To: [questionnaire respondent]
Subject: PERFORM project assessment survey

Please find attached the beta version of the project performance assessment, PERFORM. PERFORM evaluates a product development project and seeks to find out what development practices were used during a project. The goal is to determine what processes are most effective to achieve specific project objectives.

We are asking you to use this questionnaire to evaluate your project, [project name]. We want to learn which processes worked well and which did not. Our goal is to learn how we can improve PD at Baxter.

The questions in PERFORM are designed so that you simply mark the scale at the point that best represents your project experience. The text is used to guide your selection. The first column represents a "1," the second a "3," the third a "5," and the fourth a "7." For example, if in your view the project leader was experienced in many technical areas, but needed help in the non-technical areas, check "3" as shown. If you think that the project leader's experience was slightly stronger than that, but not quite a "5," you can mark "4." You don't have to limit yourself to only the numbers shown. For example, it is acceptable to check a location of 5.3.

**1.2 Project leader's experience.**

| Experience limited to narrow product issues, weak in other areas. Needs help and rework very frequently. | Experienced in many of the technical issues, but requires some direction on business, financial and customer issues. Needs help occasionally. | Has managed technical, business, financial and customer issues. Does not need help. | Has a track record of delivering complex technical projects, business, financial, and customer issues. His advice is frequently sought after. |
|---|---|---|---|

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

Groundrules:

- "1" is not necessarily incompetence or worst performance. It gets the job done, albeit with weak results, or in a way you do not want to repeat.
- "3" reflects a competent practice or characteristic.
- "5" reflects an "outstanding" performance, but one that can be achieved with substantial experience, diligence, or training.
- "7" reflects an "exceptional" performance that is very hard to achieve and only a small subset are capable of reaching that level.

Please write any comments you wish to make in the body of the questionnaire. They will help us improve our survey.

Thank you for your time. Your input will be carefully studied. We will report our findings to you and ask for your feedback.

Jane R. Doe

# PERFORM

## 1.0 Leadership

Examines key characteristics of the project leader, power delegated, and whether there is a clear strategic direction for the project

### 1.1 Senior management clarification of strategic intent

Intensity and clarity of senior management communications on the project's strategic intent

### 1.2 Project leader's experience

Scope and experience of the project leader

### 1.3 Power delegated to the project leader

How much power is bestowed on the project leader

## 2.0 Organizational culture

Examines the extent to which management has considered and taken advantage of the established values and assumptions of the people to improve project outcomes.

### 2.1 Cultural Change

The extent to which management takes advantage of culture and tries to improve it

2.1.1 Leveraging organizational culture.

2.1.2 Cultural change management.

2.1.3 Risk taking rewards and incentives.

### 2.2 Teaming

Scope and intensity of teamwork

2.2.1 Teamwork culture.

2.2.2 Internal communications mechanisms.

2.2.3 Customer relationships.

2.2.4 Ties between PD and suppliers.

### 2.3 Innovation

Extent to which innovation and learning are encouraged

2.3.1 Motivating breakthrough ideas.

2.3.2 Pursuit of organizational learning.

## 3.0 Human Resources.

Examines management's actions to improve the skills and the work environment

### 3.1 Project core competency

Scope and depth of technical competency of the PD group

### 3.2 Multi-disciplinary staffing

Extent and strength of the diversity of the skills of the group

### 3.3 Training and education

Scope and intensity of skills development

### 3.4 Work environment

Commitment to workplace, work systems, and employee well-being

## 4.0 Information

Examines treatment of data and information as valuable assets, their quality, and the extent they are systematically collected, shared, and analyzed

### 4.1 Infrastructure and tools.

The scope of physical and non-physical assets and tools for PD

4.1.1 Investments in PD methods, tools, and databases.

4.1.2 Reuse of physical and design assets

4.1.3 Knowledge management system.

### 4.2 Information Analysis

How data and information are used

4.2.1 Use of data

4.2.2 Customer satisfaction data

4.2.3 Use of project performance metrics

4.2.4 Risk management

## 5.0 Product Strategy

Examines the product planning processes and extent to which they promote readiness for development and delivery.

### 5.1 Strategic Objectives

The project's strategic objectives and how they drive the product

5.1.1 Product positioning.

5.1.2 Portfolio of product opportunities

5.1.3 Project linkage to corporate objectives

**5.2 Core concept.**

How the product concept is developed and key considerations in its formulation.

5.2.1 Concept development

5.2.2 Product architecture

5.2.3 Product functional content

5.2.4 Product end-of-life (EOL)

**5.3 Revenue Planning**

Key factors in determining revenue

5.3.1 Knowledge of market potential

5.3.2 Product pricing

**5.4 Technology**

Key factors in managing technology for the product

5.4.1 Forecasting technology

5.4.2 Technology readiness

**5.5 Functional Strategies**

5.5.1 Make-buy decisions

5.5.2 Product service processes

## 6.0 Project Execution

Examines key issues of the product development processes

**6.1 Development Process**

What is the development process and why

**6.2 Responsibilities of team members**

Clarity, scope, and incentives of PD team members

**6.3 Development**

How the product specifications are formulated

6.3.1 Prototype plan

6.3.2 Product attributes and their values

### 6.4 Milestones and Metrics

Key metrics for tracking and measurements

6.4.1 Team productivity

6.4.2 Project financial goals

### 6.5 Schedule Integrity

How project's schedule integrity is maintained

6.5.1 Project delays

6.5.2 Time to Market

6.5.3 Concurrent development

6.5.4 Internal task coordination

### 6.6 Social Responsibilities

How the project meets social responsibilities

## 7.0 Product Delivery

Examines extent to which the project considers manufacturing, sales, service and support; or product "goes over the wall."

### 7.1 Release to manufacturing ramp-up.

How ready is manufacturing for production

### 7.2 Transition to sales

Is the product ready for sales?

### 7.3 Organizational readiness for sales

Is the sales organization ready for the product?

### 7.4 Product Complexity Results

Is service and support groups ready for the product?

## 8.0 Results

Examines the results of the project from multiple dimensions.

