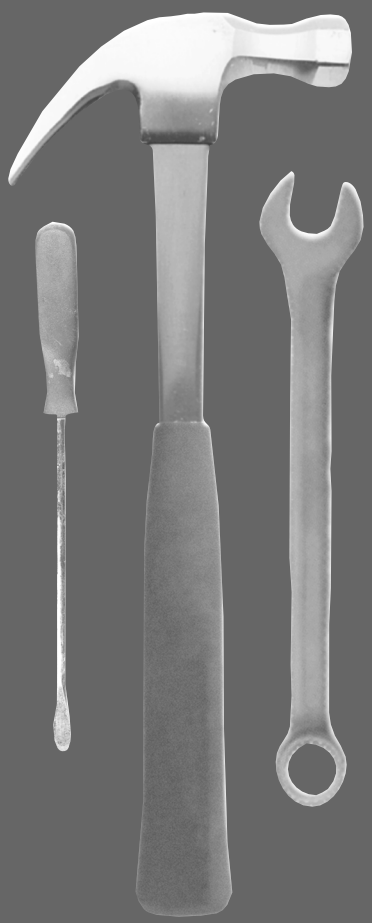

Part II
The Road Ahead: Implementing Knowledge Management

Chapter 4
The 10-Step KM Roadmap

IN THIS CHAPTER

- ✔ Understand the 10-step knowledge management roadmap and how it applies to *your* company.
- ✔ Understand the four phases constituting these 10 steps: infrastructural evaluation; KM system analysis, design, and development; deployment; and evaluation.
- ✔ Understand where each step takes you.
- ✔ Articulate a clear link between KM and business strategy to maximize performance and impact on your company's bottom line.
- ✔ Learn how to prioritize KM processes to maximize business impact.
- ✔ Understand the key steps involved in knowledge auditing, knowledge mapping, strategic grounding, deployment methodology, teaming, change management, and ROI metrics formation.

THEY COPIED ALL THAT THEY COULD FOLLOW BUT THEY COULD NOT COPY MY MIND, AND I LEFT 'EM SWEATING AND STEALING AND A YEAR AND HALF BEHIND
—RUDYARD KIPLING.

Knowledge management is a complex activity, and like anything else that cannot deliver business impact without a concrete plan, it needs a perfect plan. This chapter introduces that plan: the 10-step knowledge management roadmap that will guide you through the entire process of creating a business-driven knowledge management strategy, designing, developing, and implementing a knowledge management system and effecting the soft changes that are required to make them work—with *your* company in mind. I chose to describe this plan as a roadmap rather than relegating it to the status of a methodology. A methodology undermines the level of complexity that is actually involved in managing knowledge and gives it a deceptive look of a cookie-cutter formulation.

May your competitors who thought that bleeding-edge technology was their nirvana rest in peace. For *nothing*—no technology, no market share, no product, and no monopoly—can ever provide a competitive advantage that is anything but temporary: They can all be copied, sometimes easily and sometimes with a little effort. Knowledge is the only resource that cannot be easily copied. Knowledge is much like *copy protection:* Even if your competitors get to it, they cannot apply it, for knowledge is protected by context in as copy-protected software is protected by encryption.

This strengthening idiosyncrasy of knowledge also has a negative implication for you: You cannot easily copy a competitor's knowledge management strategy and system. Examples from your industry's leaders can be useful for understanding knowledge management, but they cannot show you the right way to do it. For these reasons, your knowledge management system and knowledge management strategy will have to be unique to your company.

What follows in the next four sections of this book is an explication of the roadmap—not imitable methodology—that will help focus on your own company and develop a knowledge strategy whose results are hard hitting, but one that no competitor can easily duplicate. They can copy your KM technology but can never copy its context, let alone make it work in theirs. KM's deep grounding in corporate context comes from the fact knowledge management is lesser of a technology problem and more of an organizational problem. However, the technology that enables it and the culture that makes it work are so closely linked that separating the two will make neither work.

THE 10-STEP KNOWLEDGE MANAGEMENT ROAD MAP

Each of the next 10 chapters that follow will describe one each of the 10 steps in the knowledge management road map. These steps and their sequence are described in Figure 4-1.

