Knowledge Transfer within Organizations: A Social Network Perspective

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Abstract

Knowledge is regarded as a key strategic resource for organizations. The proliferation of knowledge management systems reflects the importance of the creation, transfer, storage, retrieval, and use of knowledge within firms and across firm boundaries. A variety of conceptual models exist describing mechanisms through which knowledge is transferred between individuals within an organization. However, the synthesis of various conceptualizations of knowledge transfer remains undeveloped. The application of networking theories could be useful in describing how knowledge disseminates throughout an organization in accordance with technological diffusion and assimilation. Drawing upon extant literature, a network view of knowledge transfer and creation is presented. The proposed model portrays knowledge as complicated and multifaceted, containing both tacit and explicit elements, and describes how knowledge is created and transferred through the routines and directives shared between individuals within an organization.

1. Introduction

The management of knowledge resources is particularly important in markets where firms compete on knowledge-based competitive advantages [18, 45]. A clear understanding of the processes through which knowledge is transferred is critical for the development of more effective knowledge management systems. This paper examines how knowledge is transferred throughout a firm’s network of actors.

Extant research about knowledge transfer emerges primarily from a knowledge-based perspective where knowledge is a firm’s primary strategic resource, and communication theories that describe how information is exchanged between individuals. The cybernetic tradition of communication plays a prominent role in information systems research and presents communication as a process by which information is encoded by a source, transmitted to a receiver, and then decoded by the receiver [9]. We expand on the knowledge transfer processes supported by the knowledge-based theory and utilize social networking theories to develop a new model of knowledge transfer that has practical implications for organizations.

A knowledge-based perspective emerged from resource-based theories and examines the value of knowledge and its impact upon an organization’s assets, processes, culture, and structure [18]. Knowledge-based resources are difficult for competitors to reproduce and the application and combination of knowledge resources are considered viable ways to achieve and sustain competitive advantages [45]. Firms reap competitive benefits from the management of knowledge made manifest in organizational rules and routines. A well-developed knowledge network can provide significant competitive advantages [10].

Extant research describes how formal knowledge management systems capture and diffuse knowledge within organizations for strategic advantages [34]. However, the study of formalized information systems neglects critical tacit components of knowledge, which can be the source of knowledge-based competitive advantage [23]. Consequently, there is a need for a better understanding of the processes through which both tacit knowledge and explicit knowledge are transferred. We posit that knowledge is exchanged between actors in social networks as they interact and routines and directives are idiosyncratic means to accumulate and transfer knowledge. The asymmetric characteristics of these two methods for transferring knowledge can have serious consequences on the knowledge transferred between individuals and subsequently knowledge management within a firm.

In this study, we unite disparate conceptual models describing both tacit and formal elements of knowledge with a model of dyadic communication that can be applied to a larger social network. We first examine extant literature about knowledge, knowledge transfer, and the relevance of social networking theories. This is followed by the synthesis of important theoretical contributions to our understanding of knowledge transfer and the proposal of a model representing the dyadic transfer of knowledge. Finally, we discuss implications of the proposed model to theory, practice, and future research.
2. Characteristics of Knowledge

The distinction between data and information is pertinent to explaining the importance of managing knowledge, as opposed to managing information [49]. This epistemological distinction forms the basis of the hierarchical view of knowledge, which suggests that data can be converted into information, and information has the potential to become knowledge [5]. Data are raw numbers or facts that are processed in a specific context to become information. The contextual elements embedded in information make information more valuable than data. Once individuals interpret information and personalize it with current and historical contexts, that information becomes knowledge. An individual’s knowledge is shaped by cognitive processes and consequently knowledge exists only in the mind of an individual [13]. This outlook requires that knowledge either be articulated or presented in order to be transferred between individuals. The critical difference between knowledge and information is the theoretical foundation for distinguishing the idiosyncratic processes through which tacit and explicit knowledge are communicated, and how knowledge is maintained by an organization.

There is an array of methods for defining distinct types of knowledge. Alavi and Leidner [2] classified ten different knowledge types: tacit, explicit, individual, social, declarative, procedural, causal, conditional, relational, and pragmatic. In contrast, Krathwohl’s [25] taxonomy only contained factual, conceptual, procedural, and metacognitive knowledge. A common method for examining knowledge is to separate tacit knowledge from explicit knowledge. Although there have been criticisms of the concept of tacit knowledge [16], it remains a widely-used basis for research about knowledge management. Distinctions between tacit and explicit knowledge can cause important theoretical differences, so an unambiguous semantic examination of these concepts is useful.

