

# Managing Knowledge Flows in Mauritian Multinational Corporations: Empirical Analysis using the SECI Model

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**Abstract**—This research was conducted to investigate the management of knowledge flows in a Mauritian multinational organisation. A case study research method was used to gather data which was analysed using the SECI model. Results show that all the four quadrants of this model were applied by the conglomerate in transferring knowledge to its newly acquired manufacturing operations in Madagascar. This paper discusses some of the knowledge management strategies employed.

**Keywords** : Knowledge Management, SECI Model, Knowledge Transfer

## I. INTRODUCTION

In today's knowledge economy, the ability of any organisation to create the right knowledge and transfer to the right departments will significantly enhance their performances [1]. [2] defined knowledge as the whole body of cognition and skill which individuals and organisations use to solve problems. It includes both theories and practical of everyday rules and instructions for action. Several scholars have also defined knowledge differently [3], [4], [5], [6] with their various definitions having one thing in common, which is knowledge as a process often involving human action. Knowledge is based on data and information, however, it is always bound to persons. It is constructed by individuals and organisations to represent their beliefs about causal relationships [7]. It improves the capacity of individuals and organisations for efficient actions [8]. Studies have shown that most successful organisations develop core strategies not to only maximize profit, but to also boost competitive advantage through effective knowledge management approaches [7], [9]. Empirical studies have concluded that creating knowledge involves the formulation of new concepts or ideas via a continuous interaction between tacit and explicit knowledge in the minds of individuals [10] [11]. While knowledge transfer involves the process by which an individual, a group, or a department is affected by the skills and experience of another [9]. There are two categories of knowledge which can greatly affect organisational success. These include explicit and tacit knowledge. Explicit knowledge is the type of knowledge that can be expressed in words, numbers and shared in the form of data, specifications, manuals and scientific formulae [3].

This phenomenon has also been explained by others in a similar manner [2],[11]. On the other hand, tacit knowledge involves intangible components embedded in things such as values, personal beliefs and experience. It is also norms and routines imposed on members of an organisation without them articulating it [9]. [3] reported that there are two dimensions of tacit knowledge. These are the technical and cognitive dimensions. The technical dimensions encompasses the kind of informal personal or craft skills referred to as know-how, while the cognitive dimensions have been defined as ideals, beliefs, values, schemata and mental models, which are deeply established in us. Consequently, in [6], it was reported that knowledge transfer and creation consists of socialization (tacit to tacit), externalization (tacit to explicit), combination (explicit to explicit), and internalization (explicit to tacit), otherwise known as the SECI model. Although researchers have reported different frameworks to explain the knowledge creation and transfer differentials within an organisation [12], [13],[3]. However, these studies largely concentrated on the developed countries. Hence, there is scanty empirical studies existing on knowledge creation and transfer within organisations in developing countries, and to be precise, for Mauritius. No studies have evaluated the knowledge creation and transfer processes in organisations in Mauritius or explored how organisations in Mauritius facilitate the creation and transfer of knowledge using any knowledge transfer model. Hence, this research is aimed at filling the existing academic gap in knowledge production and transfer process in a multinational organisation within Mauritian context. It will review literature and present a case study of a Mauritian multinational corporation and its effort to transfer tacit knowledge to its newly acquired manufacturing operations in Madagascar. The paper will analyse the organisation's knowledge creation and transfer processes using the SECI Model with a view of developing a complete knowledge transfer process that will reflect an optimal process for any Mauritius company to become a multinational corporation. This research is driven by a research question which is what is the optimal knowledge creation and transfer process for a Mauritian company to succeed in participating in the knowledge economy as a multinational

organisation?

## II. BACKGROUND

Nowadays, most economies of the world have become increasingly deregulated [14]. This has opened up greater opportunities for international trade and competition. Thus, it has become a standard for companies to compete for its market share not only with their local rivalries but also with international ones [15]. This swift change in the disposition of international competition have propelled managers and researchers to explore innovative ways to handle challenges as well as giving solution on how to manage complex organisations in most effective ways. In [16] it was reported that the hyper-competitive global market-place of today has necessitated corporate organisations to formulate strategies not to only manage the tangible resources but also the intangibles. In line with this, several researchers have collectively identified the capability of any organisation to create, transfer and effectively combine knowledge from different sources as an increasingly vital determining factor of having competitive advantage and overall organisational success [14], [17], [18], [19]. The process of knowledge production and transfer between business units of any organisation is a very important aspect of its Knowledge Management strategies [20]. Knowledge transfer capabilities are one of the vital advantages of multinational corporations. This enables their subsidiaries to build and develop adequate competitiveness over local rivalries. In [19] it was concluded that a good management of knowledge flow is highly important to multinational corporations since they operate in a diverse cultural and geographical environment. In [17] it was noted that since some important knowledge can be geographically dispensed, multinational corporations can gain significant competitive advantage by managing knowledge flow among its sub-units in different local markets according to products adaptation and operations of the local conditions. In [21] it was argued that the competitive advantage a multinational corporation enjoys depends on its ability to manage, encourage and facilitate inter-subsidiary knowledge transfer between the organisational units from identification of the knowledge area through its transfer process to the receiving unit. In [22] multinational corporations were described as a networks of products, capital and knowledge transactions among organisational sub-units in other countries. In [20] multinational corporations were defined as an intra-corporate flow of knowledge that enhances the transfer of expertise and market-data of strategic significance. Studies have shown that total mapping of knowledge transfer process in a multinational corporation requires understanding of five major elements [15], [20], [14], [22]. These five major elements include value of the knowledge possessed by the source sub-unit, motivational characteristic of the source sub-unit concerning sharing its knowledge, cost and quality of the channel through which the knowledge will be transmitted, motivational attitude of the targeted sub-units in respect of acceptance of the incoming knowledge, and the ability of the targeted sub-units to absorb the incoming knowledge. In [23] it was argued that the context