To grasp the bigger picture, look at the four phases of the 10 steps of the road map. These comprise:

1. Infrastructural evaluation
2. KM system analysis, design, and development
3. System deployment
4. Evaluation

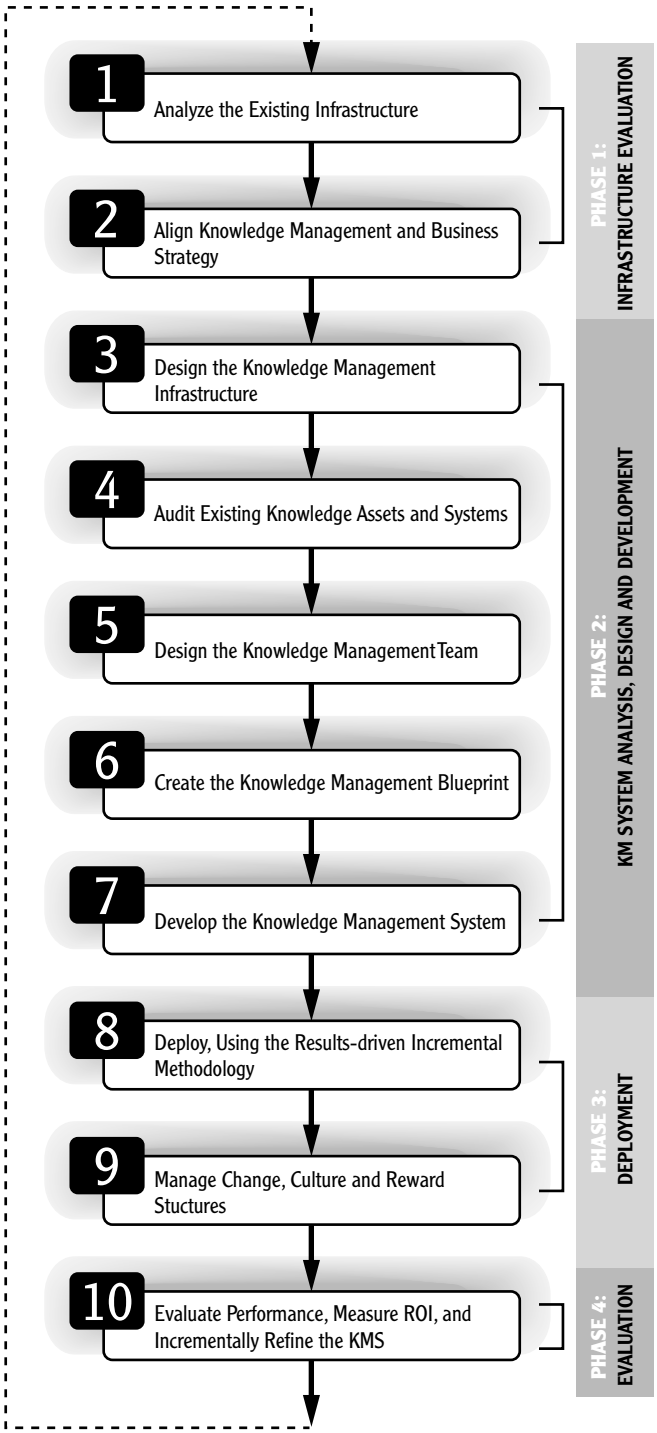

Figure 4-1 The 10-step knowledge management roadmap.

These four phases are described in Parts IIA, IIB, IIC and IID of this book. Table 4-1 describes how each of these steps is logically arranged in these chapters.

PHASE 1: INFRASTRUCTURAL EVALUATION

The first phase of the 10-step technique involves two steps. In the first step you analyze your existing infrastructure, then you identify concrete steps that you can take to leverage and build your knowledge management system upon. In the second step you analyze knowledge gaps by creating knowledge maps for your company. You further use these knowledge maps to create a high-level strategic link between business strategy and knowledge management. You then use this link develop both the knowledge management strategy and system in a manner that aligns them with business performance and objectives.

