

# CASE STUDY:

## Fortune 500 Software Developer Uses Knowledge Transfer to Increase Consistency and Productivity in its Technical Writing Team (2011)

**Introduction:** A team of technical writers working for a multinational software developer creates software documentation such as Help files, user guides, and error messages for the company's products. Half of the technical writing team is spread across the U.S. and the other half is in India. The time difference across the geographies presents an opportunity for the team to deliver content on demand and be productive around the clock.

In 2011, company leadership asked this team to increase productivity and decrease rework in their writing process by using a new and consistent model called "structured authoring." To set the stage for future rounds of technical writing, this writing team needed to adopt other new skills—such as consistent methods of researching differences between old and new software versions.

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### I. THE BUSINESS PROBLEM

1. The technical writing team had been **struggling with consistency**—particularly between the research methods used by writers in the U.S. and those used by writers in India—and in critical areas such as developer relations, project estimation, and document design.
2. The team was having difficulty being nimble enough to move work back and forth between various writers as the need arose, compromising **the ability to load level** and keep everyone consistently busy.
3. The team's traditional approach to technical writing, which entailed writing unique documents for each need, was causing a **high degree of rework** and lowering productivity.
4. Many workers on the team had **skill shortages in key areas** needed to adopt the new approach, and formal classroom training alone was insufficient to carry the team to the desired end.

To implement the change to the new writing approach, the software developer began in the traditional manner by running formal training. The problem with classroom training alone is that typically an employee takes a class at one point in time but then implements what they learned weeks or months after the course is finished—resulting in diminished recall. Traditional classroom training is also a one-size-fits-all approach. Since skill levels on the writing team varied, classroom training often resulted in unproductive time for advanced participants and inadequacies for the lesser skilled. To sufficiently drive toward a timely, consistent use of structured authoring and adoption of the new skills, management hired the knowledge transfer experts at The Steve Trautman Co. (STC) to provide a new methodology. Where traditional training was inadequate, STC would answer these central questions:

#### Key Challenges The Steve Trautman Co. Needed to Solve:

1. How can the company teach a geographically and culturally diverse team to adopt the new writing approach in a consistent way without the financial and opportunity costs of flying their best people to India for weeks at a time?
2. What exactly are the new skill expectations for each person on the technical writing team?



3. How can the company provide their employees the relevant, real-time, on-the-job guidance (including specialized tacit knowledge) that formal classroom learning and online training typically can't provide?
4. How will management know that their most critical knowledge and skills gaps are being addressed first?
5. How will management ensure accountability and know when their workforce risks in this team have been reduced?

## II. STRATEGY

Use The Steve Trautman Co.'s proven 3-step Knowledge Transfer Solution to clarify what specific knowledge and skills need to be transferred by whom, to whom, and in what priority to implement the new writing approach. Provide the accountability structure to easily test and track that the critical knowledge has been transferred, risks have been mitigated, and team members are now independently and consistently applying the new approach.

## III. APPLICATION: THE STC 3-STEP KNOWLEDGE TRANSFER SOLUTION

**STEP 1:** The developer used The Steve Trautman Co.'s (STC) workforce risk assessment tool, the **Knowledge Silo Matrix (KSM)**, to pinpoint the writing team's knowledge and skills gaps, prioritize these in terms of workforce risks, and identify on-the-job mentors and apprentices in each high risk knowledge silo.

Name	Advanced Tech Writing			Authoring Tools			DDLCC			Product Knowledge							Project Lead						
	Single Source	Doc Design & Layout	Doc Usability Testing	Architecting Info delivery	FrameMaker	RobotHelp	Wiki	Content Devpt	Content Maintenance	Project Analysis	Content Design	Storage Mgmt	PowerPath	Cloud Computing	BURA	ProSphere	Achway	ITOps	Network	Infrastructure	Prog Estimation	Product DDLC	Doc Plan
Smith, J	2	2	1	1	3	2	3	3	3	2	1	3	3	1	2	1	1	3	3	3	2	1	2
Brown, C.																							
Colores, M.																							
Garner, G.																							
Grossman, A.																							
Harder, M.																							
Rockman, P.																							
Tunis, R.																							
Wellman, R.																							
Richards, M.																							
McGowan, R																							


Figure 1. Example of a partial Knowledge Silo Matrix (KSM), a tool of STC 3-step knowledge transfer.



