

# Effect of Eco-Innovation Strategies on Enterprises' Sustainable Business for Pharmacies Business in Thailand

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## Abstract

In the past few decades, Eco-innovation strategies have become a significant factor for many sectors and businesses to cope with the challenges of the environment and also help to maintain and achieve sustainable growth in business. However, the main objective of this paper is to investigate the relations of eco-innovation strategies with sustainable growth and top management commitment TCM. This research paper aims to ensure sustainable growth in different sectors and businesses of Thailand through the role of TMC and government environmental regulations. The mediating role of the eco-innovation strategy has also been evaluating in the study to check the behaviors of dependent and independent relationships. Most of the data and information of the study has been collected from about 298 employees and workers of different business sectors of Thailand, and the data has been evaluated with the help of KMO, descriptive statistics and structural equation modeling. The findings of the study suggest that TMC can play a significant role in ensuring the sustainable growth of the business. Furthermore, the results also indicate that the mediating variable of eco-innovation strategy can help a business to fight with environmental challenges that develop and ensure sustainable growth of the business.

**Keywords:** Top management commitment, Government environmental regulations, EIS, Business growth, Thailand

## 1 Introduction

In a business field, the strategic approach of the top management plays an important role to make a sustainable growth in the customer market. In current era, innovation plays an important to earn large amount of profit in the industry. Majority of the small medium enterprises and large scale organizations are focusing on the green innovation strategies in their operating, financing and investing activities in the related industry (Thongrawd, Bootpo, Thipha, & Jernsittiparsert, 2019). In the pharmaceutical industry, there are many green innovations made by the scholars and pharmacists in their operating activities. A sustainable growth in Thailand is only occurred due to the government based environmental regulation and top management commitment (Robertson, 2017).

In Thailand, a pharmacy education was developed in 1913 and gradually increased in last decades. In their educational section, many leadership styles and the related pharm based regulations are taught to the graduates. In Thailand, a hospital pharmacist has become involved in the pharmacy practice through the preceptorship that plays an important part for the outpatient and inpatient care team (Agapitova, Sanchez, & Tinsley, 2017; Aquino, Antonio Spina, Leitão Zajac, & Luiz Lopes, 2018). In this state, the community based pharmacy practices are occurred where a latest technology and leadership based commitments are made, that range from public health practice to an advanced professional practice. Now, in current era, many eco-innovation based strategies are adopted by the pharmacist in their operating activities which enhanced the profit margin of a country. In

addition to this, many challenges are faced by the current local pharmacist companies in Thailand like distribution of pharmacists in order to meet the workforce demand (Bandoophanit, Breen, & Barber, 2018).

In future perspective, there is a need to make some effective strategies in order to upgrade the pharmacy based practices in this state, by adopting an effective leadership based

commitment and the government based environmental regulations. In order to make a critical study on how the new sources and informations regarding antibiotics, are adopted by the healthcare centers in Thailand; a research was conducted by pharmacists and their related scholars (Chanvatik et al., 2019). According to this 2019 year based survey, the following outcomes are generated which is given below;

