



## SECI MODEL OF KNOWLEDGE CREATION PROCESS IN A COTTON GINNING MILL

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### Abstract

The success of a company in the twenty-first century will be determined by the extent to which organizational members can develop their intellectual capabilities through knowledge creation. Thus, in order to sustain competitive advantage, employees' understanding of knowledge creation process is vital for the success. There are various means by which an organization can facilitate and support the knowledge creation processes among its organisational members. This paper describes how knowledge is created and organised in a cotton ginning mill and explains various stages like Socialisation(Unloading Stage),Externalisation(Ginning Stage),Combination(Bale making Stage)and Internalisation (Supervision stage) (SECI). It also highlights the importance of knowledge creation for Frontline staff and for Middle to Top level staff.

**Keywords:** Knowledge Management, Cotton Ginning, Knowledge Creation, SECI Model.

### Introduction

It is widely observed that the society we live in has been gradually turning into a knowledge society. The ever increasing importance of knowledge in contemporary society calls for a shift in our thinking concerning process innovation. It raises questions about how organisations process knowledge and, more importantly, how they create new knowledge. Any organisation that dynamically deals with a changing environment ought not only to process information efficiently but also create information and knowledge. Information is a flow of messages, while knowledge is created and organised by the very flow of information, anchored on the commitment and beliefs of its holder. This understanding emphasizes an essential aspect of knowledge that relates to human action. The nature of information and knowledge is in the form of "Tacit" and "Explicit" form. The technical elements of tacit knowledge cover concrete know-how, crafts and skills that apply to specific contexts. It is important to note here that the cognitive element of tacit knowledge refers to an individual's images of reality and visions for the future that is to say, what is and what ought to be. The articulation of tacit perspectives in a kind of "Mobilization" process is a key factor in the creation of new knowledge.

A continual dialogue between explicit and tacit knowledge which drives the creation of new ideas and concepts. Although ideas are formed in the minds of individuals, interaction between individuals typically plays a critical role in developing these ideas. "Communities of Interaction" contribute the amplification and development of new knowledge. The fundamental basis for the theory of organisational creation of knowledge, it can be argued that attention should be focused on the active, subjective nature of knowledge represented by such terms are "belief" and "commitment" that are deeply rooted in the value systems of individuals. Tacit knowledge is deeply rooted in action, procedures, routines, commitment, ideals, values and emotions.

Explicit knowledge is discrete or digital. It is captured in records of the past such as libraries, archives, and databases and is assessed on a sequential basis. Explicit knowledge can be expressed in formal and systematic language and shared in the form of data, scientific formulae, specifications, manuals and such like.

### Literature Review

The underlying principle of Nonaka & Takeuchi's (1995) theory of knowledge creation is that of knowledge conversion. Based on this principle, 'human knowledge is created and expanded through social interaction between tacit and explicit knowledge'. They argues that the process of conversion from explicit knowledge (which corresponds to declarative knowledge) into tacit knowledge (which corresponds to procedural knowledge) can be bidirectional and spiral. Accordingly, they posit that tacit knowledge can be expressed and, therefore, transferred between individuals. Based on this assumption, they postulate four modes of knowledge conversion under the acronym SECI: Socialisation(tacit -tacit), Externalisation (tacit - explicit), Combination (explicit - tacit), and Internalisation (tacit - tacit).It aims at providing an insightful view of the concept of knowledge in organisations by acknowledging the long and deep processes by which crystallized propositions (i.e., explicit knowledge) are originated in and influenced by pre-theoretical knowledge (i.e., tacit knowledge).

Nonaka et al., (2000) stated that Knowledge creation refers to the development of new organizational expertise and capability. Knowledge originates within individuals or social systems. At the individual level, knowledge is created through cognitive processes such as reflection and learning.



In the knowledge-creating view of the firm, the conversion process between tacit and explicit knowledge – Socialization, Externalization, Combination, and Internalization (SECI) model helps to synthesize subjective knowledge and values into objective and socially shared organizational knowledge.

