

# The Impact of Extrinsic Reward Systems on Cross-Functional Collaboration and Collaborative Knowledge-Building among Human Capital in the Knowledge Ecosystem

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## ABSTRACT

The study explores the role of Extrinsic Reward Systems on Cross-Functional Collaboration and Collaborative Learning among the human capital within the Knowledge Ecosystem. It explores the knowledge ecosystem to understand the motivational processes underlying knowledge-sharing and creation among the human capital. The development of knowledge sharing behaviors will result in greater efforts at collaborative innovation and high performance in organizations. The research aims to study alternative reward strategies and suggests a shift in focus from extrinsic to intrinsic reward and recognition processes that are likely to result in faster learning, knowledge evolution and organizational innovation and performance.

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## 1. Introduction

The modern business world has recognized organizational knowledge as an invaluable intangible resource that holds the key to the firm's competitive advantage. The movement of knowledge from the individual to the teams, through the organization and beyond its boundaries form the base of organizational innovation. As innovation is a complex process involving knowledge exchange and learning and transformation of the knowledge into strategic action outcomes, organization's competitive advantage is dependent on employee's knowledge-sharing. The knowledge ecosystem is a complex adaptive system of knowledge interactions nested among people, technology and knowledge processes. The study aims to explore the role of extrinsic reward systems on cross-functional collaboration and collaborative knowledge-building among human capital in the knowledge ecosystem.

### 1.1. Knowledge Ecosystem:

The concept of a 'Knowledge Ecosystem' is similar to a natural ecosystem of living things and its natural environment. The knowledge ecosystem is a network of knowledge-based exchanges, interactions and social relationships between members who are inter-dependent and mutually collaborate in order to survive and evolve through symbiotic relationships. In business, the knowledge ecosystem forms the heart and has inputs, throughputs and outputs operating in open exchange relationship with their environment. Knowledge, both tacit and explicit flow dynamically among knowledge entities in the ecosystem leading to knowledge-sharing and exchange for benefit of the ecosystem as a whole.

Bray (2007) has stated that organizations can indirectly cultivate a knowledge ecosystem that both fosters knowledge exchange opportunities among employees and allows dynamic knowledge exchange activities to occur and evolve as environmental circumstances require (Heckscher and

Donnellson 1994). Bray also stated that the mere existence of these opportunities to exchange knowledge or ideas can reshape whether or not human individuals actually deem such exchanges worthwhile. Knowledge exchange opportunities influence human motivations, which in turn influence knowledge exchange behaviours and processes, which ultimately shape outcomes, including organizational performance.

Bray outlined sequentially the key steps to designing a knowledge ecosystem as: Opportunities to exchange knowledge, Motivations to exchange knowledge, Processes to exchange knowledge, Impact on Organizational performance.

### 1.2. Extrinsic Rewards:

Organizational rewards may be broadly classified as extrinsic or intrinsic. Extrinsic rewards are usually financial, tangible rewards given to employees by organizations such as such as pay raises, bonuses, and benefits. They are categorised as extrinsic as these are external to the work and individual and external entities control whether these rewards are granted and the quantum of rewards. In contrast, intrinsic rewards are psychological rewards that employees get from doing meaningful work and performing it well. Individuals are intrinsically motivated when they seek enjoyment, interest, satisfaction, or self-expression in the work itself (Amabile, 1993).

Common extrinsic incentives include monetary rewards, recognition, and promotion. Two basic prerequisites for extrinsic incentive systems to be effective are that it should be possible for the organization to observe or record the target behaviour and to assess its value (Bartol and Srivastava, 2002).

## 2. Literature Review

Researchers have described the knowledge ecosystem as a dynamic, self-organizing mechanism that is based on inter-

relationships between the ecosystem constituents. The Intelligent Complex Adaptive Systems approach to knowledge ecology, views the organization as an intelligent complex adaptive system (e.g., Beer, 1981; Bennet and Bennet, 2004) that are composed of a large number of living subsystems that combine, interact, and co-evolve to provide the capabilities of an advanced, intelligent technological and sociological adaptive enterprise. The system includes self-organizing components, each of which seeks to maximize its own specific goals, but which also operates according to the rules and context of relationships with the other components and the external world.

Knowledge is a socially mediated product as these beliefs become knowledge through social interaction, communication, discussion, clarification and negotiation. When an individual's personal belief is articulated in words and this public statement is taken up in a social setting and discussed from the multiple perspectives of several participants, we build upon and supplement cycles of individual learning of several individuals.

