Occupational Health and Safety Knowledge Transfer Toolkit

A Proactive Approach
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This publication is intended to be gender neutral. Any references to one gender should generally be construed as referring to both.
EXECUTIVE SUMMARY

CONTEXT
Under the provisions of the Loi sur la santé et la sécurité du travail (Occupational Health and Safety Act) from Québec, employers must safeguard the health, safety, and physical and mental integrity of their workers (RSQ, c. S-2.1). In Newfoundland and Labrador the mandate of the OHS Branch of the Department of Government Services is to maintain and improve health and safety standards in the workplace (www.gs.gov.nl.ca/ohs/). In addition, a range of sectoral associations and consultant organizations have as part of their mandates finding ways to reduce the risk of work-related injury and disease. Better mastery of insights from research on knowledge transfer (KT) and its application to occupational health and safety (OHS) can help employers and organizations achieve these goals. This document provides an introduction to KT and a variety of knowledge transfer tools applied to OHS that organizations can adopt to increase the effectiveness of their efforts to use the application and transfer of knowledge to improve workplace OHS.

WHO IS THE TOOLKIT FOR?
This toolkit is designed for people concerned about OHS, such as OHS coordinators, prevention representatives, OHS committee members, knowledge brokers, management staff (including human-resources personnel), and any other stakeholder in businesses, sectoral associations, compensation commissions and OHS practitioner organizations. It has been written for ease of comprehension and includes OHS examples.

TOOLKIT CONTENTS
The toolkit contains:
• An overview of new OHS issues, including the need for more attention to KT
• Explanations of the main challenges associated with successfully applying KT to improving OHS
• A three-step process for successful knowledge transfer
• Step-by-step assessment of the organization’s OHS Knowledge Transfer
• An array of OHS-related KT tools based on the process outlined in the kit

CONCEPTUAL FRAMEWORK FOR THE TOOLKIT
The KT process outlined here is based on the model developed by Parent, Roy, and St-Jacques (2007). That process uses a systems approach to understanding KT. It is premised on starting with a diagnosis of existing OHS knowledge and new knowledge needs in the organization or intervention area. Secondly, the organization needs to review and, where necessary enhance three capacities essential for effective OHS KT: generative, disseminative, and absorptive capacities. Finally, the organization must integrate attention to KT into its OHS initiatives on an ongoing basis including ways to promote its own capacity to adapt and respond to new OHS knowledge within the organization.

PRACTICAL IMPLICATIONS
After reading through this toolkit, the organization and its members will have a better understanding of the importance and benefits of OHS KT. It will have a preliminary assessment of its own OHS KT practices. Once the diagnosis has been made, the organization will be able to consult the summary fact sheets contained in the toolkit in order to determine which are most appropriate, depending on the aspects targeted for improvement.

Feel free to adopt and adapt the tools best suited to your context and needs.
For a number of years now, occupational health and safety (OHS) has been a growing concern among Canadian businesses. Changes at work and in the labour market have affected the risks traditionally associated with work, resulting in new OHS challenges. Some of these challenges are related to increasingly demanding work environments resulting in a greater number of problems related to the general health of workers. These problems can be attributed, in part, to the way work is organized. For example, reductions in levels of reporting lead to increased responsibilities. Beyond the workplace, demographic changes—including an aging workforce—is changing the pattern of OHS risks and will produce many departures due to retirement. Increased responsibilities and growing labour shortages will contribute to the need to protect workers health and safety.

1.1 CHALLENGES OF AN INCREASINGLY DEMANDING ENVIRONMENT

The workplace, marketplace and labour market are changing. We have to produce better and more, but with fewer financial and human resources. Businesses are responding by turning to a variety of alternatives, ranging from new technological solutions to changes in governance, in order to remain competitive in a globalized context. Given the urgent need to stay competitive, work is changing. In the past, work tended to be more mechanical, operational, and structured according to precise rules that workers followed. Today, workers are given more responsibilities so that they can help support and improve productivity. Sometimes they must accept changes without consultation yet, at other times, they are asked to provide their opinions regarding work design and expectations. As a result, workers must be highly adaptive, which means being more open and versatile on a daily basis. The most experienced workers have seen a lot of changes in recent years as a result of reorganization, restructuring, reengineering, and, in some cases, massive job losses, all of which can sometimes make them somewhat skeptical. Paradoxically, change has become the only constant at work.

One of the main consequences of the new world of work is increased stress, which can affect workers’ physical and mental health. Figures from Statistics Canada indicate that four workers out of ten experienced an episode of psychological distress at work between 1994 and 2001. Moreover, Statistics Canada estimates that the cost of stress in the workplace in Canada amount to $14 billion annually.

In Quebec, investigations into public health and well-being carried out by Santé Québec revealed that, between 1987 and 1998, inability to work as the result of mental health problems nearly doubled from 7% to 13%. These studies also showed that the average number of days of inability to work per person for mental health problems rose by 200%, more than tripling between 1992 and 1998 (Vézina and Bourbonnais, 2001). A study by Watson Wyatt (2007) indicates that 72% of long-term disabilities and 82% of short-term disabilities can be attributed to mental health problems, including stress. Mental health issues and their contribution to absenteeism are adding to the pressures of demographic changes in the employment pool available to employers to increase the need for a proactive approach to OHS.
1.2 DEMOGRAPHIC CHALLENGES

Companies also confront new demographic constraints. For example, population aging and retirements create problems of workforce renewal. As per Statistics Canada, we can anticipate that more than a third of Canadians will be 55 and over by 2027 compared to one in five in 2007. The proportion of older people is increasing while the proportion of children, young and middle-aged adults is declining (www.statcan.gc.ca/pub/71-222-x/2008001/sectionm/m-pop-eng.htm). Immigration is expected to help keep Canada’s working age population (15-64 years) growing to 2019; however, the working age population in Newfoundland/Labrador is currently declining (www.economics.gov.nl.ca/E2006/laboursupplychallenge.pdf). Starting in 2011, the working age population will begin declining. According to Emploi-Québec estimates, 640,000 workers will have to be replaced within the next five years. At the same time, Quebec’s birthrate dropped from 15% in 1980 to 10% in 2005 while Newfoundland/Labrador’s birthrate went from 12% in 1992 to 8.7% in 2005. In addition, young people are taking longer to make their way into the labour market, since some of them spend more time getting an education. Consequently, the most experienced workers are leaving the workforce while younger people are taking longer to enter it, thereby creating a shortage of labour and possibly a loss of experience-based knowledge. Young people coming in will lack experiential knowledge, but they might be better trained in the tools and techniques required for the new world of work than older workers.

These demographic challenges have OHS consequences. When they leave, retirees generally take with them extensive experience and the often close working relations that they have built with others over the span of their careers. Some of them won’t have had the opportunity to share knowledge critical to smooth operation and safety in the workplace. A study carried out by Cloutier and Duguay (1996) demonstrated that older, experienced workers have fewer workplace accidents and that the incidence of accidents decreases with worker age, primarily because of experience. When these workers leave, their companies lose critical safety knowledge built up over the years.

1.3 KNOWLEDGE TRANSFER

Most organizations will not be able to recover all the lost knowledge when retirees leave and will face real challenges when it comes to establishing safe workplaces in a context of dynamic change. This is already becoming apparent, especially in the training of younger workers, which is sometimes neglected because of lack of time, expertise or money and with potentially serious consequences. According to a study by the Institut de recherche Robert-Sauvé en santé et sécurité du travail (IRSST), younger workers work fewer hours than the average (10% of total hours worked), but they get hurt more often (16% of all accidents). Moreover, it appears that young accident victims between 15 and 19 years of age have recourse to rehabilitation at twice the average rate, that is, 17.3% (IRSST, Ledoux and Laberge, 2006). Statistics from HRDC Labour, Research and Analysis confirm that in 1998 time loss injuries for workers in the 15 to 29 year age group
decrease from 2.9 injuries per 100 workers to 1.91 per 100 workers for those over 55 (www.rhdcc.gc.ca/eng/cs/sp/hrsd/c/edd/reports/1995-000607/page07.shtml). While youthful recklessness might account for this, lack of experience and knowledge of risks could certainly be aggravating factors.

