Estimating Document

W hy estimate? Because estimating enables you to plan, and planning is the systematic way to success.

At the technical communication company where I work, an error in an estimate can translate into loses. Further, many of our client companies require a "ballpark" figure before allowing us even to see the application.

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ation Projects

Over several years as a technical writer, I developed an intuitive sense of how to work out an estimate. As my team grew, however, I needed to teach others how to estimate a project. I sat down with my colleagues to develop a system to help us estimate the cost of a project, as well as answer the following questions our clients frequently asked:

- How much time does it take to develop a typical manual/help file?
- How much time do you need to write a 100-page manual?
- How many pages do you write in a day/week?
- How many pages can a reviewer review in a day?

While our estimating method isn't perfect, we have achieved an accuracy rate of 85 percent using it. You'll have to modify it to fit the particulars of your company, but I think the process will be worth it. By using our system or developing a similar one, you can give your clients the information they need and turn over profits for your company.

Approaching the Problem

When my colleagues and I began working on this system, I had already made a number of estimates for past projects. They provided us with both a starting point for developing our formula and data with which to test it.

We began by logically parsing out the elements of estimates I had made successfully. Eventually, we identified the following steps toward building the tool we later named the "Technowrites Estimator":

1. Identify the components in user's guides and online help.
2. Develop a mathematical equation using these components.
3. Find the value of constants in the equation.

4. Put the value of variables in the equation and see the effect on output.
5. Change the variables until the output meets the original estimate.
6. Apply the equation to a different case and see if the output meets the estimate for that case.
7. Test again.
8. Test again.
9. Test again.
10. Make changes.
11. Test again.

Although we are satisfied with the utility of the system we finally developed, we continue to test and update it. We're always trying to improve it.

Developing an Equation

We began by developing an equation for paper documentation, figuring that would establish a baseline for estimating online help. To estimate the time required to develop a user's guide, we first had to find out the number of pages. We made a list of all the possible components of a user's guide and identified each of them as either a variable, whose

value (in page numbers) depends on the complexity of the software application, or a constant, whose value is fixed regardless of the software design.

Constants

Table 1 lists constants. Their typical values (in page numbers) are listed in the last column. If the user's guide does not include a specific component, the value of that component will be zero.

Not all constants will be present in any given user's guide.

Variables

The client may or may not choose to include the components in Table 2. When they are included, the corresponding variables apply to the estimate. The possible values (in page numbers) are listed in the last column.

Obviously, V13 and V14 are important numbers in determining the overall size of the job. V14 = R / 5 where R = the number of reports the application can generate (if any). You can determine this from either the application itself or the customer.

V13 is a bit more complicated. You

Table 1. Constants

Constant	Component represented by the constant	Value of the constant (if present) in pages
C1	Front page	1
C2	About the document & typographical conventions	2
C3	Hardware & software requirements	2
C4	Users & responsibilities	1
C5	List of appendices	1
C6	Shortcut keys	1
C7	Quick reference	2
C8	Reader's feedback form	1
C9	Registration form	1
C10	User access permission request/record form	1
C11	Last page (blank)	1

Table 2. Variables

Variable	Component represented by the variable	Value of the variable (if present) in pages
V1	License agreement & copyright notice	Estimate the value based on information you have or ask the client. Typical value can be 3.
V2	Introduction	Estimate the value based on information you have or ask the client. Typical value can be 2.
V3	Need for the product	Estimate the value based on information you have or ask the client. Typical value can be 1.
V4	Features of the product	Provided by client. Typical value can be 3.
V5	Installation procedure	Estimate the value based on information you have or ask the client. Typical value can be 1 (if the installation is done by a wizard).
V6	Appendices	Ask the client what information can be included in Appendix. It could be an explanation of some formulae or commands. Put a value based on what could be included.
V7	Troubleshooting	Estimate the value based on information you have or ask the client. Typical value can be 10.
V8	Bibliography or recommended reading	Estimate the value based on information you have or ask the client. Typical value can be 1 or 2.
V9	Bug report form	Ask the client how long the form is or can be. Typical value can be 2.
V10	Enhancement request report	Ask the client how long the form is or can be. Typical value can be 2.
V11	Error message description	Ask the client how long the form is or can be. Typical value can be 2–10.
V12	Table of contents	(V13+V14) ✕ 0.05
V13	How-to pages (procedures)	(see below)
V14	Description of reports	(see below)
V15	FAQs	(V13+V14) ✕ 0.06
V16	Glossary	(V13+V14) ✕ 0.06
V17	Index	(V13+V14) ✕ 0.05

must first make a list of all screens in the application, then count the number of fields on each screen. The number of fields places the screens into different size ranges, and the number of screens in each range is multiplied by a different number. V13 is the sum of all these multiplications. Table 3 gives details.

