Moving Beyond Communities of Practice (CoPs): Supporting Grassroots Knowledge Sharing

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ABSTRACT

As automation replaces everyday tasks, the work that people do is changing at an alarmingly rapid pace where "the life-cycle of skills" can be measured in "quarters vs. years" (Saxberg, 2019). The World Economic Forum (2020) predicts that "almost half of the core skills required across all roles will change" in the near future. This problem is not limited to the business sector: it is an issue affecting all sectors of the economy, including government, healthcare, finance, automotive, consumer, aerospace, mining, and information and communication technologies (World Economic Forum, 2018). Workers must be able to navigate this changing field by performing well today while continually developing new skills for the work of tomorrow.

Just as workers must recognize that the skills which helped them to succeed may no longer be of value, organizations must also transform their approaches to skill-building and workforce development. These approaches must:

- encourage knowledge sharing and less formal training,
- support workers learning new skills quickly and on-demand,
- encourage workers to share their discoveries and enhanced capabilities with others, and
- allow workers to self-curate and share learning content.

Today's workforce already has tools which they can use to develop informal training materials to share with their peers. In fact, many of these workers create and share videos on YouTube to teach strangers how to install windows or fix their refrigerators. If people are able to create and share knowledge in the real world, why not on the job?

While the technology makes it easier to develop and share, it is not enough. Without the cultural underpinnings, this grassroots sharing would happen in isolated pockets. The author provides insights gained from the development of a platform which supports employee-curated/created learning content. These insights inform approaches to operationalize a culture of learning and sharing in the workforce of the Fourth Industrial Revolution.

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WORKFORCE NEEDS OUTPACE CURRENT TRAINING SOLUTIONS

As technology continues to expand its reach into daily life and capability to perform myriad tasks, the types of work that we need people to do is undergoing a dramatic change (both in terms of scope and pace). In the next several years many human tasks done at work will be done by machines, shifting the workplace task balance which is currently about 71% human and 29% machines to "58% task hours performed by humans and 42% by machines" (World Economic Forum, 2018, p. viii). Businesses must adapt to the change in *how* their work is done, and this includes taking measures to ensure they have a workforce with the requisite skills. Further, hiring and training practices will need to shift dramatically because

> the life-cycle of skills will become too short (down to quarters vs. years) to make firing and hiring employees rapidly a workable solution when compared to continuous retraining (Saxberg, 2019, p. 171).

Of course, the responsibility is not solely on organizations. Workers also must be able to navigate this changing field—making sure they perform well today even as they continually develop new skills and prepare for emerging market demands. In order to meet the workforce needs, our solutions must account for business practice and norms, cultural ideas about training and professional development, as well as technology and organizational systems.

Training Related Business Practices and Norms

In any organization, training practices are enforced or supported by cultural norms, business practices, organizational structures, and technological systems. While these differ among organizations, there are some common themes and practices which impact most, if not all organizations to varying degrees.

One common practice in place today is that most businesses focus their professional development efforts, including upskilling or technology skills training, on workers "who are at the lowest risk for being replaced by automation technology" (Cummins et al., 2019, p. 113). In fact, only one-third of workers whose jobs were at greatest risk received any sort of professional development or upskilling at work in 2018 (World Economic Forum, 2018). Clearly, this is not a sustainable practice.

The issue of employers deciding who gets training also points to another facet of business practice—training decisions are primarily top-down as opposed to self-directed. When someone in a supervisory role or in authority over the employee is directing the training, we refer to this as top-down training. It is not hard to recognize that an employee or warfighter will not necessarily know what they don't know and couldn't elect to learn the right things even if they wanted to. Thus, top-down training has a critical role to play in organizational learning. However, there is still the need for self-directed learning, learning that is driven by the individual learner him/herself. The learner decides what she needs to know, sets her own learning goals, selects the learning materials or approach, takes the training, and even self-evaluates her success in achieving the learning outcomes (Knowles, 1975, as cited in Caruso, 2017). There is a need for workplace education to put structures in place which support and validate self-directed learning (Billet, 2016).

