

Quality Management Approach for a Sustainable and Competitive Production and Enterprise Development Services

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Abstract - State universities and colleges in the Philippines are permitted to engage in commercial activities to generate revenue. The study assessed a state college's production and enterprise development (PED) services, which could provide a platform for its stakeholders' entrepreneurial activities and income-generating projects. The study aimed to evaluate the present system, check if existing standards are in place, and determine how the institution complies with it to improve its current system. The study used a descriptive – evaluative research design, with a documentary survey, key informant interviews, and secondary data analysis among the data collection methodologies. The study's findings were presented using the Star Model Approach for Strategic Organization's five categories. The results implied that a set of standards for PED services' operation could be considered to improve its current system. The study also proposed developing a clear strategic direction for PED services and developing a PED manual incorporating the standards revealed in the study. The study aimed to contribute to the institution and meet the industry's fast-changing demands by applying innovation to its existing approach to PED services management.

Keywords: *Commercialization, Entrepreneurship, Innovation, Strategic Organization*

INTRODUCTION

Universities in Asia progressively involve themselves in technology transfer, production, and commercialization. This is evident in an article which showcased the contribution of different universities in Asia to technology commercialization and academic entrepreneurship [1].

In the Philippines, through a Republic Act, the State Universities and Colleges (SUCs) can participate in commercial activities to generate income [2]. This Act includes the power and duties of the Governing Boards to allow them to partner with business and industry for a productive management of the college's economic assets. The goal of boosting innovation and job development will be aided through enhancing collaboration and links among higher education institutions, government, industry, and service sectors [3]. Such collaboration, which employs the triple helix model of University–Industry–Government, creates a new entrepreneurial pattern that highlights the role of universities in innovation and entrepreneurship [4]. It emphasizes universities' role as engines of economic growth, Research and Development laboratory, and human capital builders [5].

Many universities and colleges want to utilize and commercialize research output. In a State College in Bicol Region, one of the goals of the office in charge of the research, extension, production and enterprise development is to utilize and commercialize the output of research. Hence, this study investigated the current state of the Production and Enterprise Development (PED) services with the goal of contributing to the improvement of the PED Unit through the implementation of an innovative and strategic approach in its operation.

Objectives of the Study

This study aimed to investigate the existing status of the college's Production and Enterprise Development (PED) services, check if the system has a particular standard in place and propose quality standards to enhance its current system. This study also aimed to prepare the institution for its future development and support the government's focus on innovation and entrepreneurship.

MATERIALS AND METHODS

Methods

A descriptive – evaluative research design, with the primary goal of describing the current PED services system, was employed, and used to describe compliance with existing government or industry standards in production and enterprise development. The study is limited to the perceived compliance of PED services to the identified standard. It used a descriptive evaluation of common similarities with what is currently being practiced in the PED services compared to the standard used by government agencies and private industries.

Participants

The respondents were from a state college in Bicol Region, Philippines. The respondents were the staff, the PED Coordinator and the Director of the office in charge of the research, extension, production and enterprise development, and the College Officials involved in the PED Services functions, particularly the Budget Officer, the Vice President for Administrative and Financial Services, the Vice President for Academic Affairs, and the College President.

Instrument

A researcher-made documentary survey checklist was used in this study. For key informant interviews (KII), the study also used a researcher-made semi-structured questionnaire.

Procedure

The researcher administered a checklist-based documentary survey and a KII using a semi-structured questionnaire. The researcher performed one-on-one in-depth interviews with the College Officials, the Director of the office in charge of the research, extension, production and enterprise development and more particularly with the PED Coordinator. Secondary data from different sources, such as government agencies and industries, including other SUCs, were used to establish production and enterprise development standards. Since approaches to the Production function differ in every SUC, the researcher opted to cull from what seemed to be related to the college's production and enterprise development services. Considering PED practices and the standards gathered from the literature, it was consolidated to come up with standards used in this study.

