INNOVATIVE STRATEGIES FOR RE-INVENTING TECHNICAL/VOCATIONAL STUDIES

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ABSTRACT

The recent changes in technology applications have shown reasonable impact on Technical/Vocational Studies (TVS) globally. These changes have long been embraced theoretically by various institutions but practically stalled by non-professional administrators of TVS which further complicate the uncertainties and defects characterizing the current system. More often, the installation of these new procedures along with the applicable strategies requires management commitment and teamwork approach towards the realization of the TVS goals. Around the globe, studies involving TVS and its relevance are especially in the developed economies which compel the third world countries to integrate an also key into these realities. This paper is aimed at showcasing innovative strategies for re-inventing TVS for self sufficiency and sustainability through problem definition, generation and development, concise review of environmental demands, project implementation, continuous monitoring/evaluation as valid strategies. It further recommends effective planning, co-ordination, availability of material resources, and training of expert as prerequisites for the realization of the innovative strategies of TVS.

Keywords: Environmental demands, technical/vocational studies, innovative strategies, problem definition, project implementation, continuous monitoring/evaluation

Introduction

The application of technological parameters such as highly sensitive and sophisticated tools, equipment and machines in addition to computers have presented real and strategic considerations in the management and sustenance of technology, economic, political, legal and socio-cultural challenges. Organizations and institutions are growing larger and complex within uncertain environments and decisions making is also becoming complicated and difficult to initiate. Both the globalization and the internalization of markets and as well as the corporate firms and institutions have changed the way modern establishment are operating. Corporate establishment are now developing different strategic action plans in line with the modern but highly competitive technologies based on available and affordable resources in meeting intended societal demands. The development of programme framework which showcase salient and

versatile blueprints are therefore useful in creating specialize technical and competitive business environment through valid innovative creations based on systemic thoughts.

Changes in technology can have significant impact across various spheres of human endeavors. Thus before an institution can achieve targeted aims, it must first screen and also scan the external environment to identify possible success and failures. It is equally significant to identify the internal environment for the strengths and weaknesses' regarding what is proposed for change. Current science and technology-related studies are rapidly becoming clearer that what is being conceived and constructed majorly involve methods of programmed installation which usually involve manual and computer-aided-systems. A basic requirement for the realization of the goals of TVS is adequate knowledge of what is to be achieved, what is to be installed, and what are the capabilities required for the proper installation of positive change with great impartation on the societal demands. For instance, in meeting the vision of sustaining a viable technical/vocational relevant economy the Nigerian government set out the National Economic Empowerment and Development Strategy (NEEDS, 2005), which is aimed at restructuring the government programmes towards making functional units smaller, stronger, better skilled, and more efficient at delivering essential services. The emergence of the conditions for an accelerated and broad-based growth requires fundamental new policies to break out of the low-growth poverty level (NEEDS, 2005). Thus the attainment of this height implies the inculcation of team spirit in government participation is critical for the overall implementation of the proposed re-invention through institutions and other organizations saddled with the responsibility of reverting the blooming status TVS for sustainability.

In order to update TVS in line with the recent trends, continuous research and development into the numerous TVS programmes and processes greatly provides the basis for engineering advancement through efficient and effective quality control and installations, valid design with specifications, and improved vocational-technical education equipment available for use in institutions across the nation. Researches have indicated that skill acquisition is prerequisite for conscious integrating into the global market demands endowed with versatility in skills and potentials for technological breakthrough. Furthermore, showcasing skills acquired is also regarded as criteria for national economic stability particularly in developed economies. TVS has been positioned in a no change strategy by non professionals through their traditional cultured and technological practices administered in various institutions across the nation where new decision to install new technologies and innovation are not accorded the proper attention thus subjecting the creative potentials of reviving TVS into mud. This no change strategy usually culminate into a mismatch involving recent and sophisticated technologies and the orthodox which is characterized by significant lacks in the administrative management plans regarding TVS goals. More often, discontinuities and failures may persist when a new technology cannot simply be used to enhance the current technology for a change in performance and output in line with the changing and complex world. Current trends of technology demand basic understanding of the key concepts to competitive market needs in meeting societal demands with the limited resources which constantly requires allocation of resources based on applicable technology. Clearly, developments in a given technology area cannot be extrapolated into the future because of the traditional barrier of limits characterized in each methods and procedures of accomplishing feasible TVS objectives. This radically retards the incremental progress of

