APPLIED THEORY

SUMMARY
♦ Defines information design, and describes the work of information designers and the competencies information designers must have
♦ Defines the work of information designers by roles in design, development, and production of information, rather than by end products

Emerging Skills in Technical Communication:
The Information Designer's Place in a New Career Path for Technical Communicators

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Following the emergence of the *Guidelines for document design* (Felker, Pickering, Charrow, Holland, and Redish 1981) and the introduction of computer-based text-processing tools like Carnegie-Mellon University's Scribe at about the same time, some technical communicators recognized that the fundamental nature of the work was going to change. The job would involve more than "wordsmithing" product specifications prepared by one highly technical group for use by another. It would involve translating technical concepts so novices (at the least, novices to the technology) could apply them and serving as advocates for those novices (Price 1985). It would require technical communicators to be as sensitive to visual issues as to verbal ones. Finally, it would require many technical communicators to handle most or all their own production, as desktop publishing tools for producing and laying out text and merging text with graphics evolved (Whitesell, Ford, Vetovitz, and Brooks 1988). We take these responsibilities for granted today; but each of these changes was a significant development in its own right.

As these developments began, IBM—then and now one of the largest employers of technical communicators—reconsidered the role of its technical communicators, illustrators, and editors. Predicting an eventual merger of the three jobs and a need to allow people to easily move among these three roles, IBM combined the three jobs under the title "information developer."

The change in title caused controversy. Many technical communicators considered themselves to be writers; "information developer" seemed like a euphemism. Few grasped the significance of including technical illustrators and editors under the same job title. Two decades later, more members of the Society for Technical Communication would prefer to be called "information developers" or some related term, than "technical communicators." In an unpublished study conducted by the STC Corporate Identity Committee, 50% of the members surveyed said that they would prefer to call the work we do "information design and development." Only 38% said that they would prefer to call it "technical communication" (Society for Technical Communication 1997).

A change as profound as that which broadened the jobs of technical writers, editors, and illustrators into that of technical communicator is now in the offing. Sources feeding the change are many. The communication challenges that organizations need to address are increasingly complex, requiring a campaign-like approach more typical of marketing than of traditional documentation libraries. We can no longer tell users something once—we must use a variety of media and methods to reach them in hopes that they'll find what they need at the moment of need (Marion

1997 and 1998). This is sometimes called social marketing (Lincoln 1993) or a performance improvement campaign. Throughout the process of developing a campaign, technical communicators must remain user centered (van Mansom in press).

Demands on technical communicators come from a variety of sources. With the growth of global trading and increasing sensitivity to cultural issues, communicators must not only cross technical boundaries, but also ethnic, socio-economic, gender, and occupational boundaries. As markets for older products mature, technical communicators must help organizations target specialized versions of products to more tightly defined markets (called target marketing) (Zuboff, 1997). For example, Macromedia has developed a Dreamweaver Course Builder, a specialized version of its Web development tool that is intended to meet the needs of people who develop online learning, as well as Dreamweaver Ultra-Dev, another specialized version of Dreamweaver for use by people building e-commerce applications.

Other organizations are seeking ways to re-use existing information. The emphasis on knowledge management adds to the demand for people who can prepare a single piece of information that can be used in several contexts. The emergence of extensible markup language (XML) further facilitates re-use of information but adds a layer of technical complexity. In some cases, organizations can avoid developing some documentation and training by designing intuitive interfaces. The more comprehensively the information designers approach design and technology issues in the early stages of a project, the more feasible this goal at later stages (Kostur 1999; Tsai 1999).

Advances in publishing software along with increased expectations of readers have fueled demand for graphics and eye-catching design in even the most functional of communication products. At the least, technical communicators must be able to identify opportunities to communicate visually and share the plans with graphic artists and production specialists. In most organizations that are short of staff (especially smaller organizations), technical communicators must also translate those plans into reality.

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As technical communicators are increasingly held accountable for the business performance of their units (Mead 1998), technical communicators need to develop business cases for proposed projects, management skills for bringing in projects on time and within budget, marketing their services, and developing strategic growth plans (Hackos 1994; Carliner, Constantinedes, St.Amant, and Walstad 2000).

Recognizing these trends, some technical communicators have relabeled their work as *information design*. This label contrasts with the concept of information development, which focuses on the work needed to implement a design. But are they really information designers or simply technical communicators with a new name? This article attempts to answer that question. First, it defines information design. Then it describes the work of an information designer, various adaptations of that work, and the general competencies that information designers must have. Last, it places the work of an information designer in the larger context of an emerging career path that converges with those of other communication disciplines and defines work by the role an individual plays in the design, development, and production of information, rather than by the end product of their work.

WHAT IS INFORMATION DESIGN?

Richard Saul Wurman, an architect who changed his focus to information design, is perhaps the first person to propose the need for a more comprehensive approach to information design. He initiated this conversation when he chaired the 1976 convention of the American Institute of Architects (AIA) and formally documented his thoughts in his 1989 (and recently re-released) book *Information anxiety*. There he suggested that organizations would hire information designers to design the structure and appearance of information much as they hire architects to design the layout and look of buildings.

His ideas gained momentum in the graphic design community, and they have created an informal community of information designers with a strong interest in online communication. This information design community is concerned with issues such as structure of content, online navigation, interaction between computers and users, and the visual appeal of the content. Given their roots in graphic design and architecture, this last interest is understandable. But these designers recognize that a strong graphic design cannot cover up a weak underlying structural design or information flow. For example, if a Web site is poorly structured or has irrelevant content, the visual appeal cannot overcome those fundamental limitations (Rosenfeld and Morville 1998; Mok 1996).

More recently, two other groups have joined the information design movement: the library (information) science community, with expertise in cataloging information, and

the usability and ergonomics community, with an ongoing interest in usable products and information.