### 8.1. Project Financial and Market Results.

8.1.1 Project IRR and NPV

8.1.2 Product volumes.

8.1.3 Product revenues.

8.1.4 Product cost

8.1.5 Product SG&A

**8.2. Project Customer Satisfaction and Loyalty Results.**

8.2.1 Customer loyalty.

8.2.2 Satisfaction with price for value.

8.2.3 Satisfaction with product functionality and performance.

8.2.4 Satisfaction with service and support capabilities.

**8.3. Organizational Effectiveness Results.**

8.3.1 Strategic Intent

8.3.2 Development cycle time and slip rate.

8.3.3 Development budget

8.3.4 Partner satisfaction and loyalty.

8.3.5 Project team morale.

8.3.6 Productivity.

8.3.7 Contribution to knowledge assets.

**8.4. Product Results**.

8.4.1 Product Functions and Performance versus specifications.

8.4.2 Patents and industry awards.

8.4.3 Core technology newness.

8.4.4 Platforming extent.

8.4.5 Manufacturing Complexity

8.4.6 Sales and Service Complexity

**8.5. Project Benchmarking.**

## 1.0 Leadership

This part of the survey examines the project leader's key characteristics, the power delegated to him, and whether senior management has offered a clear strategic direction for the project.

### 1.1 Senior management clarification of strategic intent.

| | | | |
|---|---|---|---|
| Executives' communications are thin and sparse. Project's importance is narrowly defined, vague and left to personal interpretation. Project leader consistently needs executives' help to set direction and priorities. | Executives communicate project's strategic intent, but their actions are not consistent. Project leader has to overcome these obstacles to drive the project. | Executives actively communicate project's strategic intent, reinforced frequently and supported by consistent actions. Makes the job of setting direction and prioritizing easy for the project leader. | CEO and senior management actively communicate the project's strategic intent. This is reinforced by visible actions, rewards and incentives. Consistent message at all levels. |

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### 1.2 Project leader's experience.

| | | | |
|---|---|---|---|
| Experience limited to narrow product issues, weak in other areas. Needs help and rework very frequently. | Experienced in many of the technical issues, requires some direction on business, financial and customer issues. Needs help occasionally. | Has managed technical, business, financial and customer issues. Does not need help. | Has track record of delivering complex technical projects, business, financial, and customer issues. His advice is frequently sought after. |

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### 1.3 Power delegated to the project leader.

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|---|---|---|---|
| Project leader has no real power. Executive micromanagement is visible. Project leader must frequently request approval for simple decisions. | Visible executive support for project when requested. Some senior executives have bought-in, but their visibility is not strong. | Visible and frequent executive support for project initiated by the executives. Have senior executives buy-in and they actively work to form high-majority consensus. | Project leader has final say on all project tradeoffs; senior executives do not and cannot easily subvert or slow down the project. Executives communicate forcefully their trust and confidence in the project leader. |

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## 2. 0 Organizational Culture.

This part of the survey examines the extent to which project management has considered and taken advantage of the established values and assumptions of PD personnel in order to improve project outcomes.

**2.1 Cultural Change.** Evaluate the extent to which management takes advantage of culture and whether it tries to improve it.

### 2.1.1. Leveraging organizational culture.

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|---|---|---|---|
| Not considered high priority. Project does not fit well with the cultural values of the firm; it is a forced-fit that impacts PD in many ways. | Firm's current project and its cultural values are not completely aligned with each other. The project has some difficulty fitting. | Project is aligned with the strategy and values of the firm. | Organizational culture and project are mutually reinforcing. Project promotes the culture and values of the firm and vice versa. |

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### 2.1.2. Cultural change management.

| | | | |
|---|---|---|---|
| Too much complacency. No real vision communicated for the product. No short term wins. Victory declared simply when project is over. Project forced some cultural change, but it was resisted at every opportunity. The project was pushed forward at great effort. | Complacency present in some functional areas. Project forced some cultural change driven by executive levels, but not well enforced down through the organization. Change came about due to project leaders' respect and effort, but change is not sustainable. | No complacency on change. Project forced cultural change championed at the executive level and enforced down through the organization. No product deficiencies due to lack of cultural change. New processes are in place, and enforced. There is a growing group of believers. | No complacency on change. Project drove areas that required cultural change; the remainder is compatible with culture. There are product breakthroughs due to correct areas of cultural change. Organization is now transformed and setting example for the firm. |

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### 2.1.3 Risk taking rewards.

| | | | |
|---|---|---|---|
| System for rewards exists. It is conservative and risk averse. Functional managers allocate rewards, conduct performance evaluations and promotions. | System for rewards exists. Rewards and performance evaluations are determined cross-functionally by functional managers and project champions. | Rewards given for exceeding objectives by virtue of execution excellence. The project champion allocates rewards to the team. Performance evaluations determined cross-functionally by functional managers and project leaders. | Rewards given for exceeding objectives and execution excellence. Some rewards awarded repeatedly for sustained extraordinary impact. Successes driven by outlier events do not diminish or magnify rewards. Evaluations determined cross-functionally by project champion and functional managers. |

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**2.2 Teaming.** Evaluate the scope and intensity of teamwork.

**2.2.1 Teamwork culture**.

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|---|---|---|---|
| Parochial loyalties are deeply rooted. Group interactions are guarded with too many power games. Management intervention needed to make groups work together and resolve disputes. | Intra-functional teamwork exists, but inter-functional teamwork and problem solving need management push. Conflicts remain unsolved too long and require management intervention. | Management has leveraged informal networks to promote cross functional teamwork and problem solving. Conflicts are open, business-like, and readily resolved. | Self-organized cross-functional networks (formal and informal, with customers and with partners) actively promote problem solving. They interact freely, and conflict resolution is fast and effective. |

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**2.2.2. Internal communication mechanisms**.

