

# Appendix B. Knowledge Management

## Table of Contents

1	A Case for Knowledge Management.....	1
2	Knowledge Management vs. Knowledge Transfer.....	2
3	Deciding on the Knowledge to Transfer.....	2
4	Strategies for Knowledge Storage and Transfer.....	4
5	Getting Started .....	7
6	Worksheets and Tables .....	10

## 1 A Case for Knowledge Management

Whenever an employee leaves a department, that department loses the knowledge held by the experienced employee. Unless the department/unit has taken deliberate steps in advance to identify and capture this information for its own institutional memory, gaps in understanding may develop that could potentially negatively impact operations, both the routine and mission critical tasks. It is at the operational level, at the unit and/or division level, where the change in staff has the biggest impact, and where the need for knowledge management and transfer are most immediate. Many of these strategies can be implemented with limited staffing, and do not require sophisticated technology or a large amount of funding.

Keep in mind that while it is important to prepare for the possible departure of employees due to retirements and promotions, a department/unit may also be impacted by vacations, medical leaves, or other temporary changes in staffing. To determine whether your department/unit has knowledge transfer strategies that will ensure future employees are well equipped to assume their duties, consider the following questions:

- Have you documented methods and procedures for the work performed?
- Have you documented the processes, methods, tools, and techniques of people with special skills and responsibilities?
- Do your retiring employees mentor employees in the unit for a period of time before they retire?
- Do you have a communications system in place that encourages the sharing of information on all aspects of your organization's operations and experience across organizational boundaries?
- Do you record important meetings/events/presentations on video or audiotape?
- Are records systems and series established to ensure that valuable information on important events or decisions is saved for an appropriate period of time and accessible to those who need it?
- Has your department considered asking for approval from the department head to:
  - Allow a retiree's successor to be appointed to a duplicate or project position to "shadow" the incumbent for a period of time so the successor can learn the job first hand?
  - Hire a retiree for the express purpose of mining knowledge and expertise?
- Are systems in place to archive material critical to documenting the institutional history of your department/unit?

## Appendix B. Knowledge Management

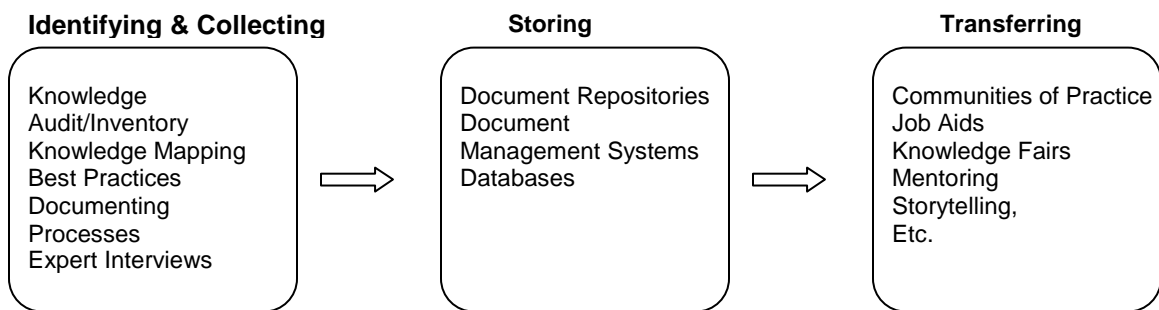
Lastly, while the need to capture knowledge may be evident by most staff, be aware that not all will be enthusiastic or ready to be part of the process for a number of reasons: an already heavy workload, fear of using a new process or technology to capture knowledge, or fear that sharing their knowledge may lead to their position being eliminated. Management should be aware of these concerns and be ready to explain how capturing knowledge will help the team to provide consistent quality services to their customers.

### 2 Knowledge Management vs. Knowledge Transfer

While the terms knowledge management and knowledge transfer are often used interchangeably, there is a difference. **Knowledge management** (KM) is thought of as a system for finding, understanding, and using knowledge to achieve organizational objectives. It is more than simply moving or transferring files and data from one employee or department to another. KM allows others to build upon a person's life experience in a way that strengthens not only the employee, but also the organization as a whole.

#### Knowledge Management

A systematic approach to finding, understanding and using knowledge to achieve organizational objectives.