As the architecture, graphics, library science, and human factors communities have focused on information design, people in the instructional design community (who structure content for learning materials) took their interest in design in a different direction. They recognized that providing information or teaching a lesson alone do not address the underlying problem that drove a request for a training program and became focused on ways to design "interventions" that would ultimately improve learners' performance (Gilbert 1978; Stolovich and Keeps 1999). They suggested ways to design comprehensive software applications that would support people in building their performance in the workplace; these systems are called *electronic performance support systems* (Gery 1991). Quicken is often cited as an example of performance support because, with its metaphor of a checkbook and intuitive interface, people can use Quicken to effectively manage their finances with little or no training on the software.

Meanwhile, some people in the technical communication community also recognized that to have the most thorough impact on user experience, we needed a broader focus for our work than writing manuals and online help. To suggest that broadened role, some of us began calling ourselves information designers. Our focus is on well-structured content and navigation, on the metaphors used to communicate with users, on meaningful interactions between computers and users and, as is our tradition, excellent writing.

Because information design emerges from so many disciplines, then, a definition of it should ideally encompass all its roots. The work should too. A definition must recognize that information design is as focused on the underlying issues of choice of content and its structure as it is on surface issues of visual design, grammar, and style.

Here is a definition of information design:

Preparing communication products so that they achieve performance objectives established for them. This involves

1. *Analyzing communication problems*
2. *Establishing observable measurable goals or objectives that, when achieved, address these problems*
3. *Developing a blueprint for a communication effort to address those objectives*
4. *Developing the components of the planned communication effort solution*
5. *Evaluating the ultimate effectiveness of the effort (Carliner 2000b)*

Note that this definition focuses on the problem-solving aspect of information design. Writing, graphic design,

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FORM OF THE COMMUNICATION PRODUCT

Choice of Communication Product

This communication product is a help system. I have chosen this form because it allows users to access the data they need in the quickest manner available. At ServiceAssistant, every employee is connected to the Intranet, therefore there should not be a problem with availability. Each worker is familiar with the Intranet and how to use it. ServiceAssistant's business is entirely computer based, and 99.9% of employees' tasks are completed at the computer. It is also the most inexpensive solution to the problem because there is no extra cost for adding additional information to an existing Intranet. The cost will be a one time payment to the technical communicator for creating the manual. The time and effort is that of the communicator, not the user, which will cut down on frustration and wasted time. The biggest advantage is that any updates can be viewed immediately.

User's Expectations

Users typically search for information in a on-line help system by typing in a term, and having the system bring up a list of topics that match that term. The other common way for users to find information is to search through the Index, where topics are listed alphabetically.

Once a topic is selected, procedures will be listed out step by step to help them perform the task, and there will be pictures wherever necessary in order to let them know they are on the right track.

The writing style will be conversational. Employees will not take time to read a help system that is too technically based for them. There will be a minimum amount of words – only words that are necessary to get the idea across will be included.

The format will be as simple as possible. It will be mostly text containing hyperlinks and pictures when necessary.

Figure 1. Sample section from a document blueprint.

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editorial, and tools skills still play crucial roles in information design, but only in the larger context of solving communication problems, not as ends in their own right. In fact, many information designers turn their plans over to others for implementation (that is, writing, graphic design, and editing). The definition also incorporates many philosophies that have guided technical communicators for many years, such as task-orientation (Brockman 1990) and minimalism (Carroll 1990).

WHAT IS AN INFORMATION DESIGNER?
General responsibilities
Information designers act as architects of projects, solving the complex communication problems presented by project sponsors (that is, the programmers, engineers, marketing professionals and others who hire us to communicate their technical content with a group of designated users) and developing the blueprints of the solution that will be both acceptable to sponsors (Robinson and Robinson 1989) and effective with the intended users. Figure 1 shows a sample section of a blueprint.

These blueprints are more complex than the outlines that have been used in the past as project plans. As building architects often specify details like faucets and doorknobs, so information designers specify details like illustrations and metaphors for a given section of a communication

product. These blueprints are significantly more complete than the outlines or information plans (Hackos 1994) that technical communicators have previously developed at the beginning of a project. They expand on Weiss's concept of storyboards (1991). More than naming the content of the communication plan, they also describe how the content will be presented (Kostur 1999).

In the past, the task of choosing content has been part of the project manager's job (Hackos 1994; Hartman 1999). The task of planning content was considered a stepping stone to the larger task of estimating the length of a project in pages. That, in turn, was used to estimate schedules and budgets.

But these estimates are often off by as much as 25 percent (Foshay 1997), and the communication products are designed by people who might be personally committed to meeting user needs but whose primary job responsibility is meeting schedules and budgets. The skills needed to design content are significantly different from those needed to plan projects, and we must no longer consider the two different responsibilities as part of a single job. The skills that make someone a good information designer are not the same as those that make someone a good project manager (Zielinksi 2000).

Furthermore, some case study research indicates that communication projects can have only one information designer (Carliner 1998). That is, the best communication projects emerge from a single vision, just as the best buildings emerge from the vision of a single architect.

General qualifications

Because information designers address broad communication problems, they must be broad thinkers who can visualize projects before they're developed and see connections between seemingly unrelated material. They must be able to address performance problems (such as increasing sales or reducing errors among products) rather than merely outline material. They must move easily among genres (types of communication efforts, such as training, marketing communications, and technical communication) and media. They must be comfortable designing interfaces and interaction as well as communication campaigns (a group of several related communication products in many media that together convey a single message or group of related messages). They must have a good "eye" for the visual look of a communication product and a good "ear" for its verbal tone. And they must be able to impart that vision to others and fight for it within an organization. Certainly each information designer will have a unique specialty, but the designer must also be comfortable working outside of that specialty.

