Making Accurate Project Estimates

Sheri Watkins, Manager, Technical Publications, Sabre, Inc.

Sabre Inc. develops computer software applications that support the travel and transportation industry. The technical writers in our documentation department design and develop printed user guides and online help systems that help our users make effective decisions while using our software to manage their airline operations.

We track effort via the number of hours we work. Many of our projects have limited funding, which increases the importance of creating accurate estimates and then completing the work within the estimated number of hours.

In the past, we might forget to allocate time for certain tasks, or we would be near the end of a project before we realized we were out of hours. Therefore, we implemented processes and templates that make it easy to gather information about a project, feed the information into an estimate of the work effort, feed the estimate into a project plan, and then maintain the project plan to manage our work. The figure below summarizes the process. This process has helped us accurately estimate and manage our work. If for some reason we are running behind on our work, our processes allow us to recognize the problem early enough to make adjustments and still meet our budget and deadline.

Gather Information
Before we can estimate work, we must gather information. To improve our understanding of the application’s capabilities, we obtain and review all available information, including functional specifications, design documents, release notes, and/or a list of enhancements. We also interview the subject-matter experts (SMEs).

The SMEs provide us with a demo of the application’s functions and explain the business need the application fulfills. They work with us to prepare a list of tasks the user performs. In most instances, the SMEs have been to customer sites during the scoping study, requirements definition, and design phases of the development cycle; consequently, we rely on them to convey as much information as possible about our users. Unfortunately, our writers do not normally have access to our users.

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From the Director

JoAnn Hackos

Dear Friends,

Just six months ago, at the height of our Staff Resources benchmark study, publications managers were concerned that they were not able to fill vacant or new positions on their staffs. The economy was booming, and the shortage of writers acute. The Information Technology Association of America reported in their April 2000 study, *Bridging the Gap: Information Technology Skills for a New Millennium*, that only half of the predicted vacancies for technical writers would be filled in the coming year.

Now in April 2001, the situation has changed. Many of you are contemplating layoffs as stock prices decline and companies cut back on expenses to eek out a few more percentage points of profit. The pressure to reduce costs has also revived the decentralization monster. Recently we have received reports of strong, effective departments broken apart in a misguided focus on short-term gains. If the writers report to the product-development managers, a layer or two of technical-communication management can be eliminated.

How do we survive the short-term roller coaster that seems perennially to affect our corporations and our departments? Should we preserve the staff we have? Do we need to evaluate competencies to maintain the strongest and let the weakest go? Is there a better idea that we can pursue rather than succumb to sheer desperation? Well—it depends.

It would be easiest to hunker down, hide in the cubicles, and go into hibernation. Alternatively, we can work harder and fight to get everything out the door using the same brute force methods we have been applying during the madness of the past few years. The route many of us have followed is to do more and more; we produced more pages, more help topics, more and more information, much of it unlikely to be read or used. We hired more and more people to produce more and more words. We’ve agreed that there was no time to study customers, to learn exactly what they need from us—we simply had to produce more, faster.

Present conditions, despite superficial signs to the contrary, offer opportunities for significant change. Instead of succumbing to the tendency to buckle down and ask more of everyone, I recommend that it is now time to build for the future. The slowdown will eventually end; the profit panic will diminish; you need to be ready. Creating a stronger organization, building capacity for the future is the direction more likely to benefit your staff and your own ability to serve as a key member of your corporation’s management team.

What are my recommendations for the future?

**Encourage Learning**

I met with a manager recently who is sending her staff members to as much training as she can manage. That means resisting the pressure to eliminate the training budget. By increasing skills in critical areas needed for future growth, you build future capacity in your organization. If your travel budget is affected, look into local programs. Bring programs inhouse to increase coverage. Find ways to pay the instructor to do the traveling. Use your education budget (often separate from your training budget) for courses at local colleges and universities. Experiment with Web-based training opportunities.
Pursue New Technologies
The rapid increase in interest in single-source technologies has been a surprise to those like me on the bleeding edge of change. Recognizing that single sourcing is likely to require significant changes in practices within our departments, managers and staff members are still pursuing content-management strategies vigorously. Despite the continuing pressure to make the latest deadline, you will be well served by finding the resources to create a comprehensive Information Model and standardize your information types to maximize re-use opportunities.

Ensure that your staff members are learning about content management, translation memory, re-use strategies, minimalism, structured writing, and so on.

Manage Strategically
I’m not talking about managing your people; we have many examples of good personnel management practices in technical communication. I am talking about managing the work being done. Make sure that your staff members are doing excellent work to produce useful and usable learning products. Ask people to create design plans based on the best concepts in the industry and review them rigorously. Don’t settle for work that simply describes the software or the hardware or pretends that system tasks like “completing the X dialog box” represent what users want to do. Insist upon customer contact and institute a sound program from observing and analyzing customers’ information needs. Don’t just continue to produce the same old thing. Find ways to cut the volume of information, reduce the verbiage, and use minimalist techniques. Send people to minimalist training, and be sure that you understand what needs to change.

By reducing the volume of useless information produced, we have the opportunity to increase productivity, reduce costs, and increase quality all at the same time. Phil Crosby once wrote a book he titled, Quality is Free.1

Well, not only is quality free (doing good work takes no longer than doing poor work), but quality increases productivity.

Make productivity increases your primary objective in the next year. Move fast to institute controls, to measure, and to design and plan. Then you’ll be ready for the next big growth spurt.

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We have a workbook of questions we use while reviewing available information and interviewing the SMEs. The content and order of the questions allow us to easily feed the answers into our estimating spreadsheet. There are typically one or more questions related to each line item of the estimate. For example, here are a few of the questions we ask to determine the size and complexity of the application:

- What is the total number of windows to be documented?
- What is the average number of fields on each window?
- What is the maximum (and minimum) number of fields that can appear on a window?
- Do the same or similar fields appear on more than one window? If so, explain.
- Is prerequisite data required for certain windows (built on previous inputs from other windows, databases, and/or files)?

After we complete as much of the workbook as possible, we use the information and task list to prepare an outline. The comprehensiveness of the outline or design varies according to the amount of time we have to produce the estimate and the desired level of accuracy.

Next, we use the workbook and the outline or the design to prepare an estimate.

**Preparing an Estimate**

Everyone naturally focuses on actual writing time when preparing an estimate, so it is easy to overlook non-writing tasks. Therefore, we use an Excel spreadsheet that allows additional time for all of the work required in the documentation process.

The spreadsheet is divided into several phases. Each phase consists of one or more tasks (or line items). Each task has columns for the estimated number of hours for the writers to accomplish the task, the estimated number of hours for the developers to accomplish the task, a metric, and an explanation. We use the metrics as a baseline. Each project has unique requirements, and we carefully review each task to determine whether we need to increase or decrease the metric to account for these unique requirements.