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|---|---|---|---|
| Communication is inhibited and lacks spontaneity. It is dominated by stylized and formal mechanisms. Informal networks' span is narrow. | Formal mechanisms are in place. Informal networks are more effective, but barely visible to management. | Formal mechanisms in place built by leveraging informal communications networks, are in place. | Formal and informal mechanisms dominate the communications channels. They are open, direct, and honest. There is propensity to listen. |

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**2.2.3 Customer Relationships.**

| | | | |
|---|---|---|---|
| Customers have little contact with the design or development teams. | Customers are visited occasionally, particularly in the up-front activities. | Customers are consulted regularly throughout the development cycle about the product and lifecycle requirements (service, updates, availability, etc.), but do not have a voice in the design decision-making. | Users and customers are co-developers throughout the PD cycle and critics during field operations. They review development specs, field manuals, and key functional strategies. They are readily consulted on unexpected problems. |

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**2.2.4. Ties between PD and suppliers**.

| | | | |
|---|---|---|---|
| Ties are very formal, colored by a zero-sum "we/they" attitude. Mutual trust is minimal. | Ties are formal with informal personal ties. There is sufficient mutual trust and confidence that development proceeds unimpeded. | Both formal and informal ties exist. Suppliers review development specs and key functional strategies. They are consulted on problems. Mutual trust and respect is strong. | Suppliers are co-developers throughout the PD cycle. They define some of the development specs and key functional strategies. They are assigned to solve tough problems. Supplier loyalty is firm. |

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## 2.3 Innovation. Examine the extent to which innovation and learning are encouraged.

**2.3.1 Motivating breakthrough ideas.**

| | | | |
|---|---|---|---|
| **2.3.1 Motivating breakthrough ideas.**<br>PDP innovations occur when management pushes them forward. | Innovations are considered and implemented when it is clear how they will benefit. | Open to PDP innovations; if the benefit is unclear, respect for the project leader will still carry it forward. | Have a management system and culture that promotes fresh ideas. Innovation is prized and rewarded, especially from sources outside their normal expertise. |

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**2.3.2. Pursuit of organizational learning**. Does the organization learn from past projects or does it have to relearn the same lessons with each new project?

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|---|---|---|---|
| Organizational learning begins and ends with personal learning. | There is an information system to capture lessons from prior projects, but it is barely used. | The organization takes advantage of lessons from its latest project and pursues its key people to learn how to apply those lessons to its new project. | The Organization has many formal and informal incentive mechanisms. Effective practices are readily adopted by organization. A High percentage of employees reads journals, books and trade press. |

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## 3.0 Human Resources. This part examines the work environment, skills of the organization, management's commitment and actions for improvement.

### 3.1 Project core-staff competency.

| | | | |
|---|---|---|---|
| Staff understands limited to narrow product issues, weak in other areas. Group needs help and reworks tasks very frequently. | Staff is capable of solving problems in their domain. Needs help occasionally. | Core staff has experience from previous projects, is equipped with advanced degrees, and is able to provide and guide others. Staff does not need help. | Core staff has demonstrated capability in many breakthrough concepts. Has 10 years experience and is equipped with advanced degrees from top institutions. Staff's advice is frequently sought. |

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### 3.2 Multi-disciplinary staffing.

| | | | |
|---|---|---|---|
| We had staff from as many non-engineering disciplines as we could get, but it was not enough. | For every team of a few dozen, there was one marketing person, one industrial designer, and a few production engineers involved. | For every two dozen engineers, there were two marketing persons, 2 industrial designers, 2 systems engineers, and 8 test engineers. | The team was fully loaded with non-engineers for disciplines needed as determined. |

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### 3.3 Training and education.

| | | | |
|---|---|---|---|
| Training is limited to on-the-job learning. | Delivery pressures limit scope and extent of training. Training and education constantly limited by other budget priorities. Technical effectiveness and proficiency measurements are subjective. | Senior executives, functional managers and project champion are committed. Training is fully funded and effectiveness is measured. Product delivery pressures do not circumvent training. | The organization's culture values technical proficiency. Training is fully funded, is never an issue, and effectiveness is measured. Product delivery pressures do not circumvent training. Training includes partners. |

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### 3.4 Work environment. Commitment to work place, work systems, and employee well being.

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|---|---|---|---|
| Focus is on maximizing work output. Employee well-being, satisfaction, and services are a low budget priority. | Focus is on maximizing work output, but with a concern for morale. Enough attention to employee well-being, satisfaction, and services to avoid high turnover. | Focus is on high performance and high morale. Initiatives are in place to support employee well-being and satisfaction in order to sustain productivity, quality, and morale. | Recognized as an industry leader. The organization's policy addresses workplace, systems, and programs for employee well being and satisfaction. Focus is also on the well being of the community. |

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## 4. Information.

This part of the survey examines whether data and information are treated as valuable assets and the extent to which they are systematically collected, shared, and analyzed.

### 4.1 Infrastructure and tools.

**4.1.1 Investments in PD methods, tools and data-bases**.

| | | | |
|---|---|---|---|
| PD Methods, tools, and DB are a low budget priority. They retard progress. IT infrastructure is inconsistent with the project. IT is always behind, and too many PD resources are diverted and spent on IT. PD has to develop many of the tools required. | Methods, tools, and DB are sporadically improved and created. IT infrastructure and support are adequate for the project, but some PD resources are spent on IT. All need improvement. PD has to justify to management the acquisition of key tools. | Methods, tools, and DB are continuously improved and created. IT infrastructure fits the project and works to support it; it is generally timely, with some priority conflicts. PD progress not inhibited by tools and their support. | Methods, tools, and DB are the envy of the industry. IT infrastructure is tailored for the project. IT support is dedicated to the projects, and not vice versa. Domain experts identified and assigned to support PD. |

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**4.1.2 Re-Use of physical and design assets**.

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|---|---|---|---|
| Re-use is not actively addressed. | The goal of re-use is driven by cost only. Engineering managers are given targets for the re-use of electrical and mechanical design, software, packaging, purchased parts, test programs and test equipment. | The product architecture enables re-use that optimizes cost. From this a re-use target is established for electrical and mechanical design, software, packaging, purchased parts, test programs and test equipment. | Product families are established on architectures. Re-use also includes subsystems and their ability to interoperate. This analysis is used to target and maximize the reuse of systems, software, test programs, and hardware assets. |

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**4.1.3 Knowledge management system.** Is knowledge in the organization captured only by individuals, or is there a way that it is stored and usable by all?

