

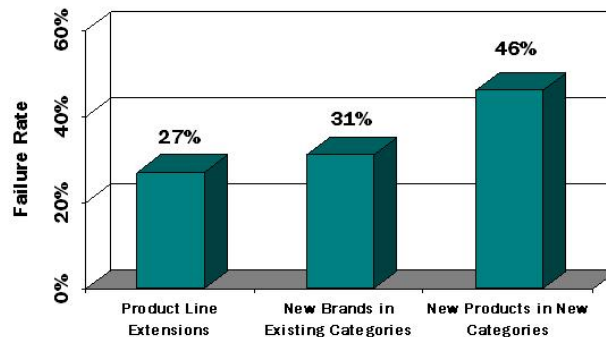
Aligning Development to Ensure Product Success Performance Genesis

The development and deployment of successful products in a complex and evolving market frequently leads to failures in the form of wasted time, money, resources and opportunities. The Performance Genesis framework leverages cutting-edge development tools and methodologies to ensure winning new product delivery: on-time, on-budget and on-target.

Introduction

Achieving success in the development of new products is like navigating a minefield filled with uncertainty in development capabilities, communication, market analysis and strategic positioning, not to mention product quality, cost, and development time. Identifying applicable, salient technologies, coupling those with existing market need (either implicit or explicit), and working through concept ideation, design, development and into actual production can be a daunting task, even for the most seasoned of practitioners. In fact, failure is often found in place of success. The Association of National Advertisers found that 27% of product line extensions failed; 31% of new brands introduced into existing categories failed; and 46% of new products introduced in new categories failed.¹

New Product Failure Rates are Unacceptably High



Association of National Advertisers

So, what exactly defines a successful product? Ulrich and Eppinger tell us that “from the perspective of investors in a for-profit enterprise, successful product development results in products that can be produced and sold profitably.”² In short, a successful product is one that returns reward (be it financial or otherwise) to its investors (be they internal or external).

We have found that in spite of numerous successful products, many profitable companies suffer from costly and widespread new product development failures. Product Genesis helps clients deliver successful products by increasing their product development effectiveness, defined as the delivery of new products on time, on budget, and on target. This is accomplished through the proven Performance Genesis framework, which maps directly to established corporate product development processes, fully leveraging existing frameworks and organizational structures.

Most importantly, Performance Genesis is a modular framework for ensuring success, allowing clients to augment deficiencies while playing to their strengths. This ensures that the best possible combination of internal and external expertise and leverage is applied. Cutting edge product development tools and techniques, such as Design for Six Sigma, are used to inform the critical decision points in the phase-gate development cycle, directly tying the development process back to both market and corporate strategies through the use of documented user needs and market requirements, thereby ensuring developmental success.

Challenge

Organizations can find themselves mired in an unsuccessful product development process, one that turns out too large a ratio of failures to successful products. Often these products succumb to time or development pressures, resulting in scope creep and/or feature cuts. Complex decisions and tradeoffs follow the product throughout the development process, be they problems with planning, development, testing, communication, quality, product launch, or any of a dozen others.

At the very heart of the decision-making is a general difficulty in identifying areas in the product development process that are deficient, or could use refinement. *Even the best, most internally consistent product development processes can fail to maintain alignment with user needs, market requirements and corporate strategy throughout the development cycle.* Often, through no fault of their own, organizations adhere to the same behaviors around the process, revisiting these behaviors over and over again until they become learned responses. The inability to overcome these ingrained behaviors lies primarily in the inability to recognize them as artifacts of an incomplete process framework from the outset of development.

Because of legacy processes and learned behaviors, the alignment of the product development process with corporate goals and market strategies can be lost as a product progresses down the development pipeline. Specifically, organizations can have difficulty overcoming the inertia that is gained as products are propelled down the development pipeline. The traditional logic for the use of the phase-gate development process is two-fold. First, evaluation of the development progress at each gate in the phase-gate process assures that everything necessary has been done at each developmental phase to successfully move the product into the next phase of development. Second, and often overlooked, is the employment of mechanisms for the critical re-evaluation of projects that may not generate enough value (technically, strategically, or financially) before they continue to the next phase in the process. Rechecking the development program alignment with both the original objectives, and the latest market, user and competitive inputs provides essential checks and balances on the development pipeline. Once projects enter the development pipeline, overcoming developmental inertia to change, or even cancel the project can be an extremely difficult task. Yet the best development pipelines only allow the clear winners to emerge into the market. Marginal programs, which sap valuable resources, should be re-scoped or even cancelled at early gates to give adequate focus on the programs that are aligned for success.

The Performance Genesis framework assists clients in bringing successful products to market. It aims not at rebuilding the product development process, but rather identifies deficiencies, and provides tools to remedy the deficiencies. While augmenting existing processes, Performance Genesis enables the client to more readily harness the power of their product development process to deliver winning products, on-time, on-budget and on-target.

