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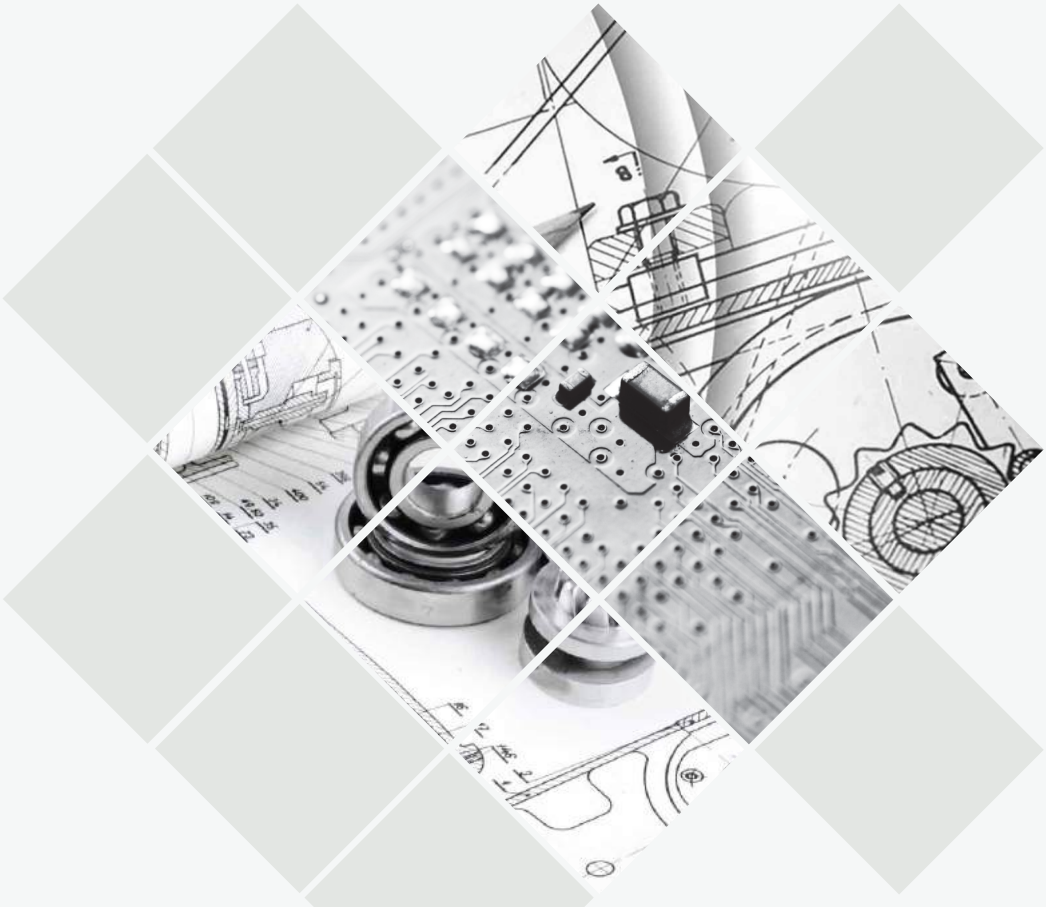
unleashing product team to create innovations:

sustenance CoE - a structured approach for power industry



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Abstract

The two major factors driving the sweeping changes in Power industry are the IT-OT Convergence and the Digital Transformation. Focused efforts to transform business paradigms while maintaining and growing market share is key. Enterprises that aim to achieve this agenda and curtail costs require innovative thinking and strategies. Success of developing a new product, whether it is hardware or software or systems combining both, depends a lot on effectively leveraging the accumulated product and domain knowledge of the in-house team and also adaption of newer technologies / trends. These two objectives can be effectively met by migrating the in-house product team to new technologies/trends. However, getting the in-house team freed for this purpose is always an uphill challenge. As a company with deep expertise and rich experience in engineering services, QuEST Global has worked with world leaders in the power industry to devise structured processes to systematically takeover sustenance activities by establishing Sustenance Centers of Excellence (SCoEs). This paper discusses how we approach and manage transition process to Sustenance CoE, to enable organizations to free in-house resources for transforming and differentiating the business.