Qualifications differ among organizations and seem to reflect the disciplinary background of the authors of the job description—for example, those who have background in instructional design tend to seek instructional designers. Those who have a background in human factors tend to seek people with human factors experience. And those who have a background in technical communication seem to seek qualifications similar to those we associate with our field.

Each discipline thinks it has a corner on expertise in information design. Perhaps Cloninger (2000) best summarized this friction, noting that "usability experts are from Mars, graphic designers are from Venus." The debate is similar to the historic one in technical communication: should managers hire writers and teach them the technology or hire technical experts and teach them to write? As both approaches work in technical communication, so many approaches work in information design. Different design challenges call for designers with different types of sensitivities. The best qualified is one who can address the unique challenges of the given situation. Information designers need the ability to think outside of their primary discipline and into all its contributing disciplines: that is, broad thinking developed from a combination of academic training and extended work experience. Perhaps that's why most organizations seek candidates with advanced degrees and several years of work experience on a variety of types of projects. Realistically, technical communicators have no unique "claim" to information design positions and less than 50 percent of us can ultimately expect to move into such positions.

More specifically, information designers need to have developed competencies in each of the following areas.

Information design and development refers to the basic communication competencies of the job. Information designers must be able to perform a needs analysis; set business and performance objectives for a communication product; develop and conduct evaluations and assessments (such as usability tests); develop user-centered designs; choose among media and types (genres) of communication products (Rossett and Czech 1995); design interactions, screens, and content (Bogaards 2000); and design information for simple production and re-use (Kostur 1999).

In addition to these broadly focused skills, information designers must demonstrate competency at the more basic communication skills of writing, editing, visual communication, speaking, preparing camera-ready copy, preparing simple code, and producing video. Admittedly, few people have

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proficiency in all these skills. But the success of an information designer is often correlated with the breadth of his or her communication repertoire; the broader the repertoire, the more ways the information designer has available to solve a given communication problem (Joyce and Weil 1980).

Because they are also responsible for recommending the tools used to produce information (and, in some cases, choosing the tools), information designers need a broad familiarity with specialized authoring software, such as desktop publishing and help authoring tools. More than technical skills such as customizing and troubleshooting these tools, information designers need familiarity with the capabilities of individual packages and their relationships to other types of software. For example, an information designer does not need to know how to use Flash, but must know whether to choose Flash in the first place. (In contrast, many technical communicators know how to use tools but do not know why the tools were chosen for a particular project and whether or not they are the most effective tools for the communication challenge.)

Technology refers to the subjects that we write about, not the technology of communication such as help authoring tools or animation software, unless these are the subjects of the communication products. Technology is changing in a variety of areas, from the well-publicized developments in computers, telecommunications, and biotechnology, to lesser-known developments in fields such as agriculture and manufacturing.

In the past, technical communicators have primarily emphasized their competencies in information design and development, and in technology. But as information designers serve key roles in larger product design efforts, as businesses attempt to better target their products, and as businesses address ongoing pressures to keep costs competitive, information designers (as well as other types of technical communicators) will also need to develop competencies in the technology they're communicating.

Industry refers to the application of technology to work in a particular industry. For example, computers have changed the way that consumers reserve hotel rooms and that front desk personnel check in guests at hotels. New

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canning technology ultimately affects the way that bottlers package and ship soft drinks. To effectively write about technology, then, we need to understand not only the technology itself but the way it affects the daily work of people in a given industry. Generally, information designers need to be aware of the way one or two industries work. They can then use that knowledge to better target material to an intended audience.

Business refers to explaining what we do in business terms and understanding how business conditions affect the demand for our services (Vancouver Roundtable 1997). Specifically, information designers need to be competent identifying and addressing the financial and competitive constraints affecting individual projects, versed in finance and strategic planning, and able to link projects to the business needs of the sponsor. Although budgeting and scheduling are primarily the responsibilities of the project manager, information designers need to be familiar with these issues because design choices can have a significant impact on schedules and budgets.

Although these four categories of skills are likely to remain constant for many years, the given skills within a category are likely to change as technology and business conditions change. We therefore need to regularly assess our skills, adding new ones and brushing up on other key skills as the market changes.

Furthermore, few people actually possess the breadth of skills required for the information design job. Some organizations will make do with a less broadly experienced candidate. Others will try to divide the responsibilities among a team of people who—together—have the qualifications. Each situation can work, but many hiring organizations will be dissatisfied either with inadequate solutions from less qualified designers or interdisciplinary rivalries from teams, and ultimately continue their search for the ideal designer. Those who do possess the breadth of skills will find strong demand for their skills, much as the most qualified architects find a strong demand for their skills.

Appendix A provides a more complete list of suggested competencies in each area, as well as a means of assessing them.

Various types of information designers
Actual job descriptions for information designers vary. Following are three job descriptions for information designers: one from the information design community, one from the performance support community, and one from a corporation actually seeking to hire someone into one of these jobs. You should be able to detect the background of the hiring team when reading the qualifications of the designer that they seek and the anticipated job responsibilities.

The information designer/architect is responsible for planning the structure of the product at the macro and micro level. Information designers/architects define and describe the information relationships and navigation models at the product, screen, and module levels. They also develop approaches to the categorization and hierarchical structure of content or content types.