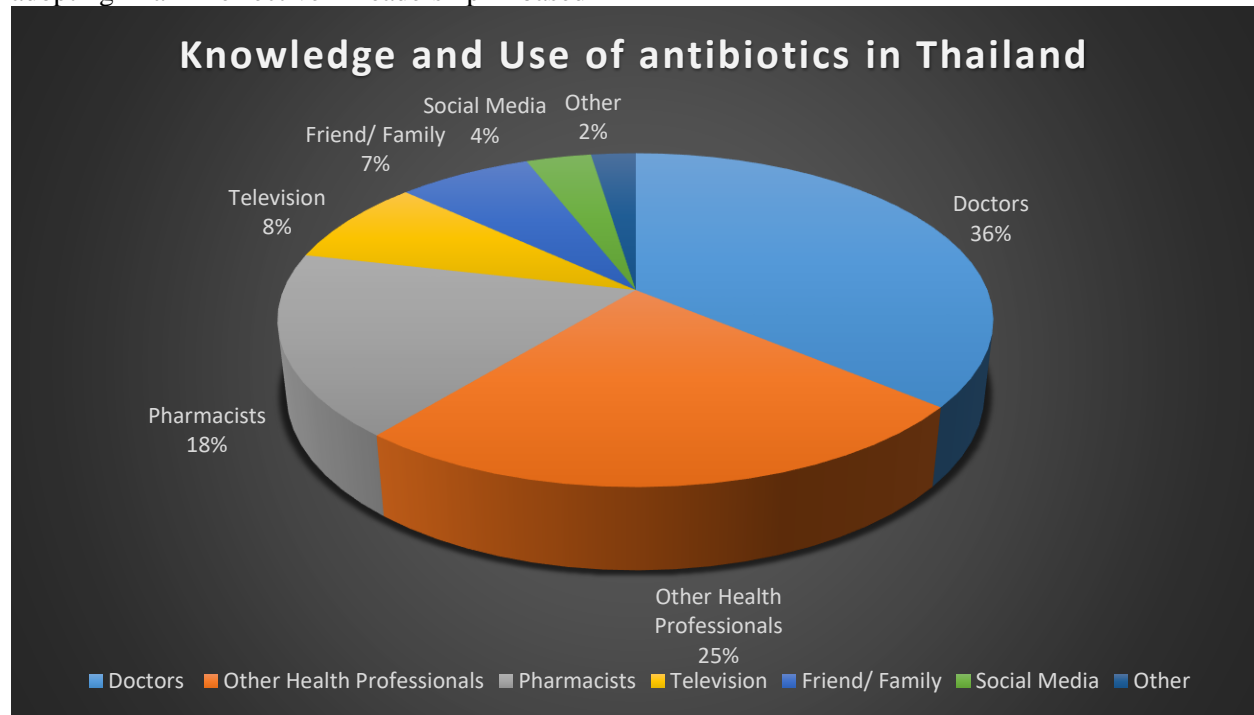


Figure 1: Knowledge and Use of antibiotics in Thailand

According to the above mentioned survey data, it becomes clear that there are all-around 18% of antibiotics used by pharmacists, 36% by doctors and 25% by other health professionals (Chanvatik et al., 2019). This ratio shows that in current technology based advanced era, there is a sustainable growth of the efficient pharmaceutical industry in Thailand. All this development is majorly based on the efficient ecosystem based strategies in the operating activities of this industry (Agapitova et al., 2017; Aquino et al., 2018). The reason is that many new researches are made to upgrade the performance level of this industry in the healthcare sector, so that the future of this region become secure from any virus and disease.

## 2 Literature Review

### 2.1 Top Management Commitment and Enterprises' Sustainable Business Growth (ESBG)

According to the researchers, there is a direct relationship between the top management commitment and the sustainable business growth of the industry (Sheikh, Rana, Inam, Shahzad, & Awan, 2018; Yusliza et al., 2019). According to medical field's scholars, only those patients are loyal with the healthcare centers and hospitals, where the management and nursing staff are quite efficient in their clinical and other related commitments with the customers. According to Khan, Ngai and others, such efficient top management commitment with the stakeholders

enhanced the confidence level of the working employees, suppliers and customers to remain loyal with the company (Khan & Naeem, 2018; Ngai, Law, Lo, Poon, & Peng, 2018).