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|---|---|---|---|
| Capturing and cataloguing project's knowledge assets are a low priority activity. Past project info is not easily accessible for probing questions. Project knowledge begins and ends with personal knowledge. | Capturing and cataloguing project's knowledge assets are done as deemed necessary by the project leader for sharing within the team. Past project info not really accessible. | Standard practices include efficient means to naturally capture and catalogue project's knowledge assets for the team. Past project info is accessible, but hard for probing questions. Experts who can help are informally known to people. | Project's knowledge assets are systematically captured and catalogued. Past project info is easily accessible for probing questions. Formal knowledge communities exist and are available to share and expand knowledge. |

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## 4.2 Information Analysis. Evaluate how data and information are used.

### 4.2.1 System of data collection, management, and usage.

| | | | |
|---|---|---|---|
| There is such a system, but for a variety of reasons, large volumes of data remain unused or ignored. Personal libraries and collection mechanisms dominate the practice. | There is such a system and it provides large volumes of data. Senior managers have budget to collect more data and develop local expertise. | Such a system exists. Senior managers budgeted to collect more data and develop local expertise. Members must share expertise via reports, on demand consultations, etc. | Such a system exists. Senior managers budgeted to collect more data and develop local expertise. System highly integrated with learning, knowledge, and information tools and processes. |

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### 4.2.2 Customer satisfaction data.

| | | | |
|---|---|---|---|
| Data is anecdotal or generic making it difficult to react and improve customer satisfaction. A large effort is needed to improve the accuracy and completeness of the data in order to make it useful. | Customer feedback, warranty and repair data is made available by the sales and service staff. System promotes extended enterprise communications with customers. | Customer feedback, warranty and repair data is made available in reports, documented and structured. System promotes customer extended enterprise teamwork to make the project succeed | Web site exists for customer feedback. Warranty and repair data is also on-line and easily available for use by product development teams and functional groups. Customers and partners readily provide proprietary data for their mutual benefit. |

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### 4.2.3 Use of project performance metrics. Examines the quality of project operational data and how it is used.

| | | | |
|---|---|---|---|
| Use is dominated by corrective actions and surprises. Metrics are tracked or measured, but not always consistently. People are not well informed about the project's progress. Data accuracy and completeness is lacking. | Use includes proactive actions. Metrics are regularly measured and reviewed by management. People and management are kept informed of project's performance. Data requires and effort to improve accuracy and completeness. Usage is isolated in functional silos. | Bias is to proactive actions, team morale and learning. Many metrics are derived from predictive models. Metrics are tracked regularly. Key customers and partners are kept informed. Operational data is readily usable and it is accurate and complete. | Bias is to proactive actions, morale, learning, and knowledge capture - in the firm, with lead users and with partners. Metrics are available on line, always measured and reviewed against corporate objectives. Usage promotes cross-functional teamwork. Data can be trusted. |

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**4.2.4 Risk management analysis.**

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|---|---|---|---|
| Uncertainties and risks are barely considered. Uncertainly and risk mitigation is not part of the process and neither is robustness. | Few uncertainties and risks are characterized and most remain vague. Some plans exist to address the risks. Robustness is not part of the process. | Many uncertainties and risks are characterized. Based on this, plans are formed to ensure robustness. | Key uncertainties and risks are characterized. Sensitivity analysis is done to identify key sources of risk. Based on this, plans are formed to ensure robustness. |

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## 5.0 Product Strategy

This part of the survey examines the product planning processes and the extent to which they promote readiness for development and delivery.

### 5.1 Market Analysis

#### 5.1.1 Product positioning.

| | | | |
|---|---|---|---|
| Product is positioned in a replacement business. Specifications are determined with no direct links to customer needs. | Product positioned as improvements for the current customer base. | Product positioned to new markets, with strong competitors. New growth opportunities, buying behavior, and market evolution are characterized. Product definition is differentiated and competitive. | Product and its derivatives are targeted for market creation in the industry. Product is unique – there are no competitive products or precedents. All key functions and processes are realigned for this product. |

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#### 5.1.2 Portfolio of product opportunities

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|---|---|---|---|
| Current offerings and customers dominate the organization's view of opportunities. Portfolio planning is ad-hoc and informal led by a single function. Consistent methods and business processes are sparse. | A collection of product families exists. They are rationalized qualitatively, by organizational structure and product managers. There is financial planning and roll up, but no real portfolio optimization. | A collection of product families exists. Finance and product managers plan and manage revenue and profit. Optimization done through simple scenarios and a handful of alternative cases. | Portfolio decisions drive new product development. Portfolio planning linked to market, business, and functional strategies. Its methods are quantitative and qualitative engaging senior executives and PD managers. |

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#### 5.1.3 Project linkage to corporate objectives.

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|---|---|---|---|
| Most of the project's benefits are vaguely mapped onto quantifiable business objectives and goals. Many inconsistencies remain with no plans for their resolution and are left to personal interpretation. | Many of the project's benefits can be mapped onto quantifiable business goals and objectives. Remaining inconsistencies are known but avoided and deferred for later resolution (no comeback dates are defined). | Project's benefits are explicitly mapped onto key quantifiable business goals and objectives. Mission and goal inconsistencies are known and delegated with due dates for resolution. | All project benefits are explicitly and comprehensively mapped onto key quantifiable business goals, objectives, and business initiatives. Few and only trivial mission and goals inconsistencies remain open. |

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**5.2 Core concept.** Evaluate how the product concept is developed and the key considerations in its formulation.

