-3M is obviously the essence of innovation. It provides a foundation to integrate innovation efforts with strategic management activities.

C. Five Dimensions of Strategic Management

The S-3M contains assessments of performance along five different dimensions of strategic management:

1. Leadership
2. Formulation
3. Execution
4. Integration
5. Innovation

Basically, it covers the entire process of strategic planning from the beginning of visionary leadership to the execution. Also, it touches each area of strategic management including strategy formulation and aligning organizational components with business strategies.

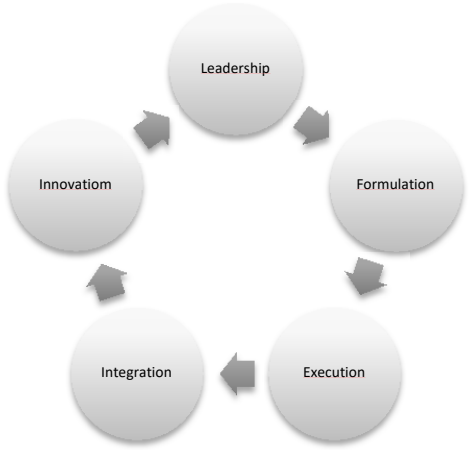

Fig. 1 Strategic Management dimensions

TABLE I
STRATEGIC MANAGEMENT MATURITY DIMENSIONS

No	Dimension	Weight (%)
1	Leadership	20
2	Formulation	20
3	Execution	25
4	Optimization	20
5	Innovation	15
	Total	100

Each aspect is not weighted equally. Some dimensions require more effort along with skilled work force. For instance, innovative organizations require various sophisticated techniques, highly qualified teams and advanced systems. Therefore, it is more challenging to reach level 5.

Following is a description of the aspects of strategic management included within each of these dimensions:

Leadership: A key aspect of strategic management is the development of a viable structure of leadership and decision making [1]. Any strategy development process must count with the visible commitment executive team. It is obvious that not only strategic management efforts, but all organizational projects including business transformation and change cannot succeed without powerful leadership and the full support of top management.

Formulation: This dimension refers to core values, principles and critical success factors. It also contains strategic goals and objectives. All components of a strategic plan should be formulated including performance metrics/indicators and actions.

Execution: Without implementation, strategy is merely a fantasy. Strategic management systems must then be created in order to implement the strategy and monitor progress towards its declared goals [20]. In the execution stage, organizations should be governed by their strategic plan so they can achieve the strategic goals. Also, strategic plans should be regularly revised.

Integration: Each component of the organization such as structure, culture, business model, processes and systems should be aligned with the strategy. Also, people and other resources are focused on strategy. Organizations apply strategies, measure results and improve their capability continuously.

Innovation: Only mature and fully integrated organizations can achieve sustainable innovation. When a significant degree of maturity is accomplished, the organization is on a journey of continuous innovation. Disruptive, game changer innovations can be done by highly mature and well managed organizations. To accomplish long-term strategic goals, aligning innovation with business strategies is a must for RDOs.

As important as it is to clearly design firm's technological strategy, so too is it to promote its alignment with the business strategy, integrating all departments and regarding the firm's current capabilities. Although necessary for achieving profitable solutions, strategic alignment is a commonly neglected step of the innovation process, especially in DC [21]. Therefore, the innovation dimension of the framework in this research mainly refers to linking innovation strategies with business strategies. High maturity organizations have innovation embedded in their company cultures.

D. Strategic Management Maturity Stages

For each of these five dimensions, there are six levels of strategic management maturity. Organizations can be evaluated by scoring the level of performance on each of the five levels of strategic management maturity. Organizations that do not have any strategic initiative including a responsible employee or team (leadership) for strategic management works correspond to level 0. Also, at those organizations, a defined strategic plan or a planning process does not exist. Enterprises running the full cycle of strategic management and integrating all organizational components with business strategies score 86 and more. They are considered as excellent with level 5.

Level 0: Undefined: No defined and structured strategic management process. No responsible person or department for

strategic management activities.

Level 1: Initial: An owner (an employee or business unit) is assigned for strategic planning and management activities. Maybe operational or tactical plans but no strategic plan yet.

Level 2: Planned: Strategic plan is ready. Business strategies are formulated. Goals and objectives are set. The organizations-wide standards provide guidance across business units.

Level 3: Performed: Strategies are executed. The organization follows its strategic plan. Top management involves and monitors closely the entire process of strategic management.