Data Analysis

The study employed descriptive statistics as well as qualitative methodologies with in-depth analysis for the data gathered from the documentary survey and the KII. A descriptive-evaluative analysis was also employed to present the perceived compliance of the current PED system compared with the government and industry standards. It used a descriptive compliance rating with its corresponding meaning: Compliant - there are no shortcomings, largely compliant- there are only minor shortcomings, partially compliant - there are moderate shortcomings, and Non-compliant -there are major shortcomings [6].

Ethical Consideration

Consent and approval of the respondents were obtained before the actual conduct of the study.

RESULTS AND DISCUSSION

The five categories derived from the star model approach for a strategic organization were used to describe the findings of this study: strategy, structure, processes, rewards, and people [7].

Based on the documentary analysis and result of the KII, the PED Unit of the college has no specific set of standards for production and enterprise development. In the lack of a standard for PED, this study looked into adapting some of the government and industry standards related to production and enterprise development practices. The standard used and considered deemed appropriate in measuring the extent of compliance of the college in terms of production and enterprise development was culled from various literature.

The proposed standards would be given in five areas, adapted from the star model method for a strategic organization: strategy, structure, process, rewards, and people [7].

From the related literature coupled with the practices of the college, the following are being considered the standards used to identify the extent of compliance of the current system for PED services: strategic direction and an approved manual under strategy; functional organizational set-up and availability of adequate resources under structure; business planning and production process under processes; profit sharing and incentive scheme and equivalent teaching load under rewards; manpower expertise and business orientation under people.

On Strategy

1) Strategic direction

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In the fundamentals of organizational strategy, strategic direction refers to the course of action the people in the organization are doing to attain the goals they and their firm set out to achieve [8]. This includes formulating the Vision, Mission, Goals, and Objectives (VMGO) and the institution's thrust. The strategic direction is a critical factor vital for the organization's implementation and performance [9]. The strategic direction should be well cascaded to all its stakeholders.

On the current PED system

The study's findings reveal that there was no clear strategic plan for PED because it was not included in the institution's core goal. Despite this, the college has strategic initiatives which include "Innovation, Enterprise Development, and Extension Modalities Initiative" [10]. The office in charge of the research, extension, production and enterprise development's quality objectives and targets are more on the research and extension functions because, as a state college, the Production function is not yet mandatory; it only requires the instruction, research, and extension functions.

Its extent of compliance

As of the conduct of the study, the PED services is partially compliant in terms of strategic direction. This study implies that PED services require a strategic direction, especially given that the institution is focusing its efforts on innovation and enterprise development.

2) An approved manual

With the approved manual, the administrators and personnel will be clearly guided on the flow and procedures of the operation. Approved implementation guidelines is one of the most important components of a successful business affairs/production program [11]. The approved implementing guidelines include a compilation of procedures involving accounting, budget, procurement, and internal control. It also includes safety procedures, policies, and regulations to have a safe working environment. It likewise includes quality practices and measurement, such as overall quality process, quality systems, and inspection tools, and quality documentation. It further includes guidelines to encourage or motivate the participation and cooperation of the people involved in production activities [11][12][13][14].

On the current PED system

Based on the study, the current system of PED services follows the College Code and uses its provisions as its implementing guidelines. The College Code stipulates the composition of the Production and Enterprise Development Services and its function. It was indicated that PED services unit is to be headed by a Coordinator who will oversee the PED services of the college. The College Code also indicated the functions of the PED services as a unit, which are stated as: to "strengthen instruction, research and extension function, coordinates with other colleges for the instruction-related income generating activities (IGPs), evaluate and assess business project proposals, and conduct activities to sustain further the viability of the IGPs of the college" [15]. This works as the guide for PED, specifically the duties and responsibilities of the PED coordinator. In case there are production proposals that need to be decided upon, a committee convenes from time to time to discuss the proposal and issues of PED. During the time of the interview, PED has no existing approved production manual yet, which could have

stipulated the PED implementing guidelines. Nevertheless, the office in charge of the research, extension, production and enterprise development has scheduled benchmarking activity, specifically to look into the best practices of other SUCs to develop a production manual of its own.