technology. The rapid in recent technologies and market demands, skills updates, aspiration for innovations and creativity in technology management which is evident globally is becoming crucial to various institutions and TVS success (Wheelen and Hunger, 1999).

Strategic Innovative Commitment Concerning Technical/Vocational Studies

Positive attitudes regarding knowledge generation based on societal needs triggers functional change through innovative and creative potentials developed and nurtured toward attainment of quality needs in TVS. Pursuance to these desired the role of technology education in wealth creation and innovation to the overall projection of TVS, reputable industrial firms have since showcased salient mission statements over the years which are considered pertinent in the current global demands. Jones and Kahner (1995) provided such statement considered viable in TVS as listed below:

1. *Gerber*: "The mission will be achieved by investing in continued product and body-of-knowledge, innovation, and research in the areas of infant nutrition, care and development."
2. *Intel*: "To succeed we must maintain our innovative environment. We must strive to: embrace change, challenge the status quo, listen to all ideas and viewpoints, encourage and reward informed risk taking, and learn from our successes and mistakes."
3. *AT&T*: "We believe innovation is the engine that will keep us vital and growing. Our culture embraces creativity, seeks different perspectives and risks pursuing new opportunities. We create and rapidly convert technology into products and services, constantly searching for new ways to make technology more useful to people."
4. *Merck & Co*: "We are dedicated to achieving the highest level of scientific excellence and commit our research to maintaining human health and improving the quality of life."
5. *Gillete*: "We will invest in and master the key technologies vital to category success."
6. *General Mills*: "Innovation is the principal driver of growth… To be first among our competitors, we must constantly challenge the status quo and be willing to experiment… Our motivation system will strongly reward successful risk-taking, while not penalizing an innovative idea that did not work."
7. *Hallmark*: "We believe that creativity and quality – in our concept, products and services – are essential to success."

It is altruism that firms and institutions that focus on growth and advancement with full dependence on internally structured economies tend to be less innovative to change in the long run (Hitt, Hoskisson, Johnson, and Moesel, 1996). Clearly, it is evident that these level and line of action is usually counterproductive and retards growth and development. Research suggested that institutions must have at least a minimal research and development capability if they are to correctly assess and adopt the value of technology installed by others. The relevance of research and development in the modern world is therefore targeted at facilitating the capacity within the institution and also assimilate and exploit new knowledge. A lack or deficiency in this capacity, institutions striving for advancement and growth in TVS could become locked out in their ability to assimilate the technology at latter date.

Innovative Strategies for the Re-Invention Of TVS

Successes in business endeavors largely are dependent on the strategic decision-development process or measures considered suitable for the actualization of intended objectives. Achieving result in TVS require details acquisition and development of potentials considered saleable. It is a terrain that calls for high specialization. Thus, it is practically impossible to diligently run TVS in institutions without the requisite knowledge, skills and commitment (Freeman, 2011). In most of the TVS, at inception, design, tendering and construction stages, and subsequent management plans are not prepared in many of the projects inaugurated for TVS which should have provide the basis for continuous improvement (Idoro, 2012). Idoro (2012) also recommended that the use of project documents during each project stage. Accurately, seeking data on TVS project restructuring will unbundle the interdependencies and interactions between projects (Patanakul and Milosevic, 2008), information on project overload (Zika-Viktorsson et al., 2006), and also present specific challenges as well. The understanding of basic decision taking/making process becomes pertinent in addressing the shortfalls on the already dilapidated TVS projects scattered all over the country tertiary institutions.

