

A Proven Methodology for Developing a Portfolio of e-business Initiatives

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Introduction

In collaboration with IBM's management consulting teams, we have worked with a several large firms to develop strategies for e-business. The typical firm can be profiled as follows. They have a variety of projects underway already that make use of the Internet. (We call these projects e-business initiatives). Each project typically got started by some individual business unit acting within its own autonomy and to serve its own ends. Looking across all of the initiatives within the enterprise, one sees little consistency, frequent redundancy in effort and virtually no intentional exploitation of complementarities in value or costs. Perhaps most disconcerting is the lack of any recognition of the firm's existing e-business capabilities, as implemented in one part of the firm, in evaluating the business costs and returns for some new initiative in another part of the firm. Consequently, new initiatives are often incorrectly evaluated as independent investment opportunities wherein the costs are often overestimated and the benefits are often underestimated.

Against this backdrop, management teams typically have begun to more intentionally evaluate potential e-business projects. At this juncture, they discover the limitations in their institutional knowledge base regarding what they themselves are doing, what their competitors may be doing, and what their customers may be expecting as influenced by successful e-business initiatives in related and unrelated industries.

Over the course of the past few years, we have devised a flexible methodology to resolve these difficulties and compose an optimally selected set of initial investments for a firm that positions it to pursue subsequent initiatives in a logically composed scheme. The initial selection set and the process for subsequent selection is based on the firm's overall strategic intent and goals, accounts for the existing capabilities of the firm, and the newly developed business capabilities that accrue as each initiative is completed. Our methodology has been successfully employed in a variety of settings. In the following sections, we first present an overview of some of our experiences. Following that discussion, we describe the major methodological steps that are employed and the outputs of each.

Experience

In our methodology discussion, we will describe the details of how we model e-business initiatives that firms wish to consider. These initiatives start as business idea, employing the Internet or other networking technology to establish a new kind of interaction within or across firms or enhance an existing interaction. Web sites for promoting or selling products, e-marketplaces, portals, collaboration sites, and self service customer support sites are all commonly recognized examples of such initiatives. In our consultation projects, we typically invent and then detail a number of such initiatives that will support the business strategy of the firm. The detailed analyses start with identifying the benefits that will be produced by the initiative and the intended recipients of those benefits (stakeholders). In subsequent steps in the process we evaluate expected costs and benefits and identify suitable sequencing of projects. Finally, we select a recommended set of initiatives as most suitable for the firm to commence.

As part of this research, we have codified the initiatives from a sampling of engagements into a repository allowing for a variety of analyses such as comparative studies of initiatives, studies of trends, and identification of key financial drivers. Figure 1 shows a distribution by industry of the initiatives in the repository and, for comparison, the initiatives produced in each engagement, again by industry. While the statistics we derive from this data are based on very small samples¹ from each industry, they do suggest testable hypotheses for differences in strategic approach across firms. It appears that some firms prefer to employ their own internal creativity in pursuit of a industry leadership position. These firms would comprise the left-most industries in Figure 1. For them, it is important to be as creative as possible in defining the new opportunities that they might pursue – up to a point, the more opportunities, the better. In contrast, the right-most side might represent firms that are adopting a fast follower approach. For such firms, it is less important to be inventive and more important to be observant. The initiatives comprising their selection set are more likely to be adopted from activities that they see going on in their own industry or in related industries. Our methodology can accommodate either approach.

¹ e.g. Sample size varies from 1 to 3 engagements per industry.