The remainder of this section describes each phase in our estimating spreadsheet process. As we walk through each of the phases, you will understand our estimating techniques and workflow processes.

**Phase 1: Research**

The Research phase includes everything we do before we actually start outlining the document. We include hours for the time we spend reviewing any existing documents and attending a demo.

Depending on the platform and complexity of the application, the amount of time it takes to gain access to the application from the writer’s workstation varies significantly. For example, if a writer has never worked on a mainframe system before, we may need to order and install emulation software to run the application from the PC, obtain a user ID from our security department, obtain access rights to the application, and obtain proper database access. Our workbook contains specific questions about the application platform and installation so that we can allow ample time in our estimate.

We allow time for project management set up. As we work, we record the hours spent against a client-specific project code that facilitates billing. We allow time to submit the form to set up documentation phases within this code. The phases separate writer hours from developer hours. Then we write a project definition document that defines what will be delivered, how, and when. We also create a project plan.

**Phase 2: Create first draft**

The Create first draft phase includes the time it takes to outline, design, write, and edit a first draft of the document.

For our hardcopy user guides, we base most of the metrics in our estimate on the number of chapters in the document. To do this successfully, we assume that our standard chapter takes 40 hours to write, represents average complexity, contains approximately 30 to 50 pages, and describes approximately 4 to 6 major windows and 4 to 8 minor dialog boxes. A major window allows a user to per-
form several tasks, where a minor dialog box is one that has only two or three choices (such as a confirmation dialog box or a dialog box that allows the user to Continue/Save, Quit/Exit, or Print). Based on the outline and our completed workbook, we alter the metric of 40 hours per chapter to accommodate the variance.

We allow time to capture, edit, import/link window images, draw diagrams and illustrations, and create a table of contents and an index.

Before the first draft is considered complete, we submit it for editorial review, incorporate the review comments, and print a draft.

**Phase 3: Conduct technical reviews**

Our documents go through one to three technical reviews. For each technical review cycle, we allow time for the SMEs to review the document for technical accuracy and time for us to incorporate their review comments, perform an editorial review, and incorporate those review comments.

With each subsequent review, we reduce the metric by about 50 percent. For example, if we allowed 3 hours per chapter to incorporate review comments for the first technical review, we might reduce this number to 1.5 hours to do the same for the second review.

Once we incorporate the final technical and editorial review comments, we regenerate the table of contents and index and reprint the document. At this point, we consider the document complete and ready for delivery.

The remaining phases focus on miscellaneous tasks that occur outside the actual writing and review cycles.

**Phase 4: Rework**

Everyone knows that if developers make changes after a writer completes a section or topic, the project will be extended. However, while implementing a change management process to handle scope changes is appropriate for changes of significant size, there are also many small changes for which this is not appropriate. We would bury ourselves in paperwork if we implemented our change management process for every little change that is made.

To avoid this problem, the Rework phase of the estimate allocates time for minimal rework. We allow 6 percent of the subtotal from Phase 2: Create first draft as a starting point and alter this number up or down depending on the stage of the product development cycle when we begin work.

**Phase 5: Project management tasks**

The Project management phase allocates time for all of the effort involved in managing the work throughout the life of the project.

We allow 5 percent of the time spent in Phases 1 through 3 for project meeting time. This includes a kickoff meeting with developers and writers at the beginning of a project to make sure everyone involved in the project understands what is expected. We also allow 15 percent of the time for project managers to ensure that we have enough resources assigned with an appropriate skill level and for a project office analyst to track progress against the project plan.

Because writers are all unique individuals, we allow 5 percent for resource profile variances. We alter this metric based on two variables:

- **Effort variance factor**, which represents the assigned writers’ skills and knowledge of the application, industry, and writing tools.
- **Work interrupt factor**, which represents the assigned writers’ non-project activities (such as computer downtime, telephone calls, and responding to email) and loss of productivity if they are assigned to more than one project. For example, if they are assigned to a project for three-fourths of their time on that project and one-fourth of their time is spent on a second project, changing back and forth between projects could result in up to a 10 percent loss of productivity.

**Phase 6: Production and completion**

The Production and completion phase allows time for production (copy, bind, and ship) based on the desired number of copies. We also allow time to complete our final checklist, which includes cleaning up project files, archiving the files, closing out the project in our project database, updating the metrics database, and sending out satisfaction surveys. In addition, we conduct a project evaluation, which helps identify what we did right during the project and what we could have done better.
MAKING ACCURATE PROJECT ESTIMATES

Estimate Verification and Approval
Once we complete a draft of the estimate, we validate it:

♦ We search our metrics database to find past projects that are similar in complexity, number of user tasks, number of windows, and/or available existing information. We compare the overall number of hours it took us to complete these projects to the hours in our draft estimate. If necessary, we alter the estimate.

♦ We divide the number of hours in our estimate by the number of pages we think we will have in the finished document. We compare this number to an industry-accepted hours-per-page estimating metric. We have to be careful because some industry metrics do not include everything we include in our estimates. Therefore, before we compare, we subtract hours for some of our tasks (such as our resource profile variances) to compare “apples to apples.”

After we are comfortable with the estimate, we submit it to the project manager for approval. Once approved, the hours estimate becomes our budget, and we give the estimate and document outline to our project office analyst.

Create a Project Plan
Our project office analyst uses a project plan template in MS Project where each task correlates directly to the line items on the estimating spreadsheet. She takes the number of hours from each line of the estimate and enters that number into the project plan against the matching tasks.

If we have more than one writer assigned to large tasks, the project office analyst breaks the number into smaller tasks assigned to each individual. Then, when one writer’s work is finished, the task can be closed without having to wait for the other writer to finish.

For example, if the number of hours estimated to outline and write the document (line 1 of Phase 2) is large and represents more than one writer, we insert tasks assigning each chapter to the appropriate writer.

Writers use the hours in Phase 4: Rework whenever they have a minor change to make as when a developer changes the code. We consider changes that take less than two or three hours to be minor changes, but it really depends on the size of the project.

For the hours allocated to project management tasks, we create monthly tasks for projects of long duration to avoid having tasks that go on for long periods of time and do not get closed.

When we complete the project plan and the scheduled number of hours equals the estimated number of hours, the project office analyst baselines the project and begins to track actual effort.

Manage the Work
As writers work on the project, they submit weekly timesheets and status reports to the project office analyst to track the actual hours worked. When the writer completes the work on a task, the project office analyst closes the task in the plan.

At the end of the project, the project office analyst closes the final task(s), archives the project plan, and archives the project files. We use the project plan in our project evaluation to determine if the actual hours spent for each task is similar to the hours allocated for that task in the estimate.

