R&D Transformation Model of Public Higher Education Institution in the Philippines: Case of Samar State University

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Abstract: Research productivity is one of the weakest links of Philippine Higher Education Institutions in becoming a world-class university (WCU). Economic condition of a country is also associated to R&D productivity as well as the number of WCU of that country. This is the reason why Samar State University (SSU) is striving to improve its research productivity to become a WCU in the future and help improve economic condition of Samar and the country in general. This paper presents the transformation plan of SSU, the challenges it faced/facing in the implementation. It also showed the initial milestones achieved as a result of the interventions made. The most challenging part of the transformation process is the changing of culture towards research. Using a multi-level approach to change management considering concepts from the three change models; ADKAR, Business Reengineering, and 6-Change Approaches, SSU R&D productivity had improved several times better than when it started.

Keywords: culture change, explicit and implicit coercion, rewards and penalties, a world-class university, research, and development roadmap

1. Introduction

Innovation is a dominant force in economic growth (Rosenberg, 2004; Fagerberg et al., 2009). It is often carried out by highly educated human resources from R&D intensive companies having strong ties to leading centers of excellence in the scientific world (Fagerberg et al., 2009). In 1960 the Philippines had better GDP per capita than Korea, Malaysia, and Thailand, today they are all ahead of the Philippines by a considerable margin specifically Korea (World Bank, 2018). For 2017-2018, Korea, Malaysia, and Thailand are considered Stage 3 (Innovation-driven), Transition from Stage 2 (Efficiency-driven) to Stage 3 and Stage 2 respectively (WEF, 2017). The task to make human resources in any country innovative lies so much on its educational systems.

Economic progress depends upon knowledge and the utilization of knowledge (Margison, 2007); knowledge creation or its advancement is one of the businesses of education (Wilson and Corr, 1931). This is why tertiary education plays a significant role in building local and regional economies (Yusuf and Nabeshima, 2007). While the universities are expected to create new knowledge or advanced it; using what it produces towards wealth creation is another

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2. 3rd International Research, Development and Extension (RDE) Management Congress, July 31 to August 3, 2018, organized by the Philippine Association of Research Managers (PHILARM), Inc.
story (Lendel et al., 2009; Mattoon, 2006). A World Bank study in 1999 shows that tertiary education is central to the four pillars of an analytical framework. It emphasizes the complementary role of four key strategic dimensions in guiding countries to move towards a knowledge-based economy which is; an appropriate economic and institutional regime, a healthy human capital base, a dynamic information infrastructure, and an efficient national innovation system (WorldBank, 1999).

In a knowledge-based economy, the role of tertiary education was greatly emphasized. Sir Paul Nurse in his speech in 2012 has said: “In the future, we will not be able to compete on the world stage with low labor costs or by exploiting vast reserves of mineral resources. We will have to compete with our brains and with our science.” Countries, where the world's best universities are found, are more progressive (Tan, 2013). According to Salmi (2009), world-class universities is where talent is concentrated, has favorable governance and with abundant resources. Higher ranked universities tend to enjoy increased management autonomy, which in turn, increases the efficiency of spending and results in higher research productivity (ibid). Having an appropriate governance framework without sufficient resources or the ability to attract top talent does not work either. Salmi (2009) further emphasized that just investing money in an institution or making it very selective in terms of student admission is not sufficient to build a world-class university (Salmi, 2009). The challenge of creating an HEI into the level of a world-class university is not just about academic reputation but for economic reasons too.

Out of the 1943 Higher Education Institutions (HEI), six were included in QS Asian University ranking with Philippines best in 75th rank and 384th in the world. The performance of the Philippines is much lower according to THE rankings. Philippine’s best HEIs research productivity is considered medium while Asia’s best research performance is considered Very High (QS World University Ranking, 2018). The performance indicator suggests that more must be done for the Philippines to compete globally. The Philippine Development Plan acknowledged the lackluster performance of Philippine HEIs (NEDA, 2017). It says that the higher education system is beset by stubborn issues which, in light of 21st-century challenges, require urgent, tactical, and transformative solutions. While the number of HEIs in the country is ten times more than its neighboring countries, the Philippines is not producing a comparable number of innovators (ranked 74th out of 128), researchers (only 81 per million population) and so on (ibid). There are many factors why Philippine HEIs rank poorly in the WURs such as low R&D expenditures, curriculum, teaching qualifications, and school policies. Even the selection of HEI's head needs revisiting. Goodal (2009) expressed that top scholars lead best universities; more than the majority of the Philippines HEIs are not led by them (Orale, 2014).