of the knowledge has a strong effect on the extent in which the knowledge can be transferred. This is because the more context specificity the knowledge is, the lesser the absorptive ability of its receipt and use in other sub-units. [24] reported that the major problems confronting the internal knowledge transfer in multinational corporations are knowledge related factors. These include casual ambiguity, an onerous correspondence between the recipient and the source, as well as lack of absorptive capacity of the recipient. This implies that the integration of knowledge results into the knowledge-base of any organisation depend on the absorptive capacity and the learning effectiveness of the organisation. This learning effectiveness can be influenced by three major factors according to [25]. These include knowledge connections (personnel visits by foreign experts), the willingness to partner knowledge and the cultural alignment that exist between the alliance managers and parent executives. Furthermore, both explicit knowledge and tacit knowledge are simultaneously and widely distributed in the structure of many organisations, and it cannot easily be captured from the boundaries of these organisations. In the context of multinational corporations, cross-border synergistic process is needed for effective knowledge creation and transfer. This concept enables cross-border alliance of joint knowledge creation and transfer without allowing unauthorized access to it. In [26] it was described as the phenomenon of global knowledge creation. Studies have shown that tacit knowledge embodied in an organisation, group or individual schedules are of highly strategic importance compared to the explicit knowledge. This is because tacit knowledge is usually unique, not easily copied and appropriable [27], [9], [3], [28]. The role of organisational culture and trust cannot be over emphasized in the accessibility of its knowledge. In [29] it was reported that the intra-organisational climate of trust is highly required by multinational corporations to prevent extending their knowledge in the rivals. This is also similar to the findings in [30] where it was concluded that the level of trust that occurs between an organisation, its staff and sub-units significantly influences the proportion of knowledge that flows between staff as well as from staff into the organisational knowledge-base and archives via the knowledge management systems (KMS). In [31] knowledge management systems are defined as information systems that enhance and support the organisational knowledge management processes of knowledge creation, capturing, storing, retrieval and transfer as well as improves collaboration, locate knowledge sources and mines repositories for hidden knowledge. According to [18], these systems include expert systems, groupware systems, document management systems, decision support systems, database management systems, simulation systems, and intranet. In [32] it was concluded that two sets of "know-how" are necessary for designing and implementing a good knowledge management systems. These are organisational know-how in relation to understanding the knowledge flows and design know-how based on the technical programming.

### III. CASE STUDY OF THE CONGLOMERATE

The organisation studied is a diversified Mauritian conglomerate with an annual turnover in the excess of USD \$4.1 billion with more than 2500 employees. They are a global market leader in industrial chemicals manufacturing, engineering, properties, technology, digital communications and travelling as well as aviation. In the course of expanding its business operations, they have opened a subsidiary in Madagascar. This subsidiary was originally a business unit engaged in trading of fertilizers and general goods. Due to the high cost of production and supply to Madagascar where they have a larger market for its chemical and fertilizer products, the organisation decided to partially move the production plant of fertilizer from Mauritius to Madagascar. Manufacturing relocation requires a transfer of corresponding resources and knowledge. The organisation strategically manage this by sending all the applicable engineering documents to the subsidiary to re-draw them in Malagasy (a native language in Madagascar) to enhance engineering design and implementation processes. This resulted to re-codification of existing processes into a different culture and lingual setting. The Mauritius branch also transferred key engineering and production specialist to Madagascar, attached local staff to them as well as organising technical training sessions to enable these engineers from head office Mauritius train local engineers. As a result, the engineering staff in Madagascar became knowledgeable about all the design factors that influences the cost. Furthermore, immediately after all the required designs were completed by subsidiary and approved by the Mauritius head office, identification, registration, training and quality control of Madagascar suppliers was conducted to identify where raw materials can be sourced locally. This process was also designed to transfer knowledge from a Mauritius suppliers to the selected local suppliers in Madagascar. The suppliers in Mauritius were invited often to provide training and scale for measuring their Madagascar counterparts. This is to ensure that the same high quality level of raw materials are supplied in order to produce the same quality of goods.