Conclusion
A few years ago, we thought our estimates were accurate. We had a project plan that was created independent of the estimate. If projects were over or under budget, we did not know why, because it was difficult to compare actual time spent with the amount of time estimated for that task. Therefore, we decided to create a more effective project plan template.

Merging these processes improved our ability to estimate and manage our work as well as to work smarter. If a project is over budget on a certain task, we know immediately and can react quickly to make appropriate changes. We can identify the reason and look for ways to avoid going over budget on future projects. If a project is under budget, we can identify the reason and try to repeat it. If the variances show trends across many projects, we can easily recognize estimating errors and make adjustments to our estimating default metrics.

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30 BEST PRACTICES • APRIL 2001
CASE STUDY

Knowledge Bases... Where is your “way of doing business” knowledge?

Susan Harkus, Web Content Specialist, XT3 Internet Integrator

"You’ll gradually learn the ropes. May take about a year but over time, you’ll come up to speed."

"The ropes" referred to in the preceding observation are the way you need to do your business. The "coming up to speed" is the time it takes before your worth to your organisation is equal to or greater than what your organisation is paying you.

Organisations are adopting knowledge bases as a way to short circuit learning "the ropes," but the same knowledge bases that are rich with reference and historic information, such as client profiles or project histories, hold few items that capture the nous, the savvy, the business "smarts" that differentiate your proposal or product.

Traditionally...
Organisations have traditionally captured “way of doing business” knowledge in two ways:

♦ Through process and procedure documentation
♦ Through document templates and examples

Templates and examples embed some business acumen but are frequently only references for the products or results of business activity.

Process and procedure documentation, like quality system documentation, only partially captures business “smarts.” Good processes reflect what the business has learned about performing business work, but processes don’t capture the tacit knowledge that business people apply when they make decisions or evaluate options.

In Search of Tacit Knowledge
In our highly competitive markets, most organisations readily acknowledge the strategic value of tacit knowledge: the “silent” knowledge that people keep in their heads.

When someone leaves an organisation or changes roles, organisations usually mandate a formal handover of tacit knowledge from one business performer to another.

I would suggest from observation that handovers simply mark the beginning of “coming up to speed.” They mostly fail to achieve their purpose of a rapid transfer of skills and knowledge whether knowledge is passed interactively or as documentation.

Why do handovers do so little to reduce the timeframe of “coming up to speed”? Simply because the information is delivered out of context. It isn’t knowledge; it’s just information. The new account manager can be told when to apply a particular insight about a client, but the reality of applying the insight hasn’t yet arrived. By the time a similar situation arises, the new account manager will probably have forgotten what is relevant to the client relationship.

Descriptive narratives that document tacit knowledge are invariably doomed. I recently watched a team of developers struggle to implement extensions to a technical architecture that had been developed by a former employee. There had been an interactive handover before the employee left, and the employee had also left comprehensive documentation about the architecture.

The project manager was at a loss to understand why the new team of talented engineers was having such difficulty implementing additional functionality. Why did the tacit knowledge transfer fail?

Tacit knowledge transfers fail for any number of reasons:

♦ A handover is always out of context unless the new role player has significant experience of the new role before the handover.

♦ Descriptive narratives will probably never be read with the application required to “get inside the head” of the person transferring the information.

♦ Descriptive narratives are a dump of what one person knows rather than informa-
tion that is designed to answer the questions of future practitioners.

- Practice experts who share their tacit knowledge fail to explain the concepts that underpin their insights because that understanding is implicit in everything they think.

In the case of the knowledge transfer about the technical architecture, the knowledge transfer failed for the last reason: the interactive transfer and documentation focused on what and how. When the new engineers were faced with extending the architecture to include new functionality, they needed to understand why.

**Don’t Describe, Embed**

We work; we gather suggestions from colleagues; we collaborate with clients; we deliver products and services. Every action is supported by our “way of doing business” knowledge. Is there a way to capture such tacit knowledge to ensure that the knowledge becomes an active attribute of the knowledge collateral and is not presented as a learning or reading burden?

In an attempt to find a practical way of capturing and managing “way of doing business” knowledge, I have evolved a method that I call “product-driven analysis.” I’ve used the method with two business areas of our organisation.

We have been able to embed insights and experience in the techniques, tools, and templates that are used to produce products, whether products are software, documentation, or a pitch to a client.

The greatest breakthrough was discovering how easy it was to make “business smarts” available to colleagues through sets of heuristics that are specific to particular business activities.

**A Word about Heuristics**

I quickly discovered that the word *heuristics* is familiar to many but is rarely understood. It is a word worth understanding because heuristics provide a practical option for capturing “way of doing business” knowledge.

Let me explain heuristics through a simple anecdote.

In Australia, the motorist’s behaviour at a roundabout is mandated by rules. Not so in the Indian sub-continent where my daughter and her husband spent their Christmas holidays.

When Indian motorists arrive at a roundabout, large vehicles join the roundabout irrespective of whether they have right of way. Small vehicles never demand right of way even when they have it. Vehicles that enter the roundabout near their target exit road travel to the exit road against the direction of the traffic flow if the way is clear. The Indian motorists have developed a set of heuristics (informal processes) for navigating a complex driving situation. They choose not to follow a formal set of laws.

In Australia, motorists apply the formal rules automatically. There is no leeway for assessment and decisions. In India, motorists apply their own set of rules, heuristics. Their behaviour depends on the situation that they encounter and the heuristic they choose to apply.

Some call heuristics, “rules of thumb.” Whatever you call them, heuristics can be used to capture some of your most valuable business knowledge.

Most experienced businesses and experts have developed their sets of unspoken rules. They are the best practices that rarely get written down.

**Back to Product-Driven Analysis: How to…**

Product-driven analysis starts with what you produce rather than what you do to produce.

Manage the analysis on a business group basis to ensure that the “you” and “your” of the following steps become “you, as a discrete business area or function.”
Use a facilitator
Product-driven analysis is best managed and implemented through facilitated meetings and workshops. You are striving to get through to knowledge that most practitioners don’t recognise themselves because the knowledge is implicit in all that they do. Facilitated analysis will give you a better chance of achieving your knowledge-capture objectives.

Who should facilitate? First, look internally. Many information design professionals have good facilitation skills, as do many user interaction analysts or business analysts.

But take care! A job title does not ensure that the title bearer can make your knowledge capture happen. If the capture of practice knowledge is urgent, you may choose to seek facilitation skills from outside your department or organisation.

Step 1: Develop a list of your products
A product can be something tangible like a document, a graphic design, or a piece of software. A product can also be a consultancy session or the pitch you deliver to a client.