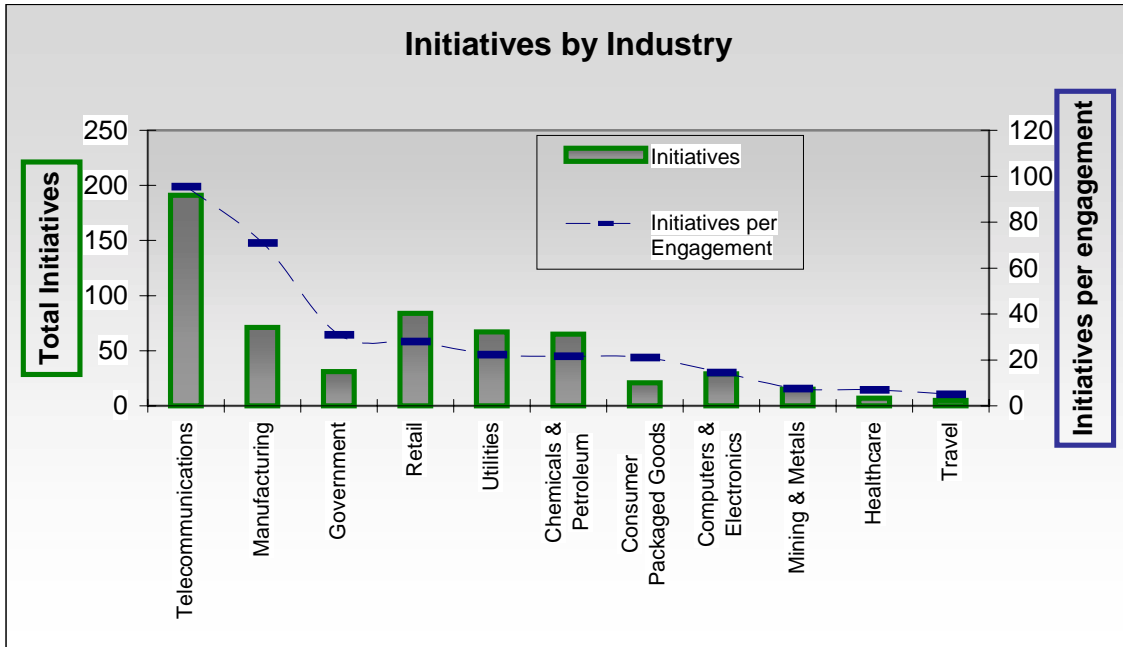


Figure 1: Initiatives and Initiatives per Engagement by Industry

The employment of alternative methodological approaches in concordance with the strategy of our client firms, at least in part, might explain the nearly 10:1 ratio in initiatives per engagement depicted in the chart.

Figure 2 shows the distribution of intended stakeholders that are targeted by the nearly 600 initiatives that we have cataloged so far. The focus on initiatives that are intended to deliver benefits to customers and internal departments clearly overwhelm the other potential stakeholders. Apparently, for the clients in this sample, e-business is mostly customer focused. Supply side e-business initiatives and those enabling partner collaboration would seem to command far less attention at this point in time (October, 2000).

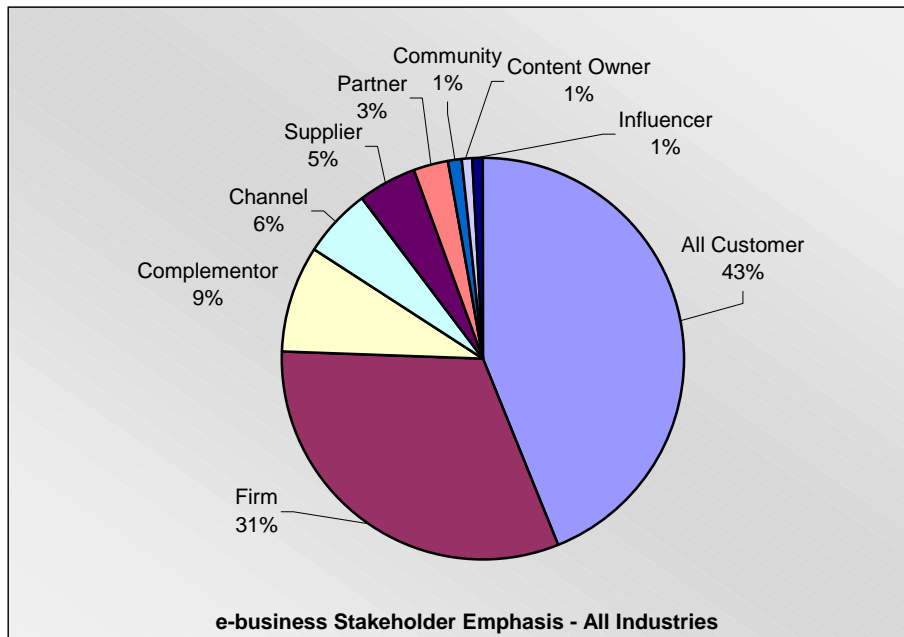


Figure 2: e-business Initiative Stakeholder Analysis

Possible explanations for the relative emphases on the different stakeholders include the still common belief in channel conflicts, the more limited potential² of supplier initiatives, the operational complexity of web based partnering arising from defining standards, or creating an e-marketplace, and the more amorphous business returns models that accompany community and influencer oriented initiatives. Management teams still seem to express a preference for investing in projects with less risky and more clearly defined benefits. Internal and customer oriented projects seem to fit that mold better than other types of projects.

It is interesting to note that in this sample, either of the top two stakeholder groups (customers and internal), seems to receive more attention than the sum of all of the other groups.