Faced with this reality, organizations can benefit from more knowledge about and attention to knowledge transfer (KT) in all aspects of their organization including OHS. KT is an option that can help maintain and improve the long-term effectiveness of OHS interventions.

To date, few businesses have given thought to the process of knowledge transfer within their organizations including among their employees and between management and workers, or to applying tools facilitating it. The lack of a formal internal KT process, combined with the significant loss of critical knowledge in a changing workplace, could very well lead to a considerable loss of effectiveness and increased OHS risk. With no KT process, young workers and those new to their jobs or dealing with changing jobs must improvise, relearn, and reclaim OHS knowledge and behaviours essential to their settings often while putting themselves at risk.

If they haven’t already done so, businesses must begin reflecting on KT in order to stay competitive and to attenuate the negative impacts of demographic change on OHS amongst other considerations. Knowledge transfer must be an integral part of an organization’s procedures, which means that companies must respond to the following questions:

• Do the company and its people clearly understand KT issues?
• Does management see the usefulness of OHS KT?
• Does KT figure among the organization’s priorities?
• Does the organization have sound KT tools at its disposition?

While there are many ways to improve knowledge transfer within an organization, anyone who believes that adding a single tool can solve every problem is likely to be disappointed. KT cannot be based on using a single tool, because the knowledge held by individuals is complex and has been acquired over the years in particular organizational contexts. The next chapter reviews ideas about KT and how it relates to OHS derived from recent research and interventions in this field. Following the presentation of these ideas, you will be given an opportunity to assess OHS KT practices in your organization. Lastly, an array of pertinent tools will be presented designed to help with each step in the KT process. The Toolkit concludes with a few recommendations for future work.
Before exploring the usefulness of knowledge transfer for OHS, we need to look at certain basic concepts, starting with an exploration of what knowledge is.

2.1 KNOWLEDGE

On the surface, knowledge might appear to be a fairly simple notion to grasp; the reality, however, is quite different. While there is no consensus on its definition, "knowledge" can be distinguished from "data" and "information." Data are facts stripped of meaning. Information is obtained by adding a context and meaning to the data. Then comes knowledge, which is the transformation of information by individuals through the incorporation of their experiences, beliefs, and values (Wiig, 1994). Knowledge is, therefore, subjective, informal, and highly personal. Individuals bring added value to knowledge through their own experience. The following table highlights these three notions using an OHS example.

<table>
<thead>
<tr>
<th>DEFINITION</th>
<th>OHS EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data: Raw, context-less element</td>
<td>45°C**</td>
</tr>
<tr>
<td>Information: Contextualized data</td>
<td>The machine gives off heat at a temperature of 45°C.</td>
</tr>
</tbody>
</table>
| Knowledge: Information assimilated in order to take action | Since I know that heat can be dangerous without protection:  
  • I wear protective clothing when working in this area.  
  • I obey the safety procedure inherent to work in this area. For example, I take breaks at set times.  
  • I inform another worker or my supervisor that I’m going to this area.  
  • I avoid this area.  
  • I make sure someone is with me when I am in this area. |

**This value is not related to regulated exposure values, but is used here as an example.

There are two types of knowledge: explicit and tacit. **Explicit knowledge is objective and formal knowledge** that can be verbalized, written, encoded, and transferred. It can take the shape of books, directories, guides, policy and procedure manuals, knowledge on the Internet, databanks, and so on.

**Tacit knowledge, on the other hand, is more difficult to express and explain.** It is found in the heads of people and generally includes intangible elements, such as judgment, know-how, attitudes, values, and intuitions. Tacit knowledge is personal, context-specific, and difficult to communicate and formalize, even for the individual holding the knowledge. For example, a person would
find it difficult to explain concretely how to drive a car with a manual transmission. The person can use his or her imagination to explain to the learner when exactly to let the clutch out. This knowledge is only based on experience, however, and it is possibly only after frequently stalling the car out, that the learner finally "feels" the point at which the clutch engages and understands the importance of coordinating the gas and clutch pedals when changing gears. However, being coached by someone who is more experienced can accelerate the learning process. This example can also be used to illustrate how intuition works. Someone who has driven a car with a manual transmission for years will intuitively reach for the clutch pedal when driving a vehicle with an automatic transmission. The same logic can be applied to OHS. It is sometimes hard to explain the know-how of tradesmen or plant workers. As long as the knowledge refers to prescriptive instructions, they can be communicated to most workers fairly easily. It becomes difficult, however, to do this when the knowledge is "intuitive" or acquired in the field. Sherehiy and Karwowski (2006) list OHS examples for these two types of knowledge:

<table>
<thead>
<tr>
<th>Explicit OHS knowledge; EASILY ENCODED</th>
<th>Tacit OHS knowledge; DIFFICULT TO EXPRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Accident log</td>
<td>• Recognition of OHS risks</td>
</tr>
<tr>
<td>• Safety standards</td>
<td>• Knowledge about practices</td>
</tr>
<tr>
<td>• Safety guidelines</td>
<td>• Perceptual and cognitive skills</td>
</tr>
<tr>
<td>• Theories and axioms</td>
<td>• Physical experience</td>
</tr>
<tr>
<td>• Company log</td>
<td>• Intuition and synthesis of facts</td>
</tr>
</tbody>
</table>

Note: Legislation and regulations can be added to the list of explicit knowledge.

The inherent difficulty with tacit knowledge lies with transferring it to others, because people are sometimes not aware that they have this knowledge. Polanyi (1966) put it quite well when he said "We know more than we can tell." That makes the task of articulating and communicating knowledge all the more difficult. Many researchers affirm that organizations are constituted primarily of knowledge and that the importance of tacit knowledge largely exceeds that of explicit knowledge (Spender, 1996; Grant and Baden-Fuller, 1995; Grant, 1997; Nelson and Winter, 1982). People generally agree on applying the Pareto Principle or 80/20 rule and estimate that 80% of knowledge is tacit. Tacit knowledge is valuable and necessary for action or decision-making (Ermine, 2006). It fuels the capacity to act.

According to Cru and Dejours (1983), each individual interprets the situations in which he or she acts within a culture that imbues everyone’s actions and decisions. These occupational procedures are carriers of a set of "strategic" forms of knowledge including "OHS safety know-how," so that the work can be carried out while preserving, to the degree possible, the worker’s physical and mental well-being. In short, the better the decisions, the greater the chance of having a safe mental and physical work environment.

Some Examples of Safety Know-How (Brun, 1997)
Casters in a steel mill always ensure that they have enough room behind them so they can rapidly get clear in case of an accidental spill of molten metal. Because of the safety criteria acquired on job sites, construction workers can judge if a ladder is safe, scaffolding is stable, or a damp floor is slippery.
Lastly, while knowledge is generally held by individuals, as stated above, organizations also have knowledge. Everything that remains and belongs to the organization when the workers leave at the end of the day is what constitutes organizational knowledge. Organizational knowledge can be explicit such as patents, copyrights, software, trademarks, commercial secrets, databases on best practices, and so on. It can also be tacit, making it more difficult to quantify, justify, or accurately describe, as in the case of brand image, corporate reputation, intangible assets, internal language, and the like.

2.2 KNOWLEDGE TRANSFER

Organizations that create and use knowledge rapidly and effectively are able to innovate faster and more successfully. Furthermore, creating knowledge, especially tacit knowledge (Madhavan and Grover, 1998), is the key to organizational renewal (Dougherty, 1992). Hoopes and Postrel (1999) demonstrated that knowledge transfer between the people in an organization constitutes a major resource in product development. Once the various concepts about knowledge have been clearly grasped, the next step is to understand the conditions related to the exchange and transfer of this knowledge between workers.

Transfer is a movement from one person to another, from one place to another, or from one context to another. According to Bou-Llusar and Segarra-Ciprés (2006), the objective of transfer is to facilitate knowledge flow throughout the company or between organizations with a view to transferring one or more competitive advantages from one unit to another (Von Krogh et al., 2000). The approach to KT used in this toolkit involves implementing techniques, tools, methods, processes, structures, and cultures based on the dynamic knowledge transfer model developed by Parent, Roy and St-Jacques (2007). This model stipulates that a system has knowledge and needs and that the capacities of generation, dissemination, absorption, adaptation and responsiveness must be developed in order for transfer to occur. In this context, "system" means any group, which can range from two individuals to departments and organizations, and "capacity" means the skill or potential to carry out an action.
Here is an illustration of the dynamic knowledge transfer model:

This model provides a dynamic vision in which knowledge is not seen as an object that is transferred in a linear manner, but rather as a constant flow that circulates and changes over time, just as needs do. Knowledge transfer is a dynamic, two-way process that involves both those sharing and using knowledge to the same degree. Indeed, those who accumulate expertise often learn from the people they share that knowledge with.

