"Entrepreneurial Orientation and Firm Performance; Investigating the Role of Strategic Agility and Knowledge Management Processes in Egyptian Universities"

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Abstract

This paper investigates the impact of entrepreneurial orientation (EO) on the performance of Egyptian Universities mediated by knowledge management processes (KMP) and strategic agility (SA).A self-reported survey was distributed to faculty members in 19 non-public Egyptian Universities, 500 surveys were distributed and 435 were collected. Data was analyzed using SPSS/AMOS utilizing simple linear regression analyses, multiple regression analyses, structured equation modeling and path analysis. Empirical investigation revealed varying impacts of multiple research constituents. Results indicated significant positive impacts of EO dimensions on firm performance (FP), KMP and SA, confirmed KMP mediation EO-FP and partial

mediation of SA. FP was significantly affected by KMP dimension (except conversion) and SA dimensions (except strategic sensitivity). Moreover, results concluded a significantly positive KMP-SA association.

Keywords – Entrepreneurial orientation -Dynamic capabilities- Knowledge management - Strategic agility- firm performance - Balanced scorecard -Egyptian Universities - Structured equation modeling – Financial measures – Non-financial measures.

المستخلص :

يهدف هذا البحث الى التحقق من أثر التوجه الريادي على أداء الجامعات المصرية من خلال توسط عمليات إدارة المعرفة والمرونة الاستراتيجية.تم توزيع ٥٠٠ استمارة استقصاء علي أعضاء هيئة التدريس في ١٩ جامعة مصرية غير حكومية وتم جمع ٤٣٥ استمارة صالحة. تم تحليل البيانات بالاعتماد على برنامج الحزمة الإحصائية للعلوم الاجتماعية باستخدام (SPSS / AMOS) تحليل الانحدار الخطى البسيط، الانحدار المتعدد، نمذجة المعادلة الهيكلية، وتحليل المسار.أظهرت النتائج الاثار المتعددة لديناميات ابعاد نموذج الدراسة حيث أوضحت الأثار الإيجابية المعنوية لأبعاد التوجه الريادي على كل من أداء المنشآت، عمليات إدارة المعرفة، والمرونة التنظيمية. كما اكدت النتائج كل من: توسط عمليات إدارة المعرفة للعلاقة ما بين التوجه الريادي وأداء المنشآت، والتوسط الجزئي للمرونة الاستراتيجية. كذلك تأثر أداء المنشآت بالأبعاد المختلفة لعمليات إدارة المعرفة فيما عدا " التحول " وابعاد المرونة الاستراتيجية فيما عدا " الحساسية الاستراتيجية" . بالإضافة الى العلاقة الإيجابية المعنوية ما بين عمليات إدارة المعرفة والمرونة الاستراتيجية .

الكلمات المفتاحية: التوجه الريادي –القدرات الديناميكية – إدارة المعرفة – المرونة الاستراتيجية – أداء المنشاة – بطاقة الأداء المتوازن – الجامعة المصرية – نمذجة المعادلة الهيكلية – قياسات مالية – قياسات غير مالية.

List of Abbreviations: قائمة الاختصارات:

Serial	Abbreviation	Term	الترجمة إلى اللغة العربية
1.	EO	Entrepreneurial Orientation	التوجه الريادى
2.	KMP	Knowledge Management Processes	عمليات إدارة المعرفة
3.	SA	Strategic Agility	المرونة الاستراتيجية
4.	FP	Firm Performance	أداء المنشأة
5.	SO	Strategic Orientation	التوجه الاستراتيجي
6.	DC	Dynamic Capabilities	القدرات الديناميكية
7.	IN	Innovativeness	الابتكارية
8.	PR	Proactiveness	الاستباقية
9.	RT	Risk Taking	إتخاذ المخاطر
10.	CA	Competitive Aggressiveness	الشراسة التنافسية
11.	AU	Autonomy	الاستقلالية
12.	OA	Organizationl Agility	المرونة التنظيمية
13.	SS	Strategic Sensitivity	الحساسية الاستراتيجية
14.	LU	Leadership Unity	وحدة القيادة
15.	RF	Resource Fluidity	إنسيابية الموارد

16.	BSC	Balanced Scorecard	بطاقة الأداء المتوازن
17.	FIP	Financial Perspective	المنظور المالى
18.	CP	Customer Perspective	منظور العميل
19.	IPP	Internal Processes Perspective	منظور العمليات الداخلية
20.	ILP	Innovation and Learning Perspective	منظور الابتكار والتعلم
21.	HES	Higher Education Sector	قطاع التعليم العالى
22.	CAPMAS	Central Agency for Public Mobilization and Statistics	الجهاز المركزى للتعبئة العامة والإحصاء
23.	SLRA	Simple Linear Regression Analysis	تحليل الانحدار الخطى البسيط
24.	MRA	Multiple Regression Analysis	تحليل الانحدار الخطى المتعدد
25.	SEM	Structured Equation Modeling	نمذجة المعادلة الهيكلية
26.	C.R.	Critical Path	المسار الحرج
27.	ANOVA	Analysis of Variation	تحليل التذبذب

Introduction

Multiple strategic orientations (SO) were identified in the documented literature however scholars have been showing increased attention to EO (Balodi, 2014; Wolff *et al.,* 2015; Lin *et al.,* 2021). Theriou and Chatzoudes (2015) acknowledged a twofold importance of entrepreneurship; a firm-level antecedent

for profitability and growth, and an incentive to wealth creation in emerging and developed economies. However, contradictory findings have been documented on the associations between EO and FP (Lee *et al.,* 2019; Ali *et al.,* 2020; Boohene *et al.,* 2020). Multiple research investigations attempted to explore the underlying mechanisms of EO-FP (Tho, 2019; Seepana *et al.,* 2021) where mediation of dynamic capabilities (DCs) has been asserted (Ramachandran *et al.,* 2019; Screoder *et al.,* 2021; Nofiani *et al.,* 2021).

Consequently, a motivation was triggered for this research to address the EO-FP associations mediated by KMP and SA. Scant research was found addressing the KMP-SA and KMP-EO relationships and varying associations were concluded on KMP and EO-FP (Martens *et al.,* 2016; Latif *et al.,* 2021; McNaughton and Sembhi, 2021). Furthermore, this research empirically investigate the higher education sector (HES) which witnessed the birth of entrepreneurial university concept (Harrison and Leitch, 2010) where ELHadidi and Kirby (2015) asserted active and positive response of Egyptian Universities to entrepreneurship development.

1. Literature Review:

1.1 EO:

Described as strategic posture EO shows a company's competitive inclination and conveys how decision-making styles, expressed in organizational processes, practices and procedures, allows firms to create wealth (Dada and Watson, 2013; Alam *et al.,* 2015; Yu *et al.,* 2016). EO is defined as a dispositional firm engagement reflected in innovative (IN), proactive (PR), risk-taking (RT), competitively aggressive (CA), and autonomous (AU) behaviors (Nofiani *et al.,* 2021).