The knowledge creation process starts with socialization in which the tacit knowledge of customers and competitors is acquired through the creation of a dense field of interactions. That knowledge is then externalized, or conceptualized, through dialogue into explicit knowledge to be shared within the firm. Next, the explicit knowledge, which is now in a form appropriate for diffusion throughout the organization, is combined with other existing explicit knowledge to form a more complete and practical set of knowledge. Subsequently, organizational members internalize the newly created complex set of explicit knowledge through application and action.

Recent empirical studies have shown that there are various styles of managing this organizational knowledge creation process, and that although not all KM styles equally impact performance (both explicit and tacit knowledge should be managed simultaneously toward achieving greater results).

In a survey of Japanese small and medium manufacturing enterprises, they have found that a balance of SECI modes correlated with higher levels of financial performance. Thus, in today's business environment with its accelerating speed of change, the promotion of the knowledge-creation process expressed by the SECI model is an important method for creating knowledge, and hence innovation, for enhanced competitive advantage.

### **Problem Statement**

With the increase in cotton availability, the demand for better quality cotton fibres nearer to that of hand ginned is becoming the challenge before the cotton ginning & pressing machinery manufacturers. The optimization of process cost is another challenge to face the intense competition. Thus the ginning has become a very important area to get the edge in the cotton business. Ginning, in its strictest sense, refers to the process of separating cotton fibres from the seeds. The cotton gin has as its principal function the conversion of a field crop into a scalable commodity. Thus, it is the bridge between cotton production and cotton manufacturing. At one time the sole purpose of cotton gin was to separate fibres from seed. But today's modern cotton gin is required to do much more. To convert mechanically harvested cotton into a scalable product, Gins of today have to dry and clean the seed cotton, separate the fiber from the seed, further clean the fibres and place the fibres in to an acceptable package for commerce. In essence, the modern cotton gins need knowledge workers for separating the fibre from seed and by removing objectionable foreign matter, while preserving as nearly as possible the inherent qualities of the fibre. However this paper describes how knowledge is created among the different groups in an organisation particularly the process of cotton ginning which plays a vital role for produce good quality fibre and to get better returns in the cotton trade.

### **Objectives of the Study**

The study highlights about how knowledge is created during the cotton ginning process and also among the different groups of employees in the organisation.

### **Knowledge Creation Process in a Cotton Ginning Organisation**

Knowledge is created when there is the transformation of tacit knowledge of individuals into explicit knowledge at group and organizational level (Nonaka, 1994; Nonaka& Takeuchi, 1995) and each member of such groups internalize it, making it tacit knowledge again. Then we analyse the process of transforming individual knowledge into organizational. This means knowledge conversion, which is part of the spiral of knowledge. It also considers four possible modes of conversion for the two types of knowledge: socialization, externalization, combination and internalization. This paper describes the different stages of knowledge creation in cotton ginning organisation.

**Unloading stage:** The raw cotton comes in trucks from cotton producing areas...The trucks have to be unloaded in the shade from where cotton is picked up and transported to the main factory. There is a committed workforce for the task of unloading, who interacts with one another, observes, discusses, analyses and spending time together in the same environment. Thus, Tacit knowledge goes beyond the boundary and new knowledge (Tacit) is created by the process of interactions. Hence, the dichotomy between the environment and the organization can be synthesized in the socialization process as members of the organization accumulate and share the tacit knowledge of the environment through their practical consciousness.

**Ginning Stage:** This is the main factory part of the operation where raw cotton comes to processing stage. The workers work on the raw cotton feeder at both ends. Each worker handles three or four charkhas or Cotton Gins. Quality circles are formed in manufacturing process where workman put their learning and experience to improve or solve the process related problems. At this stage, the actual ginning process i.e.; separation of lint and seed takes place in the roll box of the gin stand. . Thus,



tacit knowledge is made explicit for producing lint of satisfactory quality. Here dialogue also an effective method to articulate one's tacit knowledge and share the articulated knowledge such as concepts, images, and written documents (Production registers) with others...