This paper proposed effectively measures to manage TVS through a five-stage process, from the definition, the generation and assessment, the implementation, the monitoring and evaluation of the project. By using such pre-defined project stages, it is possible to provide a road map with details of TVS project needs and comprehensive information. These decisions serve to:

- ✓ Reveal the current form of the project and associated risks;
- ✓ Indicate its priority relative level;
- ✓ Review the plans for the remaining part of the project;
- ✓ Set-out on how to meet stakeholders needs; and
- ✓ List out final decision to continue with the project.

Problem definition phase- This stage identifies a problem and defines the objectives of the policy/strategy designed to resolve it. It considers: what the problem is, where it is, what causes it, who is affected by it, what should be achieved and who has the responsibility to deal with it. Accurately defining the project requires details of the intended tasks, schedules and obligations to be performed which is undoubtedly dependent on a valid feasibility report to provide the indicators. According to the Construction Management Association of America (CMAA, 2013) mentioned that each construction project will undoubtedly have its own unique tasks and requirements depending on a wide range of factors such as, type of project; project location; project owner; project delivery system and renovation or new construction. When project goals are well defined, measures to achieve set target can be generated or improvised. Such project definition must address issues as:

- ✓ Determine project brief and objectives
- ✓ Identify project stages
- ✓ Identify resource requirements
- ✓ Determine core skill requirements
- ✓ Identify specific strategies that need to be prepared
- ✓ Propose or simulate prototype project characteristics based on previous or similar projects
- ✓ Identify relevant contextual barriers and possible risk events

Generation and development phase - This stage involves the design and development of the decisions options to build the model in TVS. The optimal size varies depending on the policy objectives (Limi and Benambhar, 2012). The World Bank guidelines stipulate that the size and scope of individual projects will depend on the magnitude, nature, and location of the project. In most of the traditional business plan, little detail about project is usually secured at the conceptual stage of the project. This present a compelling need of generating sufficient data-base needed in given project the minimum attention regarding success through:

- Project type
- Project size or capacity—number of project/programmes, length, width, etc field general conditions costs, etc.
- Project location—this is needed to estimated in terms of labor and material costs, camp costs, etc and
- Project schedule

This paper posited that in an attempt to key into the realities of accurately aligning with the assertion of achieving comprehensive feasible report prior to TVS project restructuring which is a leeway to project success. An articulated TVS feasibility report should provide a historical background of the TVS project which provide details of the description of the product or service, accounting statements, details of the operations and management, academic research and policies, financial data, and legal requirements (Justis and Kreigsmann, 1979). Georgakellos and Marcis (2009) mentioned that feasibility studies should be both objectively and rationally uncovering the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the environment, the resources required to carry through, and ultimately the prospects for success. Furthermore, Young (1970) listed out cost and value to be attained as the two criteria to judge feasibility as feasibility studies precede technical development and project implementation.

Project review phase - meaningful information and modalities to exercise effective and efficient control of TVS operations can be greatly achieved by making viable decisions and follow-up base on available data. The identification of the societal or local demands in line with the task is helpful in outlining opportunities and threats based on current global needs. These simple processes and procedures should not be overlooked as they could serves as effective means of controlling or enhancing performances in TVS programmes and threat of risks. After alternative policies/strategies have been developed, a technical analysis should be undertaken of each option (e.g. using multi-criteria analysis) to determine to what extent each option meets the stated objectives and the targets set for the key performance indicators. Clearly, most project fails due to stakeholder's attitudes; cultural issues; economic and financial problems; key staff positions not filled, or filled with staff of insufficient experience; environment; training, among others. Significant level of success in TVS project could be achieved through clearly defined objectives with tasks and responsibilities which is assessed and evaluated based on its operational and technical viability throughout all stages with approved measureable criteria in line with the current and future needs of key stakeholders as indicators. Additionally, a thorough and proper assessment of need to reshaped project helps in the planning of activities and actions, involving time and cost targets, and performance milestones which directly guarantees the attainment of stated project goals. A well assessed TVS project will provide practical guides on

planning measures, which also enhance monitoring and control in order to achieve direct impact performance and profitability of the project and to the parties involved. The installation of decision-making/taking systems can, therefore, make an essential contribution to the effective operation road projects. Key areas to assess for possible identification of constraints are:

- ✓ The budget
- ✓ Available resource and skill sets,
- ✓ The schedule
- ✓ Characterized limitations in project phases

Project implementation phase - This refers to a project management plan that sets out the detailed programme of activities and schemes, the profile of costings and other resources needed, as well as communication and marketing plans. The consequences of none outlining these implementation decisions can be very costly, not only in terms of the cost of initial project procurement, but also because of the on-going costs of overall project sum. The implementation of decision can have far reaching effects on all aspects of the operation of the TVS administration. Hence, it is important to be aware of the need for an effective approach to effective and efficient decision–making regarding TVS project implementation, and of the pitfalls of making inappropriate decisions in TVS project. Thus for proper implementation of TVS project objectives, the following decision-makings are necessary:

(i) Introduction of planning systems provides forecasting tools project future needs
(ii) Ensuring adequate identification and control of costs
(iii) Budgeting and setting priorities under budget constraint
(iv) Full implementation of preparatory plans

In order to execute implementation decisions successfully, the following demands are necessary:

(v) What the task will accomplish
(vi) Resources required to accomplish the task
(vii) Key person(s) responsible for the task
(viii) Criteria for successful completion of the task

Continuous monitoring/evaluation phase – The effective planning and efficient selection of project requirements facilitates timely realization of TVS programmes. It also involves the use of step-wise and identified pattern of procedures to assess, evaluate, and monitor the level of compliance for the success of project. TVS programmes require the effective evaluation and monitoring of both the administrators and the systems. The management of the TVS programmes requires different information, at different levels of project development, regarding planning, for programming, for design, and for implementation. To ensure that TVS project needs are fully met, the listed steps are helpful in the assessment, monitoring, and the evaluation in the different phases of TVS programmes:

- ➢ Readily available manuals on related TVS project/programmes to provide technical support on tools, equipment and other equipment which are highly sophisticated and complex in operations.
- ➢ All prerequisites TVS project needs should be fulfilled before the implementation commencement of project.
- ➢ Project/programme surveys before implementation based on valid feasibility and survey reports.

- Team members for TVS programmes should meet minimum specifications.
- Full adherence and compliance to facilities/tasks provisions.
- Reveal the overall planning and coordination measures design for the implementation of TVS projects/programmes
- Sufficient routine training for personnel for skills update.

Conclusions and recommendations

Mansfield (1985) indicated that, on average, information concerning development decisions for a process was in the hands of some rival firms within 12–18 months after the decisions had been made. The need for a model for the TVS becomes imperative because accurate information building serves as a catalyst of change from the orthodox traditional education practice to a more modernize concept that goes beyond simple computing and drafting to time and cost-evaluations aim at creating wealth for mankind. Viable information generation and development enables salient policies, processes and technologies to be generated into a methodology in managing project throughout its life-cycle of current TVS. For example, with valid information about a TVS project, the efficiency/effectiveness can be improved (Hampson and Bradson 2004), a reduction in the industry fragmentation (CWIC, 2004) and this lowers the cost of interoperability (NIST, 2004). This paper posited that problem definition, generation and development, concise review of environmental demands, project implementation, continuous monitoring/evaluation are prerequisite variables which constitute valid strategies in the restructuring of TVS projects. Effective and purposeful planning, co-ordination, availability of material resources, and training of expert are innovative measures in the projections of TVS for quality advancement and skills awareness around globe.

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