

Sustainable Technology Management Model for Entrepreneurial Start-ups

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Abstract— Technology is becoming an opportunity for generating new jobs or source of entrepreneurial business ventures. Different sources are utilized by entrepreneurs to sustain their business in market. However, technology is considered as high impact factor on business. Yet, the Technology Acceptance Model (TAM) with noteworthy feature for sustainable entrepreneurship in this research recognizes the consequence of technology exploit by start-ups. Research emphasizes technology management intervening of escalating convenience and aggressive improvement for entrepreneurial start-ups to scamper businesses. For the forthcoming entrepreneurs, the study will award as a constructive path. Research will be responsive towards entrepreneurs to sketch, supervise and accomplish proceeding to strategic issues at diverse ways in venture formation process, principally when introducing considerable technology inimitability at any of the core variable. Model has been proposed that could help firms to concede the transform at derelict area of technology is deficient. This model divulges the management model details and the overall possessions of sustainability in business.

Key Words— Technology Management, Entrepreneurship, Sustainable development, Start-ups, Leadership

1 INTRODUCTION

The sustainable model is developed for Technology based entrepreneurial start-ups. Hence, technology plays a vital role from foundation to execution with holding vast impact on start-up sustainability. In such context, we define technology management as a cautious use to execute and sustain in market.

With systemic structure technology can execute by using skill sets, technology awareness, knowledge and processes as an input for organization internal value and product/ service, market research, customer demand as output for organizational external values (Campos H M, Atondo G H and Quinter M R 2014).

Processes association with operational level requires strategy to make business effective and efficient (Julia C, Naranjo Valencia, Valle R S and Jimenez D J, 2010). In market, those start-ups which adopt pull strategy and forecast about market behavior or demand were able to sustain and successful for long run.

Adopting technology with sense of innovation and creativity provide start-ups a dynamic prejudice for competing in market. Most of start-ups give priority to product/ service, sales, revenue generation then market intelligence, up gradation and employees training for latest technology (Corner P D and Wu S Y, 2012). Moreover, start-ups sometimes limited their growth by their short term policies with strategies, which not allow them to think out of box.

2 LITERATURE REVIEW

In the literature review, study shows the operational and managerial activities, processes, implementations, developments and execution of technology policies, cost reduction effects, performance of start-up and response time through technolo-

gy management in SME's or business venture by Trajtenberg M (2002). Technology management rolls-on each department of organization. With engineering and technology background, technology may acquaintances with entrepreneurial management. Nevertheless, management model, values with concepts and theories helps to increase market share and revenue for developing business (Florida R, 2002).

In stipulations, collision of technology, innovation, creativity and entrepreneurship wide range of multifaceted and intricate representation, method, model and solution was projected (Etzkowitz H, 2003). In classify to worth the technology with innovations were delivered to market to generate revenue, profits and Return of Investment (ROI) (Breschi S and Malerba F, 1997). Collecting and compiling huge data information to compile and filter out the essential appropriate knowledge in logical and systemic way to analyze the Management model for wide circumstances which might be appropriate for Research.

2.1 Entrepreneurship

During the era of 80's and 90's, the typical reign young people, largely known as millennium youth generation has no interest to lead their life in customary and traditional aspired careers. Hence, therefore the word entrepreneurship, entrepreneurial ventures become trendy fashion to trick the economic activities worldwide by providing solution to stagnate the economical challenges by Weisbrod B A (ed.) (1998).. However, it is considered as aid in the development of economies (Toepler S and Feldman, 2003).

Recently, Entrepreneurship becomes source of passion, innovation, uniqueness, diversity and sustainability in recent times, particularly by the use of internet and digital relative technology, the capacity of owing possibilities increased (Renko M, Tarabishy A EL, Carsrud A, 2015).

2.2 Start-ups/ SME's

An organization having multiple sectors for taking risks, ability to do institutions about those risks, gradually adds innovation to business and able to avoid uncertainties are supposed to be define as start-up or SME's by Shane S, (2004). Start-ups emphasize the development in the product/ services foundations to modernize the market. In early stages start-ups or SME's are not suppose to make deals with high end technologies, they mainly focus on innovation by utilizing raw resources and available technologies with in limited budget (Breschi S and Malerba F, 1997). Moreover start-ups try to execute properly by competitive strategies, proper decision making and performing tasks without errors.

By European Institute of Technology and Innovation Management, (2010) that demand pull strategy can strengthen then managerial capabilities at venture creation and Push Technology strategy can strengthen the technology strategies. However, different models can be used by technologies accordingly to perform better in form (Etzkowitz H, 2003). Unique and dynamic aptitude of available resource helps SME's or start-ups to take leverage in market. In fast moving economies lean start-ups use alteration in product/ service to decrease time and increase profits.

3 MODELLING DESIGN

Entrepreneurial environment has inventive functional and theoretical model with specifications for obtaining high competitive advantage. The insights of competing cross parallel business ventures background for management of high tech environment lead us to think about possible accurate map for model.