Level 4: Optimized: KPIs are assigned. Results are measured. Components of the strategic plan are revised according to performance reviews. The strategic direction of the organization is shifted based on the performance results. The organization's stability provides a ground for innovation.

However, in this study, only one part of optimization (measurement) has been checked and particularly KPIs assigned for R&D activities are questioned.

Level 5: Excellent: All components of the organization are integrated. Innovation strategies are formulated and aligned with business strategies. Focus on continuous innovation. Excellence in strategic management drives the organization's innovation.

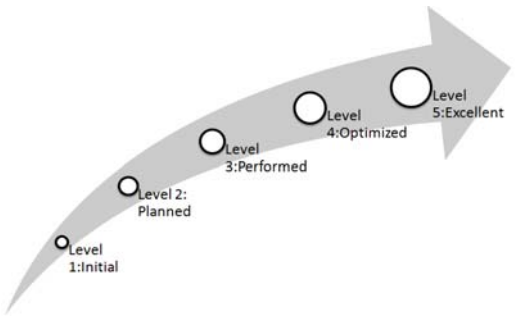

Fig. 2 Strategic Management maturity levels

III. Research Methodology

The data were collected as part of a larger study designed to explore innovation activities of IISRC (Informatics and Information Security Research Center) in Turkey. The IISRC annually holds its stakeholders workshop to brainstorm trending technologies. In 2014, 100 organizations from different sectors such as telecommunications, health, finance, electronics, government, energy, etc., were invited, and 74 organizations participated in the event. The sample group was designed to represent the characteristics of RDOs [22].

TABLE II
Strategic Management Maturity Levels

No	Level	Score
0	Undefined	0
1	Initial	1-20
2	Planned	21-40
3	Performed	41-65
4	Optimized	66-85
5	Excellent	86-100

TABLE III
Strategic Management Maturity model

	LEVEL	SCORE	DIMENSION	WEIGHT
0	Undefined	0		
1	Initial	1-20	Leadership	20
2	Planned	21-40	Formulation	20
3	Performed	41-65	Execution	25
4	Optimized	66-85	Integration	20
5	Excellent	86-100	Innovation	15

Since technologically advanced organizations, particularly in knowledge intensive sectors, are more innovative and make efforts to link innovation strategies with corporate strategies, RDOs from both public and private sectors were selected; no matter the size of the enterprise. Additionally, because strategic planning is compulsory for public administrations in Turkey, this study highly concentrates on government agencies (76%).

More than half of the organizations studied operate in technology intensive industries (ITC, defense, and aerospace 51%). Specifically, the biggest portion (21%) of the sample group was chosen from the information and communication technology (ICT) industry. As the objective for the study was to diagnose rather than to explain, the sample approached was limited to 63 RDOs out of 74 participants. Middle and top managers were surveyed from different organizations that are known or expected to be active in strategic management activities.

TABLE IV
Characteristics of the Responding Companies (n=63)

Sector	Industry	Number of employees involved in R&D	R&D Budget (Million USD)
Public76%	ITC21%	1—50 (46%)	<1 (17%)
Private24 %	Defense & Security 19%	50—100 (8%)	1—50 (29%)
	Aerospace11%	100-250 (8%)	50-250 (3%)
	Transport6%	>250 (7%)	>250 (6%)
	Energy5%	Unanswered (27%)	Unanswered (38%)
	Finance3%		
	Education3%		
	Health2%		
	Other30%		

IV. Results and Analysis

A. Strategic Management Practices

Overall, the results seem relatively promising regarding the strategic management activities that RDOs practices in Turkey. In this research, whether any department or employee assigned for strategic management/planning activities is questioned. Obviously, boundaries of leadership extend beyond that. All organizations in the sample group have an assigned person or team to lead strategic management works. While 4.8% of the organizations have an employee for such duties, 90.5% of them have a department/unit to formulate strategies and carry on all related activities. In 4.8% of the organizations, there is no a particular department or employee because only top management is accountable for all activities regarding strategic plan and management.

Almost all of the organizations have a strategic plan (92.1%), while 89.7% of those organizations update their strategic plan regularly, which is quite a promising figure. As expected, a good portion of the sample group, nearly half of the organizations (44.4%), have innovation strategies. Again, this is not surprising because RDO value innovation more than other firms operating in traditional industries. Lastly and surprisingly, more than half of the organizations have no KPI to track R&D activities. Most of those organizations are governmental institutions (88.2%).Almost all private sector organizations assign at least one KPI to measure performance of their R&D activities. Unfortunately, we had a relatively high number of unanswered participants; especially, in regard to innovation strategies and KPI for R&D studies.

