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☑ **ตีพิมพ์ในวารสารทางวิชาการ**

ชื่อเรื่องบทความ A model of Causal Relationships between the Factors Influencing the Performance of Green Organization Managing Energy-Saving Buildings in Bangkok and Vicinity

ภาษาอังกฤษ .....

ชื่อวารสาร..... ○ ระดับนานาชาติ ○ ระดับชาติ

อยู่ในฐานข้อมูล ○ TCI ⊘ Scopus ○ ISI ○ อื่นๆ โปรดระบุ.....

เป็นวารสารของประเทศ Romania ปีที่ 9 ฉบับที่ 7 หน้าที่ 1656 - 1663

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ชื่อเรื่องบทความ ปัจจัยที่ส่งผลต่อการปฏิบัติงานขององค์การสีเขียวในประเทศไทย

ภาษาอังกฤษ Factors Affecting for Green Organization Performance in Thailand

ชื่องานประชุมทางวิชาการ การประชุมวิชาการระดับชาติ ครั้งที่ 5 ประจำปี 2563 วิทยาลัยนวัตกรรมการจัดการ

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สถานที่ประชุม มรภ. ราชภัฏวไลยอลงกรณ์ ประเทศ.....

เป็นการประชุมทางวิชาการ ○ ระดับนานาชาติ ⊘ ระดับชาติ ○ อื่นๆ .....

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ข้าพเจ้าขอรับรองว่า ได้ดำเนินการตามข้อความข้างต้นแล้ว และได้แนบหลักฐานการเผยแพร่ที่ได้รับการตรวจสอบความถูกต้องมาด้วยแล้ว

ลงชื่อ.....

(นายวิทยา สัทรเมธากุล)

นักศึกษา

วันที่ 30 เดือน มี.ค. พ.ศ. ๒๕๖๔

โปรดพลิก ⇨

คำรับรอง

ขอรับรองว่า (นาย/~~นาง/นางสาว~~) ธิดา โยธากุล
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ลงชื่อ..... (ผ.ศ.ดร.ดนุชา สลีวงศ์) อาจารย์ที่ปรึกษาวิทยานิพนธ์/การค้นคว้าอิสระ วันที่..... เดือน..... พ.ศ. ๓๐ มี.ค. ๒๕๖๔	ลงชื่อ..... (รศ.ดร.กุลวรีย์ ศรีบูรพ) ประธานคณะกรรมการประจำหลักสูตร วันที่ 02 มี.ค. 2564 เดือน..... พ.ศ.....

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ประเภทตีพิมพ์ในวารสารทางวิชาการ

สิ่งที่แนบมาด้วย
1. แบบเสนอขอรับการส่งเอกสารการตีพิมพ์ (มรว.บ. 11)
2. แบบตอบรับการลงวารสาร (ตัวจริง) (พร้อมสำเนา 2 ชุด).
3. สำเนาปกใน – ปกนอกวารสาร (พร้อมสำเนา 2 ชุด)
4. สำเนาหน้าสารบัญ (พร้อมสำเนา 2 ชุด)
5. บทความฉบับสมบูรณ์ (พร้อมสำเนา 2 ชุด)
6. เล่มวารสารฉบับจริง ออนไลน์

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☐ ไม่ครบ

ประเภทนำเสนอผลงานในที่ประชุมวิชาการ

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1. แบบเสนอขอรับการส่งเอกสารการตีพิมพ์ (มรว.บ.11)
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5. บทความฉบับสมบูรณ์ (พร้อมสำเนา 2 ชุด)
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7. เล่มเสนอผลงานที่ได้นำเสนอ (Proceedings)

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☐ ไม่ครบ

ตรวจสอบเอกสาร นศ. ป.เอก 36 หน่วยกิต
1. วารสารนานาชาติ Journal of Environmental management and Tourism ฐาน Scopus = 1
2. ประชุมวิชาการ ระดับชาติ ครั้งที่ 5 1 พ.ค. 64 ณ มหาวิทยาลัยราชภัฏสวนสุนันทา = 0.2

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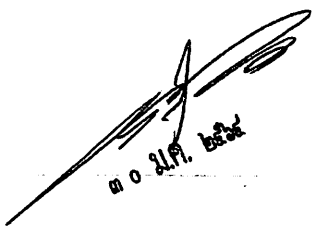

