

E (Health) Transformation:

Managing healthcare in a networked world



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PWC CONSULTING

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Executive Summary

At PWC Consulting we work with the world's biggest service industry – healthcare. We foresee far-reaching changes impacting the industry. We have pulled these changes together to identify the implications they hold for all concerned and to stimulate a debate about future courses of action.

The most fundamental change is probably the shifting of the balance of power along the value chain among the consumers (patients and carers), the purchasers (government/insurer/employer) and the providers (doctor/hospital/community clinic). This shift is being brought about by the combination of a number of drivers. The principal drivers are:


- information technology and communications.
- medical technology/genomics.
- cost and capacity limits.
- the introduction of market dynamics through healthcare reforms.

Historically, purchasers and providers have determined what healthcare is provided and to whom. The rapid growth in the use of the Internet for finding health information and the switch in emphasis from treatment to prevention fuelled by genomics, with a consequent rise in self-care, has changed the balance of this equation. The consumer is now better informed about their problem. Soon, consumers will be armed with comparative performance information with which to choose their preferred provider, rather than having their choice mandated by a purchaser or gatekeeping health professional. With the growth in self-care they will also be the owner of a vital proportion of the cradle to grave patient-centric record which will become the essential tool for all healthcare professionals - further tilting the balance of power.

The biggest implication of this shift will be the emergence of networked health economies. These will consist of groups of providers that will collaborate to meet fully, for the first time, the needs of the empowered consumer in any given geography. In addition, the roles and boundaries of operation of the players in this network will change over time.

The providers tell us that they have been networked for a long time. This is simply not true. They have operated in a series of vertical silos within and between institutions, communicating minimally with each other and with very little sharing of information. At the same time, they have sought to protect their own vested interests by resisting disruptive innovations. How long has it taken to gain acceptance by doctors of the need for nurse practitioners to be able to prescribe drugs within strictly defined guidelines?

The danger is that a new ability to share information and pressures to improve the quality of care, often generated by treatment failure scandals, will simply turn these vertical silos into horizontal medical speciality-based silos. These, in turn, fail to recognise that patients often have problems which cross speciality boundaries.



Advances in medical and information technology afford the healthcare business the chance to change the boundaries and barriers, reduce costs and improve quality standards - all at the same time. But to do so will require radical changes in behaviour from different players, particularly governments and regulators.

Governments will need to encourage new entrants to the business and prevent regulators and vested interests (the professions) from erecting protective walls. Information technology is facilitating the collection and dissemination of evidence of best practice and outcomes. This will allow the development of rules-based practice, which can be taken on by lower skilled professionals, moving upstream in the chain of healthcare treatment complexity. The evolution of telemedicine will mean a reduction of the impact of distance on the quality of care available to individuals living outside the major centres of population. Similarly, the collection of episodic and longitudinal data will allow greater application of pattern recognition techniques to deal with more complex problems using standardised treatment protocols. The most complex healthcare problems will, as always, need to be dealt with on a case-by-case basis using the widest range of available skills and resources. These changes will increase the capacity of the system to deliver care whilst, at the same time, reducing the costs of individual treatments.

Insurers (being private companies or public agencies) will act as managers of a complex health network. Acquiring loyalty and trust of the final consumers, assessing and managing health risks and proving new contracting models will be key.

Suppliers also will face new challenges. As far as new players (government, insurers, providers and the public) take a more active role in decision making, branding, accessing and influencing these new clients will be crucial to their business. Networking will be a major issue not only in client management, but in developing new drugs and in the whole supply chain.

Providers will need to accept that they stand alone within the health spectrum and that they need to embrace disruptive innovation in order to avoid stagnation and becoming unacceptably high cost islands, bypassed by new entrants. They will also need to become consumer-focused, rather than professionally focused, and recognise the ability and right of the consumer to choose their provider based on publicly available performance data.

In this new PwC Consulting report, we envision a future of much competition and cooperation in the healthcare industry. A client-focused, market-driven, web-enabled network of healthcare professionals, businesses and institutions could be the cure of healthcare.