TABLE V
Strategic Management Practices (n=63)

Owner	Employee 4.8% Department 90.5% Top Management 4.8%	Strategic Plan	Exist 92.1% Nonexistent 6.3% Unanswered 1.6%	SP Revision	Yes 82.5% No 11.1% N/A 1.6%	Innovation Strategy	Exist 44.4% Nonexistent 41.3% Unanswered 14.3%	KPI for R&D	Exist 19% Nonexistent %54 Unanswered %27

B. Measuring Maturity Level of Strategic Management

As shown in Table V, five questions were asked to the participants. Firstly, all organizations have an ownership for strategic management activities; that is a starting point for and effective leadership indicated in the S-3M. Also, it is considered sufficient for initial level of the maturity. Obviously, in future studies, more questions must be asked to examine other aspects of leadership. The organizations that set a department or business unit for strategic management actives had full points (20).The ones that assign only one employee for such activities had 10 points. The other organizations that have neither a separated business unit nor fully responsible individual to lead and follow strategic management, received only 5 points. Secondly, the organization that prepared a valid strategic plan had 20 points. The others had no points. If the organization updates its' strategic plan regularly, it gets 20 points. The organizations that developed innovation strategies regardless of the type of strategy had 20 points. If they do not pursue any innovation strategy, they have 0 point.

Clearly, having an innovation strategy does not imply that corporate and innovations strategies are linked. Therefore, additional and more specific questions should be asked in further researches. On the other hand, developing an innovation strategy is a ground and starting point to move forward a fully integrated organization. Lastly, it was asked whether participated organizations have key indicators to measure performance of their R&D activities. The ones that have set KPIs for R&D projects and initiatives got 20 points. Once again, having KPIs may not infer that such an organization optimized its' all strategic management processes. However, it is a strong indicator that the organization monitors and measures its' R&D activities which is basically the beginning of the optimization process.

In total, 63 organizations from public and private sector were surveyed, of which, 4 organizations scored "excellent" with full points (100). Not surprisingly, those enterprises operate in the private sector and develop advance technologies. Three organizations have initial maturity level (1) with minimum scores (5, 10, and 20), while the maturity level of four organizations is 2 (planned). In terms of optimization and integration, government agencies relatively performed less than companies for profit. Even though most public institutions have a strategic plan and revise their plan constantly, they do not have a clear innovation strategy. Also, they have no KPIs for measuring performance of R&D activities. Majority of organizations surveyed has level 3. Average score of all 63 organizations is 64.8, which is level 3 (planned) as well.

V. Discussion and Conclusions

This paper has attempted to identify maturity level of strategic management practices at R&D intensive public and private sector organizations in Turkey. Even if this research is conducted in a developing country, the maturity model proposed is applicable in any country. Although S-3M is still in the early stage, it is useful to understand, analyze and improve strategic management activities of any type of organization. Our findings are as expected. Average maturity level of the participated organizations from various industries is three out five; basically, it implies that the organizations have a sponsor (leader) for strategic management activities. Most of them have a plan covering strategic goals and objectives. They develop business strategies. They perform their plans. However, they face some obstacles to formulate innovation strategies and align them with business strategies. Also, they struggle in measuring R&D performance. Only few organizations have an optimized process of strategic management and excellent maturity.

TABLE VI
MEASURING MATURITY LEVEL OF STRATEGIC MANAGEMENT (N=63)