Source: New York State

**Knowledge transfer** (KT) describes the actual movement of knowledge from one individual to another.<sup>1</sup> KT involves two actions: transmission (sending or presenting **knowledge** to a potential recipient) and absorption by that person or group.

Fortunately, not all knowledge is equal. You do not need to capture it from everyone, nor do you need to capture everything from any one individual. Plus, at times, the departure of an employee may serve as an opportunity for the department/unit to change the work process or allocation of workload to adjust for changes in service demands.

### 3 Deciding on the Knowledge to Transfer

At their most basic components, managing and transferring the City's knowledge consists in deciding what is to be shared, with whom it is to be shared, and how it is to be shared. In looking at the day-to-day operations of your workgroup/division/department, what knowledge should be

---

<sup>1</sup> Why Knowledge Management Transfer. New York State.  
<http://www.cs.state.ny.us/successionplanning/workgroups/knowledgemanagement/whyknowledge.cfm>

## Appendix B. Knowledge Management

captured and transferred? The following types of knowledge can be considered when deciding what is to be shared:

**Explicit vs. Tacit Knowledge:** Explicit knowledge can be described as that which is easily captured, stored, or accessed. It can be shared with a high degree of accuracy. Examples include data in data systems, email messages, training content, spreadsheets, standard operating manuals, or other documents. Tacit knowledge on the other hand is that which is carried in people's minds, and is difficult to access. This knowledge oftentimes provides context for people, places, ideas, and experiences. Some departments, by the very nature of their services, driven by legislations, rules, and regulations, possess knowledge that is easier to capture. Other departments may have evolved and become a separate entity with limited historical knowledge; may have become more automated due to changes in the industry; or may have an aged infrastructure in place, which needed to be preserved.

Employees throughout the City in serving San Franciscans learn the nuances of their work and ultimately possess knowledge not on a job description, manual, or memo. It is this tacit knowledge that is most challenging to capture. However, there are dangers in not using tacit knowledge. In developing new programs or improving existing programs, oftentimes, there is limited information for decision making if an organization or groups uses only explicit knowledge based on reporting measures or data systems.

**Cultural Knowledge:** This is the knowledge made up of the attitudes, experiences, beliefs, and values of an organization. Other terms include organizational culture or corporate culture. These norms control the way that employees interact with each other and with stakeholders outside the organization. They are guidelines or expectations that prescribe appropriate kinds of behavior by employees in particular situations and control the behavior of organizational members towards one another. In addition, work-groups within the organization/department/division may have their own behavioral quirks and interactions, which can affect the whole system. For example, computer technicians will have expertise, language, and behaviors gained independently of the organization, but their presence can influence the culture of the organization as a whole. Leadership may try to determine the organizational culture. They may wish to impose values and standards of behavior that specifically reflect the objectives of the organization.

**Historical Knowledge:** Also known as institutional memory, historical knowledge is a collection of facts, concepts, experiences, and know-how held by a group of people. As it transcends the individual, it requires the ongoing transmission of these memories between members of this group. Elements of institutional memory may be found in corporations, professional groups, government bodies, religious groups, academic collaborations, and by extension in entire cultures. Memory depends upon the preservation of data and also the analytical skills necessary for its effective use within the organization.

**Functional Knowledge:** Functional knowledge is knowledge in a subject/area/skill that is concrete and usable, and which the individual explain or teach. Functional knowledge is often the technical knowledge needed to get the work done. It can be specific to a service area (public works or community health) or specialists (EEO specialists or carpenters). Oftentimes, this type of knowledge is gained through education, and often requires certification, licenses, or degrees.

## Appendix B. Knowledge Management

Functional knowledge means that the candidate is able to actually perform the activity involved and explain verbally or in writing what they are doing.

In deciding what type of information needs to be captured and bringing light to this potential loss of knowledge, the challenge becomes how to sell the idea of knowledge management to leadership and staff. For starters, do not label it as such because the term causes confusion. Everyone has a different definition of knowledge management. Those that have heard of failures associated with the concept will be inherently biased against your project. Instead, pitch it as a project designed *to solve a particular operational problem*. Your project is much more likely to succeed if it addresses an actual goal, like improving a process in order to serve the public within a shorter period. One way to build support for a knowledge transfer strategy is to pilot the method among employees who have the most to gain and would be the most open to sharing their knowledge.