- Using a quick process of management discussion and employee peer interviews to complete the KSM, STC identified 33 distinct knowledge “silos” within the technical writing job role. [see **Figure 1**]
- With silos and ratings in place, the KSM immediately revealed to management that 7 of the 33 silos were at high risk, because the writing team lacked sufficient bench strength in those silos to implement and sustain the new writing approach. [see **red silos in Figure 1**]
- The KSM also provided the basis to discuss associated workforce risks—using such criteria as the criticality of each silo, where each mentor was located, and retirement expectations.
- With the company’s offshore teams at a great distance, top priority was to develop a complete set of mentors in India (one for each silo) who were consistent with their counterpart mentors in the U.S. (one for each silo).

**STEP 2:** The company then wrote date-driven **Skill Development Plans (SDPs)** for each at-risk silo of the team. Through the SDP, apprentices could know their skill gaps and drive their own learning, mentors could see clear priorities for what to teach to whom and which knowledge tests to apply, and managers could track skill level status to provide accountability for reducing risk.

- A master SDP was written for each silo that broke out the individual skills required to do the work in that silo. (A skill is defined as something someone can say “go do” and can be explained to an apprentice in about an hour.) Then a customized SDP was written for each writing team apprentice showing which skills the employee was committed to learn. [Figure 2]
- Customized SDPs not only provided an inventory of skills to be learned, but were ordered in terms of risk mitigation priority and a date was affixed by which the apprentice should have learned each skill.



Skill “DO Statement”	Sequence	Test (key below)	Date	Resources
Doc Standards				A. Huntsford (mentor)
Write in the company Template 8.268x 11 FrameFixer	1	1,2,3,8, 9	23-Jun	<a href="http://opseroom03.softwaredeveloper.com/eRoom/osoperations/TechPubsOperations/01fdz3112">http://opseroom03.softwaredeveloper.com/eRoom/osoperations/TechPubsOperations/01fdz3112</a>
Update/Troubleshoot the book in the company Template FrameFixer	3	1,3,5,9	24-Jun	
Update existing doc to new Template	2	2,4,9,10	25-Jun	Technical Publications FrameFixer and Tools Handbook <a href="http://opseroom03.corp.softwaredeveloper.com/eRoom/osoperations/TechPubsOperations/0_bgt2551">http://opseroom03.corp.softwaredeveloper.com/eRoom/osoperations/TechPubsOperations/0_bgt2551</a>
Update Adobe Software for latest patches	5	1,4,5,9	26-Jun	From Adobe Acrobat or FrameFixer, select Help > Update
Configure Adobe Software for Cookbook	4	3,4,5,6	27-Jun	Cookbook is out of date - see new, E:\Departmental_Standards\Documentation Cookbook (\nywp1fp2\Documentation\Departmental_Standards\Documentation Cookbook)
Configure connections to file shares	6	1,2		See cookbook. Map E:\ to \\nywp1fp2\Documentation

**Figure 2.** Example of a partial Skill Development Plan (SDP), a tool of STC 3-step knowledge transfer.

- The SDP also listed resources available to the apprentice (e.g. the mentor for each skill, online documentation, samples, workshops, etc.) and the “test questions” needed to confirm that the right knowledge had been effectively transferred.
- These test questions are quick, verbal assessments that reveal the wisdom and tacit knowledge needed to use a skill on the job (e.g. “How do you know who to talk to?” or “When you are in over



*your head in this area?*”). The mentor chooses which test questions to apply from a set of 20 that STC has refined over the decades. The test questions are one of STC’s most valuable contributions to knowledge transfer—they give the process teeth via a metric for whether critical knowledge *has* transferred.