Figure 3, decomposes this view by industry. Bearing in mind the small sample size, we do see significant variation in stakeholder emphasis across firms. The emphasis in retail on customers is easy to understand – the Internet offers the promise of an economical direct sales channel to manufacturers, thereby disintermediating retail channels. Indeed, much writing has appeared in a variety of venues espousing disintermediation³. Considering the concentration of e-marketplace activity appearing in the healthcare industry, particularly aimed at organizing the market power of the buyers, it is not surprising that a medical services provider would also be keenly interested in maintaining close relationships with its customer base. Telecommunications, the most inventive industry in this sample, shows a balanced interest across the stakeholders. The Consumer Packaged Goods firm in the study shows a surprising de-emphasis on its customers. This firm also happens to have a strong brand and marketplace presence and chose to focus on internal efficiency and collaboration.

With a larger sample size, we will be better able to identify the normative profiles by industry and assist firms in aligning with the norms or selectively differentiating as a strategic choice – informed by a broadly composed fact base derived from a large number of engagements. We continue to develop our repository because we prefer to base our recommendations on as much as experience and learning as possible.

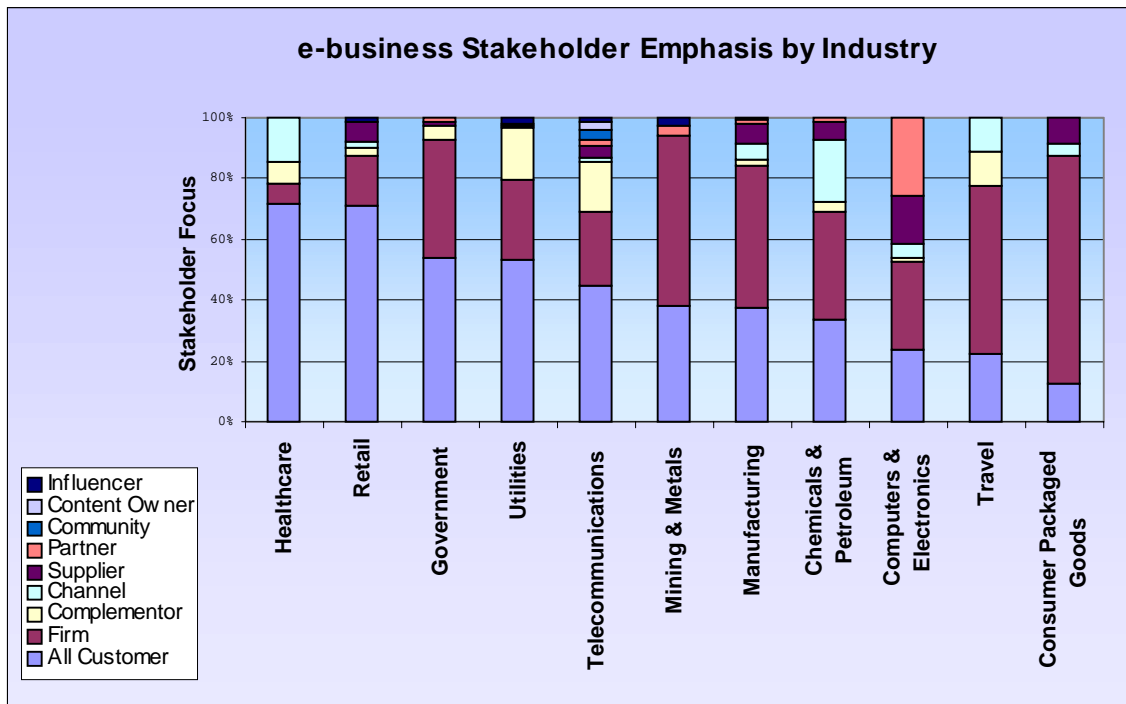


Figure 3: Stakeholder Emphasis by Industry

² Supplier oriented initiatives help to reduce costs. Buyer side initiatives in contrast can both reduce costs and expand revenues.

³ Our own work argues against disintermediation from the perspectives of TCE, theories of bounded rationality, and the economics of information goods. For a discussion, see Anil Peter and Bill Tulsie, “Market Search for Intermediaries” Conference on Telecommunications and Information Markets ’99 available from <http://ritim.cba.uri.edu/cotim99/>.