Yet another common business practice is separating training from its real context (Stern & Somerland, 1999). One way to understand this separation of training from context is to consider the school-house model where learners are often sent to a separate location to receive training and expected to apply what they've learned when they return to the job. The schoolhouse model is appropriate for many different training needs—the case can be made for providing training outside of the actual context. However, problems arise when organizations view training as a distinct and separate event from work itself (Stern & Somerland, 1999). In direct contrast with the school-house model is what Sense (2011) refers to as "situated learning" which is a training model where employees learn "through…

observation, dialogue, storytelling and conversations between people" as they do their jobs (Sense, 2011, p. 988). Situated learning occurs at the point of need, and can be supported through formal and informal training as well as knowledge sharing. *Informal training* refers to training that is unstructured (Hunter 2014). *Formal training* refers to training that is formally designed and developed, and is generally delivered in through some form of training event. What distinguishes informal and formal training is not the location where the training is provided, but rather the design (or lack) of the training. *Knowledge sharing* is a form of informal training as exemplified by one employee showing another employee how to do something at the point of need.

In many cases, knowledge sharing happens in pockets within organizations; but it is neither formally recognized nor overtly encouraged. If knowledge sharing is happening among small groups without any method or medium by which the learning can be shared in a wider and broader manner, then we can say that small learning communities exist, but the larger organization will not get the full benefit. In order for situated learning and knowledge sharing to benefit the larger community, organizations must take deliberate actions to encourage team-based learning. For example, organizations can provide structures that allow and encourage knowledge sharing among the workforce.

The fact that knowledge sharing is an important component of the way people learn is easily seen when we reflect on the way that people learn outside of work. If they want to know how to use a new gadget or fix something in their home, if they want to find a new recipe or recall some fact they once knew, they are likely to use a search engine and read someone's blog, read a news article, or watch a video. Some of these materials were professionally developed while others were developed ad hoc (without much planning or forethought), and there is a whole spectrum in between these two extremes. In the workplace we also have training events and workplace learning that falls along a similar continuum with "official" training that has been developed by a training expert or some other professional with the express intent of delivering the information as a "training" on one end and "watercooler knowledge sharing" on the other. This continuum is depicted in Figure 1. In the middle of this spectrum we find the type of knowledge sharing where people take time to develop their ideas and share with others, even if the knowledge sharing has a less formal structure in terms of how it is developed and/or how it is delivered. This "mid-spectrum" knowledge sharing has the potential to help organizations address those emerging training needs that so quickly arise as automation and other factors transform the skills and knowledge required in our workplaces.

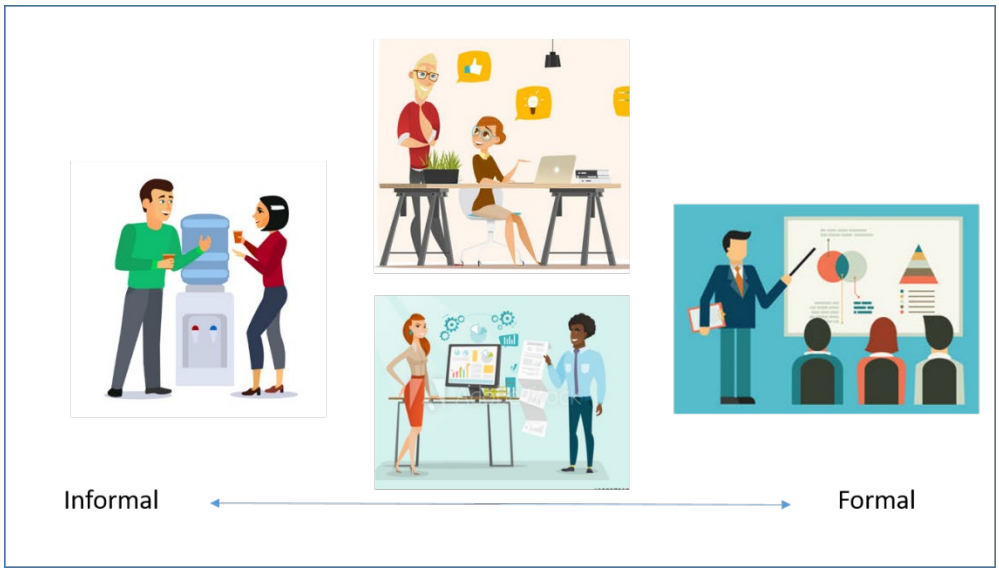

Figure 1: A Continuum of Knowledge Sharing in the Workplace

It was this very sort of knowledge sharing which led to this research project. There was a business sector that found itself needing a ten-fold increase in the number of people with a particular skillset. Simply hiring that number of workers would not be possible: the demand for the skillset is larger than the supply in the market overall. Recognizing its need to train and grow the skills within the organization, this business sector had begun to develop training which was informally developed, and would be informally delivered as well.

