8

CONCLUDING REMARKS

Tom Smykowski: It was a "Jump to Conclusions" mat. You see, it would be this mat that you would put on the floor … and would have different CONCLUSIONS written on it that you could JUMP TO.
Michael Bolton: That is the worst idea I've ever heard in my life, Tom.
—Office Space, 1999

8.1 IN THIS CHAPTER

This book wouldn't be complete without some concluding thoughts about *STREAM Tools*. We've introduced a number of ideas throughout the book, some simple and some complex; it remains for us to present our final case regarding the benefits that will come to your writing team after choosing to adopt *STREAM Tools*. As a consequence, the chapter begins with a business case, adapted from a real scenario, for implementing *STREAM Tools*. This chapter also includes some frequently asked questions that might arise as you discuss the *STREAM Tools* method with your colleagues. Finally, since Chapter 1 opened with a few "horror stories," we want to close the book with some

Technical Writing for Teams: The STREAM Tools Handbook, by Alexander Mamishev and Sean Williams

"success stories" shared by *STREAM Tools* users, followed by a multitude of resources on writing. Combined, we hope the sections of this chapter present you with a final, strong incentive for adopting *STREAM Tools* and realizing the gains in efficiency and effectiveness that result.

8.2 BUSINESS CASE

If you are in charge of an organization that produces technical documents, how much does your organization stand to benefit from using *STREAM Tools*? Below we present a business case in order to demonstrate exactly how much an organization can save by adopting *STREAM Tools*. This case uses fictional names but includes real numbers taken from field interviews and from our own experience.

Consider a research group of a mid-size start-up company that has 10 permanent members: a division director, three engineering and science Ph.D.s, one MBA, two MS engineers, and three technicians. The group also uses the part-time contract services of a graphic designer and a grant writer, and regularly works with professionals outside the organization, including an MD, a patent agent, a public relations company representative, and a Washington, D.C., lobbyist. Combined, the team can consist of as many as 16 members working on a project at one time.

Each year, the organization submits about 10 proposals, 5 journal papers, 5 conference papers, 4 patents, 12 internal reports, 5 external reports to sponsors and investors, and 6 press-releases. We will not count emails, memos, or presentations here, but the documents we are counting amount to about 800 pages of written text. The most frequently used figure appears in these documents 15 times, the most frequently used paragraph appears in these documents 20 times.

Each team member spends a certain amount of their time writing these documents. Let's say *STREAM Tools* allows them to speed up the overall process by 20 percent (an average number based on interviewing experienced writers who have already adopted *STREAM Tools*). Table 8.1 shows the distribution of efforts for all team members in this business case and the resulting cost savings of $91,800.

In addition to these cost savings, there will be intangible savings, which, in fact, may even exceed the direct financial benefits. Because the writing and organization are higher quality, more proposals are likely to be funded, more journal papers accepted, and more external reports are likely to be viewed favorably by sponsors and investors. The company's public image will improve. Job satisfaction will also be higher since team members have shifted time from mundane tasks to creative and critical activities.

The largest initial investment involves increased personnel hours as the group members learn to implement *STREAM Tools*; the initial investment might also include attending seminars or inviting speakers to talk about *STREAM Tools*, if the company prefers to pay for explicit instruction rather than relying on self-learning. Table 8.2 presents an estimate of the required time and other costs for each team member to learn *STREAM Tools*. The amount of time varies, because different team members will

Table 8.1. Annual Company Savings Due to Productivity Improvement

	Hourly rate, $	Benefits and Overhead Multiplier	Personnel cost to the company per hour, $	Writing time, %	Hours working for the company, per year	Writing time, hrs	Productivity increase, %	Annual hours saved	Annual savings, $
Director	100	2	200	10	2,000	200	20	40	$4,000
Ph.D. #1	75	2	150	25	2,000	500	20	100	$7,500
Ph.D. #2	75	2	150	30	2,000	600	20	120	$9,000
Ph.D. #3	75	2	150	20	2,000	400	20	80	$6,000
MBA	60	2	120	15	2,000	300	20	60	$3,600
MS #1	50	2	100	20	2,000	400	20	80	$4,000
MS #2	50	2	100	20	2,000	400	20	80	$4,000
Technician #1	30	2	60	15	2,000	300	20	60	$1,800
Technician #2	25	2	50	10	2,000	200	20	40	$1,000
Technician #3	20	2	40	10	2,000	200	20	40	$800
Graphics designer	75	2	150	0	2,000	0	20	0	$0
Grant writer	30	2	60	90	2,000	1,800	20	360	$10,800
MD	150	2	300	3	2,000	60	20	12	$1,800
Patent agent	50	2	100	90	2,000	1,800	20	360	$18,000
PR Rep	60	2	120	50	2,000	1,000	20	200	$12,000
Lobbyist	75	2	150	25	2,000	500	20	100	$7,500
			Total savings due to productivity increase:					**1,732**	**$91,800**