Perhaps the most important observation about e-business strategy derives from the current state of e-business – an emerging phenomenon. As the Internet was opened for commercial uses, a significant number of firms seem to have taken a grass roots approach to its use. At that time (c. 1993), it was not obvious how to predict the success or failure of any specific application. An approach based on experimentation seemed quite reasonable. With relatively low requisite investment levels, many departments across many firms could launch a web site, internal or external, within its discretion and its own annual budget and many department managers did so.

After a time, the accumulation of investment, the disorganization of projects, the variability of results to date, and the ambiguity surrounding what to do next, gained senior management attention, while suggesting the need for a more rationalized approach. For these firms, it became necessary to develop the portfolio of e-business initiatives by construction from the business strategy of the firm, replacing the portfolio of e-business experiments that had been underway. It has proven critical during the construction process to include as much learning about what works and when as is possible, thus the need for the initiative repository mentioned earlier. It appears that the portfolio approach offers attractive features that will persist while the trends, themes, and applications of e-business continue to evolve. The next section will describe the methodology beginning with how we go about identifying and defining the details of e-business initiatives to enable a firm to select the most promising set.

Methodology Overview

Figure 4 depicts a flow diagram of the steps comprising the methodology. The very first step (not shown) is to identify the strategic goals of the firm and the planning horizon. Next is the selection of either the Scenario Planning approach or the Value Exchange approach. The former is most useful for slightly longer planning horizons (>2-3 years), since it better handles the uncertainties and risks that need to be factored into such a planning scope. It is also preferred for firms pursuing an industry leading strategy. For fast follower strategies and shorter planning horizons, the latter approach works best. In either case, a list of opportunities is produced for rationalization and refinement in the next step. Included in this part of the work is the definition of detailed value propositions, stakeholders, and capabilities that form each initiative. Employing a repository of prior work here eases the job, making it more a task of searching and synthesizing prior work than reinventing what has already been done.

With the high level description of each business initiative and a decomposition of the value propositions, stakeholders, and requisite business capabilities, the cost and benefit analyses can begin. The repository of prior work can aid in the estimation process too. Parallel to the cost and benefit analysis, we perform a less traditional logical precedence analysis. It helps structure the set of initiatives by expected future option value and anticipated learning effects. Lastly, the expected costs, benefits, and assigned logical precedence inform the final selection process.

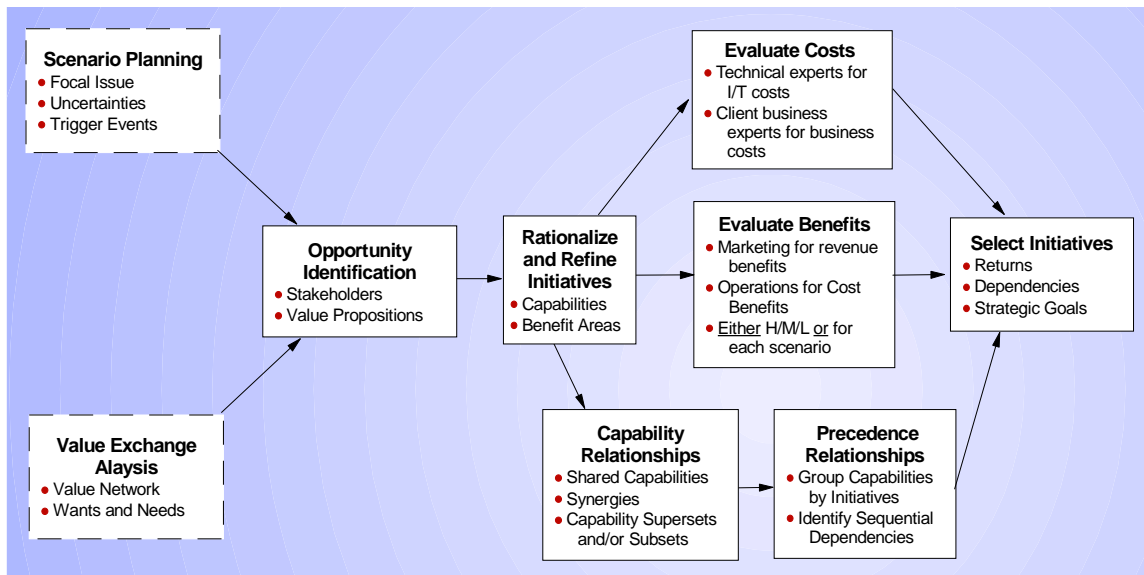


Figure 4: Methodology Overview

This methodology has proven to be modular and flexible as demonstrated by the alternative initial steps. It is comprehensive in consideration of not only the costs and benefits of the possible initiatives but also the interrelationships (logical precedence) among initiatives. Finally, we have tried to organize the work to make use of prior work (as captured in the repository). Likewise, with a consistent descriptive framework for initiatives, it readily accommodates the accumulation of new initiatives into the repository. Next, we describe each step in more detail.

