Tacit Knowledge Sharing In Technology-Based Firms: Role Of Organization Citizenship Behavior And Perceived Value Of Knowledge

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Abstract — Sharing of Tacit Knowledge is a challenge but provides enhanced performances and rapid innovation in organizations. For technology-based firms sharing of personal professional expertise i.e. tacit knowledge is an essential activity. This research explores the issue of tacit knowledge sharing from a behavioral perspective and focuses on the formation of intentions and attitude toward tacit knowledge sharing. As there is an increase in the interest of tacit knowledge sharing, this study conducts a systematic literature survey and records key individual-level factors which influence tacit knowledge sharing. Furthermore, this research paper highlights two novel factors, Organization Citizenship Behavior (OCB) and Perceived Value of Knowledge (PVK) and discusses their role in influencing the Intentions to Share Tacit Knowledge (ISTK). The research further examines the mediating role of Attitude towards Tacit Knowledge Sharing (ATKS), proposes a conceptual model and invites further empirical verification.

Index Terms — Tacit Knowledge Sharing, Intentions, Attitude, Organization Citizenship Behavior, Perceived Value of Knowledge, Theory of Reasoned Action, Knowledge Management.

1 INTRODUCTION

Essentially, knowledge resides within individuals and, more specifically, in the employees who create, store, access, recognize, and apply knowledge in carrying out their tasks [1]. When knowledge sharing is limited, the chances are that there are knowledge gaps which would give rise to low production, limited innovation [2] and constrained work outcomes [3]. According to a report, fortune 500 are losing around 31.5 billion US dollars per year due to employees failing to share knowledge [4]. Considering knowledge intensive companies such as the software houses/IT companies, sharing expert knowledge is a key process and necessary for effective software teams [5]. It is worth noting that both turnover rates and brain drain are quite common in the software industry due to the nature of the job as well as the work being mostly project based. This means that a substantial number of employees are hired for specific projects only. At the end of the project, redundant staff is laid off causing brain drain. For the remaining employees it causes stress, thus forcing remaining employees to look for better opportunities causing an efflux on involuntary and voluntary turnover. This means, companies lose experienced and qualified employee and their tacit knowledge. A remedy to this problem could be the establishment of knowledge management systems, whereby the expert knowledge of the professionals can be captured/shared for the benefit of the organization. Many studies have highlighted the importance of knowledge sharing and through sharing of knowledge organizations have become more efficient, innovate quickly, bring higher quality products/services in the market hence become more competitive [6], [7], [8], [9], [10]. At the individual level the movement of knowledge across individual and organization is dependent on employees’ knowledge sharing behaviors. These behaviors are based on attitudes which are positive/negative beliefs (derived from past similar experiences) [11]. Interestingly the term knowledge itself has certain ambiguities and used interchangeably with the term Information. It is also believed that explicit knowledge is information, and, on the hand, real knowledge is tacit [12], [13]. The sharing of tacit knowledge would require greater effort as compared to sharing of explicit knowledge [7], [14], [15]. Number of factors facilitate or impede professionals to share their tacit knowledge. Organization needs to consider these factors prior to the developing strategies for sharing of the tacit knowledge in their firms [16] [14].

The following sections first discuss the root definition of knowledge and its classification to bring out the difference between them; second, it briefly covers the domain of Knowledge Management, thirdly describes how intentions are formulated and fourthly lists individual level factors which influence tacit knowledge sharing as a result of a systematic survey. Finally, two new novel factors are discussed and their relationship with tacit knowledge sharing and proposes a conceptual model.