Patricia Licuanan (2017), the former CHED commissioner presented four persistent issues in the higher education in the Philippines which they are trying to address. Two of which are about the commercialization and proliferation of higher education programs and the deteriorating quality resulting in low productivity in R&D and deficient science and innovation culture (ibid). Many HEIs were converted into universities the sometime late 1990s and early 2000s, not
primarily because of research prowess. Most HEIs which were turned into universities faced a difficult situation in addressing the requirements of a real university. For Samar State Polytechnic College (SSPC), now Samar State University (SSU), the transition from a robust technical-vocational college into a university was a challenge.

The transformation from a technology-vocational school into a university is a huge challenge to many HEIs with a similar profile to Samar State University. In a world that is fast becoming one, goods and services offered by any country face significant challenges. The ASEAN (Association of Southeast Asian Nations) integration, for example, eliminates border restriction allowing the cross-border practice of the profession in the region resulting in much stiffer competition. The integration provides the best product and/or services in more significant advantage, benefiting the most prepared. Therefore, there is a high pressure to produce world-class products and professionals and HEIs must strive to comply.

2. Objectives

The paper aims to present the management strategies used by Samar State University in its efforts towards the transformation from a technical-vocational tertiary education into a recognized international university by 2040; specifically, the paper will;

2.1 Describe the profile before university hood status;
2.2 Identify challenges in the formulation and initial implementation of the transformation plan;
2.3 Present the institution transformation model
2.4 Compare the profile of the institution from 2000 to 2018.

3. Methodology

The paper presents the management process used by Samar State University in improving its research and development landscape. It used secondary data and substantiated with formal and informal interviews, observations and survey data.

3.1 Research Design:

The study is a descriptive type of research using quantitative and qualitative data. Quantitative data were generated from primary and secondary sources, most of which are official documents from the University records and publications, interviews, observation, and survey. The experiences of the plan implementers and selected personnel were also discussed in the paper.

3.2 Sampling Criteria and Data Collection:

Secondary data used in the paper are from official documents of Samar State University specifically those recorded or published from 2000 to present. These documents include Research Journals of SSPC and SSU, Annual Reports, General Appropriations Act (GAA), Internal Operating Budget (IOB) for R&E of the University, etc.

Personnel considered in the survey and interview was purposely selected based on their extent of R&D performance and participation in the planning and implementation process. Personnel who adopted the changes introduced and those that to date continue to resist were included in the interviews and observations.
3.3 Data Presentation and Analysis:

Data collected from primary and secondary sources were presented in tables, line graph, bar graphs, and pie charts. Statistical treatment of data is limited to relative frequency and means. Qualitative data derived from the interviews and observations were thematically presented and used to substantiate the quantitative data presented and the point is emphasized.

4. Results and Discussion

Facilities and people (quality of faculty and students) are significant factors in the transformation efforts. The newly created Office for Research headed by the Vice President for Planning Research and Extension developed a transformation plan for the university aimed at improving research productivity. It was later enhanced into a multi-level approach to transformation, SSUs strategic way of implementing the change. The university applied a combination of three change management theories; the ADKAR (Awareness, Desire, Knowledge, Ability, and Reinforcement) Model, Six Change Approach and Process Reengineering to address the challenges. The plan implementers looked into the existing situation and the future state it wants to achieve.

4.1 Profile Before Universityhood.

a. Faculty Profile. Before the universityhood, Samar State Polytechnic College is composed of two campuses, the Main and the Mercedes Campuses. Mercedes campus is formerly the Samar Regional School of Fisheries which was integrated in 1999.

b. In 2002, a year before the conversion of SSPC to SSU, there were a total of 118 members of the teaching staff. Less than 10% are holding academic rank, all of them are holding an administrative position. Striking to note is that most of the faculty members are in-bred and only 9% were coming from top universities identified in the WUR of today.

c. Faculty Participation. There are very few faculty members who participate in research activities. At most, about ten people (or less than 10% of the faculty personnel) are involved in performing research outside of the thesis or dissertation advising.

Source: SSPC 2002 Annual Report & A Proposal for the Conversion of SSPC to SSPU

Figure 1: Profile of Personnel in 2002 (a) faculty members by rank; (b) by highest degree earned; (c) where a degree was earned
d. **Research Utilization.** Some of the papers produced by students with their thesis advisers are published in the college and graduate school journal, copies of which are shared with other SUCs in the region. About one or two papers are presented every year in a regional research conference specifically the Visayas Consortium for Agriculture Resources Program (VICARP) Regional R&D Highlights, most of the time by the same people. Technology protection, transfer, and commercialization are minimally implemented. Utilization is almost absent.

e. **Research Resources.** There are not enough library holdings specifically research journals, and access to the internet was very limited. There is only one laboratory available for research; others are used more for teaching purposes. The funds for the R&D office are less than one million and less than a quarter is used for actual research; most expenses are on operation and management.