Establishing the Strategic Goals

Creating strategic goals for the firm is not within the scope of this methodology. However, it is necessary to identify the goals of the firm and the relative importance among them. The focus here is on establishing whether the firm has chosen to emphasize capturing new revenue (market share or wallet share), lowering costs, increasing profits, penetrating new markets, etc. Virtually all senior management teams that we work with have a view of relative priorities of these goals, but most find it difficult to be very explicit about what tradeoffs they may be willing to make among multiple objectives. For example, they may not be definitive about trading a dollar of revenue from a new customer for a dollar of additional revenue from an existing customer. While the latter may be more profitable in the short run, the former may yield greater future returns. In the best cases, such tradeoffs should be based on quantitative models. Even a qualitative judgment elicited across senior management personnel is better than indecisiveness. In any case, the strategic emphasis is required for the selection of initiatives and useful for focusing the opportunity identification work, and we establish it first.

Analyzing the Planning Horizon: Looking into the Future

The next step that we take is to make explicit the management team's expectations for the future. How far we project into the future is up to the individual management team and their choices of overall scope are highly varied. Surprisingly, some want to consider the changes that they will face as much as five or ten years into the future. The majority of firms, however, prefer to establish a well formed initial set of projects to be implemented in the next year or two, positioning them for options further in the future. We can accommodate either orientation in our methodology with two alternative planning techniques.

Taking a Long Look Forward

While the needs of customers, suppliers, and business partners are difficult to assess in such a telescoped time frame even in mature and well-understood business contexts, we have devised techniques for doing so, based largely on scenario planning. We utilize scenario planning techniques to accomplish two primary benefits that are particularly germane to e-business strategy formulation.

First, scenario planning allows us to examine more than one potential evolution of the environment in which the firm exists. This is useful in that, except in industries or firms where the e-business experience base is fairly deep and well established, the systemic and environmental effects of future e-business maturation are very difficult to predict. The consequence of this uncertainty is that an initiative's potential payoff is unknowable. Scenario planning gives us a context for assessing and, in some cases, mitigating this type of risk.

Second, scenario planning helps us to maximize the participants' creativity, by breaking down the creative barriers within the firm's leadership team, defining potential futures which are at the same time highly relevant (in that they have a significant potential impact on the firm's direction), plausible, and in most cases, very different than the current environment. This combination allows the project participants, the inventors of the firm's strategy, the opportunity to ask questions pertaining to "What if..." There are other second order benefits to this approach as well, including the ability to establish "sign-posts" (key events which indicate the evolution of a particular outcome, which if understood early allow the firm time to act accordingly), and the formulation of narratives or stories, which give context and substance to the strategies which result.

Because the scenario planning technique seeks to inform the participants about a highly ambiguous future, there are several activities which must be undertaken and which would not be needed in a strategy informed only by present circumstances. Consequently, strategies developed using scenario planning typically take up to 50% longer than those informed only by the present.

In performing scenario planning, we typically find that only a small percentage, if any, of the firm's leadership have been exposed to the concepts and application of scenario planning in detail. Thus, in order for them to be effective, we must engage in a thorough, but rapid, training of all participants on the key elements of scenario planning. Once

the participants are comfortable with the concept of scenario planning, which is accomplished through heavy use of case studies and examples, the participants are better able to apply the technique.

A much broader research effort is necessary to support scenario planning. Whereas another type of investigation would require a thorough understanding of the current environment, as well as relevant, predictable trends, the scenario planning effort is also concerned with those trends and forces, which might lead to significant discontinuities. The scope of this investigation will include relevant technologies, socioeconomic forces, industry dynamics, governmental and regulatory issues, and global and other considerations.

The objectives of this significant research effort are two-fold. First, we seek to develop a common basis of understanding about the present environment in which the firm operates. Second, we seek to establish patterns and relationships among various trends and forces, and by so doing, to establish the root-cause uncertainties. These are often not the most obvious or intuitive uncertainties, but with them, we are able to explain much of the underlying uncertainty in the future environment.

Scenario planning is a technique that is particularly useful in projects whose relevant time horizon is greater than 3-4 years. Because scenario planning techniques are designed to facilitate a risk-mitigated view into the future, it is particularly applicable for those firms who desire to establish industry leadership through the application of their e-business strategy. If the firm is not attempting to define a leadership position, effort is better spent in understanding and extrapolating from all of the known opportunities.

