Strategic Make-or-Buy Decision-supporting Process: Adaptability to Sustainable Development Aspects

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Abstract: Real world outsourcing decisions are very seldom based on a sound trade-off of risks, costs that these risks impose and benefits. The present paper attempts to overcome some of these shortcomings by developing an informal process. Dividing the make-or-buy question into many sub-questions based on, in this case, 16 objectives and characteristics, helps decision-makers generate a transparent and strategy-oriented solution with fair attention to all important considerations. By contrast, the less structured intuitive approach allows the decision-maker to weigh only a few arguments/propositions simultaneously – typically those which have current subjective importance for the decider. Due to the modularity of this process, it can be extended easily to additional objectives and characteristics, e.g., those one that representing sustainable development aspects. The process allows one to determine what organizational architecture is best suited to a specified activity.

Keywords: Corporate Governance, Outsourcing, Sustainable Development, Strategic Make-or-Buy Decision, Process, Vertical Integration

JEL Classification: C72, L22, L25, L93, D23, M55, Q01

Introduction

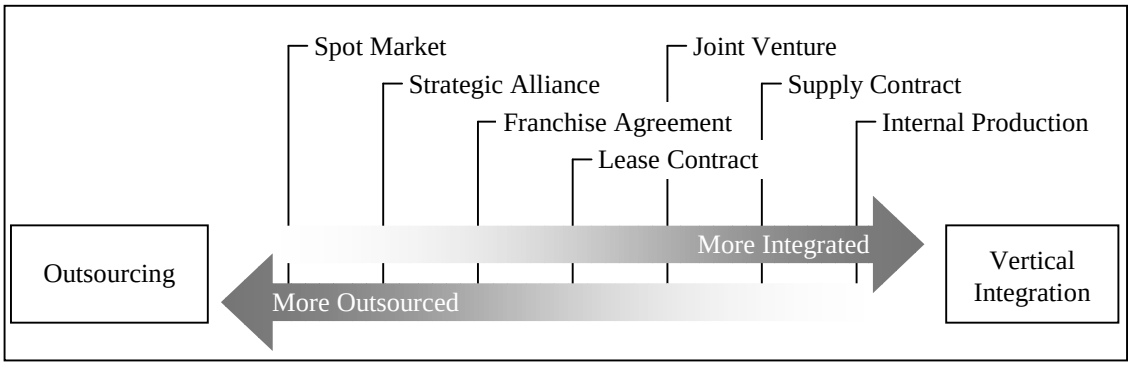

Figure 1: Illustration of Organizational Architectures

A company has many architectural choices from which to produce its products or services (Figure 1). At one extreme, the product or service can be purchased from any supplier in the spot market. At the other extreme, the company can produce the product or service internally within a division. Between the extremes are various long-term contracts, such as strategic alliances, franchise agreements, lease contracts, joint ventures and supply contracts (Brickley, Smith & Zimmerman, 2006). Note that a certain overlap exists between different types of long-term contracts and typology can vary in some buyer-supplier relationships. Long-term contracts are introduced briefly, as follows:

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- **Strategic Alliance:** Alliances, or constellations of bilateral agreements among companies, are increasingly necessary to successfully compete in today's global market. Strategic alliances are based on the exchange of hostages (e.g., surety bonds, exchange of debt or equity positions) and allow the development of long-term collaborative intentions that permit partners to meet strategic goals (Lau, 1994; Mattsson, 1995). Alliances are difficult to define because their structural characteristics are diverse. Japanese strategic alliances, e.g., operate in networks of relationships between companies based on long-term mutuality, rather than on clearly defined regulations or on inter-firm hierarchical organizational structures (Gerlach, 1997), as commonly practiced in Western countries. Tactical alliances (e.g., code-sharing agreements), which are loose forms of collaboration, and normally do not involve major resource commitments, are another form of strategic alliances (Bennett, 1997).