The challenge

Healthcare is one of the biggest businesses in the world. According to the Organisation for Economic Cooperation and Development (OECD) its 29 member countries spent 8.3 per cent of their Gross Domestic Product (GDP) on health in 1998¹. The United States was the biggest spender, devoting 12.9 per cent of its GDP to healthcare, while even countries at the lower end of the scale, like the United Kingdom and Spain, spent 6.8 and 7 per cent respectively.

In general terms, healthcare expenditure evolves with economic growth and, in recent years, most governments have been able to keep this pace, but not without tensions, rationing or public dissatisfaction.

How well is this huge amount of money spent? There is general agreement that most healthcare systems are less efficient than they could be. In most countries the provision of healthcare is highly segmented. Providers such as general practitioners (GPs), hospitals, clinics, pharmaceutical companies and pharmacists, tend to be stand-alone players. There are connections. GPs, for example, act as 'gatekeepers' for the hospitals, deciding who should be referred to them for specialist treatment. But the relationships tend to be at arm's length and fall far short of collaboration. In a number of countries there are still public or private oligopolies. As a result, the delivery of the product (healthcare) to the end-customer (the patient) can be slow and costly, and the overall healthcare system can be ineffective, inefficient and poorly valued by the public.

There may, however, be opportunities for change and improvement. Over the next ten to 15 years several forces, enabled by new information technologies, could come together to transform the healthcare industry. From an industry in which the various players operate (to a greater or lesser extent) in isolation, may emerge one where they all form part of a highly connected network. The result could be that, in terms of efficiency, the whole would be significantly greater than the sum of its parts.

¹ OECD Health Data 2000 Report

Healthcare today

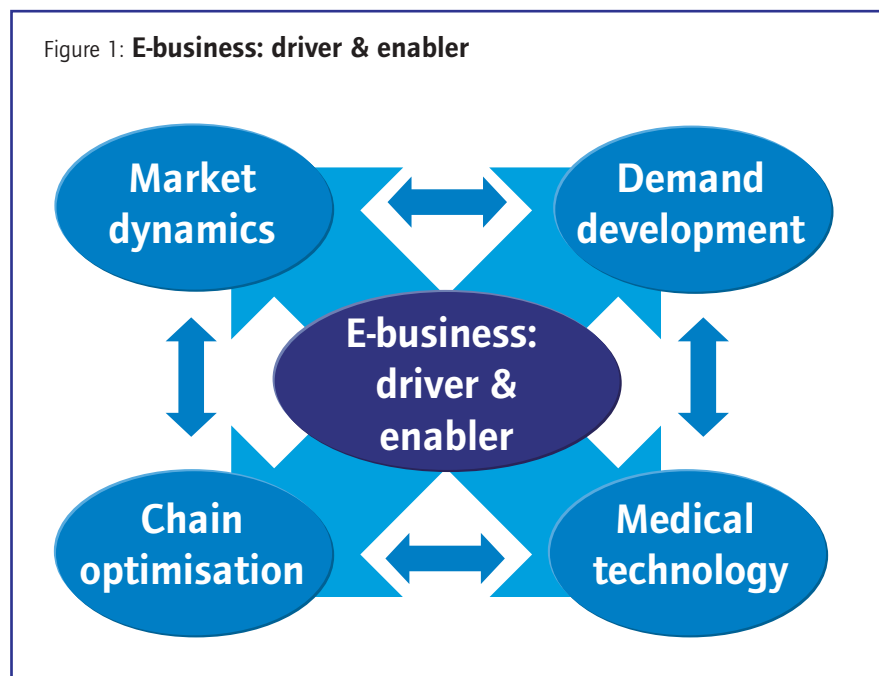
There are differences in the way healthcare is organised around the world. The most obvious is the role played by governments. At one extreme, they restrict themselves to policy making and leave others to implement the policy. At the other, they become directly involved in many aspects of healthcare management. But there are also many similarities. These include:

- *Supply and demand.* The healthcare industry in most countries is driven by supply and capacity, not by demand. Patients have traditionally been relatively powerless in the system. However this is changing in the face of increasing consumerism and the ability of insurers to tailor their offering to suit demand. Ageing populations and developing medical technologies are also contributing to this trend.
- *Costs and capacity.* Volume handling and cost control are the main operating principles for most healthcare providers and insurers. They have difficulty managing costs and creating enough capacity to meet the demands made of them. Long waiting lists is a critically important issue in most public health care systems, as is the growing shortage of professionals in the industry across Europe generally. According to a recent study, the UK health system will need 10,000 additional physicians by 2005².
- *Immature value chains.* The players who make up the value chain - physicians, hospitals, drug companies and laboratories – do not yet, by and large, use information technology tools and Net-enabled data transfer systems to interact with one another or share knowledge. Even within individual providers, like hospitals, the information flow is often inefficient. Health care, as an information-intensive industry, has historically experienced low information technology investment rates. Other industries laden with data, such as insurance or financial services, invest more than 10% of their budgets on IT. Health care has historically spent only 2-3% of its budget on information and communication technologies. The result is a poor service for the patient and increased transaction costs.
- *Limited competition.* Healthcare systems in many countries are highly regulated. Barriers such as the need for huge investments, and intensive knowledge have made health care and industry traditionally difficult for new entrants to break into. Existing players are often protected from the effects of competition. Inside most markets, there is little competition among insurers (either public or private) or providers (physicians and hospitals). And end users as individuals or governments cannot really choose better care. The absence of choice and limited performance incentives are limiting efficiency and restricting change.

² Financial Times, August 26th 2001

Forces for change

The above inefficiencies are not inevitable. Several forces could combine to transform the healthcare industry. These new forces will probably result from the combination of existing traditional forces in the industry and the emergence of new ones, as we described in our previous report *Health Cast 2010*³ (see Box 1 on next page). There are five main drivers for change: demand development; advances in medical technology; optimisation of the value chain; market dynamics, and e-health. Of these the last – the connection of all players via the Internet, Intranets (organisation-specific internal Internets) and other electronic means – is an important enabler of the others (see Figure 1).



Demand development. The size and nature of demand seems likely to change markedly in coming decades. This is a result of:

- *More older people.* The proportion of older people in the population is growing. Over 65s accounted for 10% of the population in developed countries in 1950 and are expected to account for twice that by 2050. There has been a dramatic decline in mortality among the old aged. The result has been a rapidly growing number of people in their eighties and nineties. Unfortunately, quality of life for aged people has not improved in line with life expectancy. The elderly are by far the largest users of some health and social services, so the 'greying' of the population will mean an increasing concentration of health expenditure on these services and will make it difficult to distinguish between health and social services. The consequences of this shift demand radical changes in health organisation and new ways of financing services. According to OECD, reimbursement mechanisms to encourage technologies and services to maintain functional independence and avoid hospitalisation will be the most important policy change to be made for the elderly.

³ HealthCast 2010: Smaller world, Bigger expectations, PwC 1999

HealthCast 2010: Smaller world, bigger expectations

HealthCast 2010 is a view of the future from the healthcare practice of PricewaterhouseCoopers. To compile this report, we commissioned a wide-ranging survey of 380 thought leaders in the United States, the United Kingdom, Finland, Spain, the Netherlands, Germany, France, New Zealand, Canada, and Australia. Those surveyed included a mix of policy-makers, health system executives, employers, physicians, insurers and medical supply vendors. In addition, the firm's practice leaders interviewed more than 50 thought leaders from seven countries at length about future trends and their implications for the industry's stakeholders.

Each nation considers itself special, and so it is with each nation's healthcare system. Healthcare in the United States, New Zealand, or the Netherlands carries its own set of traditions, culture, payment mechanisms, and patient expectations. However, through our research for HealthCast 2010, we found that commonalities, rather than differences, will forge the industry's future both here and abroad.