Tacit knowledge was described as “things that we know but cannot tell” (p. 601) [36] and thus can only be transferred through interaction. Tacit knowledge is not easily articulated or formalized, and it is typically considered to be more valuable than explicit knowledge. Describing a deep understanding of phenomena, tacit knowledge is often related closely to procedural knowledge or “know how”. Procedural knowledge and “know how” represent an understanding of how actions are orchestrated and are difficult to fully articulate [14, 26]. In contrast, explicit knowledge is formal and systematic and it can be shared, stored, or processed [32]. Explicit knowledge is encoded, typically through the use of language or symbols, and is easier to share than tacit knowledge.

Explicit knowledge is associated with declarative knowledge and “know why”. Declarative knowledge and “know why” consist of descriptive elements [14, 26]. Implicit knowledge may be regarded as a third form of knowledge and represents knowledge that could be articulated, but has not yet been [30]. However, we consider this distinction to be unnecessary because we argue that all tacit knowledge may potentially be described explicitly at some future time, and for our purposes this hypothetical distinction is superfluous. Instead, we take the position that tacitness and explicitness of knowledge represent the degree to which knowledge has been codified [33], and for the sake of parsimony refer to tacit and explicit knowledge in absolute terms.

Codification is the process for transforming knowledge into a format that makes it possible for it to be stored or transferred as information [22]. Some scholars contend it is more difficult to code tacit knowledge than explicit knowledge [49]; however, other scholars use encoded knowledge as a synonym for tacit knowledge, and decoded knowledge as a synonym for explicit knowledge [19]. Though distinct concepts, both perspectives complement each other when taking the position that tacit and explicit are two ends of a scale [33]. We take the position that tacit knowledge may be codified as part of the communication process [43], but it requires cognitive effort to articulate tacit knowledge.

All forms of personal knowledge require some level of cognitive function, and knowledge is entangled with the processes which create and transfer it [40]. While it has been proposed that knowledge is maintained by an organization through its rules and procedures [27], we argue that knowledge only exists in the minds of individuals, though the information critical for the development of knowledge is embedded tacitly within organizational routines and explicitly within organizational directives. Thus, organizational knowledge is a manifestation of the knowledge of current employees and their ability to develop new knowledge from organizational routines and directives, many of which may be the application of other employees’ knowledge. Routines and directives may store the elements to develop knowledge, and deliberate efforts can improve the ability of routines and directives to effectively communicate messages, but the development of knowledge ultimately requires personal cognition.

The division of knowledge systems into knowledge possessed by individuals and information stored in organizational routines and directives resembles the division of organizational knowledge systems into “participants” and “artifacts”. In this classification, “participants” generally refers to employees and
“artifacts” are objects that contain elements sufficient to create or develop knowledge without possessing any innate cognitive abilities [20]. We diverge from the notion that computer-based systems contain knowledge; most information systems are designed to improve other participants’ abilities to efficiently interpret and develop knowledge, and do not perform any pseudo-cognitive processes. However, some intelligent systems are capable of interpreting context in a similar manner as an individual and may represent a step towards the development of non-human knowledge participants with cognitive abilities sufficient to develop individual knowledge.

The independent creation of knowledge is largely outside the scope of this study; however, we consider individual knowledge creation to be instances of knowledge transfer where the sender and receiver are the same individual. Individuals learn through the application of knowledge and the performance and interpretation of individual routines (e.g., exploring the results of routines or how they may be altered) or the exposure to articulated knowledge (e.g., an individual reflecting on or formulating their thoughts). Therefore, we posit that knowledge creation and transfer are intertwined, and use the term knowledge transfer to refer to the entire process involving the cognitive efforts of a sender and receiver to respectively parcel and comprehend the concepts being communicated.