Scenario planning lends itself to a longer term, industry leadership approach in several ways. First, it facilitates option-based planning. Once informed about potential relevant futures, the firm can make investments which establish option positions that can be exercised if a favorable future is emerging (refer to the discussion of "sign-posts" above). If such a future never emerges, the option expires worthless, but a significant investment may have been avoided. Second, scenario planning can facilitate the identification or invention of emergent opportunities sooner than the competition. It is not at all uncommon to have our client's leadership conclude that in certain of our defined futures, due to the degree of difference from the existing environment, only the well prepared could survive.

A Shorter Planning Horizon with Options

When working within a planning horizon of 18 to 24 months, the uncertainties are a lesser consideration and the simultaneous moves of partners, competitors and complementors are a more significant concern. For this situation, we consider only a single consensus view of the future. For shorter timeframes, the beliefs tend to be more consistent and a simpler approach suffices. In the next step we begin working with a value exchange framework derived from the Value Net.⁴ Since we will want to analyze the potential value exchange with target customer sets, strategic partners, potential complementors and known competitors, we need to agree who these parties are in this step and identify the relative priorities among them - usually a straightforward process best done in a workshop with the senior management team. It can be merged with the start of the value exchange analysis in instances where scenario planning is not done.

An implication of the value net is that a firm needs to consider its business interactions with all of the players as a whole. That is a sound approach for understanding the strategic actions that the business might pursue and it is helpful in identifying e-business initiatives. The output of this step is a set of related value net communities in which the firm participates. Each set identifies specific customers or groups, the channels that serve them, the complementors whose products they might use, the competitors that also pursue them, and the suppliers that furnish the inputs used for products and services that the firm offers to these customers. A different value net is defined for each unique customer set. Value nets are also developed for each of the other important roles (complementor, supplier, etc.) that the firm might wish to include in the project. Some simplifying techniques are employed to keep the value nets to a manageable number.

As we proceed with the following steps, an important difference will arise between the long-term and short-term approach. Specifically, we do not define alternative scenarios in the short-term approach. The different scenarios are useful in assessing the expected variability in benefits and costs - a measure of risk. For the short-term approach, we will need to invent another means to assess risk and will return to this point in the cost and benefit assessment steps.

⁴ See **Coopetition** by Barry Nalebuff and Adam Brandenburger, Doubleday, 1998.

As we have mentioned, this short form technique applies best in situations where the firm has intentions to adopt a fast follower strategy. This approach still requires thorough research on the immediate e-business and industry trends but focuses more on the facts: what interactions and relationships exist, with whom, and what are the known wants and needs. It includes observations of initiatives that other firm are currently pursuing. The goal is to provide a basis for identifying those initiatives that will have a potential applicability to the firm's present context.

In the e-business arena, our own research confirms that firms are inventing and testing new uses of the Internet and other networking technologies at a very rapid pace. Not all of the experiments will prove successful. Indeed many of the Internet business experiments are not even conceived yet. Identifying the best combinations of business models compounds the necessary experimentation. It is not surprising that the majority of management teams feel more compelled to get a rationalized set of initiatives started and rapidly learn by experience.

In contrast, there is a benefit to looking further into the future. It allows one to assess the most important factors to consider, the relationships among them, and the likely bounds on the ranges of uncertainties. To do this, we have borrowed from the scenario planning literature and add techniques and research findings that are specific to e-business. Whether we take a long view of the future or simply anticipate the effects of changes already on the horizon, the output of this step is a documented view of the likely future (or futures, if scenario planning is employed), the set of factors that will exert significant influences on customers, suppliers, competitors, and complementors, and the target segments that the firm intends to pursue. In thinking through those issues, the management team also must come to grips with their overall strategic intent. In the next step, we take this information and begin to lay the groundwork for new business invention.

Identifying Opportunities

In the previous step, we established by one means or another, an agreed view of the business context and the partners with whom we expect to conduct business. That was accomplished through a combination of directed research and consensus building among the management team. Next, we apply the same kind of discipline to evaluate the expected patterns of value exchange among those identified business partners.

Analysis of the Networked Business

Here we incorporate ideas of network effects and cooperation among firms in a trading network. For the client firm, we consider the set of networks in which it will participate and identify what it will exchange, including information, goods, and money.

