



# Study of the process of organisational learning in software firms in India

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## Abstract

This paper is based on the understanding that information technology is a knowledge intensive sector. In the globally competitive environment, firms are required to build firm specific competence. That could be achieved through ‘organisational learning’. This paper is an attempt to analyse the factors which are responsible for creating an environment for organisational learning in a firm. It is assumed that individuals are the basic units of learning and the knowledge gained by them gets institutionalised through a route of group processes. The individual/group learning is influenced by the policies and strategies of the firm as they get routinised and thus create a particular environment.

Factor analysis with varimax rotation of the responses of employees from seven software firms on policies and strategies and on the group processes (teaming up) have been undertaken. The analysis identifies five factors to be responsible for making an environment for organisational learning. These are — *organisational health, opportunities to learn, flexibility/risk taking, innovativeness and interaction*. These factors and variables explained 63% of the variation in organisational learning. For the group processes, means the process of integration of individual knowledge, variables like *challenge, variety at work, team activity and empowerment* are found to play a significant role and they cover 66.8% variation.

The empirical study revealed that the age of software firms is very small and the same is true of the work experience of young employees in those firms. Some level of satisfaction amongst employees is there towards the learning environment. However, ‘variety in the work’ and ‘empowerment’ issues in the group processes have been rated low by them. It can be interpreted that Indian software firms need to take more challenging tasks with better learning environments to build further competence in the sector.  
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## 1. Introduction

The modern economy is experiencing radical changes in the structures and processes in the society. The society is on its way to globalisation of technologies and internationalisation of markets. Globalisation means besides other thing, knowledge intensive products. It also means that marketing and R&D are diffused more and more in global terms (Boekema et al., 2000). In this decentralised economic structure, the working conditions in the industry are fast changing. Some of the major transformations are: acceleration in the rate of learning, evolving new organisational structures, growing knowledge intensity

of goods and services, strengthening of intellectual capital, technology fusion and the information technology (IT) (Chen, 1997; Millar et al., 1997; Teece, 1998). All these changes highlight the role of knowledge in the firms competitiveness and economic progress (Bolisani and Scarso, 2000). The process of knowledge generation and its use is very dynamic and is changing at a rapid pace. As a result, the life of the processes and the products in the knowledge based companies/sectors is much shorter. It necessitates the firms to continuously update their knowledge so as to remain in the competitive market. The acquisition, interpretation and practicing of knowledge by an individual or an organisation is termed as learning, a step further to knowledge. Learning takes place by processing of information and it changes one’s understanding (Friedlander, 1983) and leads to change in one’s potential behaviour (Huber, 1991). It is the basic process demanded for the competence building in any

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enterprise. The IT sector is knowledge intensive and due to its extensive applications the world is heading towards a revolution in the business operations and in the life-style of society. Thus, in such a competitive phase, IT firms are expected to be aware of the issue of 'organisational learning'. The organisational learning has been defined differently by different authors in the literature. According to Fiol & Lyles (1985), organisational learning refers to the development of insight and association of past actions, the effectiveness of those actions and future actions. Learning in an organisation depends on the ability to share common understanding (Deft & Weick, 1984). In simple language *it is the capability of an organization to adapt to the changing environment* (Hedberg, 1981). March (1991) has discussed the process of mutual learning where the individual learns about the organisation knowledge structure through socialization and organisation learns individual by adopting to individual beliefs and interpretations.

The present paper is an attempt to explore the process of organisational learning built in the IT firms as perceived by its members. The following section is a review of the understanding of the concept of organisational learning, the knowledge generation and the process of learning in an organisation. The third section discusses the conceptual framework adopted for data collection and analysis. The subsequent sections describe the methodology and results of the empirical analysis and also given are the conclusions of the study on organisational learning in software companies.

## 2. Organisational learning and the firm specific competence

The literature review is based on the understanding that in the global and competitive economy, organisational learning is a must for any organisation. Organisational learning has been described as the ways in which organisations build, supplement and organise knowledge and routines around their activities and within their culture (Sadler-Smiter and Badger, 1998). According to Barnett (Nanda, 1996 organisational learning is an experience-based process through which knowledge about action–outcome relationships develops and get encoded in routines. Further, it is embedded in organisational memory and changes the collective behaviour of its employees. Knowledge based firms such as IT companies are operating in environment that is increasingly prone to changes and organisational learning has been identified as its capability requirement (Garvin, 1993).

Nanda (1996) refers to organisational knowledge, as a step further to organisational learning. Organisational knowledge is the resource generated through accumulation of organisational learning. Organisational knowledge is internally generated and evolves through the pro-

cess of learning. It is the team-knowledge which transcends individual members and exists in the form of organisational routines (Nelson and Winter, 1982). Generally organisational knowledge is more tacit (Polanyi, 1962) and firm specific than physical members and individual human capital (Barney, 1986; Cremer, 1989). Fiol (1994) characterised this resource as organisational culture. Cremer (1989) defined corporate culture as the stock of knowledge that is common to a substantial portion of the employees of the firm but not to the general population from which they are drawn.

Honecker et al. (1999) have also discussed the relationship of learning with work environment. The work environment influences individual learning and the learning in turn is integrated into organisational routines and becomes as Organisational learning. This need to be flexible and competitive and is supported by the introduction of new methods of work organisation, e.g. team work, self organised groups, learning teams and other strategies.

The nature of knowledge, its acquisition and integration for the development of competence through organisational transformation has been discussed by Nonaka and Takeuchi (1995) and Spender (1996). The processes of knowledge based transformations are considered as organisational learning activities. Carayannis (1994) in relation to learning based theory of firms has considered the role of organisational learning as a competitive advantage. The way in which organisations and the people therein generate, process, and alter their explicit knowledge and tacit skills determine the way of organisational learning.

In the knowledge based economy, firms derive their competitiveness from firm specific competence, developed through the combination of tangibles and intangible resources (Maskell, 1998; Porter, 1990). The tacit or non-codified knowledge in the organisational context is the firm specific competence and that is the key for the success of any setup. A firm is required to concentrate on developing and practising the tacit part of knowledge.

Firm specific competitiveness enables firms to do things that their competitors cannot imitate or duplicate at least in the near short term. The prospects of firms' specific competence become even better when personal skills, organisational routines and practices exist in an organisation as tacit knowledge. In short the tacit knowledge embedded in an organisational context is the key to competitiveness in knowledge based economy (Boekema et al., 2000).

According to Nonaka and Takeuchi (1995) on knowledge creation in firms, it takes place through constant interaction between tacit and codified form of knowledge. This creation of knowledge takes place at the level of individuals and not at the organisation level. How-

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