Sustenance Engineering: Breaking The Catch 22 Of Product Lifecycle Management

Author: Anil Ron,
General Manager - Strategic Accounts at Quest Global

Author: Pratheep P.S.,
General Manager - Medtech Vertical at Quest Global

The Duality of MedTech Product Management

In the fast-paced MedTech industry, products are designed to serve critical healthcare functions, and as such, can remain in use for many years or even decades. This enduring nature stands in stark contrast to the rapid advancement of technology that is shortening product life cycles and bringing drastic enhancements in the medical technology field.

The intersection of legacy products and cutting-edge innovations presents a unique challenge for engineering leaders. On one hand, there is a constant push to innovate and stay ahead of the competition, leveraging the latest technologies and research to develop new products that meet the evolving needs of healthcare providers and patients. On the other hand, existing product lines in the market, which continue to generate stable revenue, require ongoing attention and resources to ensure their functionality, competitiveness, and compliance with regulations. Balancing these two critical areas of focus is no easy task. Allocating resources ineffectively can lead to stagnation in innovation or neglect of established products, both of which have significant consequences for a company's growth and reputation.

Pivoting On Sustenance Engineering

The answer to this complex dilemma lies in sustenance engineering, a systematic approach that carefully manages the entire product lifecycle. It acknowledges the essential role that existing products play in a company's portfolio while ensuring that resources are also devoted to innovation and advancement. Through sustenance engineering, MedTech companies can maintain the integrity and relevance of their current products while fostering an environment conducive to growth and technological advancement.

Sustenance engineering includes the technical solutions applied to products as they mature and enter their usable service life. Key processes involved are:

- **Managing Obsolete Components:** Regular assessment to replace or update obsolete parts
- **Design Upgrades:** Limited enhancements to remain competitive
- **Regulatory Compliance:** Ensuring adherence to changing regulations
- **Retrospective Design Fixes:** Backward compatibility of design changes is a hallmark of sustenance engineering

This process doesn't involve radical changes but focuses on gradual improvements and maintaining standard functionality.

Sustenance engineering doesn’t involve radical changes but focuses on gradual improvements and maintaining standard functionality.

In an era where technology is reshaping the healthcare landscape at an unprecedented pace, sustenance engineering offers a pragmatic solution to navigate the tension between maintaining current product lines and pushing the boundaries of what's possible in medical technology. It's a framework that recognizes the multifaceted nature of the industry and empowers companies to thrive in the face of ever-changing technological and market dynamics.

Maximizing ROI with Sustenance Engineering

Sustenance engineering plays a vital role in maintaining profitability within the medical device industry, a sector characterized by long R&D cycles and significant upfront investments made for new product launches. For instance, the development of a new cardiac pacemaker could involve years of research, clinical trials, and regulatory approvals, leading to hefty initial costs. Established products, such as tried-and-true diagnostic equipment or surgical instruments, are often better equipped to handle corporate price reductions. They have already recouped their development expenses and have an existing market share, enabling them to be offered at more competitive prices. For example, an older model of an MRI machine may still provide reliable performance at a reduced price point, appealing to budget-conscious healthcare providers.

> **Staying competitive: An older model of an MRI machine may still provide reliable performance with sustenance engineering at a reduced price point, appealing to budget-conscious healthcare providers.**

Sustaining products post-maturity not only extends the lifespan of existing portfolios but also influences the procurement decisions of healthcare clients that have to weigh long-term investments against reliability and CAPEX outflow. Through sustenance engineering, medical device manufacturers can offer extended support and upgrades for existing products, thus enhancing their value proposition. Take, for example, a hospital system looking to invest in a fleet of ventilators. While cutting-edge models with the latest features might be appealing, the decision-makers must also consider the long-term support, reliability, and total cost of ownership. A medical device company that offers robust sustenance engineering for its existing line of ventilators can present an attractive option, providing a balance between innovation and cost-efficiency. Furthermore, in cases like infusion pumps or patient monitoring systems, sustaining products post-maturity and ensuring their ongoing compatibility with evolving technology standards can be a deciding factor for healthcare facilities. Incremental upgrades and continued support allow manufacturers to keep their established products relevant and competitive, appealing to healthcare providers who must balance the need for innovation with financial considerations.

Partnering for Sustenance Engineering in the Healthcare Industry

Outsourcing sustenance engineering offers a strategic competitive advantage for healthcare and MedTech companies through these benefits:

A. Cost Efficiency: External partners, often possessing specialized knowledge and bulk resources, offer expertise at lower costs. For example, partnering with a firm specialized in medical imaging technology can significantly reduce costs for maintaining legacy MRI machines, as compared to maintaining an in-house team.