According to business scholars, an efficient growth of an organization culture and its operating activities enhanced a safe workplace environment for the employees, which motivate its related stakeholders to remain loyal with the company (Fatoki, 2019; Fernando, Jabbour, & Wah, 2019; Imran, Salisu, Aslam, Iqbal, & Hameed, 2019). Caroline, Harriet, & Anne stated that an effective growth rate of an organization is majorly based on the strategic approach of the top leaders of a company and their vision (Caroline, Harriet, & Anne, 2016). In 2018, the researchers stated that mostly those organizations are highly profitable whose management update its strategies and shared it with the stakeholders on timely basis (Caldera, Desha, & Dawes, 2018). Hence, a following hypothesis is proposed from the above studies;

**H1: There is a significance direct relationship between Top Management Commitment and Enterprises' Sustainable Business Growth (ESBG)**

## **2.2 Mediating Role of Eco-innovation Strategies (EIS) between Top Management Commitment and Enterprises' Sustainable Business Growth (ESBG)**

According to Marzucchi & Montresor, an eco-innovation based effective strategies are playing an important role to promote a resource and energy efficiency of a company. In the current era, there are many strategies made by the organization in order to reduce the carbon society in the country (Marzucchi & Montresor, 2017). According to Liao and Tsai, in a modern era, an eco-innovation based strategic approach is followed by the organization in order to gain a competitive advantage (Liao & Tsai, 2019). In 2020, they stated that a sustainable business growth is only occurred due to the advanced eco-innovation based strategic approach of an organization (Amara & Chen, 2020).

According them, such strategies help a management to remain loyal with the

stakeholders and made an efficient strategies in order to earn a long term profit. In 2019, Demirel & Kesidou stated that majority of the current top leaders majorly worked to adopt an environment based innovative projects in order to earn a long term profit. They concluded that now it becomes essential for an entrepreneur to consider the importance of this sustainable strategic approach of an organizational (Demirel & Kesidou, 2019). So, a hypothesis is proposed from the above studies;

**H2: Eco-innovation Strategies (EIS) plays a significant mediating role between Top Management Commitment and Enterprises' Sustainable Business Growth (ESBG)**

## **2.3 Government Environmental Regulation and Enterprises' Sustainable Business Growth (ESBG)**

In 2019, researchers stated that government and its environmental regulations are directly effected the growth rate of a company, especially product oriented company (Sun, Du, & Wang, 2019; Yu, Sun, & Chen, 2019). According to Ling Guo, Qu, & Tseng, many federal government made some efficient laws in order to protect the human health and environment. According to the researchers, such environment oriented entrepreneurial activities enhanced the profit margin of a company and also helps them to secure their future for a long run (ling Guo, Qu, & Tseng, 2017)

In 2018, they stated that in the current global changing environment, many regulations are made by the federal state in order to overcome the threat of the environmental issues and made such business strategies that enhance the profit margin of a company for a long run (Guo, Xia, Zhang, & Zhang, 2018). According to Du and Li (2019), it becomes an essential strategic approach for the upcoming entrepreneurs in the pharmaceutical companies to critically consider the ecosystem based government policies in its operating activities. They concluded that this ecosystem based projects will enhance the sustainable growth of a company (Du & Li, 2019). Hence, a following hypothesis is proposed from the above scholar's debates;

**H3: There is a significance direct relationship between Government Environmental Regulation and Enterprises’ Sustainable Business Growth (ESBG)**

**2.4 Mediating Role of Eco-innovation Strategies (EIS) between Government Environmental Regulation and Enterprises’ Sustainable Business Growth (ESBG)**