Two additional points should be made regarding the everyday knowledge sharing phenomenon that occurs outside of the workplace: 1) people are willing to learn from strangers and 2) some people are willing to spend their own resources (time and effort) to develop teaching materials and share them with the public. It is worth considering how these two factors might help us address the knowledge gap in our organizations, particularly for learning that is unique to a specific organization such as how to use proprietary software, approaches for addressing challenges unique to a particular role, or best practices to meet the customer needs in situations unique to a given organization.

With regard to item 1, organizations should recognize and support the fact that the workforce is willing and able to search and find answers when they do not know how to do something. Further, workers are using their own form of vetting or method to determine which materials they will use to learn it. It is true that organizations may have some level of search capability and self-directed learning, but the author argues that most organizations can do more to support workers in curating their own learning. With regard to item 2, technology has made it much easier for people to develop training for their peers; organizations should provide more ways to allow and support knowledge sharing among workers. We know that there are knowledge gaps and training needs which cannot be solved through the common practice of using the internet and the materials provided there. But this should not mean that the only way to get that training is to wait for the training department to provide training.

LEARNING ORGANIZATIONS

A discussion of knowledge sharing in the workplace would not be complete without including a discussion on learning organizations. A learning culture is one where the workforce values learning, uses what they learn on the job, and shares their knowledge with one another (Grossman, 2015, as cited in Caruso, 2017). Further, the end result of such knowledge sharing is an improved ability to achieve the organization's mission (Swift & Hwang, 2013). On the one hand, Huber (1991, as cited in Swift & Hwang, 2013) indicates that organizations learn when even one individual from within the organization acquires new knowledge, skills, or capabilities. On the other, "the knowledge possessed by individuals [within an organization] can hardly be converted to organizational knowledge before it is shared with others." (Jo & Joo, 2011, p. 353). It is not hard to see the criticality of supporting and encouraging knowledge sharing within an organization.

Jo and Joo (2011) researched the impact of learning organizational cultures and found that the culture of a learning organization has a direct and positive impact on whether people are likely to share knowledge (measured as a "knowledge sharing intention"). Learning organizations also typically have a more highly skilled, committed, and loyal workforce (Jo and Joo, 2011). In short, learning organizations are likely to fare much better and to address the problems related to the ever-changing training landscape. But what exactly does it mean to be a "learning organization?" Table 1 provides a description of the characteristics that are typical of learning organizations. While it might be tempting to look at the list and say, "yes, my organization does that," it is worth examining one's organization using a more critical lens. If, after all, yours is a learning organization, these critical questions can help to refine and improve the culture. And, if yours is not a learning organization, this questioning approach can help change the culture and move the organization in a positive direction. The following discussion looks these characteristics of learning organizations, all of which can be fostered through knowledge sharing.

Continuous Learning. Hunter (2014, p. 51) describes the need to develop organizational cultures which "value professional development and learning." An organization can do this by providing funds for courses, by allowing people to take time off (or even by allotting a certain amount of paid time toward) for professional development or to take classes, and by recognizing the efforts that people make. Organizations also need to be careful not to place obstacles (e.g., inflexibility with schedules or workload) which make it harder for people to grow professionally. Another way to encourage continuous learning is to look for new approaches to upskilling and learning. When employees develop or discover a new way to do something and they share it with others, publically recognize this as an important organizational accomplishment (Hunter, 2014).

