Value from Mobile Internet: 
A Consortium Program of Strategic Experimentation

An Invitation to Participate

Boston University Institute for Leading in the Dynamic Economy

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Boston University Institute for Leading in a Dynamic Economy (BUILDE)—located within the School of Management at Boston University—has embarked on a cooperative research program aimed at understanding how business enterprises can best create and capture value from Mobile Internet.

We have designed this program as an active collaboration between academics and business enterprises—which are in the midst of various initiatives to leverage the functionality of mobile Internet. Some enterprises may be in the early stages of analyzing the potential impact while some others may be in the midst of developing business cases and designing field trials to evaluate possible benefits.

We have structured the program as a Learning Forum—where companies pursuing different initiatives can share their experiences in a facilitated way. We believe that such a Forum is particularly useful in fast-changing dynamic conditions where rapid learning and adaptation is critical for success. This is different from passive benchmarking groups that share best practices or lessons learnt post-hoc. We have designed it to be an active working-group that coordinates the design of experiments to the extent possible and share experiences and results on an ongoing basis.

We believe that the age of rapid changes brought about by the networking technology calls for thinking about strategy as experimentation rather than as formulation of plans and execution of programs. And there are major benefits to carrying out the experiments in a coordinated manner across different enterprises.

We invite the companies to participate in this research program on a confidential (non-disclosure agreement) basis. The faculty research team will maintain the company-specific information for the purpose of interpreting the results and developing insights. Only aggregate findings and results will be shared across companies. We invite companies with complementary objectives and seek to minimize directly competing firms.

We have already received commitments from a set of leading enterprises. The purpose of this note is to invite a select set of companies to join us in the final composition of the group. We also believe that this group of enterprises can influence the actions of the network providers and related companies to deploy the technology infrastructure in ways to maximize the ability of business enterprises to capture value.

We hope that you are intrigued by the potential impact of Mobile Internet. We also hope that you find the logic of strategy as experimentation to be a powerful and valuable approach to capitalizing on the functionality of Mobile Internet.

We look forward to discussing the possible participation of your enterprise in this research program with you soon. Please contact Jim Ciriello, Executive Director of BUILDE at jnc@bu.edu.

We invite your participation.
Creating and Capturing Value from Mobile Internet

THE MANAGEMENT CHALLENGE

As we get into the 21st century, one thing is clear: the pace of technological developments has outstripped a typical organization’s ability to master it. The dot-com bubble may be over but the deployment of networks in various forms continues unabated.

Unlike 1998-2000, companies are shying from making any serious investments in new technologies that appear to hold promise but not proven value propositions. In looking at new technologies, most managers see major uncertainties rather than clear opportunities.

At the same time, another thing is clear: the business landscape is shifting from the industrial-age to a network-age. Internet and its next generation, Internet2, broadband connections, cellular technologies and the third generation mobile Internet are creating possibilities for enterprises for enhancing their operating efficiency as well as create new drivers of customer value. Hence, managers—while recognizing the risks—need to act.

THE ERA OF MOBILE INTERNET

Mobile Internet is one of the potentially attractive technologies for business enterprises in the near future. The conventional wisdom has been that the mobile Internet is only most valuable and useful for the consumer market (you may recall the launch of AT&T’s mobile life offering—mlife—during the recent Super bowl). Now, it is becoming clear that significant value could be realized by enterprises as they leverage the functionality of speed and coverage to enhance their current operations as well as create new capabilities.

There have been some disappointments with the mobile Internet: the telecommunications companies that paid high premiums to garner the spectrums for deploying the mobile Internet functionality are in trouble. The expected revenue streams have not been forthcoming. Investment flows have slowed down and the deployment of the necessary infrastructure has been slow. The coverage is spotty and multiple different standards exist and we do not seem to have reached the steady-state conditions for enterprises to take advantage of the new functionality.