3. Processes of Knowledge Transfer

The distinctions between tacit and explicit knowledge are useful in understanding the mechanisms through which knowledge is transferred between individuals and how knowledge transfer is facilitated through a firm’s routines and directives [18]. Directives are explicitly stated instructions and rules. Routines are actions based on unstated conventions that were derived from previous experiences and can embody the application of knowledge within an organization [44]. Routines are the result of the knowledge of the individual performing them, but routines are not outwardly articulated or explained. As Alavi and Leidner [2] explain, “information is converted to knowledge once it is processed in the mind of individuals and knowledge becomes information once it is articulated and presented in the form of text, graphics, words, or other symbolic forms” (p. 109). Reconciling this perspective with the notion that knowledge can only exist in the mind of an individual, we argue that information can be presented through both explicit communications and symbolic routines. Knowledge is developed through exposure to either explicit forms such as documents, graphics, and equations, or tacit symbolic forms such as the observation of, or participation in, routines. Knowledge is developed by individuals through the interpretation of the routines and directives they are exposed to, and transferred to others through interaction. Consequently, information is manipulated and changes forms during knowledge transfer. A number of sequential phases describing the conversion of knowledge into tacit and explicit elements have been described in the SECI process [32]. The SECI process has been useful in describing how knowledge is accumulated and transferred in organizations [31] and includes externalization, combination, internalization, and socialization as successive phases of knowledge creation and transfer.

Socialization is the sharing of tacit knowledge through experience, such as job shadowing. Externalization is the process of making tacit knowledge explicit through articulation. Organizations may attempt to accumulate and store the knowledge of employees in manuals, databases, and patents so that knowledge can easily be shared within the organization and retained for future use [15]. However, we argue that it is not knowledge that is stored in these documents, but the seminal information needed to develop knowledge that is actually being shared and interpreted in knowledge transfer. An expert in a particular subject writing his or her advice is an example of externalization. Combination is the process through which different sets of explicit information are integrated to form new knowledge. Aggregation tools, like executive dashboards, assist in performing combination. Internalization is a personal process where one learns by using reference sources. A worker consulting a technical manual and learning a new method or process is an example of internalization.

The SECI process has been criticized for its lack of practical application and theoretical inconsistencies [17]. Two prominent points of criticism are (1) that the SECI model focuses on knowledge flows in Japanese manufacturing environments where tacit knowledge and routines are overemphasized, and (2) that knowledge development does not necessarily need to begin with socialization [17, 24]. We agree that tacit knowledge embodied within organizational routines represents an important method for transferring knowledge, but also recognize the importance of explicit communication in the development of knowledge. Consequently, we present a model of knowledge transfer where knowledge can begin at any point within the SECI process and where knowledge can be developed through explicit processes as well as tacit mechanisms. These adjustments provide a model that extends the practicality of the SECI process for research and practice by elucidating the individual mechanisms through which knowledge is transferred.
For knowledge to be successfully transferred between individuals, the individuals must have a shared understanding about the information they are communicating [28]. Converting knowledge to information, transferring the information, interpreting the information, and then converting the information back to knowledge are subsumed in the process of knowledge transfer. There is some degree of subjectivity required for the recipient to determine the intended meaning of a message, and the shared interpretation of information is critical for successfully transferring knowledge [13]. Some elements, such as precise descriptions of the meanings of each word, are excluded from a message to improve communication efficiency but may result in misinterpretation. For example, a project manager may ask for “everything we know” about a proposed system during a planning meeting, while his/her intention is to review information relevant to the inherent risks associated with the project prior to system installation. For the message to be effective, the other attendees of the meeting must share an understanding about which elements of the project the manager considers relevant or risky and the manager’s expectations for when he/she will receive this information. Complex messages may also prove difficult for receivers to correctly decode [26]. Shared understandings between the senders and receivers of messages are necessary for successful communication and shared understandings are developed through social interactions [4, 32]. The characteristics of the message, the context, the organizational structure [35], and the actors [44] are a few of the factors that have been identified as having impacts on the successful transfer of knowledge.

