5. The Business/Financial Dimension of the Information Revolution

Moderator: C. Richard Neu

Speakers: Jim Norton and Colin Crook

Rapporteur: Richard Hundley

The next session of the conference was devoted to a discussion of the business and financial dimension of the information revolution. It focused in particular on two aspects of IT-driven changes in the business and financial world: electronic commerce, and new models for the internal organization and functioning of business enterprises and for their external interactions with customers, suppliers, and competitors.

Electronic Commerce

The first speaker discussed electronic commerce, using recent developments in the United Kingdom as a point of departure.[6]

Why E-Commerce Is Important

As viewed by the speaker, electronic commerce is important for several reasons:

- *Its dramatic growth and potential.* According to the speaker, the speed of adoption of e-commerce is unprecedented. While electronic data interchange between large companies has developed steadily over the last fifteen years, there has recently been an explosion of growth in retail e-commerce and in transactional use by small business.

  Industry forecasts have consistently underestimated e-commerce growth. In the U.S. business to business e-commerce is now expected to reach $1 trillion

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[6] See Cabinet Office (1999) for a detailed discussion of the UK e-commerce vision and program.

by 2003. Similarly, business to consumer e-commerce is thought to have reached $7 billion in 1998 and to be on track to reach between $40 billion and $80 billion by 2002. This suggests that the current pattern, where at least 80% of e-commerce revenues fall in the business-to-business segment, is being maintained. In the UK, e-commerce revenues are expected to reach $4.5 billion for 1999, rising to $47 billion by 2002.

- *The major impact it will have on barriers to market entry.* E-commerce demolishes many existing market barriers, including geographic and market separation barriers (e.g., products and services available in one country but not in another, for a variety of reasons), custom and practice barriers (e.g., products and services sold only through intermediaries, such as travel agents, etc.), and business scale barriers (e.g., the ease with which small e-commerce start-ups can quickly become major players in an established market, such as Amazon.com in book-selling).
- *The way it enables increased efficiency and effectiveness within existing business models.* The speaker gave several examples of UK companies that were able to reduce development costs and shorten product development cycles by means of e-commerce links to their suppliers. In the business-to-consumer area, he gave additional examples of U.S. companies that improved productivity, reduced cost, and increased customer satisfaction by means of e-commerce.
- Most importantly, *the way it enables transformation of existing business models.* [7] E-commerce is transforming business, by reducing transaction costs (resulting in improved efficiencies and new business opportunities), breaking down geographical barriers (yet with a premium on "clusters" of tacit knowledge), and accelerating rates of change.

Besides its impact on business, E-commerce is also affecting governments and people in fundamental ways. It affects *government* by increasing efficiency and changing interactions with the outside world, affecting the speed and availability of information, and challenging existing regulatory frameworks. It affects *people* by reducing prices, creating new products and services and increasing choice, changing working methods, and, on the negative side, by creating possibilities of social exclusion.

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[7] The second speaker addressed this in more detail.

Stages in E-Commerce Adoption: Offshore Out-Sourcing versus Clusters

According to the speaker, *stage one* of e-commerce adoption usually focuses on cost reduction via increased efficiencies and effectiveness within existing business models. This often tends to attract companies offshore, to areas with:

- Lower labor costs, yet a high standard of education.
- Good (local) infrastructure with global connectivity,
- Tax breaks for exports.

This ignores the impact of *stage two* of e-commerce, which involves revolutionary change in the business model. This requires skills in innovation and business change that are likely to be incompatible with offshore out-sourcing. Such skills are more likely to be found in "clusters": geographic concentrations of interconnected companies and institutions in a particular field.[8]

According to the speaker, the balance between these two forces, offshore out-sourcing and clusters, will have a crucial impact on European economies, particularly for immaterial products or services.

The UK Vision Regarding E-Commerce

As described by the speaker, the UK government has the following vision for where it wants the UK to be with regard to e-commerce in 2002:

For individuals:

- A higher percentage of people in the UK will have access to e-commerce networks from home than in any other G7 country;
- The total cost of Internet access will be lower in the UK than in any other G7 country;
- A higher percentage of the population will use multi-function smartcards than in any other G7 country.

For business:

- A higher percentage of business-to-business and business-to-consumer transactions will be carried out on e-commerce networks than in any other G7 country.