1. Introduction

Many organizations in the power sector own established products that lead the market. For them, it is now imperative to introduce next-generation products ahead of competition, to maintain and increase market share. These enterprises must enhance their capabilities and scale to get ready for new product introductions (NPI), intended for expansion across adjacent domains, newer geographies and more importantly to embrace emerging revenue streams enabled by new technology trends. However, rapid technology evolutions and growing product portfolios are causing scale and cost concerns. As a strategic partner, QuEST Global is helping many world leaders in Power domain to address this challenge.

2. Walking the tightrope between legacy and futuristic investments

Organizations look for a partner who can mobilize the resources to help sustaining the product and free up its core resources to new product development. This is a very common scenario and the important point here is that the challenge is not just on resource mobilization, it is much more than that. A partner who is well versed with such a scenario has to have proven and established practices in product sustenance and have the option of delivery models along with quick and adequate resource mobilization (ramp-up and ramp-down) capabilities. Most importantly, such a partner should be able to hand-hold and lead the transition without disrupting the support being provided to the end-users (customers of customer). For this systematic transition from current scenario (sustenance by in-house team) to an offshore Sustenance CoE, QuEST devised a Managed Transition Process to accomplish the objectives at minimal drag on customer and at optimum cost.

2.1. Two new-age trends that command priority

The surge in cloud, mobile technologies, and analytics is ushering in the digitalization trend in the power sector. Organizations are leveraging these new-age technologies to renew old client-server architecture, optimize energy flows in grids, gain real-time insights to prevent asset failures, and more.

Simultaneously, a convergence wave to integrate Information Technology (IT) and Operational Technologies is also sweeping across organizations. By integrating IT software (such as enterprise resource planning products) with operational assets (such as smart grids), organizations can reduce costs, instill seamless operations, take informed decisions, and more.

2.2. Safeguarding the core team's product knowledge is key

While these trends improve innovations, organizations have to walk the tightrope between adopting new technologies and sustaining an ever-growing portfolio of legacy assets. In-house teams that have developed the current successful product, are a treasure trove of accumulated domain, product, technology, market, and application knowledge. Leveraging this knowledge base efficiently will help visualize and realize the next product. Encouraging this core team to new product development activities

while maintaining and enhancing the current product is crucial for the maintenance of leadership.

3. The art of product sustenance

Global enterprises that have large teams engaged in resolving issues, customizing services, and optimizing existing infrastructure for changing customer requirements need to re-evaluate their priorities. They need to channel their best brains into developing new solutions and understanding the pulse of the market. At the same time, a quick-fix through resource mobilization initiatives cannot sustain the performance of existing products for long.

Consequently, a sure shot answer to sustain existing products and free up core internal teams for new product development is not always in-house! Collaboration with product sustenance service providers is a new route that many global organizations are exploring today. However, organizations have to complete the preliminary groundwork to assess capabilities before committing to a partnership. Here are some of the core capabilities that define an effective product sustenance service provider:

- Prior experience in product sustenance engagements in same domain
- Proven track record in retaining sustenance team for long without knowledge erosion
- Proven and established best practices
- Flexible delivery models
- Adequate resources (for ramp-up and ramp-down)
- Capability to handhold and lead the transition without disrupting end users of the product
- Ability to customize infrastructure and components of the model to suit size, complexity, installed base, and geographic spread of the current client team

3.1. Centers of Excellence for end-to-end product sustenance

QuEST has been enabling world leaders in the power sector to sustain top-performing products for over two decades now. We do this through structured and systematic product takeover process and these products are nurtured end-to-end in our centers of excellence (CoEs). In order to ensure that our CoEs function seamlessly, we have developed a customizable Product Sustenance Framework. This framework is structured through five pillars — people, process, technology, infrastructure and governance as shown in *Figure 1.*