Step 2: Identify your work components
I use the term work component to identify a way of producing a product. I needed a term to encompass a set of activities because products are not produced by a single activity. For example, if you make your client pitch as a presentation, the presentation delivery is just one step in the work component technique.

All or some of the following activities will also be required:
- Preliminary meetings on pitch strategy
- Preparation and review of the presentation
- Liaison with the client on meeting times and personnel
- Pitch delivery
- Management of follow up actions
- Debriefing with the business development team

Alternative work components. When you are identifying work components, you will often find that you identify alternative ways of producing a product.

For example, a pitch may be delivered to the potential client as a presentation. A pitch may also be delivered in a two-step process: discussion with the potential client followed by a document that matches your offering to the client’s profile. The box below provides an example of the choices that may influence how you deliver a pitch to your client.

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Heuristics: Pitch Development Guide

Heuristics gather together common wisdom on making decisions and evaluating choices. We use the following heuristic checklist to customise our pitch resources for a new client.

Heuristic Checklist

<table>
<thead>
<tr>
<th>#</th>
<th>Decision</th>
<th>Options and Decision Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Which case studies should I include?</td>
<td>Options</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Include our most successful projects.</td>
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<tr>
<td></td>
<td></td>
<td>Include case studies demonstrating our range of services.</td>
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<tr>
<td></td>
<td></td>
<td>Include case studies that target the client’s industry sector.</td>
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<tr>
<td></td>
<td></td>
<td>Include case studies that relate to the solution the client is seeking (project profile and size)</td>
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<tr>
<td></td>
<td></td>
<td>How to decide</td>
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<td></td>
<td></td>
<td>What aspect of your proposal do case studies need to support? Our range of expertise?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Our partnership with similar companies? The prestige we have gained in the marketplace through successful projects?</td>
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</tbody>
</table>
Step 3: Identify your knowledge collateral
For each work component

- Gather and list the documents that are produced and used.
- List the situations where you make decisions, give advice, or evaluate options.

Now you can identify your knowledge collateral:

- The “way of doing business” knowledge that underpins documents from meeting agendas to reports can be embedded in techniques, tools, and templates.
- The “way of doing business” knowledge that enables decisions and evaluations can be captured in heuristics.

Focus on the documents that you produce.

Most organisations have started down the path to techniques, tools, and templates but have unclear criteria for organising such valuable collateral. Templates are frequently saved to the tool template area. For example, does your word-processing template directory hold everything from report templates to leave application templates?

When tools and templates are not organised to match practice work components, a business practitioner has to have independent knowledge of what to use.

Understand decisions and evaluations that are made.

Few organisations are leveraging the accumulated knowledge that enables decision-making and evaluation.

If you make a pitch to an external client or a client group within your organisation, where is the list of rules that enables you to assess and select the way you will go about your preparation? Where is the set of rules that provides guidance for tailoring your delivery to your audience? Where is the set of rules that gives you options for managing outcomes?

By associating business “smarts” with the actual work component step, you enable your business performers to pick up and apply manageable sets of practice knowledge. There is no pain or cognitive overload in applying the “way of doing business” knowledge. A practitioner just seems to be using some “good ideas” to achieve an outcome.

Step 4: Develop your practice knowledge base
Now that you know what you have to do, work to build your techniques, tools, templates, and heuristics.

Distribute the development effort. Give members of your team responsibility for developing your knowledge collateral, because ownership is the key to enhancing the value of the collateral through new learning.

Divide up the development work

- By product
- By work component within product

Draw upon the talents of your team to have specialists or competent performers develop your knowledge collateral. If you have identified several work component alternatives for producing a product, assign each work component to the appropriate performer. Involve new or less experienced team members as assistants.

Use facilitation during development. You may miss recording half the practice knowledge that your team holds if you just rely on each team member to go into a corner and write.

Set up buddy or professional facilitation to ensure that the knowledge capture is comprehensive. You will still fail to capture some important insights, but facilitation will reduce the knowledge loss. Later, your strategies for evolving practice knowledge will trap insights and experience that slipped through the initial analysis.

Step 5: Implement your practice knowledge base
Your product-driven analysis will give you a meaningful structure that can be adopted as the structure of your practice knowledge base.

The partial table on page 35 is an example of part of a practice knowledge base. The first work component has been developed in detail.

Use a hypertext medium, such as Help or an intranet, to link document files directly to your work model. I have added an explanation to each entry to aid you in reading the table and interpreting the document links.

The simple tabular format enables your practitioners to browse the table by product and work component. A specific product and work component combination identifies the
set of knowledge collateral that supports part of your practice. Practitioners open the documents they need and save them as copies for their current work.

**Step 6: Set up strategies for evolving practice knowledge**

Now that you have captured your practice knowledge, work with your business group to establish a knowledge evolution culture.

Discuss the way you will collect new ideas such as alternate or replacement technique steps. Knowledge bases quickly become stale repositories if your organisational culture does not support the evolution of knowledge through continued learning and sharing.

The following two-step approach offers one option for evolving your practice knowledge base:

1. Assign product or work component owners who will collaborate with the group to manage updates to knowledge base collateral.
2. Encourage all practitioners to buy into increasing the value of the collateral they use by passing insights on to the product or work component owner.

All items except the practice knowledge home page are in standard document formats such as Microsoft Word or Microsoft Excel. Knowledge base updates can be managed by taking a copy of the existing item, making the agreed changes, and returning the updated document to the knowledge base directory.

**Where is Your “Way of Doing Business” Knowledge?**

I have outlined the high-level process that I am using to help colleagues capture critical business knowledge—knowledge that is so often lost when staff leave or move between departments.

I have my own techniques for facilitating product-driven analysis and for assembling the sets of collateral. You will have techniques that you are already using for similar activities.

Perhaps what I have learned will move you forward in your quest to capture your practice knowledge.

<table>
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<th><strong>Practice Knowledge Base</strong></th>
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<tr>
<td><strong>Products</strong></td>
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<tr>
<td>Pitch to potential client (definition of product)</td>
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Making a Business Case for Single Sourcing

Tina Hedlund, Senior Consultant, Comtech Services, Inc.

As we learned in last month’s issue of Best Practices, in JoAnn Hackos’ review of the book, The Balanced Scorecard, selling innovative ideas to upper management is important. The Balanced Scorecard approach includes a customer perspective, an internal-business-process perspective, and a learning and growth perspective, in addition to the financial perspective. A solid and balanced business case allows you to gain management support and reach your goal.

In a series of features on making a business case, we will address some of the important issues facing information-development organizations today. Some of these features will include contributions from our most successful Center members and will illustrate how the members have been able to make a business case for their department.

In the first of the series, we address the issue of single sourcing. Many in our industry would like to implement a single-sourcing strategy, and although they can see the potential return, they feel they have little chance of justifying the initial start-up costs or the time and effort needed to plan a transition into single sourcing. By addressing each of the Balanced Scorecard perspectives, you may find the justification not as difficult as you first thought.