(Continued)

Solution

The key to unlocking a solution to product development challenges through Performance Genesis first lies in understanding the format of the client's product development process. In general, the phase-gate product development process successfully allows the organization to understand the product opportunity in front of them, allows them to successfully develop concepts that fuse user and market needs, and then successfully brings that implementation to market.³



Meta-Phases in a Product Development Process (Otto & Wood)

In a very analytical sense, the Performance Genesis process is like solving $X + Y = Z$, where Z represents the ideal state of the corporation; X represents current legacy systems and processes; and Y represents the gap in need of bridging. Performance Genesis can be broken down into a three-phase assessment of clients' product development process that logistically maps to this equation. The first phase of the process aims to understand Z, the goals of the organization, and all of the outside influences that may effect the achievement of those goals. The second phase analyzes the capabilities of the client's development process, laying a foundation for step three, which is filling in the gap with needed tools and techniques to ensure the development of a successful product.

More specifically, the first phase of Performance Genesis aims to map the goals of the product development process at the corporate level. This includes an analytical understanding of the business and market opportunity at hand, as well as a comprehensive understanding of the fundamentals of the client's traditional product development process. Understanding of client processes is achieved through detailed meetings on-site as well as review of client documentation regarding the traditional product development process. Additionally, market forces bearing on the stages of the product development process are accounted for in order to understand all factors effecting development.

The second phase of Performance Genesis is geared towards the evaluation and assessment of client capabilities. This includes the assessment of previous execution and organizational skills across the stages and gates of the new product development process. The assessment is unique and distinctive. It includes not only process and methods effectiveness, but also more importantly an examination of the drivers leading to excellence at each level within the team. The need to understand the complexities and facets of client development processes is paramount in the identification of strengths, weaknesses and gaps within said processes.

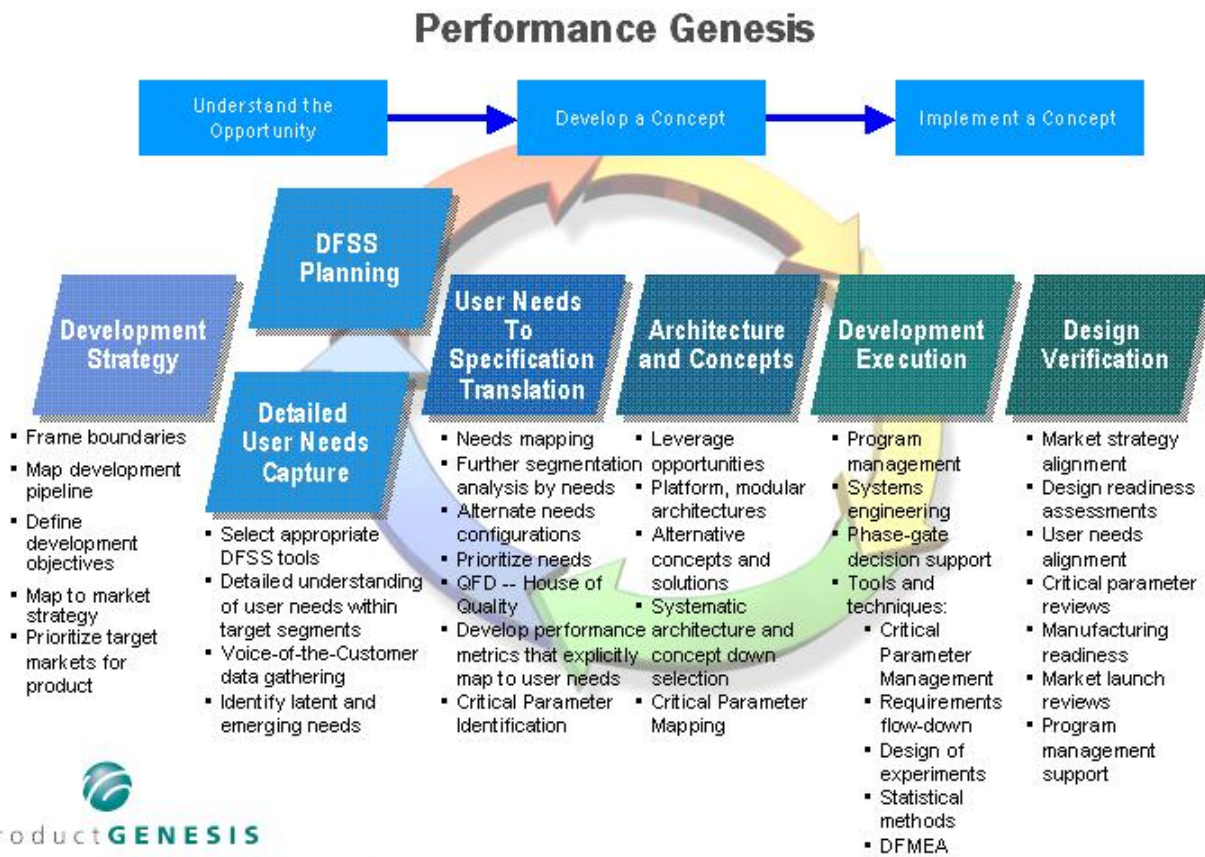
In the third phase, integrated with the development program, project-centered skill session training and on-site experiential learning are used to affect real-time change and improvement. These changes are based upon the planning for a significant product development program, integrating Marketing, Development and Manufacturing, and making essential use of Product Genesis as part of the team. The integration of team members across functional areas ensures that development outcomes merge with both business and market strategies at each point in the phase-gate process.