4.2 The University Goal and the Challenges

Some of the issues stipulated by CHED in its Higher Education Reform Agenda have been a subject of discussion in early 2000. The problems such as deteriorating higher education, poor faculty profile, lack of instructional and research facilities were on the table. The challenges came clearer when CHED published its Roadmap for Public Higher Education Reform which aims to produce at least three internationally recognized SUCs in the country by 2016 (CHED, 2012). The need to elevate HEIs into world-class standards is in response to the increased threat or the opportunities for growth posed by globalization. The free flow of goods from one country to another requires manufacturing more competitive products and services to survive. The poorer the country, the less competitive it is, this is the reason why Third World countries felt they are the more at risk in the state of globalization. As cited in the book edited by Bigman (2002), globalization improves growth rates, increase productivity, enhance technological capability, but it cannot redistribute wealth for everyone especially the poor. Markets offer foreign goods which are cheaper and better killing local industries (ibid). In a local scope, the ASEAN integration will allow cross border practice of profession and services (ASEAN and World Bank, 2013) which will widen competition and favors the ready. This sentiment requires those in the business of human resource development and innovation like the HEIs to be globally competent. To be globally competent means conformance to global standards.

a. **The R&D Dream of SSU.** The new name of the institution carries with it huge responsibilities and expectations. What is the difference between SSPC and SSU? What is it to become a university? This is one of the common questions you would hear from both SSU personnel and the community.

Where there are many academic institutions, there are many literate people. The more literate people, the less its poverty (Suso, 2005; World Bank, 2005), but in other countries like Nigeria, this relationship is not real (Stepen, 2011). Eastern Visayas Region is one with the highest number of State Universities and Colleges in the Philippines, but it is also among the poorest in the country. Samar remains to be poor despite the accessible education services. To the framers of the SSU
transformation plan; providing technical education to Samarnon is not enough, the university management hopes to be instrumental in the improvement of the local economy and eventually reduce poverty incidence in the area.

The literature says that countries where world-class universities are found, economy flourish; two variables identified in the dream of SSU. The study of Tan (2013) states that there exists a significant relationship between having universities in the World University Ranking (WUR) and the GDP per capita of the country. The more decent university there are in the country (or those universities in the top 500 in the WUR list) have higher GDP per capita (ibid).

The series of benchmarking to some established universities in the Philippines and profiling of well-known universities abroad helped SSU in describing the kind of university it wanted to be; a world-class university helping reduce poverty incidence in Samar. This was later spelled out in the new vision of SSU and emphasized in the 2017-2021 Strategic Plan.

b. The Challenges Identified. The things to be accomplished to become a world-class university require changing many things about how the institution operates. The idea of a world-class university was widely accepted, but the process of achieving it face significant resistance. Initial proposals for interventions were to improve the competencies of the faculty in research, upgrading and establishing new research facilities/laboratories and the changing of policies and priorities. Of the three proposed interventions, the changing of policies and prioritization was the most resisted. Some senior faculty members of the university were not very supportive of the proposed changes. This is because they will be the most affected among the personnel; most of them have no extensive research activities other than the researchers conducted by their graduate/postgraduate student advisee. Furthermore, research is not anymore their priority as most of them are holding administrative functions.

Research culture was the major challenge in the transformation process. Faculty insists that their role is on teaching and only the professors are required to perform research. Most of the faculty hired was educated from institutions where there is no limited R&D productivity; more than half of SSU personnel were in-breed. The inbreeding was due to limited SSU scholarship to study outside of the University, and accessing external grants was doubly difficult. Studying in SSU was encouraged with free tuition for faculty who enrolls in the University College of Graduate Studies. These result in engineers enrolling into education or technician masters’ courses. To summarize it all, the lackluster response of the teaching staff to research is highly attributed to their lack of exposure and capability of performing the analysis. This is complemented with limited library resources such as journals, research laboratory, research facilities, and funds for R&D.

Furthermore, the senior faculty members who are not into research are influencing directly or indirectly the rest of the faculty in the engaging out-of-the-box analysis. Rewards for conducting R&D are not widely disseminated like
those in the NBC 461 where points to scholarly work are emphasized. Furthermore, the implementation of promotion via NBC 461 was delayed for close to 10 years. The conduct of research was seen by many as an extra work intervening in their teaching functions, regarded as their primary role in the university.

c. World Class University. The question about the difference between a college and a university was given a much-needed look. The two words are used interchangeably; however, world-class universities are defined by their strength in research among others (Tai, 2005; Salmi, 2009; Albatch & Salmi, 2011; Pomeda & Casani, 2016).

