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Planning for the Extended Enterprise

Strategic Overview

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Introduction

Today, with the advent of the connected economy, we stand on the threshold of an economy where the fundamental processes of value exchange are being transformed. The sheer abundance of information has led to a surfeit of alternatives for consumers and reversed the signaling mechanisms that influence the very nature of supply and demand.

At the same time, transaction and coordination costs are about to vanish, forever reshaping the boundaries of the modern organization. Familiar economic entities such as large corporate hierarchies are becoming increasingly irrelevant as the connected economy, not the organization, becomes the most efficient means to conceive, create and exchange value.

The form and structure of economic entities is about to undergo rapid evolution. While not every segment of the economy will be pulled into this maelstrom immediately, we can now begin to see where the changes will occur. The challenge for each organization is to anticipate how those changes will affect our organizations, and how to use them to create lasting competitive advantage in the dawn of the connected economy.

The Extended Enterprise

Extended Enterprise is the set of windows that describes the characteristics of a future proof organization anticipating to its environment and collaborating with its partners and customers by utilizing the technology possibilities.
Business has to be re-invented. Increasing complexity leads to entropy where too much energy is focused on internal issues. New competencies and roles have to be invented and innovative applications will be created.

Partnership management has since more than a decade been on the agenda of the CEO. After a decade of growing awareness how the new technologies like PC, Internet, mobile communication and broadband communication can be used, organizations undergo rapid evolution. The challenge is to anticipate how those changes will affect our organizations, and how to use them to create lasting competitive advantage in the dawn of the connected economy. In other words "How can they transform effectively towards those new rules of the game?" How can they become an 'Extended Enterprise' that matches these challenges?

The windows of opportunity
Each window represents a set of characteristics related to a specific theme.
Extended Strategy & Planning is one of the key themes of the Extended Enterprise Model. Other key themes are Extended IT, Extended Organization and Extended Lifestyle. All these themes together deliver the necessary Extended behaviour for the Extended Enterprise.

The developing Extended Enterprise is dynamic and evolving rapidly. It demands parallel flexibility in all who take part, and therefore all Extended windows has to allow for this extreme flexibility, with changes accommodated in hours and days, to respond to the new electronic network based society rather than months and years as has been traditional.

Three basic structures for Connected-Economy success

There are three fundamental structures that govern the nature of all economic activity: supply; demand and the way in which value is

exchanged between them. At its most rudimentary level, the entire economy can be viewed as a universe made up of just these three elements: **value producing**; **value consuming**: and **value exchanging** entities.

However, the ways in which each of these elements is constituted, and how each relates to the others, are not fixed. In fact, these entities change their boundaries and behaviors based on a number of different circumstances.

While most organizations would readily subscribe to the idea that supply influences demand, we're not nearly as comfortable with the idea that the way in which value is exchanged influences supply, or that the way in which transactions occur can influence demand. The connected economy, as a signaling, coordination and value-exchange mechanism, is reshaping the fundamental organization of economic activity along those very lines.

Economists have long debated the underlying principles that give rise to the overall structure of the economy. While there are many different models that attempt to explain the natural organization of economic activity, the Internet has brought three dominant economic organizational forms into prominent and stark relief: hierarchies, networks and collaborative value webs.

It's well understood that each of these forms becomes a preferred economic structure under certain conditions. Here are some rules of thumb:

- **Hierarchies** (Industrial Enterprises) form when a concentration of specialized knowledge or assets is required to produce and market a product - for example how to locate, extract and refine oil.
- **Networks** (Rebuilding Enterprises) of suppliers predominate when demand for a given product or service becomes highly specific and highly uncertain.
- **Collaborative Markets**, (Extended Enterprises) emerge based on the numbers of buyers and suppliers, the cost to exchange value, and the needs of participants to obtain and exploit information.

Since most economies have lengthy histories, most have also built up legacy structures. For most of the industrialized world, hierarchies make up the dominant economic pattern. However, the adoption of the Internet, with its ubiquity, transparency and speed, has begun to influence the circumstances that determine how and where each of these forms will be successful in future.
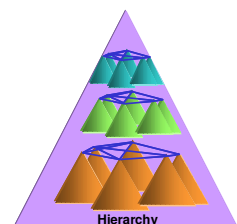
In the pending evolution of economic activity, the Internet is no less than an extinction-level event, positioning hierarchies, networks and collaborative markets against each other.