THE SKILL SET

Business Skills

1. To understand the business models, needs and requirements of a client
2. To understand the information and communication needs of a person in a specific context
3. To understand the value chain and processes of an industry
4. To translate the business, information and communication needs and requirements into design requirements
5. To translate brand design and development into the digital domain

Design Skills

1. To create prototypes and requirement/specification documents
2. To create an interactive solution to meet the objectives and requirements
3. To analyze and create user tasks and develop task models and/or usage scenarios which effectively connect user interaction to goals and needs
4. To create and use schematics and site maps
5. To create information and/or concept maps
6. To create navigational structures and labelling systems
7. To create and document information architectures
8. To understand and document the strategy, logic, dataflow, and features of an interactive service
9. To understand and document every type of information object and template
10. To provide input and support for user research and usability test plans

Communication Skills

1. To communicate verbally and textually in a mother-tongue language and English
2. To work in an interdisciplinary project team environment
3. To present and articulate clear argumentations in client facing

Personal Skills

1. To be analytic
2. To be motivated
3. To be positive
4. To be open
5. To be conceptual
6. To be empathic
7. To be structural
8. To work independent and in a team
9. To have a strong attention to detail
10. To behave in a responsible way with regard to the target users and society as a whole
11. To think innovatively and systematically

The Knowledge Base

1. To know a subject domain as much as necessary
2. To know the (im)possibilities of the digital domain
3. To know appropirate design and productivity tools, such as paint/draw, flow charting, office suite, editing, and presentation
4. To be familiar with the specific attributes of (digital) communication media
5. To be familiar with the human cognitive and communication capabilities with regard to perceiving and processing multi-sensory information
6. To understand the value of supporting fields such as Cognitive Science, Library Science, Communication, Linguistics, Social Science, Computer Science, and Instructional Science

Qualifications

1. Advanced degree, training or comparable experience in User Interface Design, Usability, Instructional Design, Industrial Design, Cognitive Psychology, Information Design, Social Psychology, Linguistics, Library Science, Ethnography, Technical Communication, Professional Writing or any related field
2. Experience with user-centered design methods
3. Past participation on a interdisciplinary team

Figure 2. Job description for an information designer from the information design community (www.bogieland.com).

EPSS ARCHITECT

♦ Prepares the high level design of the entire project (acts as overall architect)
♦ Develops the design document
♦ Designs and structures the infobase
♦ Identifies technology requirements of the project
♦ Identifies user interface requirements
♦ Determines how to assess the effectiveness of the EPSS
♦ Oversees editorial, graphical, interface, and technical standards for the EPSS

Figure 3. Job description for an information designer from the performance support community (Gery 1991).

Job description from the information design community Peter Bogaards proposes the job description for an information designer in Figure 2. It is a theoretical job description: that is, it has not been used in an actual hiring process. It is especially broad, reflecting the expansive and diverse fields that feed information design—including some of the humanities. The mention of facility in several languages reflects Bogaards's European background (an issue not addressed in most U.S.-based descriptions).

Job description from the instructional design community The job description in Figure 3 comes from the performance support community. The job title is EPSS Architect and is adapted from a job description first proposed in Gloria Gery's *Electronic performance support systems* (1991).

Job description from a software development corporation The job description in Figure 4 comes from a publisher of a popular software package for enterprise computing.

> *[We are] looking for a . . . Designer who will focus on [our] applications, especially including new Internet Economy applications, to help deliver highly compelling and usable Business applications. We're looking for . . . a person who is driven by a passion for making the user experience as easy and productive as possible.*

The job title is usability designer. Given the qualifications requested, we can assume that the organization has an interest in graphic design and does not believe that people with a background in technical communication can fulfill the responsibilities (notice the omission of any reference to written communication skills or background in technical communication or information design).

HOW DOES THE WORK OF AN INFORMATION DESIGNER COMPARE WITH THAT OF OTHER INFORMATION DEVELOPERS?

Work based on role, not discipline

In addition to adding the role of information designer, the emergence of online communication has fostered a con-

RESPONSIBILITIES

- Project discovery and definition
- Determine high-level issues including project priorities, requirements (i.e., business, marketing, user, engineering, and functional requirements), products, users, tasks, and function
- View existing product and functionality
- Examine any current web prototypes/mockup
- Analyze user profiles and behavior
- Determine existing/future corporate and/or product identity requirements
- Determine main development challenges
- Determine possible design innovation points
- Determine design/development team roles
- Assist in developing a project plan and projected budget
- Interaction Design
- Develop interaction concepts for the following:
  - Login sequence
  - Home page interaction
  - Metaphor exploration
  - Universal navigation
  - Search navigation
  - Roles based navigation
  - Home page personalization (content and layout)
  - Hierarchical Pages interaction with breadcrumb trail
  - Favorites interaction
  - Adding items to Favorites list
  - Managing Favorites list
  - Transactions designed for untrained/occasional/casual users
  - Transactions designed for trained/functional/power users
  - Visual Design
- Develop visual designs for the following:
  - Hierarchical navigation page
  - Logon page
  - Home Page
  - Search query and result
  - Home page personalization page
  - Information Visualization
  - Icon usage and design
  - Worklist display
  - Branding issues
  - Transaction templates
  - Transactions
- Develop HTML prototypes
- Develop HTML prototypes of its visual designs to aid application developers
- Information Architecture
- Develop high-level conceptual models of business processes
- Develop site maps to correspond to business process models
- Perform functional and task analysis to determine transaction flow
- Develop the taxonomy of web page hierarchy for transactions, other content and related links
- Usability Testing
- Establish usability specifications
- Develop usability test scenarios
- Prepare UI design guidelines that describe the aspects of the metaphors, mental model, navigation, appearance, and interaction of the product designed. These guidelines serve as a comprehensive shell for describing and cataloguing software design. They juxtapose text, sequencing, and bitmaps for quick and easy access and comprehension of application and Tools developers, and allow for easy updates.