2 TACIT VS EXPLICIT KNOWLEDGE

Knowledge is the human understanding of a field of interest attained through training, observation and experience [17]. A popular categorization of knowledge is tacit and explicit knowledge. This classification, initially proposed by Polyani’s in 1966 [18]. Based on this classification I. Nonaka and H. Takeuchi [19] further defined Explicit Knowledge which can be documented, archived, codified, formalized, easily communicated, transferred and shared between individuals. These includes theoretical approaches, plans, business documents, manuals, databases, guidelines etc. Tacit Knowledge, in contrast, is rooted in an individual’s ideas, actions, experiences, values. This type of knowledge is far more difficult to write down and formalize, [19]. In the context of a knowledge worker, the tacit knowledge could be termed as Personal Professional Experience (PPE) obtained after tackling specific work-related task. Tacit knowledge sharing can lead to high performances in organizations particularly technology-based firms as these organizations have a greater advantage in developing new products.
quickly.
I. Nonaka and H. Takeuchi [19] stated that knowledge creation is a spiral activity and created by the interaction between the tacit and explicit knowledge and organizations play an important role in activating the explicit and tacit dimensions of knowledge. Following are few strategies recommended to facilitate tacit knowledge sharing [20].

(1) Social Networks: Used for collaboration in order to share tacit knowledge. They provide a platforms/forum for discussion and allows participants to learn through dialogue and discourse with the participants. Some researchers suggest that this kind forum is more efficient than the face to face discussion [21].

(2) Making one’s work visible: In this strategy the owner of the tacit knowledge intends to share their knowledge by reporting how things are accomplished. This an effective way for example a surgeon using Google Glass can share a surgery procedure with his students.

(3) Story telling: It is also an effective way to communicate the tacit knowledge. Story telling is centuries old tradition and we are hardwired for this mode for learning. For example, video recording of interviews having tonal and visual contents makes this medium an attractive way to share tacit knowledge [22].

(4) Routine Recording of Lessons Learned: Is another way where a video or audio session of a debriefing session at the end of a project. These kind of exercises are performed on routine bases as it ensures that the lessons gained during the project is shared with individuals who did not participate in the debriefing session. Furthermore, when this session is stored in a repository the new employees to the organization can gain insight into the past projects.

(5) Mentoring: Is traditional way to share tacit knowledge. In it one to one guiding approach is used and is very effective way to share tacit knowledge. M. Leonard, D., Barton, G., & Barton [23] suggest that mentoring consists on observation, partnering, practice and collectively problem solving.

Sharing of Tacit Knowledge may cause risks to an individual as he/she may lose their competitive advantage over colleagues [24]. These risks/challenges could be at individual, organizational and technological level. At the individual level personality traits, attitude towards sharing, temperament, pride of ownership of knowledge, lack of time, low awareness of benefits of the knowledge, lack of social network and interpersonal skills etc. May hinder the sharing of tacit knowledge [25]. At the organization level bureaucratic leadership style, trust, fairness in the organization, downsizing, limited resources, inflexible structure, culture/norms, organizational support may restrict the sharing of knowledge [26], [27], [28]. At the technology level, sharing of tacit knowledge Information Technology has been identified as a major knowledge sharing enabler[29][30] but a mismatch of technology with the intended user, limited training, maintenance of I.T systems [32], [33].

It is important to note that while comparing the factors affecting tacit knowledge and explicit knowledge, difference their effect maybe observed. For example, in the study by S. Cornee (2014) [15], the role of rewards on influencing the sharing of tacit knowledge and explicit knowledge differs as the relationship of rewards is positive with explicit knowledge and not with tacit knowledge. Similarly, in another study by S. Panahi, J. Watson, and H. Partridge (2012) [16] the effect of trust on tacit and explicit knowledge sharing showed varied level of significance i.e. the relationship of trust with knowledge sharing was more significant for tacit knowledge as compared to explicit knowledge. Therefore, researchers need to be sensitive to the effect of the different factors and propose appropriate measures to instigate the type of knowledge sharing needed in the organizations [13].