In contrast to articulated knowledge, routines within an organization can serve as a collective memory of the individuals who comprise that organization [8]. Organizational routines contribute to the stores of knowledge available to an organization as employees interact and knowledge is applied in useful ways [29]. The possession of knowledge is insufficient to create value for the firm, and knowledge is only valued when it leads to benefits [1]. The application of knowledge is an important practice where recipients identify and resolve unexpected problems with newly acquired knowledge and apply it through routines [44]. Routines are described as means for storing organizational knowledge in similar manner as manuals, databases, and patents store information [5, 8, 18, 26, 32]; however, we argue that routines alone do not contain knowledge, and using routines to store or transfer organizational knowledge requires cognitive processing from individuals. Instead, we consider routines be both an application of knowledge and a means to store information from which knowledge can be generated. When examining a single individual there is little distinction between the routines they perform and the knowledge they possess and these distinctions are unnecessary. Conversely, when examining multiple actors these distinctions are essential. A person observing the actions of another cognitively interprets the routines the other performs, and adjusts his/her tacit knowledge accordingly. This insight can be applied to describe how individuals constantly interpret new information acquired from their actions and update their tacit knowledge. This dynamic perspective of knowledge does not require directives or routines to be preconceived before actions because knowledge, routines, and directives are constantly developing as a result of experience.

4. Knowledge Transfer within Networks

Social network analysis is a useful approach for describing the mechanisms through which knowledge is transferred between individuals. A key advantage of using social network analysis is the ability to examine relationships between individual actors and clusters of actors within a predefined group, like an organization [47]. Social network analysis allows us to examine how changes at high levels of aggregation can have repercussions at the organizational, work-unit, and individual levels [7]. Social network analysis provides tools for spanning group and individual levels of analysis and describing how organizational changes to knowledge management can improve knowledge transfer within a firm. However, to effectively utilize social networking theories, we must first clearly define a dyadic exchange. As shown in Figure 1, at the heart of social networking models are a series of dyads.

Figure 1. Network model of dyadic exchanges (adapted from Wasserman and Faust [47])
The transfer of knowledge within a network is dependent upon the characteristics of a series of dyadic relationships [6, 19, 21]. The awareness of how knowledge is transferred between individuals is central to our understanding of the dyadic relationships that comprise knowledge networks. A network perspective posits that knowledge transfer in organizations is the process through which individuals are affected by the experiences of others in dyadic exchanges [3, 44]. A clear understanding of the dyadic relationships within a knowledge network can elucidate how network structure and the position of an actor within a network affect access to information and performance [37, 46] and how organizational changes to knowledge management systems affect organizational performance. In the following section, we will attempt to synthesize the extant literature and develop a model of knowledge transfer in a dyadic relationship. This parsimonious dyadic relationship can be expanded using social networking theories to describe organizational phenomena within a network of actors.

5. Critique of Knowledge Transfer Models

A number of significant theoretical contributions have already been synthesized into the model of knowledge transfer developed by Alavi and Leidner [2]. A few of the notable theoretical contributions their model contains include: the distinction between tacit and explicit knowledge [36], knowledge application mechanisms [18], and the spiral SECI process [32]. These theoretical contributions represent core elements of knowledge management research [11]. While this synthesis creates a useful model of how knowledge is transferred among groups and individuals, we offer three key criticisms. First, the definitions of tacit and explicit knowledge require that they be shared in distinctive ways. Tacit knowledge can only be transferred through experiences [36], and thus it should be impossible for individuals to gain tacit knowledge directly from another individual’s mind. Without recognizing intermediate processes that externalize knowledge through experience, this model implies the direct transmission of intact tacit knowledge is possible between individuals.

Second, Alavi and Leidner [2] focus on the interaction between knowledge applications and tacit knowledge. The application of knowledge occurs through both directives and routines; therefore, the model must be expanded to effectively represent explicit knowledge transferred through directives. Directives (i.e., rules, standards, and procedures) are often considered to be subsumed within routines [18], but the inconsistencies resulting from this interpretation of application portrays a process whereby explicit knowledge cannot be acquired before a deep tacit understanding of phenomena has occurred. We contend that although a tacit understanding of phenomena is useful, it is feasible to acquire and share explicit knowledge without performing the deeper levels of cognition required for developing a tacit understanding extending beyond the message that is shared, as in the case of recitation.

Finally, the relationships between individual and group knowledge have plagued knowledge transfer research since its inception, and many solutions inelegantly distinguish between the two levels of analysis or have individuals act as intermediaries between groups [2, 18], but a network of dyads between individuals may be a more germane solution to integrating groups into models of knowledge transfer. A network model can be developed that describes which critical elements of knowledge are embedded in organizational routines and directives, and which elements are possessed by individuals. When compared using a social network schema, critical areas where routines have deviated from rules can indicate how changes to the knowledge of individuals have affected organizational routines. This information can be used in practical applications whereby managers can gauge the knowledge possessed by their employees, determine the extent to which the firm’s operations have deviated from directives, and develop strategies for refining organizational knowledge flows.