**Financial Perspective**

Because the financial perspective often gets the most attention, it is the logical place to begin. First, you must understand that the point you make in your business case will depend on what growth mode your company and your particular projects are in. Your department may be documenting cutting-edge hardware or software in addition to maintaining several reams of legacy documentation for mature products. What project you decide to propose for a single-source initiative will influence the success of and the arguments you include in your proposal. Projects in a growth or sustaining mode are much better candidates for a single-source initiative than projects in a harvesting mode.

Projects in growth mode are expanding so fast that they often don’t have problems obtaining funds. The initial investment is seen as one that will be returned over a long period of time.

Sustaining projects “are expected to maintain their existing market share and perhaps grow somewhat from year to year”; thus, financial analysis in a sustaining environment should focus on

- Return on investment
- Return-on-capital-employed
- Economic value-added estimates

Harvesting projects involve mature products that are not being expanded but are expected to earn a steady income. In these situations, long-term goals and savings are not valued. Short-term projects and savings will be valued more; therefore, projects in harvesting mode may not be successful candidates for single sourcing.

You must then select single-sourcing projects carefully. If you begin with projects in growth or sustaining modes, you are much more likely to get the initial start-up funds. Once start-up costs are already invested and processes are defined, you can make a business case for the inclusion of projects in harvesting mode. Once you have a content-management system and single-source processes in place, goals and savings will be more short-term and fit with the financial goals of harvest projects.

For projects in growth or sustaining modes, an effective way to demonstrate a return on investment is to show potential cost savings associated with translation. Although departments have historically saved costs through translation memory, they may fail to see significant returns. For translation memory

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to work effectively, the information has to be consistent enough to be “remembered” in a database of previously translated information. A content-management system and a solid single-sourcing process enforces consistency, and departments that use single sourcing realize better returns than when they use translation memory alone.

Two of the most impressive cases for cost savings in association with translation are J.D. Edwards and Tweddle Litho Company, a company authoring manuals for the automotive industry. (For more information about translation and the Tweddle Litho Company read the article, From Emissions to On-board Data, in the Tools and Technology section on page 40. For more information about translation and J.D. Edwards see, How to Successfully Implement Document Management, in the October 1999 issue of Best Practices.)

Translation
Using J.D. Edwards’ internally grown product, Content Manager, Ben Martin claims a 290 percent return on investment and a savings of $3.5 million per year by single sourcing their content into three deliverables and seven languages.

The return on investment is equally impressive at Tweddle Litho Company, which, from one release to the next, translates only 15 percent of its revised information into 20 languages. Although Tweddle may have seen an impressive return on investment if they had used translation memory alone, their returns are likely to happen only if the information is authored in a very consistent manner. Single sourcing and information re-use force consistency that is difficult to obtain when authors are working on several related information products. Tweddle still uses translation memory for 10 percent of its information, but the benefits from translation memory are limited because much of the new information is unique and isn’t in the translation memory database.

Customer Perspective
Although cost savings can be realized through careful planning and implementation of single sourcing, one of the most important benefits of single sourcing is the ability to create customized, customer-driven information. If you can demonstrate that customized information will result in a competitive advantage, you will have a strong business case in line with many corporate vision statements. If you can demonstrate the adaptive nature of single sourcing, you will be in a much stronger position to deliver information customized to a specific user.

Companies like weather.com are already using customer information to customize Web output. After finding that many of their users access weather information to determine whether they should golf or garden that day, weather.com decided to customize their output to reflect that use. Most of the information provided in these areas of the site is the same as in the standard portal but it is delivered in a different way that makes more sense and is more usable in the context of its use.

Ericsson authors use “push the button” technology to determine what information is sent to each of their customers. By comparing customer information to the information in their database, they are able to deliver customized documentation specific to their users’ needs in a fraction of the time that would be required to customize it manually.

Internal-Business-Process Perspective
After identifying the customers’ needs that single sourcing will serve, you must illustrate the operational efficiencies that will occur and the post-sale opportunities that will emerge.

Internal efficiencies
Internal efficiencies refer to changes in processes that contribute to cost savings. If you are going to move to a single-sourcing strategy, what processes will it streamline and where can you expect to free up time and energy?

Changing the way authors develop content is the first step in efficient content devel-
Object-oriented technology has become a catch phrase, yet many of us still aren’t sure what it is or how it will help information delivery. Object-oriented technology provides a way to adapt quickly to a changing marketplace. Instead of authoring content multiple times for delivery into multiple media, XML allows you to show or hide information appropriate to that deliverable during production. Obviously, to take advantage of that capability, you must put a lot of thought and planning into the initial design of the information. The properties of object-oriented technology that allow information to be customized are polymorphism and inheritance, but don’t be intimidated. These words are easy to understand.

Polymorphism means that different programs can operate on object-oriented information (information marked-up in XML) and return different results based on the required output. For example, if you structure your information so that a reusable piece of information contains a conceptual overview, procedures, and a warning, the output might be different if displayed on a Web server (the end user sees all the information) or if processed into online help (the conceptual information is removed or not displayed). In another example, information accessed by a program used by technical support could display certain procedures as part of the problem-resolution process. Those procedures plus additional information could be included in the paper documentation. Polymorphism is also the reason you no longer have to foretell the future and determine how your information will be delivered. The information is accessible by many means and can be used no matter what future needs may arise.

Inheritance allows you to define characteristics in a class of related information and identify special cases that retain all the attributes of the first but also have special characteristics. For example, you may document procedures for maintaining a piece of hardware, but the configuration parameters are different based on each customer. The procedure is the same, but you have a special implementation of that information, which includes customer-specific parameters. When implemented, information delivered from a Web server could deliver the procedures with the customer-specific configuration parameters without you having to mark up that piece of information with every piece of associated metadata (for example, that the procedure is for this piece of hardware, about this procedure, and is specific to a certain customer).

Information would inherit the first two characteristics and only need to be noted as a special case of “procedure.” In this way, you can start creating hierarchies of inter-related information. This same capability allows you to effectively deliver information releases on a continual or streaming basis.

Information for release 1.1 would be a special case of release 1. All the information related to release 1 applies to release 1.1 except in the case of new information or out-dated information, which would become special cases but still be related to release 1.

As you can see, the properties of object-oriented technology allow you to meet many of your customers’ needs: more methods of delivery, customized documentation, and more timely documentation.
Opportunities to share and re-use information from other departments is another way to make internal processes more efficient. The most natural information exchange and greatest opportunity for collaboration is between technical documentation and training. Although the delivery differs, the content is very similar. Additionally, technical publications can benefit immensely from the constant customer contact of the training department, which will increase overall information quality. Within your organization, there are many opportunities to collaborate and facilitate information re-use. You must talk to all departments to determine what information they use and how they use it so that processes can be streamlined and re-use facilitated.