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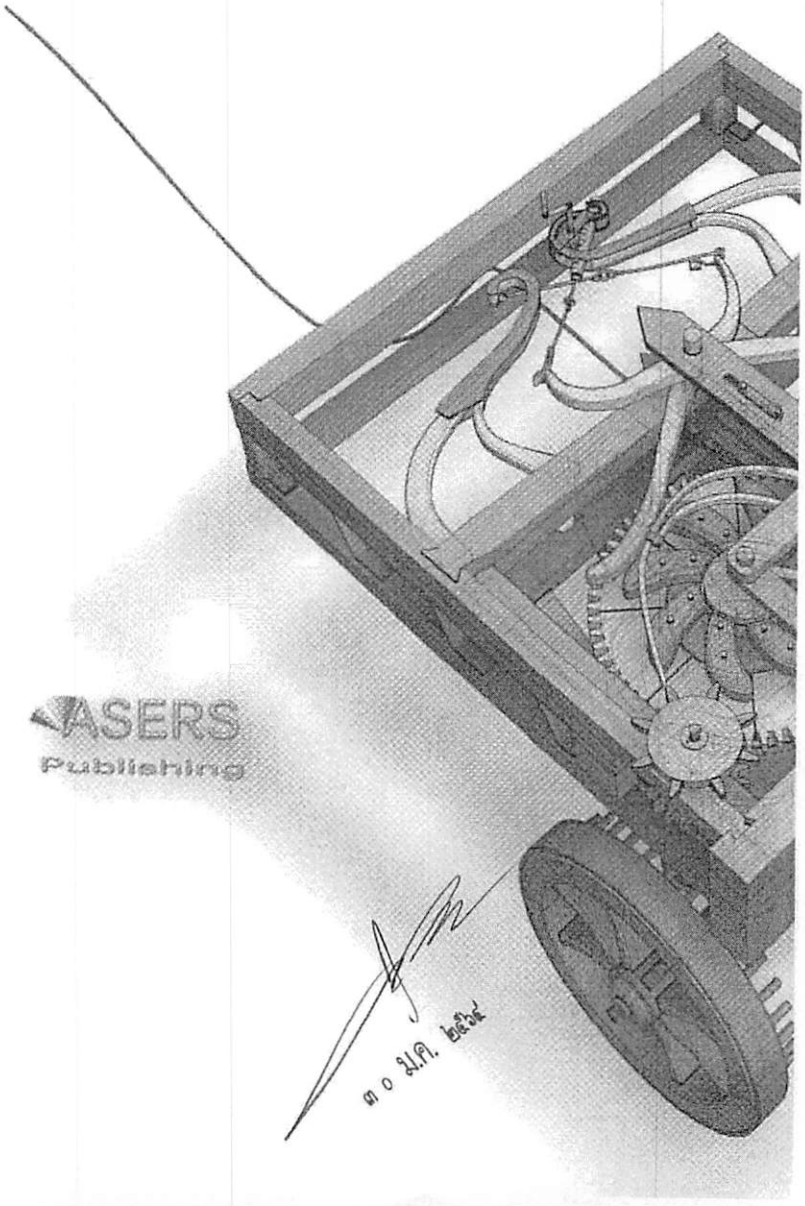

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A Model of the Causal Relationships between the Factors Influencing the Performance of Green Organizations Managing Energy-Saving Buildings in Bangkok and Vicinity

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Abstract

The objectives of the present study were (1) to develop a model of the causal relationships between the factors influencing the performance of green organizations (GPM) managing energy-saving buildings in Bangkok and vicinity and (2) to evaluate the consistency between the model constructs and empirical data. Both quantitative and qualitative methods were employed. For the quantitative approach, a survey questionnaire was used to collect data from a sample of 456 representatives of green organizations managing energy-saving buildings in Bangkok and vicinity. As regards the qualitative approach, in-depth interviews were conducted to validate the conceptual framework developed for this research. Then the data were analyzed using descriptive statistics, including percentage, mean, and standard deviation, and inferential statistics, including a structural equation analysis and a Chi-square test. The findings were as follows. First, environmental leadership and environmental innovations had a positive effect on the organizational culture of the green organizations. Also, the environmental management, environmental leadership, environmental innovations, and organizational culture of the green organizations exerted a positive impact on their competitive advantage. In addition, the organizational culture and competitive advantage of the green organizations wielded a positive influence on their performance. Finally, the constructs of the structural equation model were consistent with the empirical data at a satisfactory level with the χ^2 value of 453.977, the df value of 452, the χ^2/df of 1.004, the p-value of 0.465, the goodness of fit index (GFI) value of 0.946, the adjusted GFI, or AGFI, value of 0.925, and the root mean square error of estimation (RMSEA) value of 0.003.