IN refers to the willingness to support creativity and experimentation depicting a firm's inclination to explore novel business initiatives that have market advantage (Theriou and Chatzoudes, 2015; Ali *et al.,* 2020). *PR* refers to a posture of anticipating and acting on prospective future problems, needs or

changes thereby constantly searching for new market opportunities (Aloulou, 2019; Sarsah *et al.,* 2020). *RT* is a firm's tendency to seize opportunities and engage in high-risk business under an uncertain environment targeting high returns (Theriou and Chatzoudes, 2015; Lee *et al.,* 2019). *CA* refers to a firm's propensity to directly and intensely challenge its competitors where aggressive stances block out rivals and establish an advantage over offensive competitive attacks by simultaneously defending and attacking multiple markets (Lee *et al.,* 2019). Finally, *AU* conveys how skilled, knowledgeable, and determined individuals or teams independently act and achieve targets bringing forth a business concept or vision and carrying it through to completion (Smith and Jambulingam, 2018; Ali *et al.,* 2020).

1.2 KMP:

KMP refers to a set of sequential activities performed by organizations which integrates knowledge assets and technical infrastructure, stimulates constant knowledge dynamism, and enhances decision making (Ghasemi and Valmohammadi, 2018; Nazari *et al.,* 2021). The literature shows multiple KMP models, however, there is growing consensus that KMP is a four facets construct: acquisition, conversion, application and protection (Gold *et al.,* 2001; Jimenez-Jimenez *et al.,* 2014; Nguyen *et al.,* 2019). *Acquisition* processes define knowledge gaps and acquire relevant knowledge to fill in such gaps either gained by internal development, or possessed from external sources (Adobor *et al.,* 2019; Anser *et al.,* 2021). *Conversion* takes place promptly after acquisition through codification, integration, and transfer of knowledge where acquired knowledge is refined, organized, interpreted and disseminated (Bagheri *et al.,* 2015). *Application* involves actual utilization of new integrated knowledge to serve evolving organizational objectives while reducing complexities and enhancing decision making (Al-Sa'di *et al.,* 2017; Nascimento *et al.,* 2021). *Protection* processes represent organizations' security related actions to protect knowledge from theft, illegal use and/or misuse (Bagheri *et al.,* 2015; Pandey *et al.,* 2018).

1.3 SA:

Agility have been variously defined by different scholars all of which shared a thematic business trait of surviving and prospering in a dynamic and unpredictable environment by interacting quickly and effectively to multiple changes, either proactively anticipated or reactively unpredicted, in proper ways and due time (Vagnoni and Khoddami, 2016; Ulrich and Yeung, 2019; Theyel and Hofmann, 2021).

Organizational agility (OA) refers to the ability of undergoing myriad small adaptations in leading to changing the fundamental building blocks of an organization (Nold and Micheal, 2016). OA comprises business process agility and market responsiveness agility both manifested on two levels; operational and strategic (Nejatian *et al.,* 2018). SA is the organization's capacity to make strategic commitments while maintaining dexterity and flexibility, it is considered an efficient tool by which organizations seize available opportunities, transform and reinvent themselves adaptively unexpected changes (Vagnoni and Khoddami, 2016; Xing *et al.,* 2020).

In their seminal work Doz and Kosonen (2010) conceptualized SA as the strategic interplay between three meta-capabilities: strategic sensitivity (SS), leadership unity (LU), and resource fluidity (RF). *SS* refers to sharpened perception and intense awareness of external trends combined with an internally participative strategy process (Reed, 2021). *LU* allows bold decision making and requires mutual dependency, collaboration and an integrative leadership style, it enables avoiding counter-productive politics and achieve collective success instead of promoting personal agenda (Hemmati *et al.,* 2016; Nold and Micheal, 2016; Reed, 2021). *RF* is the capacity to reconfigure and redeploy resources and capabilities quickly involving the re-alignment of strategy and structure, people rotation, and modular systems and processes (Reed, 2021).

1.4 FP:

FP measurement systems are pivotal to organizational success since they are used in evaluating and reforming its performance (Leeuw and Berg, 2011; Al-Matari and Al-Swidi, 2014; Masa'deh *et al.,* 2018). Ghalayini and Noble, (1996) highlighted two fundamental themes of FP measures; traditional (financial) and non traditional (non-financial). Financial measures can be more reliable however do not disclose a complete FP image; they fail to provide qualitative information, tend to be short-term sighted, resist innovation, cause management frustration and employees' resistance (Ramezan *et al.,* 2013). However, non-financial measures lack accuracy though provides a richer description of organizations effectiveness (Al-Ansaari *et al.,* 2015), nevertheless, uprising competitive pressures and environmental uncertainty induced the need of more non-financial data integration into firms accounting information systems (Khan *et al.,* 2011).

In their pioneering study in 1992, Kaplan and Norton introduced the balanced scorecard (BSC) as an integrative FP evaluation tool which thoroughly incorporates financial and non-financial measures linking operational performance to firms strategic objectives (Weygandt *et al.,* 2008). BSC evolved to be one of the fundamental tools depended upon in managerial accounting to comprehensively measure and evaluate FP pooling integrative information in a single report (Tuan, 2020). BSC measures FP on the basis of four linked categories called "perspectives": financial (FIP), customer (CP), internal process (IPP), innovation and learning (ILP). According to Kaplan and Norton (2006), *FIP* reflects changes in financial performance including such measures as growth in sales, growth in net income, return on assets, and cost savings. *CP* refers to how customers view the organization including measures such as customer satisfaction, loyalty, service targets and branding activities. While *IPP* reflects which businesses processes with potential improvements (cost reduction, reduction in manufacturing time,

efficiency improvements). Finally, *ILP* reflects how employees view the organization and includes measures such as employee turnover/employee retention, employee training, and human capital. Kaplan and Norton (2006) elaborated how performance measures in each perspective should be derived from the organization's strategy and theoretically should be related to each other in a cause-and-effect manner.

BSC has been used by multiple researchers to viably evaluate FP linked to multiple variables. Machmud and Herlinawati (2019) used BSC in analyzing the effect of EO on FP indicating a positive EO-FP relationship. Wegmann (2008) utilized BSC to test the usefulness of the non-financial indicators in driving firm objectives through a KM perspective where BSC proved to enhance knowledge creation and financial metrics. Moreover, Chopra and Gupta (2020) used BSC to inspect the effect of KMP on FP. their results indicated that KMP significantly affected IPP and ILP and had no significant impact on CP and FP. Al-Qudah (2018) investigated the influence of BSC on SA-FP association where the role of BSC was affirmed in achieving strategic objectives and the development of SA model enhancing performance. Moreover, Gurd and Ifandoudas (2014) investigated the practicality and usefulness of an agility-focused BSC. They concluded that while the theory of constraints based approach was improving agility yet was too short-term, using an agility-focused BSC, directed staff focus on important strategic drivers and enabled a more agile environment.