- **Franchise Agreement:** According to Todeva and Knoke (2005), franchising means that a franchiser (the buyer) grants a franchisee (the supplier) the use of a brand-name identity, but retains control over pricing, marketing and standardized service norms.

- **Lease Contract:** Leasing implies that one company grants another the right to use patented technologies or processes in return for royalties (Todeva & Knoke, 2005). In the literature (Miller & Upton, 1976), leasing is distinguished between short- and long-term leases. Short-term leases are for the shortest practicable interval of time, e.g., three hours for renting a bicycle, one day for renting a car or several years for renting specialized industrial equipment. Long-term leases are used for an extension over more than a single period, e.g., several years for renting a copy machine.

- **Joint Venture:** Joint ventures involve two or more organizations, each of which shares in the decision-making activities, such as marketing or research and development (R&D), of the jointly owned entity (Geringer, 1988). Joint ventures with 50-50 ownership are common.

- **Supply Contract:** Suppliers can be distinguished into four categories (Kamath & Liker, 1994): (1) partner suppliers are jointly involved in specification writing from the beginning of the project; (2) mature suppliers wait for rough specifications from the buyer before they begin work; (3) subordinate suppliers manufacture based on detailed specifications given from the buyer; and (4) contractual suppliers propose standard parts that are available through a catalog.

The study is structured as follows. In the next section, the process is introduced, the literature is qualitatively reviewed by presenting the pros and cons concerning vertical integration and outsourcing, and the resulting decision-supporting tool entitled "MoB-Tool" is shown. Finally, section three offers a discussion of the choice of items for the "Settings" submodule, informal versus formal statements and limitations.

The Process

General

The make-or-buy decision-supporting process is structured as shown in Figure 2 and comprises four submodules. The submodule "Settings" is illustrated in detail in Figure 3. This module processes the input data of strategic objectives, organizational characteristics, product characteristics and environmental characteristics. The module is based on a balanced scorecard philosophy, of which detailed information can be found in the discussion section of this study. The submodule "Integration Pros" processes the main advantages of vertical integration from the point of view of the final assembler (Figure 4), while the submodule "Outsourcing Pros" processes those advantages of outsourcing as shown in Figure 5. The submodule "Results" processes the output data as shown in Figure 6.

Vertical integration and outsourcing propositions are divided into control, stability and coordination aspects. Control aspects are those that help the organization in terms of ease of monitoring, high transparency of processes, low opportunistic behaviors and low bureaucracy. In the group of stability aspects are those propositions that support the organization's existence, such as high quality, high protection of sensitive information, low risk and high flexibility. Coordination aspects comprise propositions that increase positive interactions, such as high

organizational synergies, low costs and better strategy realization. The submodule “Results” presents the results of this process in the form of clear graphics.