Keywords=causal relationships; green organizations; environmental management; environmental leadership; environmental innovations; organizational cultures.

JEL Classification=Q20; Q37; Q42; Q57; P28; P32.

Introduction#

Environmental problems around the world result in crises that impact all spheres of life (Karataş 2016). The majority of these problems can be traced to human activities (Baltaci and Yirik 2015) which inflict harm on nature and are motivated by self-interest (Devall and Sessions 2001). For instance, while economic activities relating to production and exchanges of goods and services are crucial for human consumption and survival, they also deplete natural resources and produce large volumes of waste that pollute the environment (Anantanasuwong 2016). Thus, environmental conservation is currently a global issue to which all nations attach importance (Office of Natural Resources and Environmental Policy and Planning 2017). In the business arena, organizations of the 21st century not only have to take into consideration their own business growth but also need to follow environmentally friendly practices to ensure sustainability (Boonyasirinun 2015).#

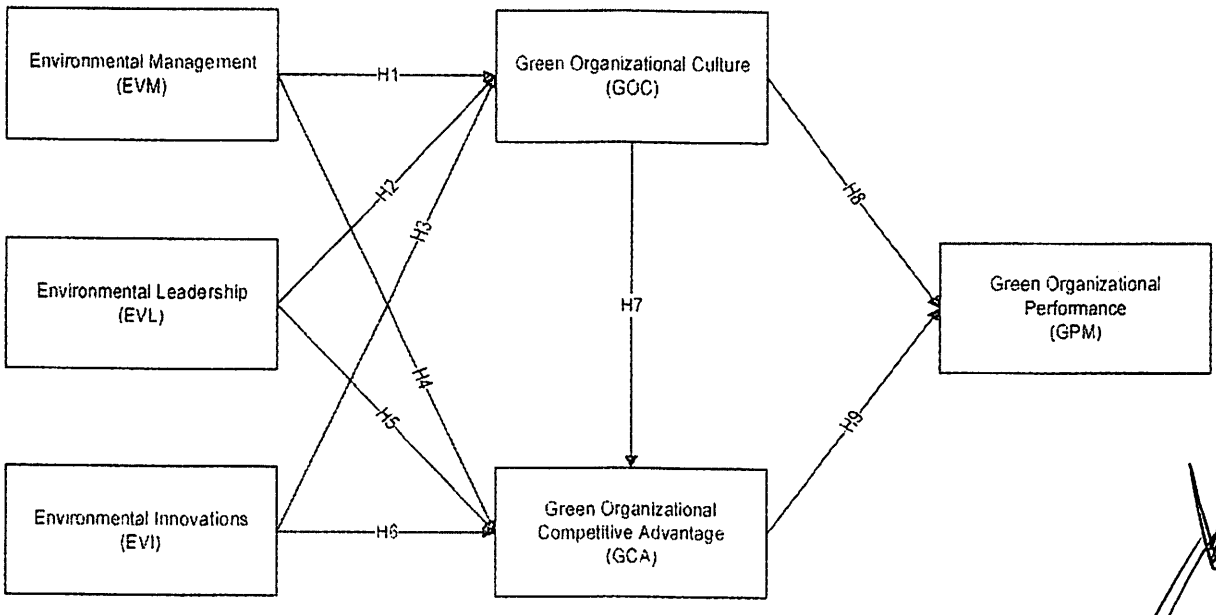
One important strategy adopted by businesses is the concept of the green organization, as it focuses on the commitment to reduce environmental problems in a sustainable manner (Srisai 2014). #

To accord with the tenets of environmental conservation, a green organization places great emphasis on its environmental management, or the planning, formulation, and implementation of specific initiatives, tactics, and procedures in order to control and curb the adverse impacts of its operations on the environment (Schoenherr and Talluri 2013). If successfully carried out, such a scheme will contribute to the development of a green organizational culture (Hamdoun and Zouaoui 2017) and ultimately result in competitive advantage (Somuyiwa, Mcilt, and Adebayo 2012). In addition to environmental management, another factor determining the success of a green organization is environmental leadership. This term refers to the process of change that a leader implements in an organization and its members in terms of environmental management success and environmental problem prevention (Chen 2011), as well as the creation of a green organizational culture (Rasid, Manaf, and Quoquab 2013, Hamdoun and Zouaoui 2017). Not only will environmental leadership catalyze environmental innovations in the forms of new processes or modifications to existing ones that aid in preventing or reducing the harm that business operations inflict on the environment (De Marchi 2012), but it will also result in a competitive advantage for the organization in which it prevails (Fernandez, Junquera, and Ordiz 2003, Horbach and Rennings 2013).