2. Hypothesis Development:

2.1 EO and FP:

Contradictory research findings were documented regarding EO impact on FP where Lee *et al.,* 2019; Ali *et al.,* 2020; Boohene *et al.,* 2020 concluded no or negative impacts, while Rauch *et al.,* 2009; Wales *et al.,* 2013; Vega-vazquez *et al.,* 2016; Raisal *et al.,* 2021, concluded significant and positive associations between EO and financial and non-financial FP, thus, the following hypothesis and sub-hypotheses are formulated:

H_1: EO has a significant positive impact on FP.

   H_{1a}: IN has a significant positive impact on FP.

   H_{1b}: PR has a significant positive impact on FP.

   H_{1c}: RT has a significant positive impact on FP.

   H_{1d}: CA has a significant positive impact on FP.

   H_{1e}: AU has a significant positive impact on FP.

However, transmission mechanisms linking EO to FP were referred to by Harms (2013) as a black box in need of exploration (McNaughton and Sembhi, 2021). Under the tenants of resource based view identified by Seo (2020) EO was considered a resource (Sarsah *et al.,* 2020; Seepana *et al.,* 2021), while Tho (2019) considered EO as a DC, which McNaughton and Sembhi (2021) explained is inert in itself, but since it shapes how individuals and managers enacted behaviors it contributes to the pervasiveness of Entrepreneurship in an organization and therefore influence FP.

However, the researchers believe that EO is neither a resource nor a capability, but rather an organizational lens whose focus provides perspective to organizational decision-making and thereby affecting FP. The ambidextrous nature of EO behaviors enhances change orchestration enabling firms to be agile in attending to identify, build, and re-arrange resources and capabilities under dynamically changing environmental factors (Sune and Gibb, 2015; Zeng and Khan, 2019; Galbreath *et al.,* 2020). In line with such understanding, Ruiz-Ortega *et al.,* 2013; Ramachandran *et al.,* 2019; Schroder *et al.,* 2021; Nofiani *et al.,* 2021, asserted the mediation of DCs in the EO-FP relationship, among which the researchers attempt to investigate KMP and SA in specific.

2.2 KMP and FP:

Extant literature recognized the importance of KMP in promoting FP. Positive impacts were concluded on the independent effects of KMP on FP using multiple financial and non financial metrics (Nodari *et al.,* 2016; Bahar *et al.,* 2021; Sinshaw *et al.,* 2021) where Positive impacts of KMP were

documented on new product development (Ho, 2009), innovation (Cabrilo and Dahms, 2018), and employee creativity (Imran *et al.,* 2016). However, few studies documented positive impacts of KMP on financial metrics; firm value (Choi and Jong, 2010) and profitability (Lopez-Carbarcos *et al.,* 2020). Consequently, KMP play pivotal roles in fostering different FP metrics:

H_2: KMP have a significant positive impact on FP.

H_{2a}: Acquisition has a significant positive impact on FP.

H_{2b}: Conversion has a significant positive impact on FP.

H_{2c}: Application has a significant positive impact on FP.

H_{2d}: Protection has a significant positive impact on FP.

2.3 EO and KMP:

Latif *et al.,* (2021) theorized that EO is a one of KM enablers affecting KMP since EO has a direct influence on the firm's development of KM capabilities. EO as a driver of how organization reconfigures its portfolio of resources and capabilities accordingly is considered an antecedent for knowledge acquisition and a facilitator of knowledge conversion (Ramachandran *et al.,* 2019). Consequently, EO leverages and integrates knowledge utilized in embarking on new opportunities, developing product/process innovations, and taking risks to engage in risky endeavors (Galbreath *et al.,* 2020; Seepana *et al.,* 2021):

H_3: EO has a significant positive impact on KMP.

H_{3a}: IN has a significant positive impact on KMP.

H_{3b}: PR has a significant positive impact on KMP.

H_{3c}: RT has a significant positive impact on KMP.

H_{3d}: CA has a significant positive impact on KMP.

H_{3e}: AU has a significant positive impact on KMP.

2.4 KMP and EO-FP:

KMP is considered a DC of its own counted as an important source for promoting other DCs since they are generated from a learning mechanism consisting of the four related KMP (Tseng and Lee 2014; Bamel and Bamel 2018). The literature witnessed varying associations between KMP and EO-FP (Martens *et al.,*

2016). Mostafiz *et al.,* (2022) found a moderating effect of KMP on EO-FP linkage while Madhoushi *et al.,* (2011) stated a mediating effect of KMP on EO-FP. However, KMP enhances firms in detecting, analyzing and exploiting evolving business opportunities by emphasizing their abilities to collect, build and reconfigure an up-to-date knowledge base where exploiting existing knowledge and exploring new knowledge articulates how EO firms achieve better performance results (Shirokova *et al.,* 2013). Consequently, we propose that KMP is the salient mechanism in EO-FP linkage:

H_4: KMP have a mediating effect on the EO-FP relationship.

H_{4a}: Acquisition has a mediating effect on the EO-FP relationship.

H_{4b}: Conversion has a mediating effect on the EO-FP relationship.

H_{4c}: Application has a mediating effect on the EO-FP relationship.

H_{4d}: Protection has a mediating effect on the EO-FP relationship.

2.5 SA and FP:

Despite mixed empirical conclusions on SA-FP relationship (Reed, 2021) where Ojha (2008) found a negative SA-FP relationship and Shin *et al.,* (2015) found no relationship, Nafei, 2016; Teoh *et al.*, 2017; Queiroz *et al.,* 2018; Kale *et al.,* 2019 indicated positive SA-FP associations. In line with the latter understanding, SA empowers organizations to produce and deliver innovative products and services(Swafford *et al.,* 2006), increases customer satisfaction and eliminates non-value added activities (Lin *et al.,* 2006), develops new revenue streams and alternate sources of raw materials (Khan *et al.,* 2021):

H_5: SA has a significant positive impact on FP.

H_{5a}: SS has a significant positive impact on FP.

H_{5b}: LU has a significant positive impact on FP.

H_{5c}: RF has a significant positive impact on FP.

2.6 EO and SA:

SA enable firms to outmaneuver their rivals by flexible, efficient, and rapid strategy change and resource orchestration, while SO plays a crucial role in steering the exploitation and exploration of existing and potential market opportunities. Particularly, EO as an entrepreneurial mode or a decision-making style can be of great emphasis to organizations targeting superior sustained performance in turbulent environments (Vaillant and Lafuente, 2019). According to Reed (2021), SS is consistent with EO construct especially under conditions of environmental change. Teece *et al.* (2016) elaborated how entrepreneurial practices enable effective RF stimulating speedy solutions:

H_6: EO has a significant positive impact on SA.