Understanding the Opportunities

The challenge then becomes one of understanding what opportunities will emerge due to the changes in organizational structure of economic activity. In 2000, venture capitalists have put their money on the Internet as a first rate mechanism for market signaling, customer acquisition and value exchange. Clearly, the technology has already demonstrated that it can have a dramatic influence on market-facing activities such as generating awareness, and promoting loyalty, and encouraging transactions.

However, the questions remains one of how the Internet will ultimately reshape the rest of economic activity – and whether these initial changes are just the beginning of a much larger and more profound transition to fundamentally new forms of economic structures, like the collaborative Markets.

## How Business Models are Morphing: The Value Creating Collaborative Business Model

The evolution of the organization of economic activity is being driven by a change in environmental circumstances: the rapid adoption of the Internet and new technologies. Its speed, ubiquity and transparency are propelling the natural selection of organization forms into specialized value-producing and value-exchanging entities.
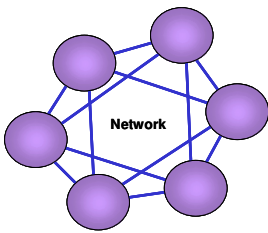
We are going from a period marked by large hierarchies that were self-contained value-producing and value-exchanging entities, whose economies of scope lowered transaction and coordination costs, to a period marked by narrowly focused value-creating entities networked together based on well understood boundaries of complementary skills sets, to a community of hyper-competitive value-creating entities collaborated together by specialized value-exchanging entities in markets, serving highly informed and empowered customers and organizations.
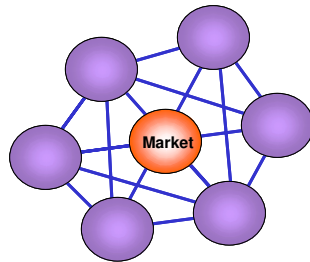
Plan for Permanent Volatility

It is certainly understandable to lament the condition that we find ourselves in across the globe, but market fluctuations are not new – nor is the threat of recession. What is different, however, is the degree of volatility that we are witnessing. It seems *permanent*, if that is possible. In other words, it seems that we are in an era of rapid evolution of our economic entities, much like the evolution, which many other species have endured – except for the ones that we will never know. In situations where volatility is so marked, we instinctively reach for something to believe and to trust. If we do not find such a signal, we quickly lose our coordinates and our orientation.

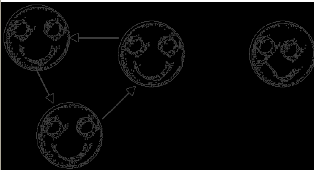## Dynamics is a Constant, So is Adaptation

In searching for more stability, we might ask ourselves, "What is constant?" The answer is obviously Dynamics. Dynamics and related to dynamics, Change is indeed a constant. Less often acknowledged, however, is the companion of Change – Adaptation. It is also a constant in that it takes place repeatedly and, in some situations, continuously. In Nature, we see all forms of adaptation taking place, not only biological but also behavioral learning, copying, and deploying are essential techniques for

offsetting threatening circumstances. Interestingly, the most impressive characteristic is not adaptation itself but the trait of adaptive ness, which seems to be a trait that can be cultivated and leveraged into flexible-but-strong strategies for survival.

Evolution of Complex Systems – Self Organization

Evolution has progressed from simple elements up to human societies and systems. Simple elements have become more complex systems with autonomous internal elements. Cells have formed animal and plant bodies. Animals have formed societies. Ecological structures have emerged.
There are simple steps leading into cooperation and hierarchy formation.

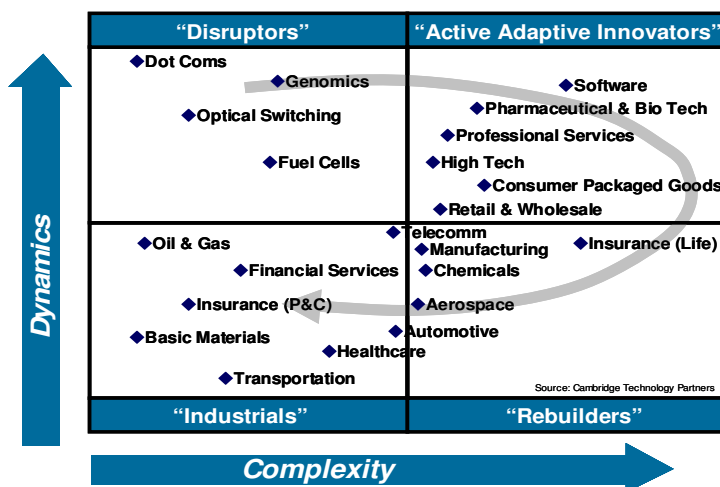|	
Stage I. Independent units compete for maximum fitness. Without regard to their elaboration, this is what state of the art genetic programs and algorithms seem to do.	
Stage II. Some competitors begin to cooperate. This is never accomplished in genetic algorithms	
Stage III. Cooperation continues inside a border to protect resources from aggressive outside.	
Stage IV. The higher hierarchical units continue to evolve. We are back to a usual genetic algorithm with self-organization.	

