`Technology Trinity' for Project Managers: People, Process, and Technology

By: Brandi Narvaez

A large multi-million-dollar technology project is initiated and implemented using a standard Software Development Lifecycle (SDLC) with the intention of saving an organization as much or more over its intended life span. During the course of design and development compromises were made and some features were not released in the initial version of the product. This is not uncommon, anyone who has managed technology projects will attest that feature slips happen, and those features are put on enhancement lists for the next release(s) to bring them to life. The slipped features are typically not showstoppers and in theory should not affect the benefits and return on investment (ROI) of the project. The technology project deploys successfully per the delivery scope. But the users are unhappy, the business processes are not properly supported, the projected benefits cannot be fully achieved, and ROI is pushed further and further out or is negligible.

Was there an error in implementation? Are the users crazy and ungrateful? Was there an error in the calculation of benefits at initiation? Was there an error in the calculation of the ROI? Should the organization halt the project or continue to pour money into the future phased releases to make it better?

In order to know what to fix and how to correct a project or product you have to know what went wrong. Project & Program Managers should ask themselves; did I honor the ***Technology Trinity***? There are three key components which should be honored in any technology project: People, Processes, and Technology. All too often the PM follows an SDLC model without diving deeper to ensure that user and process needs are actually being met. There is an art to evaluating the trinity and PMs need to become more analytical to question and validate understandings, assumptions, and changes for all components of the technology trinity. Through experience I have learned these key components can improve a technology solution's effectiveness, benefits, return on investment, adoption, and actually meet the end user needs to support their workflow and business models.

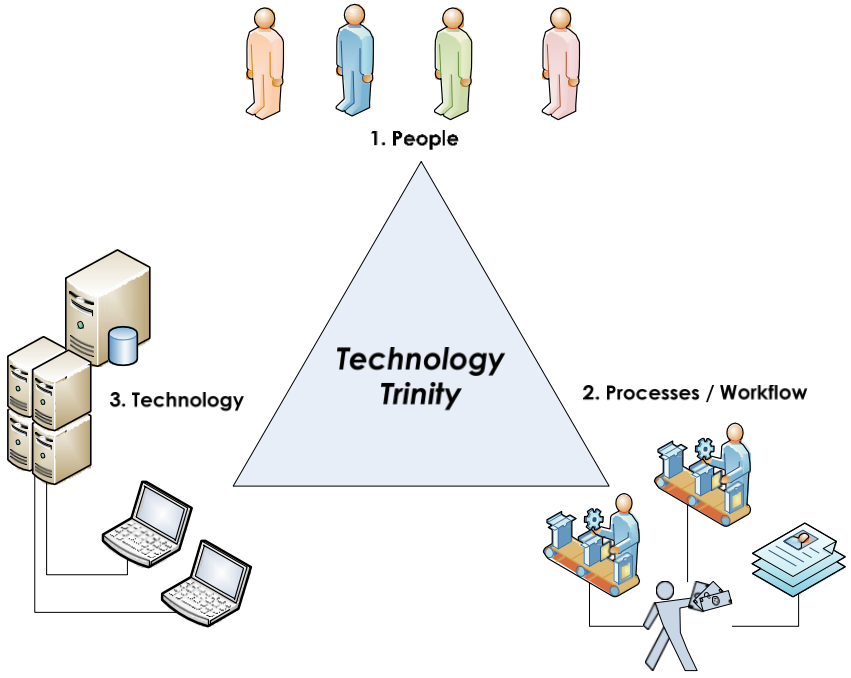

Figure 1: Technology Trinity

People:

The first component to the technology trinity is the **People** who will be using the technology, also known as the users. This requires knowing and understanding your audience. It is critical to the success of the project to identify the characteristics and types of users who will be interacting with the technology. Some questions to consider are:

- Are they savvy IT users or do they fear technology?
- Have similar projects been attempted previously (and failed)?
- Do they have clear standard operating policies & procedures?
- How does this technology align with the existing process?
- What are their operational goals (both short & long term)?
- How would this project fit or marry to their operational goals?
- Does the project team have a full grasp of the business and what users need from this technology?