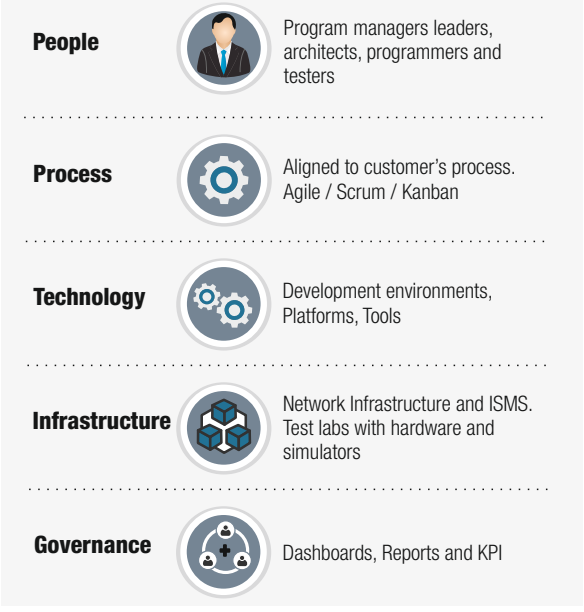

Figure 1

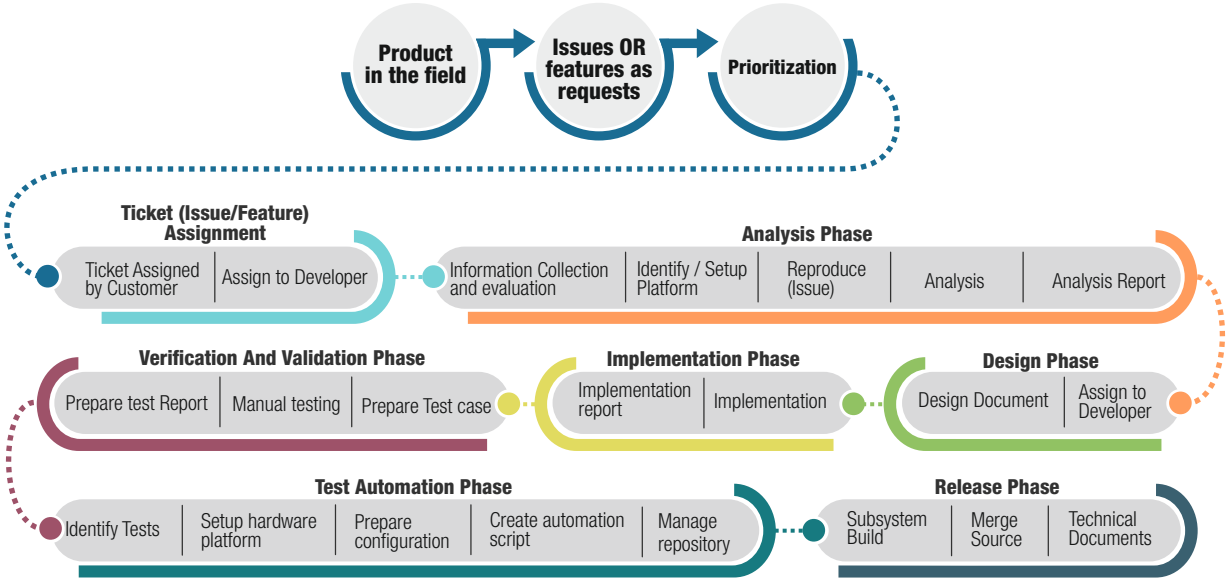

Figure 2

Using our proprietary Product Sustenance Framework, we have enabled organizations worldwide to sustain their products via effective CoEs. As depicted in *Figure 2*, the framework includes the following seven modules to handle various processes : Ticket Assignment, Analysis, Design, Implementation, Verification, Test Automation, and Release. For the build and release management, we use continuous integration practices, which continually merges source code updates from all developers into a shared mainline.

4. Key differentiator: Managed Transition Process

At QuEST, we understand that transitioning of in-house sustenance activities to offshore sustenance CoE need to be seamless such that the customer invests minimum effort, remain unaffected by change, and costs get curtailed. That is why, we have setup a Managed Transition Process using our vast experience in this space. This process helps us to understand the product comprehensively and migrate it to our CoEs in a structured and effective manner. Our endeavor is to efficiently and quickly takeover product sustenance as a completely outsourced managed service from the client enterprise.