- The company’s knowledge transfer process owner—the person responsible for keeping the project moving and coordinating efforts between managers, mentors, and apprentices—tracked progress by monitoring two dates on the SDP: the date the apprentice is targeting to complete their knowledge acquisition in a silo and the actual date of completion. The process owner could see which employees were scheduled to change status in which month (e.g. moving from “apprentice” status to “independent worker” status or “independent worker” status to “mentor” status). She could then *predict* when she would have a new mentor in a given silo to alleviate the workload on the few mentors who initially started the project. Over time, she could see if any groups or a certain manager’s reports were *failing* to progress. Since apprentices were updating their customized SDPs regularly, tracking was easy because the process owner simply had to review individual SDPs in a shared folder.

**STEP 3:** The Steve Trautman Co. then led a **Knowledge Transfer Workshop (KTW)** at the developer’s offices in India that taught mentors and apprentices 15 proven techniques for quick knowledge transfer on-the-job. Using KTW techniques, mentors and apprentices did not need to be in the same location and mentors did not have to be naturally gifted teachers or “people persons” to succeed. And most important, the techniques showed the mentor how to prioritize and conduct on-the-job training sessions while the mentor maintained a regular workload.



- Following the workshops, mentors and apprentices began knowledge transfer sessions, and project managers and the process owner then drove toward completion by requiring regular status updates and accountability to the plan.

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## IV. RESULTS

- 1. Risks are being reduced:** Initially, there were no technical writing team members in India who had the knowledge and skills to be on-location standard bearers for the new, right way to do things—resulting in poor multinational consistency and jeopardizing productivity with the new writing platform. *Within its first two quarters of use, the STC 3-step Knowledge Transfer Solution enabled the software developer to confidently upgrade five Indian workers to standard-bearing mentor status—each consistent in every skill to their U.S. counterparts—mitigating the company’s talent risks in its most critical knowledge silos.*
- 2. Employees have grown skill sets and ramp up to full productivity is measurably faster:** Within the first two quarters of use, the STC 3-step knowledge transfer process fully advanced 13 technical writing team members from apprentice status (learners) to being able to work independently on the job using the new skills required for the new writing platform. After another two quarters using the methodology, the developer predicts 75 more shifts up in silo skill level. The 3-step process has also increased speed of onboarding new team members (see below), enabled better change management migrating to the new writing approach, and increased productivity of the writing team. **[see Results 3]**



Writing Team Beats Their Goal to Faster Ramp Up to Productivity	
<b>New Aggressive Goal to Meet:</b>	<b>90-days to Onboard a New Hire</b>
<b>New Hire Writer A:</b>	<b>Fully productive in 70 days PLUS learned a broader skill set</b>
<b>New Hire Writer B:</b>	<b>Saved 2 weeks AND fully productive in projects earlier than anticipated</b>

“**Our onboarding of new employees is definitely faster now because we are doing formal mentoring, and there are target completion dates, and everything has been divided into bite size skills. So it’s more efficient AND it’s more comprehensive.**” —THE SOFTWARE DEVELOPER’S KNOWLEDGE TRANSFER PROCESS OWNER ON THE SPEED OF ONBOARDING ITS TECHNICAL WRITING TEAM RELATIVE TO PREVIOUS NEW HIRES

3. **Productivity has measurably increased—the team is completing *more work with fewer* writers.**

Completing 8% MORE projects with 14% FEWER Writers	
Q4 2011	Q4 2012
<b>53 active programs</b>	<b>57 active programs</b>
<b>10 significant software releases</b>	<b>21 significant software releases</b>
<b>36 writers</b>	<b>31 writers</b>
	<b>PLUS... able to take on special initiatives (SA, resource management, video, etc.)</b>

4. **Consistency is being achieved:** The team’s standard bearers in India now match the approach of the standard bearers in the U.S.—skill for skill—and their in-country peers are aligning their knowledge and performance accordingly. Costly potential inconsistencies have been caught and avoided, and instances of rework have decreased.
5. **Long-term benefit to hiring, onboarding, and performance management:** A master SDP for the company’s technical writing job role now stands as both a skill set that informs future hiring and a ready-made orientation plan, saving time and money. This tool can also identify new hires or reassignments who are lagging behind the normal learning time for a certain knowledge silo, giving early detection to potential capability problems or a bad hire.