While knowledge transfer requires these four capacities, they do not necessarily have to develop in a linear fashion. An organization may initially work on its absorptive capacity if it wishes or, if required by the context, it may simultaneously develop two or three capacities, etc. To keep the presentation straightforward and facilitate its application in the field, the model herein will be presented in three steps:

1. Diagnosis of knowledge and needs
2. Development of generative, disseminative, and absorptive capacities
3. Integration of KT using the adaptive and responsive capacity

**Step 1**

As in OHS, a diagnosis must first be carried out in order to understand and assess the current situation. In the case of knowledge transfer, a *diagnosis of existing knowledge* must be performed in order to determine what knowledge the system has, whether held by individuals, departments, or the organization as a whole. A *diagnosis of new knowledge needs* is also required to ensure the transfer of relevant knowledge in the system.
Step 2
Next, the organization must be able to develop the capacities of knowledge generation, dissemination, and absorption.

- **Generative capacity** refers to the ability to discover new knowledge or improve existing knowledge as well as the resulting processes, technologies, products, and services.
- **Disseminative capacity** refers to the ability to situate knowledge in context, translate it into clear language and to adapt, format, and disseminate it across a social or technological network. It also includes the ability to inspire strong commitment from the interest groups involved.
- **Absorptive capacity** refers to the ability to recognize the value of new knowledge originating from outside sources, adopt it, and put it into practice to achieve positive change or to deal with problems.

Step 3
The last piece of the puzzle involves the organization’s capacity to adapt and respond systematically to changes in the environment. This refers to the ability to learn continuously and to renew the knowledge transfer system used.

The third chapter of this toolkit will allow you to use this approach to assess your OHS KT practices.

2.3 OHS KNOWLEDGE TRANSFER

According to Sherehiy and Karwowski (2006), knowledge constitutes the core resource in achieving OHS objectives. The purpose of OHS knowledge transfer is to facilitate the exchange of tacit and explicit knowledge because it contributes to prevention and decision-making and because it fosters a workplace that respects workers’ physical and mental well-being. This knowledge must be expressed and adapted to the organization’s context, regardless of its scope. Lastly, the goal is not only to transfer knowledge when a problem arises, but constantly. Indeed, transfer should be systematic in order to encourage continuous organizational learning.

2.4 BENEFITS OF KNOWLEDGE TRANSFER

The last few years have brought a change in how knowledge management and transfer are perceived. Companies are increasingly realizing that they and their employees can benefit from exchanging knowledge instead of keeping it to themselves.
For example, knowledge transfer at Chevron made it possible to improve worker OHS performance by 50%. This was possible as the result of an OHS best-practices transfer system in the area of energy use. A network was created and individuals meet regularly to exchange knowledge. As well, an information database of OHS interventions was implemented and made available to everyone.

KT must be everywhere throughout the entire organization, especially in OHS management. The table below provides some of the potential benefits of sound management and better transfer of OHS knowledge.

<table>
<thead>
<tr>
<th>OHS BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improve performance as a result of:</strong></td>
</tr>
<tr>
<td>• Better learning and integration of new OHS resources.</td>
</tr>
<tr>
<td>• Reduced costs or risks when discovery of external solutions is shared.</td>
</tr>
<tr>
<td>• Better decision-making involving prevention.</td>
</tr>
<tr>
<td>• A safer environment.</td>
</tr>
<tr>
<td><strong>Promote innovation as a result of:</strong></td>
</tr>
<tr>
<td>• Improved quality of OHS projects and interventions.</td>
</tr>
<tr>
<td>• Increased innovation capacity through the improvement and discovery of OHS solutions.</td>
</tr>
<tr>
<td><strong>Prepare the next generation as a result of:</strong></td>
</tr>
<tr>
<td>• Improved cooperation and exchanges in the area of OHS between employees.</td>
</tr>
<tr>
<td>• Conservation of OHS knowledge and safety know-how.</td>
</tr>
</tbody>
</table>

### 2.5 CHALLENGES OF KNOWLEDGE TRANSFER

Stakeholders, once they have been properly informed, are more aware of the importance of better knowledge transfer. Generally, the problem does not lie in a belief that the transfer should or should not take place. Rather, the main challenge lies in performing the transfer. Based on their study of 32 knowledge transfer experiences, Argote et al. (2000) concluded that 22 of the experiences did not achieve the expected productivity outcomes (34% loss of productivity between the source and the recipient). In light of this, we can ask ourselves the following questions: Why would workers want to exchange knowledge? Are there any barriers to KT? How can we become an organization in which workers exchange and transfer knowledge? We will now attempt to answer these questions.

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Do workers want to exchange their knowledge?

Do people naturally want to exchange and transfer the knowledge that they have? Intuitively and generally, the answer would be "yes." Children seek to learn and to share what they discover. They learn by mimicry and by reciprocal influence. They observe and ask questions in order to understand better. They adapt what they learn, whether explicit or tacit knowledge, to their own understanding, context, and limitations. Some children want to learn more than others, but, fundamentally, they all have the aptitude for discovery. The aptitude to share and to show what has been learned is also naturally present in children. As people get older and become exposed to the work environment, they gradually begin to inhibit their ability to transfer their knowledge. People generally share knowledge in the business world for three reasons (Davenport and Prusak, 1998): reciprocity, reputation, and altruism.

Reciprocity implies exchanging and sharing knowledge in order to receive in return. The relationship is therefore a "win-win" relationship. This exchange normally occurs when there is a well-established relationship between two parties and a certain existing level of trust. Reputation facilitates KT as long as the transfer improves the status and reputation of the parties within the organization. If knowledge exchange is not valued, or if it is ridiculed among peers, workers are not encouraged to share. Moreover, people want to get recognition for their ideas. Without this recognition, the knowledge could be lost to the highest bidder. Lastly, when people transfer their knowledge but expect nothing in return, either in terms of information, recognition, or improved reputation, they are said to act out of altruism.

Initially, people are naturally inclined to transfer their knowledge, but barriers in organizations limit their desire to transfer.

What barriers would limit knowledge transfer?

There are cultural, economic, structural, and human barriers that can account for the difficulty in sharing knowledge. The knowledge itself can be a source of difficulty.

The cultural environment in which the employees work has a direct impact on KT. If the organization fosters a competitive climate in which "knowledge is power," knowledge transfer becomes subordinate to the power from which it flows. In this case, knowledge becomes a source of conflict and its transfer tends to be rather rare and discreet. Possession of knowledge is seen as a means of strengthening one’s position and status within the organization. Transferring this knowledge can appear threatening, especially during restructuring or in turbulent times. The difficulties experienced with respect to sharing knowledge create an environment in which fewer and fewer people get involved.

When different departments share the same budget, they may have to compete to obtain their part of the budget. During budget cuts, transferring knowledge between these departments can be perceived as threatening and may constitute an economic barrier. A similar situation occurs when promotions and bonuses are based on accumulating knowledge or the skills that it confers.
In addition, there are the structural barriers when organizations fail to provide employees with mechanisms, tools, and spaces that promote KT. Human factors also account for difficulties. For example, some people may simply lack self-confidence or respect for the source. There can be other obstacles such as differences in vocabulary and frames of reference, lack of time, limited capacity of absorption by the person receiving the transfer, and belief that knowledge is a group prerogative, resulting in the rejection of any external source of knowledge because "we didn’t invent it."

Lastly, as explained previously, one of the main barriers is the fact that the knowledge to be transferred is often tacit and, thus, difficult to transfer. Moreover, the characteristics of those who disseminate and those who absorb knowledge as well as the context in which the transfer takes place influence the difficulty of transferring knowledge.

