

# **SPOTS Assessment Questionnaire**

## **Joe Tidd**

### **A COMPOSITE FRAMEWORK OF CONCURRENT PRODUCT DEVELOPMENT**

This is a highly abridged version of the SPOTS Diagnostic questionnaire for illustration only. The full version contains 184 firm-level and 114 project-level measures.<sup>1</sup>

For each of the questions rank your home organization on a scale of 1 – 5 as follows:

- 1 = rarely (0-19%)
- 2 = sometimes (20-39%)
- 3 = about half the time (40-59%)
- 4 = often (60-79%)
- 5 = nearly always (80-100%)

We are trying to identify actual practices, not policy or aspirations, so please respond based on *your* experience or perception. For each heading we will calculate the average score and plot it on the radar chart.

<b>2. STRATEGY FORMULATION</b>
2.1 In formulating strategy, we use benchmark information on our competitors & best-in-class companies
2.2 Our business strategy is closely related to our core competencies
2.3 Strategy formulation is an iterative process, with lower levels & diverse functions participating
<b>3. PLANNED OPPORTUNISM</b>
3.1 Our innovation focus is primarily on the rapid, reiterative redesign of existing products
3.2 We use product platforms to make a greater variety of products from different combinations of standard components
3.3 Our strategy emerges from ongoing opportunities and changes constantly
3.4 Our strategy is a blend of what was planned and what emerges

<sup>1</sup> For further details of the SPOTS model see:  
Tidd & Hull (2010) in G. SALVENDY & W. KARWOWSKI (Eds.) *Introduction to Service Engineering* (Wiley)  
Tidd & Hull (2006), 'Managing Service Innovation: The need for selectivity rather than 'best-practice', *New Technology, Work and Employment*, 21(2), 139-161  
Tidd & Hull (2003) *Service Innovation: Organizational Responses to Market Imperatives and Technological Opportunities*. Imperial College Press, London.

#### **4. CLEAR STRATEGIC OBJECTIVES**

4.1 Management communicates clearly defined strategic objectives for our new product development projects

4.2 New product projects are evaluated according to how well they help us meet our strategic objectives

4.3 New process technology projects are evaluated according to how well they help us meet our strategic objectives

#### **5. CORE BUSINESS COMPETENCIES**

5.1 Our company's core competencies are clearly defined and widely understood throughout the corporation

5.2 Our business strategy is closely linked to our core competencies

#### **6. CORE TECHNOLOGY COMPETENCIES**

6.1. Resource allocation decisions on new product projects are based on how closely these projects match our core competencies

6.2. Resource allocation decisions on new process technology projects are based on how closely these projects match our core competencies

#### **7. MARKET ASSESSMENT**

7.1 We benchmark best-in-class companies as well as competitors to assess how well we are doing in developing new products

7.2 We assess industry and market trends using advanced forecasting techniques

7.3 "Soft methods" of gathering data, such as focus groups and interviews, are used to identify customer needs

7.4 We use structured methodologies like quality function deployment (QFD), or house of quality, to translate customer expectations into engineering requirements

#### **8. REQUIREMENTS MANAGEMENT**

8.1 Information on customer needs (i.e. external customers) and competitive conditions is disseminated throughout the company

8.2 Global and domestic product requirements are reconciled at early stages of the product development process

8.3 Issues of interdependency among products are reconciled in new product requirements at early stages of the development process

8.4 We use decision models to prioritize projects

8.5 Structured problem-solving methods, such as cause-and-effect diagrams, are used to develop creative solutions to customer needs

8.6 At each stage of the product development process we assess how much the design is in conformance with the requirements of the system architecture or configuration

#### **9. CROSS-FUNCTIONALITY**

9.1 % work spent in project teams instead of functional departments

9.2 Communications channels are open to all regardless of function or level in the organization

9.3 We use facilitators or "process coaches" to help cross-functional teams to improve their team processes

#### **11. DESIGN STANDARDS**

11.1 We use "Design for X" (DFX methods, where X stands for manufacturability, serviceability etc

11.2 Critical product parameters are systematically analyzed (e.g. using design of experiments/Taguchi), imbedded in designs (e.g. robust methods), and tracked for conformity to standards

11.3 We use decision-support systems, such as knowledge-based engineering (KBE) that codify design rules and collective wisdom