Therefore, it is vital to examine the relationships between environmental management (EVM), environmental leadership (EVL), environmental innovations (EVI), green organizational culture (GOC), and the competitive advantage of green organizations (GCA) (Figure 1). Such factors are particularly relevant in the Thai context, where there has been a rising number of green organizations managing energy-saving buildings in Bangkok and its surrounding areas.

This study aims to develop a model of the causal relationships between the factors influencing the performance of green organizations (GPM) managing energy-saving buildings in Bangkok and vicinity, and to evaluate the consistency between the constructs of the model and empirical data.

Figure 1. Factors influencing the performance of green organizations managing energy-saving buildings in Bangkok and vicinity



1. Methodology

1.1 Research Design

The present study employed a mixed method integrating both quantitative and qualitative approaches. The quantitative data were collected from 456 representatives of green organizations managing energy-saving buildings in Bangkok and vicinity using a survey questionnaire, while the qualitative data were gathered using in-depth interviews to validate the conceptual framework formulated for this research.

1.2 Population

The population of this study was green organizations managing energy-saving buildings in Bangkok and vicinity.

1.3 Research Instruments and Validation

1.3.1 A survey questionnaire used to collect the data from representatives of green organizations managing energy-saving buildings in Bangkok and vicinity

The questionnaire was comprised of seven sections, namely (1) general demographic information, (2) environmental management evaluation, (3) environmental leadership evaluation, (4) environmental innovation evaluation, (5) green organizational culture evaluation, (6) competitive advantage evaluation, and (7) performance evaluation.

1.3.2 In-depth interview questions used to validate the conceptual framework devised for the present study

The research instruments were evaluated by five experts in green organizations and environmental management, comprising academics and businesspeople, in terms of content validity using the item-objective congruence (IOC) index. The IOC requirements were fulfilled with the items in the research instruments scoring 0.60-1.00. In addition, the questions in the survey questionnaire were validated in terms of reliability by being pre-tested on 50 subjects in the sample group (n=50). The criteria were met with the Cronbach's alpha coefficient equaling 0.811-0.914 and the item discriminatory power of 0.565-0.765.

1.4 Data collection

1.4.1 The quantitative data were collected to develop the structural equation model and analyze the causal relationships between the factors influencing the performance of green organizations (GPM). The target population was executives of 1,839 green organizations managing energy-saving buildings in Bangkok and vicinity. The sample size was determined at five times the number of parameters in accordance with Hair et al. (2019). Since the number of parameters comprising the conceptual model guiding the present research equaled 82, the number of participants in the study would be 82X5 or 410. The subjects were selected using a simple random sampling technique with the final sample size standing at 456.

1.4.2 The qualitative data were gathered to validate the conceptual framework guiding the investigation of the green organizations managing energy-saving buildings in Bangkok and vicinity that participated in this study.

1.5 Statistics

1.5.1 Statistics used to validate the research instruments are content validity and reliability

1.5.2 Statistics used to analyze the data; (1) descriptive statistics, including percentage, mean, and standard deviation, and (2) inferential statistics, including structural equation analysis and a chi-square test.

