

Role of Technoware and Transforming Capability Adoption on Transforming the Rice Manufacturing Business in Sri Lanka

Athambawa. S.
Department of Management
Faculty of Management & Commerce
South Eastern University of Sri Lanka
macsulai@seu.ac.lk

Wickramarachchi. A.P.R.
University of Kaleniya
ruwan@kln.ac.lk

Puspakumara, C.
University of Kaleniya
chamli@kln.ac.lk

Introduction

Increasing complexity and uncertainty in the world, businesses are under constant threat from global forces. Transformation is about redefining the organizational goals and objectives and realizing them into practice. In a world driven by pure competition, transformation is an idea that is so frequently handled about that it has become a buzz word in the field of management in all sectors. Satyanarayana, J. (2012) argued, transformation can mean different things to different people or different organizations. Further, he added for a large number of organizations, transformation could mean a quantum jump in efficiency, effectiveness and cost reduction achieved through a major technological intervention. Whatever the perspective may be, there is one thing common to all successful transformational initiatives, which is a large and visible change in one or more functions of the organization, followed by a positive outcome. An initiative that does not have a continuous focus on the improvement in the quality of the outcome of the organizational efforts cannot be called transformational in nature.

Agri-business sector makes significant contribution and back bone of the province and as well as country of Sri Lanka. The share of the Eastern province in country's total GDP was about 5.8 to 6.3 percent for the period from 2009 to 2013. The share of the Agriculture sector to the provincial GDP was LKR 63,879 mn, which was 10.4 Percent in 2009 and it was LKR. 92,846 mn, 9.94 Percent contribution in 2013 (Central Bank Report, 2013). Even though a high volume of paddy is cultivated in the Eastern Province, not processed within the province, due to a rice mill of the required standard is not available. The major part of paddy production goes out of the province for milling. This is a missed opportunity for the business community in Eastern province. This study attempts to find the adoption of new strategies for the transformation of the business enterprises, especially from a technological perspective mainly focusing on Agri business industry. So that, the objective

of this paper is to examine the transformation of business organizations in the rice manufacturing sector in the eastern province in the post-conflict period facilitated through the technoware (one of technology component) and transforming capability (one of technology capability) adoption.

Theoretical Framework

Technology Components and Capability Adoption with Business Transformation

Business transformation is the product of a key executive management initiative that attempts to align people, process and technology initiation an organization more closely with its business strategies and vision to support and help coordinating new business strategies and meet long-term objectives (Oxford City council, 2008). It can be achieved through the introduction of new technologies, improvement of business models and improvement of management practices. It is now considered as an essential part of the competitive business cycle in the face of global challenges. Success in the market-place requires companies to employ technology strategically by linking it to a firm's competitive strategy. Such a link ensures that technology and strategy support one another, enabling a firm to achieve its goals more effectively.

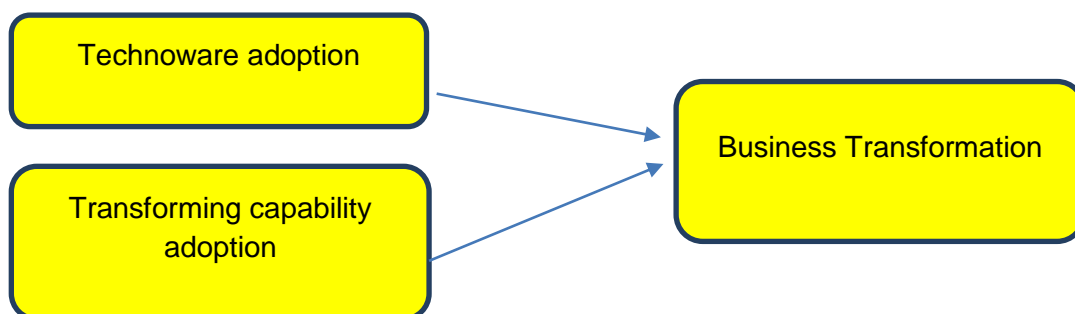
Technology can be defined as all the knowledge, products, processes, tools, methods, and systems employed in the creation of goods or in providing services (Khalil, 2000). Porter (1987) stated “technological innovations can have important strategic implications for individual companies and can greatly influence industries as a whole.” Over the years, many organizations have increasingly come to accept technology as the means for managing productivity driven competitive advancement in the global economic environment. This unyielding effort toward increased productivity gain has resulted in the never-ending need for technology resources to become more sophisticated. Continuous technological resource innovations (for better mechanisms and for better means) are, therefore, indispensable for competition (Sharif & Joel, 2006). Technology Components (i.e., Technoware, Humanware, Inforware and Orgaware) are the technology resources of an enterprise (Nazrul Islam, 2001). Actually, to compete, a firm must have the ability to: Use the technological resources it has very effectively so that it can recover the investment made in it and generate surpluses for further growth; Buy or sell useful technology as well as products/services at good prices so that it can either continuously improve the sophistication of its technological resources or make money from what it owns; Adapt and improve the technology for more effective operations and competitiveness; and Ultimately generate own technology.