But, leading network providers have announced plans to deploy the Third Generation (3G) technologies: for instance, Verizon Wireless and Lucent Technologies are now in the midst of deploying CDMA2000 trial network in the Washington, D.C. area capable of mobile access to corporate applications such as e-mail and intranets at data transmission speeds of up to 2.4 Megabits per second (Mbps).

So, how should business enterprises think about developing a plan for Mobile Internet? How should the business case be made? How should the investments be justified and adapted over time to respond to shifts in the market? What business processes hold the best promise? There is a lot of hype about the technology but limited guidelines on how best to capture value?
STRATEGY AS EXPERIMENTATION

We believe that Mobile Internet is a setting that calls for new approaches to strategy formation and implementation. If there is one thing that we know from the tumultuous two years at the turn of the millennium is that there are no sure-win ways to approach the future.

The future is not an extrapolation of the past. The network era is different than the industrial era—because no one company is a master of its own destiny. There are complex interdependencies and exploiting information technology is no longer a matter of reengineering internal operational processes but involve co-creating new capabilities with external partners and vendors. The old business rules appear to be of limited value and the new business rules have not yet been developed.

This calls for viewing strategy as experimentation—experiments to allow for rapid learning to understand alternative ways for scaling up effectively; experiments to assess how best to leverage the new functionality with the requisite organizational changes; and experiments to reconfigure the broader set of alliances and partnerships to create new business value in this dynamic era.

There are multiple avenues to pursue strategic experimentation—you may already be carrying out many initiatives to explore the benefits and limitations of mobile Internet. This research program complements those internal efforts through a collaborative approach to strategic experimentation with complementary enterprises.

We believe that the broad arena of Mobile Internet lends itself to a collaborative setting because the domain is broad and the pace of change is high. We also believe that a university-based research team—experienced in designing and executing studies while guarding private and sensitive data—can play a very useful role in complementing your own internal efforts.

OUR FRAMEWORK ON STRATEGIC EXPERIMENTATION FOR MOBILE INTERNET

Our logic for looking at value from mobile Internet is based on a simple premise: value is created and captured when the technical functionality is effectively combined with the requisite organizational changes. This is schematically represented in the Table below.

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What are the critical technical attributes of the Mobile Internet for business enterprises? We array the technical features along three stages from Immediacy to Sensory to Intelligence, with the later stages subsuming the functionality of the earlier stages.

**Stage 1: Immediacy [Immediacy = Speed + Presence]**

In the first stage, mobile Internet allows individuals to experience network connections at speeds close to what is available today through cable-modems and DSL connections. The high speed allows mobile workers to access rich data faster through their laptops than otherwise possible through dialup connection speeds. And for individuals, it opens up new range of experiences such as listening to high quality digital music and multi-media entertainment. The expected speed range is between 56Kbs and 2Mbs with typical speeds of about 384Kbs.

Connectivity is increasingly secure and reliable. The spread-spectrum air interface used in 3G systems is inherently more secure than existing 2G technologies. When complemented with high speed and adequate coverage, the technologies allow for end-to-end security from the device to the corporate application server. This allows the enterprise to extend VPN services to mobile workers with minimal impact on the enterprise infrastructure.

The increased speed also enables rich application functionality normally performed with laptops or high-end personal digital assistants. Connecting these devices will be as easy as inserting a new PCMCIA card, very similar to the more common Wireless LAN solutions. This allows the enterprise to leverage existing investments in device technologies.

In addition to high speeds, there is greater assurance that the network is always on—implying that there is continuous presence on the network. There are also multiple routes to being connected. There are personal area networks through bluetooth wireless connections; there are local area wireless network IEEE 802.11b (and 802.11a) that can extend beyond a single house to high traffic hotspots, such as airports and hotels; there is the broader 3G cellular network being deployed; and there is the evolving role of today’s satellite networks. As these four get increasingly linked seamlessly (together and with existing wire-line solutions) with integrated handshakes across them, greater seamless mobile coverage is possible.