What makes a university world class is primarily on its ability to create new knowledge; other factors are indirectly associated with it. This new knowledge results in the production of better products and/or more efficient processes, which results in positive financial benefits; thus improving the economy. Times Higher Education (THE) and QS World University Rankings give massive weight to research productivity as an indicator of quality education. QS WUR emphasizes academic reputation, employer reputation, faculty/student ratio, citations per faculty, international faculty and student ratios. The THE WUR performance indicators are grouped into five areas; teaching (the learning environment), research (volume, income, and reputation), citations (research influence), international outlook (staff, students and research), and industry income (knowledge transfer).

Research productivity is a significant criterion in the Times Higher Education and the QS World University Rankings. According to Salmi (2011), world-class universities are those where talent is concentrated (top-caliber faculty and students), abundant resources (public funds, endowment revenues, tuition fees, research grants) and favorable governance (supportive regulatory framework, autonomy/academic freedom, Leadership team).

d. Faculty Tenure & Student Admission. In a university of world-class stature, the tenure of faculty is stringent, always associated with their research productivity. Asia’s best university looks for teaching staff to research competent in their respective fields (NUS, nd.; TU, nd.; PU, nd.). They hire at least 20% of its staff from abroad (THE, 2014) who are highly competent in knowledge creation. World-class universities are mostly governed by top quality scholars (Goodal, 2009), those with high research productivity profile. Top universities recruitment of students is critical; they have stringent requirements and slots are limited. About 19% of their students are foreigners (THE, 2014).

e. Resources. Less than PhP 1million of pesos ($0.018 M) is spent on research by the SSU, most of which is allocated for operation and management, only less than a quarter is used to conduct research. Top 200 universities have a massive income of $751,139 per academic, and their researches earn a salary of $229,109 per academic (THE, 2014). Abundant resources are crucial in producing top quality graduates and technologies as well as retaining their talents. Talents kept in return results into
revenue for the university which is used to improve its operation further.

f. Publication of Researches. SSU only publish five in every 30 to 40 or 12.5% of papers produced yearly in local journals. This number of publication is way far from what WUC has. Top 200 universities publish 43% of its more than 1000 papers per year with at least one with an international co-author in a world-class international refereed research journal (THE, 2014). Publication and citation of research papers are considered among the most influential in the WUR. These are papers published and cited in top quality journals; this performance results in building the reputation of the faculty and the university producing multiple impacts to other pillars of a world-class university.

In summary, the Samar State University must strive to transform its research culture and the research environment for it to achieve its ambition to be included as among the top universities in Asia. It must address the fundamental issues; faculty profile, research funding, and favorable governance.

4.3 The University Roadmap

The research office initiated the transformation process and slowly introduced the details to the entire community to minimize the resistance. The challenges presented in item 4.2 of this paper require so much intervention in changing of priorities.

Before the university hood, the membership of SSPC in the VICARP during the term of the former president Dr. Bonifacio Villanueva triggered the institution's curiosity to research and development. The acceptance of the college is hosting the Regional R&D Highlights was a big help in promoting research to everyone in SSPC.

It was during the incumbency of Dr. Simon P. Babalcon when SSPC became SSU. As the first university president, he has embraced the new challenge brought about the conversion into a university. In its effort to bring-in research culture more; Dr. Babalcon and the entire SSU accepted the challenge of hosting the Eastern Visayas Consortium for Industry Energy Research and Development (EVCIERD) for five years from 2005. This allowed the university to increase appreciation to research, exposed many of its faculty to the research culture of many HEIs in the country and abroad and capacitated many of its faculty in the conduct of R&D.

The awakening of research as a significant function in the institution was part of Phase 1 of the transformation process as shown in Table 1. During this phase of introducing R&D to SSPC faculty, there was a need to isolate faculty members who are against R&D — termed as "corrosion control." Corrosion control means faculty who have shown a positive interest in R&D were secured from the rest who were against the transformation idea. This personnel was given more opportunities to develop themselves, contrary to the practice of giving equal opportunities to all. This was due to limited funds and the managers focused on the "return of investment" in R&D. The few early adopters became the models of the new culture being put forward.