   H_{6a}: IN has a significant positive impact on SA.
   H_{6b}: PR has a significant positive impact on SA.
   H_{6c}: RT has a significant positive impact on SA.
   H_{6d}: CA has a significant positive impact on SA.
   H_{6e}: AU has a significant positive impact on SA.

Moreover, the notion of SA being a DC is built on its role in providing timely, rapid, and flexible responsiveness to turbulent environment through agility's active sensing of environmental forces and changes, seizing of opportunities, and continuous adaptation where effective and efficient management practices coordinate and redeploy organizational competencies (Vagnoni and Khoddami, 2016; Ulrich and Yeung, 2019; Pereira *et al.,* 2018; Liu and Yang, 2020; Rafi *et al.,* 2021). Whilst agility is embedded into the operational processes it transcends to be deeply inherent in strategic decision making, leading researchers to emphasize SA as a DC which might be responsible for affecting the EO-FP relationship (Alon *et al.,* 2017; Theyel and Hofmann, 2021; Khan *et al.,* 2021):

H_7: SA has a mediating effect on the EO-FP relationship

   H_{7a}: SS has a mediating effect on the EO-FP relationship
   H_{7b}: LU has a mediating effect on the EO-FP relationship
   H_{7c}: RF has a mediating effect on the EO-FP relationship

2.7 KMP and SA:

Extant research asserted the intertwined relationship between KM and SA highlighting the crucial role KMP plays in fostering agility (Vagnoni and Khoddami, 2016; Ferraris *et al.,* 2017; Panda and Rath, 2018; Rialti *et al.,* 2018; Bigdeli *et al.,* 2020) since agility is defined by the ability to manage and apply knowledge effectively and organizations learn as much as possible about relevant stakeholders allowing them to avoid repeating mistakes, exploiting existing knowledge and explore new knowledge. According to Harsch and Festing 2020; Cegarra-Navarro and Martelo-Landroguez, 2020; Rafi *et al.,* 2021, KMP prompts agility since offering practices that organizations use to observe, react and proact to fluctuations in business environments:

H_8: KMP has a significant positive impact on SA.

 H_{8a}: Acquisition has a significant positive impact on SA.

   H_{8a}: Conversion has a significant positive impact on SA.

   H_{8b}: Application has a significant positive impact on SA.

   H_{8c}: Protection has a significant positive impact on SA.

Furthermore, in an attempt to achieve thorough research conclusions, discrepancies in respondents' opinions based on the research controlling variables were investigated:

 H_9: There is a statistically significant difference between the opinions of faculty members depending on according to the research controlling variables (University's equity structure/ University's age/ students enrolled).

Figure (1)
Research Model
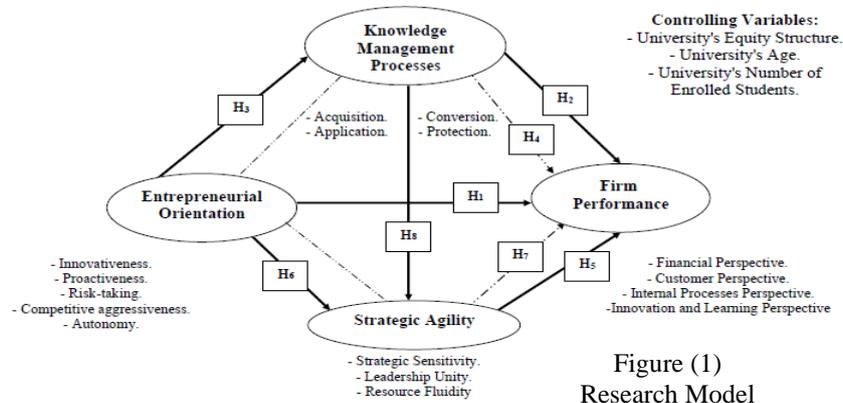
3. Methodology:

3.1 Research population and sample:

The Egyptian Higher education sector (HES) includes 56 Universities (28 public and 28 non-public) hosting 115,091 faculty members for the year 2020/2021. Due to the wide geographic dispersion of Egyptian Universities and insufficient research resources, only non-public Universities were chosen limited to the greater Cairo area. According to CAPMAS (2021), 19 Universities operate within these research boundaries. Samples sizes were calculated using Thompson equation (Thompson, 2012) where 383 were indicated. However 500 surveys were proportionately and randomly distributed on faculty members taking into account non response bias, 435 surveys were collected where only 414 were valid for statistical testing as shown in the following table (1):

Table (1)

Research sample according to the proportional distribution method

%	# of collected surveys and valid for analysis	# of distribut-ed surveys	%	# of faculty members	University	s.
9.6%	48	55	11%	1054	Misr University for Science and Technology	1.
0.8%	4	6	1.2%	112	Egyptian Chinese University	2.
9%	45	52	10.4%	995	October University for Modern Sciences & Arts	3.
4.4%	22	23	4.7%	448	Misr International University	4.
8.8%	44	49	9.7%	934	6th October University	5.
3.4%	17	22	4.4%	420	American University in Cairo	6.
4.4%	22	28	5.6%	540	Canadian Pyramids University	7.
8.8%	44	48	9.6%	918	British University in Egypt	8.
0.6%	3	3	0.6%	62	French University	9.
4.4%	22	27	5.4%	514	Egyptian Russian University	10.
5.6%	28	34	6.8%	657	Modern Technology and Information University	11.
9.2%	46	52	10.4%	996	German University in Cairo	12.
4%	20	29	5.9%	563	Future University	13.
1%	5	6	1.1%	110	Egyptian e-learning University	14.
0.4%	2	2	0.4%	40	Arab Open University	15.
1.4%	7	8	1.6%	152	Nile University	16.
2.2%	11	15	2.9%	283	New Giza University	17.
1.2%	6	9	1.8%	171	Heliopolis University	18.
3.6%	18	32	6.5%	633	Badr University	19.
82.8%	414	500	100%	9602	Total	

3.2 Research instrument and measures:

A self-reported four sections survey structuring close-ended questions capturing the personal opinions of faculty members was administered covering multiple underlying items of research variables. Items were rated on 7- point Likert-type scale ranging from "Strongly agree" (=7) to "Strongly disagree" (=1). To avoid loss of meaning due to translation from English to Arabic, the researchers conducted a dual translation process (forward and backward) whose results confirmed no linguistic deviations.

