Effective NPD Processes

New Product Innovation
No. 6 in a Series of Papers

Global NP Solutions, LLC

Reference Paper

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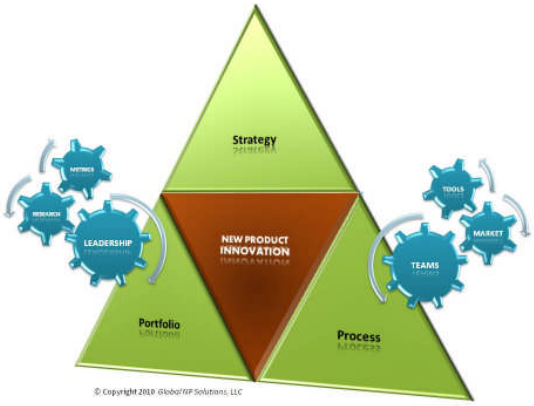
Your Strategic Innovation Partner

Effective NPD Processes

Foundational Cornerstones of New Product Innovation

Profitable New Product Innovation requires executing three key foundational principles with excellence. Each of these principles is fed and operated by the people that ensure effective organizational structure, easy-to-use systems and tools, as well as targeted market research to support the technical inventions. Sustaining the New Product, Service, and Program Innovation and Development, these foundational principles are summarized here.



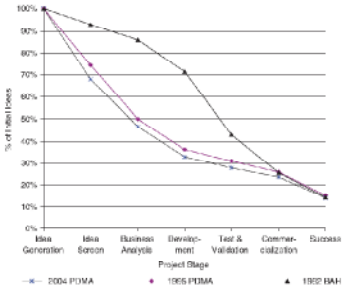
- **Senior Leadership Team provides clear strategic direction** for the NPD team by defining the market, the technology, and the desired product.
- **Timely Portfolio Management reviews focus resources on the right projects** by evaluating match with business strategy, financial and economic models, and/or other scoring methods.
- **Efficient, stream-lined NPD Processes enable and empower the NPD team** by allowing effective and efficient research methods within the advantaged market and technology platforms.

Innovation Strategy is incorporated into the **decision making process** for Portfolio Management as well as selection of projects to enter into and continue through the NPD Process. **Portfolio Management** ties together the **Business and Innovation Strategies** with **NPD project balance and mix**. Running throughout these systems is the idea that teams and organizational structures are *supported by*, not hampered by, the New Product Development process.

Differentiating the Best from the Rest: PDMA Best Practices Study (1)

Since 1990, the Product Development and Management Association (www.PDMA.org) has sponsored best practice research projects to identify trends in Innovation and NPD. Findings from the 2003 PDMA Best Practices Study demonstrate that a formal process for NPD is the norm – **a total of 69% of the reporting firms indicate use of formal, cross-functional process for NPD.** Of the companies performing the Best, more than 75% of the products they have commercialized in the previous five years were successful as compared to a success rate of only 54% for the rest of the firms.

Note that more than 70% of radical and highly innovative projects were also implemented with the use of formal process owners to help and guide the NPD Teams to move through development stages. This compares with only 60% of incremental projects using a formal process owner role to accelerate movement through the



development stages. Additionally, the PDMA Best Practices Study notes that the *Best Firms initiate only 4 ideas for each successful market commercialization* as compared to the rest who initiate over 9 ideas in order to generate *one commercial success*. We can conclude that the Best do not realize more success simply from sheer *numbers of projects*, but by **being more effective throughout the NDP Process. How well an organization implements NPD is as important as what they implement.**

Finally, while only 15% of reporting firms indicated use of an informal NPD process, 30% of firms reported on-going revisions for the process. Slightly over a third of firms revise their NPD processes every two to five years [(1)]. This means that one-in-three companies assume simply putting in place a system for New Product Development is all it takes to deliver profit from their idea-to-market process. If your company falls into the latter third, it's time to take a long, hard look at *how the NPD Process is implemented in your organization!*

Efficient, Streamlined NPD Processes Enable and Empower the NPD Team

Approximately 46% of resources devoted to product development and commercialization go to unsuccessful products and 35% of products launched in the marketplace are commercial failures [(2)]. As a key foundational element for New Product Innovation, efficient and stream-lined NPD Processes enable and empower the NPD Team by allowing effective and efficient research methods within the advantaged market and technology platforms. Holmes and Campbell report that "the only sustainable source of product advantage is a superior product development process [(3)]."

The guru of Stage-Gate™, Bob Cooper, [(2)] also identifies several key points to address in a new product process so that companies can reduce cycle time, improve new product success rates and accelerate innovation efforts. We will examine the NPD Process in light of two of these key points:

- The New Product Development (NPD) Process must be a **quality process**. There is a clear need for a systematic new product process to guide and facilitate the NPD project from idea to launch.
- The process requires a **cross-functional, empowered team** headed by a **team leader with authority**.

