Killer Applications of the Future

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The World Economic Development Congress (WEDC) is well equipped to ponder two intriguing and related questions: what is the "killer application" of the future and how can it be marketed, or gain acceptance, in the corporate world of today?

I begin with the assertion that it is difficult to predict, or name, a new application which will be greeted with the comparable enthusiasm of the Internet a few years ago, or that of e-commerce as at today. Nevertheless, it remains a fascinating subject for speculation.

Killer Application – My Nominee

My prediction is that the killer application, or applications, will have certain clear features:

- it will be a very commonly used item;
- it will have been around for a number of years;
- it will have been given a facelift; and
- it will be a highly technical entity, enabling its users to experience a commodity we normally regard in highly personal ways – freedom.

What is this "Killer Application"?

The killer application of my prediction is the network!

Because networks are nothing new this choice might seem surprising. It may appear a little passé for today's information age and so, perhaps, it is. But a strange thing has been happening with networks – they are being modernised. Many of them have been enhanced and given a 'facelift'.

New networks are being planned all the time to meet the demands of the information age. Their capacity is astonishing. For example, the Project Oxygen network, which Project Oxygen Ltd is currently developing, began its life less than two years ago, with a capacity of 320 gigabits. By the beginning of this year that capacity had increased to 1.28 terabits. Within three or four months it had doubled to 2.56 terabits.

Technology into the Mainstream

It is fortunate that network capacity is being increased steadily, because the demands being put on our network infrastructure are increasingly heavy, both in absolute numbers and in the speed at which consumers are incorporating "telectronics" into their lives.

It is interesting to reflect that, whereas it took the dynamic invention of electricity fully 50 years before a significant percentage of the population began to use it, and the radio 38 years, it has taken the Internet a mere four years for popular acceptance.

The Momentum of Data

The surge of popularity in the Internet and its overall usefulness has served to feed the modernisation of the network. The market research institute RHK, Inc. predicts that, by 2002, Intellectual Property (IP) data will account for more than 90% of total public network traffic.

As at end-1998, over 60 million PCs, used by 83 million people, were connected to the Internet in the US (Ziff-Davis Technology User Profile and Intelliquest Research). That 83 million constitutes over 40% of the US population aged 16 and over.

Users buying goods and services over the World Wide Web numbered more than 18 million in 1998 in the US, a number that is expected to rise to 64.6

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million by 2002. In 1998, that represented revenues of over US$26 billion. By 2002, that figure is estimated to increase tenfold to over US$268 billion. The information age now dominates our daily lives and is still evolving. For instance, in a midsummer edition of the *New York Times*, in its real estate section, the leading article referred to the growing number of residential "networked" or "e-buildings" where high-speed Internet access is already starting to become commonplace.

A few days later, the first page of the business section of the *New York Times* featured a story about the reshaping of Hewlett-Packard, based largely on a new product called "e-speak". E-speak is a network-oriented programming language, which will allow companies and individuals to put new Internet business ideas into action by translating them into software code.

Networks are also having an impact on global politics, as can be seen from another story – this time in the *Sunday Times*, where an article in its Review section carried a headline: "The Internet changes dictatorship's rules". It focused on the Falun Gong movement and the unsuccessful efforts of the Chinese authorities to combat it. The picture it portrays is that of a war being waged between the government and the high-tech Internet network. The freedom allowed by the Internet is proving to be a powerful force for independent analysis.

Merger Mania in the World of Communications

The major developer of networks, the communications industry, has for the last few years been consumed by merger activity. Former fierce competitors are now becoming partners. A prime example is the joint venture between AT&T and British Telecommunications plc which was announced last year. The aim of their global partnership is "to develop and implement a global, intelligent, managed IP network to provide complete communications services" for multinational corporations, as well as international calling for individuals and businesses.

It is the concept of the network – the "killer application" – which is the rationale for the merger of these two giants of communication. The marriage of the two networks of these megaliths – and the enhancements to the network they will provide – should give them global coverage.

This is a developing trend throughout the communications industry of today. Companies are not satisfied. They want to reach beyond the traditional boundaries that existed between telephone companies in the past. They are no longer, in their eyes, just telephone companies. And "communications" has come to represent something far more than a simple telephone call.

They have seen the writing on the wall. By 2002, IP data will account for more than 90% of the total traffic on the public network. The new thinking will allow companies to compete for a substantial part of that traffic. This has been the publicly-stated reason for the merger of Bell Atlantic and GTE and the explanation for relative newcomers to the market, Global Crossing and Frontier, getting together. Further, it is almost certainly the reason behind the renowned acquisition of Sprint, Quest Communications and the British cellular provider, One2One, by Deutsche Telekom. Meanwhile, in the US, hardly a day goes by without a new merger, or some tangible development towards one.