**Stage 2: Sensory [Sensory = Immediacy + Identification]**

In the second stage, the network has additional characteristics to report on location details that can be very valuable. For instance, the growing sphere of telematics in the automotive sector is based on the functionality of GPS—you may be familiar with GM’s OnStar that provides a variety of services based on GPS functionality (www.onstar.com).

Mobile Internet goes beyond the mere identification of the location of a device or a machine or an individual. The network develops the capability to uniquely identify the individual and provide services that are specific to the individual at that time and place. It’s possible to direct a consumer to a nearby preferred gas station or a restaurant rather than just any undifferentiated service location. In the freight arena, truckers with less-than-truckload freight can be directed to take on additional cargo based on specific information of what’s in the truck. Similarly, movement along the supply chain can be dynamically altered and redirected based on data on location and presence. For instance, the availability of Radio Frequency
Identification Tags (RF ID tags) can play a major part in smooth functioning of the supply chains. Many business applications exist today—but on separate disjointed networks involving cellular voice, wire-line, peer-to-peer connections and GPS functionality. The emerging mobile Internet promises a more streamlined infrastructure for companies to take advantage for improved efficiency and effectiveness.

**Stage 3: Intelligence [Intelligence = Sensory + Customized Interaction]**

In the next stage, the network pushes the intelligence to the edge. The network is no longer just a powerful thick pipe capable of carrying rich data but has the capability to deliver the required data in an intelligent way to the specific user based on the specific requirements. Think of the possibility where a property and casualty insurance claim is adjudicated at the point of a customer service representative visiting the accident scene rather than the traditional multi-stage process involving weeks. If the mobile professional worker has the ability to interface with the central office through rich data (pictures, videos) and bring to bear the required expertise (to prevent fraud), customer satisfaction can be considerably enhanced.

Think of mobile professionals in the construction arena (architects and contractors)—whose effectiveness can be considerably enhanced with access to specific data and information rather than just generic data on drawings or specifications. Think of lawyers who depend on time-sensitive and case-sensitive information rather than just general information. When the networks evolve to locate not just the location but also drive customized interactions, we can eliminate significant non-value added activities in the economy. Then, truly we shift into an economic era capable of customized value embedded in products and services based on knowledge and expertise.

Today, there is a shift in how customers are served: for services that can be delivered remotely, call centers supported by computer-telephony integration located in places like India and Ireland could suffice. But for services that involve physical interventions like repair, installation and modifications, we need to rely on a new type of workers labeled as gold-collar workers— who are supported by powerful technologies like laptops, diagnostic devices and multi-media support. Across many sectors of the economy—manufacturing, construction, financial services and entertainment, the role of gold collar worker is changing and becoming an integral part of the customer value equation. How best to complement their knowledge and expertise with intelligence pushed to the network with mobile Internet? How will the design of their tasks change given the power and functionality of these emerging technologies?

**Organizational Levers**

Value from new technologies is never fully realized unless corresponding changes in organizational infrastructure and processes are carried out. In the context of mobile Internet, there are three different organizational levers that should be considered. These are—(1) restructuring the task itself so that the mobile knowledge worker is best able to carry out the task efficiently and effectively; (2) redesigning the process differently to take advantage of the power and functionality of the network; and (3) reconfiguring the broader set

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1 The term “Gold Collar Worker,” has been used for many years, but has recently gained a new emphasis and meaning in light of the demand for high skill, high wage employees - workers who often have less than a 4-year degree; they are expected to be core to the emerging high-tech economy. [http://www.tech.mtu.edu/gold%20collar.htm](http://www.tech.mtu.edu/gold%20collar.htm). We believe that there may be a new category within the gold collar workers who are mobile professionals who may benefit from these wireless networks.
of alliances and partnerships so that complementary activities can now be seamlessly carried out.