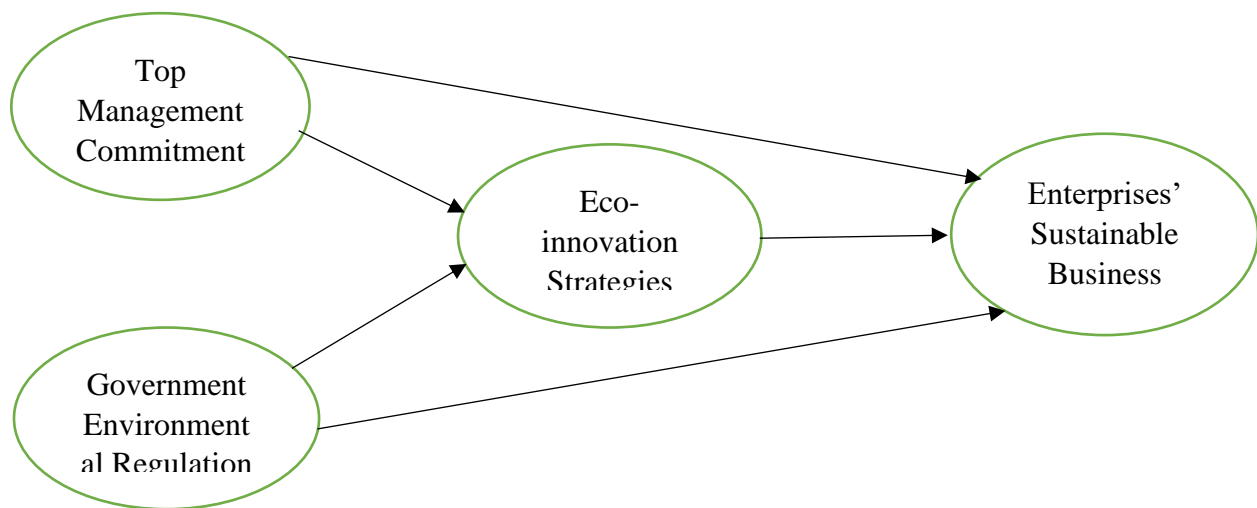
According to Pedrini, Bramanti, Minciullo, & Ferri, an ecosystem based strategic approach plays an important role to enhance the environmental regulation in the business field. The reason is that such strategies help the state to secure the lives of the natives by fulfilling its needs and desires of the targeted customers (Pedrini, Bramanti, Minciullo, & Ferri, 2016). According to Nugent, an eco-innovation has become an essential driver in order to overcome the environmental problems and gain a sustainable growth. In current era where many countries have enacted regulations, so that businesses can minimize their harmful environmental impacts (Nugent, 2017). In 2017, the scholar, Macias Quesada, stated that governmental environmental regulations, eco-innovative strategies and sustainable growth of an

enterprise plays an important environmental concern of a manager. The researcher majorly worked on mediation-moderation model in order to propose a direct and indirect effect (Macias Quesada, 2017).

According to the scholars, many pharmaceutical companies and its top management made effective policies and strategies that fulfil the need of the environmental regulations. In the research article, Amara and Chen concluded that the management environmental concerns and the related government environmental regulations made an positive impact on the eco-innovation strategies, and also an eco-innovation based strategic approach significantly mediate the relationship between the sustainable business growth of an enterprise and environment based regulations in a state.(Amara & Chen, 2020). So, a following hypothesis is suggested by the previous studies;

**H4: Eco-innovation Strategies (EIS) plays a significant mediating role between Government Environmental Regulation and Enterprises’ Sustainable Business Growth (ESBG)**

**2.5 Theoretical Framework**



### 3 Methodology

#### 3.1 Research context and data source

The current study was administrated in Thailand Pharmaceutical industry to take an overview of sustainable growth and eco-innovation strategies significance in these firms as this sector is prone to innovation and competition. Sample was developed by executing purposive sampling technique, final sample included 318 respondents from different Thai firms engaged in drug making. Most of the respondents that were targeted are top managers of these firms along with senior managers, as these are responsible for making organizational level decisions and provide authentic and valid information. This research adopts online survey technique for data collection equipped with online self-administrative questionnaire to access maximum responses in less time and less cost. Containing multiple items related to purposed model and brief explanation of research these questioners were emailed and what's aped with link to google-forms. Contact information was obtained from firm's websites. In total 450 questionnaires were filled, on filtering the questionnaires 50 were deleted due to inaccurate information.

#### 2. Measurements and variables

Hypothetical model of this study was tested by different scales, this scales and variables are based on previous literature and are validated by many researchers. Each item was rate on five-point Likert scale. To guarantee content validity and avoid errors this questionnaire was thoroughly studied and pre-tested.