**Bale making Stage:** After the cotton has been ginned during the ginning stage, it is pressed into bales. Thus ,Explicit knowledge(cotton lint) which is collected from the Ginning stage in the organization and then combined, edited, or processed to form more complex and systematic explicit knowledge(Cotton bales) through the Combination process. The cleaned cotton is compressed into bales, which must be covered to protect them from contamination during transportation and storage. The bales are then taken out of the factory shed into open compound where these are loaded into trucks for onward transport. This work is primarily carried out by workers. Thus, the new explicit knowledge through cotton bales is then disseminated among the members of the organization.

**Supervision Stage:** The factory segment also has a significant number of fitters and supervisors for smooth running of operations. Some of them are the technically qualified staffs that monitor production and are responsible for smooth functioning of the machines. The employees in the organisation learned the skill through experience. Whenever any machine or cotton gin problems occur during the processing stage, the fitters understand the problems of the machine (Explicit Knowledge) and apply his internal knowledge (Tacit) for machine repairing. This stage can be understood as praxis, where knowledge is applied and is used in practical situations and becomes the base for new routines. During this stage training programs can help trainees to understand an organization and themselves. Thus, explicit knowledge, such as product concepts or manufacturing procedures, has to be actualized through action, practice, and reflection so that it can really become knowledge of one's own. Therefore the explicit knowledge is created and converted into tacit knowledge through Internalisation stage.