Table 1: Characteristics of Learning Organizations

Characteristic	Description
Continuous learning	Opportunities for learning at work (on the job); support for ongoing education and growth
Inquiry and dialogue	Workers are able to express and share views and ask questions of others; the culture "supports questioning, feedback, and experimentation"
Team learning	Groups are formed to take advantage of diverse skills and viewpoints; there is an expectation that people will learn from each other; the organization values and rewards collaboration
Empowerment	"People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do."
Connection to environment	Ensuring that people see the impact of their work; "people scan the environment and use information to adjust work practices; the organization is linked to its communities"

(Adapted from Jo and Joo, 2011, p. 355)

Inquiry and Dialogue. Just as the larger organization must support questioning, feedback, and experimentation, individuals must come to work willing to take chances and learn new things on the job. Learning organizations are comprised of people who view working and learning as two sides of the same coin (Sense, 2011).

Team Learning. When small groups such as a project team develop a learning culture, this learning culture can "gradually spread around an organization" (Sense, 2011). But learning organizations do not simply wait for this gradual spread. Learning organizations take advantage of the fact that groups and teams provide a learning context and foster that knowledge sharing (Jo and Joo, 2011; Sense, 2011).

Empowerment. Learning organizations do more than just allow individuals to decide what they want or need to learn—more than just allowing for self-directed learning. According to Caruso (2017), in order to build a culture that supports self-directed learning, the organization must have some method or way of officially recognizing that learning.

Connection to Environment. Not only does learning need to be situated in actual work, but the workforce needs to see how their work is situated in the larger context. In some fields it may be more obvious how the work people are doing impacts others (e.g., doctors and nurses helping sick people or national guardsmen and women helping their communities). But, whether it is self-evident or not, learning organizations make sure that people have insights into how their work supports the organization as a whole and/or some larger cause or community.

Jo and Joo (2011) list two additional characteristics of learning organizations, which the author views as enablers, or things which support all of the other characteristics: Embedded Systems and Strategic Leadership.

Embedded System. In learning organizations, the organizational processes, structures, and technology are used to support a learning environment. These "high- and low-technology systems to share learning are created and integrated with work; access is provided; [and] systems are maintained' (Jo and Joo, 2001, p. 355). The next section of the paper discusses an example of a technology system that was used for learning.

Strategic Leadership. Leaders model desired learning and knowledge sharing behaviors; "leadership uses learning strategically for business results" (Jo and Joo, 2001, p. 355).

Recognizing that the problem we sought to address was not limited to one specific business sector needing to upskill a workforce, we knew that our solution needed to encourage and support all of these characteristics of a learning organization.

TECHNOLOGY'S ROLE IN WORKPLACE TRAINING

Many of the current technological structures used for workplace training were originally developed for other purposes. While adapting technology for other uses is commendable, not all of these systems have been adapted in ways that align with best practices in instructional design or learning science. Still others may have served organizations well in the past, but they are not able to meet the current changing demands. For instance, traditional learning management systems (LMSs) were originally designed for schools and academic institutions, which themselves have a very different learning structure and model than the workplace (Wang, Vogel, Ran, 2011).

There are significant differences between academic institutions and the workplace, which result in important differences related to any sort of education or training. Consider that the mission of an organization is what drives the goals and desired outcomes of any training endeavor. In the workplace, the focus is on developing practical skills or capability to perform specific tasks in support of meeting an "organizational goal" (Wang, et al., 2011). Further, workplaces require more knowledge sharing than educational institutions (Wang, et al., 2011). Here's a look at why that is the case. Academic institutions are built around the notion of having a staff of people whose role is to act as subject matter experts (SMEs) in their field at all times. To be sure, all organizations also have SMEs (and everyone has expertise in something), but the focus of non-academic institutions is to meet other types of missions. Thus, the idea of looking to a few individuals or expecting the leadership to provide most training and education is not appropriate for the workplace in the same way that it is in academic institutions. The technology we use for workplace learning was built to deliver training based on research done in educational institutions even though workplace learning is very different (Wang, et al., 2011). Thus, the systems are designed based on research that is not applicable to the environment where they are being used.

In addition, many e-learning platforms "were built and designed with a focus on technical issues" but do not address or ensure appropriate instructional approaches (Wang, et al., 2011, p. 260). Often, we do not question whether the functionality or our LMS is truly supporting the organization's learning goals and needs. Consider the fact that these training delivery systems are set up to allow almost any user to create training to share with others. This is laudable. However, the structure in these systems implies that the way you share knowledge is to create a "lecture-style" training with several multiple choice questions to test knowledge. (The term lecture-style refers to training events that are designed for one person to talk at the listener, whether this is through a video, live lecture, or even a set of PowerPoint slides that the learner can read on their own.) The structure of many digital training delivery systems best supports this lecture style training. The author is not suggesting that the technology is problematic – rather, that its structure creates and reinforces ideas about knowledge sharing which are not conducive to the kind of knowledge sharing that is needed to support the dynamic and shifting needs of organizations today.