### 4 Strategies for Knowledge Storage and Transfer

Overall success in transferring knowledge depends on people's willingness to share their knowledge, accumulated over the years, and in turn, people's willingness to absorb and use the knowledge of others. Below is a list of strategies that can be put in place rather quickly to meet the needs of a department or small work group. Depending on the body of knowledge to be shared and the number of people needing to gain this knowledge, different methods may be easier to implement than others.

#### Best Practices or Meetings

At a unit meeting or meeting of peers, participants share experiences that have been successful in accomplishing a goal, creating a product, or providing great service. Discussion of these practices often generates ideas for improvements in other units or work groups.

#### Four Levels of Best Practices

Good idea	Unproved, not yet substantiated by data but makes a lot of sense intuitively; could have a positive impact of business performance. Requires further review and analysis.
Good practice	A technique, methodology, procedure, or process that has been implemented and has improved business results for an organization (satisfying some element of customers' and key stakeholders' needs).
Local best practice	A good practice that has been determined to be the best approach for all or a large part of an organization (operating company or department level).
Industry best practice	A practice that has been determined to be the best approach for all or large parts of the organization. This is based on both internal and external benchmarking work, including the analysis of performance data.

Source: If only we knew what we know, O'Dell and Grayson.

#### Communities of Practice

A community of practice is a group that comes together, in person or on-line, to share information about a common problem, issue, or topic. Computer technology enables people to share their tacit knowledge without

**SF Training and OD Professionals Network** was established in 2000 for employees involved in training and organization development throughout the City. It meets annually and is hosted by DHR's Workforce Development Division.

## Appendix B. Knowledge Management

being face-to-face or connecting in real time. Communities of practice generally cut across traditional organizational boundaries.

### Critical Incident Interviews or Questionnaires

This tool helps an organization capture the knowledge of a worker by having him/her document a difficult situation faced in their current job. The respondent describes step-by-step his/her actions and what happened as a result. Lastly, if confronted by the same situation, would they use a different approach? These lessons can prove insightful to less experienced staff. (See worksheet on page B-11).

### Cross-training

Cross-training occurs when an experienced employee (employee A) teaches a colleague (employee B) how to perform job tasks ordinarily performed by employee A. Training may be formal and structured with reference manual, or may be an informal hands-on experience with employee B taking notes on the process.

The Training Director of **DHR's Workforce Development team** trained the trainers on the administrative tasks for department-specific training projects. This included the exploratory initial consultation and drafting of the project contact.

### Expert Systems

An expert system is usually an automated system organized around troubleshooting problems. Common or difficult problems are logged into a system, such that the information is available for less experienced staff.

### Information Exchanges

An information exchange happens when a more senior or experienced worker dispenses wisdom or knowledge to a less experienced worker. These can be events that showcase information about an organization (career development at a department) or topic (health benefits for employees Citywide).

The **Library** has coffee sessions monthly with participants of their Leadership Training Academy: Gen PL. The City Librarian and other division managers share their knowledge of being a leader, managing priorities, etc.

### Job Aids

A job aid is anything that helps a person perform his/her work in the moment. A checklist or sign, though low-tech methods, can be used to store knowledge or help job a worker complete a process when the need arises. (See worksheet on page B-12).

### Job Rotational Opportunities

The duties of an employee in a job class can vary from department to department based on operations. When an employee in a job class is given the opportunity to work in a different unit/division, s/he can use other skill sets that they do not ordinarily use. They may also pick up new skill sets, and broader understanding of the operations of the unit/department.

The **Controller's Office** uses the 1649 Accountant Intern program as a training program for accountants. Interns have rotational assignments in several departments to build their knowledge base.

## Appendix B. Knowledge Management

### Job Shadowing

In a job shadow, a less experienced employee is paired with a more experienced employee. The more experienced employee shares his/her knowledge about getting their work done. Oftentimes this knowledge is gained by having the lesser experience worker observe more experienced colleague in their activities to learn how their more experienced counterparts approach their work. Experts stress the importance of having the “protégé” discuss their observations with the "expert" in order to deepen their dialog and crystallize the knowledge transfer.