2. Result and Discussion

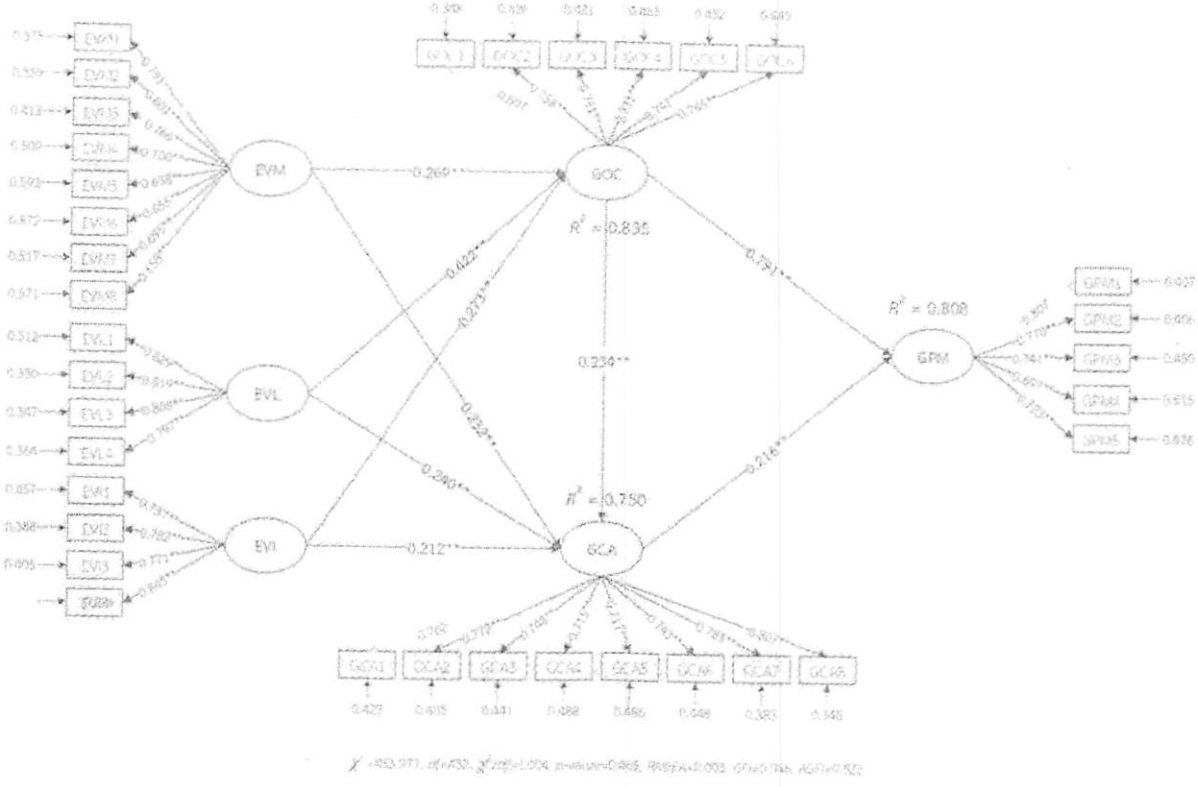
2.1 Demographic Characteristics of the Subjects

According to the findings, a majority of the subjects were male and married in the 30-40 age range, followed by those aged 41-50. They had earned a bachelor's degree and had been working as a general manager for five to 20 years in an organization with less than 50 employees and with annual sales volume of under 100 million baht. The form of the establishment the subjects were in was mainly a limited company. Most of the subjects assigned high ratings to all the factors under investigation, namely environmental management, environmental leadership, environmental innovations, green organizational culture, and the competitive advantage and performance of a green organization.

2.2 Analysis of the Structural Equation Model

The findings revealed that the constructs constituting the modified structural equation model were consistent with the empirical data, demonstrating a correspondence between the former and the latter.

Figure 2. Modified structural equation model of the causal factors influencing the performance of green organizations (GPM) managing energy-saving buildings in Bangkok and vicinity



Table#. Direct effects (DE), indirect effects (IE), and total effects (TE)

	GOC			GCA			GPM		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
EVM	0.269**		0.269**	0.232**	0.063*	0.295**		0.277**	0.277**
	(0.059)		(0.059)	(0.057)	(0.028)	(0.076)		(0.055)	(0.055)
EVL	0.422**		0.422**	0.240**	0.099*	0.339**		0.407**	0.407**
	(0.070)		(0.070)	(0.088)	(0.040)	(0.084)		(0.066)	(0.066)
EVI	0.273**		0.273**	0.212**	0.064*	0.276**		0.276**	0.276**
	(0.069)		(0.069)	(0.081)	(0.028)	(0.084)		(0.066)	(0.066)
GOC				0.234**		0.234**	0.791**	0.051*	0.842**
				(0.088)		(0.088)	(0.069)	(0.024)	(0.073)
GCA							0.216**		0.216**
							(0.074)		(0.064)
Observe variable	EVM1	EVM2	EVM3	EVM4	EVM5	EVM6	EVM7	EVM8	EVL1
Reliability	0.625	0.641	0.587	0.491	0.407	0.428	0.483	0.429	0.688
Observe variable	EVL2	EVL3	EVL4	EVI1	EVI2	EVI3	EVI4	GOC1	GOC2
Reliability	0.670	0.653	0.636	0.543	0.612	0.595	0.714	0.652	0.574
Observe variable	GOC3	GOC4	GOC5	GOC6	GCA1	GCA2	GCA3	GCA4	GCA5
Reliability	0.579	0.535	0.548	0.555	0.577	0.595	0.559	0.512	0.514
Observe variable	GCA6	GCA7	GCA8	GPM1	GPM2	GPM3	GPM4	GPM5	
Reliability	0.552	0.617	0.652	0.563	0.594	0.550	0.485	0.522	
latent variable		GOC			GCA			GPM	
R^2		0.835			0.750			0.808	
χ^2=453.977, *df*=452, χ^2/*df* =1.004, *p*-value=0.456, *RMSEA*=0.003, *GFI*=0.946, *AGFI*=0.925									