Table 4-1 Organization of Chapters Describing The Four Phases of The 10-Step KM Roadmap

Part	Chapter	Step
PHASE 1: INFRASTRUCTURAL EVALUATION		
IIA	5	Step 1: Analyzing existing infrastructure
	6	Step 2: Aligning knowledge management and business strategy
PHASE 2: KM SYSTEM ANALYSIS, DESIGN, AND DEVELOPMENT		
IIB	7	Step 3: Designing the knowledge management architecture and integrating existing infrastructure
	8	Step 4: Auditing and analyzing existing knowledge
	9	Step 5: Designing the knowledge management team
	10	Step 6: Creating the knowledge management blueprint
	11	Step 7: Developing the knowledge management system
PHASE 3: DEPLOYMENT		
IIC	12	Step 8: Deploying with RDI methodology
	13	Step 9: Change management, culture, reward structure design, and choice of the CKO
PHASE 4: PERFORMANCE EVALUATION		
IID	14	Step 10: Measuring results of knowledge management, devising ROI metrics, and evaluating system performance

Step 1: Analysis of Existing Infrastructure

In this first step, you gain an understanding of various components that constitute the knowledge management strategy and technology framework. By analyzing and accounting for what is already in place in your company, you can identify critical gaps in the existing infrastructure. Consequently, you will be able to build upon what already exists. The key lies in accurately identifying *and fixing* what will work as a part of the knowledge management system and what will not. There is no silver bullet for knowledge management: Anything making that claim is fraught with immense risk. Instead of *telling* you what components to build upon, I will guide you through the process of making those decisions specifically in the context of your company. Although leveraging existing infrastructure is the logically, scientifically, rationally, theoretically, commonsensically, and financially right approach, it also stands a better chance of generating stronger management support for your knowledge management project because of the perception that you are not completely abandoning the "old" existing investments.

Specifically, as a part of this first step, we focus on the following:

1. Understanding the role of your company's existing networks, intranet, and extranets in knowledge management. You will analyze, leverage, and build upon data mining, data warehousing, project management, and decision support system (DSS) tools that might already be in place.
2. Understanding the knowledge management technology framework and its components.
3. Considering the option of using knowledge servers for enterprise integration, and performing a preliminary analysis of business needs that match up with relevant knowledge server choices.
4. Integrating existing intranets, extranets, and GroupWare into your knowledge management system.
5. Understanding the limitations of implemented tools and identifying existing gaps in your company's existing technology infrastructure.
6. Taking concrete steps to leverage and build upon existing infrastructural investments.

Step 2: Aligning KM and Business Strategy

Knowledge drives strategy, and strategy drives knowledge management. Without a clearly articulated link between knowledge management and business strategy, even the world's best knowledge management system will deliver zilch. Business strategy is usually at a high level, and, dare I say, with lofty goals. Developing systems is always at a low level: Specifications and features are needed, not abstractions, visions, or business ideas. The second step in the 10-step road map allows you to make the connection between these two: Raise knowledge management system design to the level of business strategy and pull strategy down to the level of systems design. As a part of the process of creating this alignment between knowledge management and business strategy, Chapter 6 describes what you must do:

1. Shift your company from strategic programming to strategic planning.
2. Move your systems design practices and business decisions away from the seemingly rigorous, fallacious notion of making predictions using extrapolations from past data. You must shift this critical decision-making dependency on knowledge that is both within and outside your company.
3. Perform a knowledge-based SWOT (strengths, weaknesses, opportunities, and threats) analysis and create knowledge maps for your own company, your main competitors, and your industry as a whole.
4. Analyze knowledge gaps and identify how knowledge management can fill those gaps. Do a cost-benefit analysis to prioritize filling such gaps.
5. Determine whether a codification or personalization focus is better suited for your company
6. Balance exploitation, exploration, and just-in-time (JIT) and just-in-case (JIC) delivery supported by your KM system.
7. Before you can design your knowledge management system, determine the right diagnostic questions to ask.
8. Translate your strategy-KM link to KM system design characteristics. You must articulate a clear strategy-KM link and incorporate the 24 critical success factors in KM design that we have learned from some exemplary knowledge management projects worldwide.
9. Mobilize initiatives to help you "sell" your KM project internally. Chapter 6 also describes how such initiatives can be selected.
10. Diagnose and validate your strategy-KM link, and use it to drive the rest of the design process.