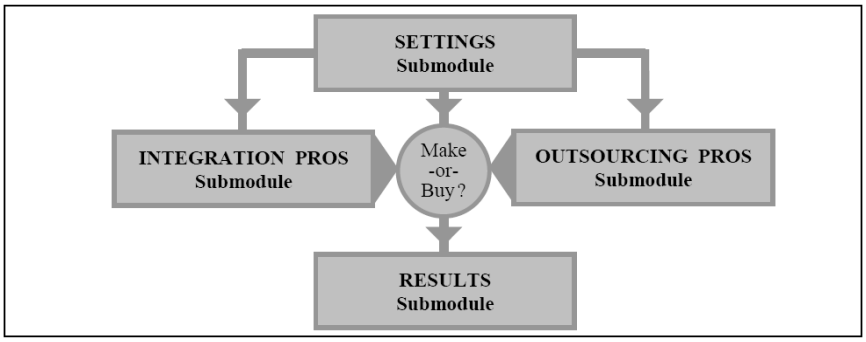

Figure 2: Overview of the Make-or-Buy Decision-supporting Process

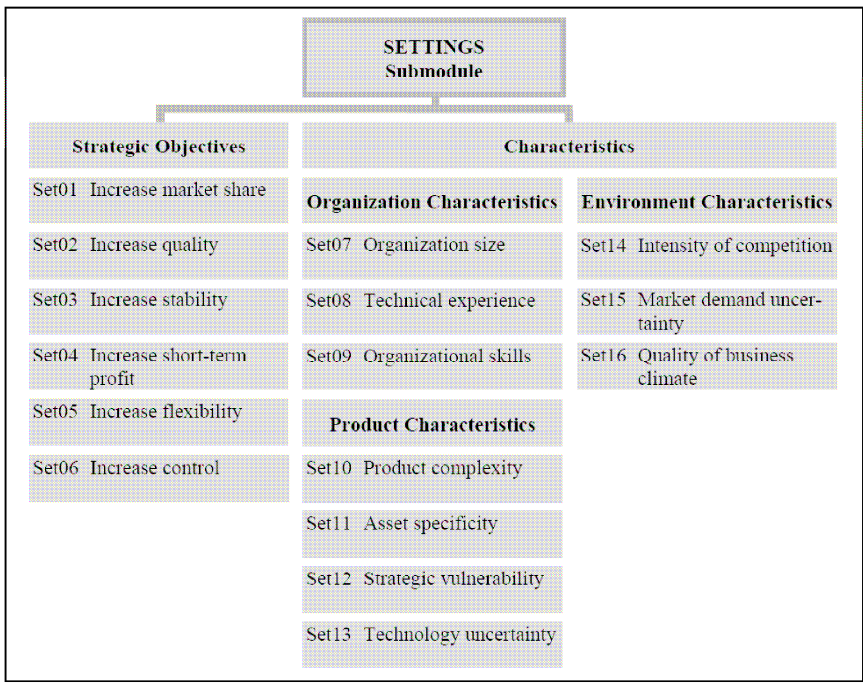

Figure 3: Settings Submodule

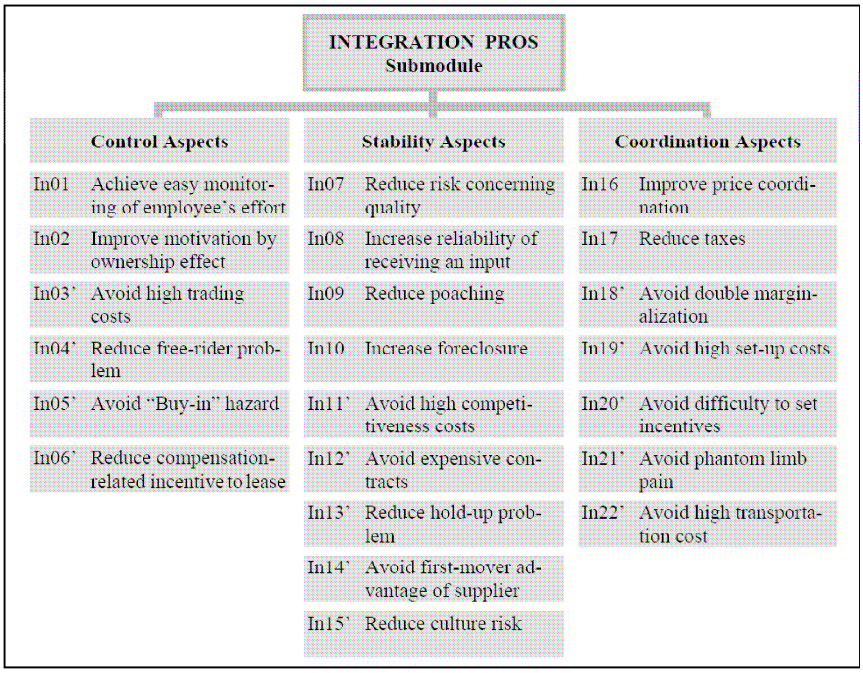

Figure 4: Integration Pros Submodule

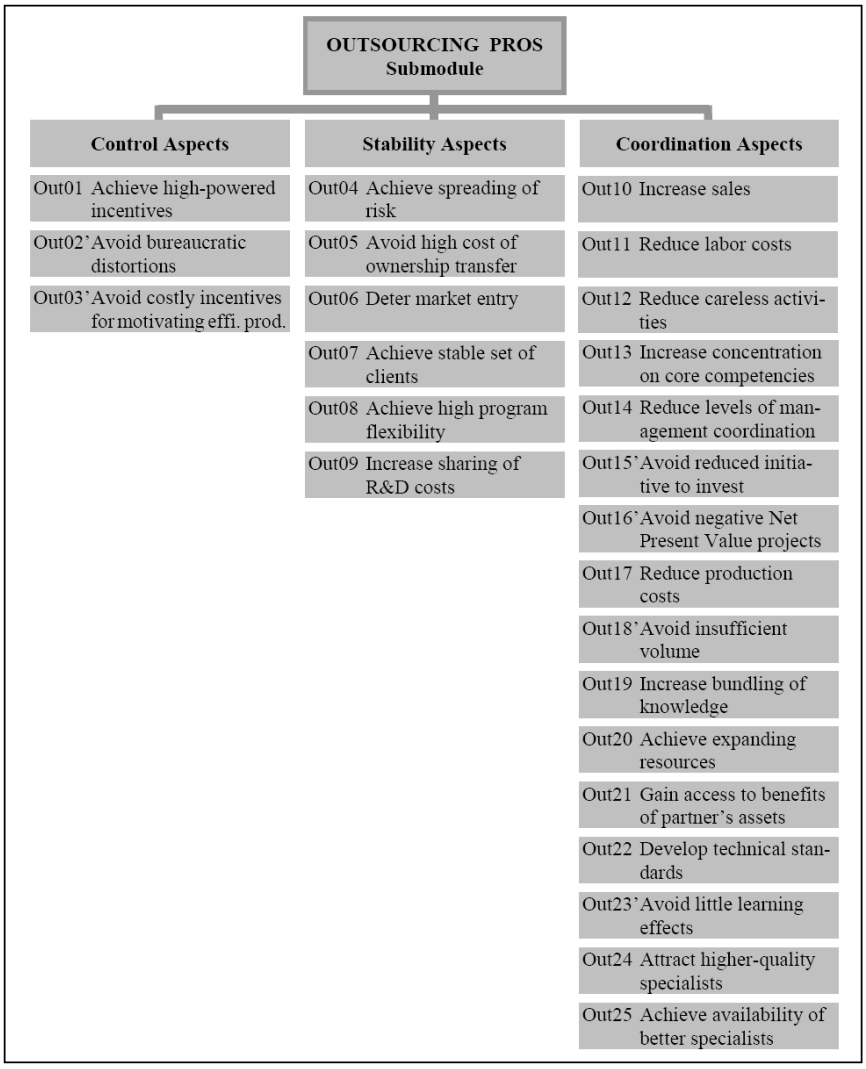

Figure 5: Outsourcing Pros Submodule

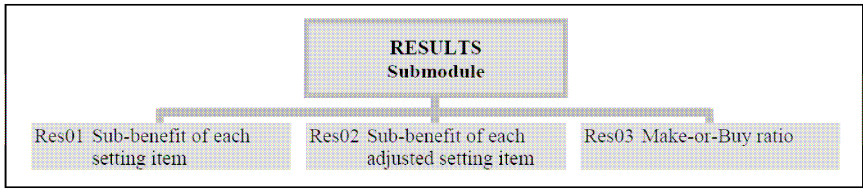

Figure 6: Results Submodule

Qualitative Assessment

Each submodule and its associated items, or propositions, is organized in the same manner for simple review. For reader-friendly use, all information is prepared in the same format. The "Settings" submodule items are introduced briefly, while the "Integration Pros" submodule propositions, "Outsourcing Pros" submodule propositions and "Results" submodule items are available upon request.