B. Competitiveness: Outsourcing enables a focusing on core competencies, IP generation, and staying ahead of the competition. A pharmaceutical company, for instance, might outsource the maintenance of its laboratory equipment, allowing it to focus resources on research and development of new drugs.

C. Budget Flexibility: Sustenance engineering partners provide scalable resources based on project needs. A hospital chain that needs to upgrade its patient monitoring systems across various locations can choose to scale the outsourcing as needed, allowing for optimal resource allocation.

D. Productivity: Outsourcing is shown to improve efficiency and time-to-market. A medical device manufacturer may choose to outsource the sustenance engineering of an older line of surgical instruments, accelerating the development timeline for new products by freeing up internal resources.

E. Specialized Expertise: Sustenance engineering service partners often bring specialized skills that might not be available internally. For example, a biotech firm looking to ensure compliance with changing regulations might engage a specialized regulatory consultancy, which has the dedicated expertise to navigate complex global laws.

F. R&D Team Morale & Retention:
Engaging skilled engineers in challenging tasks rather than routine sustaining tasks can boost job satisfaction. An innovative MedTech company that outsources the maintenance of its legacy products can keep its in-house engineers focused on groundbreaking research, new product development and sustain a culture of innovation that enhances top talent retention.

6 Factors to Consider for Outsourcing Sustenance Engineering.

Challenges in Offshoring Sustenance Engineering in the MedTech Industry

Navigating the complex landscape of sustenance engineering presents immense opportunities, but it's not without challenges. When selecting a partner for sustenance engineering, here are some aspects to consider for a harmonious and productive collaboration.

1. **Tribal Knowledge:** Ensuring domain understanding and knowledge transfer is critical. For example, a company specializing in respiratory devices might have unique know-how in sensor calibration and patient interface design. Transferring this specialized understanding to an offshore partner without losing the nuances can be a complex task. This process often requires detailed documentation and ongoing collaboration to ensure that critical expertise is not lost.

2. **Trust:** Building long-term relationships and alignment of goals is key. Imagine a partnership between two companies to manage the sustenance engineering of a line of ultrasound machines. Without clear communication and trust, misunderstandings around objectives, timelines, or quality standards might arise, undermining the success of the partnership. Establishing trust through transparency and shared values is essential for a successful collaboration.

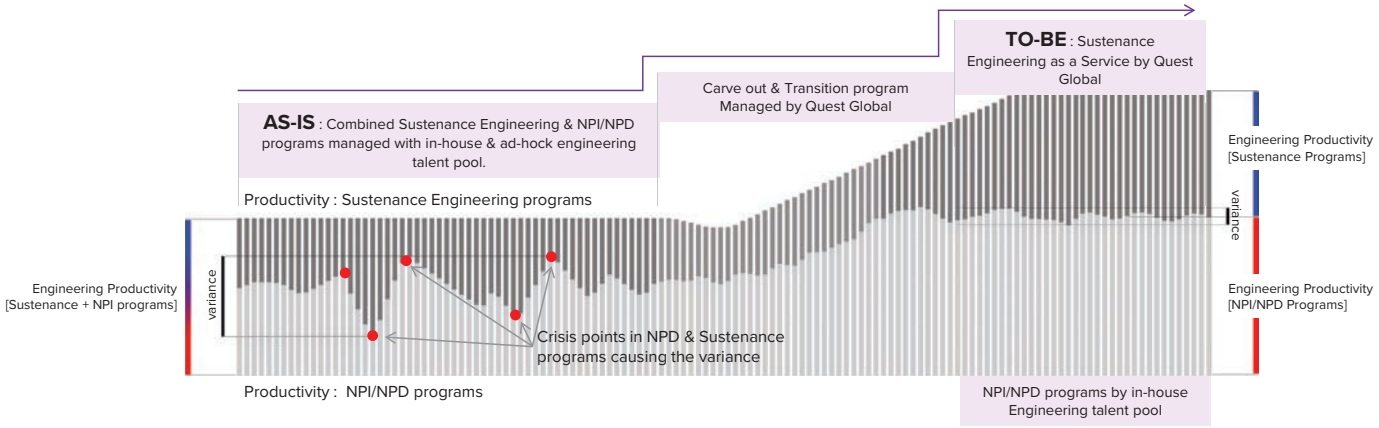
3. **Quality:** Maintaining in-house engineering quality levels while offshoring can be a challenge. Take, for example, a company that produces surgical robots and sets very stringent quality control protocols. These need to be replicated exactly by an offshore partner, and the slightest deviation could lead to safety concerns. Ensuring that quality control is consistent and aligned with in-house standards becomes a primary consideration in the offshoring decision.