Further, the current training platforms were not designed specifically to address organizational change (Wang, et al., 2011). Yet training often requires an organizational change component. Thus, not only are we using training platforms developed for a different environment, but we are using platforms that were not designed to meet the holistic training needs of an organization. Any solution which seeks to address the current training problems facing organizations must take a holistic view, and provide for the organizational change requirements as much as it provides for particular immediate training needs.

A TRANSFORMATIVE APPROACH

Culture plays a critical role in knowledge sharing in the workplace. Jo and Joo (2011) explain that knowledge sharing poses a risk to the individual employee – namely, that the employee is giving up a "monopoly" on the knowledge. After all, people are giving up their individual power to share with others. Organizations must take seriously the need to deliberately build a culture of trust. Jo and Joo (2011) caution that

> adopting elaborate technology to develop knowledge management systems and implementing new policies to improve individual motivation to share knowledge might not be successful if the management fails to build cooperative relationships among employees (p. 361)

The need for knowledge sharing focused on meeting an organizational mission (rather than training based on traditional SME-driven models) influenced the design of a solution that would support learners in creating their own learning paths and sharing knowledge with others, while at the same time allowing the organization to collect data

and metrics on usage patterns. Because we sought to encourage knowledge sharing and gain insights on current trends and future workforce needs, we named the platform "in-SITE." We took a design thinking approach where we considered the different user journeys for our users, including administrators, training developers, managers, and learners. In terms of the learner's experience, we wanted to make sure that first, and foremost, this was a tool that would support learners in creating their own learning paths and sharing knowledge with their peers. Figure 2 shows how the opening screen introduces learners to the platform and the premise that training is in their own hands. This introduction deliberately sets the expectation that self-directed learning is the norm (learners are in charge of their own development) while also demonstrating that the organization will support their professional growth by providing materials that they can curate, by providing the platform itself, and by providing the traditional assigned training that they have also come to expect.

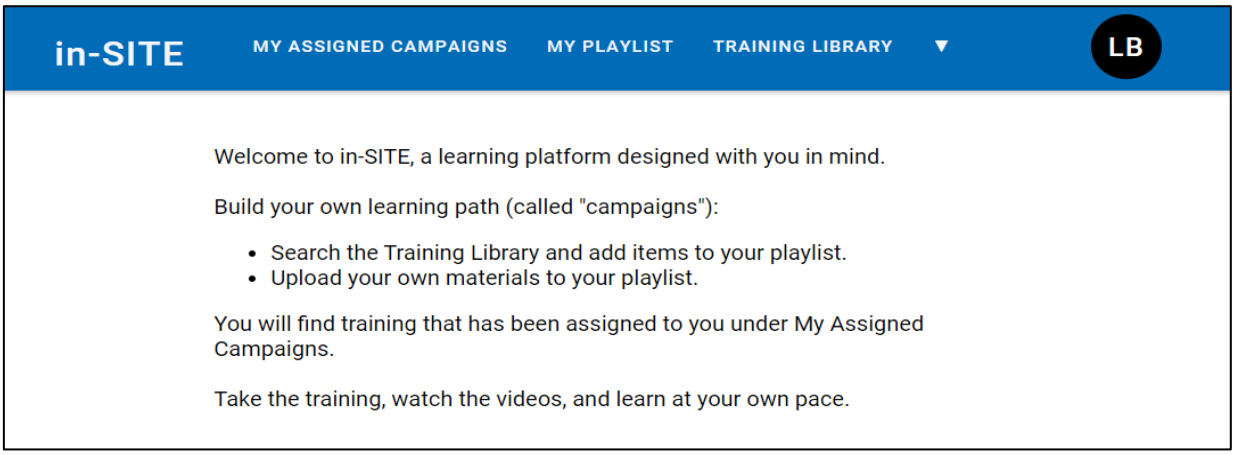

Figure 2: The Opening Screen Sets the Stage for Self-Directed Learning

Four Requirements of Workplace Learning

According to Wang, et al. (2011), workplace learning should:

1 address the unique and individual needs of the workforce
2 meet the organization's goals and objectives
3 provide context-specific training that can be changed as needed
4 support knowledge sharing throughout the organization

The following discussion looks at these four requirements, but begins with knowledge sharing because knowledge sharing is the basis for all of the training components. As noted earlier, this project sought to meet one business sector's need to rapidly grow its workforce by expanding the number of people with the needed skills and increasing the skillset of those already in the field.