Specifically, the χ^2 value equaled 453.977 with the df value of 452, the p-value stood at 0.465, passing the acceptable standard of more than 0.05, and the χ^2/df value was equal to 1.004, passing the acceptable standard of less than 2. Additionally, the goodness of fit index (GFI) value stood at 0.946, passing the acceptable standard of more than 0.9, the adjusted GFI or AGFI value was equal to 0.925, passing the acceptable standard of more

than 0.9, and the root mean square error of estimation (RMSEA) value of 0.003, passing the acceptable standard of less than 0.05.

2.3 Hypothesis Testing

(1) *H1: Environmental management would have a positive effect on green organizational culture.* From Table 1 and Fig. 2, environmental management had a positive correlation with green organizational culture at the significance level of 0.01 with the path coefficient of 0.269, confirming the first hypothesis.

(2) *H2: Environmental leadership would have a positive effect on green organizational culture.* As shown in Table 1 and Fig. 2, environmental leadership positively correlated with green organizational culture at the significance level of 0.01 with the path coefficient of 0.422, confirming the second hypothesis.

(3) *H3: Environmental innovations would have a positive effect on green organizational culture.* According to Table 1 and Fig. 2, environmental innovations exerted a positive influence on green organizational culture at the significance level of 0.01 with the path coefficient of 0.273, confirming the third hypothesis.

(4) *H4: Environmental management would have a positive effect on the competitive advantage of a green organization.* As illustrated in Table 1 and Figure 2, environmental management had a positive impact on the competitive advantage of a green organization at the significance level of 0.01 with the path coefficient of 0.232, confirming the third hypothesis.

(5) *H5: Environmental leadership would have a positive effect on the competitive advantage of a green organization.* Based on Table 1 and Figure 2, environmental leadership had a positive correlation with the competitive advantage of a green organization at the significance level of 0.01 with the path coefficient of 0.240, confirming the fifth hypothesis.

(6) H6: *Environmental innovations would have a positive effect on the competitive advantage of a green organization.* From Table 1 and Figure 2, environmental innovations positively correlated with the competitive advantage of a green organization at the significance level of 0.01 with the path coefficient of 0.212, confirming the sixth hypothesis.

(7) H7: *Green organizational culture would have a positive effect on the competitive advantage of a green organization.* According to Table 1 and Figure 2, green organizational culture wielded a positive influence on the competitive advantage of a green organization at the significance level of 0.01 with the path coefficient of 0.234, confirming the seventh hypothesis.

(8) H8: *Green organizational culture would have a positive effect on the performance of a green organization.* As displayed in Table 1 and Figure 2, green organizational culture had a positive correlation with the performance of a green organization at the significance level of 0.01 with the path coefficient of 0.791, confirming the eighth hypothesis.

(9) H9: *The competitive advantage of a green organization would have a positive effect on its performance.*

Based on Table 1 and Figure 2, the competitive advantage of a green organization positively affected its performance at the significance level of 0.01 with the path coefficient of 0.216, confirming the ninth hypothesis.

2.4 Summary of the Findings in Relation to the Research Objectives

Factors influencing the performance of green organizations (GPM) managing energy-saving buildings in Bangkok and vicinity:

- Factors relating to environmental management, environmental leadership, and environmental innovations had a positive effect on green organizational culture with the combined predictive power of 83.50%.
- Factors relating to environmental management, environmental leadership, and environmental innovations positively correlated with the competitive advantage of a green organization with the combined predictive power of 75.00%.
- Green organizational culture and competitive advantage exerted a positive influence on the performance of a green organization with the combined predictive power of 80.80%.