**Level 1: Task Restructuring**

Clearly, the design of knowledge-intensive tasks are shaped and supported by powerful technological characteristics. As we shift away from tasks designed to reflect the opportunities and requirements in an industrial economy, we need to be more focused on how the tasks can be best structured to take advantage of the emerging technical functionality. What responsibilities and authorities can be given to different mobile gold collar workers to carry out the tasks? What checks and balances are required to ensure that increased authority and responsibilities are not misused?

Mobile Internet should not be seen for its technical functionality alone but as a powerful way to design tasks for the new business landscape.

**Level 2: Process redesign**

As the mobile internet technology becomes more stable, pervasive and robust, enterprises can redesign business processes that go beyond just restructuring of individual tasks? What tasks can be combined? What tasks can be eliminated? What steps appear not to be value-adding now?

For example—does the availability of real-time information along the supply chain change the fundamental design of manufacturing and distribution? How best should field-service operations be designed now with the availability of rich information at the point of customer service? What’s the role of advertising and promotion in the context of the possibility of location- and context- specific offerings?

Business enterprises should begin to assess how mobile Internet could destroy their current capabilities as well as create new capabilities? Implicit in such an analysis is the assessment of the degree of threat posed by competitors using the technology to unseat your own current market dominance.

**Level 3: Ecosystem Reconfiguration**

The domain of impact of technology is not limited to activities within an enterprise as the boundaries across companies are increasingly blurred. So, the question is—how can we restructure the activities with a set of alliances and partnerships in ways to best position for success? What pattern of alliances and partnerships—including those with technology vendors—are required to succeed?

For example, it is easy to visualize the possibility that these emerging technologies allow for cross-selling complementary products and services. What bundle of complementary services makes sense? Is it possible to expand the business scope by taking on additional services that can be more effectively delivered given the new technological functionality?

Clearly, the organizational levers are guided by the business vision. Indeed, the design of these experiments must be within the context of a business vision. What’s the enterprise striving to do with Mobile Internet? What business value equations will it impact? Some companies may seek to create a first-mover advantage while others may carry out the experiments to simply maintain competitive parity once the infrastructure has reached a level of stable functionality and performance. Indeed, the business vision is translated into the specific performance factors that should be assessed during the course of the various experiments.
What’s the business impact? This is the third part of the framework on strategic experimentation. Indeed, this is the overriding issue that sets the context for thinking about the role of this technology as part of the business operations. This is where we believe that the telecom companies have faltered—focusing more on acquiring the capability (spectrum frequency) without thinking through the business pulls and drivers of demand for the technology.

Our experiments are designed to focus on the business impacts as seen by the enterprises carrying out the experiments. Essentially, we look at the business impacts along two dimensions—focus (individual—employee or customer; and enterprise) and criteria (efficiency or innovation).

Some experiments may be geared towards assessing the productivity of mobile gold collar workers. Other experiments may be aimed at understanding how customers react to different advertising and promotion offerings that take advantage of the sensory and intelligence characteristics of the networks. Yet another set of experiments may be focused on supply chain effectiveness as a process while it’s also possible to design experiments to assess new business model innovations.

The business impact will be guided by the particular company’s vision. The experimental design will be shaped by such visions and objectives.

**HOW WILL THE CONSORTIUM WORK?**

The consortium will operate using the following principles.

1. **University-based scientific experiments to collect high quality data.** The consortium is located within Boston University School of Management. We have structured this set of experiments in a way to best protect the data and the identity of various participants. We seek to use these experiments to garner insights for use by the participating enterprises.

2. **Relevant enterprise problems framed and tested rigorously.** At the same time, we design the experiments in a collaborative way with the companies so that their business objectives in using the MHSD are reflected. So, it is important that we frame the experiments within the context of the specific business vision of the enterprises with performance links. So, it is an active consortium in the sense of tailoring the experiments to the business context.

3. **Maximize value for a single company as well as the consortium.** Hence, our aim is to ensure that the design of experiments maximize the business value for each enterprise while developing possible implications for other companies.