Phase 3 showcased the benefit of participating in R&D in forms of incentives...
Table 1. The SSU R&D/E Roadmap 2000-2030

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<th>Phases</th>
<th>Strategies and Innovations</th>
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<tr>
<td>Phase 1: Few years back until 2000</td>
<td>Profiling of SSPC, its strength, and weaknesses, threats and opportunities were undertaken at the R&amp;D office level, immediate interventions were proposed and implemented. Massive R&amp;D training was started. The primary goal is to train faculty in performing R&amp;D tasks by doing. Corrosion Control was implemented. Potential faculty-researchers are shielded from personnel who are negative towards research to minimize their influence.</td>
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<td>Phase 2: 2001-2003</td>
<td>Mentoring of responsive faculty in conducting research was continuously held. The focus was on polishing their R&amp;D project execution and reporting. Research In-House-Review and Hosting of Conferences to widen participation and exposure Early adopters are sent to R&amp;D capacity building activities. Considered as incentives for joining R&amp;D (travel and free training and recognition)</td>
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<td>Phase 3: 2003-2010</td>
<td>The Office for Planning Research and Extension was created together with the offices of the Director for Research and Extension, Planning, Information and Communications Technology, Gender and Development. Research and Extension Coordinators were identified to help colleges/campuses develop their R&amp;D/E and for easier cascading of plans and programs. Participation in research presentation locally and internationally was encouraged. Funds were made available for travel. R&amp;D Policies are crafted, and BOR approved and implemented, namely: 1) R&amp;D Manual of Operation approved in 2005; 2) R&amp;D/E function as a requirement for a year-end clearance; 3) R&amp;D/E percent rating is raised in Performance Evaluation System(PES); 4) SSU Intellectual Property Rights Manual approved in 2010; 5) R&amp;D Awards/Incentives including publication approved in 2010. Intellectual Property Rights Policy was formulated and approved by the BOR. Research and Extension in the performance evaluation was raised significantly</td>
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<td>Phase 4: 2011-2015</td>
<td>Technology Licensing and Innovation Support Office were created. Five Patent Agents were trained on patent drafting; two were certified Patent Agents Approval of the creation of three Research Centers to have more focused R&amp;D undertakings. Center for Engineering, Science and Technology Innovation; Center for Fisheries and Aquatic Resources Research and Development; and Research Center for Culture and Social Issues. Faculty researchers who have established a reputation are encouraged to access external funding from DOST, CHED, and other agencies for research projects. R&amp;E Manual revisited, clearance policy enhanced, and incentive policy revised</td>
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<td>Phase 5: 2016-2020</td>
<td>Conduct strategic planning of the entire university to create the much-needed support to more challenging research target of the university. Transform university-based Research Center into a Regional or National Research Center. Create a new Research Centers at the University. Full operationalization of the Research Center with Directors and hiring of Faculty Researchers. Creation of new research centers or leveling-up the institution-based R&amp;D center to Regional or National stature. Increased percentage of faculty in international presentation through improved resources for travel. Improving resource generation from research-based products or externally funded research projects.</td>
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<td>Phase 5:</td>
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<td>2016-2020</td>
<td>Increase to 100% faculty participation in R&amp;D. Passing more stringent policies on performance requirement in research for faculty members.</td>
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<td>Increased (Registered; patent/UMs) technology development for SMEs</td>
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<td>Phase 5:</td>
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<td>2021-2029</td>
<td>Increase external funding to PhP 50M a year through developing renowned (award-winning) researchers and research centers. These funds can be used to operate research centers and enhanced resources for research purposes.</td>
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<td>Improve faculty profile (&gt;50% PhD, 20% Professors) educated abroad or in the top universities. This can be made through strong linkages with other universities abroad and increased funding for scholarship and training.</td>
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<td>Strengthening Academe-Industry partnership through collaborative research and development/consultancy services as well as through the Implementation of Industry Immersion activities of faculty.</td>
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<td>Conduct high-quality R&amp;D in the established research centers; improve the number of publications to 1000 specifically in ISI/CHED JI journals.</td>
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<td>Phase 6:</td>
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<td>2030-onwards</td>
<td>Sustainable R&amp;D culture. SSU partner of SMEs in technology development.</td>
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<td>Establish a strong linkage with known research universities in the country and abroad.</td>
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<td>SSU attain its vision on improving lives in Samar</td>
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Figure 2. Research as the Hearth of the Operation of the University
such as traveling to places in the Philippines and abroad to attend training and present research papers, and more permanent was the fast movement in the NBC ranking. These benefits were used to encourage personnel to embrace the challenges brought about by the implementation of the roadmap and gain similar benefits. It was also during the Phase 3 implementation where the most critical policy was introduced, the R&E Year-end.

4.4 Clearance Policy

The policy requires all faculty members to show proof of activities in the R&E to be cleared for the year. This policy has forced everyone to explore and involved themselves in R&E. The system was complemented with monetary incentives for exemplary accomplishments in research and extension.

The clearance policy did consider the learning curve of personnel. Standards of accomplishments were divided into several levels, starting from simple R&E activities and were raised after a year or two depending on the adaption rate.