Measures for Enterprise sustainable business growth were derived from ESG Scale of (Delmar, 2003) This scale items were altered according to this research, the scale is encompassed of five items, including "When we engaged in an environmental strategy, the number of potential customers has increased", responses were interpreted on a five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Statistical results indicated  $\alpha = 0.947$  showing high composite reliability. Government environmental regulation was evaluated with five items extracted from

(Pelham, 2000) study on GER, to check the level of government regulations for environment protection. For example, "Are very clear and contribute to the development of sustainable business capacity". Respondents noted down there answers on a 5-point response scale from 1 (very weak) to 5 (very strong). It has a Cronbach's  $\alpha = 0.757$ . Items for Eco-innovation strategies (EIS) in firms were adapted from Eiadat (2008) scale to investigate the implantation of Eco-innovation strategies, Responses for these eight items including "Invest in environmental science and technology" were rated on a 5-point response scale from 1 (strongly disagree) to 5 (strongly agree) with Cronbach's  $\alpha = 0.67$ . Top management commitment was evaluated by six items drawn and modified from Spencer, Adams, and Yapa (2013) to measure top managers commitment towards achieving sustainable growth. The sample item is "managers at top level take sustainability as a responsibility". Respondents determined their opinions on 5 Point-Likert scale with composite reliability of  $\alpha = 0.918$ .

#### 3.2 Statistical Analysis

Data for this was analyzed by integrating statistical software. CFA and descriptive statistics were performed by using software to test the validity of constructs. They tested hypotheses and variables impacts, to determine either purposed model is fit or not, impact of modifying questionnaire on results and to examine the validity of data. The model was evaluated by following indices: (NNFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA).

### 4 Results

#### 4.1 Demographics

The control variables for this study were age, education and gender. The sample constitutes a total of 298 employees of the pharmaceutical sector, out of these 298 52.3 respondents are male whereas 47.7 are female. More men are found at top managerial positons, therefore the difference I observed. The age of majority of the population was distributed between 31 and 50 years whereas the educational level 77.9 people was equivalent to masters. The focus of the study was senior

managerial staff, thus elevated figures in age and education were observed.

**4.2 Descriptive Analysis**

The measurement scale used in this study was a five point Likert scale. The maximum values are deviant from the maximum values of the scale i.e.

4.9 and not 5 for the responses of Eco-Innovation strategies. Therefore the presence of outliers is confirmed. The mean values are approaching 4 and skewness is less than -1. Thus the data is distributed normally and the respondents were noted to be in assertion with the variable statements.

**Table 1: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
EcoInnoSt	298	1.00	4.90	3.5946	1.06267	-.878	.141
TopMngCm	298	1.00	5.00	3.5517	1.12508	-.746	.141
GovtEnRg	298	1.00	5.00	3.5913	1.08323	-.846	.141
EntSusGr	298	1.00	5.00	3.5940	1.05936	-.874	.141
Valid N (listwise)	298						

**4.3 KMO and Bartlett’s Test**

KMO and Bartlett’s sphericity values are analyzed to see if the preconditions of factor analysis are being fulfilled. If KMO values are

near 1 and Bartlett’s sphericity is significant then the model can be forwarded for factor analysis. Table 1 represents that both precondition are being fulfilled.

**Table 2: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.945
Bartlett's Test of Approx. Chi-Square	6298.870
Sphericity df	210
Sig.	.000

**4.4 Factor Analysis**

Factor analysis is composed in order to ascertain whether or not each individual scale item

contributes in the overall construct development. All items other than EIS 1 have loading values greater than 0.7 and are therefore significant.

**Table 3: Rotated Component Matrix<sup>a</sup>**

	Component			
	1	2	3	4
EIS1	.652			
EIS2	.775			
EIS3	.818			
EIS4	.841			
EIS5	.836			
EIS6	.839			
EIS7	.843			
EIS8	.830			
TM1		.774		
TM2		.811		
TM3		.811		
TM4		.831		
TM5		.833		
GR1			.821	
GR2			.832	

GR3	.871
GR4	.815
GR5	.786
ES1	.790
ES2	.848
ES3	.810

**4.5 Convergent and Discriminant validity**

The indicators for evaluating the presence of convergent and discriminant validity are CR, AVE, MSV and self-correlation statistics. CR

values are higher than 0.7 (Hassan, Hameed, Basheer, & Ali, 2020; Iqbal & Hameed, 2020), AVE is greater than 0.5, MSV is less than AVE and high self-correlation values represent the presence of convergent and discriminant validity.