At each decision point, changes and compromises will have to be made based upon critical data, all the while ensuring that goals are preserved, the project stays on course, and the anticipated financial returns may still be

achieved. The primary need for compromise management designates Program Management support a key piece of the overall equation. End-to-end program management of the development process, and the compliance of that same process with stated goals and objectives is therefore a critical focus of Product Genesis' client involvement.

The Performance Genesis process ensures that critical compromises are made in an informed manner, and that any product-level tradeoffs are made such that the product still meets consumer and market needs. Modifications to the development process are deployed in a measured approach, with an eye toward critical parameter management, ensuring that internal processes pass requirements down through development in a

prioritized manner, with an eye on quality using Design for Six Sigma techniques. Team integration is key. New opportunities are identified for further improvement and the plan adapted to the current activities.



Product Genesis undertakes the full process with client organizations through the integration of team members from both organizations in a balance appropriate to the development project and company goals. Large complex organizations often require teaming with other partners: manufacturing operations, supply chain and procurement, sales and distribution, or comprehensive quality management programs, for example. The leveraged development effort must also be aligned with the existing quality and training initiatives.

The Performance Genesis program involves a combination of learning and training activities between the client, Product Genesis, and other key partners, depending in large part on identified needs. Tools and methodologies include, but are not limited to the following:

- Market strategy alignment
- Detailed user needs analysis
- Detailed stakeholder needs analysis
- User/stakeholder requirements definition
- Serviceability analysis
- Manufacturability analysis
- Regulatory analysis
- User needs to technical requirements translation
- Technology readiness assessment

- Detailed product/technical definition
- Critical parameter management
- Requirements flow-down strategy
- Concept generation
- Architecture definition
- Systems engineering
- Design and Phase Gate Reviews
- Robust Design Rollup
- Design Verification

These efforts and tools are tailored to the client's needs, and can be presented at various levels including:

- Program Management Support – Phase-gate Management, Project Management, Process Management, Cross-functional Alignment, etc.
- Project Centered Skill Sessions – Voice of the Customer, Quality Function Deployment (QFD), DFMA, FMEA, etc.
- Short Courses – Product Strategy, DFMA, FMEA, Design for Six Sigma, System Architecting, etc.
- Product Genesis On-site Workshops – Program Implementation, Concept Generation/Selection, etc.
- Process Maturity Evaluation – Percent Rework, Expenditure Measurement, Custom Part Fraction, Engineering Change Orders, etc.
- Infrastructure Changes – IT, Software, Record Keeping, Metrics, etc.
- Product Implementation Changes – Architecture, Standardization, Percent Reuse, etc.

Further, the Performance Genesis process aims to transcend organizational impediments to the product development process. These barriers come in numerous forms, including communication rifts between functional groups, vested interest in specific outcomes by individuals or groups, lack of resources for the team (either real or perceived), and lack of empowerment of the team – and these are only starters. Through the mapping of the client's product development process onto a selected and stated set of comprehensive developmental goals, the group coalesces into an integrated unit, capable of end-to-end development of a successful product.

Conclusion

Identifying market opportunities, creating unique product offerings, and bringing concepts successfully to market can be a daunting task. Organizations can often become bogged down in well meaning, but internally focused product development processes that fail to produce winning products. Despite the difficult nature of repeatable and successful product development, organizations eager to capitalize on emerging market opportunities must equip themselves with the tools and techniques necessary to produce leading edge products that map to both market and consumer needs.

Performance Genesis incorporates a malleable, three-phased process augmenting clients' existing product development initiatives to supplement deficiencies, inform critical decisions, and highlight strengths in an effort to ensure future product success. From an understanding of client processes, and knowledge of the ideal state of the organization, gaps in the product development process can be identified. At each stage of the phase-gate development process, client success is promoted through the evaluation of all factors affecting the decision-making process.

The path to successful, critical decision-making is navigated as a team, directly tying critical design parameters back to market and user needs. Through a proven framework of tools, skill sessions and techniques, including Design for Six Sigma principles, Product Genesis is able to assist clients in making efficient, strategic and tactical moves within the framework of their development processes to outflank and out-develop the competition – resulting in successful, end-to-end product development initiatives.

References

1. Urban, Glen and Hauser, John (1993). *Design and Marketing of New Products*. New Jersey: Prentice Hall 1 –16.
2. Ulrich, Karl and Eppinger, Steve (2000). *Product Design and Development*. Boston: Irwin McGraw-Hill, 1 – 31.
3. Otto, Kevin and Wood, Kristin (2001). *Product Design: Techniques in Reverse Engineering and New Product Development*. New Jersey: Prentice Hall, 12 – 48.
4. Creveling, C. and Slutsky, J. (2002). *Design for Six Sigma in Technology and Product Development*. New Jersey: Prentice Hall.