Project Managers need to realize that users are often unable to articulate what they need. So although traditional SDLC provides a great method to implement technology, it assumes that users are known, and their requirements are perfectly articulated. This is a dangerous assumption because users often do not know what they need until they see something tangible and can also acknowledge their slants and opinions towards technology. Engaging the users early and often can morph into Joint Application Development (JAD) type exercises to continue to define and refine the user needs. Although an organization's culture may not have formally adopted JAD or Agile Development, there is a lot to learn from these methods and can be incorporated into traditional SDLC and waterfall methodologies. Having the user and the developer work side-by-side at key checkpoints throughout the project lifecycle is invaluable. This is a bit of a departure from a traditional SDLC as the requirements, design, development & test become a more iterative & collaborative process. It means more upfront engagement of the users than traditionally required but it results in much better requirements, can uncover hidden requirements, and is much more cost effective than discovering issues after the technology is fully implemented.

Project Managers and project analysts owe it to themselves and the success of their project to become intimate with their target users. Erroneous assumptions about your users and their requirements can lead to project failure. As the IT Project Director delivering operational software to a group of logistics users I wondered why after each implementation the users continually said, 'it's ***almost*** what we need'. We believed we had an appropriate level of user participation as we built requirements and design for each feature set. Key users even participated in the development of test plans and the user acceptance testing. Yet it was never a screaming success of a project implementation. It became easy to criticize the users and believe that they were never going to understand such a sophisticated technology solution. This could have created a cyclical disconnect between the users and the IT project team; the project team believing that they are delivering the 'correct' technology solution, and the users never really accepting what the project team delivers.

Instead, as a team we decided to dedicate the time and resources to send every member of the project implementation team of 20 to sit through a day of business operations. Every team member participated including: the system architect, developers, quality assurance analyst and report writers. Each dedicated a day to sit with users in each department and understand the people and operations they were supporting through the technology they delivered. At the end of the day they were to provide a write-up of their experience along with thoughts and recommendations. We assembled the complete set of team observations and recommendations - the results were eye opening for all of us.

The project team was startled to learn that most of their users had existed in paper-based operations for most of their careers and this was their first time in a computerized operation. While I knew this piece of information and had believed I had shared it completely with the team, it was best for them to learn it first-hand. This set a whole new tone for how the team approached a technology solution and how they designed solutions. Understanding that these users had limited computer and systems knowledge helped them be better at their jobs. Adversely they were disappointed in the ways the users had bastardized the system to suit their styles and purposes. Simple things like needing to be able to use keyboard shortcuts in place of a mouse click for these users was huge, because if they had worked in a computerized operations mode previously it was like a mainframe and keyboard strokes were the method of interaction they preferred. If there wasn't a keyboard shortcut, they would often avoid the mouse click preferring to do as much as they could on a screen before having to touch the mouse, but that didn't fit the originally designed of flow of the system.

As a project manager, and more importantly the leader of the project team, the success of your project can ultimately hinge on how the users respond and therefore use the software or solutions being delivered. Making sure both you and your team members understand the **people** who will be using the technology is the first component in honoring the ***Technology Trinity***.

Process:

The second component of the technology trinity is the business processes and workflow which encompass typical operations. Be sure not to confuse process analysis with requirements definition – these are **not** the same. The requirements written to help define a system or solution will define the 'how'; how should the system behave. The business need is the 'what'; what are the business operations which need to be supported. Changes to the business processes must be made in conjunction with the technology deliverable. Altering the way the people work and or otherwise interact with the technology deliverable. This is best accomplished with 'as-is' and 'to-be' business process modeling. The proposed changes in business process (to-be model) must include participation and feedback from the user in order to ensure successful adoption of the technology as a foundation for their new workflow.

So often the technology solution is implemented, the users are 'trained' on their new system and/or its features, and nothing changes! Organizations spend thousands or even millions to deliver software projects which the users promptly ignore. They go about their workflow as they always did or worse, they bastardize the technology to fit the business processes they have always followed. This type of response does nothing to achieve the benefits of the technology deliverables and typically does not align with organizational goals and objectives.

As with the people component to the technology trinity, the process component is often flawed because users are unable to articulate their processes. So once again the strength in observing the processes and documenting them becomes paramount for achieving success in the process component. Unfortunately many users are locked in by the processes that their current technology solution(s) dictates and it is difficult for them to think outside of what confines them. Also the queue of priority enhancements and bug fixes is typically long and delivery of features is months or even years away - so users often have to resort to developing rogue or supplemental solutions in order to support their workflow. These are generally spreadsheets or small databases which are not IT supported but can become quite sophisticated over time. The project teams should recognize these risks and realize that user (human) nature is 'survival' based and they do what is necessary to support their business processes. Some of the best end results occur when the project team can treat these tools as 'prototypes' and find ways to add functionality into the technology to support process-based workflow.

