



TenStep Supplemental Paper

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Learn How to Retool your Staff in Web Technology

Can technology change any faster? It is very difficult for organizations to build new technical skills while continuing to maintain the older technology. At an extreme, it would be nice if everyone could work in all technologies, but that is impossible. Instead, the people in your organization have a primary skill set that they work in now. If your organization is diligent in how it trains and assigns people, most of your staff should have a strong secondary skill as well. If you are really lucky, many of your people also have a pretty good understanding in a third and fourth skill area.

In most cases, people end up with a second and third area of technical expertise because they are assigned to a new technology and have a chance to learn and apply the new skill. They may even have had training. However, this retooling happens one person at a time.

Retooling on an organization level

Once in a while, however, a new technology comes along that brings fundamental new business value. Web development is like that. Years ago when companies looked at web capabilities, they realized that this was a direction that they needed to move as a company. When these kind of fundamental business decisions are made, it is no longer acceptable to think that people will acquire the right technical skills on a one-at-a-time basis. Instead, you need to put a proactive strategy and plan in place to build a substantial technical capability throughout your organization.

If your organization was successful in retooling the staff toward web technology, you should be able to look around today and find a substantial set of resources skilled in web technology. This includes people with expertise in web development, web server administration, web tools, web infrastructure, etc. However, the march of technological change continues. Every year there is more new technology. If your company finds business value in the new technology, you will need to build the capability to understand and exploit it.

There are a number of ways that organizations can keep up. The place to start is to develop the mindset of being a "learning organization." A learning organization is one where there is an ongoing focus on learning and a commitment to allowing people to develop personally, professionally and technically.

Let's look specifically at web technology. Over the past few years, there have been many developments in various aspects of the web. These include web services, .NET, the wireless web, etc. Building skills on an organizational basis requires two levels of focus – awareness building by everyone and specific learning opportunities for the practitioners.

Build organizational Awareness

When your company decides to exploit new technology, you don't want to build skills from scratch. In general, the entire organization should have some level of knowledge already. This basic understanding is accomplished by events such as.



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Technology awareness sessions. General large scale meetings are scheduled on an ongoing basis (maybe monthly) on specific technology topics that are of interest to the organization. These might just be one-hour overviews. The hope is that the staff will maintain awareness of what is going on in the industry so that they have an internal frame of reference if your company decides to utilize new technology.

Lunch and learns. This is another technique for building awareness on technical subjects. People attend meetings over their lunch breaks and listen to technical topics of interest. Since these take place over lunch, they can be scheduled more frequently without being disruptive. Some organizations even hold technical lunch and learn sessions on a weekly basis.

Computer training. Your organization should allow people to find and take training classes on their own in areas of interest. There are many web services that provide self-paced training on your desktop. Your company can also invest in computer-based training on specific subjects that are of interest to the staff. Some of these tools can be used off hours.

Books and magazines. Your organization should have a liberal policy that allows and encourages people to read more and keep up on technological and industry developments. Many people enjoy reading technical books and magazines on subjects of interest. If possible, your organization should encourage and pay for these items.

Of course, these strategies do not solve the retooling problem; they only speed up the process. You don't need to start from square one when you need to build more detailed capability for the people who will be working with the new technology.

Build specific capability

When you have the business need to move into another technology identified, the more traditional training approaches come into play. However, in addition to traditional approaches, there are a number of more creative avenues to look at as well. To really be effective, the following learning events must be followed up quickly with opportunities to practice the new skills.

Early adopters. If the technology is very new, you may just have to give people the tools and the time to learn it on their own. Someone has to start if there is not yet formal training. Every organization has people that can pick up the manual and start learning by trial and error. You don't want to train your entire staff this way, since it is very inefficient in the short term. Once the early adopters understand and are comfortable, they can become the mentors for others (see below).

Formal training. If you can afford it, formal training is the way to start people in new technologies. This goes for a mainframe developer who is retooling in web technology, as well as people who are making incremental transitions to new skill areas. For instance, a web developer that is going to start working with web services should have formal training to get them started.