Table 8.2. Company Costs of Introducing *STREAM Tools*

	Hourly rate, $	Benefits and Overhead Multiplier	Personnel cost to the company, $ per hour	Hours needed to learn *STREAM Tools*	Cost of teaching supplies and software, $	Cost of seminar attendance, $	One-time cost, $
Director	100	2	200	5	$50	$0	$1,050
Ph.D. #1	75	2	150	10	$200	$500	$2,200
Ph.D. #2	75	2	150	10	$300	$500	$2,300
Ph.D. #3	75	2	150	10	$400	$500	$2,400
MBA	60	2	120	10	$200	$500	$1,900
MS #1	50	2	100	10	$200	$500	$1,700
MS #2	50	2	100	10	$200	$500	$1,700
Technician #1	30	2	60	5	$200	$0	$500
Technician #2	25	2	50	5	$200	$0	$450
Technician #3	20	2	40	5	$200	$0	$400
Graphics designer	75	2	150	0	$200	$0	$200
Grant writer	30	2	60	10	$400	$500	$1,500
MD	150	2	300	0	$0	$0	$0
Patent agent	50	2	100	0	$0	$0	$0
PR Rep	60	2	120	5	$50	$0	$650
Lobbyist	75	2	150	5	$50	$0	$800
Total costs of introducing *STREAM Tools*:				**100**			**$17,750**

learn different aspects of *STREAM Tools*. The lead Ph.D., for example, will attend a workshop on the subject, read the entire book, and memorize keyboard shortcuts for MathType and the editing shorthand. The director, on the other hand, will focus only on the effective editing methods and will learn how to reuse file templates. The exact return on the company's investment is hard to pinpoint. This rough example shows that *STREAM Tools* can begin to "pay for itself" in a matter of weeks, with an annual return on the investment approaching $75,000. And these figures are only for one project team.

How does this logic apply to academic teams, especially in technical fields? If anything, the savings are even larger since so many academics live by the saying "a career in the academy is a career in writing." Consequently, if you operate a large research lab with postdocs, graduate students, and perhaps even undergraduate students, the financial benefits of using *STREAM Tools* will, in terms of percentages, be much greater, simply because so much time is spent on writing in academic settings.

STREAM Tools is a young system, so as the number of users grows, more rigorous case studies will appear in press, and we would be happy to hear about them! Please share them with us at our website, streamtoolsonline.com.

8.3 FREQUENTLY ASKED QUESTIONS

Q. Where can I receive additional help implementing STREAM Tools in my organization?

A. The first resource we suggest is the *STREAM Tools* network of users, which is available through the website at streamtoolsonline.com. New users can also contact a trainer certified to instruct your team members in the system by accessing the list of trainers available at the *STREAM Tools* website.

Q. I am writing a paper for a journal that has a Microsoft Word template for submissions online. Their template does not have any useful automatic features of STREAM Tools, but this is the format that they require. What should I do?

A. Publishers rarely try to make *your* life easy. The goal of their template is only to simplify their own jobs. You should use *STREAM Tools* until the moment of submission. At the last moment, save your document with the *STREAM Tools* features and then save the document again as a new name. After re-saving the document, strip the formatting and adapt it to the publisher's required template. This way, the publisher will have their preferred format to work with, and you will have a document that you can use efficiently in your future work.

Q. I am sending a document formatted with STREAM Tools features to a colleague and it does not look the same on the other side. What should I do?

A. If your goal is to share a document with a colleague who does not use *STREAM Tools*, but you want the document to retain its features and appearance, then you should generate an Adobe Acrobat .pdf file and send the .pdf file to your colleague. If the

colleague needs to make changes, they can comment on the .pdf file and return it to you for implementation.

Q. What about WordPerfect?

A. It is possible to develop a similar system for WordPerfect as that described here for Microsoft Word. However, the pervasiveness of Microsoft Word persuades us that dedicating time to WordPerfect would be time wasted. If you are working with a colleague who only uses WordPerfect, share the document with him or her as a .pdf file.

Q. After my document got to 50 pages long, it became impossible to work with because the computer would freeze. What should I do?

A. There are many possible reasons for freezing and crashing when working with large documents.

- If the problem is caused by viruses, improper installations, or system configuration issues, it is time to perform some routine maintenance on your computer.
- If your computer is obsolete (meaning four or more years old), it is probably time to upgrade.
- If the document file size is disproportionally large compared to its length, the most likely problem is with your figures. If you use reasonable resolutions (150–300 DPI) for photos and bitmaps, and use line art instead of bitmaps whenever possible, you should be able to handle several hundred objects per document without much trouble.