### Joint Problem-Solving

Another sound approach to knowledge transfer is joint problem-solving by expert and novice. Since people are often unaware of how they approach problems or do their work and therefore can't automatically generate step-by-step instructions for doing whatever they do, having them work together on a project will bring the expert's approach to light. With joint problem-solving, the "expert" and the "novice" work hand-in-hand on a task.

In the **Civil Servics Commission**, the Deputy Director worked closely with the Executive Officer (EO) to strategize on staff, budget, new programs, knowledge management, IS issues, etc. As a result of several years of joint problem-solving, when the Deputy Director became the new EO, she had gained substantial knowledge from the previous EO and there was a shorter learning curve.

### Knowledge-Sharing Technology Tools

Technology in and of itself is not knowledge transfer. It is a means of sharing/accessing information that is easy for the user to absorb.

- Internet and intranet access
- Workplace communication (email) and database services
- Video services (broadcasts, SFGTV) can be used to document processes already in place (employee orientations about the department), regular trainings (workplace safety), special events (guest speakers at a conference) or for interviews with subject matter experts (seasoned managers or staff that are scheduled for retirement).

Various departments have used **SFGTV** as repository for sharing know-how. The 19-minute Disaster Service Worker orientation can be streamed through the City website. In addition, many of the Department of Building Inspections technical trainings are broadcasted or available as video on demand on-line.

### Mentoring Programs

An experienced, skilled employee (mentor) is paired with a lesser skilled or experienced person (protégé), with the goal of developing or strengthening competencies of the protégé. This is another means of sharing information that is interactive, bringing two face-to-face to share tacit knowledge.

The **Human Services Agency** had a mentoring program which matched front line staff with managers for several months. The program was supported by the leadership and gave participants access to staff not ordinarily available.

### Process Documentation

Process documentation maps the course of a process using flow charts or procedure manuals. The record often includes the reason for the process, steps in the process, key dates, and relationships to other processes. This is a

**311** conducted a comprehensive process documentation of City services for their Communications Dispatchers in preparation for departments becoming integrated with the 311 non-emergency call system.

## Appendix B. Knowledge Management

good way to transfer knowledge from a more experienced worker to a less experienced one.

### Social Network Analysis

Organizations looking beyond traditional knowledge management efforts use Social Network Analysis (SNA) to find out how knowledge flows through their organization. SNA is a process of mapping a group's contacts (whether personal or professional) to identify who knows whom and who works with whom. It has been used to identify how knowledge flows through an organization, who holds influence, who gives the best advice and how employees share information. SNA is not a replacement for traditional knowledge management tools such as databases or portals, but it can help companies identify key leaders and then set up mechanisms—such as communities of practice—so that those leaders can pass on their knowledge to colleagues. (See worksheet on page B-13).

### Storyboards

A storyboard is a group of pictures that tells a story; it shows graphically how someone can perform a specific technique. This aid requires little or no text to describe the process.

### Storytelling

As story is a description of what happened in a situation. Whether a fictional or real organization story is told, a staff member is sharing their wisdom and experience informally by telling a story to a colleague.

### Using Retirees

Local government has used retirees in a variety of ways to meet operational needs.

- Giving them cell phones and putting them “on call” to coach their replacements
- As coaches for newly promoted employees that are not quite ready
- Virtual coaching by “instant messaging” as needed
- A on-site or on-line trainers
- To document procedures or other information that they know
- As consultants
- Permanent part-time employment or as-needed
- Virtual work

The **Library** has used Prop F retirees to mentor incoming managers. These mentors pass on institutional knowledge about the department, help the new manager develop networks important to the role, and provide insight into how the work gets done in the City.

## 5 Getting Started

To get people to participate in these efforts, you have to merge knowledge collection and dissemination into employees' everyday jobs, making it as easy for them to participate as possible. A lot of efforts can fail because of added cumbersome steps to the jobs of already overworked employees. Managers can create an environment conducive to knowledge transfer by providing time (to experiment, document processes, or implement other strategies). This dedicated time demonstrates management's support of this effort. Lastly, while technology can make it easier to categorize data, store it, and pass it on, keep in mind that the recipient must be

## Appendix B. Knowledge Management

able to absorb the knowledge, whether it was transmitted over the Internet or using a low-tech method, such as a policies and procedures manual.

The following steps can be helpful, but do not necessarily need to be taken in this order.