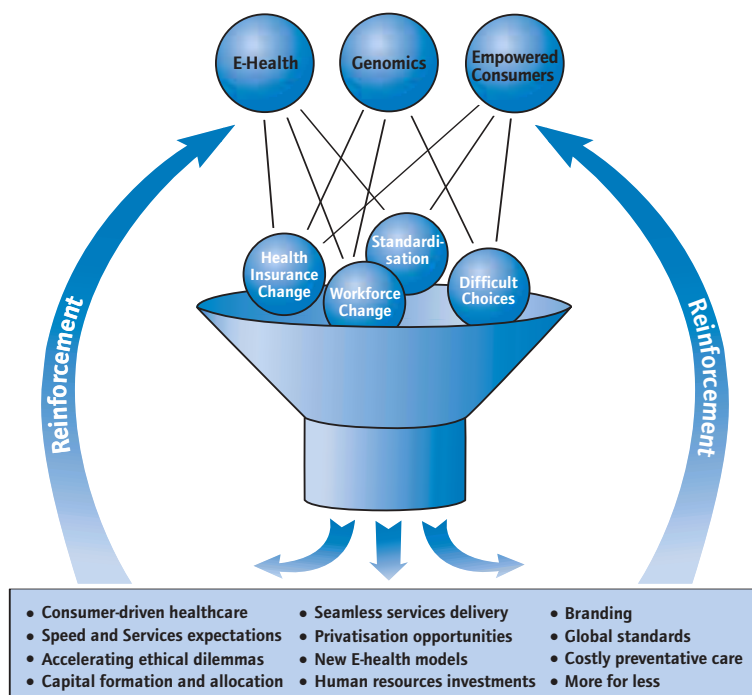


To look toward the future, we've identified in the report what we see as the three new forces of change and the four future trends that result from those forces. Obviously, current forces like ageing, medical technology and drug development will have a major impact on the 2010 healthcare system. However, HealthCast 2010: Smaller World, Bigger Expectations focuses on consumerism, e-business and genomics - forces that will bring about disruptive changes in the way healthcare is provided and paid for in the 21st century.

The combination of these forces is leading to four main trends:

- Health insurance systems are converging in the United States, Canada and Europe
- Health processes are becoming standardised
- Health care workforces and professions are being transformed
- Ageing, technology and consumerism will create difficult choices.

The report also sets out the most important implications of these forces and trends for the main health agents. A new edition of the study will be published in summer 2002.



Box I

- *Better-informed patients.* The end-consumer, the patient, has traditionally lacked clout. That will change as people start spending an increasing percentage of their personal income on health. They will expect to have more say in their own treatment. They will become more 'consumerist' - more sensitive to value and hungry for information, and more active in self-care. In Europe, consumers will demand the same levels of response from healthcare that they receive from other industries. In addition to that, in most countries healthcare is part of the bill of rights and the welfare state. "It's not just choice, it is demanding rights and value for money", says Alicia Granados, CEO of Institut Català de la Salut, the main care provider in Catalonia. In a recent survey, eight out of ten French citizens considered the modernisation of their laws in terms of patient access to information, consent and indemnity to be an urgent matter ⁴. The effects of mass media coverage and effective lobbying have been clearly seen in the case of HIV treatments, where population demand has affected the allocation of government healthcare expenditure and the pricing policies of major pharmaceutical companies.
- *Disease prevention.* The health of a population is much less dependant on the progress in healthcare services than on a combination of economic development, quality of life, personal habits and social expectations. Developments in genomics are permitting researchers to learn more about the factors that pre-dispose people to specific diseases. According to OECD, expenditure in the US and in Europe on prevention grew by more than 15% between 1992 and 1998.