Technoware is the physical tools component of technology. It includes the object-embodied technologies like artifacts, equipment, and machines. Technoware is the physical device that amplifies human capacities for producing different kinds of goods and/or services through various types of transformation operations. Further, Nazrul Islam (2001), added that having all four technology components is a necessary but not a sufficient condition for competition. For effective and efficient utilization of the technology resources, an enterprise must also possess the abilities that may be called “technological capabilities”. Although technology resources (all four technology components) can be purchased by an enterprise, technological capability has to be gradually acquired by self-

learning. Capability is not an “item” that is traded in the market. Technological capability must be accumulated by firms of their own. Technological capabilities improve through learning by doing and learning by changing (most importantly by learning to learn). Capabilities are functioning specific and require different kinds of technology resources.

Transforming Capability (operating and supporting capabilities) refers to utilization of available technologies for the transformation process. It includes: Capability to effectively utilize available plant and equipment; Capability to plan and control production operations; Capability to carry out troubleshooting and good predictive, preventive and emergency (breakdown) maintenance; Capability to quickly change over to new models; Capability to use computerized information and control systems to provide information support and networking for production operations. Advancement in the converting/transforming capability means gradual progress towards optimal use of installed technology components and mobilization of all resources for optimum benefits. It usually corresponds to improved operation, monitoring and maintenance of all technology components for responding to different market niches. Therefore, to test the relationship of technoware and transforming capability adoptions in the agri industry to led transformation the business in the province, the researcher has formulated a hypothesis to apply in the model as follows.

Figure 1: Conceptual Model



H₁: The higher levels of technoware adoption in a business positively influence on the transformation of business.

H₂: The higher transforming capability adoption in a business led to higher levels of transformation in the business.

Methodology

This study was adopted to quantitative and qualitative approaches. In order to systematically investigate the existing technology adoption gaps in the region, a comprehensive questionnaire survey was carried out among a large sample of rice millers in the Eastern Province (EP). Again 10 rice millers were selected for interview for further validating the model. To select a sample, categorical variables “output capacity” was used for stratification. The sample for the study was selected from each stratum using a simple random sampling technique. 220 sample was selected from the Eastern province and 173 responses were received out of the sample. These Primary data of 173 millers were used for this study. Descriptive statistics was used to analyses the data.

Conclusions and Recommendations

Technoware Adoption

Findings of this study showed that technoware components were recorded in different levels such as high, moderate and low means of value. Technoware adoption is most important component and it was elaborated as 67(39%) at high level while 90 (52%) at moderate levels and 16 (09%) of millers at low. The highest scoring for technoware tool could be probably due to the fact that the rice millers impose the using of relevant technology in the production aspects. Further, the finding is supported by the empirical research which states the characteristics of each business' environment that significantly affects the business' performance. Higher levels of technoware adoption were observed among who earned a monthly income above LKR 100,000 in the province. and is the most determinant factor of technology adoption that would increase the affordability to invest on mechanization. And technoware adoption has moderately influenced on those who are above 31 age categories, and no millers were recorded to high technoware adopters at any age category among them. Further, the rice millers who have 11-15 years of experienced showed moderate adoption while it was observed at a low adoption with below 10 years of experience. The variations show that millers' decision to invest on technology is not an impact on adopting technoware components. This proved that the millers tended to commit themselves into new methods through the adoption of technologies in business when they realized the business is important.

In addition, rice millers' education is also influencing on the levels of technology adoption. Rice millers who were with A/L qualification show a moderate technoware adoption, they commented that they do not have enough facilities to update the knowledge in the specific industry. Rice millers were increasing the number of varieties throughout the referred transformation period. Eastern province millers showed moderate levels of adoption above at 10 types of rice producers, and up and middle price focused had shown moderate adoption while low price focused marketers showed low adoption in terms of focused market to technoware adoption. Interestingly, it was observed that high and middle price marketers explained by moderate levels of adoption, which clearly explained that the sample with differently focused markets adopted to new technologies to maintain the quality in the products and services.