A Quality NPD Process

A **quality NPD process** is both **efficient** and **stream-lined** enabling the NPD team to work effectively and rapidly to deliver the new product, service, or program to the market, realizing commercial profitability goals faster. Processes that offer flexibility allow the NPD teams to follow a consistent framework for new product development but don't handcuff the teams into meaningless checklists for the sake of the system. *"Process for process sake can form a deadly trap for a company's improvement efforts [(3)]."*

Some key areas to consider in a quality NPD Process are included in the process workflows.

- **Quantitative checkpoint criteria**, in line with the Business **Strategy** as implemented through the Portfolio Plan.
- Well-defined **management decision processes** capable of quick decisions, made in hours not months.
- A method, preferably paired through Portfolio Management and individual project phase-gates, for continually

linking the **needs of the market** and the customer with the developmental design and **process optimization** decisions.
- The practice of **including all** required functions throughout the entire process.

As discussed when investigating the cornerstone foundation principle of Portfolio Management, implementation of a quality NPD Process requires decision flows that:

1. Use **specific** criteria,
2. Align with the Innovation **Strategy**,
3. Evaluate the **risk** of the project by itself and within the full NPD portfolio, and
4. Enable management to **reallocate resources quickly**.

Holmes and Campbell [3], as well as a recent case study by APQC [4], demonstrate successful product development by managing NPD project decision flows through a set of readiness criteria. One such set of readiness criteria lists:

- Requirements readiness,
- Technology readiness,
- Design readiness,
- Manufacturing readiness,
- Field readiness, and
- Value chain readiness.

Note that these items effectively lend themselves to a Portfolio scorecard methodology as well as checklist determinants for individual project goals at a given NPD stage or phase. Further, assessment of these readiness criteria requires participation of a multi-functional team in both the development and the decision making processes.

The question is not "Did you meet the requirements as specified by the system?" but instead is *"Are you ready to proceed with confidence to the next phase of development?"*

CROSSFUNCTIONAL, AND EMPOWERED TEAMS WORK IN EFFECTIVE NPD PROCESSES

One of the most-cited success criteria for a quality NPD Process is that the process is "institutionalized," throughout the organization – vertically and horizontally. Top management participation in any design or revamp of an NPD Process ensures that the framework matches the company culture and decision flows. Ultimately, the NPD Process must be "owned" by all the practitioners, from senior management to the R&D team lead.

Some key ownership roles are indicated here.

PROCESS CHAMPION	PROCESS SPONSOR	PROCESS MANAGER
• Visible • Trusted • Respected • Admired	• Delivers Resources • Traditional or Divisional Manager	• Promoter • Improver • Defender • Teacher

The **Process Champion** is universally known throughout the organization and is respected and admired by company personnel. He or she pushes the NPD Process as a vehicle for Product, Service, and Program innovation. A Process Champion is not chosen or assigned this role, rather he or she *emerges* as an organization's natural leader.

Process Sponsors are typically pulled from the ranks of Divisional or Departmental Managers. He or she delivers resources (time, money, people, and/or equipment) to the NPD Projects and probably participates in the NPD Process as a gatekeeper or Project Development Manager. The Process Sponsor has considerable influence over *allocation of resources* and is chosen as an individual who will likely

implement more processes or systems within the business in the future.

Finally, the keeper of the NPD Process is the **Process Manager**. He or she is a process expert with primary responsibility to promote and improve the NPD Processes. The Process Manager will instruct NPD Teams on process subtleties and guidelines as well as defending the NPD Process through *proper evaluation of metrics*.

Other roles in the NPD Process include **Project Leader**, Portfolio Manager, Resource Manager, Functional Manager, Gatekeepers, and Process Analyst, not to mention the NPD Team itself! Laying out everyone's **roles and responsibilities** in the Product Innovation Charter (PIC), will empower the NPD Team to stay on track for rapid development whenever they encounter technical choices to meet the complex market requirements. A surprising statistic is that Senior Management supports innovation by ensuring that structure, processes, available resources, and other **organizational mechanisms are in place** to support the NPD Team ***less than 60% of the time*** [(1)].

And, don't forget your **training** efforts – the PDMA study shows that only about one-third of NPD Project Leaders, *many of whom are acting solely in a part-time role*, have had any formal project management leadership training [(1)].

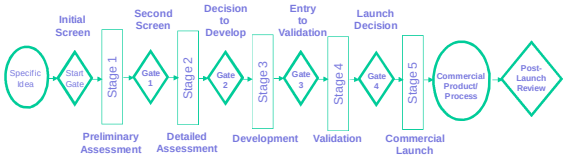
ADAPTING AN NPD PROCESS FOR YOUR NEEDS

Many companies find that customizing the NPD framework for each Business Unit (BU) is an effective way to deliver the quality components of the NPD Process without hindering the research or technical advances of the NPD teams. For example, if your manufacturing company has separate BU for Product Technology and for Operations Technology, consider whether Voice of Customer Market assessments are necessary to implement cost-reduction steps in the Operations NPD Process. In this instance, a plastics producer should ask whether their customers can accept the quality of down-gauging films in order to reduce operations and manufacturing budgets.