(Note: I do not think that a screen with more than fifty fields indicates a good application design, but they may sometimes be necessary. In such cases, you can add pages to the final total on the basis of your intuition.)

Finally, we add these together to estimate the number of pages.

Total number of pages in the user's guide = C1 + C2 + … + C11 + V1 + V2 + … + V11 + V12 + V13 + V14 + V15 + V16 + V17

An Exercise

Let's calculate an estimate for a user's guide. First, gather information from the client on the parameters of the document. Some parameters are always present (e.g., front and back pages); others are included at the client's request. Table 4 shows sample values.

Next, determine how many pages are needed to explain the procedures (V13). Refer to the client (or the application) to find out the number of screens and the number of fields on each screen, as shown in Table 5.

Refer to the application or the client to find out how many reports (if any) the application can generate. Each report requires one-fifth of a page of explanatory text. In this example, the application generates five reports. Therefore, V14 = 1.

Other values can be calculated from V13 and V14, as shown in Table 6.

Total number of pages in the user's guide =

Table 3. V13: The Sum of All Rows in This Table

Determine how many screens have...	...and multiply that number by:
Less than 5 fields	1
6–10 fields	1.2
11–14 fields	1.8
15–19 fields	2
20–28 fields	2.5
29–34 fields	3
35–42 fields	4
43–50 fields	5

C1 + C2 + … + C11 + V1 + V2 + … + V11 + V12 + V13 + V14 + V15 + V16 + V17 = 66 pages.

Now you can use this value to estimate the number of days required to design and write the user's guide. At my company, we approximate a writing pace at four pages per day. The number of pages (66) divided by the number of pages per day (4) results in an estimated seventeen working days to write the user's guide.

While this estimating method is not perfect, we have, as noted earlier, achieved an accuracy rate of 85 percent using it. We have developed an estimator that can run these calculations quickly. It is available online for free at *www.technowrites.com*.

Of course, this estimator is not specific to your products and output. If you want to fine-tune your estimating process, consider the following factors:

- Our estimator calculates the number of pages based on a body text font of Arial 10 point. While the number of

Table 6. Calculating Other Variables

V12. Table of Contents	$30.4 \times 0.05 = 1.52 = 2$ **V12 = 2**
V15. FAQs	$30.4 \times 0.06 = 1.824 = 2$ **V15 = 2**
V16. Glossary	$30.4 \times 0.06 = 1.824 = 2$ **V16 = 2**
V17. Index	$30.4 \times 0.05 = 1.52 = 2$ **V17 = 2**

pages may change with different fonts or font sizes, the writing time will be the same.
- Writing speed can vary from two to eight pages a day, depending on subject complexity.
- Editing speed can vary from thirty to forty pages a day, depending on the quality of writing and style sheets.
- If the first draft requires X days to complete, we've estimated that the second draft takes 0.4 X days, and the final draft takes 0.2 X days to complete.
- Calculations for online help are roughly the same as those for a user's guide.
- We've calculated that producing a deliverable of both online help and paper documentation would take 1.5 times as long as producing only the paper documentation.

Many of you may have developed similar methods to estimate documentation projects; if you don't have one, or wish to adjust your current estimating procedures, I hope I have triggered your thinking processes. ⓘ

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Table 4. Values for a Sample Project

Constants & Variables	Client's Request	Pages
C1. Front page	—	1
C2. Information about the document and typographical conventions	Yes	2
C3. Hardware and software requirements	Yes	2
C4. Users and responsibilities	No	—
C5. List of appendices	Yes	1
C6. Shortcut keys	Yes	1
C7. Quick reference information	No	—
C8. Reader's feedback form	Yes	1
C9. Registration form	No	—
C10. User access permission request/record form	No	—
C11. Back page	—	1
V1. License agreement and copyright notice	No	—
V2. Introduction	Yes	2
V3. Utility of the product	Yes	1
V4. Features of the product	Yes	2
V5. Installation procedures	Yes	2
V6. Appendices	Yes	5
V7. Troubleshooting	No	—
V8. Bibliography or recommended reading	No	—
V9. Bug report form	Yes	1
V10. Enhancement request report	No	—
V11. Error message description	Yes	5

Table 5. Determining the Value of V13

Fields/Screen	Number of Screens	Number of Explanatory Pages
Less than 5 fields	5	$1 \times 5 = 5$
6–10 fields	2	$1.2 \times 2 = 2.4$
11–14 fields	10	$1.8 \times 10 = 18$
15–19 fields	2	$2 \times 2 = 4$
20–28 fields	0	$2.5 \times 0 = 0$
29–34 fields	0	$3 \times 0 = 0$
35–42 fields	0	$4 \times 0 = 0$
43–50 fields	0	$5 \times 0 = 0$
		V13 = 29.4