**How can we become an organization in which workers exchange and transfer knowledge?**

Three conditions greatly foster knowledge transfer:

- **Make knowledge transfer a priority**
  Make KT a **priority by allocating to it the necessary human, physical, and financial resources.** By taking this tack, management sends a clear message to all its employees. The organization must, therefore, begin with a diagnosis of knowledge and needs, and implement strategies and actions to promote the development of the capacities of generation, dissemination, absorption, and adaptation and response. The organization can begin with pilot projects in order to set an example, highlight the advantages, and communicate them to the rest of the organization.

- **Implement a sharing culture**
  Implementing an organizational culture that promotes the **sharing of knowledge** is also imperative. To do so, **trust** between the organization’s various stakeholders, management, and employees is essential. Employees must trust one another; trust must inspire those who receive and those who give information. Teamwork, collaboration, accountability, and recognition of knowledge-sharing must also be conveyed and practiced within the organization.

- **Promoting networking and intensification of interaction**
  Fostering **dynamic interactions between employees** so as to facilitate dialogue and maximize exchanges will greatly help in facilitating KT. The organization can plan physical spaces, such as a coffee room where people can talk and exchange, or adopt more formal means, such as discussion sessions and communities of practice (for more information on this tool see the ‘summary fact sheet’). Making an effort to involve employees from different departments, settings, age groups, levels, and the like, and, in particular to involve champions—that is, people who have already adopted behaviours and attitudes fostering KT—should help create reciprocity and relations of trust among stakeholders.
While we often hear about older workers, it is important to understand the contribution that less experienced workers make. They often bring new pairs of eyes to a situation and suggest different ideas. Facilitating interaction and collaboration between the generations generally helps bring out innovative solutions.

### 2.6 TYPES OF KNOWLEDGE TRANSFER

Up to this point, we have mainly dealt with knowledge transfer within an organization. Transfer is also possible between organizations and from research to practice. The table below describes the different types of transfer.

<table>
<thead>
<tr>
<th></th>
<th>Intraorganizational</th>
<th>Interorganizational</th>
<th>Research–Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Process by which a unit (individual, group, department, division) is affected by the experience of another unit of the same organization.</td>
<td>Process by which an organization is affected by the experience of another organization.</td>
<td>Process by which the academic community and research centers disseminate their research results to work settings.</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Preserve critical knowledge within the organization and make it available to all employees.</td>
<td>Improve competitive positioning through the exchange of non-competitive knowledge.</td>
<td>Engage in mutual help and improve performance through the exchange of scientific and field knowledge.</td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td>Exchange between people, departments, or units within an organization or a multinational.</td>
<td>Acquisitions, mergers, strategic alliances, partnerships, integration systems, networking.</td>
<td>Exchange between the academic community and private or public organization practitioners involved in research.</td>
</tr>
</tbody>
</table>
2.7 THE TWO TYPES OF KNOWLEDGE TRANSFER TOOLS

Organizations and individuals are bombarded by information sources that are proliferating at a dizzying rate. In response to this information overload, the first efforts in managing and transferring knowledge were focused on developing and applying technological tools for managing information bases. This approach generally treats knowledge as stock or a fixed object. Knowledge, however, is not static. Indeed, it is highly dynamic, changing with people, context, and time. In short, people are at the heart of the KT process because they hold the knowledge.

"... Knowledge has become the only source of long-run sustainable competitive advantage, but knowledge can only be employed through the skills of individuals. The value of an individual’s knowledge depends upon the smartness with which it is used in the entire system."

Lester Thurow, 1999

There are also dynamic tools that enable organizations and their employees to exchange and transfer their knowledge. Businesses need these tools and other mechanisms to facilitate knowledge transfer and make it successful. This toolkit places greater emphasis on dynamic tools that foster the diagnosis of knowledge and needs, and the development of KT capacities. In the next section, you will be able to assess your knowledge transfer practices in order to determine which KT tools are relevant for your context. You will also learn how to access summary fact sheets for these tools. Investing in resources and providing tools constitute the first step in the right direction toward the adoption of effective knowledge transfer behaviours.
3.1 USING THE TOOLKIT

Now that you understand the usefulness of transferring knowledge, we have prepared a list of tools. Each of the tools is explained in a two-page summary fact sheet that presents its use, its OHS application, practical examples (if applicable), its advantages, its limitations, resources, and references. The second page specifies how to use the tool if you want to implement it within your organization. There are about 30 tools in all; here is an example.

The summary fact sheets are accessible on a Web site, where you can browse the tools according to:

- alphabetical order; or
- KT step.

If you're not sure which tools to select, we have prepared several simple statements to help you determine where your organization is in terms of OHS KT practices. The assessment is divided into three steps required to develop sound OHS KT practices, namely:

1. the diagnosis step;
2. the development of KT leverage;
3. the integration of KT to OHS.
You can find these statements in the following section. This assessment should help you to:

- Become familiar with the key dimensions of knowledge transfer.
- Take stock of your current OHS KT practices.
- Become familiar with the tools available based on important KT dimensions.
- Select tools that are pertinent to your assessment.

The **tools selected are not limited or exclusive to each step**. Other tools can be added or even used in developing several capacities.

Before you go on to a step-by-step assessment of your OHS knowledge transfer practices, we invite you to take a look at a summary of these steps presented as a decision tree. Using the guide, respond to the questions and follow the arrows according to your responses. The page numbers refer to pages in this toolkit.
CHAPTER 3 – KT TOOLS APPLIED TO OHS

DECISION TREE:

KNOWLEDGE TRANSFER (KT) APPLIED TO OHS

Would we benefit from KT in OHS?

Yes

Do we have a responsible KT team in place?

Yes

Do we have tools to diagnose our existing knowledge?

Yes

Is there a climate of trust that fosters KT in our organization?

Yes

Do we know the nature of our OHS needs?

Yes

Cont’d on next page

No

Process ends

No

Put into place a KT team to implement the process. Internally: champion(s), integrating committee, etc. Externally: consultant, support, etc.

Ensure that they have access to resources (human, financial, physical, etc.) required for success.

No

See the toolkit: Diagnosis of knowledge and list of tools to use to inventory our knowledge, pp. 21-22.

Choice of appropriate tools for inventorying our knowledge.

No


Put into place activities fostering a climate of trust.

No

See the toolkit: Diagnosis of needs and list of tools used to determine our needs, pp. 25-26.

Choice of appropriate tools for inventorying our needs.
Do we have in place the capacity to generate or improve knowledge that can respond to our needs?

Choice of appropriate tools for generating knowledge.

Do we have in place the capacity to disseminate the necessary knowledge across the entire system?

Choice of appropriate tools for disseminating knowledge.

Do we have the capacity to absorb the new knowledge needed to respond to our needs?

Choice of appropriate tools for better absorbing knowledge.

Do we have the capacity to adapt and be responsive to our need to continually renew knowledge?

Choice of appropriate tools for better adaptation and responsiveness of KT process.

See the toolkit: Diagnosis of the generative capacity and list of tools to develop this capacity, pp.: 27-29.

See the toolkit: Diagnosis of the disseminative capacity and list of tools to develop this capacity, pp.: 30-31.

See the toolkit: Diagnosis of the absorptive capacity and list of tools to develop this capacity, pp.: 32-34.

See the toolkit: Diagnosis of the adaptive and responsive capacity and list of tools to develop this capacity, pp.: 35-37.

Process to be repeated as necessary to promote adoption of effective behaviours in a culture of continuous improvement of OHS KT.
**INSTRUCTIONS TO ASSESS KT PRACTICES APPLIED TO OHS**

**Instructions**
After reading the explanation of each step, you should respond to the statements presented in the table. For example:

You need to indicate, based on a scale of 1 to 10, your agreement with each of the statements. The number 1 corresponds to the lowest level of agreement and the number 10 to the highest.

At the end of each step, we have included space so that you can add your comments or reactions to your assessment. You can also use this space to enter any differences there may be between departments, for example.

**Vocabulary**
The expression "employees in your organization" refers to all floor workers, supervisors, middle management, and management.

The term "department" refers to all groupings, whether by function (marketing, production, research and development, human resources, head office, etc.) or by production (plants, chains, etc.).