4.1. Managed transition to Sustenance CoE

The Managed Transition Process facilitates end-to-end migration of a product suite to a sustenance center of excellence (SCoE) in less than 18 months. The process comprises of the six phases as shown in *Figure 3*

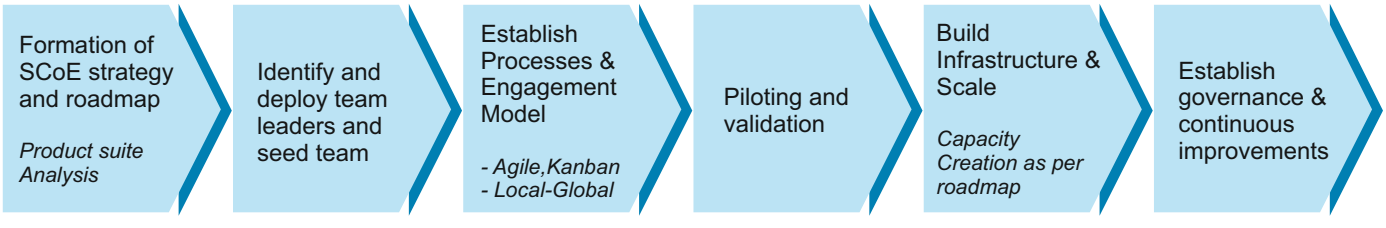

Figure 3

The most critical component of this transition process is the first phase, the Product Suite Analysis. In this phase, sustenance maturity assessment of different modules of the product is conducted using a set of tools and processes developed by QuEST. In most scenarios, a uniform approach might not work for the entire product suite; instead, a module / sub system-based, customized approach is required. The outcome of this approach is the priorities, timeline and definition of the wherewithal needed for transition.

Once the Product Suite Analysis is completed, activities such as resource mobilization, process capture and optimization, and initiation of pilot projects for the chosen modules are performed. Less complex modules / subsystems representing the critical areas of product suite (representative modules) are taken up and transitioned to the CoE, while ensuring that the needed resources, processes, and tools are in place. Learnings from the pilot transitions are implemented in subsequent cycles. While the identified representative modules (covering all critical areas) of the product suites are transitioned to the CoE, activities are scaled up for the transition of the remaining modules and also the process and tools are fine-tuned. Finally, the operating rhythm, governance, and KPIs are established. Which are designed to ensure continuous improvement, higher efficiency, and optimum cost. *Refer Figure 4 for details.*

4.2. Best practices that make good products better

New trends in software development models such as the agile-scrum, Kanban etc. and the collaboration of development and operations teams / activities known as DevOps are an integral component of our product sustenance process. As a result, software versions and patches get shipped in shorter cycle time, code failures are detected and corrected faster, and the product development process gains efficiencies. This expedited process allows innovation to flourish and enterprises to do more in less time.