This process repeats itself into higher hierarchies whenever it as enough resources. Real life indicates that whenever resources are scarce, competition is beneficial. What is striking in life is the evolution of reusable and modular

lower level units with self-organizing capabilities. Life uses the same components again and again in different designs.

Business Concept Innovation:

Today, the connected economy raises the stakes to unheard-of levels. When it combines global reach with decreasing transaction costs and increasing returns to scale, it makes business-model disruption$^\nabla$ much more pervasive. Networked like never before, tiny start-ups now suddenly deliver the clout of long-established corporations.

"Disruptors"	"Active Adaptive Innovators"
◆ Dot Coms ◆ Genomics ◆ Optical Switching ◆ Fuel Cells	◆ Software ◆ Pharmaceutical & Bio Tech ◆ Professional Services ◆ High Tech ◆ Consumer Packaged Goods ◆ Retail & Wholesale
◆ Oil & Gas ◆ Financial Services ◆ Insurance (P&C) ◆ Basic Materials ◆ Transportation ◆ Healthcare	◆ Telecomm ◆ Manufacturing ◆ Insurance (Life) ◆ Chemicals ◆ Aerospace ◆ Automotive
"Industrials"	"Rebuilders"

Source: Cambridge Technology Partners

Dynamics (vertical axis) — *Complexity* (horizontal axis)

A recent study commissioned by Forbes ASAP magazine found that innovation was the dominant factor in boosting market valuations. In most cases, it proved far more influential than customer satisfaction. However, today's innovations are tomorrow's utility products and processes. Just look at the Web browser. Once the innovation has diffused throughout its natural market, it becomes incumbent. Will today's disruptors be tomorrow's dinosaurs? Will disruptors such as fuel cells spell extinction for old-economy industries such as Oil and Gas? So if we classify organizations related to their complexity and the dynamics in their environment, we can identify four groups named 'Disruptors', 'Active Adaptive Innovators', 'Industrials' and 'Rebuilders'.

$^\nabla$ (Disruptive Innovation: The focused exploitation of emerging technologies to radically reinvent industries [via new business Models] or to displace incumbent product or service offerings in existing markets.)

Placing these four groups in a matrix can be very useful by identifying the type of organizations that will have the best fit for addressing the Extended Enterprise concept.

Companies who excel at creating opportunities, for example, often recombine elements of their businesses to reveal new capability and derive new impact. Like entities in nature, they also routinely "destroy in order to create." Connecting, by extension, is a way to multiply value through information sharing and cross-linking of capabilities.

Extended enterprises constantly test boundaries to prevent silo-type thinking and behavior. They also establish feedback from connection channels with customers, suppliers, employees, and competitors that guide the enterprise toward a more precise fit with the market. Evolving successfully connotes selection and cultivation, and the most adaptive companies seem to possess an uncanny ability to speed up natural selection and promote investment in adaptive techniques and underlying technologies. Business Concept Innovation is de process to innovate business activities in a short time cycle.

Strategic Options multiply in an Extended Enterprise

Not surprisingly, the Extended enterprise benefits from more latitude than organizations that cannot cope with changing conditions. This latitude stems from focus, flexibility, and speed. From its technology-enhanced capabilities for "matching the environment," the enterprise gains extraordinary focus in a micro-context. This permits extreme attention to detail and subtle nuances in customer preference and behavior, leading to larger profits. From its plug-and-play operating model, the enterprise derives flexibility that permits the organization to "morph" to fit the circumstances, thus reducing decision time and reducing costs. And finally, from its reserve of information and constant option specification, the enterprise can accelerate toward a conclusion or a change with decisive speed, when appropriate and not before, thus preserving the maximum set of options until it becomes necessary to commit.