When such alignment between your knowledge management and business strategy is clearly established from the outset, you can be sure that your knowledge management system is moving in a direction that holds promise for long-lasting competitive advantage and that it will *actually* benefit both your company's employees and its bottom line.

PHASE 2: KNOWLEDGE MANAGEMENT SYSTEM ANALYSIS, DESIGN, AND DEVELOPMENT

The second phase of knowledge management implementation involves analysis, design, and development of the knowledge management system. The five steps that constitute this phase are:

- Knowledge management architecture design and component selection
- Knowledge audit and analysis

- Knowledge management team design
- Creation of a knowledge management blueprint tailored for your organization
- Actual systems development

Let us briefly examine each of these steps and understand the key tasks that need to be accomplished at each step.

Step 3: Knowledge Management Architecture and Design

As the third step toward deploying knowledge management, you must select the infrastructural components that constitute the knowledge management system architecture. Knowledge management systems use a seven-layer architecture, and the technology required to build each layer is readily available. Integrating these components to create the knowledge management system model requires thinking in terms of an *infostructure* rather than an infrastructure.

Your first big choice is the collaborative platform. You can choose to use an open standard, such as the Web, or opt for a packaged solution such as Lotus Notes or a similar proprietary group support platform. We will reason through the choice of the preferred collaborative platform to decide whether the Web or Notes is better suited for your company. You must also create profiling mechanisms for push- and pull-based knowledge delivery while balancing cost versus value-added for each additional enabling component. Specifically, as a part of this third step, you must:

1. Comprehend various components of the knowledge infostructure
2. Identify internal and external knowledge source feeds that must be integrated
3. Choose IT components to find, create, assemble, and apply knowledge
4. Identify elements of the interface layer: clients, server, gateways, and the platform
5. Decide on the collaborative platform: Web or Notes?
6. Identify and understand components of the collaborative intelligence layer: artificial intelligence, data warehouses, genetic algorithms, neural networks, expert reasoning systems, rule bases, and case-based reasoning
7. Optimize knowledge object molecularity with your own company in mind
8. Balance cost against value-added for each enabling component
9. Balance push- and pull-based mechanisms for knowledge delivery
10. Identify the right mix of components for searching, indexing, and retrieval
11. Create knowledge tags and attributes: domain, form, type, product/service, time, and location tags
12. Create profiling mechanisms for knowledge delivery
13. Retrofit IT on the SECI knowledge management model to validate your choices

You do this after considering the ways in which work is done in your own company. The choice of these components will vary according to the different corporate cultures and work norms that exist in different companies.

Step 4: Knowledge Audit and Analysis

A knowledge management project must begin with what your company already knows. In the fourth step, you audit and analyze knowledge, but first you must understand why a knowledge audit is needed. Then you assemble an audit team representing various organizational units as described in Chapter 8. This team performs a preliminary assessment of knowledge assets within your company to identify those that are both critical and the weakest.

As a part of this step you will:

1. Use Bohn's Stages of Knowledge Growth framework to measure process knowledge.
2. Identify, evaluate, and rate critical process knowledge on an 8-point scale.
3. Select an audit method out of several possible options.
4. Assemble a preliminary knowledge audit team.
5. Audit and analyze your company's existing knowledge.
6. Identify your company's K-spot.
7. Choose a strategic position for your knowledge management system that is in line with the strategic gaps identified in step 2.

Step 5: Designing the Knowledge Management Team

In the fifth step on the KM road map, you design the knowledge management team that will design, build, implement, and deploy your company's knowledge management system. To design an effective knowledge management team, you must identify key stakeholders both within and outside your company and identify sources of expertise that are needed to successfully design, build, and deploy the system while balancing the technical and managerial requirements.

We examine the issues of correctly sizing the knowledge management team, managing diverse and often divergent stakeholder expectations, and applying techniques for both identifying and avoiding critical failure points in such teams. Specifically, you must take the following steps to design an effective team for implementing knowledge management:

1. Identify key stakeholders: IT, management, and end users; manage their expectations.
2. Identify sources of requisite expertise.
3. Identify critical points of failure in terms or unmet requirements, control, management buy-in, and end user buy-in.