**Post-sale opportunities**

Once your information products are in the customers’ hands, you must identify in your business case post-sale opportunities to increase information quality and solicit customer feedback. The potential exists to include information products in post-sales activities such as technical support and Web delivery.

Not only do you have the ability to share information with technical support, which departments normally do, but there is also the opportunity to receive information from technical support. Joint information development with technical support should increase the quality of the documentation and possibly reduce technical support costs.

Implementing innovative customer feedback options on the Web is another post-sales opportunity. Some companies are providing unique identifiers in their content so that when users click on a link to provide comments on content, the comments can be traced back to the specific information the user is referencing.

Single sourcing also supports the ability to rank search results by the usefulness of the information to existing users. Users perform searches and then rank the results with one click of a button to indicate whether the search produced the information they were looking for. Using the data produced from such automatic feedback could further refine indexing and metadata definitions to provide a valuable online experience for customers.

**Learning and Growth Perspective**

To deliver innovative information solutions, it is important to realize how single sourcing will impact future learning and growth opportunities within your organization. You must emphasize in your business case current opportunities lost when employees are not challenged to work outside their comfort zone. In a single-sourcing environment, employees will be challenged to:

- Learn new technologies, such as XML.
- Become subject-matter experts in a knowledge domain.
- Learn to create more structured and usable information.
- Become specialized in specific areas like information architecture and Web-based production.

This knowledge will open doors to other opportunities to innovate as employees become more knowledgeable. Employees become more valuable to your organization as they develop significant expertise in new technologies and best practices. Innovation does not occur in a stagnant environment. Providing innovative work opportunities motivates your best employees, the ones you want to retain.

**Conclusion**

The business case you build must be specific to your department, your organization, and the market and customers your products serve. Many of the ideas presented in this article may be used to make your case, but they must be tailored to your environment to be effective. The true benefits of single sourcing will be identified by your customers and your staff and will be the driving force for the arguments you present in your business case.
From Emissions to On-Board Data: How the Automotive Industry is Using Single Sourcing to Provide Innovative, Cost-Effective Information

Tina Hedlund, Senior Consultant, Comtech Services, Inc.

In 1996, hit with new requirements developed by the Environmental Protection Agency to deliver information on emissions in a structured format, the automotive industry scrambled to make sure they had the ability to comply. Andy Tweddle, vice-president of Tweddle Litho Company, who contracts with many of the automotive giants to develop the information for automotive manuals, was especially hard hit. He was confronted by the fact that nearly everything in an automobile is related in some way to emissions and that all their documentation needed structure. The industry began a wholesale migration into SGML. What began as a government requirement grew into a solid single-sourcing strategy that has enabled Tweddle to translate only 15 percent new information from one product release to the next.

For the information-development process to work, Tweddle had to rethink how they developed the information and find a tool to make single sourcing possible. They could have had the writers develop the information in isolation from one another, as many publications organizations do, but they decided instead to completely change the way their information-development process worked.

**Information Development**

Tweddle needed a tool that would allow writers to create content but also differentiate information so that when the information went into production, only the right information from that model, that year, and that market made it into the deliverable. Fortunately, they already had the perfect tool on hand, XyEnterprise’s Content®, which they were using for a client.

XyEnterprise’s Content®, formerly Parlance, is a robust SGML-based, and now XML-based, content-management tool that facilitates content re-use and print publishing when used with their high-end publishing tool, XML Professional Publisher (XPP). Content® offers robust content-management and single-sourcing capabilities at a significantly lower price than products like Documentum. Because Content® was a requirement for another customer, Tweddle was already using it to reduce and manage translation costs by taking large, flat SGML documents and creating smaller, re-usable pieces of information. Changes made to one piece of information did not require retranslation of the entire document set.

The migration from re-using translated information to re-using English information across dimensions (model, year, and market) was obvious. Content® allowed writers to assign metadata (using Frame+SGML or Arbortext Editor) to pieces of information, labeling them according to a certain model, year, or market. “Many cars are very similar, particularly US and foreign versions of the same car. Plus, different cars frequently use the same subsystems, like engines, radios, air conditioners, and so on. When we develop manuals, we have to make them as modular as the cars we document.”
Consequently, writers could no longer write an entire book in isolation. They now had to develop information based on automotive systems. For example, one writer is responsible for all information on heating and cooling for all three dimensions. The writer becomes the subject-matter expert in that domain and can determine easily what is common information and what is unique.

Integrated workflow software facilitates and automates much of the process and allows Tweddle to identify bottlenecks in their operation. With an easy-to-use wizard interface, Tweddle can identify where content will go and how content will be packaged once the authoring process is complete. Using a reporting system, progress is tracked and problems in the process identified.

**Technical Reviews**

Once information is authored, technical reviews are done collaboratively and online. PDFs are generated from the content repository in response to a workflow trigger. The PDFs contain both the common information and the product-specific information with the specific model, year, and market (the XML metadata) reproduced as a marginal note. All content is produced in context and, because the differences are noted in the margin, an editor or a subject-matter expert does not need to review and edit more than one version of the information. Also contributing to the success of this review process is that subject-matter experts within the automotive industry specialize by automotive systems. Delivering information in the way that subject-matter experts work has helped to sell the idea.

But not all changes met with immediate approval from the automotive systems engineers. For example, another innovation Tweddle introduced was electronic markup of information. Instead of wading through multiple and often unreadable edits, writers and editors were able to streamline the process by having often unwilling subject-matter experts mark up information directly on the PDF.

Attitudes changed toward the new review process once subject-matter experts realized the new system allowed more time for reviews, and they were no longer under the extreme time pressures they once were to complete the reviews.

**Translation**

Once reviews are complete and information is ready for translation, only the pieces of information that have changed since the last translation are sent to the translators. Depending on which automotive client the information is for, the new information is packed for translation. In one instance, information is sent automatically as part of the workflow system to a third-party translation company. The software creates a package, which includes the old English version, the new English version, the old translated version, and a “diff” file.

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### Basic Information About XyVision Products

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Product Information

XyVision Enterprise Solutions, Inc.
30 New Crossing Road
Reading, MA 01867
781-785-4400
<www.xyenterprise.com>
Tweddle estimates that only 15 percent of the text needs translation as a result of this process. Because Tweddle translates into twenty languages, they have seen the most significant cost savings in translation.

Deciding that their process could use further refinement, Tweddle developed other ways to make translation more efficient. Writers consider translators their first customers by making sure they are reusing as much content as possible, writing from a minimalist perspective, managing terminology, and including as many graphics as possible. Tweddle has been so successful that translation memory tools, which work by “remembering” text that has already been translated, contribute to only about 10 percent of their translation. The new content they deliver to translation is so unique that it is not a part of that “remembered” database of text!