### IV. ANALYSIS OF KNOWLEDGE CREATION AND TRANSFER USING THE SECI MODEL

In order to adequately analyse the knowledge creation and conversion process of the organisation, the SECI Model was used. As mentioned previously, these four knowledge conversion types are socialization, externalization, combination and internalization [11]. The need for manufacturing relocation was triggered by high cost of chemical production in Mauritius and shipment to Madagascar. The strategic managers of the organisation quickly noted the uniqueness of the situation and decided to partially relocate the chemical manufacturing plants to Madagascar. This enabled catalyst for re-engineering relies on the knowledge and experience of individuals within and outside the organisation. At first, the organisation designed a high-level engagement process by relocating some experts from Mauritius to Madagascar and establishing core training sessions for newly recruited Malagasy engineers. This enabled

a team of experts from Mauritius to interact daily with the Malagasy counterparts to address challenges by sharing their individual knowledge in order to develop a common shared understanding. This process is similar to the externalisation quadrant of the SECI Model. This is because the individual's tacit knowledge is being translated into forms that can be understandable and expressed by others as a result of their daily interactions via meeting, trainings and addressing issues collectively. Secondly, these team of experts from Mauritius then led the newly trained engineers to manage multiple task over a period of fifty-two days. This is the same as the combination quadrant of the SECI model which occurs when individuals combined their explicit knowledge via interaction to amplify the explicit knowledge. As they were working together in these projects, they were collecting and combining their externalised knowledge as well as disseminating the knowledge at the same time to handle critical issues, thereby, making the knowledge more usable and understandable as it is being revised and reconceptualised. This resulted to the application of innovative approaches to recurring issues. Thirdly, the newly recruited engineers after the training programme, read and understood the re-codified engineering and organisational policy documents, with a view of embracing the organisation's vision and agreed to contribute towards its achievement by developing policies, tools and processes that will enhance organisational strength and networks as well as resources. This conforms to the internalization quadrant of SECI model that occurs when explicit knowledge created newly is being converted into the organisational tacit knowledge. Fourthly, all these approaches and procedures forms the routine operational mechanisms of the newly recruited engineers. This agrees with the socialization quadrant of SECI model which occurs when tacit knowledge is being created via a common shared experience among individuals interaction as the work in the same environment.

### V. OPTIMAL KNOWLEDGE TRANSFER PROCESS FOR MAURITIUS MULTINATIONAL ORGANISATIONS

The problem of reducing unit cost of manufacturing while maintaining the same product quality as seen in this case study, can also be applied to most Mauritius multinational organisations relatively. Analysing the knowledge management strategies adopted by the the organisation with Nonaka's SECI model shows that all the techniques in the four quadrants were applied. The organisation shifted the production base from Mauritius to Madagascar within a short time interval with a minimal capital investment and available resources. The action sequence for the project was divided into three parts in order to efficiently manage the knowledge transfer. It started with codifying and re-codification of the engineering and policy documents between organisation and subsidiary engineering departments, followed by selection of suppliers and transfer of corresponding knowledge to ensure quality of raw materials and lastly, tacit knowledge transfer between the Mauritius and Madagascar workforce. These three steps provide a template and an optimal process for a complete

knowledge transfer processes for any organisation in Mauritius to effectively transfer knowledge to any of its manufacturing plants or departments outside Mauritius in order to operate as a multinational corporation while maintaining the same product quality and standard. This will significantly reduce cost of production with increased customer base and profitability.

## VI. CONCLUSION

The results of the case study analysis shows that the organisation adopted strategies in creating and transferring knowledge to its newly relocated chemical manufacturing plants in Madagascar conformed with SECI knowledge creation and conversion model. This model highlights the process by which knowledge can be effectively created and transfer within different units of an organisation by continual interaction between tacit and explicit knowledge. Tacit knowledge is a type of knowledge that dwells in the individual's knowledge structure and it is difficult to transfer by via verbalising or writing while explicit knowledge is the type of knowledge that can be easily expressed in words, numbers and shared in the form of data, specifications, manuals and scientific formulae. This study has bridged the academic gap in knowledge creation and transfer in a multinational organisation within a Mauritian context. Based on the findings of this study, it is recommended that any Mauritian organisation wishing to become a multinational corporation should firstly, codify and re-codify their operational and policy documents existing between the origin and the targeted departments or units, followed by selection of suppliers and lastly, tacit knowledge transfer between the origin and the targeted workforces. This action sequence forms a complete knowledge transfer process of any organisation in Mauritius to effectively transfer knowledge to any of its manufacturing plants or unit outside Mauritius. Despite the fact that the result of this study has demonstrated that Mauritius multinational organisations create and transfer knowledge to its subsidiaries successfully, these results are just constrained to knowledge transfer processes relating to an organisation and do not have any significant application to transfer process between organisations. It is therefore, recommended that comparative research be conducted to analyse the knowledge transfer capabilities among Mauritian multinational organisations as well as that of other organisations in Europe, UK and the USA.

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