QUALIFICATIONS

- BFA/ MFA in graphic design or degree in Human-Computer Interaction required
- Fluency in: Photoshop, Illustrator, Debabilizer, Image Ready, gif builder, Fireworks, Flash, Dreamweaver, Director. -Intermediate knowledge of: Quark, Premiere, After Effects, Real Audio, CSS, ASP
- Javascript, Java, C++ a plus

Figure 4. Job description for an information designer from a corporation seeking to hire one.
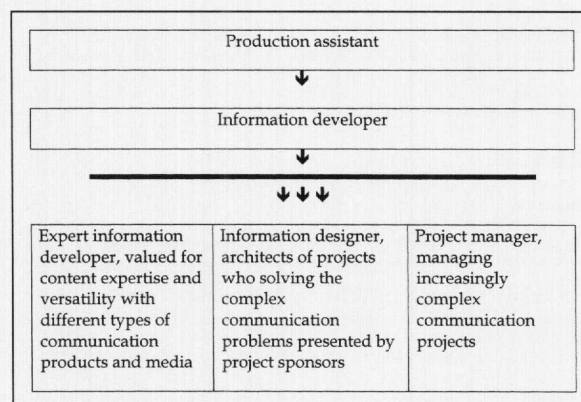
Figure 5. Career ladder for information designers and developers.

vergence of marketing communication, training, and technical communication. Marketing communicators are increasingly producing user guides; trainers are producing wizards and marketing materials. Technical communicators are producing tutorials and pre-sales literature (Carliner 2000a).

Whatever the discipline, we communicators can no longer define ourselves by the communication products we produce. That is, we no longer define ourselves as trainers, marketing communicators, and technical communicators.

Instead, people who have worked in these disciplines will skillfully produce a variety of communication products and, in the future, we will define ourselves by our roles in the communication process rather than the type of communication product we produce. These roles include:

- Production assistant
- Information developer
- Expert information developer
- Information designer
- Project manager

This model of work was suggested over a decade ago by Verna Willis (1990), who presented it in a broader context of educating professionals in human resource development. She noted that a bachelor's degree is intended for people who do, a master's for people who manage or lead, and a PhD for researchers and consultants. This model transfers cleanly to communication disciplines.

The process of moving into these roles is already happening within organizations; it will accelerate in the coming years. The information designer plays one of many roles in the process of designing, developing, and producing information. A revised career ladder for professional communicators might look like that in Figure 5. In the following paragraphs, I describe each of these roles.

Production assistants perform routine production-related tasks, such as copyediting for consistency and con-

Title: Assistant Technical Writer

Description: As an Assistant Tech Writer, you will support ID Specialist in all aspects of the documentation process. You will be responsible for writing and editing instructional, and technical content for all support materials released with both standalone and web-based applications. This will include Online Help, User's Manuals, Training Guides, and more.

Skills

♦ Excellent written communication skills with high attention to detail.
♦ High proficiency with Microsoft Office Suite, specifically MS Word and Powerpoint.
♦ Ability to work independently is key.
♦ Familiarity with Online Help tools such as RoboHelp is highly preferred.

Experience: Candidates should have a minimum of two-years related experience.

Education: BA or BS degree.

Figure 6. Job description for an information developer (called assistant technical writer).

formance to style, and laying out information in a predesigned template (or cleaning up layouts prepared by others). Experienced production assistants could customize the production software used within organizations and troubleshoot problems. Other experienced production assistants could handle routine maintenance work on projects.

Because they typically handle less complex aspects of a project, production assistants do not require 4-year degrees for their work. A trade school degree (called an associate's degree in the U.S.) would suffice. This is an admittedly radical proposition in a field that seeks professional recognition, seeks to establish master's-level programs in the field, and believes that degree requirements are one key to professional recognition.

They are.

But requiring advanced academic credentials for jobs that do not use them is actually a drawback to achieving professional recognition. To begin with, many information development tasks (like those just mentioned) do not require an advanced degree. When people in other professions see people under-employed, they question the advanced standing of the entire field.

Adding a lower rung to our career ladder also adds tangible benefits. For example, it allows people to enter the field earlier. To prospective information designers and developers who lack funds to complete a bachelor's degree, entering with an associate's or trade school degree and using employers' tuition reimbursement programs (a common employment benefit in North America) offers an alternate way to finance a college education. Similarly, adding a lower rung to our career ladder frees information designers and developers from becoming tool jockeys and comma chasers, and places our expertise in designing and presenting content into its appropriate perspective.

Information developers write, design, and edit the individual components according to the designer's infor-

mation plans and the manager's project plans. Figure 6 is a job description for someone who would perform the tasks of an information developer. Skilled information developers are comfortable writing a variety of communication products for a variety of media and will specialize, instead, in subject matter, such as computer software, telecommunications, or biotechnology.

Information developers generally have a smaller scope of vision than information designers. Typically, they are expected to develop information within the scope of the blueprints prepared by information designers. At the least, these blueprints specify the format and structure of the information. In some cases, the blueprints might even suggest examples because the examples in a part prepared by one information developer may need to coordinate with examples in a part written by another information developer.

Technical communicators have always needed both communication skills and technical skills. And in an industry dominated by information design, information developers also need to feel comfortable developing information with more direction than they have received in the past. Information developers will prepare communication products from blueprints developed by the designers. The effectiveness of their work will be assessed in large part by conformance to the blueprint and to the assigned templates, design specifications, and editorial guidelines. This role will admittedly prove frustrating to information developers who seek more creative input into a communication project (Brown and Duguid 2000). To those who prefer clear guidance in their work, however, such an approach will be welcome.

A typical information developer would have a bachelor's degree in a communication-related, technical, or scientific discipline. Those with degrees in communication-related disciplines should show an aptitude for technology; those with degrees in technical and scientific disciplines should show an aptitude for communication. Because many information developers are expected to handle the majority of production for their work, they must be able to use the most common types of production tools, such as desktop publishing software, help authoring software, and word processing.