Sustenance Engineering Center of Excellence Roadmap

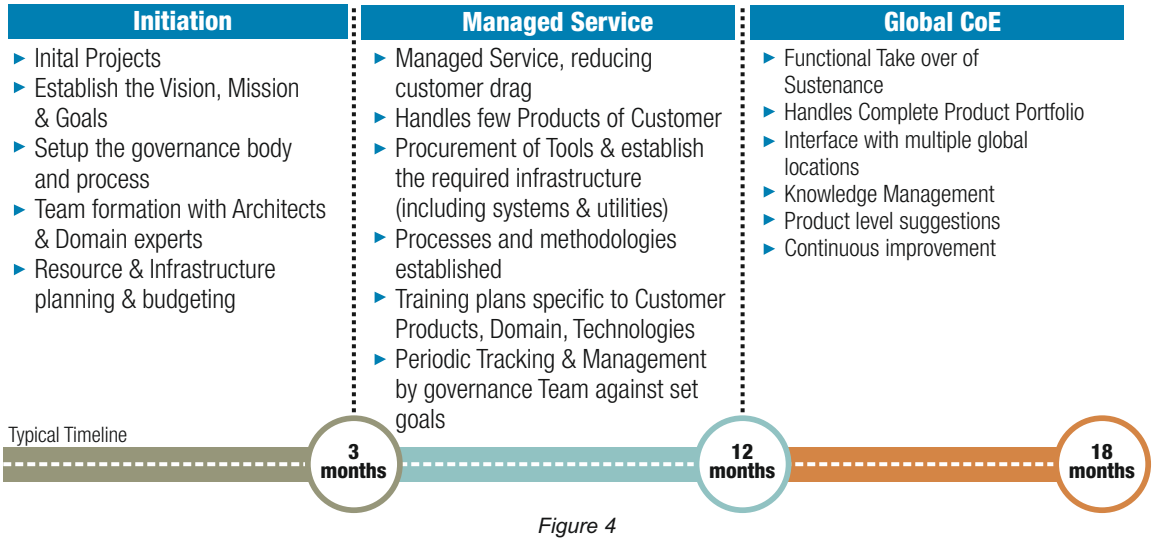

Figure 4

Continuous integration (CI) is an integral part of software development and product release environment and our transition process effectively addresses the same through high degrees of test automation and tools usage. Through this, we effectively prevent errors from being integrated into the software product.

5. Seven benefits of QuEST's Sustenance CoE

Seven key objectives of the Sustenance CoE are depicted in Figure 5 below. The sustenance CoE defines and continuously monitors a set of key performance indicators (KPIs) and service level agreements (SLAs) to establish the benefits and to ensure continuous improvement.

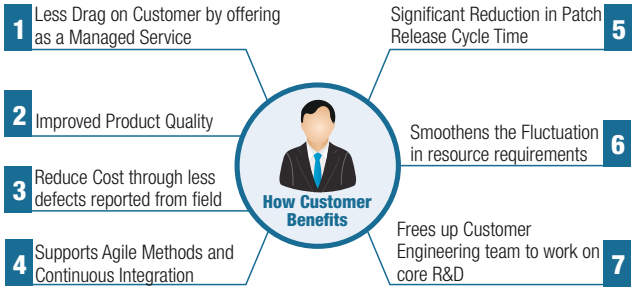

Figure 5

6. A success story

A success story of releasing the core team from sustenance to new product development for a leading power T&D player is shown in *Figure 6*.

In 2007, a leading power T&D player partnered with us to manage its substation automation system (SAS) product suite. Primary objective of the partnership was to free up the core team and develop a new substation engineering tool development framework, which could be used by teams across global locations for developing various software tools. This could enable the client to develop a new set of engineering tools and release them ahead of competition in the market. Thus, the company opted for transition of their SAS product sustenance to us.

The primary outcome of the partnership was the setting up of the offshore CoE and a full-fledged lab at our offshore center, in which we performed the entire spectrum of sustenance activities — bug fixing, testing, test automation, and product release management. We sustained and enhanced the product for eight years, and when stabilized, it was handed over to the company's captive center.

Our teams focused on reducing effort (through automation) and improving performance, resulting in a highly stable product. Our offshore CoE freed up the core team to develop a generic framework for development of engineering tools. In addition, we mobilized a large team to augment the framework development and also development of a set of engineering tools. These tools were developed by different teams from multiple global locations. Our efforts helped to consolidate the development activities, and by adopting agile-scrum methodologies we have achieved higher efficiency and productivity.

Thus, we delivered significant value through offshore product sustenance and by working with teams at multiple geographical locations. Today, our engagement has progressed to provide engineering support to migrate the same products on mobility platforms - a testimony to the good work done.