**Production**

Currently, the main mode of delivery for automotive owner guides is paper (the manual you have in the glove box of your car), but some customers require publication into Web-optimized PDFs.

Book builders, the next stage after writers, editors, and illustrators, compile the information and create an outline from the database for production. Using the XyEnterprise product XPP, they have automated much of this process. Very detailed style templates created in XPP determine much of the print and PDF output, and book builders verify only that the output is correctly laid out. Production can be a batch process with very little intervention.

**Future**

The next step for Tweddle, like many in the technical-publication industry, is dynamic output.

“In just a few years, new cars will be sold with computer screens capable of displaying text right inside the car. We need to be able to make electronic versions of our manuals that can be displayed and updated as changes are made,” said Andy Tweddle in an interview with *Imaging and Document Solutions*.1

Tweddle has everything in place to make dynamic output a reality. Their content, which is already modular and in XML format, can easily make the transition from traditional print output to anything the future may hold for the automotive industry.

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The Wireless Web

It seems as though we have all grown so busy that we do not have even a moment to stop and browse the Web anymore. Wouldn’t it be convenient if we could access the Web on the go? It seems our hopes for a “wireless” Web have been realized! “The Wireless Web: Special Report,” in the October 2000 issue of *Scientific American,* explains how this wireless Web works.

Using the wireless Web, we can access the Internet from our cellular phones, handheld computers, and other portable devices. In the past, data networks have been cursed with incompatible standards, awkward user interfaces, high service charges, and problems with spectrum allocation. The fate of the wireless Web is looking brighter. The reliability and speed of data transmissions have been steadily improving, and it seems the wireless Web is slowly weaving itself into everyday life.

To aid the wireless Web’s growth, companies are developing networks that can handle huge amounts of data and handheld gadgets that can tap into all of the Internet’s resources. Current devices are constrained by slow speeds of wireless transmission, which only average 10 kilobits per second—less than one fifth the data rate of a typical PC modem over a fixed telephone line. Fortunately, the future holds 3rd Generation (3G) wireless networks that could increase the data rates of mobile devices to up to two megabits per second.

Carriers in Japan deployed 3G wireless cell phone systems in late 2000. Europeans can look forward to 3G in 2002, and Americans should be using 3G systems by 2003. It must be noted that 3G is not a single standard of technology but rather a term used to describe several approaches to high-speed wireless Internet access. Most 3G networks will start off as hybrids to which new capabilities will be added as dictated by demand.

Europe and Asia will be converting from their current Global Standard for Mobile communications (GSM) to Wideband Code Division Multiple Access (W-CDMA). North America will be moving from Code Division Multiple Access (CDMA) networks like those deployed by Sprint and GTE to W-CDMA and from Time Division Multiple Access (TDMA) networks used by telephone companies such as AT&T and Southwestern Bell to Enhanced Data rates for Global Evolution (EDGE). These systems have different advantages and disadvantages and are currently being tested to assess their viability.

Solutions may be More Complicated Than First Thought

Martin Cooper, credited with inventing the cell phone for Motorola in the early 1970s, criticizes 3G networks. Cooper says that users should only expect 64 Kbps from 3G networks at best—a definite improvement on current wireless networks but not significantly faster than ordinary modems. 3G, Cooper believes, is only a “baby-step” toward inexpensive high-speed wireless communication. Interestingly enough, Cooper is working on “smart antennas,” which he claims could provide 1 Mbps for each of 40 concurrent users. With smart antennas, signal processors, when attached to an antenna array, can beam radio signals precisely at individual users. As users move around, the smart antennas track them. Using antennas that are already in place and the signal processors that most base stations already have, smart antennas could be formed by simply upgrading the software rather than by implementing a new protocol, which requires new cellular hardware.

Unfortunately, a simple solution to the problems of achieving a fast, reliable wireless Web is probably only a dream for developers. Although consumers in Finland can already use their mobile phones to send text messages, pay their bills, get traffic reports, and buy coffee, it’s not enough. Upon the introduction of high-speed wireless Web access, we will be able to download audio, video, and other data-intensive files such as songs and movies into a handheld device. Because we obviously cannot watch a movie on a typical mobile phone, there must be devices in the works that are not your typical mobile phone.
Super Phones are Coming

Mobile phone manufacturers are experimenting with several designs for the handheld devices that will be used with the enhanced wireless networks of the future, one of which is the “super phone.” Super phones will have color screens several inches square for the presentation of high-resolution graphics and video; some will have keyboards and miniature mice for data input; but most will use touch sensitive screens and styluses like those now used by handheld devices like the Palm Pilot. In addition to carrying voice communications, super phones will be able to play music; almost all of the prototypes have earpieces that are separate from the body of the device, and many have headsets that hold both earpieces and a microphone so that users can speak, listen, and see the device’s screen all at the same time; many prototypes use low-power radio waves to transmit signals between the body of the device and the headset, thus eliminating wires. Lars Godell, an analyst for Forrester Research, predicts that most people will not have a need for these full-service super phones and that simpler smart phones will be much more common. It seems that smart phones will be limited to sending and receiving email, accessing the Internet, and possibly playing downloaded music.

Imagine what would be possible for technical publications? The possibilities are endless across many industries. Many technical publications departments support users who may not have access to an office or a computer, making online help or Web delivery useless. With the ability to perform sophisticated searches and download larger volumes of information to a cellular device, we can support user tasks in real time.

Because 71 percent of Finland’s population, 50 percent of other European nations’ populations, and 34 percent of the United States’ population are using mobile phones, it is certain that the demand for a useful wireless Web will spur the development of an effective network and user-friendly handheld devices. Although it may be years before either of these is achieved, we can be quite sure that both will eventually be here. As far fetched as these wireless networks and handheld technologies may seem, they are now a reality, and they will only improve.

It is time to start looking at how we deliver information on the Web and determine future needs in wireless technology. These new devices aren’t likely to support an Adobe Acrobat plug-in for PDF files, which is the delivery method favored by many technical publications organizations, and the search capabilities within Acrobat aren’t likely to support the retrieval of information at a useful level. How does your organization plan to address the challenges? Many organizations need to deliver more granular information that is relevant to the user’s task, so that information will be not only useful on the Web but also on up-and-coming wireless technologies.

The Science of Persuasion

Robert Cialdini, professor of Psychology at Arizona State University, presents a scientific discussion of six basic tendencies of human behavior that can be used as powerful persuasion tools. While we usually think of these tendencies in terms of sales and marketing, they can be valuable tools for managers as well. As a manager, you are continually trying to persuade your staff to behave the way you want. These tools can help you affect the behavior of your staff.