6. A Dyadic Model of Knowledge Transfer

Drawing on the core concepts of extant knowledge management literature, especially the proposed distinction between tacit knowledge and explicit knowledge [36] and the synthesized model by Alavi and Leidner [2], we propose a revised model of knowledge transfer between individuals, as shown in Figure 2. This model overtly separates knowledge applications into directives and routines. Directives and routines represent applications of knowledge, and are idiosyncratic methods by which knowledge is transferred within an organization [18]. A second critical component of our model is the integration of the SECI spiral [32], which is elegant, dynamic, and rich in theory but impractical [16, 17]. The dynamic interaction evident in the SECI process, is necessary to capture the iterative nature of knowledge, but makes parsimonious representation difficult in group-based models. Our dyadic interpretation provides a clear representation of how the use of routines and directives provides alternative paths for knowledge transfer. The
placement of the descriptive verbs used in the SECI model, and described in Table 1, lend structure to our model and clarify the types of actions taking place. This revised model portrays knowledge creation and transfer as complex processes with simultaneous and reciprocal flows. We submit that tacit knowledge can only be developed through the internalization of explicit knowledge known by an individual or the observation of, or participation in, routines; and explicit knowledge can only be developed through the externalization of personalized tacit knowledge or through the accumulation of directives. Routines and directives facilitate the transfer of knowledge, and reconcile confusing descriptions of the SECI process by portraying the intermediate processes in knowledge transfer.

We also expand the respective domains of combination and socialization to include the conversion of knowledge to and from routines, and to and from directives. A conventional interpretation of the concept of socialization as originally described [32] would regard socialization as the embodiment of tacit knowledge without recognizing the empathizing processes required to develop new tacit knowledge from observing others. Similarly, the definition of combination has been expanded to include both distributing and accumulating explicit knowledge through shared rules. The proposed model extends the SECI process and describes how knowledge is acquired, processed, and shared with others. We advocate a social perspective of knowledge transfer that suggests that one person’s ability to acquire new knowledge is ultimately tied to another person’s desire and ability to share his/her knowledge. We also position institutionalizing and adhering as processes through which routines and directives are altered by other actors in a network. These relationships are necessary in singular dyadic model to explain that routines and directives may be independently altered in response to the contributions of others within the firm. In a comprehensive network model, institutionalization and adherence would appear as a series of other independent dyadic exchanges.

Knowledge transfer is a dynamic and iterative cognitive process where the application of knowledge (i.e., routines and directives) functions as the mechanisms through which knowledge is transferred. Routines and directives do not have to be shared with others, but in contrast to cognitive processes like internalization and externalization knowledge applications occur outside of an individual’s mind, and are observable occurrences. Consequently, knowledge may be articulated by an individual without being shared with others or an individual’s routines may not be witnessed by others, but the knowledge has still been displayed as information others may interpret. Some information may never be examined by another individual (i.e., a video recording that is never watched or a manuscript that is lost or never shared) and knowledge remains embodied by a routine or directive. Routines and directives are both shared experiences, which multiple individuals can reference. When an individual learns from observing the actions of a specialist, knowledge is conveyed through routines.

Figure 2. Knowledge transfer dyad and processes
Table 1. Knowledge transfer activities