Addressing the Unique and Individual Needs of the Workforce. One important component of in-SITE is the idea of the learner's individual playlist. Each learner curates what s/he wants to learn—collecting items from the organization's library of training materials and uploading items that s/he has developed or been given by others. Learners can also bundle collections of materials (self-provided or organization-provided) into "campaigns." We use the term *campaigns,* a common term in the software industry, and deliberately avoided the terms *course*, *class*, or *module* because this platform supports and encourages self-directed learning, informal learning, and knowledge sharing; and the term *class* or *module* might place limitations on how learners would bundle materials. Self-created campaigns also provide a better user experience. While there are those who might argue against spending organizational funds or effort addressing the user experience for training, studies have shown that employees prefer workplace training that is "convenient and accessible" (Smith & Kelly, 2016). Having access to a system which allows users to individualize the content and its organizational structure helps to provide for the sort of user experience, convenience, and accessibility that the workforce has come to expect in most every other area of life.

Meeting Organization's Goals and Objectives. In order for an organization to determine if its training is helping the organization to meet its mission, the organization needs to have access to meaningful data about the training that can be correlated with or otherwise investigated against performance data. in-SITE collects data for just about everything that happens within the platform, enabling leaders to answer questions such as:

- What kinds of knowledge are people sharing?
- Who are the "top" sharers?
- What kinds of queries and searches are people performing?
- Which training materials are used again and again?

Our customer (the business sector within our company) can use the answers to these sorts of questions to gain insights into what and how their workforce is learning on the job as well as what people seem to be interested in learning. They can also identify trends and emerging training needs, which is equally important for addressing rapidly changing training needs. The business sector can take what it learns about the informally developed training to determine future formal training needs and requirements. All of the data provides a way to gain insights into knowledge sharing. Such knowledge sharing may have been happening before, but now the business sector (and organization as a whole) can measure it and benefit from it on a greater scale.

We also developed a role-based capacity in order to meet the greater organizational need to upskill different workforces over time. While our immediate research participants came from one business sector, we recognize the problem of rapidly changing training needs as something which is not limited to one particular business sector in one company. The role-based capacity means that in-SITE has customizable roles to support different ideas about how knowledge sharing should occur in that middle area between informal and formal workplace learning (see Figure 1).

Providing Context-Specific Training That is Easily Changed Our solution needed to provide a way to upskill the workforce in a rapidly changing environment, which meant that the solution needed to 1) provide a way for learners to access the training at their point of need and 2) provide a way to quickly and easily update and revise the training. in-SITE's search engine helps to meet these needs because all users (learners, managers, training leadership, etc.) can search for training topics at a granular level without requiring any manual tagging of the material. Organizations can combine search-engine and usage data with workplace performance data to ensure they develop and deliver training that addresses any gaps identified. In addition, users (learners and managers alike) can upload content and revise it at will. Because the search features and data collection do not require any tagging of material, there is no additional work required when revising the content.

Because the platform supports and encourages content creation, business segments can use the tool to upskill their workforce and/or to provide training to a larger audience in order to meet increased demand for a particular skillset. As Saxberg (2019) indicated (and noted earlier), there are times when hiring new workers will not be enough to meet the business needs. In our case, the business sector is seeing a growth in demand and we need many more workers with the required skills and knowledge base. Even if the business sector hired new employees they would also need training. This business sector began developing training and using the platform to deliver the training in order to address the gap. Other business sectors can do the same. Because the training can be revised and adapted quickly and easily, the organization can address other gaps in a similar fashion. The cost of development for internal training that is built on the ideas of knowledge sharing is significantly reduced as compared to traditional training that is developed by a training department (having researched exactly what is needed, etc.); this makes it easier for organizations to pivot and shift as business needs change.