3 KNOWLEDGE MANAGEMENT
Knowledge management (KM) is the process of creating, sharing, using and managing the knowledge and information of an organization” [34]. The objectives of knowledge management system are to make use of knowledge within an organization. Knowledge management can also define as “a cyclical system that enables an organization to efficiently achieve its objectives by having the capacity to convert tacit and explicit learning into practice, better planning and execution” [35]. Hence the organizations need to capture their tacit knowledge and convert it into explicit so the organization and its employee can benefit from it. The core domains of Knowledge Management consist of technology, people/culture and processes/structure [36]. Although the technology and process may be available to foster knowledge sharing, but first the individual who has the tacit knowledge needs to be willing to share their tacit knowledge. Therefore, the understanding of individual level factors influencing the behavioral aspect of knowledge sharing is important. The next section covers an underlying behavioral theory which may help to explain the issue of attitude and intentions formation for tacit knowledge sharing.

4 ATTITUDE AND INTENTION:
Attitude is described as the way one feels towards a behavior and intention is a commitment to carrying out an action in the future. A popular model used in understanding intentions is known as the “Theory of Reasoned Action” (TRA) proposed by I. Nonaka and H. Takeuchi[11][37][38]. The theory states that behavior is determined by the individual's intentions to perform the behavior and this intention is, in turn, a function of the person’s attitudes and subjective norms. According to the TRA, attitudes are key determinants of intentions and are influenced by the behavioral beliefs which we have regarding the outcomes of a specific behavior. For example, a person believes that appearing for the driving test without practice resulted in his failure and when she/he practiced for a month she/he passed. So, the behavioral belief formed of the person is that “practicing for a month is equal to success and not practicing will result in failure”. Meaning that the person evaluates that practicing for a month is good and not practicing is bad. Similarly, when a person while sharing his/her tacit knowledge resulted in recognition and respect then for that person sharing knowledge is good on the other hand if sharing of tacit knowledge resulted in the loss of power and no recognition then sharing of knowledge is bad. So, the TRA postulates that a certain behavior leads to a desirable outcome then a person would have a positive/negative attitude towards behavior. Attitude along with subjective norms will help formulate the Intentions towards the behavior. In other words, intentions are formed by the positive or negative attitudes of a person towards self-performance of the behavior which leads to the performing of the actual behavior. Empirically the relationship between attitude and intentions has been tested by researchers such as by [38] and earlier I. Y. L. Chen, N. Chen, and Kinshuk [39] in their study identified that in a virtual community the attitude for sharing of
knowledge is positively related to the intentions to share tacit knowledge. In a similar study by S. Wang and R. A. Noe [40] it indicated that intention formation for knowledge sharing is influenced by both subjective norms and attitude, but the attitudes exhibited a greater influence. C. Lee, S. W. Wang, M. K. Hsu, and S. Jan [41] in their research empirically tested that attitude towards watching safety briefing videos influenced the intentions. To further explore the factors which may influence the formation of attitude and intention to share tacit knowledge a systematic literature survey is covered in the following section.

4 METHODOLOGY
A great number of research articles on factors affecting knowledge sharing have been written but there is a dearth of researches on factors which influence tacit knowledge sharing more so for individual-level factors. Research articles from popular online databases Emerald, Science Direct, EbSCO and Scopus were searched for articles studying the effect of different factors on knowledge sharing. Some 2594 articles were found. Whereas systematically searching on keywords “tacit knowledge sharing-factors” with unspecified time period, total of 66 research articles were found. Out of which 46 were in academic journals and 20 conference papers. To filter out the articles which address individual-level factors affecting tacit knowledge sharing, content analysis of the 66 articles revealed that 14 articles which were relevant. Further scanning of these articles was conducted to list down the most common factors understudy in these research articles. Some 16 factors have been identified which were Individual-level factors considered to influence tacit knowledge sharing. Following is a list of the factors:

TABLE 1: INDIVIDUAL LEVEL FACTORS (TACIT KNOWLEDGE SHARING)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Individual Level Factors</th>
<th>Dependent Variable</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Instrumental Ties</td>
<td>Tacit Knowledge</td>
<td>42</td>
</tr>
<tr>
<td>2</td>
<td>Personality Traits</td>
<td></td>
<td>43, 44</td>
</tr>
<tr>
<td>3</td>
<td>Job Satisfaction</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>4</td>
<td>Subjective age</td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>5</td>
<td>Autonomous motivation</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>Motivation</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>7</td>
<td>Individual motivation</td>
<td></td>
<td>44, 50</td>
</tr>
<tr>
<td>8</td>
<td>Self-Efficacy</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>9</td>
<td>Trust</td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>10</td>
<td>Swift Trust</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>11</td>
<td>Identification based trust</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>12</td>
<td>Information based trust</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>13</td>
<td>Knowledge Internalization</td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>14</td>
<td>Knowledge-based Individual Task Technology Fit</td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>15</td>
<td>Attitude</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>16</td>
<td>ICT Know-how and skills</td>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

The list is not exhaustive but aims to provide readers with an overview of the different factors which have been researched in the context of tacit knowledge sharing. As the interest in the issue of tacit knowledge sharing is increasing new and unexplored potential factors are being highlighted and novel variables/antecedents to tacit knowledge sharing need probing. Taking guidance from the literature this research intends to explore the role of few novel antecedents to the sharing of knowledge. At the individual level variables such as self-efficacy, personality, perception, altruism and knowledge power are future research areas which need further probing [40]. Researching existing literature for studies that empirically test the effect of Organization Citizenship Behavior i.e. altruism behavior on tacit knowledge sharing is limited. Literature also indicates another gap and needs investigation i.e. the concept of Perceived Value of Knowledge (PVK). The extant research on the effect of PVK on tacit knowledge sharing is scarce [54]. The next section discusses each of them in more detail.

5 ORGANIZATION CITIZENSHIP BEHAVIOR:
D. Katz [55] defines Organizational Citizenship Behavior (OCB) as “an employee behavior which is innovative and spontaneous activity and goes beyond typical role perception”. Organization’s knowledge workers are frequently asked for more involvement in their offices because individuals have a wealth of professional experience and there is a lot of potentials to contribute even more. Organizational citizenship behavior as defined by D. W. Organ [56] is a “discretionary behavior that contributes to the effectiveness of the organization and is not linked with formal extrinsic rewards”. OCB in employees can enhance organizational performances and can facilitate the proactive social culture of the organization. An I.T professional exhibiting altruism, would be forthcoming and can help create an environment for others to be more open and forthcoming as well [57], [58]. So employees exhibiting OCB may facilitate the smooth sharing of knowledge between individuals due to the aspect of the willingness to do so [59]; [60].

1. A popular taxonomy for OCB is by D. W. Organ [56] which consists of the following dimensions:
2. Altruism (Helping): It is the selfless concern for the welfare of others. Help others who overloaded with work.
3. Courtesy: Are the steps taken to prevent problems with other coworkers and does not abuse the rights of others.
4. Civic Virtue: To attends meetings that are not mandatory but considered vital. Keep abreast of the changes in the workplace.
5. Conscientiousness: Not take any extra breaks and obey company rules and regulations even when not being monitored.
6. Sportsmanship: Not to consume a lot of time cribbing about small issues and focus on the positive side of the things rather than what’s wrong.

6 PERCEIVED VALUE OF KNOWLEDGE
The perceived value of knowledge (PVK) is a new construct, introduced by D. P. Ford and D. S. Staples [54] and defined as the worth a person assigns to her or his own knowledge. Unlike the earlier constructs where the focus of value was on the uniqueness dimension, the researcher proposed a new comprehensive construct for value of knowledge [61]. The key question in their research was “what basis does a person value his/her knowledge?”. Based on qualitative analysis they proposed the following four dimensions to Perceived value of Knowledge:
1. Benefits Dimension: When you are considered as an expert, you have a sense of pride which gives you peace of mind and competitive advantage. For example, the owner of the knowledge believes that this knowledge “lets me keep my job and get paid.” Or this “knowledge makes me more valued by my coworkers and manager.”