a) Settings Submodule (Strategic Objectives)

- **Set01 Increase market share (financial Key Performance Indicator (KPI))**
  Description: Market share indicates the percentage of sales in a given industry segment or sub-segment that are captured by the organization. This indicator has been widely used in the strategically-oriented literature and is stressed by PIMS (1977), for instance.
  Range: low = less than 30% share; high = greater than 70% share

- **Set02 Increase quality (customer KPI)**
  Description: Quality indicates the level of flawlessness of an activity and, when high, has a positive effect on customer satisfaction.
  Range: low = faulty; high = flawless

- **Set03 Increase stability (process KPI)**
  Description: Stability indicates the desired degree of risk avoidance. For example, leasing entails low levels of financial resource commitment, while integration reduces risks of technology plagiarism.
  Range: low = risk neutral, organization is not afraid to take chances and be fully responsible for any costs; high = risk averse, organization seeks to avoid risk

- **Set04 Increase short-term profit (financial KPI)**
  Description: Profit is a basic measure of the profitability of the organization and reveals the returns an organization can generate from creating and selling its products. Higher profits reflect greater efficiency in turning stock into income and larger budgets available for reinvestment into the organization for research and development, marketing and other investments (Razvi, 2007).
  Range: low = no profit; high = high profit

- **Set05 Increase flexibility (process KPI)**
  Description: Flexibility indicates the desired degree of ability to adapt organizational strategy to changing market conditions.
  Range: low = adaptation not possible or very costly; medium = adaptation possible, but costly; high = easy adaptation

- **Set06 Increase control (process KPI)**
  Description: Control indicates the desired degree of command power by management over activities.
  Range: low = no control; medium = partial control; high = full control

b) Settings Submodule (Organizational Characteristics)

- **Set07 Organization size (HR & innovation KPI)**
  Description: Size is an indicator of the organization's (human) resource availability. This indicator is most often interpreted as a source of organizational costs (Shepherd, 1972) because it is assumed to affect performance negatively (Rumelt, 1982).
  Range: low = a few hundred employees; medium = a few thousand employees; high = Large Scale Enterprise (LSE), over ten-thousand employees

- **Set08 Technical experience (HR & innovation KPI)**
  Description: Experience refers to the extent to which employees are involved and learn from similar products (Koelle, 2003).
  Range: low = new team with no relevant product experience; medium = some experience with related products; high = extensive experience with similar products

- **Set09 Organizational skills (HR & innovation KPI)**
  Description: Skills are an indicator of employee knowledge to coordinate projects and programs.
  Range: low = no project management experience; high = extensive project management experience

c) Settings Submodule (Product Characteristics)

- **Set10 Product complexity (process KPI)**
  Description: Complexity refers to the technical nature of the product.
  Range: low = simple unit; medium = connection of simple systems; high = connection and interaction of advanced systems

- **Set11 Asset specificity (process KPI)**
  Description: The degree of specificity for a certain activity is measured by the difference between the cost of the asset and the value of its second best use (Williamson, 1985).
  Range: low = reversible investment, e.g., capital expenditures; high = irreversible investment, e.g., knowledge acquisition

- **Set12 Strategic vulnerability (process KPI)**
  Description: The degree of vulnerability of strategic organizational development is measured by the amount the activity contributes to, or even represents, the organization's core competencies.
  Range: low = no relation to core competence; high = sensitive influence on core competences

- **Set13 Technology uncertainty (financial KPI)**
  Description: This indicator refers to the maturity level of technology used.
  Range: low = variation of existing design with minor modifications; medium = new design, but with existing components; high = first generation system with advanced state-of-the-art technology

d) Settings Submodule (Environmental Characteristics)