It is most important to identify those core capabilities on which the network as a whole depends and who owns them. This analysis helps reveal the client firm's relative strengths and weaknesses within its exchange network and the sustainability of its position. While it is usually advantageous to identify the win-win opportunities, it is not critical or even necessary for all parties within the network to uniformly share the network surpluses. Nor is it necessary for each relationship to be net profitable. Rather, each party needs to earn a profit from its respective exchange network. Firms that can operate at the center of such networks can often command a disproportionately large share of the surplus. This important distinction helps in the new business invention process that comprises this step.

During a series of workshops and research sessions, the joint planning team of management and consultants develops a set of business ideas that allow sustainable participation within its exchange networks. The outcome of this step is a set of business ideas describing the general concept and the value that the firm will produce and receive. If the teams have a set of defined scenarios, they identify opportunities in each scenario. For the business invention process, we evaluate how the information, goods, and money exchanges can be done more efficiently, with broader availability, and with higher quality using e-business techniques and building blocks⁵. We also investigate how we could better address the wants and needs of the network participants (customers, suppliers, etc) by improved methods of interaction. Finally, we estimate how the improved economics would allow for broader reach (more customers, more suppliers, more partners) and what value that would offer.

⁵ See Bagchi, Sugato and Bill Tulsiek, "e-business Models: Integrating Learning from Strategy Development Experiences and Empirical Research", SMS Conference 2000. (Available for download at <http://www.research.ibm.com/strategy>).

In each of these steps, we surface potential e-business applications. The process gathers all ideas – good or bad – and defers evaluation or rationalization. Next we group similar ideas, eliminate redundancies, and compose the list of opportunities for evaluation.

Future Invention Informed by the Present

During the invention process, management teams need some references that describe the kinds of business ideas available and the contexts in which they have been tried. It is also useful to know the costs and observed business returns although this information is used in the detailed design and selection steps that appear later. At this point, a reference library of business models helps keep the invention process efficient and focused on ideas that are truly new while employing all of the learning available on what has already been tried, tested, and established. We have developed a reference library from IBM's e-business case studies and it has been very useful at this point in the process. Over time, we plan to merge the case studies with the initiative repository described earlier. This will afford an integrated view including proposed initiatives and proven ones.

Defining Initiatives: Detailed Business Modeling

Armed with a set of possible ventures, the team begins the detailed design and development of business cases. Several analytical steps are necessary at this point. First the business ideas are factored according to the Strategic Capability Network (SCN) framework. This framework identifies the *value propositions* made to the external constituencies, such as customers, business partners and suppliers. We also analyze the internal constituencies, such as employees and the firm shareholders. These value propositions are linked to those internal and interrelated *capabilities* of the firm that are responsible for creating them. Capabilities in turn, depend on more tangible assets or *resources* (such as human skills, information technology) of the firm. Identifying value propositions, capabilities, resources and the supporting linkages between them results in the creation of a network of interrelated business capabilities supporting the firm's value propositions and supported by the firm's resources. These elements comprise the description of each initiative.

After the value propositions are identified, a sub-team can begin to estimate the expected business returns and any synergies that will result from sets of related initiatives. With the capabilities for each initiative identified, a second sub-team can work on the expected costs for each initiative. In the value analysis, we engage subject matter experts from within the firm. In the cost analysis, we also employ specialists from IBM's community of e-business implementation experts. In both steps, we make use of the case studies mentioned earlier to validate the estimates.

The SCN based decomposition of each initiative enables a third analysis process to commence in parallel with the other two. In this process, we look for commonly occurring capabilities and evaluate the implied logical precedence among the initiatives. The logical precedence relationships allow us to evaluate the complementarities in implementation costs and thereby better assess the net returns from each venture.

Identifying Value Synergies and Capability Reuse

The objective of this analysis is to develop a strategic positioning of the initiatives. The specific pieces of information it communicates are:

- The analysis informs the management whether the initiatives are consistent with the strategic intent and external image of the firm.
- It also indicates if and how the firm's core competencies are being leveraged by the new initiatives. This informs the level of confidence in the competitive sustainability of the initiatives.
- It identifies the reuse of past investments in technology and business capabilities, as well as the pooling of new capabilities to be developed. The reuse and pooling of capabilities results in economies of scale and learning, which, in turn, leads to sustainability.
- Large firms often have several divisions competing for the same e-business investment dollars. The identified potential for the synergies between the initiatives and existing offerings in various divisions may foster a more cooperative spirit between them.