1. Initiate a culture of change: Get support from both the leadership and staff to embrace the idea of knowledge transfer.
2. Discuss barriers to internal transfer and how to address them: Connecting people who have the knowledge to those that want the knowledge. Employees lack funds, time, and management resources to increase capacity. There is a lack of preexisting relationships, which provides the higher likelihood of transferring knowledge. There may be a lack of motivation because employees may not see the benefit in transferring the knowledge and best practices.

Barriers encountered in transferring know-how and practices:

  1. Locked-up tacit knowledge
  2. "We're different" blinders
  3. "Sorry—I'm too busy" attitude
  4. Implementation is hard
3. Clarify the vision and language of knowledge management/transfer: Define for all involved the purpose of this effort and the terminology used, so that everyone speaks the same language.
4. Find the resources: Consider the staffing levels needed to implement a strategy, technical tools that can be used to capture and share the knowledge, and financial resources needed should additional staff or technology be needed.
5. Start on a small scale: Use a pilot project to test knowledge transfer strategies and gain lessons. Successful results can lead to creating demand in their use. (See worksheets on pages B-14 and B-15).
6. Leverage existing approaches: Individuals, groups, and organizations may already be using some of knowledge transfer strategies. Build upon or enhance some of these efforts to build momentum and start seeing results.
7. Measure the impact of knowledge management and transfer: Because questions will arise as to the benefit of creating these new systems to transfer knowledge, the use of time and resources, value and impact should be monitored from the beginning using performance measures, testimonials or survey responses.

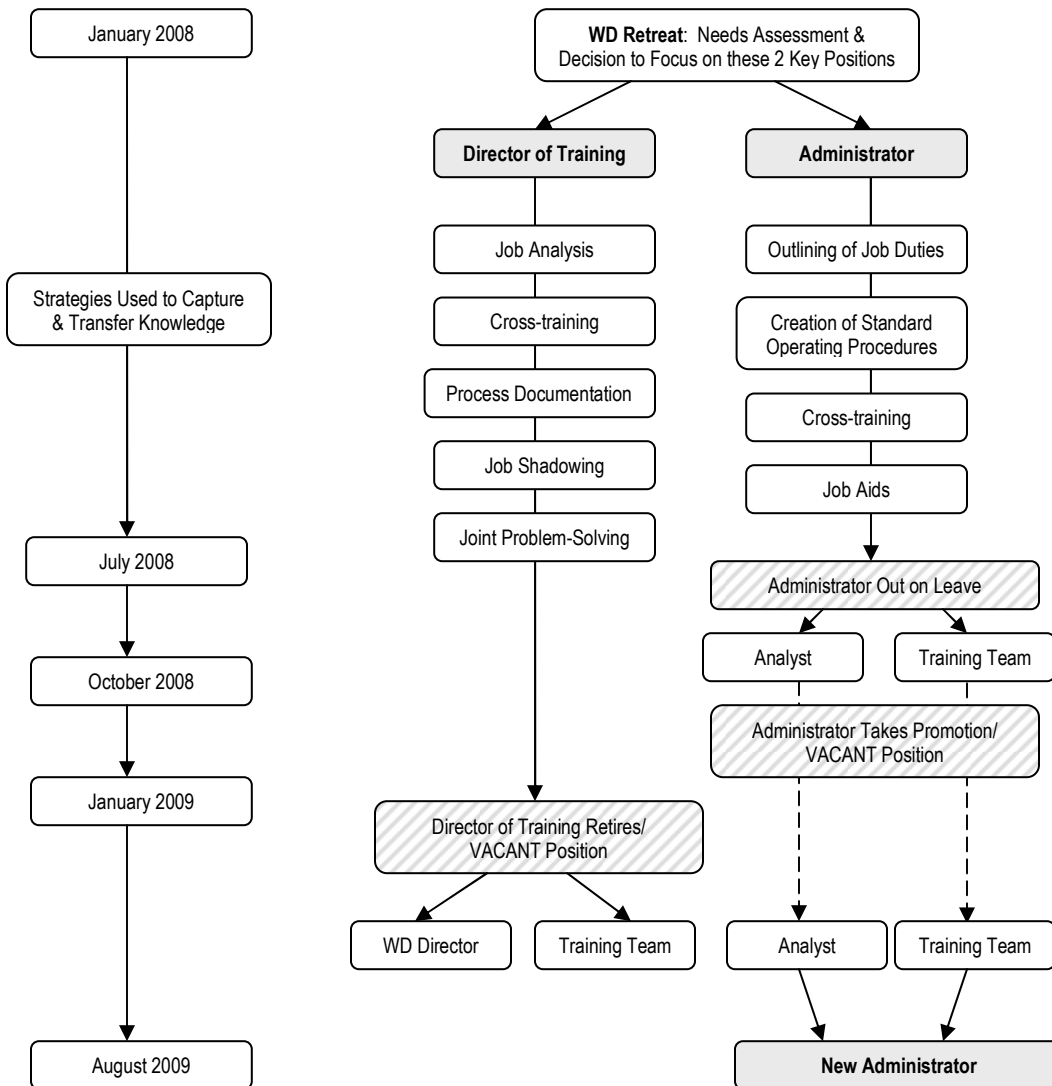
In the long run, organizations that implement strategies to capture more of this employee knowledge make better decisions, streamline processes, reduce duplication in processes, increase innovation, have higher data integrity, and have greater collaboration.