- **Set14 Intensity of competition (process KPI)**
  Description: This indicator refers to the number of competitors in the market. Range: low = no competitors, monopoly; medium = several competitors, oligopoly; high = many competitors, perfect competition

- **Set15 Market demand uncertainty (process KPI)**
  Description: This indicator includes unpredictable customer utilization, buying power, market seasons, standards, etc.
  Range: low = easy forecasting with no surprises; medium = challenging forecasting with some surprises; high = unforeseeable circumstances

- **Set16 Quality of business climate (HR & innovation KPI)**
  Description: The quality of a country's business climate is measured by the Business Environment Risk Index (BERI). BERI data is commercially available from Business Environment Risk Intelligence (2005).

This data includes the following criteria with associated weights in brackets (Hollensen, 2007): political stability (12%), economic growth (10%), currency convertibility (10%), labor productivity (8%), short-term credit (8%), long-term loans (8%), attitude towards the foreign investor (6%), nationalization (6%), monetary inflation (6%), balance of payments (6%), enforceability of contracts (6%), bureaucratic delays (4%), communication infrastructure (4%), local management (4%) and services (2%). Estimating the values of these criteria leads to a sufficiently accurate indicator value for the purposes of this study.
Range: low = unacceptable, very high risk; high = superior conditions, favorable environment for investors, advanced economy

Results

The make-or-buy decision-supporting process is structured in five phases (Phase 1: Define Mission Statement, Phase 2: Define Strategic Objectives and Independent Factors, Phase 3: Define Weighting of Factors, Phase 4: Check Plausibility of Integration Pros and Outsourcing Pros Submodules, and Phase 5: Obtain Results) and can be applied to various challenging cases. For this, I develop a tool entitled "MoB-Tool," as shown in Figure 7.