4. **Intellectual Property:** Utilizing insights for innovation and leadership in product categories requires careful handling of intellectual property (IP). A company working on ground-breaking heart monitors may have concerns about sharing proprietary technology and innovations with an offshore partner. Creating legal frameworks and security measures to protect IP is crucial, as it allows both parties to collaborate without compromising the innovative edge that defines the product category.

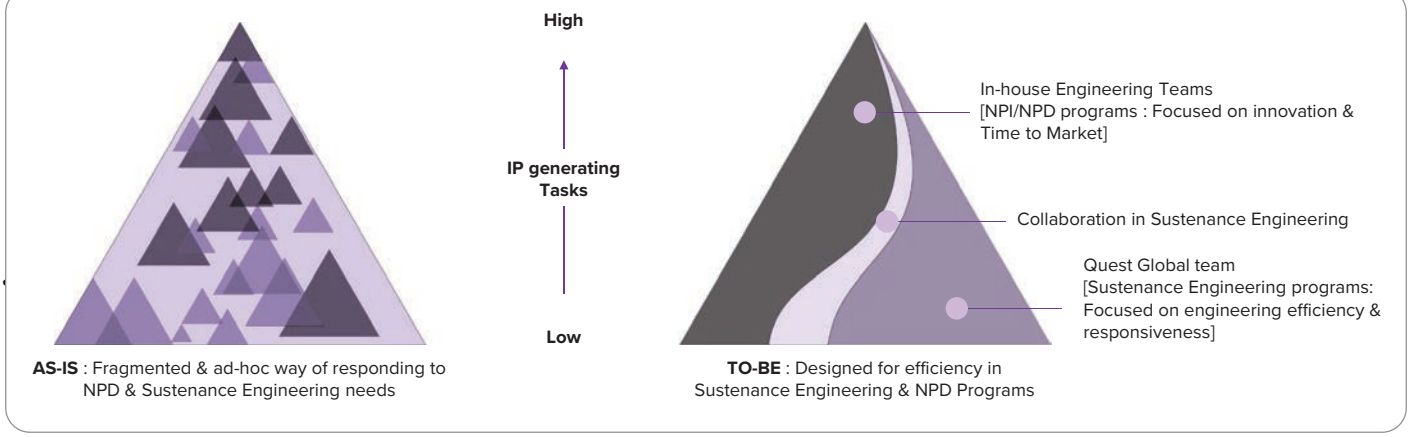
> **Mitigating these 4 challenges requires a mature partner that can guide you through the sustenance engineering journey.**

Our Expertise In Sustenance Engineering: A Two-Decade Legacy of Innovation

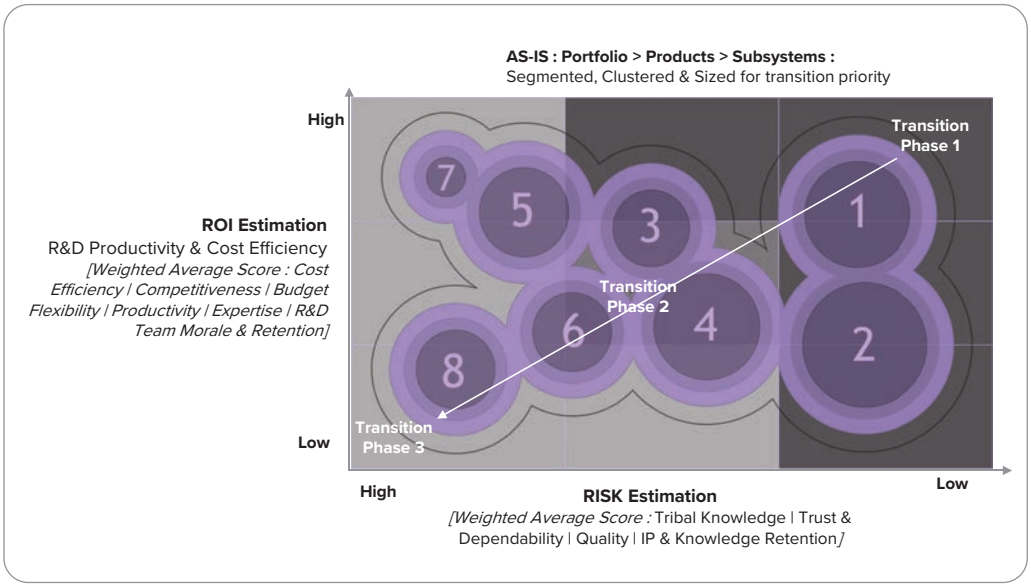
At Quest Global, we see ourselves as more than service providers; we are seasoned partners in the field of sustenance engineering. With a rich heritage stretching over two decades, we have become a trusted ally for top MedTech companies, guiding them through the intricate landscape of product lifecycle management.