As mentioned in the previous project team discussion on the People component, when the project team took the time to learn more about the user community they also learned about the business processes. As a result of that time and analysis we came up with a small feature set recommended completely by our team for the next technology implementation. We saw this as our gift to the users and we were supported by upper management in our request to deviate from our original roadmap. We fixed many simple people and process related issues which were greeted with wild cheers by the users. We were well on our way to being a better team and providing a better solution because we understood the people who used the system day in and day out and their supporting business processes. This would not have been possible without learning about the business processes which comprised daily ongoing business operations. In doing so we honored the second component, **process**, of the ***Technology Trinity.***

Technology:

Technology is the third and final component, yet it typically receives most of the attention; resources, time and dollars. It involves analyst, developers, technologists, and stakeholders working collaboratively to define and deliver a completely new solution or improve functionality for an existing system. The technology is the deliverable for the project and against which success will be measured. This is not to be understated, as the deliverables and their quality are paramount to the success of any project, but it is not the ***only*** component.

Technology is the area most project managers focus on as their delivery as this will be their measure of success as a Project Manager. While that is true, and they will be measured on the deliverable, the organization needs to achieve the benefits and ROI as intended when the project was initiated. Is the project a failure then if it is successfully delivered but does not achieve its benefits? Perhaps not, but why miss the opportunity to deliver a full solution for the business and enjoy a screaming success? Make sure that as the project manager you stress the importance to your team of the technology trinity: #1 people, #2 processes which will then allow them to build a better #3 technology. Think of it as creating a solid foundation first, then the house you construct on top of that will be high-quality and well designed, but it will always have the advantage and support of the solid foundation.

So back to the multi-million-dollar technology project which was not achieving its benefits and ROI. What was the problem? Not enough resources and time were dedicated to all components of the ***Technology Trinity***. I suggest that Project Managers go back and look at their implementations to see how much time was spent on the 3 components: People, Process & Technology. You will likely find that percentages are in the typical unhealthy range (see Figure 2), with not enough time or resources being spent on the people and process components. Typically projects are heavily and inappropriately skewed to the Technology deliverable.

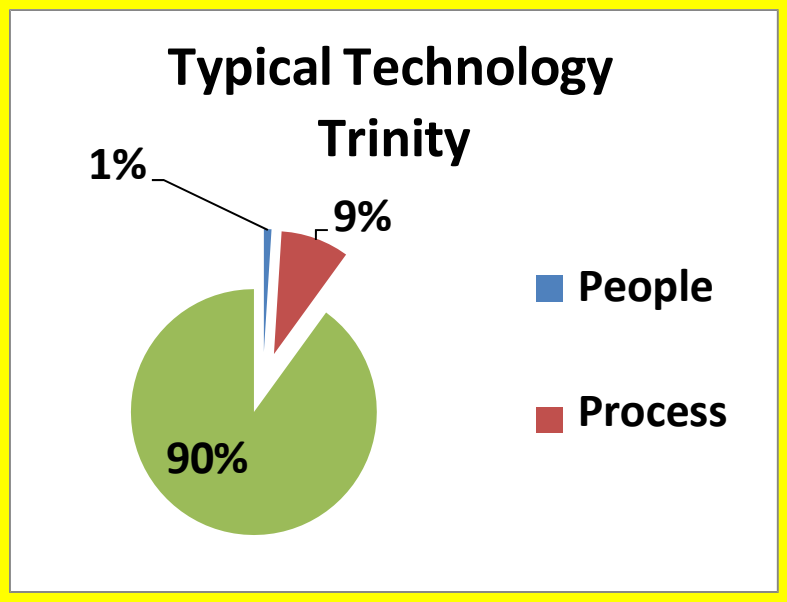

Figure 2: Typical Technology Trinity Effort Breakdown

Recommendation:

To ensure your technology project is a screaming success I recommend using a healthier model of the Technology Trinity. Change your personal project management best practice to insist your project plans and budgets include task sets for understanding the users and their processes & workflow. It takes time to perform a true analysis of workflow and business processes with recommendations for changes with a demonstrated understanding of the subject matter and a common goal with the user community to achieve a new level of operations. I recommend taking the time, shifting efforts, and reaping the rewards.