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Action</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Internalizing</td>
<td>&quot;the simple conversion of existing explicit knowledge to an individual's tacit knowledge&quot; [2]</td>
<td>By reading manuals about a programming language, a programmer can understand and anticipate basic syntax.</td>
</tr>
<tr>
<td>B</td>
<td>Externalizing</td>
<td>&quot;Externalization is the process of articulating tacit knowledge into explicit knowledge.&quot; [32]</td>
<td>An employee recollects on the &quot;tricks&quot; they have developed prior to retirement, so they can be shared with others.</td>
</tr>
<tr>
<td>C</td>
<td>Distributing</td>
<td>To spread articulated information, and make it available to others.</td>
<td>An employee can add a description of a new system to the organization's wiki.</td>
</tr>
<tr>
<td>D</td>
<td>Embodying</td>
<td>To give a tangible example to an abstract concept.</td>
<td>A salesperson intuitively knows which clients to chat with and which clients to be brief and formal with.</td>
</tr>
<tr>
<td>E</td>
<td>Accumulating</td>
<td>To gather or amass information from others.</td>
<td>Employees can receive new organizational regulations through e-mail.</td>
</tr>
<tr>
<td>F</td>
<td>Empathizing</td>
<td>To understand another person’s situation and feelings.</td>
<td>A new employee adapts to the meeting style within an organization, and show up early and with plenty of statistics to support their perspective.</td>
</tr>
<tr>
<td>G</td>
<td>Institutionalizing</td>
<td>To articulate rules, derived from experience, for a system.</td>
<td>An organization promotes the number of days without an accident to encourage safety, and rewards units exceeding 90 days.</td>
</tr>
<tr>
<td>H</td>
<td>Adhering</td>
<td>To follow rules, policies, or ordinances.</td>
<td>Employees follow the company policy to record each day's transactions within the day they occur.</td>
</tr>
<tr>
<td></td>
<td>Combination</td>
<td>&quot;Explicit knowledge is collected from inside or outside an organization and then combined, edited, or processed&quot; [32]</td>
<td>A managerial dashboard merges various sorts of information into a consolidated report, parts of which can be shared appropriately.</td>
</tr>
<tr>
<td></td>
<td>Socialization</td>
<td>&quot;Socialization is the process of converting new tacit knowledge through shared experiences&quot; [32]</td>
<td>An apprenticeship or job-shadowing are popular methods of socialization.</td>
</tr>
</tbody>
</table>

The prosed model reflects the prominent role an individual’s cognitive ability to interpret actions and decode communication play in knowledge transfer. Similarly, the importance of one’s ability to intentionally structure and communicate knowledge effectively through either routines or directives becomes apparent. The ability to encode and decode knowledge better than competitors offers competitive advantages which would be very difficult to replicate, and the ability to effectively share both content and context through the artful pairing of routines and directives could provide significant benefits in an organizational setting where knowledge may outlast its originator. A granular level of analysis allows the depiction of groups as a series of personal interactions that overtly recognize the distinction between human capital (e.g., knowledge, skills, and abilities of individuals within a firm) and organizational capital (e.g., institutionalized knowledge stored in databases, patents, manuals, systems, and routines [42]). However, a comprehensive perspective on organizational knowledge must also consider how knowledge is exchanged between individuals. Using dyadic exchanges to portray knowledge transfer among a social network integrates elements of transactive memory systems and describes processes through which knowledge is transferred without assuming knowledge is institutionalized throughout a firm.

Transactive memory systems explain how differences in individual memory or knowledge can create knowledge at a group level that is different than the sum of the group’s individual members. Transactive memory is not a simple sum of what people within the group know; it also includes what they communicate to each other during interaction and how relevant pieces of personal knowledge are fused together [48]. Consequently, an individual’s
unique information is often excluded from use in group-based decision making [41]. This perspective provides a better understanding of the mechanisms individuals use to integrate personal knowledge more effectively into the transactive memory of a group.

7. Theoretical Implications

A network model of knowledge transfer is useful for understanding how organizations store and maintain knowledge, because as a firm acquires or loses employees the knowledge resources available to that firm changes. Knowledge may be retained by the firm if it is embedded in organizational artifacts, as routines or documentation [20]. Our model has key advantages in investigating three prominent problems associated with models of knowledge transfer: (1) a better understanding of how content and context can become misaligned, (2) an improved method for examining how and why rare knowledge is often overlooked, and (3) an enhanced ability to examine asymmetric learning processes.

Tacit knowledge is often regarded as “know-how”, and represents the content of knowledge that is learned through routines [36, 40]. Although it is possible to reflect on the “know-how” stored in routines and explicitly articulate it, we argue that the cognitive processes of externalization and distribution must occur before tacit knowledge can be shared explicitly. In contrast, “know-why” is often stored explicitly as rules and is easily transferrable [14]. The division of routines and directives, as the processes for transferring tacit and explicit knowledge, describes an important demarcation between content and context of knowledge. For example, the disaster recovery policy for an organization represents the tacit knowledge of the firm’s employees after it has been externalized and distributed in the form of explicitly articulated steps the organization would follow should a disaster occur. However, the written plan is not a perfect representation of “know-how”, which can only be developed through the execution of the steps in the plan. This distinction is useful in describing a manner in which content and context can become misaligned as organizational routines and directives change independently [39].

