The Art and Science of Solution Design Part 2 of 4: Technical Engineering

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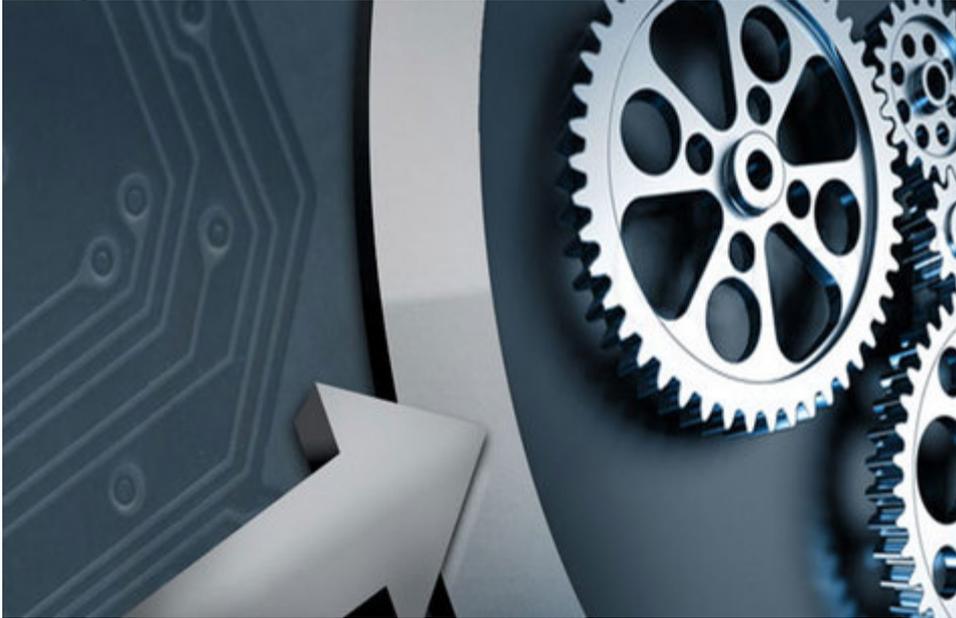
One of the critical components of successful Solution Design is the thorough analysis and implementation of a highly effective technical engineering approach for each specific project that leads to the final product that is being developed.

The lack of solid technical engineering processes can result in disastrous failures. An infamous example of this problem occurred in 2013, when the U.S. Department of Health and Human Services launched the Healthcare.gov website. The intention of the portal was to enroll approximately 7 million users over a six-month period. However, issues with the technological solution and framework were so extreme that two months after its release, only 29,000 users had succeeded in utilizing the website amid reports of massive access failures, including incorrect information, missing data, and dead-end applications during the enrollment process.

A great deal can be learned from development failures that have occurred in the past in order to avoid similar pitfalls. Designing solutions is a complex task that must be approached carefully from the initial stages through to the implementation of the final deliverable product. Although it may be impossible to release a completely perfect system, experienced development teams embrace the need for a flexible solution with a solid and comprehensive foundation that is able to withstand and overcome the potential problems that are inherent in technological interfaces.

On the other side, The Texas Department of Information Resources launched the highly effective one-page Texas.gov website in 2015. The reimagined platform was carefully designed utilizing a plethora of analytics data to ensure that it was developed with a clear understanding of both user needs and technical requirements. The

success of the final product illustrates the power of effective technical engineering, which determines the best combination of usability, requirements, and performance to maintain a solid and manageable solution that meets all aspects of a project's goals.

Successful technical engineering requires the development team to get back to basics to determine the answers to key questions before product development commences. For one, what is the architecture that you will build the platform on? As mentioned in the previous Solution Design overview article, it's essential to remember that the large majority of development projects do not transpire in isolation, but instead take place within the existing technological landscape of an organization. It is therefore important to define a structured solution that meets all of the technical and operational requirements of the company, while ensuring that the final product can be seamlessly integrated into the current processes of the business.

Technological development plans must be optimized for performance, manageability, and security, as each of these decisions will have a significant impact on the quality and overall success of the end solution. Poor architecture can create highly unfavorable results in the long-term, such as a solution that lacks stability, is difficult to deploy, or is unable to support either current or future requirements of the business.

Another key component to ensuring effective technical engineering is the determination of the connection points that will be required in the end product. Does the company need multifaceted software that will provide the ability to utilize the solution in both business-to-business and business-to-consumer scenarios? Is an e-commerce component necessary in the current or future business model of the organization?

Successful architecture identifies the requirements of the eventual solution, while providing the flexibility to be able to evolve over time as changes in hardware and software technology occur, as well as user requirements. The overall effect of design decisions must be carefully considered, including the inherent tradeoffs between quality attributes, such as performance and security, as related to usability and the requirements of the business. These components should not be created in a bubble with only technologists, rather in symbiosis with the product design team & business stakeholders.

Once a finely tuned technical engineering plan is in place, the product development plan can be established, which will enable the comprehensive understanding of what will be required from resources. By establishing a solid initial foundation, the development team can move into the next phase of determining the human engineering components that will work in conjunction with these plans to reach the ultimate goal of creating the most effective end solution.

Original article – http://www.hospitalitynet.org/column/154000392/4074894.html