The consistency between the constructs of the structural equation model and the empirical data will be studied.

2.5 Discussion

2.5.1 Relationships between environmental management and green organizational culture

The present results confirm Hamdoun and Zouaoui (2017)'s findings that green organizational culture was created from such management factors as employee engagement, organizational values, relationship building,

and environmental awareness in the context of the Republic of Tunisia. Thus, it may be concluded that organizations with effective environmental management encompassing all aspects of environmental conservation (Küçükoğlu and Pınar 2015) are likely to exhibit continual development of green organizational culture (Molina-Azorin *et al.* 2015).

2.5.2 Relationships between environmental leadership and green organizational culture

The findings presented herein are in agreement with Rasid, Manaf, and Quoquab (2013), which discovered an important role that leadership played in creating organizational culture in the Islamic bank sector of Malaysia, and Ledimo (2014), which indicated a positive correlation between leadership and organizational culture in public service agencies. One possible explanation is that leadership is a powerful determinant of the creation and development of organizational culture (Rasid, Manaf, and Quoquab 2013), as well as the transfer of values and knowledge within an organization (Alnesr and Ramzani 2019).

2.5.3 Relationships between environmental management and green organizational culture

The results reported in this study support Hamdoun and Zouaoui (2017)'s findings that operations relating to production and research and development promote green organizational culture. According to Lam (2010), the introduction of innovations involves a process of knowledge sharing; thus, it contributes to the creation of green organizational culture through collective learning, observation of norms and leadership behavior, and socialization. Since organizational culture is a dynamic factor shaped by new assumptions and beliefs (Losane 2013), the correlation between environmental innovations and green organizational culture is undeniable.

2.5.4 Relationships between environmental management and competitive advantage

The present findings concur with Somuyiwa, Mcilt, and Adebayo (2012), which demonstrated that internal organizational management served as a driving force behind the competitive advantage of an organization. As Mahmood, Basharat, and Bashir (2012) stated, management is the most important factor of every organization without which missions, goals, and objectives are impossible to accomplish.

2.5.5 Relationships between environmental leadership and competitive advantage

The results reported herein are in line with Jardon and Martinez-Cobas (2019) findings that leadership would significantly contribute to the competitive advantage of an organization, especially a small one. With regards to this, Fernandez, Junquera, and Ordiz (2003) explain that effective leadership can govern the values, determination, and aspirations of the members of an organization, all of which are fundamental factors behind an organization's progress towards competitive advantage.

2.5.6 Relationships between environmental innovations and competitive advantage

The present findings are in agreement with those of Horbach and Rennings (2013) and Chen (2011), which indicated innovative environmental management processes as contributors to the creativity of organizational members in collectively planning, managing, and implementing measures to prevent and reduce environmental problems. Additional corroborative evidence is Wu and Lin (2016), which demonstrated that the use of environmental innovations in running an organization would help lessen the impacts of its products on the environment throughout their manufacturing and life cycles from the purchase of raw materials and production to consumption and disposal.

2.5.7 Relationships between green organizational culture and competitive advantage

In support of the results presented herein are Hamdoun and Zouaoui (2017)'s findings showing a positive correlation between the creation of organizational culture and the competitive advantage of an organization in terms of lower costs and more distinct brand identity, and Jardon and Martinez-Cobas (2019)'s findings reporting that organizational culture could enable a small organization to achieve competitive advantage. Such findings are highly likely because organizational culture plays an important role in determining an organization's performance, strategic competitiveness, ultimate success or failure (Flamholtz and Randle 2012, Küçükoğlu and Pınar 2015) and sustainable advantage (Hamdoun and Zouaoui 2017). Thus, an organization attaching importance to environmental issues and thus integrating cultural awareness in all its processes will be able to forge a solid identity as an environmentally conscious entity (Hamdoun and Zouaoui 2017).

2.5.8 Relationships between green organizational culture and organizational performance

The results reported in this study correspond with Umrani et al. (2017)'s findings that organizational culture significantly correlated with the performance of organizations in the banking industry of the Islamic Republic of Pakistan and Quy (2018)'s findings that organizational culture promoting innovations had a significant positive correlation with organizational performance (cf. (Murphy, Cooke, and Lopez 2013), for similar conclusions). As Umrani et al. (2017) note, organizational culture is integral to the way in which an organization operates and devises its strategies to achieve excellence.