The election of Dr. Eusebio T. Pacolor as the new president in 2012 was the start of making research the center of SSU processes. From teaching centered to research centered institution as shown in figure 2. It was during this phase where research and extension were identified to be equally crucial to instruction.

Phase 4 was during the time of Dr. Pacolor. Benefiting from the previous efforts, the university leapfrog to another arena. While other SUCs are struggling in their R&D area because of massive resistance, SSU was expanding. The franchise of the Innovation and Technology Support Office (ITSO) from the Intellectual Property Office of the Philippines (IPOPhl), opened a new arena in the university which proved to have benefited SSU a lot. The establishment of the new office focusing on technology protection gives the university an added advantage over many SUCs in the country. With the ITSO, numerous utility models and patent applications were accomplished besting many HEIs in the country (SSU, 2014; Orale 2016).

It was also this phase when specialization of research was given attention. Aligned to the suggestions of experts from DOST, the university proposed the creation of R&D center to focus on at least three areas such as Marine Resources, Technology Development for Manufacturing and Socio-Cultural Research and Development. The full operationalization, however, occurred during Phase 5.

Funds started pouring into the university in the later part of Phase 4. Most of the funds were derived for agriculture-fisheries related researches. There was also an emerging competence shown in line with Information and Communications Technology (ICT) and other engineering researches. The surge in awards and recognition for R&D accomplishments are given prominence in the SSU Annual Reports (SSU, 2011; SSU, 2012; SSU, 2013; SSU, 2014; SSU, 2015; SSU, 2016; SSU, 2017).

For the past four Regional Invention Contest and Exhibits (RICE) of the Department of Science and Technology, SSU always receives the most number of winnings for college, faculty research, and utility models category. SSU has represented the region in the National Invention Contest and Exhibits (NICE) and won at least two
awards. The university has earned a certain level of recognition when it comes to research and development, receiving R&D recognitions by its faculty, students and of SSU as a whole.

4.5 The SSU Strategic Development Roadmap (2017-2021)

The Research Roadmap of the university was anchored to SUC leveling guidelines. Its initial gains are all useful in the new vision of the new university president Dr. Marilyn D. Cardoso who was elected into office in 2016. Attuned to her dream of making SSU one of the best in the country, the new administration conducted five-year (2017-2021) strategic planning. The plan goals are to make SSU a level 5 SUC by 2021 and help reduced the poverty level by at least 5%. The long term goal was to make SSU one of the recognized HEIs in

![Figure 3. The 20 Year University Development Roadmap](Source: SSU Strategic Plan 2017-2021)
Asia by 2040. The sustained research productivity is hoped to contribute the much-needed boost to be included in the list of the top 200 HEIs in Asia.

Shown in figure 3 is the university roadmap towards becoming a world-class university, among the top 200 HEIs in Asia. The new plan is heavily supporting the research roadmap earlier developed. The new program has two short-term strategic plan goals; improved SUC level from Level III to Level V and reduce poverty incidence in the second district of Samar by at least 5% attributable to the services of the University. There are five main goals with 73 directives; most are aligned to the three factors that makes-up a World Class University described by Salmi (2009).

By the year 2032, when the transformation process is sustained, and the R&D roadmap has been realized, SSU is expected to be among the top universities in the Philippines. By 2040, SSU hoped to be included in the best HEIs in Asia. It is also hoped that the transformation will lead to more innovative graduates or technologies that can help the community and industry become more competitive which will result in the improved local economy.

Early part of Phase 5 was so significantly different from the previous year’s research accomplishments. The hiring of faculty researchers, the full operationalization of the research centers have allowed faculty to be trained more on the areas they need help unlike in the past that training was generic for all. The strategic plan allowed other units of the university towards a common goal, a world-class university and more importantly a transformative university.

4.5 The SSU R&D Transformation Model

As pointed out earlier, the greatest
challenge for the university in achieving the goal of becoming one of the best HEIs is its culture towards research. Culture change is one of the more difficult processes of change; most attempts to manage organizational change frequently failed (Radovic-Markovic, 2007). To change culture according to Hrebiniak (2013) managers should focus on four factors and conditions that affect it; structure and processes, people, incentives, and changing and enforcing controls.

The initial stage in the process of transformation is understanding the institution, how the status quo was attained by critically looking at the past. The next stage form part of the awareness level in the ADKAR model, a goal-oriented change management model. What changes are needed, its nature and why it is necessary. The approach was also consistent with the first of the Six Change Approaches which is Education and Communication. A widespread, repetitive reminder of the need for change, the pains in the change process with great emphasis on the reward was performed. The use of actual examples or facts-based persuasion is essential to convince the personnel.