The Factors that will force Change Fastest

Not every business model will be instantly altered by the changes wrought by the Internet. The longevity of today's business models is an indication of how well they've adapted to their economic environments.

However, the attributes that makes one business model successful for a given set of circumstances can jeopardize its future when those circumstances begin to change. The challenge for many organizations will be determining the sensitivity of existing business models to the rapidly evolving set of economic circumstances brought about by the adoption of the Internet.

The Rate of Change

The rate of change will often be dictated by how rapidly an industry's value-exchange mechanisms can evolve over networked environments. In some instances, the nature of how value is exchanged or how business is transacted will change very little. For instance, the sale of goods and services which require a high degree of customization will likely continue to be concluded on a case-by- case basis between a limited set of well known trading partners. While the network might facilitate the exchange of information between each of the parties involved, those kinds of bilateral transactions will remain unique and relatively complex in how they are negotiated and completed. In others cases, collaborative markets will become the dominant means of conveying value.

Other environmental factors will have an equally significant influence on the future of successful business models. Not least will be the issues noted above, including the certainty of demand, the degree of asset specialization, or the costs related to complete transactions. Changes in any one of these factors can influence how successful incumbent business models will be in a rapidly changing network environment.

One way to determine which existing business models will most likely be affected by changes to environmental factors would be to assess the degree of sensitivity of the current organization of economic activity for any given industry.

For instance, where asset specificity and transaction costs are relatively high, the chances are good that hierarchies will remain the preferred business model.

However, where goods and services are subject to high rates of demand uncertainty and consistently lower transaction costs, networks and collaborative value webs will emerge as the dominant business model. If your current business model isn't properly positioned against key environmental factors, chances are things are ripe for change.

Industry Overview

A quick scan of industries against these factors reveals some interesting results (see matrix). By evaluating how each industry rates against a few key environmental factors, a picture begins to emerge of which ones are about to change.

Where oil & gas and pharmaceuticals exhibit low demand uncertainty and high degrees of asset and knowledge specialization, the probability is that traditional hierarchical business models will be slow to change. That's not to suggest that the ways in which consumers engage these organizations might not be influenced by the Internet, but rather to say their internal business models will not come under undue pressure to change very quickly due to the effects brought about by the Internet.

Insurance, financial services and high tech all of which have moderate to high rates of demand uncertainty and low asset specificity -- are likely to experience significant pressure to evolve. In industries where large hierarchies currently exist, they are likely to split apart and become specialized value creating and value exchanging entities employing both network and collaborative value web based forms of organizational behavior. Healthcare, which has moderate demand uncertainty and higher transaction costs, is likely to begin a longer evolution to newer forms of business models.

Technology Enables Us to Reach a Higher Level of Extendability

If we want to attain a higher level of adaptiveness, how do we go about it? Technology and creativity in its application

together provide the answer as well as the behavior of the people.

The culture and mindset of the people working in an Extended Enterprise must be open to new ideas, reacting fast on changing circumstances, creating new opportunities. So the people them selves have to be adaptive to react on events.

Today we can obviously measure events more precisely than ever, making it possible to act on such information more rapidly, completely, and *automatically*. This new granularity provided by technology - what we might call "micro-observation" - is a major enabler for enhanced pattern recognition and the generation of decision alternatives. With the cost of repeated or even continuous observation by "agent-based software" decreasing daily, we are entering a period when constant reading of variables will provide nearly on-line observe-react capability in customer relationship activities, supply chain management, and product development. Even more critical, however, is the power to act, to adjust, and to customize at low cost, creating a system that is so instantaneously reactive that it appears to shape its environment. The net result is an order of magnitude improvement in fit and far less "wasted profit" from missed opportunities or tardy corrections of problems.

Extended Technology

No one questions the fact that the Internet has revolutionized the computing experience for users, as well as for extended enterprises, the world over. But experts now see that the Internet has also triggered a revolution in the ways people use computing devices, and in the devices themselves.

In the past few years, a multitude of new application-specific and general-purpose devices has appeared, and many more are on the way. Also, thanks to continuing improvements in processing, memory and networking capabilities, this trend is likely to accelerate in the future. Many enterprises are now facing a challenge that may be orders of magnitude greater than the PC revolution in the 80's. Back then; IT management disregarded the fact that many line-of-business users were ordering personal computers for their offices. The result: near-chaos, as enterprise data, content and applications suddenly proliferate across thousands of user desktops.