“**Now that we’re using knowledge transfer, if somebody asks, ‘What’s the average time required for someone to move from not knowing to being able to use a skill on the job?’ I can do some easy math and give it to them. That makes us both better managers.**” —THE SOFTWARE DEVELOPER’S KNOWLEDGE TRANSFER PROCESS OWNER ON TRACKING AVERAGE LEARNING TIME FOR A GIVEN JOB SKILL



- 6. Long term benefit to change management:** By having two mentors consistent with each other—one in the U.S. and one in India—for every knowledge silo of their multinational writing team, the developer has increased not only the speed but also the volume of people they can onboard in either nation. The developer has also assimilated a culture of knowledge transfer within the writing team, enabling them to accommodate future changes to work processes while maintaining consistency between nations.
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## V. BEST PRACTICES

**The Change Management Communication Brief** — A clear template was given the group to prepare for successful knowledge transfer. It is broken into 3 key areas: business issues, messaging, and FAQ. This document helps leaders think through the best way to support and communicate the changes required to make the knowledge transfer project a success.

**A Clear Target for Time Spent on Knowledge Transfer** — The project's process owner set a group target that participants would spend 10% of their time each week on knowledge transfer and 90% on their regular work. Apprentices and mentors were given the flexibility to move their personal target per quarter after discussing with their manager whether an adjustment was needed. This combination of clarity and empowerment helped participants to feel committed and led to more consistent progress. Knowledge transfer responsibilities were also tied to functional job roles (for mentors) and developmental goals (for apprentices)—meaning knowledge transfer completion became included in an employee's bonus plan.

**Excellent Status Report Format** — In addition to creating an excellent weekly status report, the project's persistent process owner also used a simple graph to track apprentices' knowledge transfer progress by direct manager—to safeguard against managers who failed to establish accountability—and by mentor to ensure no single mentor was being overloaded.

**The Obstacle-Clearing Project Manager** — A knowledge transfer process owner should exhibit good management by dedicated follow through, removing obstacles for his or her team, and ensuring measurement.

**At-a-Glance Risk Reduction Dashboard for Senior Executives** — Updating the KSM with knowledge transfer completion dates from individual SDPs resulted in an easy-to-read, colored coded and dated dashboard for senior leadership. Adding this to their existing health-of-business dashboard metrics, senior executives were able to quickly see each month which high priority talent risks (red) in their workforce had been reduced (green), and when remaining risks would be mitigated.

**Team Book Club & Discussion Group** reading *Teach What You Know: A Practical Leader's Guide to Knowledge Transfer Using Peer Mentoring* by Steve Trautman (Prentice Hall, 2006).

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## VI. LESSONS LEARNED

1. **Follow the process.** Each KSM silo will likely represent only 20 – 100 related job skills even though many people assume it will be more complex than that.
2. **Knowledge transfer tools** help enable smooth transition even under leadership changes.
3. **Establish a duplicate set of mentors** within remote teams for more manageable knowledge transfer and better future on-boarding.
4. **Use “group mentoring” and “skill mentors”** (a mentor for a specific skill but not an entire silo) when regular mentors are in short supply and knowledge transfer speed is essential. This will alleviate a heavy workload on regular silo mentors.