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[8] See Porter (1998) for a discussion of such "clusters."

For Government:

- A higher percentage of total government services may be transacted through E-commerce networks than in any other G7 country.

The UK government has identified three *pillars* on which the achievement of this vision must be based:

- *Understanding:* The need to create awareness of opportunities and threats posed by e-commerce, overcoming uncertainty and imperfect information about electronic markets, and breaking down skill barriers.
- *Access:* Giving business and individuals the ability to interact, thereby accelerating the achievement of critical mass in electronic markets.
- *Trust:* Giving consumers (business and individual) confidence in electronic markets and ensuring that they are willing to exploit the opportunities and react to the threats.

The UK government has identified a number of barriers to achieving this vision in 2002, including: an environment in the UK insufficiently competitive, entrepreneurial, and innovative to force e-commerce adoption throughout industry; inadequate coordination and focus of e-commerce initiatives across government; lack of internationally agreed-upon fiscal and regulatory frameworks for e-commerce; and inadequate monitoring of e-commerce outcomes. According to the speaker, the UK government has agreed on a set of actions to overcome these barriers, strengthen the three pillars, and attain the vision.[9]

New Business Models Driven by the Information Revolution

The second speaker discussed new models for the internal organization and functioning of business enterprises, and for their external interactions with customers, suppliers, and competitors.

He began by noting that skepticism exists in some quarters that things are really different.[10] After all, businesses have been bombarded by waves of "fads" over the decades. Could the information revolution be just another fad?

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[9] As indicated earlier, Cabinet Office (1999) discusses all aspects of this UK e-commerce program.

[10] The speaker characterized these skeptics as "economists," as distinguished from "financial journalists and investment advisors," who (apparently) in his view are not skeptics.

In his view, emerging evidence suggests that things are indeed different. The present is a time of great experimentation in the business world, with lots of data emerging. It represents an unique opportunity for testing old and new models and theories.

The Changing Environment for Business

Today, the global IT grid, with "free" communications, total connectivity, universal digitization, pervasive influence, and vast data generation, is a driver of fundamental change in the business world. These changes include:

- Globalization, of more and more business and financial activities.
- Changes in scale, with the new information technology allowing a company to focus on one person, or on one billion people.
- Non-linear and positive-feedback effects, frequently including a large "first mover" advantage.
- Accelerating rates of change, with speed and time becoming critical in business ventures.
- Emerging new social structures, in which businesses much exist and function.
- Loss of conventional reference frameworks.

These changes are leading to a "new era economics," characterized by a knowledge economy, non-linear effects, an unpredictable future, a redefinition of terms, time/distance changes, and much greater transparency (in pricing and other aspects of business).

As a result of all of this, many fundamental tenets of business are being questioned. Since most businesses today are not externally focussed -- in the speaker's view -- making sense of these changes becomes a serious problem.

The New Business Model

This changing environment is leading to a new business model, with the following major elements:

- Centrality of the customer; the dominant factor in business today, influencing everything.[11]
- A non-linear world defining business processes; business capabilities must explicitly address this.
- Competition's fundamental role, forcing continuing adaptation and change.
- A services/capabilities approach to developing everything.
- Globalization.
- Technology and business integrated into a unified approach.
- A continuum of individual/enterprise/community/NGOs/government/ nations; businesses must handle this continuum.
- Redefined basic functions of business.

The speaker gave a number of examples of the *Rules* in this new business model, including:

- Businesses must be externally driven.
- Businesses must adapt, not optimize.
- Businesses explicitly manage risk.
- Businesses must operate in real time.[12]
- Business must be non-linear in their capabilities.
- Businesses must have customer-based loops.[13]
- Businesses cannot plan anymore.[14]
- Businesses must use new paradigms for product, service, delivery, support, and pricing.
- Businesses must regard competition as fundamental to their development and progress.
- Businesses must resolve and exploit the customer paradox (i.e., the ability to focus on one and millions, at the same time).

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[11] According to the speaker, companies are valued at $200 to $3000 per customer today. This is the main current metric for company valuation.

[12] As example of this rule, the speaker mentioned a large, multinational financial services company which now closes its books every day, rather than once a quarter, as it used to do.

[13] As an example of this rule, the speaker mentioned Microsoft, which shipped out about one million copies of Windows 2000 for beta test and debugging; the customer thereby becoming an integral part of the Microsoft business model.