<table>
<thead>
<tr>
<th></th>
<th>AGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. The organization has tools and means for identifying the OHS knowledge and expertise of its employees.</strong></td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>
Step 1: Diagnosis of Knowledge and Needs

DIAGNOSIS OF EXISTING KNOWLEDGE

Being aware of what you already know is really the best place to start. Your employees and management staff have accumulated knowledge and experience over the years. For example, certain workers may have acquired safety know-how related to potential hazards at their workstations or in their work settings. Who are the experts with respect to OHS intervention and prevention? What do they know?

Identifying critical OHS knowledge will enable the organization, its employees, departments, or specific groups to realize what they know from the outset. The responses to the statements in the following table will indicate if your organization has sound practices and tools to carry out a knowledge diagnosis in your organization.

1. The organization has tools and means for identifying the OHS knowledge and expertise of its employees (e.g., performance evaluation).

2. The OHS knowledge, solutions, and expertise held by the employees in the organization are inventoried and made available to everyone, including other departments (e.g., bulletin board, meetings, etc.).

3. The documentation of OHS interventions contains explanations of elements that have worked well or less well (e.g., incident and accident investigations, inspection reports, etc.).

4. Employees in the organization with key expertise can be identified (e.g., table identifying people with first-aid / first-responder training, etc.).

5. The organization ensures that its employees’ OHS knowledge and expertise is kept up-to-date (e.g., list of OHS skills acquired by employees).

Add the results of all five statements. If the score is between:

• 5 and 10: It appears that your organization has no or few practices in place to diagnose knowledge. We strongly recommend that you implement a number of the tools listed below.

• 11 and 20: You have taken some steps to facilitate the diagnostic process. You can improve the process by adding some of the tools listed below.

• 21 and 30: Your organization is somewhat equipped to diagnose its knowledge. Now you need to define and consolidate the diagnosis by adding tools listed below.
• **31 and 40:** Your organization is well-equipped to perform the diagnosis. You could broaden it to ensure that all critical knowledge is considered by adopting some of the tools listed below that you have not already tried.

• **41 and 50:** Your organization appears to already have in place mechanisms to carry out the diagnosis. You could, however, browse through the list of tools to see if there are any that you might need. Proceed to the following step and assess your diagnosis practices for determining your OHS KT needs.

These tools, presented from the simplest to the most complex, can help you to better diagnose the knowledge of people in your organization.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Definition</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Center</td>
<td>Consisting of a large database, the knowledge center stores information and knowledge that the organization requires for smooth operation and ease of access (additions, updates, research, use, etc.). The stored knowledge can be OHS investigation, statistical frequency and severity reports; feedback from experience; procedure manuals; best practices; OHS jurisprudence; etc.</td>
<td>English / French</td>
</tr>
<tr>
<td>Knowledge Management Audit</td>
<td>Questionnaire and guide that help discover and diagnose the status of a business’ knowledge management processes and practices.</td>
<td>English</td>
</tr>
<tr>
<td>Human Resource (HR) Description</td>
<td>As the first critical step in human resource management planning, HR description consists of studying, describing, and analyzing the organization’s workforce (trades, departments, functions, etc.) in terms of age, eligibility for retirement, seniority, qualifications, status, diversity, etc.</td>
<td>English / French</td>
</tr>
<tr>
<td>Knowledge Mapping and Inventory</td>
<td>Consists of producing a detailed inventory of the knowledge held by individuals and by the organization that is deemed useful and critical for ensuring performance. Summarizes who knows what and in what department. Can be presented in a descriptive document or as a map.</td>
<td>English / French</td>
</tr>
<tr>
<td>Interviews</td>
<td>Tool used to gather information in a face-to-face setting. Interviews in knowledge transfer make it possible to identify and grasp the knowledge held by an individual and express his or her needs.</td>
<td>English / French</td>
</tr>
</tbody>
</table>

These tools are described in the summary fact sheets that are available on our Web site at: www.usherbrooke.ca/vers/LRDTC. It should also be noted that the risk inventory, the summary table of OHS outcomes and actions, workplace inspections, accident logs, accident investigations and analyses, accident statistics, and the OHSC (occupational health and safety committee) library are all internal sources of knowledge that would be useful in carrying out an OHS knowledge diagnosis.
Each organization develops in an environment that facilitates or restricts KT. Regardless of the context, however, there is one constant: **trust must be present for knowledge transfer to be a success.** In fact, it plays a major role (Levin, Cross, Abrams and Lesser, 2003; Tsai and Ghoshal, 1998). People very rarely exchange and transfer knowledge when trust is not present. Therefore, you must know from the very outset if there is a high level of trust within the organization and if its employees trust one another. The following statements cover behaviours that foster the development of trust.

1. The employees in the organization trust one another, respect one another, and do not hesitate to give their opinions.  
2. Employees in the organization openly admit and assume responsibility for their errors.  
3. Employees in the organization take the initiative to correct problem situations and to prevent their recurrence.  
4. Employees in the organization generally act in the organization’s interest, without pursuing a hidden agenda.  
5. Generally, a good climate of trust reigns in the organization.

Add the results of all five statements. If the score is between:

- **5 and 10:** It appears that the level of trust is low. We strongly recommend that your organization become familiar with the subject and act to foster a climate of trust.
- **11 and 20:** Certain aspects show that trust is somewhat present. Your organization should act to improve the climate of trust.
- **21 and 30:** Although trust is present, certain aspects leave something to be desired. You should direct your attention to working more specifically on these aspects of trust.
- **31 and 40:** Your organization is on the right track. The level of trust is good, which should help in knowledge transfer. You just need to work on consolidating.
- **41 and 50:** The level of trust in your organization appears to be excellent. This is an added value that you must safeguard. Make sure that your organization maintains this climate of trust. It is an essential ingredient in guaranteeing KT success.
Since trust is intimately related to the specific context and is built over time and with the people present, proposing specific tools is a risky business. There is general consensus, however, that the focus should be on fostering attitudes and behaviours that develop trust, such as honesty, transparency, integrity, respect, openness, tolerance, dialogue, etc. You can learn more about this topic from the references given below.

**Articles on Trust**


**Articles on the Importance of Trust in Knowledge Transfer**


**Articles on Measuring Trust**


**Personal Comments**

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NEEDS DIAGNOSIS

The organization also has to assess its new knowledge needs. In other words, what OHS knowledge does the organization and its employees need? What does the organization need to function properly? What knowledge do employees need that relate to OHS and OHS knowledge transfer? What do employees lack to improve their decision-making and prevention practices?

The needs diagnosis is important in order to grasp clearly what employees in the organization, groups, departments, and the organization itself need. A proper diagnosis keeps irrelevant information from being circulated since this could result in information overload. Moreover, employees tend to react more positively to changes that actually respond to their needs. This holds true in knowledge transfer. The better the diagnosis of the organization’s needs, the more it will be possible to transfer knowledge that responds to a genuine need. The following statements will help you determine if the organization is doing a good job in defining its needs.

Add the results of all five statements. If the score is between:

5 and 10: It appears that your organization has no or few practices in place to define its needs. We strongly recommend that you adopt several of the tools listed below.

11 and 20: You have taken some steps to facilitate the diagnosis process. You should consolidate the process and diagnosis of your needs by adding some of the tools listed below.

21 and 30: Your organization is taking steps to define its needs. Now you need to clearly define and consolidate the diagnosis by adding tools listed below.

31 and 40: Your organization is well-equipped to define its needs. You could broaden its approach to ensure that all needs are considered by adopting some of the tools listed below that you have not already tried.

41 and 50: Your organization appears to already have in place mechanisms to clearly define the needs of people in your organization. You could, however, browse through the list of tools to see if there are any that you might need. Proceed to the next step to continue assessing your organization’s OHS KT practices.

1. The organization uses tools and methods to identify the OHS needs of employees in the organization and keeps them up-to-date (e.g., follow-up of OHS committee recommendations, incident and accident investigations, etc.).

2. Particular attention is given to the tacit OHS needs (defined in Chapter 2) of employees in the organization.

3. OHS needs are systematically reassessed in the case of new or modified jobs, positions, or tasks (e.g., job analysis).