Cross-functional collaboration refers to the degree of cooperation and the extent of representation by marketing, research and development (R&D), and other functional units in the product innovation process (Kahn 1996; Li and Calantone 1998; Song, Montoya-Weiss, and Schmidt 1997). Knowledge integration mechanisms refer to the formal processes and structures that ensure the capture, analysis, interpretation, and integration of market and other types of knowledge among different functional units within the firm (Olson, Walker, and Ruekert 1995; Zahra, Ireland, and Hitt 2000).

The Collaborative Learning Ecosystem Framework proposed by Chang and Guetl (2007) emphasises 'a holistic approach that highlights the significance of each component, their behaviour, relationship and interactions, as well as the environmental borders in order to examine an existing system or form an effective and successful system'. The collaborative view of the knowledge ecosystem is a non-linear and holistic framework and puts forth several components that are independent and inter-dependent simultaneously, resulting in organizational outcomes such as growth, productivity and performance. This implies a dynamic human capital in interaction with its knowledge environment, learning and adapting to changes while sharing and exchanging knowledge for mutual benefit.

Gerry Stahl has proposed a model of collaborative knowledge building that incorporates insights from various theories of understanding and learning specifically collaborative knowledge building environments. It explicitly considers the relationship of processes associated with individual minds to those considered to be socio-cultural by naming a set of cognitive and social processes and presents a model of learning as a social process incorporating multiple distinguishable phases that constitute a cycle of personal and social knowledge-building.

Nelson and Coopriider argued that knowledge sharing could only be archived through mutual trust, an element of collaborative culture. O'Reilly and Pondy (1980) indicated that the probability that organizational members will route

information to other members is positively related to the rewards and negatively related to the penalties that they expect to result from sharing. The relationship between knowledge sharing and incentives was further supported by studies (e.g., Gupta & Govindarajan, 2000; Quinn et al., 1996) finding that significant changes had to be made in the incentive system to encourage individuals to share their knowledge, particularly through technology-based networks in organizations.

Rewards have also been considered important to knowledge sharing within intranets (Hall, 2001), in the creation and sustenance of knowledge-sharing networks (Dyer & Nobeoka, 2000), and the success of knowledge-management initiatives within organizations (Earl, 2001; Liebowitz, 1999). Although there are those who perceive rewards and incentives to be indispensable to knowledge sharing (e.g., Gupta & Govindarajan, 2000; O'Reilly & Pondy, 1980; Quinn et al., 1996), others have argued that tangible rewards alone are not sufficient to motivate knowledge sharing among individuals.

Integrating the above views, it is evident that the knowledge ecosystem consists of several interacting components that revolve around knowledge exchange and driven by knowledge processes such as creation, sharing, distribution and evolution. For most organizational initiatives, it is important to access cross-functional expertise for effective planning and execution. The knowledge exchange within the ecosystem provides opportunities to the human capital for sharing and exchanging views, self-organize and learn and adapt to changes in its environment. The role of rewards in this knowledge domain is unclear as extrinsic rewards appear to satisfy individual needs better, whereas intrinsic rewards seem to drive individuals effectively due to the self-organized human capital that do not align to authoritative control.

### 3. Research Methodology

#### 3.1: Research Gap:

There are several research studies on organizational reward mechanisms and its linkage to organizational performance. As the knowledge ecosystem is unique in that it is self-organized and cannot be 'managed' it is important to understand the key motivational processes that will drive willing participation and knowledge-sharing within its members. Most modern organizations thrive on their ability to transform knowledge and generate value for their stakeholders through innovative products and services. At the core of all innovation is collaborative effort and ability to learn and build knowledge in response to changes in the environment. Hence, it is important to understand how extrinsic reward systems influence the behaviours of the human capital in the knowledge ecosystem with respect to cross-functional collaboration and collaborative knowledge building. It is also important to examine other approaches to knowledge work recognition in the knowledge ecosystem.

#### 3.2 Research Objectives:

1. To study the impact of extrinsic reward systems on cross-functional collaboration within the human capital in knowledge ecosystem

2. To identify the impact of extrinsic rewards on collaborative knowledge-building within human capital of the knowledge ecosystem
3. To study the effectiveness of reward systems on the knowledge ecosystem
4. To evolve alternate strategies to motivate human capital within knowledge ecosystem

### Hypothesis 1:

H<sub>01</sub>: There is no significant difference among the opinions of the respondents in general that extrinsic reward systems play an important role in cross-functional collaboration of human capital within knowledge ecosystem

H<sub>11</sub>: There is significant difference among the opinions of the respondents in general that extrinsic reward systems play an important role in cross-functional collaboration of human capital within knowledge ecosystem

### Hypothesis 2

H<sub>02</sub>: There is no significant difference among the opinions of the respondents that extrinsic reward systems drive collaborative knowledge-building in knowledge ecosystem

H<sub>12</sub>: There is significant difference among the opinions of the respondents that extrinsic reward systems drive collaborative knowledge-building in knowledge ecosystem

### 3.3 Research Design:

Secondary Data Sources: The study is based on secondary data collected from various sources: books, journals, magazines, reports and electronic media.