Its extent of compliance

The study's findings revealed there was an absence of an approved production manual. There were no approved implementing guidelines for the PED Services, hence non-compliant with the given standard. It could have stipulated the implementing guidelines and incorporated the content of the College Code about the PED Services function in the PED manual.

On structure

1) Functional organizational set-up

The availability of manpower expertise to manage the projects according to their specialization is an important part of the functional organizational setup. It also refers to the appropriate number of heads to staff IGPs and production projects, with each grouping based on their unique abilities and knowledge. Creation of a Production Council as the unit's function expands to help formulate policies and procedures for IGP and Production operations [11].

On the current PED system

According to the study's findings, PED's organizational structure comprises an Institutional Coordinator (IC), who reports directly to the Director of the office in charge of the research, extension, production and enterprise development. Each college also has its assigned college production coordinator who helps the IC, but they are not part of the organizational structure of PED. The College also has a research, extension, production and enterprise development council, which under Section 32 of the "College Code" has a function to "formulate and recommend priorities and directions, policies, guidelines, rules, and regulations on research, extension, and production activities" [15].

Its extent of compliance

A functional organizational set-up is one of the critical components needed in a successful production program [11]. Since the implementation of PED in the college is in its early stage, the current system of PED in terms of functional organizational set-up is Largely Compliant with the set standard. However, should the function of PED broadens, there is a need to strengthen its organizational set-up to meet the standard.

2) Availability of adequate resources

For a school to put up projects on a commercial scale, there is a need for adequate resources, including land, labor, and capital [11]. An enterprise must be supported by strong social and physical infrastructure, which include, among others: labor productivity, laboratories, and business incubators. For financial resources, the SUC shall earmark a fixed ten percent (10%) budget allocation for the establishment of a project or income-generating activity [16] and establish linkages with local or national agencies for possible funding of production undertakings [14].

On the current PED system

The management supports the needs of PED by providing laboratories, facilities, and equipment, depending on the approved production proposal. The College have a 10%

budget allocation for Production, as per CMO 20, s. 2011 [16]. However, based on the result of the study, the current utilization of that fund has only been for capability building, and it is not yet being utilized for start-up or seed capital for production projects. The interview results showed that PED has an existing collaboration with other agencies.

Its extent of compliance

Based on the standard indicated for the availability of adequate resources, such as physical infrastructure, labor productivity, laboratories, business incubators, fixed ten percent (10%) budget allocation, and linkages with local or national agencies for possible funding of production undertakings, the current system of PED is Compliant with the standard.

On processes

1) Business planning

Business plans are expected to be in place, reviewed, and updated [17]. Enterprises need business planning, marketing, and branding [18]. Six major strategies that should be considered in making a business plan: market strategy, production or service strategy, research and development (R&D) strategy, organization and management strategy, financial strategy, and information technology strategy [19].

On the current PED system

PED extends assistance to students and faculty who seek support from the PED unit, primarily in terms of coordination with management to get financial support, procurement of needed materials, and the use of facilities and equipment. Moreover, PED also coordinates with other government agencies that may support the production proposal, particularly in terms of funding.

Its extent of compliance

PED's current system is Partially compliant with the standard on business planning. Business Planning was implemented in one of the PED projects already; however, this standard could still be reemphasized and be used in future projects. PED still has to establish details for this standard to align it with the needs of the College.

2) Production process

Based on the literature, the production process includes workflow planning and control, production equipment operations, production materials, tools and equipment, work orders, and documentation [13].

On the current PED system

The result of the study revealed that the function of PED includes assistance to project heads during the initial stages of production and the incubation period of the proposed business. They help during the different stages of development, including testing the product in the community until it is ready for commercialization. It will then be transferred to the IGP of the College or the Auxiliary Services when it is running smoothly. PED follows the procurement process based on the approved production proposals for the requirement for supplies and materials.