Expert information developers will be hired for their content expertise and given a freer reign with their projects (unlike the majority of information developers who develop information within the constraints of a blueprint for a project). These are typically experts in their content areas. Although the benchmark of expertise varies among types of content, experience will likely be the common factor in identifying expert information developers. Some expert information developers might have previously played leading roles on key projects, and others might have a record of independent publication. Others will be chosen

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Title: *Senior Technical Writer*

Description: This challenging position requires senior level technical writing and client service skills, as well as expertise in developing documentation strategy, editing QA, desktop publishing, and the management of the documentation scheduling workflow.

Function and Scope

♦ Accept both internal and external client requests and produce technical documentation according to client needs
♦ Work at client site at least three days a week (possible to work from home the other two days)
♦ Work alone or collaborate with others to edit and revise existing technical documentation to satisfy clients
♦ Interview and interact with product developers and other source matter experts to produce requested deliverables
♦ Research and organize technical information
♦ Develop documentation plan, adhere to schedule, and ensure delivery to production
♦ Deliver progressive and thorough reviews of each deliverable
♦ Format deliverables to the appropriate document template
♦ Perform other duties as required

Skills

♦ Must be attentive to detail, be able to multitask, and have strong written and verbal communication skills
♦ Must be able to learn complicated software and understand hardware (storage products) concepts
♦ Proficiency in Adobe FrameMaker a must
♦ Proficient in Microsoft Outlook, Microsoft Word, Microsoft Office, Microsoft NT 4.0, and Microsoft Windows 98

Experience

♦ Must have experience as a Senior Technical Writer
♦ Experience with storage products and networking a plus
♦ Must be able to present writing samples from any of the following: user guides, reference manuals, installation guides, online documentation, or white papers

Education: Prefer a four-year degree.

Figure 7. Job description for an expert information developer (called senior technical writer).

for design expertise, such as designing projects that have received industry-wide recognition.

What distinguishes these information developers from others is their level of independence on projects. The situation is similar to that of an architect commissioning a master blacksmith to design the iron work for a custom home. These master information developers usually have advanced degrees, often in technical disciplines rather than in communication. They also have vast experience developing information in their content areas.

Still other expert information developers will have the responsibility of ensuring the consistency and continuity of information developed by different people.

Figure 7 is a job description for someone who would perform the tasks of an expert information developer.

Project managers have the primary job of making sure that communication products are developed according to plan, on time, within budget, and at an acceptable level of quality to the sponsor and to the user. Project managers set schedules and budgets, choose and manage members of project teams, enforce product plans and quality guidelines, and act as go-betweens among sponsors, the information design and development team, and users.

In many organizations, the person who plans the content of the project (often called a planner) is the same person who oversees its management. Departments have traditionally promoted line staff into project management roles. Just as the construction industry recognizes that the skills that make a good architect make a poor general contractor, so the information industries are recognizing that the skills that characterize a creative and effective information designer do not necessarily make that person an effective project manager. Organizations are increasingly separating the roles.

Furthermore, the sentiment is growing within organizations to hire people with operations experience for the role of a project manager (Zielinski 2000). Previous experience in information design and development is considered secondary. Admittedly, many working in the field resist the idea of someone from outside of the field receiving an appointment to management. But a project manager must accurately estimate the schedules and budgets of projects, identify and work within project constraints, negotiate for resources, and maintain good relations with the project staff and the sponsor. These competencies significantly differ from those of an information designer or developer. Although an understanding of communication projects is ultimately essential for success as a project manager, an ability to write, edit, and visually design communication materials is not. Other project members provide those skills.

Typically, project managers might hold an accounting or business degree and would have several years' work experience (many in an operations department, such as accounting or finance). Organizations increasingly seek people with project management certification.

OUR CHANGING CAREER PATHS

For decades, the academic community has commented that technical communication is an interdisciplinary field, drawing on work in composition, rhetoric, cognitive psychology, computer science, linguistics, graphic design, and other disciplines (Flower 1980; Lay, Wahlstrom, Selfe, and Selzer 2000). But our job descriptions haven't reflected this interdisciplinary nature.

In fact, our job descriptions have focused on more basic skills, such as writing and editing. Some organizations even give prospective information designers and developers a basic editing test as part of their interviewing routine. Although this test assesses basic writing and editing skills, it does not assess the ability to solve communication problems. According to postings on the discussion list of the STC Special Interest Group on Management, other organizations offer simple writing tests to more thoroughly assess those problem-solving skills. Managers focus on these basic communication skills in hiring situations because they are more concrete

Responsibilities include designing, developing training materials for instructor-led, computer-based, video and on-line tutorials, establishing project standards, editing documents to assure quality, effectiveness and completeness, and conducting training requirement research using techniques including audience analysis, task analysis, group interviews and surveys. Experience Required: Minimum of 3 years experience as Instructional Designer with a minimum of one year working in a particular business functional area or with a particular package. Experience on projects involving the development/delivery of training for the Brand-building discipline, CRM ERP, Supply Chain, eCommerce or Sales Force Automation Systems a plus. Must be able to demonstrate understanding of business function and/or software. An understanding of functional business areas or packages (Brand-building curriculum, CRM ERP, Supply Chain, eCommerce, Sales Force Automation) is a plus. Skills Required: Excellent verbal and written communication skills. Industry or package experience, strong written/oral communication; proficiency with MS Office, analytical thinking skills. Experience with online/HTML based documentation tools and editing a plus; ability to work to deadlines and work on own or in team environment; ability to produce quality instructional deliverable; ability to do classroom training a plus. Educational Requirements: Bachelor's or Masters in Instructional Design, Learning Technology.

Figure 8. Job description for an instructional designer; notice how the employer states tool requirements.

and easily verified than the more abstract skills needed by information designers.

Similarly, many job advertisements in technical communication focus on another concrete indicator: skills with production tools. Advertisements in technical communication say these skills are required; the requirement has scared away prospective professionals who are otherwise qualified for work in the field. In contrast, other disciplines often state that experience with production tools is merely "preferred." For example, consider the tools qualifications for an instructional designer presented in Figure 8.