The pivot of start-ups were to establish the resourcefulness, ingenuity, pioneering and revolutionary civilization, ethnicity and development in firm; to educate, empower, sanction, authorize, unforeseen revolutionize and permitting suppleness to develop coherent capital in compact.

Intended for modeling such process we followed 3 basic steps. First, we create set of principle groups associating several processes and strategies. They are also known as nine general management literacy principles are applied in contemporaneous situation. Second, we recognize the element involve in these processes. And lastly, we establish relationship and arrange into consistent structure. The general modeling process is followed in figure 1.

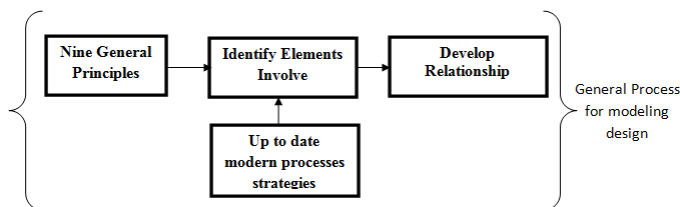


Fig 1: General Modelling Process

3.1 Literacy Principle

Nine management general literacy principles are functional in coexisting condition. Conversely, these nine literacy general

principles endow with alertness in requisites of system, logical and design thinking structure in business.

Technology Leadership skills:

Clear vision, mission and goals in mind leads firm. Systemic strategies can be used by leader to lead will be able to make team to execute properly. Leadership needs strong sense of utilization on resources, systemic way to level execution and strengthen the organization internal body. Moreover, giving team a sense of security and trust built strong foundations.

Forecasting Management:

Entrepreneur must have skill of forecasting about future positioning. Challenges of vision scenarios of market trends must operate in open system, leadership dynamics, organization complexity and risk taking capabilities for future.

Innovation management:

Introducing creativity, exclusivity, and novelty in start-ups/ SME or product/services brings comparative advantage from competitor. Proper utilization of raw material, saving cost with time, managing terms and conditions to reduce maximum risks helps organizations to walk for long run in market.

Culture, vision and attributes are closely observed by innovation inside company. Forming new strong strategies with company insights helps to develop new technologies.

System logical Design thinking:

Companies have multitudinous, composite and composite problems. On the other hand, these tribulations are envisaged through envision diverse origin and aspect implementation relations. Such issues are supposed to be sustaining with apposite modeling and susceptible systemic investigation. Logical, essential, systemic, proprocessorship and rational knowledge is playing momentous role in today's universe, predominantly for elevated tech, engineering and technical field.

Technology endowment:

The progression of illustration of technology knowledge at preliminary stage required tactic of approach polices to classify the obligatory fundamentals for technology to clutch the activities. Assembling technology line properly provides prospect to unexploited technology. Hence, balancing and advancement of technology with competitor's reorganization about the strength and weaknesses evaluate the lead of competitive collision in market.

Creating Value base management:

Value is created by work done by team in order to achieve set goals. Contribution from individual to stake holder ensure values function, operations, processes and activities. Mentor needs to self-assess the performance of dignity, which are mostly measure by the financial restriction or a little non-financial parameters (opinionated issues, customer relation, physical condition and security) are involved.

Ethical values and Legality challenges:

Legal materials are invented toward firm is tackle with upright principle moral values. It consists of all the indispensable star-up challenges and the understanding of issues expression by start-up or SME's. The production with customer veracity, problem, causes, social challenges, sensitive matters, and

communal impact should be witnessed uniformly. Apposite structure against inducement, dishonesty, corruption, scam and swindle should be premeditated to eradicate the consequences. Leadership, top management must grasp strong policies for delicacy to equal rights at work places; they must accomplish and practice apposite regulations for conduct of law in daily routine to maintain the environmental eminence inside the business dome.

Personnel individual commitment:

Balancing stress, conflicts, emotions, from organizational functions and progression helps to mature in self-confidence, administration, and acquaintance in diverse range personal and professional life. For victorious entrepreneurial ventures, all the characteristic of contemplation will be cascaded together.

Sustainable Business development:

Organizations are supposed analyze key factors of business, financial activities, social network trends, marketing tactics and promotion to consider business sustainability. It is whispered that institute contribute their morals, standards in the form to sustainable society, economy, job creation, society and global situation. Sustainable business expansion is necessitating of contemporary age; hence it shows the aptitude of business indulgence.

3.2 Elements Involve

Hence in any organization there are 3 levels; Individual, functional and corporate level. Corporate level works on the diverse range of technology required in each department. Functional level identifies the important steps required by firm to take leverage in competitive market. Individual level perform tasks as keeping in mind to optimize the conjugal procedure to utilize technology efficient and effectively. The focus is utilized all those structures, processes, systems and resources to lead in market. The Technology management model have diverse issues regarding engineering, IT, R&D, innovation, finance, technical projects, core leveraging competencies for expensing flow of work to deal with disruptive strategies, processes and technologies. A model for Technology management will help entrepreneurs to practice with disciplines to resolve all possible issues. The description of each element is followed in Table 1, which shows extensive study done for Technology Management Model.