Advances in medical technology. Developments in medical technology will improve predictability, boost prevention, and increase the effectiveness of treatment. Key developments include:

- *The human genome.* As more is learned about our genetic make-up, it will become easier to diagnose the susceptibility of individuals and groups to particular diseases or conditions and to use drugs and other methods to prevent the onset of disease. Genomics will drive health systems towards a more personalised form of medicine. Sometimes, the time-lag between predisposition to a disease and the onset of the disease itself is so long that it is difficult to get people to change when they see no immediate threat to their health. However, the demand for diagnosis is immediate once there is an available technique. Genomics also raises important ethical issues in scientific advances: "Genomics should be a tool and technology to improve patient health status, not an end on itself", says Dr. Joan Rodés, President of the Advisory Committee of the Minister of Health of Spain. The influence of genomics will be key too for pharmaceutical companies. Because of better targeting and diagnosis, the market size for new genomic products will be smaller, but their effectiveness will increase.
- *Drugs and surgery.* Better and 'smarter' drugs will reduce the need for invasive surgery and increase the overall effectiveness of treatment. Rapid advances in biochemistry, molecular biology, cell biology, immunology, genetics, and information technology are transforming drug discovery and development, paving the way for unprecedented progress in developing new medicines to anticipate, prevent and conquer disease. Other new developments like nanotechnologies, image devices, and bioengineering will also contribute to this end. Advances in medical technologies, including pharmaceuticals, have different effects; they raise overall expenditure, but they can reduce the cost per unit or substitute other types of care, if properly applied. Growing attention is being paid to technology assessment and evidence-based medicine.

⁴ Le Monde, September 2001

Optimisation of the value chain. Rising costs and a more demanding consumer will lead to the development of a very different and more efficient value chain. Net-facilitated cooperation, integration and transparency will push players who were previously part of a highly segmented chain, in which cooperation was comparatively poor, towards integrated networks in which there is a high degree of cooperation. Key aspects are:

- *Standardisation.* As information flows more freely around the value chain there will be more information sharing and cooperation between players. This, together with demands from the now-empowered consumer for information about proposed treatments, their effectiveness and the track record of the medical team offering the treatment, will lead to greater standardisation and transparency of methods and treatment results. The establishment in the United Kingdom of the National Institute for Clinical Excellence (NICE) is an example of this trend. The organisation's remit is to review new treatments that may be made available across the National Health Service. This trend towards standardisation of medical procedures and technology is part of a broader trend to introduce measurement and assessment in the overall system. Standardisation will clearly affect how and when medical technologies will be applied and how marketing for medical products should evolve. In the future, evidence-based medicine and proof of cost-effectiveness will drive the use of medical supplies in the markets.
- *Volume.* As the chain is optimised, the players will be able to handle patients more quickly and efficiently. New patient management systems and access to electronic medical records will foster efficiency through the health care value chain. In a recent survey of health care executives in the USA by Modern Healthcare, improving scheduling was considered the Internet development that would have the most impact on the customer⁵. New multi-channel solutions are already being used in health care systems to improve volume handling and care. In the United Kingdom, NHS Direct call centres across the country offer nursing assistance and triage and information on adequate resources for patients. According to Gartner, internet-based consumer self-care content and interactive applications, physician/consumer collaboration applications and care management applications will ultimately consolidate to support comprehensive collaborative care management between the payer, the caregiver and the consumer⁶.

Market dynamics. Many countries have adopted reforms designed to introduce performance incentives, ascertain the extent of markets and introduce less or more planned competition in the healthcare system⁷. The dynamics of the market will lead to the need for differentiation in services and branding. Important factors include:

- *Choice.* As patients and other buyers of healthcare, like insurers, become more consumerist, they will be able to make healthcare choices on the basis of a provider's performance. The branding of services or complete networks may well emerge. Providers will make their pitch to consumers on the basis of being a trusted brand. Consumers will expect these brands to provide them with continuing healthcare of a high standard. In Europe, customer choice will be challenged by the important influence of intermediaries such as GP's, insurance representatives, or others that act on their behalf, directing them to the adequate resources in the system.