Q. I think I found a better way to implement a certain feature.

A. Please share it with the community! Record your suggestions at the *STREAM Tools* website, streamtoolsonline.com, or email it to the authors at streamtools@gmail.com. If this is indeed a better way, it could be integrated in the next edition of this manuscript (with proper acknowledgment, of course).

Q. My question is not in this list. What should I do?

A. Consult the *STREAM Tools* website for possible answers posted by the user community. If your questions aren't answered there (or in this book), please contact the authors at streamtools@gmail.com.

8.4 SUCCESS STORIES

Having opened the book with "horror stories," we'd like to conclude with a couple of "success stories." So far, these stories represent the successes in our research groups,

where *STREAM Tools* originated. As *STREAM Tools* becomes more popular, we look forward to hearing about your successes and challenges.

Nels-Jewell Larsen, technology innovation company:
We received so many kudos after introducing the full taxonomy of electrostatic pumps in the shared EndNote database. Although most people already had the software, and some used it in their individual writing, creating a group-wide database was a big step forward. In highly interdisciplinary fields, keyword searches tend to miss many critical papers. Finding the most relevant papers in the sea of literature became much easier and faster when everyone started contributing to the common database. The funny thing, this is just a little productivity technique, a trivial task in comparison with the scientific output of a team consisting of many Ph.D.s, yet so much attention was paid to it in the company.

Professor Mamishev, University of Washington:
In 2006 I was part of a team of 12 professors who spent their summer at Boeing, studying Boeing's engineering and business practices. At the end, we were expected to write a report for upper management. At a certain point, the question came up of who should be appointed to integrate all of the report's content. Many folks were apprehensive about taking on the thankless task of "herding the cats." I volunteered with the condition that everyone on the project agree to use the same template for their input. Everyone agreed, I explained how the templates worked and sent a sample to everyone. Since everyone used my template, it took hardly any time to integrate their output. After just a few iterations, we had a cohesive multi-page document ready for submission.

Professor Williams, Clemson University:
In spring of 2009, a colleague and I were asked to write a book chapter on evaluating the effectiveness of teaching and learning in 3D virtual worlds. After brainstorming with the colleague and using the "divide and draft" approach, we each prepared separate pieces of the manuscript. I integrated the parts of the manuscript into a single document with STREAM Tools features and we each reviewed the document separately. We then collaborated on a large table that synthesized the theoretical discussion into a rubric that pointed back to section headings earlier in the document to explain the evolution behind specific rubric points. The real payoff from STREAM Tools came when we revised the organization of our original theoretical discussion. As we shifted our theoretical discussion around, the auto-text feature automatically updated the section headings in the rubric, saving us vast amounts of time in scanning through the text to figure out where each point was referenced. We planned, prepared, wrote, edited, and submitted the entire manuscript of nearly 30 pages in just under three weeks.

8.5 ADDITIONAL READING

STREAM Tools is a system that relies on a host of others who have come before us. We have cited some of these sources in specific chapters, but below we'd like to refer

our readers to some additional resources that have impacted our thinking and which may be of help as your own team adopts *STREAM Tools*.

8.5.1 Useful Books and Articles

A classic book on English grammar:

W. Strunk Jr., E.B. White, R. Angell, *The Elements of Style*, Fourth Edition. Longman, 2000.

Excellent books on technical writing:

Michael Alley, *The Craft of Scientific Writing*, Third Edition. Springer, 1997.

Joseph M. Williams, *Ten Lessons in Clarity and Grace*, Seventh Edition. Longman, 2002.

Mike Markel, *Technical Communication*, Seventh Edition. Bedford St. Martin's, 2003.

An excellent article of advice to journal paper writers:

- S.D. Senturia, "How to Avoid the Reviewer's Axe: One Editor's View," *Journal of Electromechanical Systems*, vol. 12, no. 3, pp. 229–232, June 2003.

8.5.2 Useful Weblinks

A comprehensive list of Microsoft Word 2002 shortcuts:

http://support.microsoft.com/default.aspx?scid=kb;en-us;290938

Microsoft websites that focus on field codes:

http://office.microsoft.com/en-us/assistance/HP051861901033.aspx

http://office.microsoft.com/en-us/assistance/HP051862221033.aspx

A helpful site on Microsoft Word techniques:

http://www.shaunakelly.com/word/index.html

The conversion tools between Microsoft Word and LaTeX change all the time, and none of them are effective for complex documents. One website that keeps track of various software packages is:

http://www.tug.org/utilities/texconv/textopc.html

EXERCISES

Exercise 8.1.

(A) Assuming that you have learned at least some aspects of *STREAM Tools*, estimate how much time you will save by using this system. State your thought process.

(B) Analyze the business case of introducing *STREAM Tools* in your organization, class project, research group, etc. Consider the following aspects: what the benefits are, what time and resource investments would be required, how long it would take to implement, who would have to participate, what the division of expertise would look like, which features would be used and skiped, and how long would it take to get going.