Assessment and Recommendations: We begin by closely analyzing engineering operations. This methodical approach unveils potential benefits and areas for improvement, offering a comprehensive view of where strategic adjustments can be made. This isn't just about finding flaws; it's about uncovering opportunities.



Risk-Benefit Analysis: Decision-making in the world of MedTech requires careful consideration. Our expertise shines in clustering programs along a risk/benefit matrix, allowing for more informed and targeted decisions. Our aim is to align with your business's long-term goals, whether they involve risk mitigation, growth, or innovation.



Case Study

Co-Development Of The Business Case: Benefit Over Partnership Tenure

Knowledge Retention and Reuse

Dedicated Sustenance Engineering Team

- Training and development of talent by Quest Global
- Competency development onus transferred to Quest Global

Productivity Improvement

- Velocity to program execution, product launches
- Performance improvements- Quality & Delivery

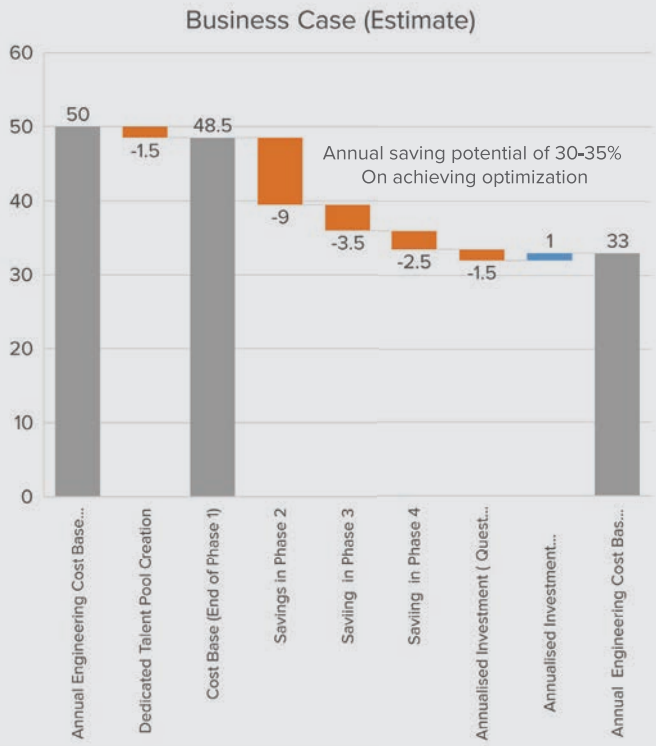
Offload Functions and Products

- Lifecycle management
- Sunset products ownership.
- Liberates Customer's Engineers for NPD and Innovation

Other Industries Practice Leverage

- Execution – Best in class from the comparable domains
- Cross leverage experiences from other industries

Collaborative Transformational Business case development with a global medtech leader



Cracking the Catch-22 Of Product Life Cycle Management

Sustenance engineering isn't just about managing costs; it's about unlocking potential. The tangible benefits are significant, with clear gains in cost efficiency and the control of budgeting, keeping variances at a predictable level. But the value goes deeper. It's not merely about breaking the catch-22 of product lifecycle management; it's about crafting a robust strategy that fuels growth, sparks innovation, and ensures long-term success. As we look toward the future of sustenance engineering in the MedTech Industry, the clustering of current programs using a risk/benefit matrix becomes an essential step for making informed decisions. With the challenges known and strategies in place, the path forward becomes clearer. We invite you to leverage Quest Global's extensive expertise in this field. Together, we can unlock the potential of existing products and innovate for the future, ensuring a balanced and successful approach to product lifecycle management. If you have any questions or would like to have our experts consult you on sustenance engineering, feel free to drop us an email at info@quest-global.com.

For any further information or queries, please reach out to us at info@quest-global.com