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Cross-training / mentoring. If the technical stretch is not too far, you may be able to get by with a cross-training or mentoring program. People with web experience, for instance, may be able to become productive in .NET by pairing up with an experienced staff member. Typically, people fill a mentor role in addition to their normal work responsibilities.

Coaching. Mentoring refers to an assignment of one experienced person to a second inexperienced person. When the inexperienced person has an adequate skill level, the mentoring relation may cease. Coaching, on the other hand, implies a formal relationship and role. In this approach, one or more people who are experienced in a new technology are assigned as coaches to the rest of the organization that needs them. The coaching role is used to build the new capabilities with many people. The coach may work with one person who had very little knowledge in the new area, and then work with a second person that just needs some advanced help understanding a nuance that he/she had not seen before.

Consultants. Sometimes the best way to initially acquire skills is by hiring experienced consultants. This is typically a short-term strategy to acquire the skills and put into place cross-training opportunities so that the skills can be spread to other employees in the organization. Over time, as the organization gains the necessary level of technical knowledge, the consultant(s) can be let go.

Hiring staff. It may make sense to initially seed the organization with employees who already have the new skills. Many companies did this when they first moved to web technology. When the organization had openings for new employees, they hired people with experience with the web. These new employees are then paired up with others in the organization to help disperse the knowledge and build a critical mass of competency.

Outside organizations and user groups. There are many local and national organizations that focus on specific technical and business topics. For instance, the Project Management Institute has worldwide and local capabilities to help people become better project managers. Likewise, there are user groups that specialize in areas like Java and web development in many localities. These are also usually opportunities to network with other interested parties.

Seminars. Seminars differ from training in that training is usually in a smaller group of maybe 10-20 people, with exercises and learning objectives. Seminars are usually shorter and may have an audience of 25 to hundreds. Seminars are available in many larger cities to explain newer technologies. Some of these are free and some require a nominal fee. Seminars usually focus on newer technology and areas where a vendor or organization is trying to build awareness. You won't typically find seminars on COBOL, for instance. You will find seminars on web services, NET, XML and Java.

Trade shows and conferences. These events bundle up a ton of content in a specific area of interest. They can be pricey, but you may be able to gain as much knowledge in a three-day conference as you would in three months on the job. Typically these events have basic, intermediate and advanced sessions for all types of users. They have hands-on



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opportunities, as well as general overviews. They have vendor sponsored meetings and some taught by industry and academic experts. You also have an opportunity to network with other interested peers. In fact, the trade show/conference contains many of the characteristics of four or five other learning events. As was mentioned before, trade shows and conferences are usually fairly expensive, and they are hardly ever hosted in your town (unless you live in Las Vegas). So, you typically have travel expenses as well. Normally a company will send only one or two people to a conference and ask them to share the information with others in the organization upon their return.

The web. We cannot forget the web as a resource for learning. Again, depending on the subject, you will find sites that contain aspects of many of the other learning events described previously. If your interest is .NET, for instance, you will find webinars (some free and some for a nominal fee) that cover various aspects of the technology. You will find information on vendor websites, including vast support libraries. There are usually websites that allow you to network with your peers, either through instant messaging (chat) or threaded discussions that others can follow as well. Of course, when you do your initial search, you might find 1000 websites on your interest area. However, you can quickly hone in on the sites that provide the most value to you. You can bookmark them and refer back to them quickly.

Summary

New technology sometimes requires retooling the staff on an organization-wide basis. Retooling at that level requires more than just sending a couple people to class. It requires organizational focus and planning. The basis for making a retooling transition is to already have a good learning environment that encourages people to keep up on what is happening with technology and within the IT industry. This makes the retooling process proceed more smoothly and quickly.

Next you need to identify some initial projects and determine the best way to get the right skills on that team. However, the initial teams are not considered in isolation. Instead, the first teams are leveraged along with other learning opportunities. The practitioner level of knowledge is therefore expanded further and further.

Will everyone acquire an expert skill level? No, that is not the purpose of retooling. You still have other technologies that are important as well. However, retooling is completed when you have enough experienced people available to complete the approved business projects. This retooling process can take a long time. However, the time required can be shortened dramatically if you put a multi-faceted organization-wide plan into place and then follow-up successfully on its execution.