Primary Data Sources: The study is explorative in nature. The study uses a Mixed Research

Design: The study uses Non-Probability sampling.

Research Tools: The researchers used tools like a questionnaire and a Structured Interview. The aim of the survey was to find out the impact of extrinsic reward systems on cross-functional collaboration and collaborative knowledge building in organizations.

Sample group & Sample size: To obtain the required information, a pre-prepared structured questionnaire was used to survey 200 employees at junior and middle management levels in knowledge intensive organizations.

## 4. Discussion

### 4.1. Knowledge Ecosystem and Collaborative Knowledge Building

Knowledge is founded in individual thinking and shared through within the knowledge environment. Effective knowledge management requires a culture that fosters the creation and application of knowledge for attainment of organizational goals.

However, in reality, companies may foster environments where individual expertise is highly rewarded but mentoring and

assisting are not (Leonard and Sensiper, 1998). In such environments, there may be active discouragement or self-censoring from participation in knowledge sharing activities and individuals may actually be rewarded for information hoarding practices. Considering the distributed nature of organizational knowledge, an important process of knowledge management in organizational settings is the transfer and coordination of knowledge for execution of tasks and activities and decision making.

The process of dynamic knowledge building occurs when internal (tacit) knowledge becomes external (explicit). The continuous feedbacks that operate between internal and external knowledge are producing new knowledge among entities and create the energy and permanent innovation that are essential for organizational performance.

The knowledge ecosystem provides a dynamic environment that nurtures knowledge building activities and increases the core capabilities of the individuals within the organization. These kinds of activities include shared problem solving, experimenting and prototyping, importing knowledge from outside the organization, as well as implementing and integrating new processes and tools.

The human capital in the knowledge ecosystem, are on a constant path of improvement and discovery of new and relevant knowledge. Through informal and formal interactions, this knowledge is codified and distributed through the ecosystem. However, this dynamic process still relies on individual processors to share knowledge and transform it. Knowledge sharing relies on strong support from leadership. Sharing can occur in four processes – socialization, externalization, combination, and internalization.

At the organizational level, knowledge creation can occur through knowledge conversion, knowledge building, or knowledge linking. Additionally, organizational information-seeking or sense-making can drive knowledge creation as can organizational learning. Knowledge ecosystem with its innovative nature, facilitates the creation of new knowledge as human capital question existing practices for improvement; the self-organizing nature of the human capital enables quick response mechanism to change and does not rely on managerial control for action; the collaborative nature is manifested as knowledge-sharing behaviours for mutual help and assistance and the evolutionary nature eliminates redundancies from the system, adoption new learning. Thus, the human capital in the knowledge ecosystem willingly participate and contribute to the knowledge building activities of the firm.

### 4.2 Knowledge Ecosystem and Cross-Functional Collaboration

Organizations concerned with sustaining competitive advantage through innovation means, should explore the potential of the knowledge ecosystem in fostering cross-functional collaboration. Most organizational knowledge initiatives are complex and require inputs from multiple disciplines. The cross-functional exchange of information is

dependent on the knowledge environment. One of the main characteristics of the knowledge ecosystem is collaboration.

The human capital within the knowledge ecosystem function as individual storehouse of tacit knowledge. At a macro level, the human capital function as a group of individuals held together within an organizational framework, with a common interest, shared practices, common issues and problems and common pursuit of problems. The presence of supplementary knowledge in the ecosystem drives collaboration among the human capital.

The knowledge ecosystem drives collaboration through knowledge processes and tools for idea generation, informal learning, shared learning, experience and opportunities to apply the learning and regulate the environment. This influences the human capital to contribute willingly to cross-functional initiatives due to awareness of one's own knowledge limitations, task inter-dependencies and alignment of outcomes to overall objectives.