Technology Strategies: Broader view to make technology backbone of company, hence ability to generate revenue and leverage. Specific goals with policies should be carried out. Market need and demands should be observed gradually, to develop strong infrastructure. This element is mostly viewed by top level management for formulation and implementing strategies.

Technology Leadership skill: Strong hold on vision with mission make firms to move for long run. Ability to achieve high goals, seeing market gaps, strong sense of observing problems and proposing solutions helps company to develop in many ways. The appropriate ways of using technology with developing technology base culture in company is very important in modern digital world. These technologies becoming opportunities for new generations to work in global digital market.

Technology Innovation: An idea having ability to change the market structure considers innovation by business world. Innovation is considered as to satisfy the customer's needs create

market, eliminate the barriers and welcome uniqueness with social and managerial responsibilities.

Technology Outsourcing: Sometime due to lack of Resources Company have to use shared services or to outsource their tasks. For company values creating such bold steps are supposed to be taken by firms to provide better services.

Technology Projects: Selection of projects should go through proper proposal process. For final approval new techniques and methods should be testified before any execution plan. For new products/ services or diversify range of technologies should be keenly observed to take in competitive market.

Technology Patrimony: Technology needs to be experienced, assumed, diversify with the technology knowledge to be utilized by peoples and organizations to operate.

Human Resources: People with capability, skill and knowledge that provide solutions to customers are consider gem for organizations. It's difficult to replace such manpower that provides high values to organizations.

Solutions: Keeping market demand in mind it is very important to provide solutions to problems. These solutions mostly bring change in economic growth.

Check and Balance: Use of technologies in appropriate values, Clearfield activities, performance of organization and competitive environment need proper auditing system for future and long run growth.

4 MODEL FOR A SUSTAINABLE TECHNOLOGY MANAGEMENT

To correspond and practice Technology Management a simple and easy to understand Model has been proposed in Figure 2.

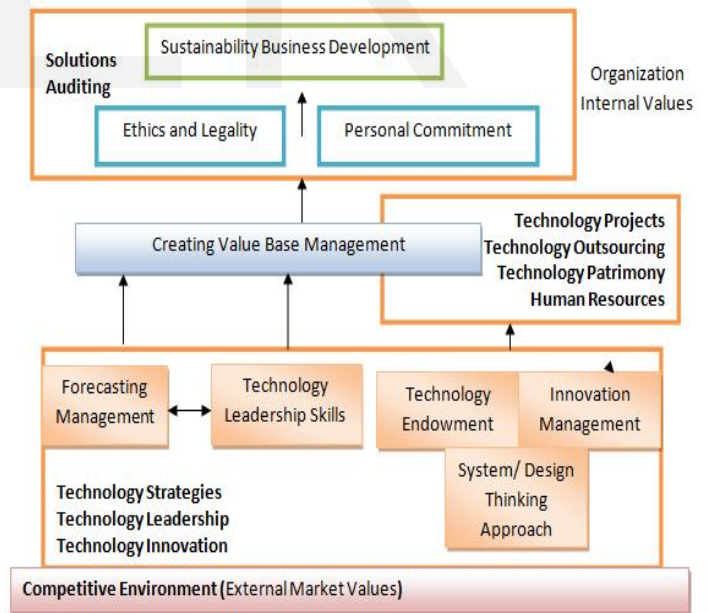


Fig 2: Proposed Sustainable Technology Management Model

This model has flexibility in its hierarchy, easy to adopted and applied in business .this model have two environments to distinguished, Organization internal values and External market value know by competitive environment. These values coexist parallel to deal with business in real time. Technology leader-

ship skill, Forecasting Management and Technology endowment, Innovation management, System/ design thinking approach are the initial platform for STM. All these mention principles are considered as backbone or foundation of any organization, SME's or Start-ups. Hence, the elements discussed above include, Technology strategies, Technology leadership skill, and innovation lies under these 5 initial principles to strengthen the foundation of organizations. The core structure of company depends upon creating value base management system inside organization by utilizing Human Resources, Technology Patrimony, Technology Outsourcing and Technology projects. If these elements devour accordingly that holds the internal and external development for organization. More over it helps to add value in economic growth.

Solutions to problems, proper auditing with ethical legality and personal commitment add potency to sustain business development. All these principles and elements are linked with each other in a loop to widen company areas and strengthen internally and externally.

5 CONCLUSION

STM is very authoritative concept for companies to move in competitive market or taking leverage. For any organization, SME's or Start-ups technology is imperative for survival in modern digital world. Launching, managing technology needs to identify logical processes, systems, resource and strategies for long run sustainability. Increase the market share, with less time response and cost effective solution in the scenario of technology is very important.

STM model is developing to be practice by companies. Further at initial most of start-ups doesn't carry sustainable business model to lead. The model describe in this paper assist the practical and integration of the concept.

However, decision making factor is considered impactful if it's taken on right time. Start-ups or SME's obligatory to competent technological, scientific, procedural and executive personnel that play imperative role for Running Company in precise way.

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