# Appendix B. Knowledge Management

## One Work Group's Experience

DHR's Workforce Development (WD) division experienced its own need to capture knowledge due to impending changes in staffing, a leadership position and a critical administrator position. In January 2008, the team consisted of 10 staff, including the Director of Training and the Administrator positions. Staff in these two positions would be leaving, one due to retirement and the other due to a planned leave. That month there was a team retreat to evaluate training as an industry, the business of training in terms of the work of the group, and the future work of the team. Of importance was to create a plan that would document processes, streamline workflow, and train staff, while allowing staff to complete its mission of providing planning, training and development of the City's workforce. The diagram below shows the strategies that the team took to prepare for the change and the timeline of events, as well as who the knowledge was transferred to.

### WD Experience



## **Appendix B. Knowledge Management**

### **6 Worksheets and Tables**

Department staff can use the following worksheets and tables to implement knowledge management efforts.

## Appendix B. Knowledge Management

### Questionnaire to Capture Critical Incident Knowledge

**Directions to HR Professionals:** Use this questionnaire to capture the lessons from your organization's most experienced performers—particularly before they retire. Send them the questionnaire by e-mail or by paper and ask them to complete and return it. Then identify key themes from all the questionnaires and be sure to build ways to diffuse that knowledge throughout the organization, and to less experienced workers, through training or through a manual or automated system.

**Directions to Workers:** Before you leave this organization for retirement, we need your help. You have valuable knowledge that could help other people avoid the pitfalls you may have fallen into as you learned and gained experience. Please take time to answer the following questions and return to [name of person] at [location/e-mail address] by [date].

---

1. What is the most difficult situation you have faced in your current job in this organization? Please describe the situation—when it occurred, who was involved (no names please, just job titles), and what you did in this situation step-by-step. (Please answer in the space below; add extra paper if necessary.)
  
2. What happened as a result of what you did? In other words, what were the consequences of your actions? (Please answer in the space below; add extra paper if necessary.)
  
3. If you confronted this situation again, how would you handle it? Would you do exactly what you did—or would you use a different approach? If you would use a different approach, please describe what it would be and why you would use that approach. (Please answer in the space below—and add extra paper if necessary.)

## Appendix B. Knowledge Management

### Position/Issue Needing Knowledge Transfer: Knowledge Transfer Planning Sheet

Directions: Use this worksheet when you have an employee that is learning new functions or when there is a function that needs to be documented or captured.

Strategy	Used	How Strategy Has Been Applied	How Strategy Could Be Applied
1. Job Aids			
2. Mentoring			
3. Process documentation			
4. Best practice meetings or studies			
5. Communities of practice			
6. Using Retirees			
7. Job shadowing			
8. Job rotation			
9. Knowledge fairs			
10. Document repositories			
11. Structured On the Job Training			
12. Expert systems			
13. Critical incident interview or questionnaire			
14. Electronic performance support system			
15. Storytelling			
16. Storyboards			
17. Social Network Analysis			

## Appendix B. Knowledge Management

### Social Network Analysis Questionnaire

The following questions are designed to identify and describe the kinds of knowledge exchange interactions that occur within the workplace. The exercise starts with one individual's interactions with customers, other staff and stakeholders. The intent is to not only list who the interaction is with but also who initiated it, for what purpose, and what it involved. In addition, it highlights the kinds of interactions that occur most frequently and consume the most time.