A set of 54 questions was used: EO 15-item scale developed by Hughes and Morgan (2007) following Lee *et al.,* 2019; Galbreath *et al.,* 2020; Gauthier *et al.,* 2021. KMP 12-item scale developed by Gold *et al.,* (2001) following Bagheri *et al.,* 2015; Bamel and Bamel, 2018; Nguyen *et al.,* 2019. Thirdly, a 9-item scale provided by Doz and Kosonen (2010) was used to measure SA following Reed (2021). Finally, BSC (18-item scale) was used to measure FP based on the four dimensions provided by Kaplan and Norton (1996) following Gurd and Ifandoudas, (2014) and Machmud and Herlinawati (2019).

3.3 Analysis and Results:

Research sample consisted of 19 Egyptian nonpublic Universities; 17 private (89.5% of collected surveys) and 2 national (10.5%). Universities ages ranged from: 5-10 years (3 Universities representing 15.9% of collected responses), 11-15 years (2 representing 10.9%), 16-20 years (9 representing 47.1%) and 5 of more than 20 years of operation (26.1%). Surveyed Universities showed a wide range of enrolled students' numbers: 6 with less than 5000 students (10.4% of collected responses), 5 with 5001-10,000 students (31.6%), 6 with 10,001 – 15,000 students (26.3%), and 2 with more than 15,000 students (31.6%). Alpha-Cronbach recorded 0.85 for the total sample and a square root of 0.921 indicating high consistency and reliability. Reliability and validity coefficients were 0.846 and 0.919 for EO, 0.811 and 0.905 for FP, KMP of 0.829 and 0.910, and 0.768 and 0.876 for SA.

Research hypotheses; H_1, H_2, H_3, H_5, H_6, and H_8 were tested using simple linear regression analyses (SLRA) whose sub-hypotheses were tested using multiple regression analyses (MRA). Structured equation modeling (SEM) and path analysis were resorted to for testing H_4 and H_7. SLRA Results of H_1 testing indicated a significantly positive relationship between EO and FP, at significance level of less than 0.01, recording a 0.707 coefficient of correlation (r), t-value of 20.288, F-test value of 411.591, where EO's coefficient of determination (R^2) explained 50% of FP total variation. MRA results of H_1 sub-hypothesis testing showed a significantly positive relationship between EO and FP where r recorded 0.747 at significance level of less than 0.01 and F-test value of 103.207, thus accepting sub-hypotheses of H_1. R^2 indicated that EO explains 55.8% of the total change in FP. Moreover, Results of t-test indicated that RT 11.992, CA 7.195, AU 4.787, PR 2.455, and IN 1.997 respectively affected FP at significance level of less than 0.05.

SLRA results of H_2 testing indicated a significantly positive relationship between KMP and FP with r of 0.608, t-value of 15.557, and F-test value of 242.027 at significance level of less than 0.01, thus accepting H_2. KMP's R^2 explained 37.0% of FP total variation. Results of MRA conducted to test for H_2 sub-hypothesis showed, significance level less than 0.01, a significantly positive relationship between KMP and FP where r recorded 0.496, and F-test recorded 33.403. R^2 indicated that KMP explained 24.6% of the total change in FP. Moreover, t-test results indicated that Acquisition, Application, and Protection respectively affected FP at significance level of less than 0.05 recording 5.493, 5.278, and 4.652 respectively. However, Conversion t-test recorded 0.336 indicating an insignificantly positive effect on FP at a level of significance more than 0.05, thus, partial acceptance of H_2 sub- hypothesis. SLRA results of H_3 testing indicated, at significance level of 0.01, a significantly positive relationship between EO and KMP where r recorded 0.605 where EO's R^2 explains 36.3% of KMP total variation. EO

showed a t-value of 15.414 indicating a significant effect on KMP and F-test recorded 237.585, thus, accepting H_3. Results of MRA conducted to test for H_3 sub-hypothesis indicated a significantly positive relationship between EO and KMP whose r recorded 0.625 and F-test recorded 52.183 at significance level of less than 0.01, thereby accepting sub- hypothesis of H_3. EO's R^2 explained 39.0% of the total change in KMP. Moreover, t-test results recorded 9.286 CA, 6.009 RT, 4.853 AU, 2.491 PR and 2.204 IN respectively affecting KMP at significance level of less than 0.05.

Table (2)
SEM of KM mediating effect EO-FP

Sig.	P-Value	C.R.	S.E	Estimate	Path		
Sig.	0.001**	15.432	0.070	1.076	EO	←	KMP
Sig.	0.001**	6.887	0.027	0.186	KMP	←	FP
Sig.	0.001**	12.915	0.048	0.619	EO	←	

**Significance level (0.01)   *Significance level (0.05)

Two SEMs were conducted to test H_4. As shown in table (2), the first model included FP and KMP as observed endogenous variables, while the observed exogenous variables included EO. At significance level of less than 0.05, EO had a Critical path value (C.R.) of 15.432 indicating a significantly positive impact on KMP. KMP had significantly positive impact on FP with C.R. of 6.887, and EO had a significantly positive impact on FP with C.R. of 12.915, thereby accepting H_4. Model quality was verified where Chi square indicated 0.001, GFI 0.999, and RMSEA 0.312. As shown in figure (2), the second SEM observed endogenous variables included FP and its dimensions (FIP, CP, IPP, and ILP) and KMP and its dimensions (acquisition, conversion, application, and protection), while the observed exogenous variables included EO and its dimensions (IN, PR, RT, CA, and AU). Path analysis, at significance level of less than 0.05, showed that EO dimensions had varying impacts on Acquisition where CA, IN, and AU had significantly positive impacts of critical paths C.R. values of 8.286, 7.141, and 3.241 respectively, while PR had a significantly negative impact of C.R. -2.288 and RT had an insignificant positive impact of 1.494.