2. Usefulness Dimension: The more useful and relevant knowledge is for the individual’s work, the more worth the knowledge has. For example, “this knowledge helps to meet the challenges of my job. Or it “makes me better at what I do”.

3. Uniqueness Dimension: Uniqueness is the extent to which the knowledge one has is distinctive from others’ knowledge. For example, “No one else has this type of knowledge”.

4. Source Dimension: Knowledge obtained from life tough experiences, family or a special teacher/ mentor. For example, “A mentor or someone important to me gave me this knowledge”, this “knowledge is based on my life experiences”, or this “knowledge was learned in the “school of hard knocks.” Collectively all 3 items are formative measures of the source dimension.

5. For all the four dimensions the word Knowledge may be replaced with Tacit Knowledge to obtain a more accurate perception regarding the value a person placed regarding their Tacit Knowledge.

7 CONCEPTUAL FRAMEWORK AND HYPOTHESIS

The following section first discusses the direct relationships of the antecedents with intentions and later through attitude as a mediator.

7.1 OCB and Intentions to Share Tacit Knowledge Sharing:

OCB is a voluntary act and performed because it makes people feel satisfied and happy by helping others. Sharing of tacit knowledge may be considered as a noble act as it allows knowledge workers such software developers, network administrators, database experts to help their colleagues to do their jobs better. Many studies explored the role of OCB i.e. (“enjoyment helping others”) in knowledge sharing [62], [63], [64], [65], [66], [67]. H. Lin [66] found that enjoyment in helping others was positively correlated to both donating and collecting of knowledge while A. Kankanahalli, B. C. Y. Tan, and K.-K. Wei [67] also reported positive relationship between enjoyment helping others and knowledge submissions to an electronic knowledge repository. But in some cases, the relation was not clearly established such as in the study by [68] who reported a low significant relationship between enjoy helping others and the helpfulness of contributions to an electronic network of practice, on the other hand, the relationship between enjoyment helping others and the number of submissions was non-significant, further analysis revealed that altruism dimension was not a significant factor in knowledge sharing [69]. In another study the role of OCB was also studied in Taiwanese organizations and the relationship between OCB dimensions and knowledge sharing behavior was conducted and the findings of the study showed that all the components (i.e. altruism, courtesy, civic virtue, sportsmanship, conscientiousness) had a positive and significant impact on knowledge sharing behavior [63]. OCB does influence the intentions to share knowledge [70] and the study by A. Amin, M. F. B. Hassan, and M. B. M. Ariffin [65] established that there exists a direct impact of OCB on knowledge sharing intention and behavior. Previously C. Hsu and J. C. Lin [71] in another study concluded that the individuals with higher OCB and having a higher will to involve in the welfare of the organization would be more inclined towards knowledge sharing [72]. The relationship between OCB and knowledge sharing was tested for open source developers and the individual with OCB showed stained support to contribute to the development of the open source information systems [73]. So, the role of OCB has a potential antecedent to the sharing of knowledge. No specific study has been found which has tested the interrelationship between OCB and Tacit Knowledge Sharing.

In light of the above discussion, we theorize that organization citizenship behavior demonstrated in the past would influence the tacit knowledge sharing intentions of individuals in the future.

H1: There is a positive relationship between OCB the and Intention to Share Tacit Knowledge.