The information gained provides a framework for the type of knowledge transfer that should be pursued.

The exercise can be expanded to include several individuals who work in the same unit/organization. The results are then summarized and laid out on a grid to pinpoint the main areas of interaction amongst the group analyzed.

---

Name: \_\_\_\_\_ Position: \_\_\_\_\_  
Unit: \_\_\_\_\_ Time in Current Position: \_\_\_\_\_

1. Who do you contact for assistance most frequently in order to do your job?
2. What are the most frequent issues or questions people bring to you? Which consume the most time?
3. List the resources you use most frequently to obtain information to do your job.
4. What do you consider the ten most important tasks of your job? Who else is able to perform these tasks?
5. What are the ten most important things you need to know in order to do your job? Who else knows this information?

## Appendix B. Knowledge Management

### Checklist for Choosing the “Right” Strategy

1. Select strategies that advance/improve your operations. Don't just do knowledge transfer projects. Strategies must meet your operational needs in both appearance and practice. Depending on your department's/unit's services, some objectives could be:
  - Reduce cycle times
  - Reduce cost
  - Enhance service provision and innovation
  - Increase efficiency
  
2. Select strategies that have a high probability of success. Particularly for your first efforts, you want early and clear success stories to help validate and spread the cause of knowledge sharing. How can you tell which one's a likely winner?
  - Can you articulate how knowledge management will contribute?
  - What is the business importance outside the immediate user community?
  - Is the strategy funded?
  - Is senior management willing to champion implementation of this strategy?
  - What's the risk associated with failure (as it relates to critical services)?
  
3. Select strategies which are appropriate for exploring emerging technologies. This will give you a head-start on the scale-up while reducing later anxiety about new systems and capturing/accessing knowledge. To choose the right IT for your project, assess the following:
  - What is the degree of commitment and comfort of users with trial and error?
  - Does the strategy provide the necessary attraction/reward that will enable the user community to sustain themselves through change?
  - Is the entire group (unit, management) compatible with the approach required?
  - If we don't apply the technology now, how difficult would it be to catch up or begin the strategy?
  
4. Select strategies that have significant potential for building credibility for knowledge and best practice transfer as a discipline within the organization. To make the right choice, ask the following questions:
  - What is the potential reusability of captured knowledge beyond the primary audience?
  - What is the potential for learning from this strategy to be used as a template/ blueprint for future efforts?
  - Does the process itself require high amounts of knowledge, skills, experience, and expertise?
  - How will this strategy help us broaden the depth and the breadth of our use and understanding of knowledge management?
  - Will the people involved in this strategy be able to help evolve our culture toward one that is more “knowledge management friendly?”

## Appendix B. Knowledge Management

### Strategies Table

This table provides a comparison of strategies with level of effort and resources needed for implementation.

<b>Strategy</b>	<b>Level of Effort</b> Short-term, Limited, long-term	<b>People Involved</b> Individual, one-on-one, group	<b>Technology Needed</b> Yes/No	<b>Resources Needed</b> Staff, Time, Funds
Best Practices or Meetings	limited	group	no	staff & time
Communities of Practice	long-term	group	no	staff & time
Critical Incident Interviews or Questionnaires	short-term	individual	no	staff
Cross-training	short-term	one-on-one	no	staff & time
Expert Systems	short-term	individual	yes	staff, time, funds
Information Exchanges	short-term	group	no	staff & time
Job Aids	short-term	individual	no	staff
Job Rotational Opportunities	long-term	individual	no	time
Job Shadowing	limited	one-on-one	no	time
Joint Problem-Solving	limited	one-on-one	no	time
Knowledge-Sharing Technology Tools	long-term	individual	yes	funds
Mentoring Programs	long-term	one-on-one	no	time
Process Documentation	limited	individual	yes	staff & time
Social Network Analysis	short-term	individual	no	time
Storyboards	short-term	individual	no	staff & time
Storytelling	short-term	one-on-one	no	time
Using Retirees	limited	individual	no	funds