Companies are now keen to extend their networks globally and the way this objective is often achieved is by merging an existing network with other existing networks so as to offer global voice and data telephony.

The Global Super Network

The development of the ubiquitous network has had a major impact on the development of fibre optic submarine cables. With its innovative new design, Project Oxygen has led the way in the industry's most recent evolution.

The Project Oxygen network is the first fibre optic undersea cable to be conceived and designed from the outset as a network, pure and simple. Previously, undersea cables were designed to go from point to point, across a body of water, usually the Atlantic or Pacific oceans.

The design worked for voice traffic, or telephone calls and the bilateral way in which capacity on cables was traditionally purchased. It does not work so well for Internet traffic.

Given the new Internet patterns, Project Oxygen was built as a ubiquitous network in its initial design, with a coverage of 110,000 miles and including over 70 countries on six continents.

Throughout the submarine cable industry, other cables, formerly point-to-point, are now anxious to merge with each other in order to reach a network configuration. So, in a way, their action matches that of the communications industry as a whole.

These submarine cable entities are not just merging among themselves; they are also merging with developers of terrestrial networks. This allows them to offer a purchaser of capacity an extended link beyond the shore to a major city, for instance.

A prime example of this phenomenon is the Fiber-optic Link Around the Globe (FLAG). FLAG began as a point-to-point cable linking the United Kingdom and Japan on a route through the Mediterranean, the Indian Ocean and the South China Sea. Along its route, there were approximately 10 other landing points in countries such as Italy, Egypt, Thailand and China, to name a few.

At the beginning of 1999, FLAG and the Global Telesystems Group, better known at GTS, announced plans to build a transatlantic cable, so that the reach of FLAG's cable would extend to the US. The FLAG cable, and ultimately the new transatlantic one, would link with GTS's Hermes European terrestrial network, which incorporates 20 cities.

A World with No Boundaries

The communications picture, as depicted, with the network at the core of activity, is effectively an old story with a new twist insofar as the network has always been at the centre of the communications business.

Today, however, there is a major difference. Today's network does not end at a geographical border, or even at a jurisdictional one. Today's network is a ubiquitous one with no beginning or end.

This "world without boundaries" may to an extent have been created by the Internet but other factors have played their part as well. For instance, regulatory and political barriers in the communications industry have largely fallen. This has been caused by the relentless march of technology and also by the courageous actions of newcomers to the industry who wanted to be able to compete with giants in the then "telephone" business. One is reminded of the small company, MCI, when its stock was selling at US$9 per share and it took legal action against AT&T.

Liberalisation, privatisation, increased competition and newcomers have all contributed to the creation of the open and free environment which has allowed the Internet to flourish and technology to continue to advance so impressively.

Where do we go from here?

It is difficult to predict what electronic creation will follow e-commerce as the new, Internet-driven product. It does seem likely, however, that the network will continue to be the vital core of all that is happening in the communications world today.

This move to create all-encompassing networks will continue at a fast pace. Satellite networks will be linked to undersea fibre networks and they in turn will be linked to wireless networks. Mergers will continue to facilitate this movement, and we will continue to find it difficult to keep up with all the activity in our industry.

A Universal Information Society

Backed by a ubiquitous network that can reach the most rural backwater in the world, a universal information society beckons with great interaction between the developed and non-developed countries and regions of the world.

This corresponds with my own aspirations. Throughout the world, leading non-profit organisations and agencies, such as the United Nations and the International Telecommunication Union (ITU), are leading the efforts in this area. They are reminding the leaders of the communications industry and of governments that they cannot forget those who do not possess the wealth to implement these successful networks easily. And without access to the information society, those countries will fall further behind.

Today, only 4% of the world's population participates in the Internet. A lot of work still has to be done. The signs remain optimistic, however, because projects in developing countries are increasingly being implemented that are impressively successful, most particularly in Latin America and South East Asia.

Conclusion

The network is indeed today's "killer application". It enables this new way of life we lead at home, at work and at play. To remain viable, corporations must develop a business plan that puts that particular fact of business life at the centre of its planning programme. It should allow room to be flexible, because we know for sure that today's network is a constantly evolving infrastructure. And, most of all, it should take steps to incorporate the magic that the information age provides in the workplace.