**Table 4: Convergent and Discriminant Validity**

	CR	AVE	MSV	EIS	GR	ES	TM
<b>EIS</b>	0.955	0.726	0.371	<b>0.852</b>			
<b>GR</b>	0.942	0.766	0.393	0.534	<b>0.875</b>		
<b>ES</b>	0.901	0.752	0.345	0.568	0.546	<b>0.867</b>	
<b>TM</b>	0.951	0.794	0.393	0.609	0.627	0.587	<b>0.891</b>

**4.6 Model Fitness**

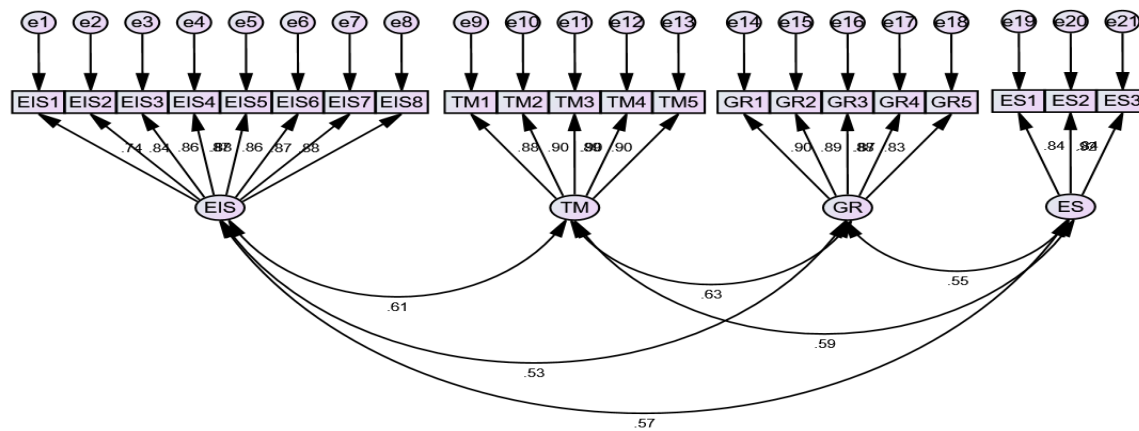
Confirmatory factor analysis is used to determine the fitness of the model. The values of all 5

indicators; GFI, IFI, RMSEA, CMIN and CFI are according to the defined threshold ranges. Therefore the model is pronounced fit.

**Table 5: Confirmatory Factors Analysis**

Indicators	Threshold range	Current values
CMIN/DF	Less or equal 3	2.789
GFI	Equal or greater .80	.849
CFI	Equal or greater .90	.948
IFI	Equal or greater .90	.948
RMSEA	Less or equal .08	.078