Figure (2)
Path analysis for KMP mediation of EO-FP
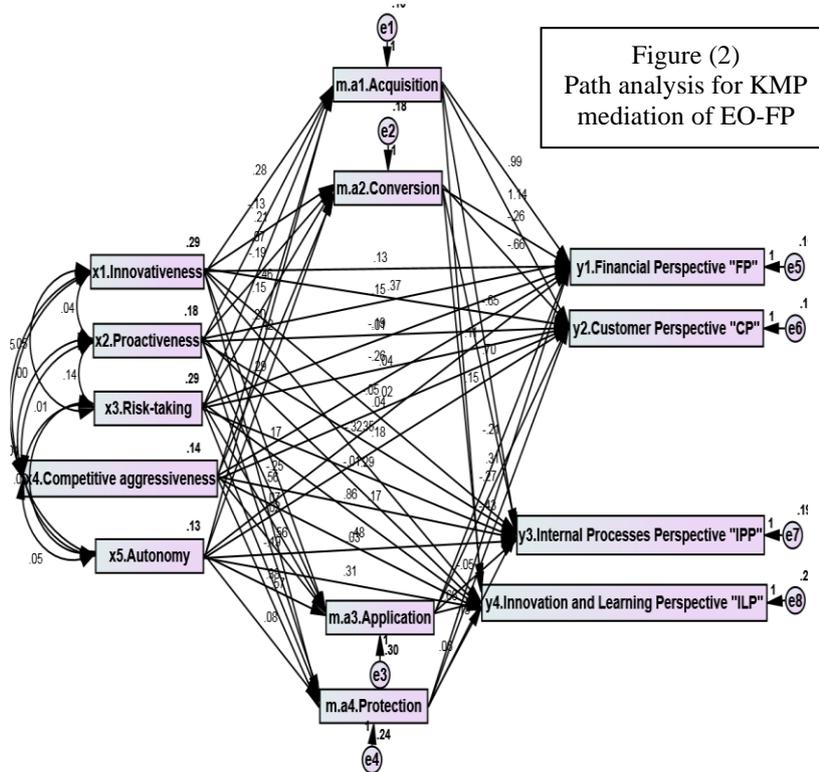
CA had the highest impact on Conversion whose C.R. recorded 7.040, followed by IN 4.922, AU 4.288, and RT 3.037 respectively while PR had a significantly negative impact of C.R. -3.111. CA had the highest significantly positive impact on Application with a C.R. 7.169 followed by AU 4.390 and IN 3.155 respectively, while PR had a significantly negative impact of C.R. -3.125 and RT had insignificant positive impact of C.R. 1.175. Finally, IN and CA had significantly positive impacts on Protection with C.R. values of 11.271 and 8.205 respectively, RT had a significantly negative impact of C.R. -3.369 while PR insignificant negative impact of -0.312 and AU had insignificant positive impact of 1.000.

Only Acquisition had a significantly positive impact on FIP, at significance level of less than 0.05, with a C.R. value of 24.815 while Protection, Application, and Conversion had significantly

negative impacts with C.R.s of -8.619, -7.231, and -7.085 respectively. Acquisition and Application had significantly positive impacts on CP whose C.R. values were 21.454 and 8.097 respectively, while Conversion and Protection had significantly negative impacts of C.R -13.349 and -10.188 respectively. Conversion and Protection had significantly positive effect on IPP whose C.R. values were 13.709 and 2.857 respectively, Acquisition had a significantly negative impact of C.R. -11.780 and Application had an insignificantly negative impact on IPP of -1.392 at significance level greater than 0.05. Conversion had a significant positive impact on ILP of C.R. 2.646; Application had a significantly negative impact on ILP of C.R. -15.597. Further, Acquisition and Protection had insignificantly positive impacts on ILP of 1.902 and 1.184 respectively at significance level greater than 0.05.

EO dimensions had multiple effects on FP dimensions when mediated by KMP. First, IN and PR had significantly positive impacts on FIP of C.R. values 3.288 and 3.156 respectively at significance level of less than 0.05, while RT, CA, and AU had insignificantly positive impact of 0.671 on FIP at significance level greater than 0.05. Second, at significance level of less than 0.05, CP was significantly and positively affected by IN, and AU of C.R. 7.008 and 2.554 respectively, significantly and negatively affected by RT and PR C.R. -5.301 and -2.967 respectively, while CA had an insignificantly positive effect of 0.764 at significance level greater than 0.05. Third, at significance level of less than 0.05, IPP was significantly and positively affected by RT, PR, and CA of C.R. 5.563, 5.301, and 2.231 respectively, while IN had an insignificant negative effect of -0.989 and AU had an insignificant positive effect of 0.414 at significance level greater than 0.05. Finally, at significance level of less than 0.05, ILP was significantly and positively affected by RT, CA, and AU of C.R. 15.549, 5.701, and 3.887 respectively, significantly and negatively affected by IN of C.R. -5.543, while PR had an

insignificant negative effect of -0.130 at significance level greater than 0.05.

SLRA results of H_5 test indicated a significantly positive relationship between SA and FP with r valued 0.485, t-value of 11.249, and F-test value of 126.538 at significance level of less than 0.01, thereby accepting H_5. SA's R^2 explains 23.5% of FP total variation. Results of MRA conducted to test for H_5 sub-hypothesis showed, significance level less than 0.01, a significantly positive relationship between SA and FP where r recorded 0.551 and F-test recorded 59.561 at a significance level less than 0.01. R^2 indicated that SA explained 30.4% of the total change in FP. Results of t-test recorded 6.795 RF, and 6.652 LU respectively affecting FP, however, t-test for SS recorded 0.666 indicating an insignificant effect on FP at a level of significance more than 0.05, thus, partially accepting H_5 sub-hypothesis. To test for H_6, a SLRA was conducted. Results indicated a significantly positive relationship between EO and SA with r of 0.697, t-value of 19.732, and F-test value of 389.368 at a significance level 0.01, thus accepting H_6. EO's R^2 explained 48.6% of SA total variation. Results of MRA for testing H_6 sub-hypothesis showed a significantly positive relationship between EO and SA where r recorded 0.659 and F-test recorded 62.557 at a significance level less than 0.01, thus accepting H_6. R2 indicated that EO explained 43.4% of the total change in SA. Moreover, results of t-test recorded 7.763 CA, 4.703 RT, 4.619 IN, 4.615 PR, and 2.608 AU respectively affecting SA at a significance level of less than 0.05.

Two SEMs were conducted to test H_7. Results of the first model showed in table (3) included FP and SA as observed endogenous variables, while the observed exogenous variables included EO. At significance level of less than 0.05, EO had a C.R. of 19.756 indicating a significantly positive impact on SA, SA had an insignificantly negative impact on FP with C.R. of -0.322 at significance level greater than 0.05 while EO had a significantly positive impact on FP of C.R. 14.791 at significance

level of less than 0.05, thereby partially accepting H_7. Model quality was verified where Chi square indicated 0.001, GFI 0.999, and RMSEA 0.671.

Table (3)

SEM of SA mediating EO-FP relationship

Sig.	P-Value	C.R.	S.E	Estimate	Path		
Sig.	0.001**	19.756	0.052	1.076	EO	←	SA
Not Sig.	0.747	-0.322	0.039	-0.012	SA	←	FP
Sig.	0.001**	14.791	0.056	0.832	EO	←	

**Significance level (0.01)   *Significance level (0.05)

The second SEM included FP and its dimensions (FIP, CP, IPP, and ILP) and SA and its dimensions (SS, LU, RF) as observed endogenous variables, while the observed exogenous variables included EO (IN, PR, RT, CA, and AU). EO had multiple effects on SA dimensions. First, at significance level of less than 0.05 CA, IN, and PR had significantly positive impacts on SS respectively whose values of C.R. indicated 7.012, 3.013, and 2.387, while RT had an insignificantly negative impact of -1.008 and AU had an insignificantly positive impact of 0.694 at significance level greater than 0.05. Secondly, LU was affected significantly and positively by RT, IN, CA, and PR respectively whose C.R. values were 10.772, 6.690, 5.807, and 4.870, and significantly and negatively affected by AU of -5.017. Thirdly, RF was affected significantly and positively by RT, PR, and IN respectively whose C.R. values were 6.439, 3.615, 3.188, while CA and AU had insignificantly positive effects of 1.761 and 0.406 respectively at significant level greater than 0.05.