In addition, large volumes of rice producers showed a higher accept levels of technoware components compared to low volumes of rice producers. Majorities in the Eastern province adopted to moderate level whereas some of the rice millers were under low adopters. Majority of the rice producers in the province showed a moderate adoption due to various reasons such as; lack of sources for capital formation, and lack of facilities to buy the components. and those who earn above LKR100,000 of income per month have revealed higher levels of technoware adoptions while a moderate adoption exist with those who earn below LKR 75,000 income. Competitors practices might be influenced the behavior of millers in the province. The study apparently explains that the affordability to invest on sophistication is determined by the level of education, experiences and income. At the same time, millers show low technoware adoption among those who represent below 30 years of age, having below 10 years of experience in industry and who have O/L

qualification, able to produce below 05 varieties of rice with low price focused marketers, capable of producing below 30 metric tons' rice per day production. Based on the above information, the millers who contributed at low to the transformation because of low level of motives in capitalizing the money and efforts, awareness of industry at low level might be the reasons for low adoption. This was explained by some of the interviewees; that they conducted the business to satisfy their needs.

Transforming Capability Adoption

The Findings of this study show that the technology capabilities were recorded as the highest mean values. It reveals that rice millers, being more interested and engaged in the business, efficiently use all the capabilities to support for a higher perception of millers. Thus, the adoption of relevant capabilities with regard to the utilization of new ways of business with the new technology in the form of producing rice and marketing the products were found as influential on rice millers' acceptance and adoption. Technology capabilities content relates to the utilization of capabilities with regard to the technology for business operation in identifying the relevant technology needed and the market of their own. 72.8 per cent owner-managers with high levels of transforming capability and further 26 Percent of moderate levels of adapters while 1.2 Percent depicted a low level of the same capability. The results suggest that the high level of adoption of transforming capabilities by rice mills operators are a part of destination transforming strategy in the business.

A significant variation in transforming capability adoption is shown between businesses in different categories. Age group of 41-50 was adopted to high levels, this has proved that the millers have developed their capability, when they got experience by learning the practices. Other age groups show a moderate transforming capability. Because of the priority given to this sector development would be the reasons for this deviation. Further, above 5 years' experiences of millers showed high transformation capability, others who were below 05 years of experiences adapted to moderately in the samples of Ampara and Batticaloa districts. This has proved that, the millers in Ampara and Batticaloa are tended to find and apply new plants and equipment through adopting technologies in business processes, when they gain experience in the field. Further, Trincomalee district millers showed a moderate level of transforming capability due to lack of competition in the district, compared to the others in the province.

In addition, most of the Eastern province rice millers have shown that the highly accepted levels of transforming capabilities are the ones who hold a degree and A/L qualifications. The O/L qualifiers in the Eastern showed a moderate level and other categories of millers showed a low adoption in that province. The deviation explained by some of the Eastern millers is, lack of facilities in acquiring knowledge from this region. National as well as own province marketers show high transforming capability when they had expansion in the business extensively. Further, the rice millers have added a number of varieties of rice in production showed a high level of transforming capability adoption continuously, especially below 05 types of producers in province showed moderate levels of adoption.

Moreover, high, middle and low price focused markets' rice manufacturers show high level of transforming capability. The concept of capability development on production of rice

producers proved with market environmental consideration to technology adoption for transformation of the business. Further, the millers who can earn above LKR 50,000 income per month in the Eastern province revealed high levels of transforming capability adoption.

The study confirms with some of variations with regard to adoption of technologies and achievements of degree of business transformation in the Province. The majority of the millers adapted with a moderate level of technoware, adoption. This requires the millers should be invested heavily on adopting new equipment, and managing rich and relevant information in the business. The survey further explains that the rice millers showed positive relations at low and moderate levels of adoption with many of the items of the business transformation components.

Technological input also has implications for organizational restructuring in the redesign of workflow, manufacturing, marketing, and their coordination. Rice millers' encouragement should be in the way of educating, assisting and motivating them to achieve those effective structural considerations, should be considered. This assists in responding quickly to market demands, customers and suppliers. Rice millers must consider those techniques for effective transformation in the business.

This paper was focused on how transformation took place particularly focused on technoware and transforming capability perspective with regard to transforming the business. But, these types of adoption are considered in many areas of business functions. So, in future different areas can be focused. Further, in the industry point of view, areas such as agri based business supply chain upstream and downstream as well can be chosen in the future.

Keywords: Business Transformation; Techno Ware Adoption; Transforming Capability

References

- Central Bank of Sri Lanka. (2013). Annual reports central bank of Sri Lanka.
- Khalil, M., & Tarek, (2000). Managing of technology: The key to competitiveness and wealth creation. McGraw – Hill Higher Education publication.
- Islam, Nazrul (2001). Strategies for service and market development of entrepreneurial software designing firms. *Technovation*, 21, (3), 157-166.
- Porter, M. (1987). From competitive advantage to corporate strategy *Harvard Business Review*, 5, 43-59.
- Satyanarayana, J. (2012). Managing transformation - objectives to outcomes. Eastern Economy Edition.
- Sharif, M., Nawaz, Joel D., & Haines, (2006). A framework for managing the sophistication of the components of technology for global competition. *Competitiveness Review. An International Business Journal incorporating Journal of Global Competitiveness*, 16 (2), 106-121.