4. Monthly reviews of accidents and reactions to prevention activities are kept current in order to detect trends.

5. Employees in the organization take part in defining OHS objectives.
These tools, going from the simplest to the most complex, can help you to better define the needs of people in your organization.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Definition</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWOT</td>
<td>Analysis tool used to determine an organization’s strengths (S) and weaknesses (W) as well as an external scan of the opportunities (O) and threats (T) presented by the external environment. It provides useful information about how the organization’s resources fit with the competitive environment.</td>
<td>English / French</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Data-collection instrument based on a set of questions for respondents to answer. Generally on paper or electronic format, the questionnaire is distributed to a representative sample of the population.</td>
<td>English / French</td>
</tr>
<tr>
<td>Needs–Objectives Matrix</td>
<td>Tool used to summarize various measurement indicators in table form. The results obtained for each indicator are converted using a large standardized incremental scale that makes it possible to compare elements of entirely different natures. Can be adapted to OHS as well as knowledge transfer.</td>
<td>French</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>Training and facilitation of focus groups on a given topic. Six to twelve people recruited and invited by a facilitator to give their opinions. Can help identify knowledge transfer needs. Roundtables are also a kind of focus group, which can be referred to as a discussion group.</td>
<td>English / French</td>
</tr>
<tr>
<td>OHS Audit</td>
<td>Assessment in the form of an OHS audit based on organizational context and OHS management activities to identify strengths and weaknesses, and to select relevant measures for improving OHS performance. Also serves to assess whether the organization complies with OHS legislation and regulations or how it compares to best practices.</td>
<td>English / French</td>
</tr>
</tbody>
</table>

These tools are described in the summary fact sheets that are available on the Web site at: www.usherbrooke.ca/vers/LRDTC. OHSC meetings are a good means of validating the needs identified. The Centre patronal de santé et de sécurité du travail du Québec distributes a guide about OHSCs that explains the committee’s roles and operation: Les outils du comité de santé-sécurité – Guide pratique. The Association sectorielle paritaire (ASP) métal-électrique has also published a guide entitled: Vers un comité de santé et sécurité efficace.

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Step 2: Developing OHS KT Leverage

Once the organization has defined its knowledge and needs, the next step is generally identifying the various capacities that stakeholders must develop during the KT process. The organization must have generative, disseminative, and absorptive capacities, which provide the leverage necessary for OHS KT to take place. The purpose of this step is to determine which capacities require support and tools to develop them, thereby fostering knowledge transfer.

**GENERATIVE CAPACITY**

In the area of OHS, in order to keep the workplace safe, everyone must discover, improve, or take part in creating knowledge to promote safe decisions that promote the adoption of safe behaviours. **No improvement is possible without the generation of knowledge.** For example, knowledge generation can materialize through researching new solutions after the employees identify specific needs. This can be done in cooperation with people from other divisions or departments, or by surveying external information sources. The advantage resulting from a well-developed generative capacity is collaboration and its outcomes. Input from people not involved in a problem situation can sometimes generate valuable and even innovative new solutions. Moreover, the generative capacity yields behaviours that foster innovation. In fact, all the people in your organization should develop this capacity. The following statements can help you assess how developed the generative capacity is in your organization.

1. The employees in the organization have a platform for suggesting ideas for improving or correcting OHS problems.
2. Employees from different departments in the organization consult one another to solve OHS problems.
3. The employees in the organization listen to and constructively criticize each other’s ideas when OHS improvements are proposed.
4. The employees in the organization use external information sources to create new OHS knowledge.
5. The employees in the organization view the development and addition of new OHS knowledge as a means of improving their work performance.

Just a reminder: the process is not linear. The organization can decide to give preference to developing the absorptive capacity or to develop all three capacities at the same time. The key issue is understanding that there is a direct relationship between how well developed the capacities are and the chances of successful KT - the better developed the capacities are, the more successful the knowledge transfer process will be.
Add the results of all five statements. If the score is between:

• **5 and 10**: It appears that your organization has no or few mechanisms in place to facilitate the generation of knowledge. We strongly recommend that you initiate a reflection on this capacity and use the tools proposed in this regard.

• **11 and 20**: A few measures have been taken to facilitate the capacity to generate knowledge. You should make it a development priority by adopting some of the tools listed below.

• **21 and 30**: Your organization seems to have some bases for generating knowledge. Now you need to clearly define and consolidate this capacity by adding one or more of the tools proposed below.

• **31 and 40**: Your organization has made considerable efforts. You could broaden your approach to ensure that relevant knowledge is generated by consulting the tools listed below.

• **41 and 50**: Your organization seems to have put in place the elements required to deploy the generative capacity. You could, however, browse through the list of tools to see if there are any that you might need. Proceed to the next step to assess if your disseminative capacity is also well developed.

These tools, going from the simplest to the most complex, can help you to develop the capacity to generate knowledge.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Definition</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorming</td>
<td>Brainstorming makes it possible to generate a significant number of ideas during a session. A session consists of about 10 participants discussing with a view to understanding the needs and possible causes related to a given topic and to gather ideas for possible solutions. A facilitator should be on hand to help guide discussions.</td>
<td>English / French</td>
</tr>
<tr>
<td>Joint OHS Committee</td>
<td>Joint committee comprised of employees, employee representatives, and managers who exchange, collaborate, and take part in the decision-making process related to preventing accidents and promoting occupational health and safety.</td>
<td>English / French</td>
</tr>
<tr>
<td>Nominal Group Technique</td>
<td>Structured discussion technique designed to produce a large number of ideas in a relatively short period of time that group participants rank according to priority in order to arrive at a consensus. A facilitator manages the specific steps in the process, which include generating ideas and discussion.</td>
<td>English / French</td>
</tr>
<tr>
<td>Community of Practice</td>
<td>A group of people with a shared passion or concern who meet to exchange and deepen their knowledge by interacting on a regular basis with other CoP members.</td>
<td>English / French</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>Benchmarking is the continuous, systematic process for identifying the organizations that best perform a given procedure or task, studying it, comparing performances, gaining insights, and adapting these practices and new knowledge for use in one’s own business.</td>
<td>English / French</td>
</tr>
</tbody>
</table>
These tools are described in the summary fact sheets that are available on the Web site at: www.usherbrooke.ca/vers/LRDTC.

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CHAPTER 3 – KT TOOLS APPLIED TO OHS

DISSEMINATIVE CAPACITY

Disseminative capacity is an important, well-known KT aspect based mainly on circulating knowledge. Employees must be able to situate OHS knowledge in their own context, translate it into clear language, adapt, and disseminate it while fostering the commitment of the people concerned. For example, it could consist of employees committing to sharing their OHS knowledge with stakeholders, such as other departments, OHS officers, and so on.

Add the results of all five statements. If the score is between:

- 5 and 10: It appears that your organization has no or few mechanisms in place to facilitate the dissemination of knowledge. We strongly recommend that you initiate a reflection on this capacity and use the tools proposed in this regard.

- 11 and 20: You have taken some steps to facilitate the capacity of disseminating knowledge. You should make it a development priority by adopting some of the tools listed below.

- 21 and 30: Your organization seems to have some bases for disseminating knowledge. Now you need to clearly define and consolidate this capacity by adding one or more of the tools proposed below.

- 31 and 40: Your organization has made considerable efforts. You could broaden your approach to ensure the dissemination of relevant knowledge by consulting the tools listed below.

- 41 and 50: Your organization appears to already have in place the elements needed for a well-developed disseminative capacity. You could, however, browse through the list of tools to see if there are any that you might need. Proceed to the next step to assess if your absorptive capacity is also well developed.
These tools, going from the simplest to the most complex, can help you develop your capacity to disseminate knowledge.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Definition</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Broker</td>
<td>A knowledge broker is an individual or organization that provides a connection and transfers knowledge between two or more parties. Serves as an intermediary between two communities. The role includes facilitating interactions, communicating each party's needs, popularization and contextualization of the knowledge to be transferred.</td>
<td>English / French</td>
</tr>
<tr>
<td>Mentoring</td>
<td>Mentoring is a supportive learning relationship between an individual (mentor) who supports challenges and encouragement, and shares his/her knowledge, experience and wisdom with another individual (mentee) who is willing and ready to benefit from this exchange to enrich his/her professional journey. Coaching, sponsoring, and the buddy system are other examples emphasizing the creation of a relationship that has learning as its purpose.</td>
<td>English / French</td>
</tr>
<tr>
<td>Social Network Analysis</td>
<td>Tool serving to identify, analyze, and map the relationships and knowledge flow among people, groups, and organizations to illustrate who consults who and who shares knowledge with whom. Sometimes referred to as an organizational x-ray because the tool depicts informal relations or social network analysis (SNA). Also referred to as &quot;sociogram&quot; in the field of education.</td>
<td>English / French</td>
</tr>
<tr>
<td>Storytelling</td>
<td>Using stories (individual or organizational, real, taken from fables or created) to describe complex topics, explain events, or understand the difficulty in making change while facilitating knowledge transfer.</td>
<td>English</td>
</tr>
</tbody>
</table>

These tools are described in the summary fact sheets that are available on the Web site at: www.usherbrooke.ca/vers/LRDTC. Selecting tools nearly always requires interaction between people. Interaction fosters dissemination and, consequently, better transfer of tacit knowledge, generally the most critical in nature. Continue, however, to use your usual channels—referred to as more traditional—such as internal newsletters, posters, Internet and intranet sites, documentation centers, online learning (e-learning), etc. The more employees are in contact with the knowledge to be transmitted, the greater the chances that they will absorb it and put it into practice.