⁵ 2001 Modern Healthcare Survey of Executive Opinions on Key Information Systems Issues

⁶ Gartner, Sorting Out the Payer Internet Care Management Market, July 2001

⁷ Saltman RB, Figueras J, eds. European health care reform: analysis of current strategies. Copenhagen, World Health Organization Regional Office for Europe, 1997

- *New entrants.* More choice and performance-based decisions in the industry will lead to new opportunities for players from other markets of other industries. Major multinational insurers are operating globally and some cross-border care providers are emerging. The catalyst for this has been a recent ruling made by the European Court of Justice confirming that health care is, in principle, covered by the European Union laws on the free movement of goods and services. Alan Milburn, the Health Secretary at Department of Health in the UK, has recently said that NHS organisations will in future be able to sign block contracts with foreign hospitals.
- *Protection.* Governments may provide an environment allowing for - and even stimulating - competition. But they will still have a key role in guarding the affordability, accessibility and quality of health services. Technology assessment, community health protection, information for planning or even some major infrastructures such as high-speed networks for developing e-health will still be handled by government bodies or public agencies. But the changing role of governments in countries where they own and operate insurance and provision facilities is a major question mark and a permanent debate.

E-health. E-health is both a driving force and a major enabler for the drivers. E-business has the potential to change the way the various healthcare players undertake activities and processes. It can help individual providers carry out their own activities faster and more flexibly and does the same for the whole system. E-health will impact:

- *The value chain.* It will drive and enable value chain improvements such as outsourcing, information sharing, and the sharing of services (e.g. hospitals' administration, laboratory testing or even specialized physicians and nurses). It will foster radical changes in the supply chain. A recent PwC study showed that supply chain costs could be reduced by between 6 and 13% if there was greater connectivity among the parties⁸. The UK's NHS Trust system has cut more than €800 million a year from purchasing costs with its electronic system, NHS Logistics. According to a recent Forrester survey, 52% of European hospitals plan to have moved part of their procurement to the Internet by 2003⁹ (see *Göttingen Hospitals example, Box 2 see page 11*).
- *Remote medicine.* E-health will drive and facilitate services such as remote diagnosis, monitoring and even treatment. Clinical data (X-ray, electrocardiograms and the output of all sorts of monitors) will become accessible at the click of a mouse. For example, in France a pilot for outsourced breast image diagnosis data warehousing is currently being developed in the region of Poitou-Charentes in central France. The initiative allows hospitals to place, share, discuss and access images from a portal. Other experiences like the Movcare project launched in Europe, USA and South Africa permits the monitoring of asthmatic patients at home and provides a decision support system for GP's and specialists. According to a recent Harris Interactive study, more than one-third of chronically ill adults manifested interested in Web-based disease management software¹⁰. However, in order to extend its use, telemedicine will need to solve three important challenges. Costs are still high and financial reimbursement is not clearly established, bandwidth is still a limiting factor for transmitting complex medical images; and finally, clear regulation and evidence of results will be at least as important as in the other types of care.

⁸ E-Health Quarterly, E-procurement, August 2000

⁹ Forrester Research, Europe's e-Health Cure: Connectivity, April 2001

¹⁰ Harris Interactive, 2000

- *Consumers.* E-health will make consumers better informed and therefore more powerful. The Internet will give them access to medical information and to comparative data on healthcare providers and insurers so that they can make better-informed choices. "E-health will enable patients to make their own choices. Purchasing good health care requires sound information", says Rob Meerhof, Chairman of the Federation of Patient and Consumer Organisations (NPCF) in the Netherlands. According to Forrester, two-thirds of online US households visit health sites each week¹¹. In addition 38% are what Forrester calls self-directed - users who self-educate instead of relying solely on doctors. In Canada, half of the respondents to a PwC survey who reported using the Internet said they had used it to obtain health information. This represents one-in-four Canadians¹². The Internet, properly combined with other technologies like call centres and personal interaction, is a formidable facilitator for personal and efficient care. According to the PwC HealthCast 2010 survey, one-fifth of the current face-to-face contacts with doctors could be substituted by other type of interaction, mainly web-enabled. Yet generally, hospitals and insurers seem to be unprepared for the demands of tomorrow. According to the same source, only 25% of the experts surveyed agreed or strongly agreed that hospitals were prepared for consumerism, and only 14% agreed that insurers were prepared.

