

SustenanceFactory

...silver bullet to keep the lights ON while you innovate

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Abstract

Digital transformation is a promise to disrupt the business, in every segment, by way of introducing new business models and there by new revenue streams. And all enterprises are investing to invent the future by introducing next-gen digital products to be the leader in the respective segment. The one who transform faster will lead the market. To make it possible, focused efforts to shift the business paradigms while maintaining and growing current market share is key. Enterprises that aim to achieve this agenda 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, business and domain knowledge of the in-house team. 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 to devise structured processes to systematically transfer sustenance activities to SustenanceFactory at QuEST, which can get the entire process optimized, products stabilized and the core team freed for innovation. This paper discusses how we do the transition to SustenanceFactory and how we manage it to enable organizations to gain leadership in their segment.

1. Introduction

All global players lead their respective market through the product suits or platforms. 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 thinking partner, QuEST Global have been helping world leaders to address this challenge. QuEST Global packages 20 years' of learnings to offer SustenanceFactory, a new, comprehensive and structured approach to establish and run the Center of Excellence (CoE) to maintain product suits/platforms.

2. Walking the tightrope between legacy and futuristic investments

Organizations look for a partner who can mobilize the resources to help sustaining the product suite 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 flexible delivery models and engagement 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 regular activities of customer. For this systematic transition from current scenario (sustenance by in-house team) to the SustenanceFactory, QuEST has devised a managed transition process to accomplish the objectives at minimal drag on customer and at optimum cost.

2.1. New-age trends that command priority

The surge in cloud, mobile technologies, and analytics is ushering in the digitalization trend in all sectors. 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. Organizations are leveraging the new-age technologies to redefine the architecture of the product suits to shift towards 'as-a-service' model and also offer obvious benefits of cloud native technologies and Al. Cloud-based remote engineering and remote management will cause a paradigm shift and cause the emergence of new business models and new players.

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

While the above-mentioned 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. Engaging this core team to new product development activities while maintaining and enhancing the current product is crucial for the sustaining of leadership in the market.

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 reevaluate their priorities. They need to channel their best brains into developing new solutions and capturing 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 inhouse! 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 large-scale product/platform sustenance engagements
- Proven track record in retaining sustenance team for long without knowledge erosion
- Proven and established best practices
- Flexible delivery models
- Flexibility Adequate resources for ramp-up and ramp down
- Demonstrable ability in continuous improvement
- Diversity in service offering to cover all aspects of software sustenance, hardware obsolescence management, supply chain and inventory management
- Capability to handhold and lead the transition without disrupting the customer operations
- 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 verticals it is operating, 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, called Sustenance Factories. In order to ensure that our Sustenance Factories function seamlessly, it is structured through five pillars — people, process, technology, infrastructure and governance as shown in Figure 1.

SustenanceFactory at QuEST					
SOFTWARE SUSTENANCE	OBSOLESCENCE MANAGEMENT	SUPPLY CHAIN MANAGEMENT	INVENTORY MANAGEMENT	MANUFACTURING SUPPORT	
People Technical Leader & Architect Programmers & Testers		itect Process	Process Aligned to customer processes Agile Methods / SCRUM		
Technology	Technology Development Environments, Platforms Tools at every step		Infrastructure Contract Labs with hardware and simulators Networks Infrastructure and ISMS		
Governance Dashboards & reporting Metrics & KPIs					

We have enabled organizations worldwide to sustain their products via effective *Sustenance Factories*. The SustenanceFactory offers end-to-end services for the sustenance such as required resources, infrastructure, services, process, tools and operational aspects related to software and hardware (electronics) sub-systems of the product. The services include L1, L2 Support (Call Center), Issue Resolution (L3 & L4), Porting, Migration, Feature Enhancement, Performance Improvement, Lift & Shift to Digital/Pervasive Technologies, Testing & Test Automation, Product Build & Release Management (CICD/DevOps), Engineering tools to improve productivity, Component Engineering / Bom Scrubbing / DB consolidation, PoCs/Prototypes/pre-production, Redesign, Re-engineering, Reverse engineering, Value Engineering, Cost Engineering, Testing & ATEs, Regulatory Compliance & Certifications, Supply Chain Management, Inventory Management and Manufacturing Engineering.

4. Key differentiator: Managed Transition Process

At QuEST, we understand that transitioning of inhouse sustenance activities to SustenanceFactory 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 SustenanceFactory 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 SustenanceFactory

The Managed Transition Process facilitates end-to-end migration of a product suite to a SustenanceFactory through a time line of 3 to 18 months, depending on the size and complexity. The process comprises of the six phases as shown in Figure 2. The most critical component of this transition process is the first phase, the Product Suite Analysis. In this hase, 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;

Products/Platform selection Detailed analysis of selected products/platforms Creation of roadmap & transition Plan Define the engagement model product/platform Mobilize seed team per product/ platform Set-up respective infrastructure

Capture the process and develop custom workflow Impart necessary knowledge transfer activities

Run the pilot projects and process/work-flow validation Build and scale Run the projects independently Plan for continuous improvement

Sustain through effective operating rhythm, <u>KPIs</u> and governance

Figure 2

instead, a module / sub system based, customized approach is framed. 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. To have a smooth start, less complex modules / subsystems representing the critical areas of product suite (representative modules) are taken up and transitioned to the SustenanceFactory. 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 SustenanceFactory, 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 3.

Initiation **Managed Service Global CoE** Managed Service, reducing Inital Projects Functional Take over of Establish the Vision, Mission Sustenance customer drag Handles Complete Product Portfolio & Goals Handles few Products of Customer Interface with multiple global Setup the governance body Procurement of Tools & establish locations the required infrastructure and process Knowledge Management Team formation with Architects (including systems & utilities) Product level suggestions Processes and methodologies & Domain experts Continuous improvement established Resource & Infrastructure Training plans specific to Customer planning & budgeting Products, Domain, Technologies Periodic Tracking & Management by governance Team against set goals Typical Timeline 3 18 12 months months months Figure 3

Typical migration plan of a large, complex product suite to SustenanceFactory

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 (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. 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. This expedited process allows innovation to flourish and enterprises to do more in less time. QuEST have a holistic approach towards obsolescence management of electronics hardware and established a set of bet practices to address the needs of component engineering, re-engineering, redesign, supply chain management, inventory management, proto-typing and manufacturing support.

5. Nine benefits of QuEST's SustenanceFactory

Seven key objectives of the SustenanceFactory are depicted in Figure 4 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.



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 5.

A leading power T&D player partnered with us to manage its substation automation system (SAS) product suite, which had large installed base and the product was not stabilized yet. Primary objective of the partnership was to free up the core team and develop a new substation engineering tool development framework suite, 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 SustenanceFactory 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 a decade 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 SustenanceFactory 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 to accelerate the NPI program. 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. Later, our engagement has progressed to provide engineering support to migrate the same products on digital platforms - a testimony to the good work done.





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 on what to expect from such programs. Through this paper, we have outlined that the outcomes of a product sustenance program depend primarily on the experience, coverage of services, ability to handhold the transition and bring continuous improvement, just like a factory. 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 has got 34 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, Atomic Power Stations, Paper & Pulp, Steel Plants etc. His experience include 16 years of building offshore software development centers supporting world leaders in the power segment.

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