**Figure 1: CFA**



**4.7 SEM**

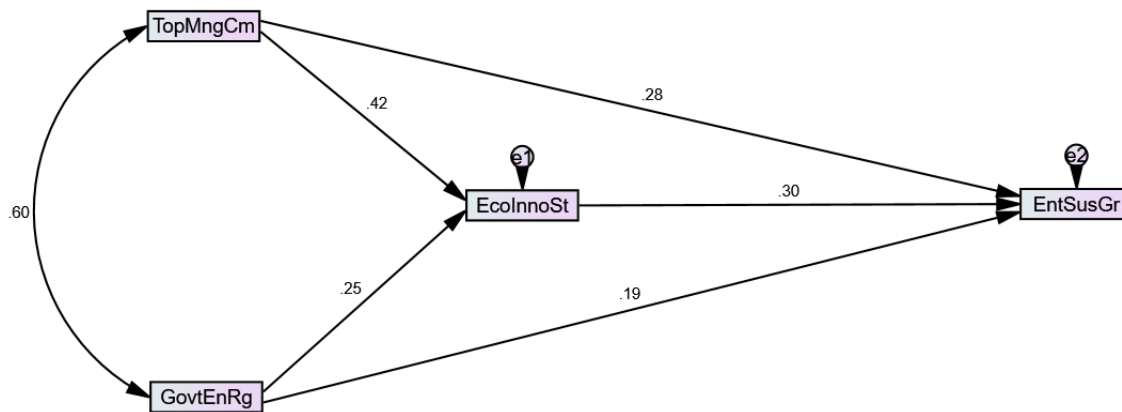
A unit increase in top management commitment and government environment regulation produce a variation of 28.1 and 19.2 percent in the sustainable growth of enterprises, in this case pharmaceutical organizations. Hypotheses 1 and

2 are accepted as the relationships are significant, The mediation of eco-innovation strategies influence 7.4 percent change through government environment regulation and 12.5 percent through top management commitment. The hypotheses are accepted as the relationships are significant.

**Table 6: Structural Equation Modeling**

Total Effect	GovtEnRg	TopMngCm	EcoInnoSt
EcoInnoSt	.248**	.420***	.000
EntSusGr	.266**	.407***	.298**
<b>Direct Effect</b>	GovtEnRg	TopMngCm	EcoInnoSt
EcoInnoSt	.248**	.420***	.000
EntSusGr	.192**	.281**	.298**
<b>Indirect Effect</b>	GovtEnRg	TopMngCm	EcoInnoSt
EcoInnoSt	.000	.000	.000
EntSusGr	.074**	.125**	.000

**Figure 2: SEM**



**5 Discussion**

Sustainable growth is an important aspect for any business and sector because it mainly refers to the achievable goals or growth that a sector or business could maintain without facing some specific issues and problems. Measurements of the results revealed that the impact of top management commitment on sustainable business growth has been most significant than another factor. Research by Keinan and Karugu (2018) illustrates that top management commitment is an important asset for any business because of top management support worker empowerment and also enhanced the business operations mainly through its

commitment to the TQM which positively influence and maintain sustainable growth. Thus, the first hypothesis has been accepted and show positive outcomes. Results and findings of the study also revealed that government environment regulations GER also positively influence the sustainable growth of a business. GER can help the economy of a business in many ways which further generate and provide opportunities for business to maintain sustainable growth. That is why the hypothesis has been accepted.

Eco-innovation strategy or EIS is the only mediating variable in the study which also plays a crucial role in maintaining sustainable growth of the business (Amara & Chen, 2020). The eco-innovation strategy is a strategy of the business of



developing new creative ideas, developing a new type of production operations and processes to protect the environment, thus, due to this the impact of EIS has been positive on the relationship between GER and sustainable growth.

## 6 Conclusion

The purpose of the given research paper is to ensure sustainable growth in Thailand mainly through the role of GER and top management commitment and leadership. Another purpose of the study is to evaluate and give insight into the relationship between top management commitment and sustainable growth through the mediating impact of eco-innovation strategies. For this purpose, most of the information and data for the study has been collected from about 298 employees and top managers from different sectors in Thailand. Furthermore, this research paper also used KMO and SEM techniques for data calculation.

### 6.1 Implications and Limitations

The findings of the study will be very beneficial and also applicable to different sectors of Thailand that want to maintain the sustainable growth of their business. At the same time, the crucial findings of the study also help future analysts and scholars to understand the significance of EIS in maintaining the sustainable growth of the business. However, some restrictions and limitations of the study areas: the results of this research in Thailand might not be suitable to other regions of the world, thus, future studies should conduct this research in other parts of the world. Second, the study is limited to the use of specific types of methods such as SEM and KMO, so, future research must go with other types of methods for wider suggestions.

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