*More details on each of these Lessons Learned can be found in the following Appendix.*





# APPENDIX

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**1. Lessons Learned: *Follow the process but don't "overdo" it—each KSM knowledge silo should represent at least 20 - 100 job skills***

Without clear communication and process discipline, there's a tendency for first time participants to overdo the knowledge transfer process, costing the project speed and manageability. This happened early in the software developer's implementation and now serves as a cautionary tale.

A manager based in India made a freshman mistake early on that pushed back the project timeline. The writing team's knowledge silos had been figured out during Step 1's completion of KSM, and Step 2's Skill Development Plans (SDP) had been written for corresponding at-risk job roles. At this point, the manager pulled together some writers who decided to break down each KSM silo into smaller parts and alter the SPDs accordingly. These writers were attempting to be thorough, but when the developer showed the new KSM to The Steve Trautman Co. (STC) consultant, each previous silo had been reduce to two or three sub-silos—and some of these had as few as five skills in them. A knowledge silo generally represents 20 – 100 job skills. Given our two decades of knowledge transfer experience, we at STC immediately knew that the knowledge areas of this technical writing team were now broken down *too much* and any resulting transfer process would likely be too cumbersome. In the end, more appropriate, less granular chunks of knowledge and skills were designated—and the manager in India did a first-rate job overseeing her assigned areas.

**SUMMARY:** The lesson for future knowledge transfer application is to stick to the methodology and resist urges to make the process more detailed and complicated than necessary.

**2. Lesson Learned: *Knowledge transfer tools enabled the smooth transition of a leadership change mid-process in the project***

The initial internal advocate for this software developer's use of knowledge transfer within their technical writing team—a senior executive who brought in The Steve Trautman Co. and got the ball rolling—was not the direct manager of the writing team. That position was open when the project began. About two months into the knowledge transfer timeline, the managerial position was filled by a long time manager at the company, but someone who had no technical writing experience and no familiarity with knowledge transfer.

This manager used the tools of knowledge transfer—namely, the writing team's Knowledge Silo Matrix, Skill Development Plans, and Communication and Change Management Planner—to quickly figure out a large part of her job. She became a student of her team's work, and was able to learn a lot about their roles and situation in a very short time.

Not only is this an example of good management, but it also shows that a change in internal leadership during our Knowledge Transfer Solution does not spell disaster for a knowledge transfer project. The process's structure organically supports a smooth leadership change, should such a transition occur.

**SUMMARY:** This story illustrates two long-term benefits of our solution: 1) the outputs of our Knowledge Transfer Solution are great, ready-made orientation documents for new hires; and 2) our tools help managers to better understand and lead their teams overall.





3. **Lesson Learned: *Establish “mentors-in-training” to ensure manageable and cost-effective knowledge transfer within a multinational team that spans great distance***

One of the software developer’s core goals was to get everyone in the U.S.- and India-based teams consistent behind one standard bearer for each skill set needed in the new writing approach. But, the mentor for almost every knowledge silo was stationed in the U.S., and it was not practical to line up everyone on an approximately 40-person multinational team behind one stateside employee. From a mentoring perspective, that would mean too much teaching borne by one person across too much distance; the time zone change alone would have made the process inherently inefficient. So, as a first priority of the project, the software developer and STC decided to grow a complete set of new mentors within the Indian team—and to do so they developed a special employee designation called the mentor-in-training.

“**Mentors-in-training**” are the apprentices to the expert—meaning these employees are not typical apprentices moving from active learners (yellow) to independent workers (green) on the Knowledge Silo Matrix (KSM), but are independent workers who are already very good and now are learning even more precise, consistent, and in-depth knowledge in order to move up to mentor status (purple). Once management identified a given silo’s expert, they asked, “*Who can become the expert on that topic in India?*”—and these two employees became the first mentor/apprentice relationships established for each silo.