#### **15. EXTERNAL PARTNERING**

15.1 We explore technologies/tools developed externally, even by our competitors

15.2 We use a strategic framework to decide whether to develop in-house or out-source

#### **17. LIFE CYCLE RESPONSIBILITY**

17.1 Development teams are responsible for the project throughout its life-cycle, from cradle to grave

17.2	Upstream functions like product development continue their involvement after the customer has the product
17.3	Information on product development is shared incrementally and continuously by all involved
<b>18. PHYSICAL COLLOCATION</b>	
18.1.	All core members of product development teams are physically co-located at the same site
18.2.	Core project team members are either within eyesight of one another or less than a one-minute walk away
<b>21. ORGANIC STRUCTURE</b>	
21.1	Managers behave more like "coaches" than traditional bosses
21.2	Communications channels are open to all regardless of function or level in the organization
21.3	People try to anticipate the needs of their internal customers and rapidly adjust their behavior to fulfill the requirements of others
21.4	Status differences or home department affiliations are unimportant organizational boundaries when it comes to product or process technology development decisions
21.5	The product development process works like a pull system where everyone is proactive and managers are coaches instead of bosses pushing people around
<b>25 INFORMATION SYSTEMS</b>	
DATABASES	
25.1	Information related to product development & management is stored in a computerized, relational database
25.2	Computerized databases are regularly evaluated and updated
25.3	Customer requirements are maintained on computerized databases with multiple functions having on-line access to updated information
PRODUCT MANAGEMENT	
25.4	Information related to product development & management is distributed over a network to all involved parties
25.5	We use a computerized product data management system to ensure that everyone has access to the most up-to-date product data
25.6	A wide range of quantitative marketing tools and techniques (eg, industry analysis, surveys, etc.) help bring the voice of the customer into the product development process
25.7	We use decision-support systems, such as knowledge-based engineering (KBE) that codify design rules and collective wisdom
SOFTWARE	
25.8	Everyone uses common project management software based on the model plan with templates for customization
25.9	Our project management software provides a model plan with templates for customization
25.10	We use data standards and translators with multiple applications (eg, IGES, STEP), to ensure that different kinds of computers & software programs can talk to one another
<b>31. VOICE OF CUSTOMER</b>	
31.1	Lead customers/users participate in product development reviews
31.2	Customer requirements are systematically & repeatedly evaluated by multiple functions
<b>32. VOICE OF SUPPLIER</b>	
32.1	Suppliers help us to identify new ways of meeting customer needs.
32.2	Lead suppliers/partners participate in product development reviews
<b>35. INTEGRATION</b>	
35.1	We use cross-functional project teams at each phase of the development process, starting with the product concept
35.2	Downstream functions such as manufacturing are involved in early product development decisions
35.3	Manufacturing completes tooling before product development release
35.4	Manufacturing uses flexible layout and people to achieve rapid response to product development changes
35.5	Teams or committees are responsible for monitoring tool utilization and recommending adoption decisions

<b>NOVELTY OF PRODUCTS</b>
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S26 We seek first-to-market advantages in the introduction of new <i>products</i> .
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S27 Our new <i>product</i> innovations use the newest and best technologies available in our industry.
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S28 Our new <i>product</i> innovations seek an order-of-magnitude increase in product technology performance.
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S34 Our new <i>product</i> innovations require the simultaneous development of new process technologies.
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<i>Plus other measures, not shown</i>
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<b>MARKET CHALLENGE, E.G., MOORELAW</b>
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C15 The pace of product change in our industry is quickening
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C16 Compressing time to market is widely accepted as necessary for our competitiveness
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C17 The technical knowledge base required to achieve competitive advantage in our industry is becoming larger and more complex
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C18 Our competitors are increasingly pressuring us to reduce costs
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<i>Plus other measures, not shown</i>
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<b>PERFORMANCE</b>
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<b>TIME</b>
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C34 Our time-to-market is substantially lower than last five years ago
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C35 The time from the start of a new product project to market introduction is much lower than our competitors
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<b>COST</b>
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C32 We have substantially lowered our production costs in the last five years
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C33 Our production costs are probably the lowest in the industry
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<b>QUALITY</b>
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C36 The overall quality of our products is substantially better today than five years ago
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C37 The overall quality of our products is considered the best in the industry
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<b>INNOVATION</b>
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C28 Our new product success rate in the marketplace is much better than in was five years ago
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C29 Our track record for successful new product introductions is probably the best in the industry
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<b>MONEY</b>
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C30 Compared to five years ago, our new products are making a substantially greater contribution to firm sales and profits
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C31 The contribution of our new products to firm sales and profits is much higher than the industry average
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<i>Plus other measures, not shown</i>
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End