Technology Selection

Meaning of Technology Selection

In today's environment technology is the vital element that can give an organization its required competitive edge. Aligning Technology Management with business strategy is a critical factor to increase the organizational stability. Project Management and portfolio management plays a major role to align business strategy with technology management.

Acquiring a state of art technology makes the project a high tech project and organizations that are able to identify and upgrade technology for potential competitive advantage will emerge as winners in the global market. So the technological work of the project is the principle area where project management has to Endeavour to encourage the highest creativity from project team members. Management by technology is one of the key factor of success or failure of a project development phase because it provides a foundation for customer base development. That is, it involves developing goals and plans for project activities, establishing and using defined development life cycle phases in the project activities, measuring and analyzing the effectiveness, implementing effective improvements in project phases and also identifying and evaluating new technologies to implement the most promising ones in the project in a structured manner more over communicating the defined factors mentioned clearly to customers and stakeholders.

For example, the selection of techniques to follow or adapt, innovative ways to manage performance, effective technology for communication, introducing new media, methods for developing knowledge and skills, alternative career choice and new ways of organizing and empowering team through technology, continuous improvement of both personal and product competencies can be achieved by identifying and managing better and feasible technology to improve process in each project development phase.

Criteria to Evaluate When Choosing a New Technology

1. Features: Does the technology provide out-of-the-box features that meet your requirements? If not, can the gaps be filled through configuration?

List out all the requirements you can currently imagine addressing with the new technology, grouping ones that are related and categorizing into buckets like Automation, Analytics, Mobile, etc. Then identify each requirement as 'must-have', 'should-have', or 'could-have', making sure it's described specifically enough (e.g. "Automatically send email reminders when reports are overdue" or "Display data in a point map"). Then get vendors to honestly score their technologies as follows: 3 points if the feature is provided out-of-the-box, 2 points if the feature can be configured without code, 1 point if the feature can be delivered through custom development, 0 points if the requirement cannot be met.

2. User-friendliness: How intuitive and easy-to-understand is the technology's user-interface and user-experience?

You might have strong opinions yourself, but end-users are best positioned to evaluate this criterion. It's important to look at user-friendliness through each lens of the technology. Often we see user-friendliness evaluated only from the perspective of end-users doing data collection or capture – that's a crucial lens, but the technology's friendliness for data management, data analysis, data visualization may be equally important.

3. Security: Can you trust that your data are safe on the technology?

This criterion is not simply about ticking a box that the technology provider has a white paper about GDPR or ISO 27001 – when it comes to data protection, GDPR compliance has as much to do with your practices as with the technology you use. Rather, think about security through two lenses: internal and external.

For internal security, evaluate how well you'll be able to control users' access and permissions with the technology, ensuring the right staff are able to see and do the right things. Look for technologies that allow you control access and permissions at object/table-level, at feature-level, and at field-level. You'll also want an audit trail that helps you track who made which changes and when (both for data and metadata). For external security, you want to ensure your system will be safe and that only authenticated users will have access. You might want features like: single-sign-on, two-factor-authentication, and the ability to insist on password requirements. And

assuming you're storing data on the cloud, you'll certainly want a technology provider with a strong reputation for how it manages its servers both physically and digitally.

4. Flexibility: How easily can the solution evolve as your organization and your requirements evolve? Try to picture 5 years from now – is the technology propelling new ideas and ways of working or is it struggling to keep up as the organization changes and matures? To assess a technology's flexibility, you'll need to understand, for instance:

- How configurable are its automation features? Do business rules need to be hard-coded or can they be managed through modular, adaptable automation tools.

- How configurable are its analytics features? Do reports and dashboards require customization or can they be adapted in a drag-and-drop way by end-users?

- How easy or hard is it to adapt or extend the underlying data model? Over time, you will certainly need to capture new data points, modify picklist values, inactivate certain fields, introduce entire new data tables – do you need to rely on developers to make these sorts of commonplace changes or will you be able to make them in-house?

- Can your organization extend the technology to handle major new requirements and new entire use cases that may come up in the next 5 years?

5. Interoperability: How well does the technology 'speak' to other technologies your organization uses? How easily can data flow from this tool to other tools or vice-versa? How nicely does it play with other tools staff use and will continue to day-to-day (e.g. for email, documents, analytics, etc)?

If you think about a solution you are still thrilled with five years from now and work backwards, one of the most important characteristics to optimize for is interoperability, or how easily the tool can integrate with other tools. On an interoperability scale from 1-10, a '1' would be a tool on a custom, proprietary stack with no documented API and few examples of successful integration to date, while a '10' would be a technology with an extensively documented set of APIs, a wide range of plug-and-play integrations, and myriad published examples of successful integrations

including with tools your organization uses. Investing in a middleware can help speed up integration efforts and reduce the cost of maintaining integrations over time.

6. Innovation: How much investment and effort is going into improving the technology and its adoption? How many releases does the technology have per year and how helpful are the new releases?

The best SaaS companies invest heavily in R&D, ensuring their products stay ahead of the game when it comes to features, user-friendliness, security, flexibility, and interoperability. In answering the question of meeting future needs, don't just consider what a tool or technology offers today, extrapolate from its innovation track-record to anticipate what it will offer in the future. To evaluate innovation, you'll want to know how many releases per year to expect, what the current high-level roadmap looks like, how the roadmap is prioritized, and what kind of influence you'll have (as a customer) on the roadmap.