**Personal Comments**

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**ABSORPTIVE CAPACITY**

Lastly, for transfer to be successful, it is important for the knowledge to be used. That is why the people in your organization need to recognize, buy into, and put into practice the new or improved OHS knowledge. Developing the capacity to absorb knowledge is a major challenge. Organizations sometimes put more effort into generating and disseminating knowledge without really paying much attention to absorption. Employees do not automatically absorb OHS knowledge simply because it has been disseminated. Constant effort and follow-up is needed to ensure that workers initially recognize the value of OHS knowledge, that they incorporate the transferred knowledge into their contexts, and that they put it into practice. Developing this capacity is essential because it translates the usefulness of the knowledge. Transfer does not really exist without absorption. The condition that generally facilitates development of this capacity is openness to learning and change. The more people are willing to learn and change, the greater the chance that they will better absorb the knowledge transferred. The following statements assess the capacity to absorb knowledge.

1. The employees in the organization perceive the knowledge transferred and changes made to correct situations as being credible and relevant.

2. The employees in the organization buy into the OHS knowledge transferred and changes made and adapt them to their own contexts.

3. The employees in the organization put the OHS knowledge transferred and changes made into practice on a daily basis.

4. Whether faced with failure or success, the employees in the organization try to understand what occurred and what they can do the next time to maintain or improve the situation.

5. The employees in the organization help each other to facilitate mutual learning.

Add the results of all five statements. If the score is between:

- **5 and 10:** It appears that your organization has no, or few, mechanisms in place to facilitate the absorption of knowledge. We strongly recommend that you initiate a reflection on this capacity and use the tools proposed in this regard to improve the situation.

- **11 and 20:** A few measures have been taken to facilitate the absorption of knowledge. You should make it a development priority by adopting some of the tools listed below.

- **21 and 30:** Your organization seems to have some bases for absorbing knowledge. Now you need to clearly define and consolidate this capacity by adding one or more of the tools proposed below.
**31 and 40:** Your organization has made considerable efforts. You could broaden your approach to ensure deployment of your absorptive capacity and implementation of OHS knowledge by consulting the tools listed below.

**41 and 50:** Your organization appears to already have in place the elements needed for a well-developed absorptive capacity. You could, however, browse through the list of tools to see if there are any that you might need. Proceed to the next step to assess if your organization has done a good job at integrating knowledge transfer.

These tools, going from the simplest to the most complex, can help you develop your capacity to absorb knowledge.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Definition</th>
<th>Language</th>
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<tbody>
<tr>
<td>Safe Behaviour Observation (SBO)</td>
<td>Continuous improvement technique combining observation, training, and communication. Depending on the selected situation, an individual constructively and considerately observes another person's behaviours and attempts to replicate good behaviours and/or to correct unsafe practices. A trainer guides the observation and assesses the apprentice employee’s learning.</td>
<td>English / French</td>
</tr>
<tr>
<td>After-Action Review</td>
<td>Assessment conducted at the end of a project, major activity, or step that yields lessons about them. The participants respond to questions to discover what happened and to determine what went well and what could be improved.</td>
<td>English / French</td>
</tr>
<tr>
<td>Force Field Analysis</td>
<td>Tool that analyzes the forces that work in favour of a desired change (positive factors) and the forces that work against the change (negative factors). It can be applied on the individual, departmental, and organizational levels as well as in specific situations, such as adapting to a change, acquiring new equipment, etc.</td>
<td>English / French</td>
</tr>
<tr>
<td>Learning History (LH)</td>
<td>Based on interviews carried out with the people concerned by an event or change, a researcher or outside consultant uses a two-column document of 20 to 100 pages to recount events as experienced by employees in their own words. The right-hand column contains narratives of an event by participants, while the left-hand column provides an analysis of recurrent themes and questions from the researcher or consultant. Once written and validated, the learning history is disseminated to discussion groups comprising interviewees and other people who might draw lessons from it that will influence events to come.</td>
<td>English / French</td>
</tr>
<tr>
<td>Action Learning</td>
<td>Process whereby individuals with different knowledge and skills are matched so that they can work together to solve a real problem. The group proposes an action plan and implements it. The group then examines the results for learning purposes and to adjust the solutions as the project progresses. Emphasis is on learning how to act. Someone may facilitate the meetings.</td>
<td>English</td>
</tr>
</tbody>
</table>
These tools are described in the summary fact sheets that are available on the Web site at: www.usherbrooke.ca/vers/LRDTC. Job analyses, inspection reports and the resulting discussions, and investigation reports are excellent indicators of knowledge absorbed by the community. The schedule for implementing an intervention also makes it possible to track its progress and take note of lessons learned in real time.

Personal Comments

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Step 3: Continuous Integration of OHS KT using the Adaptive and Responsive Capacity

The organization, when it comes to KT, must always be prepared to provide mechanisms to facilitate the adaptation of the knowledge in question. This is the adaptive and responsive capacity, involving the skill to learn and continually renew the knowledge transfer system used. For example, it consists of the organization’s having mechanisms in place to facilitate feedback in such a way that it becomes second nature for employees and management to adapt their OHS knowledge. The ultimate goal for this capacity is to facilitate adaptation of knowledge based on the specific contexts and to integrate the knowledge into a culture of continuous improvement in OHS KT. The following statements can help you assess this capacity.

| 1. The organization has the means to foster comparison and feedback so as to stimulate the adaptation of transferred OHS knowledge (e.g., the Balanced Scorecard (BSC) applied to OHS). | 1 2 3 4 5 6 7 8 9 10 |
| 2. The employees in the organization take the time to adapt and update OHS procedures (e.g., continuing education in OHS). | 1 2 3 4 5 6 7 8 9 10 |
| 3. The employees in the organization concerned with OHS issues are involved in the various related committees and encourage their coworkers to do likewise in order to improve OHS. | 1 2 3 4 5 6 7 8 9 10 |
| 4. The employees in the organization take note of their individual learnings and disseminate them within the organization (coworkers, supervisors, management, etc.). | 1 2 3 4 5 6 7 8 9 10 |
| 5. The employees in the organization make OHS knowledge transfer a priority. | 1 2 3 4 5 6 7 8 9 10 |

Add the results of all five statements. If the score is between:

- 5 and 10: It appears that your organization has no or few mechanisms in place to facilitate adaptation of the transfer of OHS knowledge. We strongly recommend that you initiate a reflection on this practice and use the tools proposed in this regard to improve the situation.
- 11 and 20: You have taken some steps to facilitate the adaptive and responsive capacity. You should make it a development priority by adopting some of the tools listed below.
- 21 and 30: Your organization seems to have some bases for adaptation and response. Now you need to clearly define and consolidate this capacity by adding one or more of the tools proposed below.
- 31 and 40: Your organization has made considerable efforts. You could broaden your approach to ensure deployment of your capacity for adaptation and response, and implementation of OHS knowledge by consulting the tools listed below.
- 41 and 50: Your organization appears to already have in place the elements needed for a well-developed capacity for adaptation and response. You could, however, browse through the list of tools to see if there are any that you might need. Continue your excellent work: you appear to have the means for successful OHS KT!
These tools, going from the simplest to the most complex, can help you develop your adaptive and responsive capacity.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Definition</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Five Questions</td>
<td>The purpose of this activity is to obtain sufficient information to help describe a given situation and grasp its underlying causes. This is done by answering the questions: Who? What? Where? When?, and How? In some cases, adding the question &quot;Why?&quot; to each of the questions may help complete the picture of the situation.</td>
<td>English / French</td>
</tr>
<tr>
<td>Knowledge Management Plan (KMP)</td>
<td>Process that leads to reflection on the actions that an individual, team, or organization can implement to improve knowledge management and transfer. As an action plan that attempts to follow the KT performance of individuals, a team, or an organization, the KMP must be integrated into the process for assessing performance and establishing the work objectives.</td>
<td>English / French</td>
</tr>
<tr>
<td>Reframing Matrix</td>
<td>Technique that helps individuals and organizations to look at problems from a number of different viewpoints by questioning the system’s different stakeholders to foster reflection and generate ideas and solutions. The situation is viewed according to the 4 “P” perspectives: program, planning, potential, and people.</td>
<td>English</td>
</tr>
<tr>
<td>Future Search Conference</td>
<td>Meeting involving a large number of people from a variety of backgrounds who are concerned about the same issue. Participants express their opinions about the past, present, and future as well as take part in building a shared vision and developing an action plan involving the stakeholders.</td>
<td>English</td>
</tr>
<tr>
<td>Kaizen</td>
<td>Kaizen is a business strategy that requires rethinking through observation and the involvement of all stakeholders. The basis of Kaizen is observing the workstation, the individual in his/her environment, and safety as a whole. The process is centered around continuous, concrete improvements achieved in a relatively short lapse of time.</td>
<td>English / French</td>
</tr>
<tr>
<td>Balanced Scorecard (BSC)</td>
<td>Concept for succinctly selecting and presenting targeted performance indicators for decision-making by achieving an overall view of the organization. It makes it possible to analyze situations, anticipate changes, and quickly react. Presented as tables or spreadsheets, the BSC can include OHS and knowledge management indicators.</td>
<td>English / French</td>
</tr>
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</table>

These tools are described in the summary fact sheets that are available on the Web site at: www.usherbrooke.ca/vers/LRDTC.
Personal Comments

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### 3.3 CHECKLIST: OHS KNOWLEDGE TRANSFER

<table>
<thead>
<tr>
<th>1. DIAGNOSIS</th>
<th>2. DEVELOPMENT...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State of Knowledge</strong></td>
<td><strong>State of Needs</strong></td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>• Identify the employees in the organization who have critical knowledge.</td>
</tr>
<tr>
<td></td>
<td>• Systematically inventory knowledge.</td>
</tr>
<tr>
<td></td>
<td>• Identify current knowledge transfer structures and practices.</td>
</tr>
<tr>
<td></td>
<td>• Assess the climate of trust.</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td><strong>Structures</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Put into place tools to inventory knowledge.</td>
</tr>
<tr>
<td></td>
<td>(e.g., knowledge center, knowledge management audit, human resource description, knowledge mapping and inventory, interviews, etc.)</td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Culture</strong></td>
<td>Promote and recognize knowledge development.</td>
</tr>
</tbody>
</table>
## 3.3 CHECKLIST: OHS KNOWLEDGE TRANSFER (CONT’D)

<table>
<thead>
<tr>
<th>...OF LEVERAGE</th>
<th>3. KT INTEGRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disseminative Capacity</strong></td>
<td><strong>Absorptive Capacity</strong></td>
</tr>
<tr>
<td>• Identify and involve dissemination champions.</td>
<td>• Identify and involve absorption champions.</td>
</tr>
<tr>
<td>• Understand audiences and adapt the contents accordingly (format, means, persons responsible, and time).</td>
<td>• Put into place mechanisms for assessing absorption.</td>
</tr>
<tr>
<td>• Render the knowledge transferred practical and simple.</td>
<td>• Provide structures making it possible to recognize, buy into, and put into practice the knowledge transferred.</td>
</tr>
<tr>
<td>• Provide structures making it possible to exchange knowledge between departments (physical and virtual spaces, interactions, etc.).</td>
<td>• Put into place tools facilitating absorption. (e.g., safe behaviour observation, after-action review, force field analysis, learning history, action learning, etc.)</td>
</tr>
<tr>
<td>• Put into place tools facilitating dissemination. (e.g., knowledge broker, mentoring, social network analysis, storytelling, etc.)</td>
<td>• Put into place tools facilitating absorption. (e.g., safe behaviour observation, after-action review, force field analysis, learning history, action learning, etc.)</td>
</tr>
<tr>
<td>• Promote and recognize the sharing and exchange of knowledge in a climate of trust.</td>
<td>• Promote and recognize safe experimentation, the right to make mistakes, openness to change and learning.</td>
</tr>
</tbody>
</table>
4.1 FINAL RECOMMENDATIONS

Throughout this document, we have demonstrated that the organization must make knowledge transfer a priority and tie it to the organization’s general objectives, predictive performance measurements, and occupational health and safety management. Getting the organization and its employees to transfer knowledge is not easy, but it is possible and useful. Here are a few tips to ease the process:

- Patience is your strongest ally to achieve outstanding KT outcomes.
- Start with small groups and involve your knowledge transfer and organizational change leaders and champions.
- Develop each of the capacities related to KT dynamics.
- Do not hesitate to test tools in order to help your organization enhance its performance in knowledge transfer and OHS.
- Conduct ongoing follow-up and assess the impacts of new knowledge transfer practices.
- Maximize opportunities for exchange and interactions between people in order to facilitate the transfer of tacit knowledge.
- Trust must lie at the core of your organizational learning; otherwise, your efforts are doomed to failure.

Lastly, remember that upper management commitment is essential. Management and supervisors must set an example, practice what they preach, transfer their knowledge, offer support, and recognize efforts.

Good luck and may your knowledge transfer be successful!
4.2 TEST YOUR KNOWLEDGE

This test will enable you to measure the knowledge that you have absorbed from this KT toolkit applied to OHS.

1. Knowledge includes:
a) Data
b) Information
c) Experience
d) Intuition
e) All the above

2. Tacit knowledge is:
a) Knowledge shared tactfully
b) Easy to transfer
c) Objective knowledge
d) Encoded knowledge
e) In people’s head

3. Knowledge transfer is:
a) Training
b) Synonymous with document management
c) Putting into place a culture, strategies, tools, and techniques to foster the sharing of knowledge
d) The responsibility of individuals and the organization

4. The goal in OHS knowledge transfer is to:
a) Hand the problem off to someone else
b) Facilitate knowledge exchanges that foster a safer mental and physical environment
c) This is not an OHS concern
d) Ensure that the OHS knowledge transmitted responds to a real need

5. Which of the following statements foster knowledge transfer?
a) Admit your errors
b) Take the initiative
c) Have a climate of trust
d) Interaction between people
e) All the above

6. Which of these are capacities needed for knowledge transfer?
a) Generative capacity
b) Disseminative capacity
c) Absorptive capacity
d) Adaptive and responsive capacity
e) All the above

7. True or false:
The capacity to learn and the capacity to change promote development of the absorptive capacity.

If you have any questions, do not hesitate to contact the Dynamic Knowledge Transfer Research Laboratory at Université de Sherbrooke. Please feel free to send us your knowledge transfer success stories and learnings.
CHAPTER 4 – CLOSING REMARKS

4.3 PUBLICATIONS OF THE DYNAMIC KNOWLEDGE TRANSFER RESEARCH LABORATORY

Articles Published in Journals with a Reading Committee


Collective Publications / Research Reports (reading committee)


Publications Appearing in the Proceedings of Scientific Conferences (reading committee)


Award for the best article in the health-care management category


Articles Published in a Non Refereed Journal


Scientific Communications without Publications (reading committee)


Desmarais, L., Parent, R., Leclerc, L., and Raymond, L. (2007). Dynamic knowledge transfer between two geographically dispersed research teams (Quebec and Newfoundland): The case of a “train the trainers” program in knife sharpening and steeling. 2e conference de l’Atlantic Networks for Prevention Research (ANPR): Assessment and Action for Healthy Settings. Memorial University, St-John’s, Newfoundland, July 5-6.


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Coffre à outils sur le transfert de connaissances appliqué à la SST
Une approche proactive