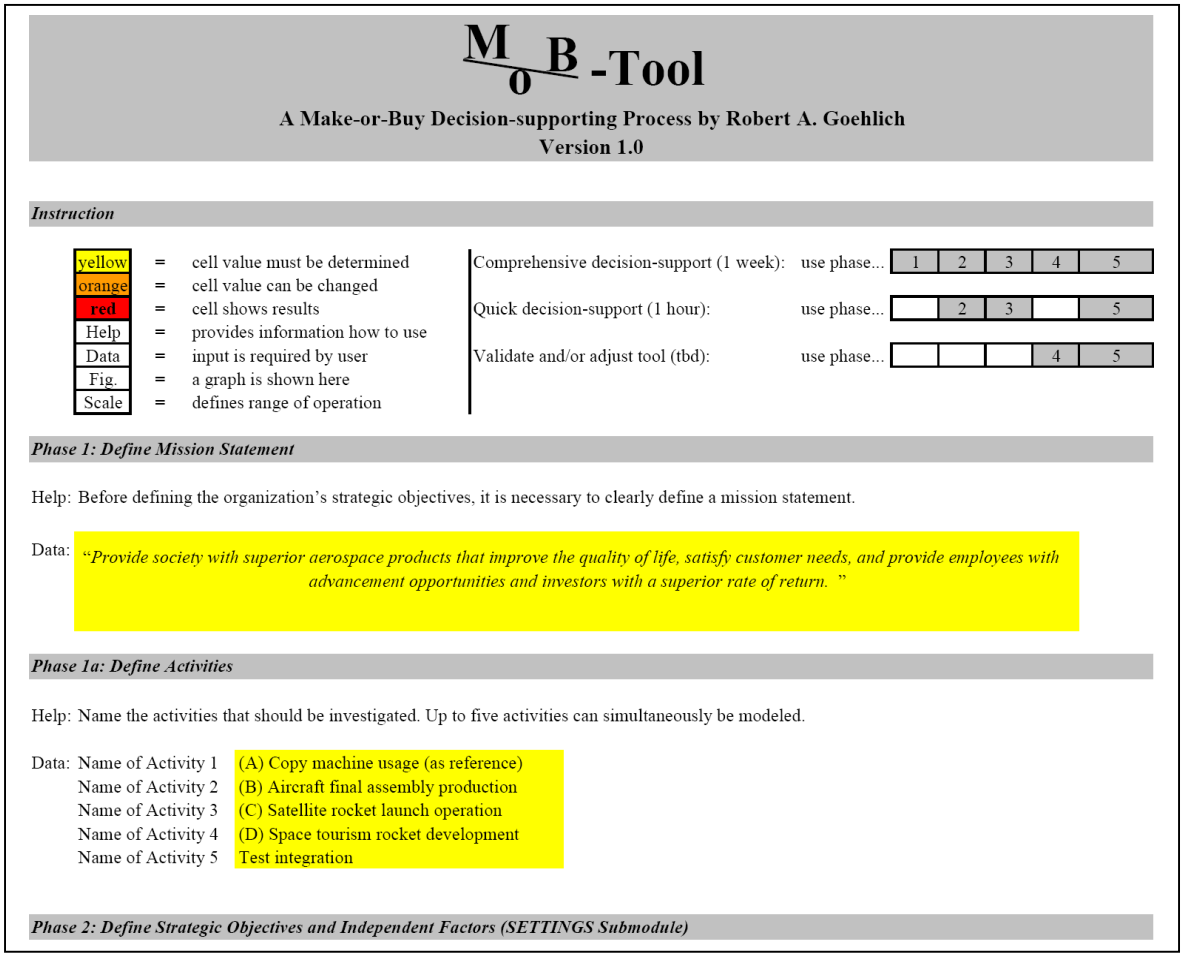

Figure 7: Extract from the MoB-Tool

Discussion

General

The following section attempts to widen the study's point of view through a discussion centered on: (1) the choice of items for the "Setting" submodule; (2) a trade-off between informal and formal statements; and (3) limitations concerning the introduced process.

Choice of Items for "Settings" Submodule

The balanced scorecard philosophy is used to create the "Setting" submodule. The balanced scorecard, introduced by Kaplan and Norton (1992), is a widely used strategic business performance measurement system. This method seeks to report on leading indicators of an organization's health, rather than referring to traditional accounting measures alone. These leading indicators are called Key Performance Indicators (KPI) because they are critical to the successful execution of an organization's strategy. Based on the strategic goals of an organization, target values for KPIs are set. KPIs enable an organization to measure and monitor its performance on a strategic and operational level. The goal is to establish a common KPI language that spans all areas of an enterprise.

Typically, KPIs are used in a post-ante context to evaluate an organization's past performance. Krauth et al. (2005) reason that KPIs should be utilized in the planning phase as well, thus ex-ante. I follow this approach for the make-or-buy decision-supporting process. A key attribute of this process is its support for identifying causal linkages between components of the business that fulfill the strategy (i.e., to determine the benefit share of each proposition that contributes to either vertical integration or outsourcing).

Often the balanced scorecard is broken down into a financial, customer, process and an HR & innovation perspective. This procedure aims to avoid the classic problems of measurement, such as (Van Aken & Coleman, 2002) use of too many metrics, use of exclusively cost metrics, use of only short-term focused metrics and use of metrics that drive the wrong behaviors.

The choice of KPIs is organization-specific and depends upon its goals. An organization's goals change over time (Allio, 2006). In a start-up high technology company, for example, managers focus on reliability. In the growth stage, managers concentrate on market share. In mature industries, managers focus on production costs and/or capacity utilization. In an aging industry, managers primarily focus on cash flow. I select those KPIs for the make-or-buy decision that I recommend for use by a typically mature organization. Due to the modularity of this process, it can be extended easily to additional KPIs and/or existing KPIs can be terminated. In addition, my proposed weighting (I assume equal weighting) of each KPI is easily changeable.