Today, user devices are again proliferating. But today's challenges are even greater. Today's devices come in a wide range of shapes, sizes and capabilities, and they feature widely varying bandwidth-capacities, screen formats, browsers and other attributes. Many are wireless, but many are wired. For the Extended enterprise, the challenge is to accommodate these devices within an infrastructure that can both maintain order and still put each device to its best use.

Many enterprises have moved to create an e-business infrastructure that enables a wide array of users, whether they are customers, partners, or employees, and devices to access various enterprise application services and information. But now, the challenge becomes the increasing volumes of content and applications, as well as the diversity of user devices that are requesting access to the increasing amounts of content. Extended Enterprises that can anticipate and leverage these new Internet access device technologies and form factors, as well as the massive proliferation of content and applications, will stand to gain substantial and lasting competitive advantages.

Device differences in performance, footprint, screen format, bandwidth capacity and other factors must be accounted for by all relevant applications. A one-size fit all approach won't do the Extended enterprise any good: user experiences will be disastrous. Also, if the enterprise attempts to serve content to all devices at maximum speed, intranet bandwidth will be wasted and compromised. Many devices have limited bandwidth capabilities, so by allocating extra cycles to them, the enterprise takes usable bandwidth away from other, higher-capacity resources.

Another challenge involves avoiding administrative complexity. By adding niche or one-time adaptive capabilities only, enterprises run the risk of adding a new layer of complexity to already overburdened software architectures, as well as adding new responsibilities to already overwhelmed in-house developers.

The best answer is to build an adaptive infrastructure, based on an adaptive architecture, one that can handle the device formats and bandwidth demands of today and tomorrow's personalized wireless and wired devices.

Extended Technology: Criteria to Evaluate

Once you understand the Extended IT concept, management or architects can begin the IT planning process.

Key to building an extended enterprise architecture & infrastructure that can scale to handle wide-ranging applications, device requirements and customization are these specific evaluation criteria:

- Per-device and per-bandwidth personalization - The Extended enterprise should be able to serve content in the form and by the performance mode that best suits the device.
- Content customization - Likewise, content should be customizable for each device or application. For instance, content-adaptation rules might be present that would add intelligence to the adaptation process, lowering the quality of content served to bandwidth-limited devices, and serving higher-quality content to higher-capacity devices.
- Functionality customization - Functionality to support users and customers should be customizable for each function, task or activity. Adaptable workflow functionality has to be present to serve the users in all their activities.
- Bandwidth detection - Additional intelligence should be present that can detect the requesting device's bandwidth capabilities: a PDA communicating via a 128Kbps ADSL link would be served at a lower speed than, say, a laptop with a 10 Mbps wireless LAN link.
- Image transformation - This would add the capability of adjusting graphic resolution according to the resolution

capabilities, and the pre-set rules, of a given application and device.
- Run-time, adaptive performance engine - The basic adaptation process involves converting one format, HTML, for instance, to another, say WML, by means of an intermediate step, that step involves moving the content through pre-written XSL (eXtensible Style sheet Language) templates. To avoid wasted, redundant conversions, the conversion should take place only as the content is requested, and it should happen at ultra-high speed, so that the conversion will be transparent to the requesting user.
- Transparency – A uniform way the user is facilitated by the intelligent adaptive infrastructure in a logical and understandable manner, based on the functional personal workflow of the user, supported by a uniform user interface.
- Distributed adaptation - This is an additional level of sophistication that permits content adaptation to take place at the network node closest to the content server. Since adaptation typically produces a slimmed-down version of the original content, the resulting file is smaller, and can travel more quickly to its destination.
- Modularity - A modular architecture pays dividends in scalability, but it also means enterprises can start with a modest infrastructure installation, and then grow according to their ideal adaptive business model.
- Scalability - An adaptive infrastructure must be capable of scaling quickly to take on more content, more applications, or more users. Often, these may happen at the same time, because the pervasive Internet, along with the many devices that populate it, forms a highly dynamic environment.
- Extended Enterprise architecture - An extended enterprise architecture delivers flexibility and adaptability in technology and business changes, but it also means business innovation can be facilitated very fast by technological possibilities.
- Integration with industry-standard technologies - Finally, the infrastructure should fit within the existing enterprise

infrastructure as cleanly as possible, tying into web servers and back-office applications easily. This way, the new infrastructure will maximize existing technology investments.

