A White Paper on the World in 2005

Introduction

This paper reviews a number of changes that are happening in modern societies, as a result of the on-going advance towards an Information Age society. The trends have been identified by drawing upon the underlying currents, and many have been identified my many other commentators.

The forecasted changes are primarily in the areas of social change and economic wealth creation. Specifically, the following points are touched upon briefly:

- Economic change, with technology driving the change and a new form of dominant wealth formation appearing
- Social changes, including English emerging as the dominant language, a change of social structures, smaller social groupings and changing roles for cities
- The weakening of the nation-state, through globalisation of trade and strengthening of the United Nations
- An increase in innovation and the emergence of inexpensive high-capacity communications.

As always, available technology is creating new options that some people will use earlier than others. Over a couple of generations, these changes will become structured into our society and be accepted as normal. The next five years will be a time when options continue to become more apparent and start to become more important.

Economic Change

A Driver of Change

The period from the 1950s through to 2000 has seen an accelerating rate of change. The external aspects of this change has been the introduction and widespread use of technology, which has driven an internal change of the social structure of society – away from the Industrial Age structure that had been dominant since the end of the 19th century.

The first major driver of change was cheap personal transportation, in the form of motor vehicles, motorways and widespread use of oil products. By the 1950s in the USA, and later in other parts of the world, this technology transformed the world's cities by allowing people to live in a place of their choice, rather than adjacent to their place of work.

This driver has been followed by advances in communication, with the change being driven by falling costs, such as the telephone, to the first widespread use of facsimile machines and computers.

Today the Internet and the emerging on-line world is changing the ways people communicate and interact again, with international comminutes forming around areas of common interest. The reducing proportion of Internet users based in the United States will progressively reduce the American-centric view of the Internet to a more global culture, though issues such as expensive access in Europe and problems with languages other than English are slowing Internet adoption.

The most important aspect of this ongoing change is the way people interact.

Wealth Creation

The primary creation of wealth over the past century has been the mass-production of standardised physical products, to raise the standards of livings of increasing numbers of people and to enable an industrialised society.

During this period there has been an exodus of people from rural areas to the cities, seeking employment. At the same time, the industrialisation of agriculture has increased food production using a small percentage of the population. A fully mature industrial society needs only a small percentage, often only around one percent of the population to feed the remainder of the population. This is a sharp reversal of the pre-industrial world, where ninety-nine percent of the people were required to produce sufficient food to feed everyone.

Today the percentage of people engaged in manufacturing is declining. It is common in many so-called industrial countries for manufacturing to require less than twenty percent of the population, with large numbers moving into service sectors. However, the measurement of economic sectors has been based upon the Industrial Age metaphor and masks the real change that is occurring.

An Information Age economy creates its primary wealth from the manipulation of symbols and ideas. There is a division in any product or service between the knowledge component and the labour component. In the Industrial Age the knowledge component was very small, as efficient manufacture required standardised products. Similarly, service delivery has been standardised to ensure quality.

However, in a world where efficiency can be gained through one-off production of goods, or tailored delivery of services, then there is commercial advantage to niche products and services to the smallest possible niche – which is eventually the individual consumer of the product or service. Thus, the emphasis will change from efficiency to effectiveness, as suppliers attempt to meet the consumer's exact needs. The consumer will no longer be content to purchase inexpensive standard products, but instead will focus on the knowledge component of the product – e.g. the design aspects – for differentiation.

The new technologies to enable this world are gradually appearing. By 2005 there will be widespread prototyping technologies available, though the ability to build mass production will probably appear initially only in limited areas. One promising technology is nano-technology, for localised mass-production of any products. However, the trend will have started towards this world, as control systems and supporting technologies will take some time to emerge.

The Productivity Driver

The main effect of the Industrial Revolution was not the creation of machines, but rather, the increase of productivity of the manual worker. Since 1900, there has been a fifty-fold increase in productivity of manual work. This is the first time in the history of civilisation that there has been a change of productivity, leading to enormous economic consequences. Our whole standard of living is based upon this increase in productivity, which has lifted a large proportion of people from peasantry to middle-class status.

However, during the same period, there has been no change in the productivity of the knowledge worker – the person who works with symbols and ideas. This is a serious situation at a time when our economy is becoming more based around the manipulation of knowledge rather than physical materials.

Therefore, the challenge of the 21st century is to increase the productivity of the knowledge worker to provide the economic capability to increase the average person's standard of living to that currently enjoyed by the most affluent members of current society.

By 2005 this change will be barely beginning, though the development of on-line information services starts to provide a platform that leverage knowledge between remote people.

The Internet and Finis.com

The late 1990s saw the emergence of the Internet as the world's first global and independent information delivery service. The initial focus of organisations using this platform has been to present marketing information and as a tool for information technology companies to inexpensively distribute support to their customers.