4. Balance the knowledge management team's constitution—organizationally, strategically, and technologically.
5. Balance technical and managerial expertise that forms a part of this team.
6. Resolve team-sizing issues.

Step 6: Creating the Knowledge Management System Blueprint

The knowledge management team identified in step 5 builds upon a knowledge management system blueprint that provides a plan for building and incrementally improving a knowledge management system. As you work toward designing a knowledge management architecture, you must understand its seven layers specifically in the context of *your* company and determine how each of these can be optimized for performance and scalability as well as high levels of interoperability.

Specifically, you will address the following issues in this step:

1. Customize the details of the seven layers of the knowledge management architecture to your own company.
2. Understand and select the components required by *your* company: integrative repositories, content centers, knowledge aggregation and mining tools, the collaborative platform, knowledge directories, the user interface options, push delivery mechanisms, and integrative elements.
3. Design the system for high levels of interoperability with existing IT investments; optimize for performance and scalability.
4. Understand and execute repository life-cycle management.
5. Understand and incorporate the seven key user interface (UI) considerations.
6. Position and scope the knowledge management system to a feasible level where benefits exceed costs.
7. Make the build-or-buy decision and understand the tradeoffs.
8. *Future proof* the knowledge management system so that it does not "run out of gas" when the next wave of fancy technology hits the market.

This step integrates work from all preceding steps so that it culminates in a strategically oriented knowledge management system design.

Step 7: Developing the Knowledge Management System

Once you have created a blueprint for your knowledge management system (step 6), the next step is that of actually putting together a working system.

If you choose the Internet rather than depend on a proprietary collaborative platform, you can convert your company intranet to a front end for your system.

Web-friendly document standards such as DMA (Document Management Alliance) and WebDMA provide a great opportunity to build collaborative document systems to industry standards. Even though users will see a familiar intranet interface that they are probably already used to, the fundamental shift caused by the knowledge management system at the back end is the reorientation from a client/server architecture to an agent-computing architecture.

We will look at occasionally feasible approaches to integrate an array of hardware (including copiers, printers, and scanners) built around these standards into the knowledge management system itself. In this step, you will specifically:

1. Develop the interface layer. Create platform independence, leverage the intranet, enable universal authorship, and optimize video and audio streaming.
2. Develop the access and authentication layer. Secure data, control access, and distribute control.
3. Develop the collaborative filtering and intelligence layer, using intelligent agents and collaborative filtering systems. We look at options to buy intelligent agents versus easy and free tools that can be used to build your own.
4. Develop and integrate the application layer with the intelligence layer and the transport layer.
5. Leverage the extant transport layer to take advantage of existing networks that are already in place in your company.
6. Develop the middleware and legacy integration layer to connect the knowledge management system both to true legacy data and "recent," inconsistent legacy data repositories and databases left behind by custom systems that your company needs to retire for reasons of cost or lack of functionality.
7. Integrate and enhance the repository layer.

PHASE 3: DEPLOYMENT

The third phase in the 10-step road map involves the process of deploying the knowledge management system that you built in the preceding stages. This phase involves two steps:

1. Deployment of the system with a results-driven incremental technique, more commonly known as the RDI method. This step also involves the selection and implementation of a pilot project to precede the introduction of a full-fledged knowledge management system.
2. Cultural change, revised reward structures, and the choice of using (or not using) a Chief Knowledge Officer (CKO) to make knowledge management produce results. This is

perhaps the most important complementary step that is critical to the acceptance, and the consequent success, of a knowledge management system in any company.

Let us take a brief look at these two steps.

Step 8: Pilot Testing and Deployment Using the RDI Methodology

A large-scale project such as a typical knowledge management system must take into account the *actual* needs of its users. Although a cross-functional KM team can help uncover many of these needs, a pilot deployment is the ultimate reality check. In the eighth step on the knowledge management road map, you must decide how you can select KM releases with the highest payoffs first.