In the most simple form, the NPD Process is taking dollar investments in ideas and turning them into sales revenue. Patterson likens the NPD Process to a racing machine: the innovation engine produces the power needed for acceleration (market growth), while operations serves as the drive-train that transforms and delivers this power efficiently to the point where the rubber meets the road – the competitive worldwide marketplace [(5)]. Thus evolves a three-stage system consisting of new idea inputs, value-added development, followed by delivered revenue when the customer purchases the new product.

Other systems, such as Cooper's Stage-Gate™ may include more checkpoints to ensure market demands are continually being met during the new product development.

Regardless, a quality NPD Process that is functioning within the business strategy and yields effective and timely portfolio management decisions will have a framework leading to consistent gate decisions. An example of a multi-stage NPD Process is taken from an APQC [(3)] case study.



Effective NPD Processes

Whatever NPD Process that is used at your company, you should consider periodic evaluations of this process with the chief practitioners to ensure that every system and practice is adding value to the NPD effort. Recall that the average time between system revamps is about 2-3 years. Any system or practice that is slowing down the NPD Process is slowing down your new product development efforts…and slowing down your sales dollar returns on new product innovations!

Action Plan for an Efficient and Stream-lined NPD Process

Assess where your organization's NPD Process is today – map the flow of work, decision structure, and planning for commercialization. Make sure that ideas and market needs are driving the process…and not the other way around! Does your NPD Process consistently deliver sales numbers in line with expectations? What is the mortality rate of a new product idea? How many NPD projects suffer from "late kills"? Is the NPD Process "owned" throughout the organization, both vertically and horizontally? What is the cycle time of a new product, service, or program from opportunity identification to market launch? Are all NPD practitioners and NPD Project Leaders properly trained in the system and management methodologies?

If not, what immediate steps can you take to revitalize and improve your NPD Process? Answers to all of these questions will guide you to revamp an existing process, incorporating quality elements, as well as bringing together the cross-functional teams with decision-making authority to align your NPD projects for highest profitability and return on investment.

Quick Reference Glossary

Check out our website for a quick and easy list of terms used in New Product Development. Some terms used in this article are shown here.

Innovation Strategy – The firm's positioning for developing New Technologies and Products.

New Product Development (NPD) – The overall process of Strategy, Organization, Concept Generation, Product and Marketing Plan creating and evaluation, and Commercialization of a New Product. Sometimes referred to only as "Product Development."

New Product Development Process (NPD Process) – A disciplined and defined set of tasks and steps that describe the normal means by which a company repetitively converts embryonic ideas into salable products or services.

Portfolio Management – A business process by which a business unit decides on the mix of active projects, staffing and dollar budget allocated to each project currently being undertaken. See also pipeline management.

Project Team (or NPD Team) – A multifunctional group of individuals chartered to plan and execute a New Product Development project.

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Global NP Solutions, LLC

About the Author

Teresa is President of Global NP Solutions, LLC, a strategic innovation provider. She is an accomplished visionary and results-oriented professional with extensive industry experience from creative research to effective portfolio management through stream-lined new product development processes.

Prior to founding Global NP Solutions, Dr. Jurgens-Kowal acquired over 12 years of experience in leadership and management positions with ExxonMobil Chemical Company and a total of 16 years as a practicing Chemical Engineer. Her corporate career encompassed various functions, including New Product Development, Portfolio Management, Licensing, Marketing, Logistics and Supply Chain, Manufacturing, Project Management and Research Technology.

Teresa has extensive experience leading successful teams, managing the product development life cycle, and defining the portfolio strategy. Her deep expertise in intellectual property management, product and process licensing, portfolio planning, customer service and various business processes make her an ideal teacher and trusted advisor who knows both the theory and practices of New Product Development.

Dr. Jurgens-Kowal earned a B.S. degree in Chemical Engineering from the University of Idaho in Moscow, Idaho and a Ph.D. in Chemical Engineering from the University of Washington in Seattle, Washington. She is a licensed Professional Engineer in the State of Louisiana since 1998. Teresa is a certified New Product Development Professional (NPDP) by the Product Development Management Association (PDMA) and Global NP Solutions, LLC, is a Registered Education Provider (REP) with PDMA.

Teresa holds chemical process and catalyst patents, and is published in the Journal of the American Chemical Society and Journal of Physical Chemistry.

Currently, Dr. Jurgens-Kowal is working on founding a Gulf Coast Chapter of the PDMA organization. She has an office in Houston, Texas.

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