A second stage has been the introduction of electronic commerce, though this has generally only automated existing processes, e.g. mail order techniques being used o sell product, rather than to enable new and better methods of conducting business. In this way, the Internet development has mirrored the initial steps towards industrialisation in the 1830-1850's, where factory owners tried to replicate

existing agricultural techniques in the factories rather than develop new techniques to maximise the new conditions.

The Internet development has been surrounded by much misinformed analysis and comment from the world's media, themselves a product of an Industrial Age background. The result has been an investment rush by the public in any business associated with the Internet, whether or not there was any sound business case. Eventually the bubble burst in April 2000, beginning the end of the era of the so-called dot coms.

The second revenue stream of the Internet businesses has been advertising, where firms have purchased rights to parts of web-sites. However, advertising and branding is an attempt to push standardised products onto a public, rather than take advantage of an information services capabilities to allow consumers to search for and select the product or service that meets their needs. Unsurprisingly, recent studies have shown Internet advertising to be ineffective. It is forecasted that by the end of 2000 a number of the most well-known Internet sites will fail, including web-search engines and unprofitable resellers.

Alongside the decline of the Internet, as the public shared information network is currently known, will grow new networks, e..g Internet 2, to provide higher quality services to specific clients. These new networks should be in their infancy in 2005, building upon the experience of today's portals and content suppliers merged with new technologies to enable guaranteed service delivery to the information consumer.

The Demise of the Hierarchy

The emerging information economy will drive down he costs of information. As a result, the cost-efficiencies of the traditional hierarchical firm will diminish, with the boundaries between optimal firms and the market retrenching into the core corporate functions.

Instead, network firms and franchises will become more important than present. These networks will compete for smaller and smaller niches, driving standardised products from the marketplace.

In practically every industry, the market leadership will change as the current market leaders fail to adapt their business model to the new conditions sufficiently rapidly. The stronger the company's current control, the longer the delay but the more spectacular the eventual failure.

Instead, new upstart companies will emerge to seize marketshare and drive the new market realities through to the customers. There will be few exceptions to this trend. Those companies of the old-guard that survive will find themselves being followers of the new market leaders, who will set the pattern of the market for years to come.

However, it is almost certain that many of today's hierarchies will continue to exist in 2005. However, the need for change will continue building and there will start to be the first failures of so-called 'dominant' blue chip firms collapsing under market pressure.

Social Change

Dominant Language

There has been an ongoing trend since the 1920s for English to become more widely used around the world. The introduction of first cinema in the 1920s, then radio and most importantly television since the 1950s has opened the world to the influence of American entertainment, and hence their language.

In many countries English is becoming the language of commerce and interaction between people of different cultures. In the Information sector, this has manifested itself with the overwhelming English content of on-line information.

However, there is also a counter-current occurring as people increasingly value their cultural heritage as defining themselves in an increasing homogenous commercial culture. Local languages are an important manifestation, and have reversed the trend of the past two centuries for the nation states to force their dominant language upon the minority language groups within their borders. Hence, there is a renaissance of minor languages world-wide.

The period to 2005 will see this trend intensify, as interaction globally becomes more important. However, the stronger and more xenophobic cultures, including the French, Russians, Chinese and Japanese, will tend to lag smaller and more open nations in this trend.

Social Groups

The modern cities are comparatively new creations that are not the natural method of human grouping. At the beginning of the 20th century most modern cities has much smaller populations, were less important centres and covered a much smaller area. Indeed, it is reasonable to claim that only London was a mature industrial centre by that time.

Today many city areas are suffering from serious and increasing infrastructural deficiencies that will limit population growth. The industrial engine that created their growth, through centralising labour, minimising transport of materials between factories and placing consumers near centres of distribution of goods.

However, as stated above, an Information-Age economy generates its primary wealth from the manipulation of symbols and ideas rather than physical materials. The cost of transporting information is becoming negligible compared to the amount of wealth created by a knowledge worker. The co-operation of people to create a complete product no longer requires them to co-exist in the same physical space.

Therefore, the period to 2005 should see a decline in the need for people to live in cities near their ‘place of work’. Instead a proportion of people will shift to more rural settings to improve their lifestyles. The response of city leaders will be to re-invent their places as social centres with enhanced entertainment and social activities. Thus, the cities will be slowly transformed from places of wealth creation to places of leisure.

This process has been progressing slowly since the 1980’s, but we should see an acceleration of the trend as the cost of information infrastructure plummets.

The Family Group

One continuing trend has been the reduction in family group sizes. The suburban culture created the nuclear family, with two parents and children separated from grandparents. This arrangement has now been accepted as the norm, though it was quite foreign to the extended family structures at the beginning of the century.

However, the raison d'etre for the nuclear family is now fading. The two-job family has creating increased pressure on family members; while at the same time women are becoming less dependent upon men for their well-being. The result is an increased number of divorces.

However, despite the populist political rhetoric echoing that of earlier years when the nuclear family was emerging, this situation is not leading to disaster. Instead, the combination of social arrangement is simply changing.