The initial plans were laid out using the information about international universities and the experiences of more established universities or research college/universities in the Philippines. Phase 1 in the R&D Roadmap involved activities which were very important to project SSPC is ready for university status. It tries building pockets of researchers who can initiate the fire in doing research; they are some of the senior faculty who understood the need for research.

Phase 2 in the R&D Roadmap was the time when Samar State University proposal for university hood was submitted to Congress for deliberation. This was the phase when the SSPC community first witnessed a regional research conference through the holding of the Visayas Consortium for Agriculture and Resources Programme (ViCARP) Research Review. The increased awareness encouraged a few additional faculty members to involve in R&D undertaking.

Phase 3 in the R&D Roadmap was the most challenging phase. This is where the policies that received massive resistance were introduced. This phase was witness to the long battle in trying to shift the mindset of people from teaching to research as a core. The most controversial policy was the inclusion of research and extension accomplishment as a requirement for school-year-end clearance. Faculty members who have not performed research and extension were not cleared and their salaries withheld until they accomplished the requirements. This policy was also not supported by many HEIs during the initial roll-out as for them.

Senior Faculty from a known Research HEI have said: "research is a passion, only those who are into research should go in to research, you cannot force that to them, it's not a good idea."

To the research managers of SSU during Phase 3 of the R&D Roadmap, a University is where research is a regular activity, a way of life. For international universities, research is a pre-requisite to tenure, its either you have it or leave. And since the workforce of the old SSU (SSPC) was mostly not into research were not replaced with new personnel with "university qualities," the idea put forward will not work. This was a bitter pill SSU has
to take or else it will not survive as a university.

The research managers that time was able to convince the University Management that it was able to pass a policy approved by the Board of Regents (BOR) requiring all faculty members to exhibit research and extension participation/accomplishments to be cleared by the Office of the Director and the Vice President for Planning Research and Extension for the year. The initial implementation was in 2007 forcing everyone to participate. Those who were caught unaware and or resisting the change were encouraged/lectured/mentored. In the six-change approaches, this is called explicit and implicit coercion.

Research Coordinator 1 says, "The clearance policy was the reason why many personnel of SSU is currently engaged in research. It was taken negatively by the faculty at first, but later they embraced it and were thankful for the changes they saw."

Former Research Coordinator says, "Before I became the research coordinator, I was one of those who resists the clearance policy. I did not realize that I was already benefiting from the changes in me; my college and I have received some incentives already because of R&D. I am now in a better position outside of SSU because of research."

Researcher 6 remembers his first research project in the year 2000. "I recently looked at my previous works from the year 2000 to date. I am quite ashamed of my first few pieces of research, it was so elementary. I now thought about how come it was accepted that time. However being fully informed of the multi-level approach in the transformation process, I now realized the strategy works."

Researcher 8 is one of the few early adopters to the challenge posed through the research roadmap. She expressed happiness of her achievements in the last few NBC evaluations as she leapfrogs ranks because of her R&D outputs.

The implementation of the policy used a re-engineering approach to change. The re-engineering approach was regularly employed (see transformation step in Figure 4) since 2007 onwards. It started at analyzing the problem using a fishbone technique, then formulates and implements the designed solution and examined its impact every year-end. When the majority of the faculty members can ride on the change, the standards are raised, and the new problem-solving process continues. Each time the standard was raised is termed in this paper as the multi-level approach to change. The majority (50%+1) requirement before new changes are introduced is very crucial in making the change process irreversible.

The policy implementers were aware that the faculty was a neophyte in doing research and the world-class quality research output is not yet possible. The initial standard to encourage the faculty to join in the bandwagon of change was very simple such as attending a seminar on research, sitting as a panel in a research review, or even a ride-on member of a research proposal. This approach was known in the 6-change approach as "manipulation and co-option" and providing insights or knowledge on how to change (ADKAR model).

Allowing the personnel to change level by level is easier, and resistance is lesser.
"I just received my NBC rank today; I was very happy to know that I am now a candidate for full professor. I attribute it to my R&D engagements."

The small successes in the transformation processes were given incentives. The approval of policy on rewards was a boost to early adopters. This is the reinforcement part of ADKAR or the Negotiation and Agreement part of the Six-Change Approaches.

4.5. Government Intervention

The time the university was implementing the crucial changes in the way it operates was complemented with the many changes in the government policies. The faster implementation of the NBC 461 evaluation allowed personnel to see the benefit in involving in research. The Normative Financing scheme which put higher weight to Research compared to the traditional teaching (DBM &CHED, 2004). The giving of the Performance-Based Bonus (PBB) with clear indicators in research and development/extension as the basis for the award also added the push to improve R&D accomplishments. The SUC leveling which have a direct effect on funding and other opportunities is also a big push to SSU and its administration to be serious in research productivity enhancement. The last ten years also was a great opportunity to the HEIs as funds for institutional development increased significantly which allowed SUCs to improve infrastructures, research facilities, and human resource development.