	Questions					
	Owner	Strategic Plan	SP Revision	Innovation Strategy	KPI for R&D	
Organization	Score					TOTAL
1	10	20	20	0	0	50
2	20	20	20	0	0	60
3	20	20	0	20	20	80
4	20	20	20	20	0	80
5	20	20	20	20	0	80
6	5	20	20	0	0	45
7	20	20	20	0	20	80
8	20	20	20	0	20	80
9	5	0	0	0	0	5
10	20	20	20	0	0	60
11	10	20	0	0	0	30
12	20	0	0	20	0	40
13	20	20	20	0	0	60
14	20	20	20	0	0	60
15	20	20	20	0	0	60
16	20	20	20	20	0	80
17	10	20	20	20	0	70
18	20	20	20	0	0	60
19	20	20	20	20	20	100
20	20	20	0	0	0	40
21	20	20	20	20	20	100
22	20	20	20	20	20	100
23	20	20	20	0	0	60
24	20	20	0	20	0	60
25	20	20	20	20	0	80
26	20	20	20	0	0	60
27	5	20	20	20	20	85
28	20	20	20	20	0	80
29	20	20	20	20	0	80
30	20	20	20	20	0	80
31	20	20	20	0	20	80
32	20	20	20	0	0	60
33	20	20	20	0	0	60
34	20	20	20	20	0	80
35	20	20	20	0	0	60
36	20	20	20	0	0	60
37	20	20	20	20	0	80
38	20	20	20	20	20	100
39	20	20	20	0	0	60
40	20	20	20	0	0	60
41	20	20	20	20	0	80
42	20	20	20	0	0	60
43	20	20	20	20	0	80
44	20	20	20	20	0	80
45	20	20	0	0	0	40
46	5	20	0	0	0	25
47	5	20	20	0	0	45
48	20	20	20	0	0	60
49	20	20	20	0	0	60
50	20	20	20	20	0	80
51	5	20	20	20	0	65
52	5	20	0	20	0	45
53	10	20	20	20	20	90
54	20	20	20	0	0	60
55	20	20	20	0	0	60
56	20	20	20	20	0	80
57	20	20	20	0	0	60
58	20	20	20	0	0	60
59	20	20	20	20	0	80
60	20	20	20	0	20	80
61	20	20	20	0	0	60
62	20	0	0	0	0	20
63	10	0	0	0	0	10

Beyond that, this paper provides a novel contribution to the literature from various respects. First, it introduces a new model for identifying strategic management maturity. Even though several maturity models such as business process management, project management and organizational maturity models are suggested in related research literature, no one was proposed for strategic management.

Second, this research focused on RDO of a developing country which is not studied heavily. More than half of the organizations (32) in the sample group operate in high-tech industries. Obviously, technology producers of DC deserve more research attention.

TABLE VII
RESULTS OF EVALUATING STRATEGIC MANAGEMENT MATURITY (N=63)

Average Score	64.8
Average Maturity Level	3 (Performed)

Third, the study also includes governmental institutions because such agencies lead very strategic projects in DC. Performance and quality of the management of government agencies are highly critical in the developing world. Consequently, management studies should concentrate more on such organizations.

Lastly and maybe more importantly, this paper highlights the importance of the link between strategy and innovation. It presents aligning innovation with business strategies as a part of strategic management. Integration of all organizational components, especially innovation studies with corporate strategies is very critical for sustainable growth. The model proposed in this paper aims continuous innovation. Only those organizations that align innovation with strategy and constantly improve strategic management activities should be considered as "excellent".

A. Managerial Implications

To have an excellent level of maturity, organizations should not only prepare and implement a strategic plan but also optimize strategic management processes and align all organizational components including innovation strategies. Particularly, public sector organizations need to be more innovative and closely monitor their R&D performance. Secondly, the policy makers who intend to foster national economic development should transform government agencies from traditional institutions to innovative organizations, since government administrations play a critical role in DC. Thirdly, managers of RDOs should create an innovative organizational culture. Not only government agencies, but also most of the private sector organizations fail in formulating innovation strategies and to link them with corporate strategies. Things should be measured to be managed effectively. It seems that there are still issues in terms of using KPIs and monitoring performance results. Specific, measurable and clear KPIs should be designed and followed carefully.

B. Limitations and Further Research Directions

Like any other study, this one leaves unanswered questions for further analysis. Survey data, as with any other research sample, has limitations, posing the need for additional research. The results of this research are restricted with a sample of 63 organizations. Further research can use a larger sample size to validate our findings. Even if findings might be transferable, this survey is conducted on RDOs of Turkey. It is also recommended that further research can be conducted in different countries. Another limitation of this survey is that some respondents did not answer certain questions. Also, this survey includes only five questions which may not be sufficient to assess maturity very accurately and suggest more comprehensive conclusions. Further surveys may include more questions to check every aspect of the strategic management. Data collection can be done in face-to-face meetings by managers from multiple levels that are very knowledgeable about strategic management activities and entire organization.

This study is the first step to measure maturity level of strategic management in organizations. The model introduced in this paper is still primitive and will be developed in future studies. Due to the limited sample size and limited questions to scan strategic management activities, the conclusions of our survey are only tentative. Further studies may provide more detailed results by in-depth interviews with more comprehensive question set. Examinations of all types of organizations in different industries and countries are worth further consideration and analyses. Overall, the study has provided valuable material for both practitioners and academics.

While this paper is limited by the relatively small sample size, it has clearly pointed out the necessity for future research that probes deeper into the measuring strategic management practices which is highly critical for creating innovative organizations and productive economies. Lastly, additional dimensions can be embedded into the framework to have more detailed and accurate results.

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