Its extent of compliance

There is an actual practice, but there is an absence of a documented workflow of the processes and procedures to be followed; hence it is partially compliant with the standard. The details of the processes for production are still to be established and documented. Though the PED unit is

currently working on its production manual, production processes and procedures might as well be included.

On rewards

Profit sharing and incentive scheme/ equivalent teaching load
Implementing a reward and incentive scheme for people and support staff performance would encourage them to work harder and boost productivity. However, the incentives can be given only with a Return on Investment of 15% or higher during the production year. Specific guidelines for the profit allocation are necessary, subject to review and approval from time to time. Distribution of incentives would include percentage incentives for the project managers, project laborer and simple tokens for the involved offices, and a certain percentage for the support to the administration, to be divided by the administration share, for the supplies, the materials, and the equipment, for the capital benefit fund (bonus, cash gifts, allowances), and the scholarship and research fund [12]. The faculty members involved in the entrepreneurial activity may be issued an appointment or designation and will receive its corresponding equivalent teaching load as well [11].

On the current PED system

Based on the results of the study, there is no monetary incentive scheme yet, though the initial draft of the PED manual reflected preliminary figures. For the non-monetary incentive, the PED Institutional Coordinator enjoys a teaching deload, with an equivalent workload unit in place of teaching units.

Its extent of compliance

The results of the study revealed that the PED services is Non-Compliant in terms of monetary rewards and incentives, while Compliant in terms of the equivalent teaching load. This study implies the need to establish the profit sharing and incentive scheme, particularly when PED services begin to venture into commercialization.

On people

Manpower expertise and business orientation

This standard refers to manpower expertise assigned in managing the projects, which should be matched with their specialization. This standard also refers to the faculty, staff, the students, and the administrators' business orientation [11].

On the current PED system

In the current system of PED, the variables include human resources, which is composed of Faculty, Students, and the Officials and support staff in the office in charge of the research, extension, production and enterprise development. To complement PED programs, the faculty and students can be tapped to supplement human resources with entrepreneurial skills. In the current situation, the college has BS Entrepreneurship Program that opened during s/y 2018-2019 who could help improve the entrepreneurial environment of the college.

Its extent of compliance

As of the conduct of the study, the PED services is largely compliant with this standard. This study implies that PED Services should tap the people with entrepreneurial inclination, including the student, faculty, and personnel, particularly that PED services will be venturing into commercialization.

PED can apply the standards under several categories adapted from the star model approach for a strategic organization, with

the implementing guidelines based on the literature obtained and based on the practices of the college. Among these standards, PED was compliant with the availability of adequate resources and rewards, particularly the equivalent teaching load, largely compliant in terms of functional organizational set-up and people, partially compliant in terms of strategic direction and processes, and non-compliant with regards to an approved manual, profit-sharing and incentive scheme.

CONCLUSION AND RECOMMENDATION

The study revealed that the college has the resources and the academic programs supporting the PED operation, promoting innovation, technology, entrepreneurship, and commercialization. PED's role in leading the institution toward innovation and commercialization could be expanded. The study revealed that some elements were lacking in the current PED system, such as the vision, mission, goals, and objectives of PED, the general policies and implementing guidelines on the operation and management of the PED Services, and the standards for production and enterprise development. The study implied that these data could be encapsulated into a comprehensive Production and Enterprise Development (PED) Manual, which could then be approved and implemented.

The study revealed that from the literature gathered and then from the practices of the college, the PED unit can use the following standards under the categories derived from the star model method for a strategic organization: on strategy - strategic direction for PED, and approved PED manual; on structure- functional organizational set-up, and availability of adequate resources; on processes - business planning, and production process; on rewards- profit sharing and incentive scheme/ equivalent teaching load; and on people- manpower expertise, business orientation.

A research study could be conducted to assess the utilization of the existing shared service facilities such as the fabrication and manufacturing laboratory, garments technology laboratory, and food technology laboratory to foster entrepreneurship and innovation and establish its operational standard.

Further study may also be conducted, particularly on profit-sharing and incentive programs, to strengthen the standards on rewards.

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