#### **4.3 Role of Extrinsic Rewards in the Knowledge Ecosystem**

There has been ongoing research and debate on the role of rewards as a motivational tool for knowledge-sharing. Researchers that believe in the natural process of knowledge exchange, disagree with the introduction of reward systems for sharing knowledge. However, some organizations have implemented bonuses and other rewards for individuals to go out of their way to share knowledge with others.

Knowledge sharing is one of the most critical steps in knowledge management activities. To achieve effective knowledge sharing, it is important to encourage individuals to share their knowledge for organizational use. However, exerting this behaviour in individuals is a difficult and complex challenge. The individual-based reward system is based on individual contribution of key knowledge and group-based reward system is based on knowledge-sharing contribution of group to the firm.

It is important to note that it is through collaboration among the ecosystem components that organisational knowledge is able to be productively absorbed, grow and translate into increased value and competitive advantage for the organization. However, the knowledge ecosystem perspective suggests that knowledge cannot and should not be managed as it is a capacity inherent in people, continuously generated and renewed in their conversation and knowledge exchanges to meet challenges and opportunities. Accordingly, human capital responsible for knowledge creation may be inspired and supported but cannot be controlled to share knowledge. Thus, the knowledge culture and environment is an important factor in encouraging human capital towards knowledge-sharing and establishing reward mechanisms may be perceived as forced-sharing by ecosystem's members.

## **5. Results**

### **5.1 Main Findings:**

1. The quantitative data analysis ultimately confirms that in case of Hypothesis 1 there is moderate positive

correlation between Extrinsic Rewards and Cross-functional Collaboration within knowledge ecosystem. Hence null hypothesis is accepted, and alternate hypothesis is rejected.

2. Data analysis also revealed that there is no positive relationship between Extrinsic rewards and Collaborative Knowledge building within knowledge ecosystem. Hence, in the case of hypothesis 2, we reject null hypothesis.
3. The implementation of extrinsic reward systems for cross-functional collaboration aligned to overall characteristics of the knowledge ecosystem, is likely to facilitate better alignment to achievement of organizational objectives. The increased motivation due to reward expectation can drive greater knowledge sharing and exchange and result in improved collaboration among human capital.
4. The design of an autonomous knowledge ecosystem that is self-organized, nurtures knowledge interactions, provides opportunities for knowledge exchanges and enjoys empowerment, can increase individual motivation to participate and contribute to the knowledge creation process. It is also important to curb other behaviours such as knowledge hoarding, working in 'silos', non-sharing of information and self-seeking behaviours that affect the vibrancy and essence of the ecosystem.
5. As traditional methods of rewards find limited scope in the knowledge ecosystem, it is essential to explore alternate strategies for motivating human capital. This includes creating a climate of trust and open sharing, rewards based on intrinsic motivators such as quality of knowledge, access to key and niche knowledge, learning and recognition based on contribution to the growth and development of the ecosystem. The human capital that is in a constant dynamic state of interaction with its knowledge environment, may be rewarded by providing better opportunities for knowledge exchange, learning opportunities and status recognition for creation, distribution and transfer of knowledge by mentoring or coaching processes. This can drive more members towards collaborative knowledge-building.

### **5.2 Strategies and recommendations:**

1. Develop reward strategies that are focused on intrinsic methods of motivation to engage better participation within the knowledge ecosystem and strengthen cross-functional collaboration. This may be augmented by adopting cross-functional work structures and work-design that involves the ownership of multiple functions within knowledge ecosystem.
2. It is essential to focus on building strong cultures of knowledge-sharing, open participation and mutual benefit to support intrinsic reward mechanisms. This implies a need to strengthen the focus on intrinsic needs of the employees and align reward efforts to nurture and foster a healthy knowledge ecosystem in the organization for overall growth and performance.

## 6. Conclusion

It is important to note that there is limited role of extrinsic reward systems in the knowledge ecosystem. In order to support cross-functional collaboration, organizations must examine the roles of members, their interests, learning opportunities, work challenge and scope for growth within the organization. Organizations must focus on nurturing knowledge-sharing culture, climate of trust, willing participation and empowerment among members. The organizational challenge is to shift focus from traditional compensation based monetary reward mechanisms to innovative reward strategies

that are focused on inner needs of employees and serves to build greater satisfaction and sense of well-being.

The knowledge ecosystem that is naturally vibrant, communicative and evolving holds great opportunities for creative forms of rewards, facilitate deeper understanding of the needs of the human capital and generate smooth collaboration across functions for organizational growth. The knowledge ecosystem thus holds the answer to nurturing collaborative cultures characterised by self-directed, shared purpose for individual motivation and engagement and group and organizational development and growth.

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