2.5.9 Relationships between competitive advantage and organizational performance

Similar findings were reported in Setyawati, Rosiana, and Shariff (2017), which determined that competitive advantage had a positive influence on organizational performance. While Tuan and Yoshi (2010) generally ascribe organizational performance to competitive advantage, Jabbar and Abid (2017) specifically explain that an organization with effective environmental management schemes surpassing those of its counterparts is likely to address environmental issues and, ultimately, outperform them.

Conclusions

Environmental leadership and environmental innovations had a positive effect on the organizational culture of the green organizations. Also, the environmental management, environmental leadership, environmental innovations, and organizational culture of the green organizations exerted a positive impact on their competitive advantage.

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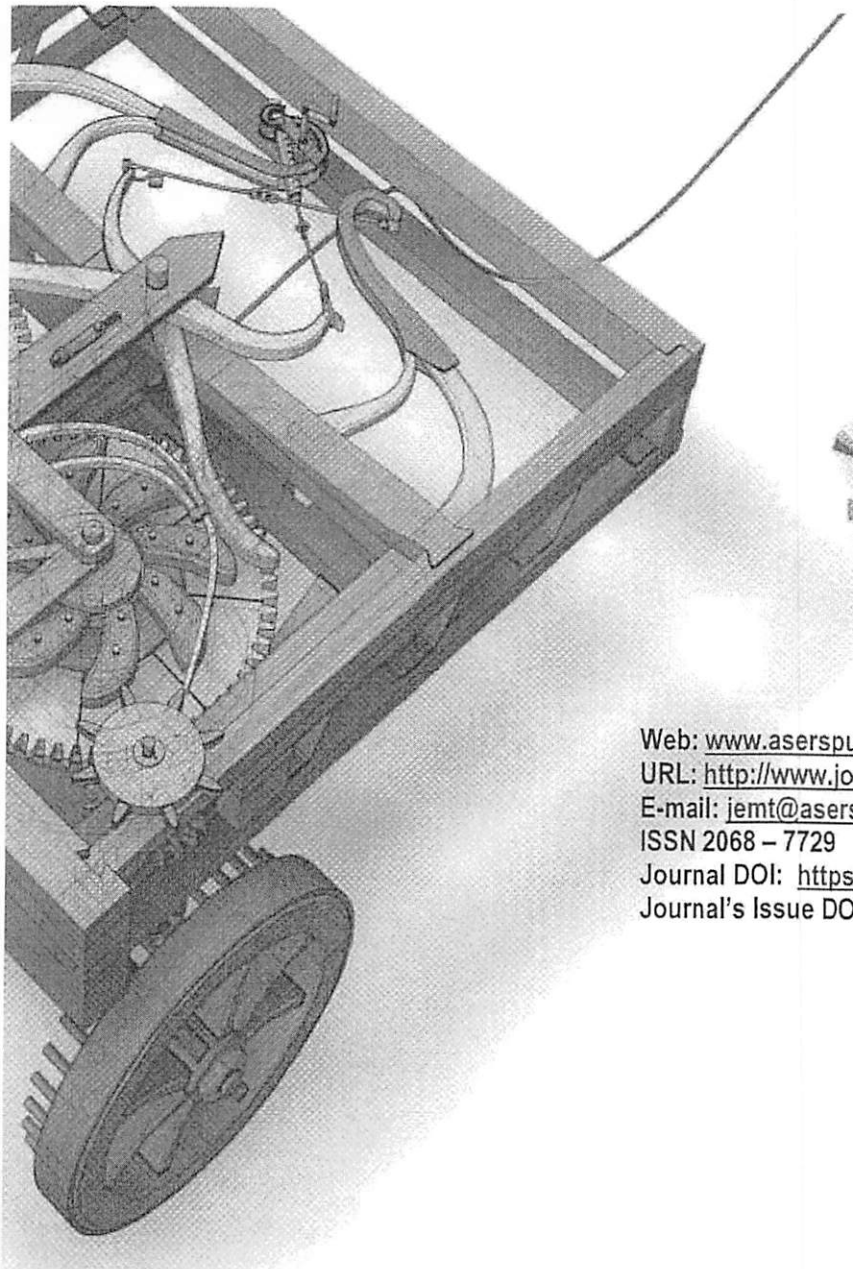

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