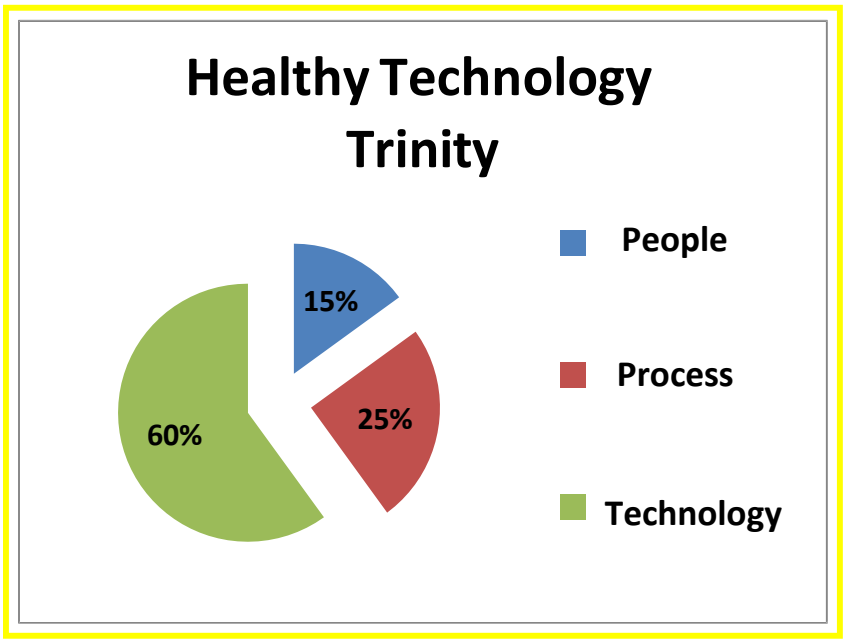

Figure 3: Recommended Technology Trinity Effort Breakdown

What are the reasons that people and process analysis are not allocated appropriate time and resources on a project plan? Is it an attempt at cost savings? Is it an error on the part of the project manager? Is it even a thought at all? I don't know why most project plans don't include a subset of tasks for people and process management. But I do know this omission can cost a project so much more than would have been spent on resources to complete the tasks. Over the years, and unfortunately through failure and lessons learned, I have come to realize there is always a need for understanding your users and performing a strong business process analysis. No matter what type of software, system, or solution being delivered the project will be well served by knowing what business processes and workflows need to be modified when the technology project is delivered.

It is important to note the technology trinity does not address 'customer experience'. Customer is different from users; they can be external customers and/or down-line or receiving systems. There are plenty of instances where project teams execute correctly on internal requirements or the needs of the silo'd business process(es) yet do not achieve success. The project team should also validate the people, process, and technology on an end-to-end basis; the entire lifecycle of the data from cradle to grave. This is especially true in an environment which involves multiple heavily integrated processes, systems, and technologies. Organizations are great at building silo'd solutions but generally fail at creating a singular integrated customer experience. The project team will also need to spend time focusing on customer experience and end-to-end throughput of the technology as part of honoring the ***Technology Trinity***.

As a project manager it is critical that you ensure the recipients (users) of a technology solution and their surrounding workflow and business processes receive appropriate evaluation, modification, and follow-up. Make certain that operations managers are consulted, actual users are involved, and a feedback loop exists. Empowered with that foundational information the project team can design and focus on delivering the best solution. Once the technology deliverable is complete and the team views the delivery a success it is critical that changes in processes and workflow are over communicated, monitored, and rewarded. Doing so not only ensures the adoption of the technology, it also helps create happy users who understand, respect, and fully utilize the technology tool which your project team has successfully delivered. By honoring the **Technology Trinity** the project deliverable will be wildly successful and everyone will want to know your secrets of success!

About the Author: Brandi Narvaez is the owner of a Project Management consulting firm and can be reached at bnarvaez@brandinarvaez.com. She has over 15 years' experience in Project and Program Management with specialized focus the Healthcare industry and Logistics Industry. She received her PMP® in 2003 and has an MBA from St. Mary's College in Moraga, CA.