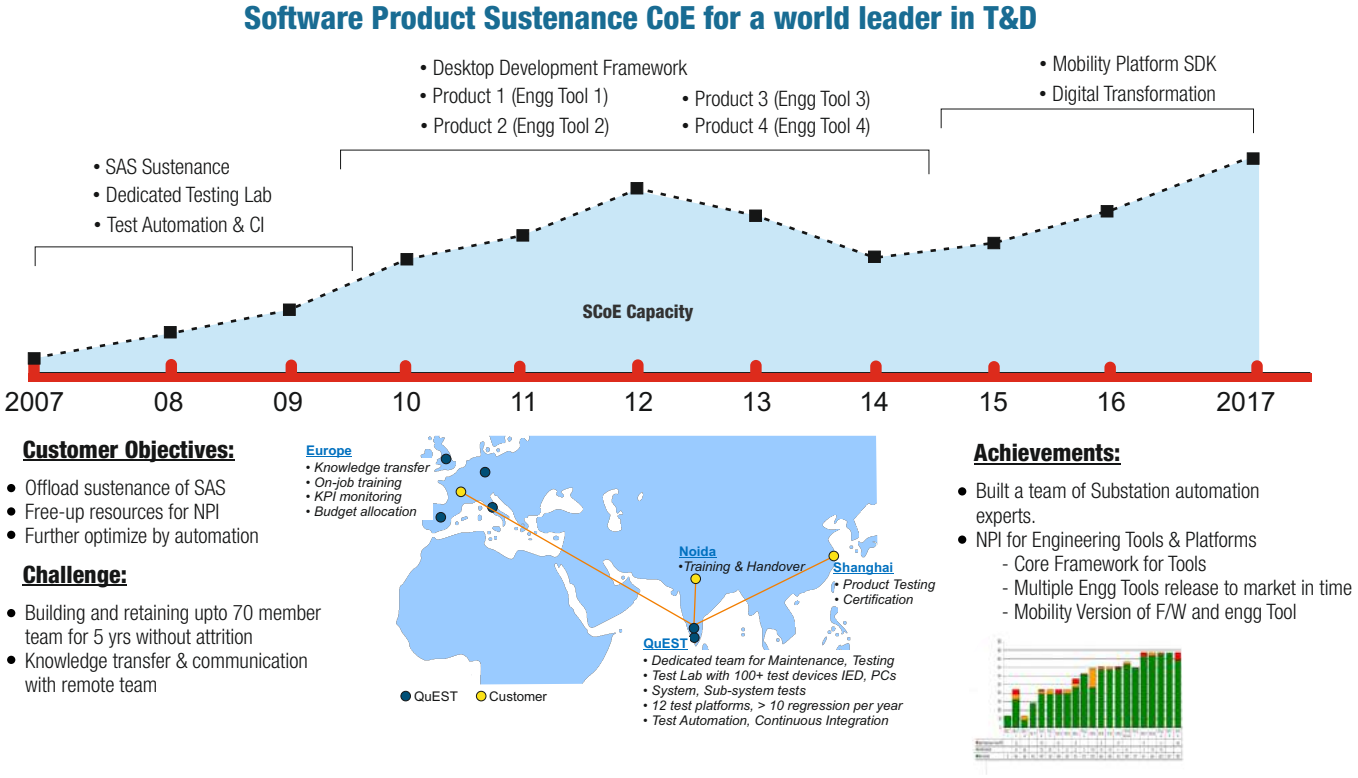

Figure 6

7. Conclusion

There are no disagreements about the importance of outsourcing product sustenance in today's power industry. The main area of contention for organizations is to learn what to expect from such programs. Through this paper, we have outlined that the outcomes of a product sustenance program is dependent primarily on the quality and capability of the service provider. It is clear that every product sustenance partnership must have clear mandates and outcomes that extend beyond resource mobilization.

Author Profile

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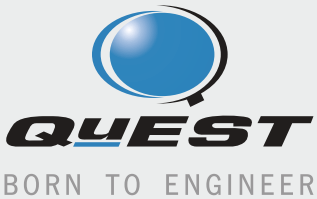
Manoj Vivek is General Manager & Strategic Initiatives Leader at QuEST Global. Manoj has 30 years of diversified experience in engineering software and the industrial automation segment, spanning sales, business development, delivery management, development & implementation of large scale DCS and SCADA systems for industries like Power T&D, Smart Grid, Petroleum Refineries, Power Plants, Fertilizers, Paper Mills etc. His experience include 16 years of building offshore software development centers supporting world leaders in the power segment.



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