Value synergies are identified by first identifying complementary value propositions that help the recipient achieve an objective. For example, Southwest Airlines offers its passengers "convenience" through complementary value

propositions such as frequent departures, best on-time arrival record, and fewest baggage handling complaints. Once the complementary value propositions are identified, the initiatives and existing services that offer them are considered to be synergistic. Synergy is also achieved by looking for situations where the same value proposition is redundantly supported and enhanced by multiple initiatives. The SCN representation helps to visually highlight these occurrences of value synergy.

The SCN representation also helps to display capability reuse by initiatives. Once the required capabilities have been identified for every initiative, a process of "normalization" looks for common capabilities shared between two or more initiatives. This process may be non-trivial if multiple teams have separately identified the capabilities for each initiative. A process of reconciliation, often involving adjusting the definition and scope of capabilities results in the identification of the shared capabilities. Additionally, we perform a capability gap analysis to determine the extent to which existing capabilities of the firm can be reused, compared to the development of new capabilities. The SCN representation is used to graphically display the set of initiatives supported by a capability.

During this process, the scope of an initiative could also be expanded. We look for instances where additional features and value propositions could be produced by taking advantage of a capability being developed for another initiative. Another characteristic that could be detected is the existence of positive feedback loops. This happens when a capability in an initiative supports a capability in another initiative, which, directly or through other initiatives, supports the first capability. These loops, depicted in an SCN network promise the opportunity of continuous improvement of the capabilities over time, leading to a degree of sustainability. While detailed capability analysis is best done for projects that make the final selection, it is useful to briefly consider these relationships here to better evaluate each project.

Logical Precedence of Initiatives

For many large corporations, the opportunity identification process typically results in the development of 20 or more e-business opportunities. It would be unrealistic to assume, for budgetary as well as logistical reasons, that they can all be implemented right away. At the same time, it would be a waste of creativity to discard some of these opportunities solely because of this limitation in the initial number of projects that can be started simultaneously. For this reason, we develop a phased plan or "roadmap" of initiatives that identifies initiatives for immediate implementation and those that should be deferred to subsequent phases.

The phased plan is an arrangement of the initiatives, as they will be launched over time. To compose this timeline in the next step, we identify those initiatives, which will develop the capabilities needed to support the realization of other initiatives. This approach allows for any uncertainties or risks associated with development of the first capability to be resolved before continuing with initiatives that assume its presence.

An alternative scheme for developing the phased arrangement of initiatives is derived from the value propositions. The first initiative could offer a basic value proposition to a market segment. When this is successfully accomplished, and the market uncertainty around the acceptance of this value proposition has been resolved, subsequent initiatives could enrich the value proposition or offer complementary ones. The SCN representation helps to identify these interrelations between value propositions and capabilities.

Investments: Optimal Selection and Sequencing

From the work completed so far, the team has a very detailed and focused view of its e-business opportunities. The final step produces an optimal selection and recommended sequencing of the initiatives based on the costs, benefits, precedence relationships, and the overall strategic goals of the firm. Depending on the preferences and budgetary considerations of the firm, we may recommend initiatives based on strict precedence relationships and maximum return. In other cases, we may reserve investments in some of the most fundamental but lower return initiatives until some higher return projects are completed. In still other cases, we may choose to pursue initiatives that support the highest returning future initiatives.

As noted earlier, the estimated returns need to include an assessment of risk. The scenarios aid this process. The benefits and cost teams can use the scenario descriptions (uncertainties, contexts, etc.) to evaluate any variation in costs or benefits that might arise from the emergence of that future. The variation in estimates across scenarios serves as a measure for risk. In engagements where scenarios are not developed, we produce "best case" and "worst case"

estimates. Here it is important to identify and document the assumptions underpinning each estimate to ensure consistency.

This methodology can accommodate emphasis on revenue or profit maximization, costs reductions, or an appropriately weighted combination. In some cases, we have used this information to secure approval of an appropriate increase in allocation of funds for the overall portfolio of e-business initiatives from the corporate board. In other cases, we have used the information generated within the methodology to work to an existing e-business budget. In still other cases, we have developed a portfolio of e-business initiatives that after a period becomes self-funding.

Conclusion

In this paper, we have explored the analyses that are necessary to develop a well-formed portfolio of e-business initiatives. We have also described a sampling of the intermediate and final deliverables derived from our experiences and past work. Finally, we have described our work in automating portions of the process through various software tools and have shown that those tools will provide a basis for improved quality and speed of analysis as well as a source for research in business strategy.

This methodology, the techniques that we use, and the tools that we are developing continue to evolve with our new experiences and with the new e-business applications that are invented each day. We hope that this methodology overview enables practicing managers to learn from our experiences and be all the more successful in e-business.

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