7.2 Perceived Value of Tacit Knowledge and Tacit Knowledge Sharing Intentions

Generally, people are motivated to share beneficial and useful and beneficial tacit knowledge gained after the experience. Sharing tacit knowledge does not reduces its value because it does not become any less beneficial or useful. On the other hand, sharing tacit knowledge increases its value to the owner as it may give them more benefits such as more reverence from coworkers. A single-dimensional view of Value of tacit knowledge revolves around the trait Uniqueness, which leads to the belief that sharing of knowledge would result in reduction of its value. Whereby the concept of value may have a more holistic view and may include dimensions: Benefits, Uniqueness, Usefulness and Source. Collectively they form the perception of Value [54]. While broad perception of the Value will counterbalance the singular perception, whereby the value placed on knowledge would be based on all the four dimensions and develop a positive perception towards sharing the knowledge. In other word if uniqueness of knowledge creates a negative feeling towards sharing, the usefulness and benefit dimension may create a positive feeling towards sharing of knowledge. Z. Castañeda and D. Ignacio [74] in their study verified the positive relationship between PVK and Knowledge Sharing intentions as reported by D. P. Ford and D. S. Staples. No additional studies were found on the relationship between PVK and knowledge sharing or tacit knowledge sharing. Based on the above we state that there is a positive relationship between the perceived value of tacit knowledge and tacit knowledge sharing intentions. Hence, we theorize the following hypothesis:

H2: The higher the Perceived Value of Knowledge Sharing the higher will be the Intentions to Share Tacit Knowledge.

7.3 Mediating role of Attitudes between Organization Citizenship Behavior and Intentions to Share Tacit Knowledge:

The individual's past behavior is indicative of his future actions. Employees demonstrating traits of being forthcoming, supportive, helpful and being conscientious of his/her work and work environment would certainly develop a positive attitude towards sharing of this tacit knowledge. An individual
who has strong organization citizenship behavior practices would have a positive attitude towards activities which help his colleagues and organization. Therefore, it is posited that employees who have demonstrated OCB in past would have a positive attitude towards knowledge sharing so that his colleagues and organization benefits from and resultant would have positive intentions to share their tacit knowledge within their organization he/she would not shy away when asked to share his/her knowledge. Therefore, from the above statements the following hypothesis are formulated:

H3: The attitude acts as mediator between Organization Citizenship Behavior and the tacit knowledge sharing intentions.

7.4 The mediating role of Attitudes between Perceived Value of Tacit Knowledge and Intentions to Share Tacit Knowledge:

As defined by D. P. Ford and D. S. Staples [54], Perceived Value of Knowledge is the usefulness, benefits from having the knowledge. Sharing of knowledge can provide benefits to organizations and considering tacit knowledge which is unique but at the same time of great benefit to the organization individuals will be inclined to share it as it will help these individuals to gain respect/reverence in their workplace. The feeling of being respected would first develop a positive attitude towards knowledge sharing, which would then influence intentions and behavior. Hence it is proposed that when owner of the tacit knowledge perceives his knowledge valuable, he/she then would have a positive attitude towards the sharing of tacit knowledge which in result would influence the intentions. From the above statements the following hypothesis is formulated:

H4: The relationship between the perceived value of tacit knowledge and the tacit knowledge sharing intentions is mediated by the attitude towards tacit knowledge sharing.

A conceptual framework is proposed to measure the impact of Organizational Citizenship Behavior (OCB) and Perceived Value of Tacit Knowledge (PVTK) on Intentions to Share Tacit Knowledge (ISTK) with mediating role of Attitude toward tacit knowledge sharing as shown in figure 1.

![Figure 1: Conceptual Research Model](https://example.com/f1.png)

8 CONCLUSION:

The study was conducted to understand the issue of tacit knowledge sharing from a behavioral perspective. A systematic literature survey of individual-level factors was conducted to indicate the researched indicators for tacit knowledge sharing. Among these factors two novel variables, Organization Citizenship Behavior (OCB) and Perceived Value of Tacit Knowledge (PVTK) were identified. Against the backdrop of the Theory of Reasoned Action (TRA), both these factors were discussed and proposed to have a positive influence on attitude (Attitude for Tacit Knowledge Sharing) and intentions (Intentions to Share Tacit Knowledge). Further empirical research is needed to verify the proposed relationships of this study.

References


[51] W. Kucharska, R. Kowalczyk, and M. Kucharski, “Trust,