The increasing intra-organizational autonomy required for specialization within a competitive environment can result in asymmetry between an organization’s directives and routines. Practical drift occurs as employees innovate and update routines based on newly acquired tacit knowledge. While the outcomes of some innovations may be desirable, practical drift represents the undesirable outcomes that result from the separation of routines and directives [38]. Human capital in the form of individual expertise is more dynamic than institutionalized organizational capital [42] and it is likely that employees will adapt their routines without always updating the accompanying organizational directives. Knowledge is highly contextual [39], and the separation of tacit knowledge from its explicit counterpart may result in the loss of important contextual elements [20]. While there may be some strategic advantages to not explicitly articulating important knowledge that competitors may copy [14], it is critical for managers to purposefully determine the extent of alignment between routines and directives.

Employees may develop new routines independently of the context and original purpose of important rules. For instance, after being defrauded an organization may choose to perform an additional, volitional auditing procedure. This type of volitional inefficiency is likely to be targeted as an unnecessary expense if the organization does not retain the intent of the decision. Another example involves centuries-old tsunami stones being credited for saving hundreds or thousands of lives after a tsunami struck the east coast of Japan in 2011 [12]. Tsunami stones are simply large stones with messages like “Do not build your homes below this point!” etched into them. These stones record directives meant to pass knowledge about disasters to future generations of coastal Japanese. In accordance with these stones, some residents would not build houses closer to the coast than the tsunami stone, while the building routines of others deviated from the archaic messages. The decision to build a house close to the shoreline can represent a measured analysis of risk. However, the loss of important context and the knowledge it provides for understanding the devastating magnitude of rare tsunamis blinded many coastal Japanese to the dangers of these infrequent disasters. It leads one to ponder in an organizational context, how many tsunami stones are being ignored, and more importantly, how many tsunami stones have been entirely forgotten?

8. Practical Implications

Our model suggests that practitioners should pay close attention to the alignment of routines and directives. In particular, managers should establish routines that reflect the core knowledge of the organization and should closely monitor shifts in these routines. When misalignments between routines and directives develop, managers should consider whether these changes represent the addition of new useful knowledge or the deterioration of existing
knowledge. In cases where the deviation from directives represents improvements to business processes, managers should carefully update directives to attempt to record as much of the context of the changes as possible to inform future decisions. In contrast, managers should actively seek to eliminate changes that represent a deterioration of knowledge and reduce the negative consequences of practical drift. For example, a manager may realize that while their technology usage policy states that no personal devices are allowed on the network, while in practice employees have been charging the batteries on their personal digital devices using USB ports on their desktop computers. It is useful for managers to reflect on the importance and intention of the directive as it had been written and how those policies relate to current practices within the organization. Furthermore, reflection presents managers with an aid in understanding whether this deviation is due to misconceptions or represents intentional changes in business practice.

The dyadic model presented in our paper also suggests managers should consider the advantages and disadvantages of idiosyncratic methods of knowledge transfer and understand that some knowledge is best conveyed through shared routines, some is best distributed explicitly, and some knowledge may not be important enough to warrant sharing. Certain employees may have a predisposition to learn more quickly during routine interactions due to their ability to interpret tacit elements, while others may have advantages quickly extricating important elements from documents. Managers should consider both the characteristics of core organizational knowledge and the abilities of the employees to transfer that knowledge via routines, directives, training, job shadowing, or socializing activities. Managers would find it advantageous to design their firm’s network of routines and directives to more effectively facilitate the transfer of knowledge.

9. Conclusion

In this study, we proposed a revised model of knowledge transfer that distinguishes between the tacit and explicit dimensions of knowledge is useful for evaluating knowledge transfer processes. By emphasizing the asymmetrical means through which tacit knowledge and explicit knowledge are transferred, a detailed model emerges that parsimoniously describes methods for acquiring and disseminating knowledge and can be applied in future research using social network analysis.

Our model supports the view of knowledge transfer as a dynamic and iterative process, but gives a clearer interpretation of how these processes spiral throughout an organization as routines and directives are shared by individuals within the firm. These improvements describe how individuals learn through knowledge application and how knowledge is transferred between individuals and within groups.

10. References