Although experience with production tools was necessary when the publishing field was moving from traditional typesetting to word processing to desktop publishing and online help, the tools these days are similar enough that an understanding of one tool in each category usually means that the information designer and developer can transfer those skills to a similar tool or newer version. Similarly, when jobs were scarce and the number of applicants was high, tool skills were a way of reducing the overwhelming size of the applicant pool.

Admittedly, the move to XML will require specialized technical skills. But those skills will be best developed within the context of specific job assignments as industries develop sets of XML tags unique to their needs. People who have experience with tag-based languages like HTML should be able to pick up the new XML tags quickly.

Furthermore, the focus on tools and basic editorial skills for more complex jobs has distracted attention from the true challenge of communication: solving communication problems. As long as we focus our attention on such lower level skills, the sponsors who hire us to communicate on their behalf will only hire us for editorial and

production work, rather than design work. And it is this design work that many technical communicators seek.

Some companies are slowly moving toward this model. One major computer hardware and software manufacturer reclassified its technical communication jobs, giving broader job descriptions to those who do "design work" and reclassifying those whose primary focus is writing, editing, and production into non-exempt (non-professional) jobs—especially when those people primarily revise existing material rather than create new material.

Similarly, most colleges and universities try to de-emphasize "perishable" tools skills and focus on larger issues of problem-solving when designing their technical communication curricula. But some are also concerned about better distinguishing studies at the bachelor's and master's levels. Some are only focusing on design issues at the master's level (especially those programs labeled information design), and requiring that master's level students demonstrate proficiency in information development skills as a condition of entering their programs (Gribbons 2000).

More than a job description, information design is a cultural shift for technical communicators that can have profound effects not only on our jobs but on the way we approach our work. This cultural shift involves

- ◆ A broader range of thinking in practice, which goes beyond editorial and visual design issues, and moves into issues of human performance, the social impact of communication, and the business impact of communication
- ◆ A recognition of the contributions of other disciplines such as graphic design, information science, and instructional design (On the one hand, we will recognize them as competitors for information design positions. On the other hand, we will recognize them—and their bodies of literature—as collaborators on models, processes, and techniques for effective information design.)
- ◆ A separation of design, development, production, and management activities, resulting in a new career path for technical communicators
- ◆ A reconsideration of the role of tools in our work, from a primary to a supporting role
- ◆ More than anything, the cultural shift to information design represents the practical realization of the interdisciplinary nature of technical communication that so many have written about and promised, but that practice has not fully delivered. T**C**

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APPENDIX A: SKILLS NEEDED BY INFORMATION DESIGNERS, PROJECT MANAGERS, AND INFORMATION DEVELOPERS

This guide suggests the levels of skill needed in the four key areas of skill for information designers and developers:

1. Information design and development
2. Technology
3. Industry applications of technology
4. Business and management

Area 1: Information design and development

Assess your skill as follows:

1. You can describe the task and the ways that it affects the information development process.
2. You can describe the process for performing the task.
3. You have performed this task for a small project.
4. You have performed this task for a medium or large project.
5. You have coordinated this task for an entire library of information.

INFORMATION DESIGN

Competency	Minimum Skill for		
	Information Designer	Project Manager	Information Developer
Develop a marketing plan for information design and development services.	3	3	2
Prepare an information blueprint.	3	2	2
Conduct a needs analysis.	3	3	2
Identify the business need driving the request for a communication product.	3	3	3
Identify the performance need underlying a project.	3	3	2
Write use cases (usability scenarios) for a given communication problem from the data provided by a needs analysis.	3	2	2
Pinpoint the tasks that users need to accomplish so that the performance need is addressed.	3	2	2

INFORMATION DESIGN   (Continued)

| Competency	Minimum Skill for		
	Information Designer	Project Manager	Information Developer
Identify key user groups.	3	3	2
Characterize typical users in each group.	3	2	2
Develop archetypes (character sketches) of intended users in each key user group.	3	2	2
Identify business constraints affecting the project.	3	4	2
Identify technology constraints affecting the project.	3	4	2
Identify environmental and motivational constraints affecting the project.	3	3	2
Using the tasks as source material, state business and content objectives for a communication project.	3	2	2
Develop usability scenarios for communication products.	3	2	2
Develop satisfaction surveys and business measures of the effectiveness of communication products and services.	3	2	2
Given a performance need, choose an appropriate type of intervention (genre or form of communication product) for reaching users (such as a user guide, catalog, wizard, or reference).	3	2	2
Develop campaigns for communicating to a variety of users in a variety of situations.	3	2	2
Mass-customize information so that one set of content (or infobase) can be used for several applications and with several audiences.	3	2	2
Choose an appropriate medium to present information in a given genre to the intended audience(s).	3	2	2
Oversee the design of user interfaces (actual work might be performed by usability engineers and graphic designers).	3	2	2
Develop a map or series of maps showing the information and the ways that different pieces relate to one another.	3	2	2
Oversee development of a proposed graphic design for the communication product that appropriately matches the tone and metaphor of the corporate sponsor and the user interface (the design itself might be prepared by a graphic designer).	3	2	2
Develop storyboards (also called wireframes) for each topic or page in a communication product.	3	2	2
Identify the production and programming requirements needed to implement a proposed design.	3	2	2

INFORMATION DESIGN   (Continued)

Competency	*Minimum* Skill for		
	Information Designer	Project Manager	Information Developer
Establish editorial quality guidelines for a project.	3	2	2
Choose authoring and publishing tools that are appropriate for the needs of a given project.	3	2	2
Adapt project guidelines to the restrictions of a given set of authoring and publishing tools.	3	2	2
Develop authoring standards so that different information designers and developers can easily share information.	3	2	2
Develop templates to simplify information development.	3	2	2
Review draft information to assess how well it conforms to the requirements in the blueprint.	3	3	2