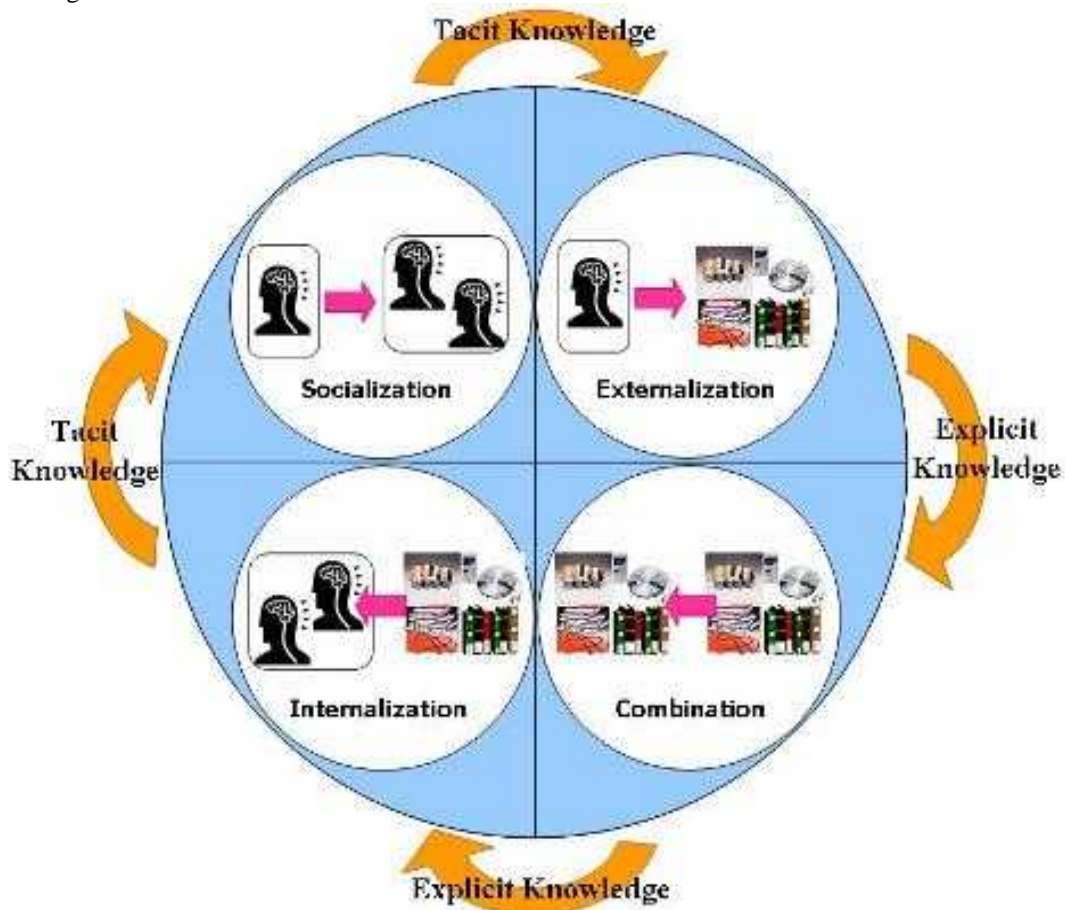


Fig 1 :Seci Model of Knowledge Creation Process



**Table 1 : Km Initiatives At Cotton Ginning Mill**

Serial no	Ginning Stages	Knowledge Creation Process	Employees Level	KM Initiatives
1	Unloading Stage	Socialisation	Front line employees(Workers)	<b>Informal Ways of learning:</b> Communities of practice
2	Ginning Stage	Externalisation	Supervisory Level	<b>Formal learning</b> methods :Documentation Ms Excel
3	Bale Making stage	Combination		Visualisation
4	Supervision Stage	Internalisation		On the Job training Learning by doing

Organizational level or Group	Socialization	Externalization	Combination	Internalization
Frontline Staff(Individual)	How individual staff interact with one another, where tacit knowledge is shared and therefore created on a one-one level.	How individual frontline staff converse and interact to articulate what they tacitly know into a form that can be shared with another?	How new existing explicit knowledge is combined from one individual to the existing explicit knowledge base of another using social process and means	How staff works one-one and share experiences that allow individuals to take the explicit knowledge and make it tacit by learning by doing.
Frontline Staff(Group)	What informal group activities are formed that allow staff to socially share their tacit knowledge that allows other group members to attained therefore create new tacit knowledge?	What conversational processes of transforming tacit knowledge of individuals into explicit knowledge for others are present including the use of metaphors and alike?	What means are present that allow groups of frontline staff to combine what explicit knowledge they possess with other small pieces of explicit knowledge?	What group 'learning' is found within the frontline staff and how this learning is conducted and by what means in order to make explicit knowledge tacit?
Organizational (Individual)	How individual managers interact with each one another, where tacit knowledge is shared and therefore created on a one-one level	How managers on a one-on-one basis converse and interact to articulate what they tacitly know into a form that can be shared to another?	How do managers combine gained external knowledge with that existing knowledge of the teams?	How managers work one-on-one and share experiences that allow individuals to take the explicit knowledge and make it tacit by learning by doing.
Organizational(Group)	What group forums are used for senior managers to create and share tacit knowledge?	What conversational processes of transforming tacit knowledge into explicit are present including the use of metaphors and alike?	What means are present that allow management groups to combine what explicit knowledge they possess with other small pieces of explicit knowledge?	What group 'learning' is found within the organizational level? How this learning is conducted and by what means in order to make explicit knowledge tacit?

**Figure 2: Framework for Individual, Group and Organisational Knowledge**



## **Conclusion**

Knowledge management in Textile Companies like Cotton ginning, Spinning, Weaving with an interest in customization were found to realise the need of managing knowledge, but did not know yet about KM and how to manage the knowledge. This paper emphasises the need for a firm to have the capability of exchanging knowledge as a means to enhance the value of its own internal knowledge stock. It suggests how SECI frame work should be adapted to a particular cotton ginning culture and thus may increase efficiency of knowledge management interventions in textile industry. Knowledge creation enables the firm exploit new opportunities, moreover when this knowledge is transferred throughout the firm and it also contributes positively to utilisation of knowledge.

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