Sustainable development is defined as a development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations, 1987). The field of sustainable development aspects can be abstractly broken into three essential parts: environmental, economic and sociopolitical sustainability. In particular, I recommend selecting indicators from the database of Sustainable Measures (2009) if no other data are given. For example, the environment indicator entitled "CO2 emissions from transportation" of that list can be adapted to a strategic objective entitled "Set17 Reduce CO2 emissions" and added to the Make-or-Buy Tool.

Informal Versus Formal Statements

Some readers may prefer or expect formal statements to informal ones. I choose to use informal statements for two reasons.

First, dealing with make-or-buy related theories from a qualitative view (i.e., using informal statements) rather than a quantitative view (i.e., using formal statements), makes it easier to determine the potential and weaknesses of investigated theories, items and propositions (Goehlich & Bebenroth, 2008).

Second, my motivation and attempt is to generate an overall make-or-buy decision-supporting process for organizations toward understanding the commonalities, distinctions and interactions of the (normally isolated watched) make-or-buy theories and known recommendations. Furthermore, I am motivated to provide a combined account of the costs, risks and benefits of outsourcing versus vertical integration. To accomplish this, I discover that the top-down approach of using informal statements is superior to the bottom-up approach of using formal statements: simulating the complex architecture of organizations by only formal statements would cause a disaster due to the overwhelmingly unmanageable number of equations it would create. Use of informal statements permits the necessary distance required for the "battlefield of theories" and allows me to uncover important coherences. This is in accordance with Gibbons (2005, p. 236), who states that "firms have invented far more ways to work together than organizational economics has so far expressed (not to mention evaluated)" combined with Krugman's (1995, p. 54) warning for "sensible ideas that could not be effectively formalized [and] formalizable ideas that seem to have missed the point." Further consideration can be found in Baker, Gibbons and Murphy (2004).

Limitations

Extant make-or-buy related studies are quite voluminous. Thus, complete implementation of this literature into the make-or-buy decision-supporting process is beyond the scope of the present study. Rather, I limit my discussions and investigations on those studies that I found to have significant influence on make-or-buy decisions, especially for managers. However, I find that many extant studies suffer from measurement problems, in particular with respect to sustainable development aspects, such as follows:

- Some factors, such as motivational, cultural and social factors are hard to handle, but may strongly influence decisions.

- Companies from different countries generally apply divergent success criteria because of unique cultures (Yan & Zeng, 1999). In addition, each culture has specific cultural codes, e.g., the trust-based cooperative norms of Japanese society encourage high collaboration rates among companies (Todeva & Knoke, 2005). Thus, assessing international scenarios is especially complicated because results are biased by different cultural environments.

- A challenge exists whether to use objective outcome indicators (e.g., financial gains, number of innovations, revenue), subjective indicators (e.g., partner satisfaction with the collaboration, customer service, corporate identity) or both, in order to fully assess the performance of organizations.

Thus, the precision of propositions is limited. Yet, I assume that a preponderance of indication, gathered across plentiful studies of diverse industries, time periods and geographic regions using different approaches, yields convincing evidence as to the validity of the introduced make-or-buy decision-supporting process.

Conclusion

The main outcome of this study is the development of a make-or-buy decision-supporting process. A structured application procedure makes this process attractive to any manager who needs a simple and transparent tool to support make-or-buy decisions. Dividing the make-or-buy question into many sub-questions based on, in this case, 16 objectives and characteristics, helps decision-makers generate a transparent and strategy-oriented solution with fair attention to all important considerations. By contrast, the less structured intuitive approach allows the decision-maker to weigh only a few arguments/propositions simultaneously – typically those which have current subjective importance for the decider, e.g., bad news about Dollar/Euro currency trends, which would favor an outsourcing decision or bad news about risk of revealing know-how, which would favor an integration decision. The next step, which is beyond the scope of the present study, is an empirical validation of the tool in the form of interviews with experts, economists and politicians.

Note

The views reported in this paper are those of me alone, and not those of any institution. All errors and omissions, which may unwittingly remain are the sole responsibility of me.

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