7. Ecosystem: How strong and connected is the community of users and partners around the technology? How widely available is information that will help you troubleshoot or improve your implementation of the technology?

Perhaps the most underrated criterion to evaluate is the ecosystem of customers, partners, and knowledge surrounding a technology. On one side of the spectrum, you may have a brand new tool with shiny features but only a few customers, a few developers who can adapt it, and a few online resources. On the other side of the spectrum, you have platform solutions, like Sales force, with a huge and well-connected online community providing help and training, hundreds of partners globally, 150,000+ customers, and thousands of hours of free, gamified online learning modules on Trailhead.

8. Setup Costs: How much will it cost us–directly and indirectly–to design, configure, and rollout this tool?

Firstly, work out what upfront investment will be needed to get the tool up and running. A familiar tool that requires little or no configuration (e.g. Google Docs or Box.com) will require much less investment than a tool that requires months of complex setup (e.g. a CRM or M&E system). Setup costs not only include consulting services required to tailor and train, but also

internal staff time required to help design, test, and adopt the tool. Setup costs will vary from provider to provider and will depend on whether you're using a fixed-price or time-and-materials model. Unless your organization has developed firm, mature requirements or you need a very simple, straight-forward solution, a capped and carefully managed time-and-materials contract with a partner you trust is usually the most reliable model for ensuring a win-win project.

10. Maintenance Costs: What will it take and what will it cost to support this technology? The final and perhaps most important component of answering the budget question revolves around the cost of maintaining and supporting the technology once it has been launched. "How is maintenance the most important cost component?" you ask.

Jeff Hanby answers that question well, breaking out examples of the corrective, adaptive, preventive, and perfective maintenance needs that come up and citing five articles that suggest maintenance costs tend to make up 40-80% of TCO.

The more customized your solution is, the higher your maintenance costs will be. Direct costs here may include:

- Staff time from System Administrators (anywhere from 20% to 300% full-time-equivalent, depending on the system's size and complexity) spent managing and adapting the system

- Support services from the technology provider or implementation partner to troubleshoot, debug, or make minor adaptations (often provided on a retainer basis or as part of a license fee)

- Additional services required to adapt the technology to meet your evolving requirements (mitigated by choosing a technology with excellent flexibility and a strong ecosystem)

- Buying and maintaining servers or any other hardware required to use the technology

- Time or services needed when retiring the software (exporting data, keeping the system running while a replacement is getting rolled out)
  Indirect costs, meanwhile, may include:

- The cost of staff frustration, burnout, or attrition resulting from using the unfriendly, inflexible, non-interoperable technology you chose (though it may not show up on the budget, there is a very real cost to your M&E Officers ripping their hair out)

- The inefficiencies and time wasted by relying on manual data manipulation and having easy answers to common questions at your fingertips

- The cost of uninformed decisions made because your decision-makers don't have the data or information they need when they need it

Sources of Technology Information

1. **Recommendations from friends, colleagues, and partners:** As more SMBs work to boost their business processes, there is much to gain from recommendations from friends, colleagues, and partners.

2. **Manufacturer's website:** Manufacturer's website has all the information small and medium businesses need.

3. **Personal sales calls or face to face meetings:** Another great source of information for SMBs which can help them reach potential buyers is face to face meeting or personal sales call.

4. **Search engines:** There are various search engines like Google and Bing which play an important role in getting the right information and reaching potential buyers.

5. **Technology magazines:** At some point, all entrepreneurs find themselves in need of motivation. And there is nothing better than good technology magazines to provide them the stimulating boost or simply a store of information, that SMB owners need to run their business to the best of their capability.

6. **Brochures, newsletters and fact sheets:** Most of the time, SMBs need information such as statistics, FAQs, technical data, contact details and upcoming events of the companies, which can be found in brochures, newsletter and fact sheets.

7. **Advertising:** One of the best ways to create brand awareness and reach potential buyers is advertising.

8. **Blogs and forums:** Small and medium businesses can highlight their services or products offered with the help of blogging and participation in online forums.

9. **Company sponsored seminars:** Seminars have always been a useful source of information for SMBs, where speakers talk about business ideas, success stories and business strategies to be successful.

10. **Whitepapers:** A long form of content, whitepapers, are designed to promote products and services by SMBs. They are often used to establish thought leadership and boost profit.

Appropriate Technology

Appropriate technology is defined as any object, process, ideas, or practice that enhances human fulfillment through satisfaction of human needs. A technology is deemed to be appropriate when it is compatible with local, cultural, and economic conditions (i.e., the human, material and cultural resources of the economy), and utilizes locally available materials and energy resources, with tools and processes maintained and operationally controlled by the local population. Technology is considered thus "appropriate" to the extent that it is consistent with the cultural, social, economic, and political institutions of the society in which it is used.

Appropriate technology represents the social and cultural diversions of innovation. The essence of appropriate technology is that the usefulness or value of a technology must be consolidated by the social, cultural, economic, and political milieu in which it is to be used. Most of the groups working in the developing countries tend to view appropriate technology as the main tool in meeting the basic needs of hundreds of millions of people who have been largely left out of the development process.