Figure (3)
Path analysis for SA
mediation of EO-FP
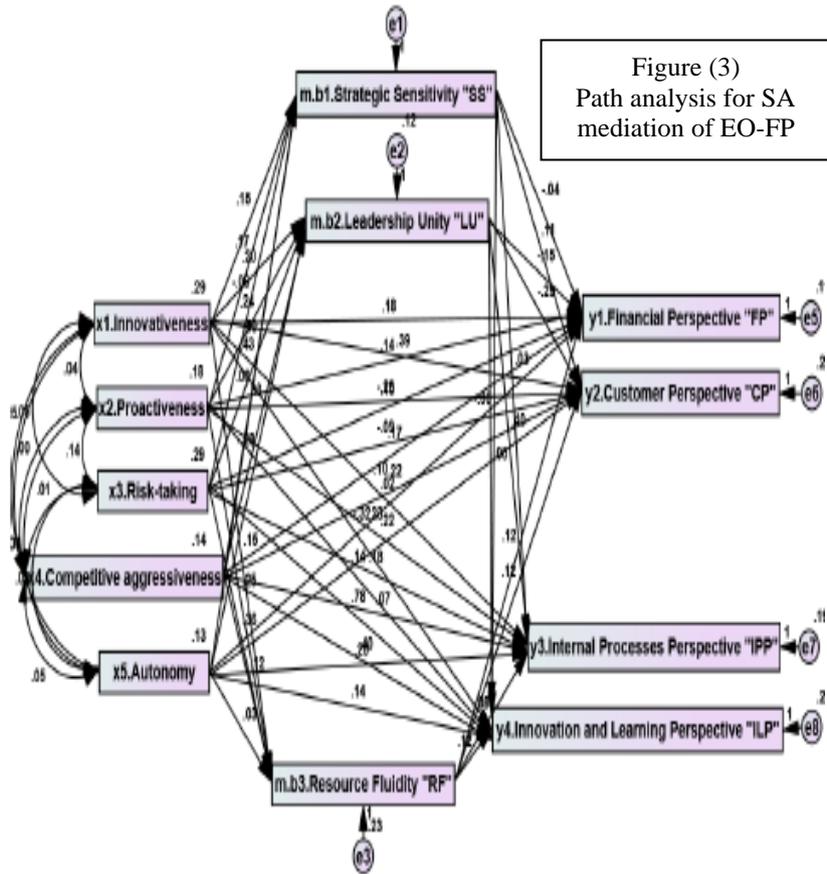
SA dimensions had multiple effects on FP dimensions. At significance level of less than 0.05, RF had significantly positive effect of C.R. 3.372 on FIP, and LU had significantly negative effect of C.R. -3.160, while SS had an insignificantly negative effect of -1.230 on FIP at significance level greater than 0.05. CP, at significance level of less than 0.05, was significantly and positively affected by RF and SS respectively of C.R. values of 2.598 and 2.323, and significantly and negatively affected by LU of C.R. -4.393. IPP, at significance level of less than 0.05, was significantly and positively affected by LU of C.R. 6.457, while SS had insignificant positive effect of 0.799 and RF had insignificant negative effect of -1.770 on IPP at significance level

greater than 0.05. Finally, at significance level less than 0.05, ILP was significantly and positively affected by RF of C.R. 2.160, significantly and negatively affected by SS of C.R. -5.898, and was insignificantly and negatively affected by LU of -0.031 at significance level greater than 0.05.

EO dimensions had multiple effects on FP dimensions when mediated by SA. First, IN, CA, PR and RT had significantly positive impacts respectively on FIP with C.R. values 5.070, 3.245, 2.776, and 2.130 at significance level of less than 0.05, while AU had insignificantly positive effect of 0.299 on FIP at significance level greater than 0.05. Secondly, CP, at significance level of less than 0.05, was significantly and positively affected by IN, CA and AU respectively with C.R. values of 7.721, 3.010 and 2.850, significantly and negatively affected by PR with C.R. value of -3.575, while at significance level of greater than 0.05 was insignificantly and negatively affected by RT with C.R. value of -1.471. Thirdly, at significance level of less than 0.05, PR, RT, and AU had significantly positive impacts respectively on IPP with C.R. values of 3.369, 3.011, and 2.810, IN had significantly negative impacts with C.R. value of -2.217, while at significance level greater than 0.05 CA had an insignificantly positive impact on IPP of 1.049. Finally, at significant level of less than 0.05, ILP was affected significantly and positively by RT and CA respectively with C.R. values of 10.920 and 4.746, significantly negatively affected by IN with C.R. value of -5.615, while at significance level of more than 0.05 PR and AU had insignificant positive effects on ILP of 1.687 and 1.588 respectively.

Results of SLRA conducted to test H_8 indicated, at a significant level of 0.01, a significantly positive relationship between KM and SA whose r recorded 0.554, t-value of 13.503, F-test value of 182.334, where KMP's R^2 explained 30.7% of SA total variation, thus accepting H_8. MRA results of H_8 sub-hypothesis testing showed, at significance level of less than 0.01, a significantly positive relationship between KMP and SA where r recorded 0.545 and value of F-test was 43.182. R^2 indicated that

KMP explains 29.7% of the total change in SA. Moreover, at a significance level less than 0.05, results of t-test recorded 2.298 for Acquisition indicating a significant effect on SA, while Conversion, Application, and Protection had insignificant effects on SA at significance level more than 0.05, thus partially accepting the sub-hypotheses of H_8. To test for H_9 the researchers conducted an independent t test to investigate differences in responses based on equity structure (private or national) and One-Way-ANOVA investigate discrepancies based on University's age and number of enrolled students. Valid surveys were collected from 414 faculty members (391 private and 23 national). t-test scores recorded 0.544 for EO, 0.387 for FP, 0.911 for KMP, and 0.143 for SA at a P-value greater than 0.05 indicating a statistically insignificant difference between the opinions of faculty members depending on University's equity structure. One-Way-ANOVA test was conducted to investigate differences in responses based on University's age and University's number of enrolled students. With regard to the second controlling variable in question, University's age, four categories were specified by the researchers; 5-10 years, 11-15 years, 16-20 years, and 5 of more than 20 years of operation. The categories recorded F values of 0.36, 1.889, 1.216, and 0.244 for EO, FP, KMP and SA respectively at P-values of 0.99, 0.13, 0.30, and 0.86 respectively. Thus, indicating statistically insignificant differences between the opinions of faculty members depending on University's Age at significance level greater than 0.05. Finally the researchers specified four categories for the last controlling variable of University's number of enrolled students; less than 5000 students, 5001 to 10000, 10001 to 15000, and greater than 5000 students. The categories recorded F values of 0.138, 2.386, 1.434, and 0.351 for EO, FP, KMP and SA respectively at P-values of 0.93, 0.06, 0.23, and 0.78 respectively. Thus indicating statistically insignificant differences between the opinions of faculty members depending on University's number of enrolled students at significance level greater than 0.05.