In his article, “The Science of Persuasion,” in the February 2001 issue of Scientific American, Cialdini titles the six tendencies: reciprocation, consistency, social validation, liking, authority, and scarcity. We recommend that you read the original article to understand in more detail these tendencies and the studies conducted. Here we give you management examples that were not discussed directly in the article.

Reciprocation

People feel compelled to reciprocate favors. A favor might be a gift, gesture, or service. You have all received free mailing labels in a mail request for a donation, and although you may not want make a donation, you may feel more compelled to do so. As a manager, you can use this tendency to your advantage. Do small favors for your staff. Bring them something from a trip. Take some of your staff out to lunch. Do an errand for a staff member who may have difficulty doing it herself. It works best if your staff is aware that you have done...
the favor at your own expense rather than at company expense. Your staff will reciprocate more favorably to an individual than to an institution.

Consistency
People want to behave in a consistent manner. Cialdini provides examples of increased contributions to a charity if people are first asked to sign a petition. To act consistently, people who signed the petition also felt obligated to make contributions. An effective management tool you can use is to get written or public commitment from your staff members about tasks and completion dates. You may develop some sort of commitment contract or get commitments from your staff during staff meetings. If you are able to get commitments from your staff members on projects that require little effort, you will be much more successful in getting buy-in for more work-intensive projects. By committing to the first project at little or no cost to themselves, they will feel obligated when the time for more work arrives. Meet with staff members prior to new projects, processes, or tools, and try to obtain support on a small issue before asking for larger work commitments, and you will be more successful.

Social Validation
People make decisions about how to behave by observing what others are doing. As a manager, you should use your own behavior and the behavior of senior members of your staff as examples for the rest of your staff. New employees watch others closely to get clues to behavior. For example, if your group is very busy, you will get people to work harder and do overtime if they observe that you and your senior staff also work hard and stay late. Rewarding staff members who achieve in a public fashion will encourage emulation by the rest of your staff. However, because awards that are perceived as undeserved by your staff may have opposite results, it is important to select team members who truly represent the qualities you would like others in the team to emulate.

Liking
People are easily persuaded by those they like. A good example of this tendency is the effectiveness of Tupperware parties. Salesmen commonly try to develop friendships with their customers, and the Tupperware business thrives on recruiting sales people who then will sell to their friends. Another trait related to likeability is perceived attractiveness. Studies have shown that the physically attractive are more likely to be better at soliciting contributions and getting elected to government office. As a manager, it is important that you are well liked by your staff. They will do more for you if they like you. You can make use of this trait by getting to know each of your employees personally and showing a genuine interest in their lives. Deserved compliments can also stimulate your staff into liking you.

Authority
People are more likely to be persuaded by authority. Advertisers use this tactic all the time. For example, “Doctors recommend…” The author gives an example where two different men crossed the street against the light. There was a 350 percent increase in people following a man crossing a street against the light if he wore a suit rather than casual clothing. Promote your authority by effectively representing the interests of your institution, wearing more formal clothing, and displaying items representing authority, such as a large office, awards, or an academic degree.

Scarcity
People place greater value on something that is scarce. Businesses use this trait to their advantage. Californians are willing to pay many times more for their electricity because they have been made to believe that it is scarce. How does scarcity relate to management? Job scarcity is related to job loyalty. If employees perceive that jobs are scarce, they will value the job they have more. Management can make use of this tendency by setting up job specializations in their organizations that are uncommon in the industry. The staff that holds these specialized jobs will find equivalent jobs elsewhere harder to find and therefore value their current job more.

As you can see, as a manager, you’re also a salesman. You’re not selling a product or service. Instead, you’re selling a commitment to an institution and a job. You can use many of the same techniques that your own sales force uses to sell your company’s products.
Because customer satisfaction is such an important issue, whether it’s related to the product or its documentation, our December survey sought to find how companies are gathering data to assess customer satisfaction. We found that 48 percent of respondents had no company-wide or internal departmental customer satisfaction survey, and of the departments that did conduct customer satisfaction surveys, 34 percent of respondents reported that customers are asked about documentation as part of a general customer satisfaction survey. Very few technical publications departments are taking an active role to find out what specific aspects of their documentation meet customer’s needs or identify aspects that can be improved to increase customer satisfaction.

**Electronic Delivery**
Participants using electronic (email), Web-based, or a combined interview/survey mode of delivery for customer satisfaction surveys find that response rates increase. Users are more likely to receive and respond to surveys delivered directly and immediately to their desktop via electronic means or if asked to directly by an interviewer. Electronic media provide virtually instant gratification for both the information-development organization and the customer, while the interview/survey method may yield more substantive information because interviewers can immediately follow up interesting answers.

Unfortunately, many customers will respond to requests for feedback only if they have something to say that is extremely positive or extremely negative. To get responses from those with more moderate opinions, information-development organizations must give them a quick and convenient option for doing so. Electronic or Web-based media may be a cost-effective and easy way to accomplish this.

**Surveys in Deliverables**
Respondents with the lowest response rates send surveys within their documentation deliverables. This method is the most outdated and has been proven to be the least likely to elicit a response. The poor response associated with “back of the book” surveys is documented in this survey and many other surveys.

**Incentives**
Surprisingly, we found that the majority of departments do not offer incentives for completing a survey, and it doesn’t negatively affect their response rates. This is good news for departments wishing to conduct their own customer satisfaction surveys because it means that customers are very interested in sharing their opinions whether they receive compensation or not.
Quality Feedback
While increasing survey response rates is a concern, the quality of the information gathered and how it is used is of equal or greater importance. When asked how to improve their customer satisfaction surveys, our respondents pointed to the types of questions asked and how they are asked as having the greatest influence on the quality of the data they received. Respondents most often suggested including questions specific to the content and usability of their documentation.

Our results indicate that the most useful types of questions for better understanding user needs and improving the quality of documentation are open-ended questions and questions that use five-point scales. One respondent noted, “While it’s easier for people to answer yes/no or [to] check a box, verbatim commentary yields more valuable feedback.”

Separating the customer’s satisfaction with the product vs. the documentation is also an issue about which respondents feel strongly. Customers seem to confuse the two and tend to provide lists of problems regarding product functionality rather than usability of the documentation. One respondent stated, “When our major account customers are happy with our products and service, the documentation is rated great. When they aren’t happy with the costs, delivery, timing, and so on, the docs are rated badly.” The solution is for technical publications departments to influence how survey questions are phrased or, preferably, to do their own surveys that elicit information useful for document re-design. Fortunately, the vast majority of respondents feel they have received information from their surveys that has improved the quality of their documentation and has provided them with a method of contacting users for additional information.
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