Supporting Knowledge Sharing. in-SITE supports and encourages knowledge sharing in several different ways. As noted above, learners can easily create their own playlists, upload items and group items into campaigns. They can also share individual items and campaigns. The platform is built around the notion of self-curation and development, which sends a message to the workforce about how they are expected to perform in the learning context. The system sets the expectation that each learner will contribute and participate. This is different from the traditional mode of waiting for training until it is officially delivered by the organization, and was critical for our business sector in seeking to upskill such a large percentage of its workforce.

Another way our solution supports knowledge sharing is that in-SITE automatically generates a closed caption for all items that are uploaded without a closed caption file. This means that the training is accessible for everyone, regardless of who uploads the items. Even when the sharer lacks the tools or skills required to create fully accessible items, in-

SITE provides for the accessibility, supporting a further reach of the knowledge that is shared. Without the closed caption generator, some users might not have bothered to worry about the closed captions, creating issues of inequity or otherwise limiting the impact of the knowledge sharing and training efforts. Still other users may have gone to an outside source to get the closed caption file and then imported it back into the platform. Such actions would risk putting intellectual property (IP), trade secrets, or sensitive information in the public square. Our solution uses the tools which are available in the commercial market space and provides them within the organization, allowing users to share knowledge within the workspace in the same way that they do in the public square.

Organizations will need to determine the vetting process which allows individual learners to share what they've put into their own playlist with others. Depending upon the organization and its legal or other structures, this may be as simple as having a manager approve the material or it may be more complex where a review board must approve what is shared. There must be a balance between preventing misinformation and encouraging knowledge sharing. This is not a public forum so the standards and goals should be focused on knowledge sharing that supports growth and meeting the mission. At the same time, organizations must ensure that their standards do not inadvertently prevent knowledge sharing by setting a standard which causes individuals to feel they must develop professional-grade trainings.

Building Trust

As noted earlier, implementing or providing technology solutions is not enough to transform the workplace. Culture plays a significant role, and one aspect of culture is trust and balancing individual needs with the organization's needs. It is true that most organizations and employees want knowledge sharing and the growth that results from this; however, there is a tension because they also fear that such sharing will upset the "power structures" (Swift & Hwang, 2013). These fears occur among managers and workers alike. Managers or directors could be concerned about making sure that things are done "right" and don't want to lose control of business processes. Individual employees might be concerned about losing their competitive edge because they will have shared the things that make them stronger employees than others. Organizations must work to build trust to address these concerns.

There are at least two types of trust – cognitive and affective. Cognitive trust has to do with trusting the accuracy of the information or ideas. Affective trust is the emotional trust that people place in one another. Swift and Hwang (2013) found that there is a direct connection between cognitive and affective trust and people's willingness to share information with others, which then leads to organizational learning. Organizations should take deliberate steps to foster both types of trust: hosting social events to develop affective trust and having formal meetings or reviews where employees share about their work in order for others to get a better understanding of their coworkers' capabilities to build cognitive trust (Swift & Hwang, 2013).

Not only must organizations build cognitive and affective trust, they must also encourage and legitimize knowledge sharing via whatever platform and processes are in place within the organization. The rapidly changing workforce needs will lead to changes in approaches to training, and cultural environments which foster trust and knowledge sharing will become even more critical.

CONCLUSION

Promoting knowledge sharing, supporting self-directed learning, and providing insights into what people are learning today (as well as what they learned yesterday), is just the beginning of the paradigm shift in workplace training. Cultural shifts must occur to allow and support knowledge sharing. It is hoped that over time, our definition of workplace training will change and knowledge sharing will be an official component of workplace training (as opposed to one which is simply acknowledge but not formally supported and encouraged).

In order for organizations to be better prepared to meet the evolving workforce needs, their learners should be given the flexibility to determine what they need to learn and provided the tools to access that material when they need it. We cannot predict what the workforce will need to know in two years. Rather than trying to predict the training needs of the future, organizations should build structures and cultures which support grassroots learning to allow for adaptability which can help them to be better prepared when that future arrives.

As of the writing of this paper, the efforts to upskilling this one business sector are still in the early stages. The initial findings suggest that these kinds of approaches can help our industry solve the ongoing needs for upskilling the workforce.

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