Specifically, the deployment step requires you to:

1. Understand the need for a pilot knowledge management system deployment, and evaluate the need to run one; if it is needed, select the right, nontrivial, and representative pilot project
2. Identify and isolate failure points in pilot projects
3. Understand the knowledge management system life cycle and its implications for knowledge management system deployment.
4. Eliminate the "big-bang" information packaging methodology, the waterfall methodology, and systems development life cycle (SDLC) orientation
5. Understand the scope of knowledge management system deployment
6. Use the RDI methodology to deploy the system, using cumulative results-driven business releases
7. Decide when to use prototypes, and when not to use them
8. Convert factors to processes
9. Create *cumulative* results-driven business releases by selecting releases with the highest payoffs first
10. Identify and avoid the traps in the RDI methodology

Well-executed deployment will ensure that the knowledge management system is well received by the users for whom it is built.

Step 9: The CKO, Reward Structures, Technology, and Change Management

The most erroneous assumption that many companies make is that the intrinsic value of an innovation such as a knowledge management system will lead to its enthusiastic adoption and use by their employees. Knowledge sharing cannot be mandated: Your employees are not like

troops; they are like volunteers. Encouraging use and gaining employee support require integration of business processes with knowledge management system use, and new reward structures that motivate employees to use the system and contribute to its infusion, championing, and training. Above all, it requires enthusiastic leadership that sets an example to follow.

As part of this one but last step on the knowledge management road map, you need to:

1. Understand the role of a chief knowledge officer and decide whether your company—big or small—needs to formally have a CKO at all. This decision further requires an understanding of how a CKO relates to the CIO, CFO, and CEO. If you decide not to appoint a CKO, who else can best play that evangelist's role?
2. Organize the four broad categories of the CKO's or knowledge manager's responsibilities. To do so, you must understand the CKO's technological and organizational functions. We examine the backgrounds most successful CKOs come from.
3. Enable process triggers for knowledge management system success.
4. Plan for knowledge management success using the knowledge evangelist as an agent for selling foresight. Selling foresight is as hard as selling oxygen, but not as hard as selling the Brooklyn Bridge: It is difficult, but it can be done.
5. Manage and implement cultural and process changes to make your knowledge management system as well as your knowledge management strategy succeed.

Many companies hastily appointed CKOs out of a fear of being left behind, only to realize later that they did not really need one. You do not always need a CKO, per se, and Chapter 13 guides you through that choice.

PHASE 4: METRICS FOR PERFORMANCE EVALUATION

The last phase involves one step that most companies have been struggling with: measuring business value of knowledge management. When pushed for hard data, managers have often resorted to ill-suited and easily misused approaches, such as cost-benefit analysis, net present value (NPV) evaluation, vague ROI measures, or at best Tobin's *q*. Chapter 14 describes the seven pitfalls that companies are most vulnerable to and suggests ways to avoid them while devising a robust set of company-specific metrics for knowledge management.

Step 10: Metrics for Knowledge Work

The tenth step—measuring return on knowledge investment (RoKI)—must account for both financial and competitive impacts of knowledge management on your business. This step

guides you through the process of selecting an appropriate set of metrics and arriving at a lean but powerful composite.

In this last iterative step on the 10-step knowledge management road map, you will do the following:

1. Understand how to measure the business impact of knowledge management, using a set of lean metrics
2. Calculate returns-on-investment (ROI) for knowledge management investments
3. Decide when to use benchmarking as a comparative knowledge metric
4. Evaluate knowledge management ROI using the Balanced Scorecard (BSC) method
5. Use quality function deployment for creating strategic knowledge metrics
6. Identify and stay clear of the seven common measurement pitfalls, and identify what *not* to measure
7. Review and select software tools for tracking complex metrics, QFDs, and BSCs

We also look at ways to classify and evaluate processes using *The APQC Process Classification Framework.* We also see how successful companies have approached metrics, what errors they have made in the past, and how you can learn from their mistakes.

Being able to measure returns serves two purposes: It arms you with hard data and dollar figures that you can use to prove the impact of effective knowledge management, and it lets you refine knowledge management design through subsequent iterations.

LESSONS LEARNED

The 10-step road map is built on years of cumulative research involving small and large companies in a variety of industries worldwide. It can help you create a link between business strategy and knowledge management. It can further help you design, develop, and deploy a knowledge management system that delivers actual business results. It is a road map that—unlike a cookie-cutter methodology—will help you build both a knowledge management strategy and a knowledge management system that are tailored to *your* company.