4. **Coordinated design and execution of strategic experiments.** We do not seek to direct or dictate the overall vision of the enterprises to leverage the MHSD functionality. We merely seek to influence the design of these experiments in ways so that the results can be compared across and insights developed systematically.

5. **Maintenance of confidentiality while sharing insights across companies.** We will maintain individual company-specific data that we collect during the course of the study will be maintained in strict confidence. Survey data from various participants will be collected and collated at the university to guarantee privacy—which is important for getting honest unbiased data from the participants in the study.
WHAT ARE THE BENEFITS FOR THE COMPANIES?

1. The enterprises can pursue a set of experiments that link business vision to the functionality of mobile high speed data in ways to guide investments and strategic actions.

2. The enterprises participate within a broader portfolio of experiments to maximize learning.

3. These are not passive benchmarking of post-hoc results but active learning throughout the research program ahead of others.

4. A cost-effective way to understand the challenges and opportunities in the mobile Internet arena as opposed to the biased lens of vendors and consultants.

5. Unbiased data collected as part of a university research program.

WHAT ARE THE COSTS FOR THE COMPANIES?

To begin with there are costs associated with the running of the experiments for every enterprise; these are as part of the business initiatives and budgeted as part of the business case.

The participation in the research program involves a fee that is based on the scope and duration of the experiments. These are to cover the costs of the research team to be involved in positioning the experiments as part of the broader portfolio and derive insights for the members. The fees that are to be discussed on a case-by-case basis.

WHAT ARE THE BENEFITS TO BIULDE?

The institute benefits by developing a body of findings and management implications that is based on solid rigorous research on important problems. Unlike conjectures and expectations and other forms of poorly thought through prescriptions, we will be in a position to develop powerful management insights.

We see the development of insights and prescriptions to create and capture value from Mobile Internet as a joint co-creation of intellectual property with the participating companies.

WHO ARE THE MEMBERS OF THE CONSORTIUM?

There are three different categories of members—each playing important roles in the success of this initiative.

- Business enterprises—these are companies seeking to design and carry out their business activities that are supported and shaped by functionality of Mobile Internet. We expect that the companies will assign a team involving business managers, technology managers and in some cases finance managers as part of the team.

- Technology providers—these are companies providing a wide range of devices and applications and the infrastructure required to design the new business activities. There may be different roles for different technology providers—such as network operators,
device manufacturers and application software companies—depending on the scope and functionality of the different experiments.

- Research and facilitation team—these are the members of the research team seeking to understand the business value of mobile Internet; these members play a role in guiding the design of experiments and in the interpretation of results and possible actions.

**WHAT’S THE OVERALL RESEARCH PROCESS FOR EXPERIMENTS?**

The figure below is a schematic of the research process.

The steps within each company are as follows:

**Stage 1** Business Vision workshop. This is intended to develop a high-level understanding of the best areas for designing the strategic experiments.

**Stage 2** Experimental design workshop. This involves the design of experiments including the type of experiments, the degree of controls required, the intervention logic, measurement approach as well as the scheme for collecting the data.

**Stage 3** Execution of experiments. This is the stage of actually carrying out the experiment as systematically as possible so that the data will be most useful for the development of action plans.

**Stage 4** Synthesis of results. This involves analyzing the results against the business objectives and developing summary recommendations.

We will develop templates for each will be developed as part of the program.
**WHAT ARE THE OUTPUTS?**

- White papers on key management issues pertaining to mobile Internet in general and about the business value of MHSD.
- Research papers on the individual experiments along with Executive Summary of the key management lessons.
- Monograph on the overall research program on experimentation.
- Executive presentations.
- A website throughout the program so that the participating companies can learn across the various experiments on a continuous basis.
- In addition to participation in the various meetings and workshops throughout the process—which is very valuable in itself.

**WHAT ARE THE NEXT STEPS?**

- Finalization of the members of the consortium.
- Design of the logic for strategic experimentation—principles and practices.
- Facilitate the business vision workshops and review the experimental designs of the individual enterprises.

We look forward to discussing this program with you.