These evaluation criteria are very useful in the discussion with customers and others, to help to understand the real needs of the customer and to focus on quick wins in the context of adaptive IT.

Toward The Extended Enterprise: How Tomorrow's Organizations Will Succeed

In industrialized economies, the evolution of economic activity into mass markets and large hierarchical organizations was neither a capitalist plot nor a cosmic accident. It was the natural evolution of an economic system seeking to lower costs and increase participation by the most expedient means then available. The changes brought about by the Internet are no different; only the consequences have changed. The transparency of information over the Internet creates an environment where value can be easily discovered, conveyed and exchanged. Since demand will become increasingly specific and personalized, the networked economy will be one inhabited by tightly focused value- creating and value-exchanging entities.

In this environment, the successful firms will be those, which can quickly and inexpensively become part of a fluid extended enterprise. They will have to concisely establish their core competencies and value propositions. In many cases, that means they will have to choose whether they will be a value creating or a value-exchanging entity. The days where full service means higher prices are over; in the connected economy, the consummate value proposition will always be only a mouse click away.

Finally, those successful networked firms will have to be trusted suppliers and practitioners of their trades. If competence is what gets you into the network, trust is what will keep you there. Lose that and you'll lose everything.

Extended Enterprises Will Dominate Competition

Within the decade, we will see highly intelligent enterprises come to dominate their space. As noted, they will capitalize on the technology to withstand shocks and to maximize fit with the environment. They will utilize their adaptiveness to shape and execute real-time strategic options. Make no mistake - these will not be simply "learning organizations" - but instead action-based entities that attack open space, defend instinctively, and anticipate possibilities. For companies who do not upgrade their capabilities to competitively adaptive levels, difficulties will multiply rapidly. Costs will appear out of control vis-à-vis the best-evolving players and historical knowledge of customers will quickly decay in value. In defense, the smarter of these players will elect to outsource large pieces of their core businesses to superior firms and then recombine the pieces imaginatively to suit specific opportunities - thus creating a modular or plug-and-play capability that is both strong and flexible.

Conclusion

Ultimately, successful Connected Economy organizations will be those that can effectively determine how and where they will realize increasing rates of return on the capital they employ. Many companies believe that the best opportunity to realize scale is by using the Internet as a customer acquisition mechanism. That may be true for some organizations, but it won't be prevalent because value webs are likely to become the dominant value-exchange mechanism. So the question will turn to one of whether the value-creating properties of the firm can realize scale.

In a world populated by value creating and value exchanging entities, often the decision will come down to owning one of three fundamental value propositions.

You will either be able to own the customer, own the content that the customer seeks to acquire, or own the infrastructure that allows the content to be produced or the value to be exchanged. Each has a different business model. Each exploits a unique core competence. Each employs a different means of generating economic returns. However, in the Connected

Economy, attempting to own all of them simultaneously will increasingly become a game of diminishing returns. When the network allows competitors to fill the gaps in their offerings at no additional cost, owning all of these competencies only increases risk without necessarily increasing returns.

As the factors that make up the economic environment change under the influence of the Internet, we can begin to anticipate how and where they will alter the cohesion and boundaries of the entities that make up the connected economy.

We can estimate which industries and business models will likely become threatened and which will likely survive. In the process, we can redefine the way in which our organizations will participate and continue to create value for customers and shareholders alike.

Five Questions You need to Address when discussing the Extended Enterprise concept

Management needs to ensure that their organizations executives are thinking about the implications of the Extended Enterprise. Here are five questions you can use to spur your management:

1. **Does the management team** have a shared vision of the long-term (five to ten years out) business implications of the collaborative market architecture?

2. **Do we have a transition plan** that balances the state of the architectures development with a clear understanding of the areas of highest business impact?

3. **Are we moving fast enough** today to build our expertise and exploit immediate opportunities for streamlining collaborative core tasks, outsourcing activities in which we don't have distinctive capabilities?

4. **Does the management have a clear understanding** of the obstacles within their organization that may hinder them from exploiting the full value of the new technological possibilities, and do we

have initiatives under way to overcome these obstacles?

5. **Are we exerting sufficient leadership** in shaping both the functionality offered by providers of Internet services (defining, for example, the performance levels required for mission-critical applications) and the standards needed to collaborate with partners?

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