INFORMATION DEVELOPMENT

Competency	Minimum Skill for		
	Information Designer	Project Manager	Information Developer
Develop information to conform to information plans.	3	2	3
Communicate concepts through illustrations and other visual means. (The illustrations might actually be developed by someone else, but the information developer must identify the concepts to be communicated and prepare instructions for the illustrator.)	3	2	3
Represent numerical data visually.	3	2	3
Structure information for easy access by users.	3	2	3
Communicate in media other than print.	3	2	3
Using an appropriate communication style, develop material in the several genres traditionally associated with technical communication, such as user guides, service guides, and help.	3	2	3
Using an appropriate communication style, develop material in genres traditionally associated with disciplines outside of technical communication, such as error messages, catalogs, newsletters, training courses, and online demonstrations.	3	2	3
Working within design guidelines, lay out information on a page or screen.	3	2	3
Develop material to fit within a given template.	3	2	3
Prepare review drafts.	3	2	3
Conduct a review meeting.	3	3	2
Respond to review comments from technical reviewers, usability tests, peers, and editors.	3	2	3
Prepare camera-ready copy for printing.	3	2	3
Prepare golden code for online materials.	3	2	3
Use the authoring and desktop publishing tools chosen for a given work environment.	3	2	3
Perform a substantive edit acting as the "first reader" of a communication product.	3	2	3
Perform a sentence-level edit to ensure that information conforms to style guidelines.	3	2	3
Develop presentations for others to give.	3	3	3
Develop and give presentations to colleagues and peers.	3	3	3
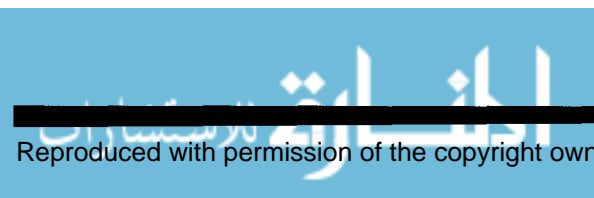
Area 2: Technology

For products and services (such as software and hardware)

For each product that you work on, assess your skills as follows:

1. You have heard of the product.

2. You can describe the product—explain what it does, identify its target market(s) and user(s), and de-scribe how specific functions and features benefit the users

3. You have used the product.

4. You can install and customize the product, program the product, and perform basic troubleshooting.

5. You serve as an expert by performing tasks such as troubleshooting complex problems and finding alternative uses for the product (in some cases, by re-designing it).

PRODUCTS

| | Minimum Skill for | | |
Competency	Information Designer	Project Manager	Information Developer
The products are those that are addressed by a specific project.	4	2	3

For technologies

For the technologies you work with, assess your skills as follows

1. You can describe what the technology is.

2. You can describe how the technology works, explaining the technical and scientific principles underlying it.

3. You can describe practical applications of the technology and assess whether the technology would be appropriate for a given situation.

4. You have contributed to the development of the technology.

5. You serve as an industry expert in the technology.

TECHNOLOGIES

Competency	Minimum Skill for		
	Information Designer	Project Manager	Information Developer
The technology varies depending on the industry served by the information design team. Here are some examples:	3	2	2

- ♦ Computer operating systems
- ♦ Computer hardware
- ♦ Specialized software, such as e-commerce
- ♦ Telecommunications software
- ♦ Biotechnology
- ♦ Pharmaceuticals
- ♦ Occupational safety and health

Area 3: Industry applications of technology

For each industry in which you have worked, assess your skills as follows:

1. You have heard of the industry.

2. You can describe the industry—the products or services it produces, the key types of jobs represented, the major organizations serving the industry, current business performance of the industry (is it growing or shrinking), and the processof delivering goods and services from the producer to the consumer.

3. You have worked in this industry or are an expert consumer of its products or services.

4. You have supervised in this industry or conducted a financial analysis of one organization.

5. You have served as an executive, held a key technical post, or an key industry observer post.

INDUSTRY APPLICATIONS OF TECHNOLOGY

Competency	Minimum Skill for		
	Information Designer	Project Manager	Information Developer
The industry varies depending on the audience served by the communication product. Some projects might require knowledge of one industry; others might require knowledge of two or more. Examples of industries include:	3	2	2

♦ Telecommunications

♦ Software publishing

♦ Human resources

♦ Entertainment

♦ Defense

♦ Retail

♦ Hospitality

Area 4: Business and management

For each of the skills listed, assess your skills as follows:

1. You can describe the task and how it affects the information development process.

2. You can describe the process for performing the task.

3. You have performed this for a single communication product.

4. You have performed this task for two to five related communication products.

5. You have performed this task for an entire library of information.

BUSINESS AND MANAGEMENT

Competency	Minimum Skill for		
	Information Designer	Project Manager	Information Developer
Develop a marketing plan for information design and development services.	3	3	2
Sell information design and development services to prospective sponsors.	3	4	2
Identify sponsor's business needs.	3	3	2
Identify project's business constraints.	3	4	2
Identify constraints on the technology infrastructure.	3	3	2
Relate a given communication project to the financial situation of an organization.	3	3	2
Assess whether blueprints meet sponsor's needs.	3	3	2
Prepare a schedule for a project.	2	3	2
Prepare a budget for a project.	3	3	2
Prepare a staffing plan for a project.	2	3	2
Prepare a project plan for presentation to a sponsor or client.	3	3	2
Negotiate for resources.	2	3	1
Resolve schedule and budgeting problem resulting from scope creep.	2	3	2
Resolve design problems resulting from scope creep.	3	2	2
Make sure that a project stays within design plans.	3	2	3
Make sure that a project stays within schedule and budget.	2	3	2
Address personnel issues.	2	3	2

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