Skills Development Plans (SDPs) were then adjusted to ensure highly rigorous consistency between the U.S. mentor and their mentor-in-training in India. While an independent worker might be required to answer with sufficient consistency the top 5 out of 20 mentor test questions, a mentor-in-training would be required to learn a more robust set—in this case all 20 test questions—consistent with the mentor. Plus, a mentor-in-training might need to learn every skill in their silo. In other words, mentors-in-training were held to a higher bar—but the same knowledge transfer process was applied.

Then, as quickly as possible, the developer ran the knowledge process and moved their mentors-in-training up full mentor status (purple), so these new mentors could start customizing SDPs for other Indian employees and start doing their own mentoring.

**SUMMARY:** Using a mentor-in-training model with off-shored teams will level the knowledge transfer workload and also make training offshore employees (as well as future onboarding) quicker and more cost-efficient, while maintaining consistency with U.S. counterparts.

4. **Lesson Learned: *When mentors are in short supply and knowledge transfer speed is essential, use “skill mentors” and “group mentoring” to alleviate the heavy workload of regular silo mentors.***

At the start of the software developer’s use of our knowledge transfer process, their KSM showed lots of yellow and very little purple. Meaning, the developer had just a few stateside employees who qualified as mentors (purple) and who shouldered the brunt of the standard-bearing work in a large number of knowledge silos. Since the talent risk was very high, speed of risk reduction was vital. But running individual knowledge transfer sessions with many apprentices (yellow) concurrently would overload and potentially burnout the few silo mentors the developer had.

In addition, a new hire joined the technical writing team in a critical position soon after the knowledge transfer project began, and this hire had to learn a lot of skills across many silos. The mentor for each of these silos was already at full capacity, and management couldn’t wait for the designated mentor-in-training to complete their learning and become an active. So the developer used what we at The Steve Trautman Co. call a “skill mentor.”



A “**skill mentor**” is an employee who has not yet learned *all* the skills needed on their customized SDP, but has mastered a *given* skill, passed their mentor’s test questions in full for that skill, and has typically begun using the skill on the job. If urgency demands the team cannot wait until that employee has completed all the necessary learning to become a full-fledged mentor, then management can designate the employee a “skill mentor”—someone qualified to mentor just that particular skill. The skill mentor’s name is added to apprentices’ SDPs in the “Resource” column for that skill’s line-item. The employee is not the mentor for the entire knowledge silo; that remains the regular (silo) mentor, as named at the top of the SDP. This approach starts to level the workload of busy mentors by pushing certain mentoring responsibilities down deeper into the team’s bench strength and a greater number of apprentices can be trained at one time. It also rewards the advancing employee because he or she doesn’t have to wait long to try their hand at mentoring.

(Note: The Steve Trautman Co. has found using skill mentors is also very helpful with younger and less experienced employees. For example, a fast-growing employer is able to responsibly take a 25-year-old hire, just out of university, and put him or her into a leadership role during their first six months on the job. As soon as that new hire becomes purple in one skill, the hire can start teaching it. This practice has strengthened retention efforts, especially in cases where highly talented recent graduates are looking to do something interesting and embrace some responsibility. It gives these young employees an opportunity to contribute meaningfully to the team and to show some of their other strengths. So it’s a win-win-win.)

Another adaptation the developer used is group mentoring. “**Group mentoring**” is when a silo mentor has multiple apprentices who have more or less the same skill sets to build on, and—for the sake of expediency and load leveling—the mentor will work with these apprentices at the same time. Two or three apprentices will sync up their training session dates and their target completion dates per skill, so the mentor is able to focus on a given skill and run the skill’s knowledge transfer session for these apprentices at the same. However, each apprentice must take their skill test separately.

**SUMMARY:** If you lack sufficient mentors across your various knowledge silos, speed knowledge transfer by designating a tested “skill mentor” as a Resource to apprentices for a certain line-item skill. Their mentoring will lighten the workload on the regular silo mentor. Also, allow mentors to hold group knowledge transfer sessions with a small number of apprentices (typically 2 – 3) who share the same basic skill level. But, always test each apprentice individually.