**5.2.1 Concept development.**

| | | | |
|---|---|---|---|
| Brainstorming sessions were held. | Participation in concept development is limited to a very small group. Concepts are extensions of existing products. Bold ideas are not adequately considered. Concepts are shown to customers after the fact. | Concept development is unconstrained. Uses generation tools and methods with broad participation from key functions. Options are explored with lead users and partners. Industrial design is a key consideration. | Brilliant people with proven track records are given unconstrained freedom to create concepts. Concept space is large and down selection systematic. Concept development relies on broad internal and external participation. |

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**5.2.2 Product architecture**

| | | | |
|---|---|---|---|
| Consideration is limited to the single product. | There is a product architecture that considers future upgrades and derivative products. | Architectural integrity is enforced in product design and system validation. Architecture reinforces brand identity. | Architecture is a strategy issue determined by senior executives. Architecture addresses all key functions of the firm. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**5.2.3 Product functional content**

| | | | |
|---|---|---|---|
| Largely driven by extensions of existing products and customer complaints. | Largely derived from extensions of current products and product family consistency. Known customer base and competitors shape content. | Driven by market segment needs, strategic positioning, architecture, and input from benchmarks. Use of repeatable methods is made to prioritize and determine value to customers and to the firm. | Markets new to the firm and to the industry shape content. Architectural advantages leveraged. Functional content sets new level of competitive advantage. |

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**5.2.4 End-of-Life strategy (EOL).**

| | | | |
|---|---|---|---|
| Do not have an EOL strategy process. Surprises from competitors drive product withdrawals. | EOL is reactive. React to technology maturation, deceleration of sales and profit, and increasing competitive pressure. | EOL is opportunistic. Ready with new product at early signs of technology maturation, deceleration of sales and profit, and increasing competitive pressure | Business strategy and corporate goals set EOL. EOL is planned by architecture, technology, and pricing. No problem cannibalizing any existing product. |

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**5.3 Revenue Planning.** Evaluate the key factors that determine product revenue flow.

**5.3.1 Knowledge of market potential**

| | | | |
|---|---|---|---|
| Market potential determined from historical sales data and sales of known competitors. | Market potential determined from expected sales of product line extensions and from currently served market segments. PD uses momentum models. | Forecasts of industry and market growth, adoption curves, pricing and revenues are considered. Focus on key competitors' future actions. Some formal models used. | Product used to create a new market. Knowledge of market growth and acceleration is more important than potential size of the market. |

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**5.3.2 Product Pricing strategy.**

| | | | |
|---|---|---|---|
| Momentum pricing. Target price is determined by ensuring consistency with the current and to-be-replaced product offers. | Price to competition. Target price is determined through positioning analysis against competitor product offers. | Price to customer preferences. Use front-end consumer analysis methods, such as conjoint studies, to establish target price, consistent with the desired competitive market position of the product. | Price to customer value. Use EVA to price the product. Analyzed with lead users' usage within their business processes. Pricing consistency with strategic intent is validated. |

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**5.4 Technology.** Evaluate the key factors in managing technology for the product.

**5.4.1 Forecasting Technology.**

| | | | |
|---|---|---|---|
| A technology follower - new technology adopted only when widely adopted in the market. Uses familiar and mature technology, reuses known manufacturing processes. | Technology forecasting based on capabilities of the organization and knowledge of the state-of-the-art. Capabilities determine adoption and competitive pressures trigger make/buy decisions. | Technology and manufacturing roadmaps with a competitive lead are defined. Work is done with customers to understand technologies. New product pipeline planning considers this when scheduling development activity. | Have preemptive roadmaps in technology and manufacturing. Technology is validated in lead user application environments. IP control points identified. Sustaining and disruptive technologies and synch PD against P/P half life. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

### 5.4.2 Technology readiness

| | | | |
|---|---|---|---|
| Determined by technology demonstrations under controlled environments. Executive fiats influence timing of technology transfer to PD, and require large engineering resources to make ready. | Readiness is joint effort between scientists and PD. Transition to PD is rocky. PD invests substantial resources to stabilize technology for transfer to PD. | Readiness is determined by internal simulation and application in prototype systems. Customers and partners are consulted. Readiness is a joint process between engineering, technologists, and manufacturing. | Readiness is determined by actual application of the technology in final form, in a stressed system and in actual customer environments. Products used are from actual short run manufacturing lines. Readiness is a joint process between engineering, technologists, and manufacturing. |

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## 5.5 Functional strategies.

### 5.5.1 Make-buy decisions

| | | | |
|---|---|---|---|
| Dominated by tactical and ad-hoc considerations, without considering strategic implications to the firm. | Process is led by product planning and principally determined by engineering and cost reasons. | There is a cross-functional team to ensure PD, manufacturing, and finance are considered. Customers and partners are informed. Scalable parameters are identified which provide a range of applications for the technology. | Considered a strategic decision. Deliberated with senior executives to consider architecture, IP, manufacturing, finance, strategic and competitive implications to the product. Full critical parameter model developed, including scalable and sensitive parameters. |

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### 5.5.2 Product service processes. .

| | | | |
|---|---|---|---|
| Not a high priority for product design. Process concentrates on costs rather than customer satisfaction. Service is viewed as a “downstream” issue. | Engineering leads the process and brings in the service groups to ensure that the product design addresses serviceability and support issues. | There is a cross-functional team to ensure product design, manufacturing and finance address serviceability and support. Customers and partners are informed. | Process includes a cross-functional team that includes customers and partners to ensure product design, manufacturing, and finance address serviceability and support. |

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## 6.0 Project Execution. This part of the survey examines key issues of the product development processes.

**6.1 Development process.** Evaluate what best characterizes the development process.

| | | | |
|---|---|---|---|
| The project did not follow a standard process. | A standard process with no changes is used. Go/no-go decisions were made at each phase gate. Decisions were passed that should not have been passed. | Well defined go/no-go criteria exist at each phase gate. Measured plan-variances, assessed their overall effects, and specified contingency plans to reduce risk. | Standard process was redesigned for this project by the project champion and core team who have proven competence and a successful track record. |

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**6.2 Responsibilities of team members**

| | | | |
|---|---|---|---|
| Narrowly defined, largely at the task level. For many, it is difficult to link their work to the overall project mission. There is micromanagement, slow decision making, and false starts. | Team members understand their roles and responsibilities. They know how their work promotes the project's mission. There is respect for multifunctional views. | Team roles and responsibilities are determined through extensive discussions among management and employees. How to meet project goals is delegated to the project leader. Suppliers and partners review and comment. | Determined via extensive discussions at all levels with participation from suppliers and partners. Strong power delegated to project leader. Most have a desire to go beyond the job descriptions. All know their role and responsibilities relative to key functions. |

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**6.3 Development.** Evaluate how the product specs are formulated.