4. Discussion and Conclusions:

EO is a strategic tool used by firms, reflecting managerial vision and informing organizational efforts, to explore and utilize market opportunities. Previous research documented contradictory findings on EO-FP associations where the role of firm-level resources and capabilities in mediating such relation has been stressed. The researchers investigated the mediation of KMP and SA on such relationship in the context of Egyptian non-public Universities.

Results concluded positive EO-FP association where RT, CA, AU, PR and IN respectively had significant impacts on FP. RT being the most EO influential dimension on FP indicates that Egyptian non-public Universities exert handsome efforts in capitalizing on market opportunities promoting both exploration and exploitation and subsequently enjoying emphasized performance. CA occupying the second influential rank between EO dimensions on FP indicates that research sample operate in growing yet stable industries and enjoy relative innovation speed and flexibility.

Results also concluded a significantly positive KMP-FP association where Acquisition, Application, and protection significantly impacted FP respectively, while Conversion had an insignificant positive effect on FP. Acquisition had significantly positive impacts on FIP and CP, significantly negative impact on IPP, and insignificant positive impact on ILP. Conversion had significantly negative impact on FIP and CP, and significantly positive impact on IPP and ILP. Application had significantly negative impact on FIP and ILP, had significantly positive impact on CP, and insignificantly negative impact on IPP. Protection had significantly negative impacts on FIP and CP, significantly positive impact on IPP, and insignificantly positive impact on ILP.

Moreover, results concluded a significantly positive EO-KMP association where CA, RT AU, PR and IN impacted KMP

respectively. IN had significantly positive impact on Acquisition, Conversion, Application, and protection. PR had significantly negative impact on Acquisition, Conversion, and Application, and insignificantly negative impact on Protection. RT had insignificantly positive impact on Acquisition and Application, significantly positive impact on Conversion, and significantly negative impact on Protection. CA had significantly positive impacts on all KMP facets. AU had significantly positive impacts on all KMPs except Protection upon which it had an insignificantly positive impact.

EO dimensions had varying impacts on FP when mediated by KMP. IN had significantly positive impacts on FIP and CP, significantly negative impact on ILP, and insignificantly negative impact on IPP. PR had significantly positive impacts on FIP and IPP, significantly negative impact on CP, and insignificantly negative impact on ILP. RT had significantly positive impacts on IPP and ILP, insignificantly positive impact on FIP, and significantly negative impact on CP. CA had insignificantly positive impacts on FIP and CP, and significantly positive impacts on IPP and ILP. AU had insignificantly positive impacts on FIP and IPP, and significantly positive impacts on CP and ILP. Results confirmed the mediation of KMP, concluding KMP effect on leveraging EO to achieve better performance results showing that Acquisition had varying impacts on FP.

Moreover, results concluded a significantly positive SA-FP association where RF and LU affected FP respectively and SS had an insignificant impact on FP. RF had significantly positive impacts on FIP, CP and ILP, and insignificantly negative impact on IPP. LU had significantly positive impact IPP, significantly negative impacts on FIP, CP, and insignificantly negative impacts on ILP. SS had an insignificantly negative impact on FIP, a significantly positive impact on CP, an insignificantly positive impact on IPP, and an insignificantly negative impact on ILP. Results also concluded a significantly positive EO-SA association where CA, RT, IN, PR, and AU affected FP

respectively. IN had significantly positive impacts on SS, LU and RF. PR had significantly positive impacts on SS, LU and RF. RT had significantly positive impacts on LU and RF, and insignificantly negative impacts on SS. CA had significantly positive impacts on SS and LU, and insignificantly positive impact on RF. AU had insignificantly positive impacts on SS and RF, and an significantly negative impact on LU. Consequently, our findings confirmed how EO enables effective RF while contradicted SS consistency with EO. Moreover, results concluded a significantly positive KMP-SA association where Acquisition had a significant effect while Conversion, Application and Protection had insignificant effects on SA. EO dimensions had varying impacts on FP mediated by SA. IN had significantly positive impacts on FIP and CP, and significantly negative impacts on IPP and ILP. PR had significantly positive impacts on FIP and IPP, significantly negative impact on CP, insignificantly positive impact on ILP. RT had significantly positive impacts on FIP, IPP and ILP, CA had significantly positive impacts on FIP, CP and ILP, and insignificantly positive impact on IPP. AU had insignificantly positive impacts on FIP and ILP, and significantly positive impacts on CP and IPP.

5. Recommendations:

Being loosely coupled systems, Universities need to adopt a more flat structure that facilitates lateral communication between the departments, supports distributed leadership and encourages teamwork, collaborations and collective thinking.

Changing environmental dynamics in higher education call for changes in the skill sets of the workforce, and hence processes and practices that enhance and develop new knowledge and capabilities in the workforce have become crucial for Universities to realize their goals. Continuous training and development programs, rewards and incentives and employee involvement in the decision-making process empower employees and instill trust in the management. Universities should not only create knowledge, but it should also use this new knowledge in

improving the functioning of Universities, setting an example for other institutions and the community.

Our findings suggest that University leaders should begin by appraising their attitude toward risk and the extent to which risk-aversity and complacency may have already set in place organizational rigidities that are difficult to overcome. Otherwise, they would face considerable barriers in terms of the conservative attitudes of managers they have in place and governance systems and policies that discourage innovation and proactiveness.

An important consideration for Universities is obtaining the resources to bring new knowledge into the firm through research, recruitment, training, or other mechanisms. They may also need to adjust the balance of knowledge sources to increase those developed within the firm. Finally, decision-making processes may also need to be reviewed to increase their speed and further empower faculty members to be innovative and proactive.

For future research purposes, the researchers recommend investigating the underlying mechanism of knowledge management capability, i.e. the inter-relationships between knowledge management infrastructure and knowledge management processes would be of great value to Universities policy makers whose aspirations are usually hindered by lack of resources necessary for infrastructure developments.

The researchers also recommend studying EO-FP association under varying composites of business process agility and market responsiveness agility when deployed on operational and strategic levels would serve Universities in instilling an entrepreneurial state of mind to convey strategic decision making in unstable market environments.

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