[14] In the sense of detailed, long-term strategic plans that have any enduring utility. As an example of this, the same multinational financial services company mentioned previously no longer develops a five-year strategic plan or annual budgets.

- Businesses must use true innovation as the basis for breaking the dominance of increasing returns (i.e., positive feedback).[15]
- Businesses must discover the key shaping forces for self-organization.
- Businesses must change the connectivity from the supply chain to the customer.[16]

Some Key Examples of Change

The speaker gave some key examples of change occurring as a result of this new business model and its new rules:

- A revolution is in process in pricing, with prices becoming much more dynamic, often determined in auctions, frequently personalized to target individual customers, and much more transparent.
- Information from the real world, rather than the internal, company world, increasingly drives business. This leads to many issues and problems (e.g., privacy, control, transparency, authenticity, making sense of all the information, etc.).
- Business is increasingly coupled to the real-time world. The worldwide financial community is a good example of this; all of its systems are tuned to the real-time world.
- New forms of marketing are shaping self-organization of businesses.
- The customer is becoming the co-producer of the business.[17]

Based on all of the above, the speaker believes that things are indeed different; lots of evidence suggests that new things are taking place in the economy, with science and technology beginning to dominate business. Businesses cannot afford to wait; they must participate now. Some outlines are already in place to show them the way (e.g. the rules listed above).

These changes look profound and disturbing to some (in the business world and elsewhere), but the business community and the broader society are beginning to adapt. All of this leads, among other things, to a new and interesting stress between the individual and government.

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[15] According to the speaker, much of company valuation these days is based on the concept of increasing returns of scale, and bets on who will dominate. (But many will fail.)

[16] Walmart and Amazon.com are two well known examples of companies that have done this.

[17] Microsoft's involvement of its customers in the beta testing of its software, mentioned above, is an example of this.

The speaker concluded by saying that businesses changed dramatically during the 1980s and 1990s, but he believes that even more profound change is in prospect. The "new era ethos" is "to participate and experience business reality."

The Discussion

In the general discussion that followed these remarks, one participant cited the varying structures of capital markets in different nations as an important differential determinant of the future course of the information revolution. According to this participant, the availability of funding for new IT businesses and concepts and the manner of the funding process (i.e., the vagaries of getting funding, listings, capital, acquisitions, etc.) directly impact the growth and development of new IT industries in any given region. She views this as critical because, in her words, new Internet concepts/businesses are anti-establishment by their very nature -- they upset and challenge the old business models, monopolies and ways of doing things -- and yet money is a very establishment thing in most countries. She believes that the free and open flow of capital, the existence of seed and venture capital, and vibrant over-the-counter markets like NASDAQ (which give venture capitalists and start-up employees an exit market) are critical enabling factors for the growth and proliferation of IT.

The ability of start-ups to get such funding differs greatly from one nation to another. For example, she cited Taiwan as a nation that aggressively uses equity financing for start-ups.[18] Hong Kong and Singapore, on the other hand, lack a strong equity culture and a secondary market, and rely much more heavily on debt financing. But debt financing requires a track record and punishes failure -- both of which are detrimental to start-ups.

In this participant's view, equity participation for most/all members of the staff of an IT start-up (the current Silicon Valley model) facilitates the attraction of top people.[19] This is something else you lose with debt financing.

Returning to the new business model described by the second speaker, another participant noted that the ability to have real-time, 24-hour business information (e.g., "closing the books" once a day) will be transforming for businesses. They

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[18] According to this participant, in this regard Taiwan is very similar to Silicon Valley.

[19] In Silicon Valley today, this use of equity shares in lieu of salary, etc. extends well beyond the staffs of the start-ups themselves. Many of the accounting and law firms providing services to start-ups are accepting equity shares in lieu of fees.

will have much better information on which to base decisions (as opposed, for example, to the information available from a quarterly closing of the books).

This participant also noted the large data sets (of customer information, etc.) becoming available because of IT. He stated that some businesses have been able to extract "amazing" business-relevant value from these data sets.

Finally, another participant noted that various studies exist of "national innovation systems." He suggested that these studies should have some relevance to the current discussion.[20]

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[20] See Nelson (1993) for a discussion of one such study of national innovation systems.