**6.3.1 Prototype plan.**

| | | | |
|---|---|---|---|
| Subsystems developed and integrated into the product. **Alpha** prototype worked in a controlled environment. **Beta** prototype developed using parts from real tooling, and the prototype worked as expected in a controlled environment. | Subsystems developed and debugged. Manufacturing suppliers are consulted and standard tolerances used. **Alpha** prototype worked as expected. **Beta** prototype developed using parts from real tooling and system integrated from short runs, and the prototype worked as expected. Key tolerances assigned. Design consults with production, service, and sales on their development efforts. | For **alpha**, developed architecturally consistent and robust subsystems for system integration. Explicit key dimensions were used. Prototypes worked in wide range of conditions. **Beta** uses critical parameters management and robustness for key dimensions and tolerances. Test customers used short runs made using real tooling. Prototypes work. Manuals, sales and service plans proceed concurrently. | **Alpha** prototype was fully functional under a range of conditions. Lead users have alpha units. All learned product features and customer operation changes by doing. Critical parameters were validated using the alpha. For **beta**, lead customers, given short run prototypes, work at the development site to test performance and usability. Design, service, production and sales all use the beta to validate their plans. |

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**6.3.2 Product attributes and their values.**

| | | | |
|---|---|---|---|
| Process is dominated by current products, engineering doability, and costs. | Process considers current products strengths and weaknesses relative to its key competitors. | Process based on consumer preference methods, such as conjoint studies, to select product attributes and their values. | Process considers consumer preferences and EVA in their use environment. Validated with lead users and suppliers. Cost benefit analysis performed using quantified value propositions and models. |

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**6.4. Milestones and metrics.** Tracking, measurements, and actions.

**6.4.1 Team productivity.** Examine processes and methods used to measure PD productivity and the type of actions planned and taken.

| | | | |
|---|---|---|---|
| Have aggregate measures, which are difficult to diagnose for corrective and proactive improvement actions. Total project hours and errors are obtained with great difficulty. | Productivity and total project error data were collected and analyzed against historical norms. Heuristics are relied upon and there is limited use of predictive modeling. | Productivity is measured and tracked using analytical models that permit proactive action. Information is available on-line for management review and queries. | Productivity measured and tracked with predictive models for proactive actions. Information is available on-line for management and key team members' review and queries. Information is also linked to other functional systems for a complete picture of project productivity. |

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**6.4.2 Project financial goals.**

| | | | |
|---|---|---|---|
| Meeting the project's financial goals is led by finance with participation of PD and other key functions. PD role is passive other than meeting budget and product cost. | Finance has the lead to ensure project meets financial goals. PD's financial metrics are budget and product cost. Can comment, but have limited power on sales, distribution, and service expense strategies and tactics that influence financial goals. | PD is part of a formal multi-functional group that addresses financial issues. PD's responsibilities are budget and product cost. PD is also in a group that addresses sales, distribution, and service expense strategies and tactics. | Financial goals were determined through options-assessment and flexible planning during the development cycle. |

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### 6.5 Schedule Integrity

Evaluate how the project's schedule integrity is maintained.

#### 6.5.1 Project delays.

| | | | |
|---|---|---|---|
| Delays ranging from small to 100% are common. | Monthly review meetings are held to monitor delays and take action. Key dependencies informed of status of delays. | Have weekly review meetings to monitor delays and take action. Meetings and actions coordinated with key functional dependencies. | Daily updates to project plan and to take action among PD and functions. Project slips measured versus commitment at project funding time - not just versus most recent revised schedule. |

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#### 6.5.2 Time to Market (TTM). Evaluate how well TTM is managed

| | | | |
|---|---|---|---|
| TTM not controlled versus product specs. Product goes to market when development is complete. | TTM controlled by inflating schedules with large buffers. When buffers are exhausted, forced overtime and additional people are placed on the project. | Have flexibility to cut functions to meet delivery or version product to meet schedule. Knowledge of market and competition are able to minimize market impact. | TTM addressed by concurrent development and co-development with customers and partners. |

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#### 6.5.3 Concurrent development. Evaluate whether concurrent development is being implemented

| | | | |
|---|---|---|---|
| Functional silos connected by specs and very formal meetings. | Have functional orientation with informal and personal cross functional relationships to work out dependencies and concurrencies. | Formal cross functional groups organize tasks for maximum concurrency. | Strong cross functional teams led by experienced project leader. Leader supported by motivated and skilled functional participation. |

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#### 6.5.4 Internal task coordination. Evaluate the mechanisms for internal coordination

| | | | |
|---|---|---|---|
| More time spent in meetings than product development. Many surprises at all levels of the organization. | Use specs between silos for task coordination. Personal initiative and informal relationships help close many gaps but cannot prevent surprises. | Formal specs and formal cross functional meetings used to discuss dependencies, timing, and content of task coordination. | Information handoffs include detailed walkthroughs of specs, functions and dependencies. Results are reflected in extended task mapping documents. |

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**6.6 Social responsibilities**. Evaluate whether the project meets social responsibilities.

| | | | |
|---|---|---|---|
| Product meets minimum legal requirements. | Product meets all legal requirements and exceeds in many areas. | Product meets all legal requirements and exceeds in many areas. Manufacturing meets and exceeds many regulatory standards in environmental compliance. | Product leads in meeting legal requirements and environmental compliances relative to its leading competitors. Product has proactively addressed many social responsibility issues not in statutes or regulations. |

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## 7.0 Product Delivery.

This part of the survey examines the extent to which manufacturing, sales, service and support are considered in product development. Does the product "go over the wall"?