The real hope is that the Information Age will usher in increased productivity, which will lead to rapidly improving social conditions for everyone. In such a world, it is feasible for two parents to have separate homes and to share responsibility for children between them. In this way, each parent has the freedom to pursue their own careers and interests.

By 2005 this process will only be a little advanced from the current situation and it will take a couple of generations to fully evolve.

The Nation State

Politics

Politics reflects public opinion that generally lags changing economic reality by a decade or two. As a result, politicians will generally attempt to retard progress towards an information-based society.

Secondly, the executive arms of Government represent an Industrial Age model. As a consequence, Government will increasingly find itself in the same dilemma as large corporations – an inability to provide the niche products demanded by consumers.

Those Governments that grasp the new economic realities will tend to outsource their social and trading delivery functions, to groups responding directly to market signals. Those Governments that persist with the old model will find public confidence in the political system declining, eventually endangering the very continuation of the Government.

However, by 2005 this pattern will be little advanced from today, as the new economic conditions will only just be emerging. As a result, Government will generally be reflecting the declining interests of large corporates and manufacturing, rather than the new wealth creators of the New Economy.

Reduced control of international boundaries

The United Nations will soon make declarations of universal principles of international trade and taxation of the information economy. As a result, the United Nations will take an important step towards the creation of a true World Government – probably in a Confederacy style of model where the nation states can maintain a limited sovereignty. This type of world government will exist more in fact than in public opinion, as regional leaders will not wish to expose their own diminishing power base.

Secondly, economic power will continue move from a nation-state basis to a global model. The larger states will attempt to resist changes more greatly than smaller states, by continuing to promote limited trade and investment, to the detriment of their citizens. However, despite all attempts, there will be increasing trade by organisations crossing boundaries

The result will be a closer integration of economic groups in different countries along lines of interest, with many economic groups having closer connection with groups in other countries than people in their own region.

A greater proportion of wealth generated by information

Changing Information Technology Platforms

Increasing Innovation

The Information Technology industry was dominated during the 1990s by the actions of Microsoft. From around 1995, the emphasis has shifted from creating new uses for information technology to improving existing technologies. The two main benefactors of the continuing dominance of the PC concept, namely Microsoft and Intel, successfully slowed the development of alternative information delivery systems that could have replaced the PC architecture.

However, the period of 2000-2005 will witness the end of the PC era. There will be an increase in innovation by the technology industries, as the era of Microsoft's dominance fades – not from unilateral action by one nation's Government but due to the declining relevance of the PC architecture and Microsoft's loss of control of the operating system market. The new demands of high-speed bandwidth and mobile devices are spawning an array of cellphone, personal digital assistant e.g. Palmtops and Internet appliances that are not derived from the PC concept.

By 2005 a new range of information access devices will have gained sufficient marketspace to obviously challenge the PC. This challenge will be based upon the relevance of the PC concept rather than the selection of operating system, such as Windows, Linux, OS2 or Mac OS. Instead, we should see the emergence of network-based devices to replace the single system approach of the PC.

Live Networks

The primary enabler of the new methods will be inexpensive communications. There are a number of technologies that promise to drop communications costs dramatically, easily a thousandfold, over the next five years. The introduction of these technologies changes the bottlenecks of information delivery, enabling the easy collation and decimation of massive amounts of data that today cannot be economically justified.

As a result, everything changes.

Conclusion

In conclusion, the period from 2000-2005 is a period of increasing change driven by technologies. We will see the emergence of a trend that will take a couple of generations to complete. However, it will be an exciting time to be alive.

By 2005 the dominant organisational form of the Industrial Age will become increasing less able to meet customer demands of its products and services, as people's expectations shift from mass-produced standardised products and services to tailored products and services for increasingly small niche markets. As a result, the existing power structures of large corporates, the PC-based technology industry and Government itself will be waning. At the same time, increases in knowledge productivity will start to manifest itself – raising the standards of living of knowledge workers.

A consequence will be a period of turmoil, partially as those people who do not participate in the economic change attempt to usurp some of the gains through political means. However, in the end, these groups will fade as the Information Age becomes increasingly dominant.

These economic changes will in turn drive social change. The increasing globalisation of commerce will encourage English to become the international language between different groups. However, as a reaction against a perceived loss of identity, we will also see a rise in minor languages as people seek to differentiate themselves.

In the social arena, we will start to see the transformation of cities from centres of production to areas of leisure and entertainment. This re-invention of cities will become necessary as they lose their competitive advantage of access to materials, as the chief raw material of knowledge becomes globally accessible through on-line services.

Finally, the appearance of inexpensive and high capacity communications services will prove a powerful enabling force for new technologies. The network paradigm will replace that of the separate system, leading to a fading of the PC industry.

There are many trends that will become visible by 2005. By that time the world will be witnessing the dawning of a new age.