4.6 University Milestones

Milestones achieved as a result of the implementation of the R&D roadmap presented here is limited to the faculty participation rate, R&D budget received, research productivity (publication, presentation, and technology protection thru patent and UM registration) and SUC leveling. There are other effects of the transformation process on many of SSU operation which has brought good things to the university.

a. Percent Faculty Participation.

From less than 10% participation, in 2016 it was pegged at more than 80%. In 2017, the number declined to about 70% due to the hiring of new teachers, more or less 90% are relatively neophyte to research. In 2018, it improved to close to 78% and is expected to strengthen further as the new faculty develops confidence.

Figure 5. Percent Faculty Participation in R&D

The decline is expected to be temporary as the new faculty is very much aware of their role in the university, instruction, research, and extension as well as production. In 2018, more than the majority of the neophyte teachers are now engaged in R&D. The retirement of several teachers was also an advantage as most of those who retirees have no significant contribution to R&D productivity of the university.
On the other hand, since the newly hired were a neophyte to research, much of the challenge is on capacitating them to become productive faculty in research.

b. Research Funding

From a meager amount of less than PhP 1 million pesos in the year 2001 to about 46 million in 2018. The significant increase was when projects submitted by SSU researchers in 2017 was finally approved for release second quarter of 2018. Notably also was the increase from 1.26 million spent on research from the government GAA to about PhP 8 million pesos. This increase was most likely as a result of the improved normative financing data which is performance-based.

Figure 6. SSU R&D Funds

The number of outcomes will multiply several times in the advent of the substantial research funds from the GAA and the externally generated funds for research undertakings. In 2018, about PhP 80 million pesos of state of the art equipment were procured and will be housed in the soon to be completed R&D building. This together with the procurement of additional facilities attributed to the establishment of the Niche Center in the Regions for R&D (NICER) at the Mercedes Campus of the University will result into a huge number of accomplishments by the year-end.

Figure 7. Publication, Presentation and Patenting Performance of SSU

Additionally, SSU was also able to secure close to PhP 30 million funds for the four CHED funded projects in their Discovery-Applied Research and Extension for Trans/Inter-disciplinary Opportunities (DARE-TO) research grants and Institutional Development and Innovation Grants (IDIG). This projects will improve further the competencies of the university as a whole and the faculty-researchers themselves. To date, some of
its R&D personnel are being trained as a Technology Business Incubation Center. This will improve one of the low-performance areas of SSU, technology licensing and commercialization.

d. SUC Leveling

The SUC leveling is one of the initiatives of the government in setting the directions for SUCs for them to catch up with top universities and colleges in other ASEAN countries (CHED & DBM, 2016). In the previous SUC leveling, SSU performance in research was the weakest. In the 2016 SUC leveling, SSU KRA 2 was the highest among the four key result areas. It reached close to level 5 rating far from its previous performance which usually belongs to the lower SUC Level 3 points.

e. Awards and Recognition

The following are some of the awards and recognition SSU received which is highly attributable to the interventions made as a result of the R&D Roadmap implementation. Many of the faculty members and students in various research fora and conferences bring home awards and certificates besting fellow researchers. Very notable
was the consistently reaping of awards in the regional invention tilt and bringing home twice in-a-row recognition from the IPOPhil for its patenting performance.

5. Conclusion and Recommendation

Honing talents requires strategic approaches; a right balance of inspiration and force. Change of attitude does not come naturally and needs an external push to initiate change and continues improvement for sustainability.

5.1 Improved performance in R&D was greatly attributed to the clearance policy (An external force)

5.2 Rewards to good performer provided an additional push.

5.3 The implementer of the policy must also be a good follower, a leader, and an inspiration/example.

5.4 A facilitative and friendly but firm mentor often produces a mentee who adopts the culture towards research easily.

5.5 Attaining quality requires massive investments and dedicated implementers. Increased financial provision from the government is essential in reducing resistance to change.

5.6 Outcomes are significantly affected by its input. Attitude alone as a basis for hiring workforce is not sufficient. A balanced mix of attitude towards work and competence is key to quality output.

5.7 The best practice is still on-going: A stronger partnership with the industry, external experts’ collaboration, continuous capability building on key areas (specialized doctoral, masters’ and short-term training/industry experience/immersion) and more international exposure of the faculty are yet to be executed strategically. These are the next steps in the Roadmap.

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