**7.1 Release to manufacturing ramp-up**. Is manufacturing ready to commit production?

| | | | |
|---|---|---|---|
| Manufacturing commits to the product and ramp-up plan, both of which contain many qualifications and contingencies for PD, other key functions, and suppliers. | Manufacturing commits to the product and ramp-up plan with negotiated engineering assistance during early production and relief /slack from other key functions and suppliers. | Manufacturing, development and suppliers have proceeded in parallel development for some time. Manufacturing commits to the product without reservation and with support from other key functions. Critical parameters identified. | The release to manufacturing is a non-event; manufacturing has been developing (with suppliers) their systems for some time and is well prepared to ramp-up with credible plans. Critical parameters quantitatively related to requirements and scalable parameters are identified. |

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**7.2 Transition to Sales**. Is the product ready for sales?

| | | | |
|---|---|---|---|
| Sales organization develops sales plans when PD "releases" to sales. Readiness takes great effort. Sales presence is largely absent during PD cycle except when the product is tossed "over the wall." | Sales participates in all key review checkpoints during PD. Sales has reviewed and critiqued the product specs and prototypes during PD. | Product validated with lead users and beta customers with sales groups as full-fledged team members. Sales is confident of the product and its ability to perform in customer environment. | Product readiness is a non-issue. Sales has been a co-developer from the concept development stage. Product issues from sales are resolved as they arise throughout development. |

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**7.2 Organizational readiness for sales.** Is sales organization ready to commit?

| | | | |
|---|---|---|---|
| Sales commits to units, revenue, and expenses after negotiating technical support from development, pricing flexibility from finance, delivery from manufacturing and other issues from key functions. | Sales commits to units, revenue and expenses with negotiated engineering assistance during early customer usage. | Sales and development have proceeded in parallel for some time. Sales commits without reservation – conflicts were resolved during development. | Sales readiness is a non-issue. Sales persons, systems, campaigns, and service and support are all coordinated. Sales has been an integral part of development along with other key functions. |

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**7.4 Service and Support (S&S) complexity.** Are the service and support groups ready for the product?

| | | | |
|---|---|---|---|
| PD concentrates on function and performance, not service and support, which are viewed as "downstream" responsibilities of other functional groups. | There is a formal PD process that brings in the service and support groups to ensure design addresses serviceability and support. The functions have equal clout. | Cross functional team that includes customers has been working on this issue early in the process. Customers review S&S specs and comment. | Service and support has been part of the beta prototype testing with lead users to refine S&S strategy and plans. This issue has strong support from project leader. |

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## 8.0 Results .

This part of the survey examines the PD results from five perspectives: financial, customer satisfaction, organizational effectiveness, product, and benchmarking.

### 8.1. Project Financial and Market Results.

#### 8.1.1 Project IRR and NPV

| | | | |
|---|---|---|---|
| Project does not meet IRR and NPV financial metrics even after many retargeting decisions and many other accounting and financial adjustments. | Project meets IRR and NPV financial metrics after some accounting and financial adjustments. | Project meets IRR and NPV metrics as committed during project funding. | Project exceeds IRR and NPV metrics committed during project funding. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

#### 8.1.2 Product volumes.

| | | | |
|---|---|---|---|
| Product volumes below forecast established during funding stage. | Product volumes on track with forecast established during funding. | Product volumes exceed forecast established during funding. | Product volumes far exceed forecast established during funding. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

#### 8.1.3 Product revenues.

| | | | |
|---|---|---|---|
| Product revenues below forecast established during funding stage. | Product revenues on track with forecast established during funding. | Product revenues exceed forecast established during funding. | Product revenues far exceed forecast established during funding. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

#### 8.1. 4 Product costs.

| | | | |
|---|---|---|---|
| Product costs do not meet the plan established during funding, and its negative impact is visible in the product's financial performance. | Product costs on track with the plan established during funding. | Product costs meet all, and even exceed some performance targets established during funding. | Product costs' performance far exceeds the plan established during funding and the positive impact is visible in the product's financial position. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.16 Product SG&A.**

| | | | |
|---|---|---|---|
| Product's SG&A does not meet plan established during funding and the negative impact is visible in the product's financial performance. | Product's SG&A on track with plan established during funding. | Product's SG&A meet all, and even exceed some performance targets established during funding. | Product's SG&A performance far exceeds the plan established during funding and the positive impact is visible in the product's financial position. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.1.7 Product's Market share in revenue.**

| | | | |
|---|---|---|---|
| Product's revenue market share trends show market share is decreasing in key targeted segments specified funding stage of base plan. | Product's revenue market share trends show market share is uneven in target markets specified during funding stage of base plan, but adequate in aggregate. | Product's revenue market share trends show market share is increasing in many key segments established funding stage, and increasing in aggregate versus base plan. | Product's revenue market share trends show product has established a new market segment and its share growing dramatically. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.2. Project Customer Satisfaction and Loyalty Results.**

**8.2.2 Customer loyalty.**

| | | | |
|---|---|---|---|
| Customers are displacing the product with competitor's products at an increasing rate. They are not recommending the product to others. | Customers will consider competitive products for repurchase. They recommend the product with some qualifiers. | Customer's repurchase rate is exceeding forecast. They recommend the product when asked. | Customer's repurchase-rate is exceeding expectations by a wide margin. Without prompting, they are visibly endorsing the product in important forums. |

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**8.2.4 Satisfaction with price for value.**

| | | | |
|---|---|---|---|
| Customers consider the product to be overpriced for the value they are deriving from its use. | Customers consider the product price to be fair considering the value they are deriving from its use. | Customers consider the product price to be attractive due to the value they are deriving from its use | Customers consider the product price to be an extraordinary value due to the unique benefits they are deriving from its use. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.2.5 Satisfaction with product function and performance.**

| | | | |
|---|---|---|---|
| Customers consider the product's function and performance to be disappointing. | Customers consider the product's function and performance to be acceptable and to have met their expectations. | Customers consider the product's function and performance to have exceeded their expectations. | Customers consider the product's function and performance to have created unprecedented and extraordinary competitive advantages. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.2.6 Satisfaction with service and support.**

| | | | |
|---|---|---|---|
| Customers consider the product service and support to b e disappointing. | Customers consider the product service and support to be acceptable. Overall, their expectations have been adequately met. | Customers consider the product service and support to have exceed their expectations. | Customers consider the product service and support to be surprisingly competent and efficient considering the unprecedented functions and applications of the product. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

## 8.3. Organizational Effectiveness Results.

Evaluate the operational effectiveness of the project's PD organization.

**8.3.1 Strategic Intent.**

| | | | |
|---|---|---|---|
| This product did not help the strategic and competitive position of the firm. | This product maintained the strategic and competitive position of the firm. | This product improved the strategic and competitive position of the firm. | This product redefined the strategic and competitive position of the firm. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.3.2 Development time and slip rate.**

| | | | |
|---|---|---|---|
| Project slipped from original schedule committed during funding. Management intervention, descoping, and additional resources were required. | Project missed milestones committed during funding by small and acceptable margins. Needed some management intervention and incremental resources to maintain scope and schedule margins. | The project was completed on time and met every schedule milestone defined during funding. No management intervention was required. | The committed during funding. Project beat the every schedule milestone. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.3.2 Development budget and schedule**

| | | | |
|---|---|---|---|
| Project slipped from original schedule and overran budget. Management intervention, descoping, and additional resources were required to keep revised schedule on time. | Project missed milestones and budget by small yet acceptable margins committed during funding. Some management intervention and incremental resources to maintain scope and schedule margins were needed. | The project was completed on budget, on time, meeting every milestone, and without any slips. No management intervention was required. | The project beat the budget and every schedule milestone. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.3.3 Partner satisfaction and loyalty.**

| | | | |
|---|---|---|---|
| Key partners have discontinued their business relationship. Having difficulty recruiting new ones. | All things considered, partners are satisfied and loyal. | Partner's satisfaction and loyalty exceed targets. They recommend our firm. No difficulty finding new candidates. | Partner's are excited and enthusiastically recommend our firm. New candidates competing to become business partners. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.3.4 Project team morale.**

| | | | |
|---|---|---|---|
| The project team morale is low. Staff and management turnover and absenteeism are high. Staff and management recruiting was difficult. | The project team morale is acceptable with some exceptions. Staff and management turnover is acceptable. | The project team morale is high and surveys support this fact. Staff and management turnover is low. Recruiting is easy. | The project team morale and excitement are high and surveys support this fact. Staff and management fight to join the project. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.3.5 Productivity.**

| | | | |
|---|---|---|---|
| Project team's productivity did not meet its objectives. Productivity deficits visibly affected the financial measures or the schedule. | Project team's productivity indicators meet their targets within adequate margins. Productivity deficits' impact on financial measures and the schedule are within adequate margins. | Project team's productivity indicators meet and exceed most of their targets. Productivity results in incremental improvements in financial measures and the schedule. | Project team's productivity indicators exceed all key targets. They do so sufficiently to have a positive and visible impact on financial measures and schedule. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.3.6 Contribution to knowledge assets.**

| | | | |
|---|---|---|---|
| We have project documents in the archives. | We did a lessons learned. | Lessons learned are actioned. Process was changed and information improved. We now prevent a failure from occurring. | Lessons, actions, process, and information improvements now transformed organizational processes and information in fundamental ways. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

## 8.4. Product Results. Evaluate the mechanical complexity of the resulting product.

**8.4.1 Functions and Performance versus specifications.**

| | | | |
|---|---|---|---|
| Product missed key specifications committed after beta prototype. Many renegotiations are required to continue development. These negotiations are impacting financial performance and customer/partner satisfaction and loyalty. | Product meets specifications committed after beta prototype. Minor renegotiations are required to adjust specifications to continue development. | Product exceeds specifications. Product is competitive. No negotiations are required to adjust specifications to continue development. | Product's specifications are setting industry de facto standards. Product is widely imitated. Positive impact visible in financial performance and customer and partner propensity to recommend the product. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.4.4 Industry awards.**

| | | | |
|---|---|---|---|
| No industry awards for this product. | No industry awards for this product. Mentioned in the trade press, but barely visible in analysts and consultant's reports. | Few industry awards, but many visible and favorable industry reports for the product. | Prestigious industry awards for the product. Me-too imitators appearing. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

**8.4.5 Core technology newness.**

| | | | |
|---|---|---|---|
| Cost reduction or product repositioning, update. | New to the firm. Competitor already offers technology in this market. | Technology exists and is implemented in completely different types of products. New to the market. | Technology is entirely new, has never appeared in any type of product sold in the market. The technology is fresh out of the research lab and is causing competitive disruption. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

#### 8.4.6 Platforming extent.

| | | | |
|---|---|---|---|
| Project considered only the single product. | Project considered accommodating future derivatives and/or updates. There is a planned architecture. | Project developed multiple variants. Full platform development for a product line. The architecture is developed along product variants. | Project developed multiple variants and accommodated future technologies requiring architectural changes. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

#### 8.4.7 Manufacturing Complexity

| | | | |
|---|---|---|---|
| Negligible changes were made to the manufacturing processes. Small adjustments in vendors, tools, and parts, but fundamentally very familiar and used before. | Minimal new parts, vendors, custom parts, tools, materials, and small process changes introduced to manufacturing. New skills training is localized and for small groups. | New parts, vendors, custom parts, major tools, materials, and redesigned processes introduced to manufacturing. Specialized skills development and training are required. | Large number of new parts, new vendors, new custom parts, major retooling, new materials, and new and redesigned processes introduced to manufacturing. Large range of skills training and education required. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

#### 8.4.8 Sales and Service Complexity

| | | | |
|---|---|---|---|
| Sales and service approach unchanged. Product sales based on cost reductions, update, or similar repositioning to slow down customer defections. | Sales and service approach largely unchanged, but tuned and adjusted in order to maintain customer base against competitors. | Sales and service approach redefined to showcase product's function, performance, and technology in order to expand existing market share. | Product's unique value proposition and functionality required new sales and service processes to expand market share and occupy new market segments. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----

### 8.5. Project Benchmarking.

#### 8.5.1 Benchmarks.

| | | | |
|---|---|---|---|
| Benchmarks only occasionally done. Results show that the product is under performing versus its key competitors in many key measures. | Benchmarks show that the product is about equal to its key competitors in key measures. | Leading product development organizations benchmark their products against yours. Product is used as a model of best of breed. | Industry, standards groups, and PD groups seek to study your product, PD practices and organizational issues to develop PD norms and de-facto standards. |

--------→1 -------→ 1.5 -------→ 2 -------→ 2.5 -------→ 3 -------→ 3.5 ------→ 4 -------→ 4.5 -------→ 5 -------→ 5.5 ------→ 6 -------→ 6.5 --------→ 7 -----