E-Procurement at Universitätsklinikum Göttingen (UKG)

Since the beginning of 2001, the University of Göttingen in Germany has been equipped with an innovative ERP-system that includes the Internet SAP Enterprise Buyer Professional Edition (SAP EBP) solution for E-Procurement. The university was following in the footsteps of the University Hospital of Göttingen (UKG) which had introduced a similar system three years earlier.

The UKG plans to use the system soon for all administrative and non-medical purchases. This will pave the way for a totally paperless purchasing system. Office supplies and common laboratory items are ordered by the university's employees from the UKG's warehouse via an Internet-based catalogue. Further catalogues will be integrated within the coming months, guaranteeing a wide availability of articles.

Deliveries are made by internal service to the hospital or by a third-party shipping-provider to external clinics and decentralised university departments of non-medical faculties. Orders that can not be met from the hospital's warehouse will be transferred directly via EDI to a supplier. The current strategy is to support which is seen as essential for future developments.

The implementation of the e-procurement solution was connected with precise process-changes and required a redefinition of purchasing functions. Great importance has been attached to the inclusion of all concerned departments in decision-making and implementation. This change management process combined organisational development and support by an innovative tool. The University of Göttingen, including the UKG, used a small team to implementing the software within a few months. The project is one of the first e-Procurement implementations for a German university and hospital.

Box 2

¹¹ Pharma's DTC Reorganization, Forrester Report July 2001.

¹² PwC Health Matters, Summer 2001

How these drivers could shape the future

We have developed a process to envision what future healthcare could look-like. This work, based on *scenario planning* methodologies, has been built up inside our group, but external experts have been involved in key moments of the process, through focus groups and individual interviews.

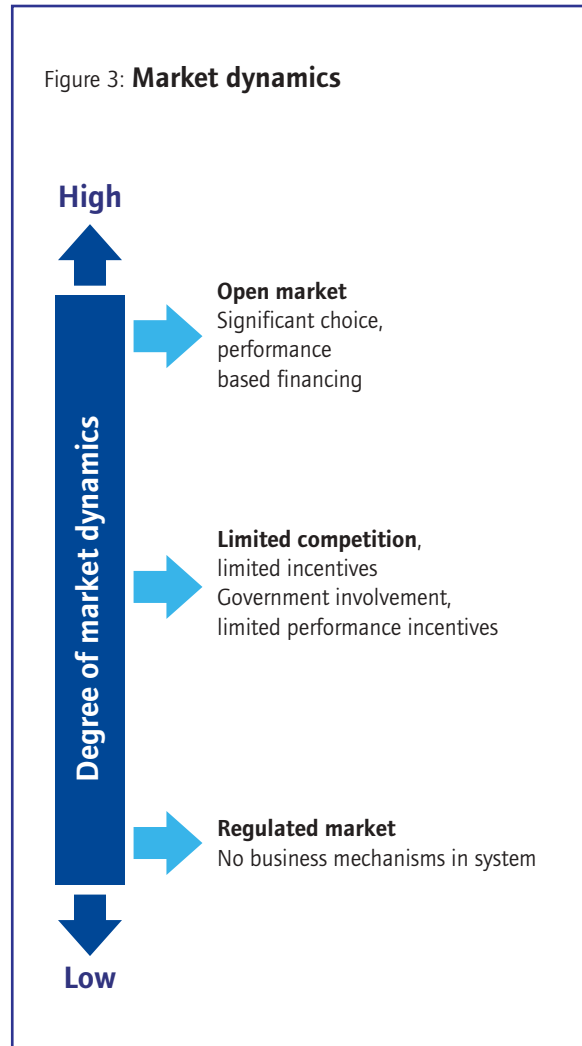
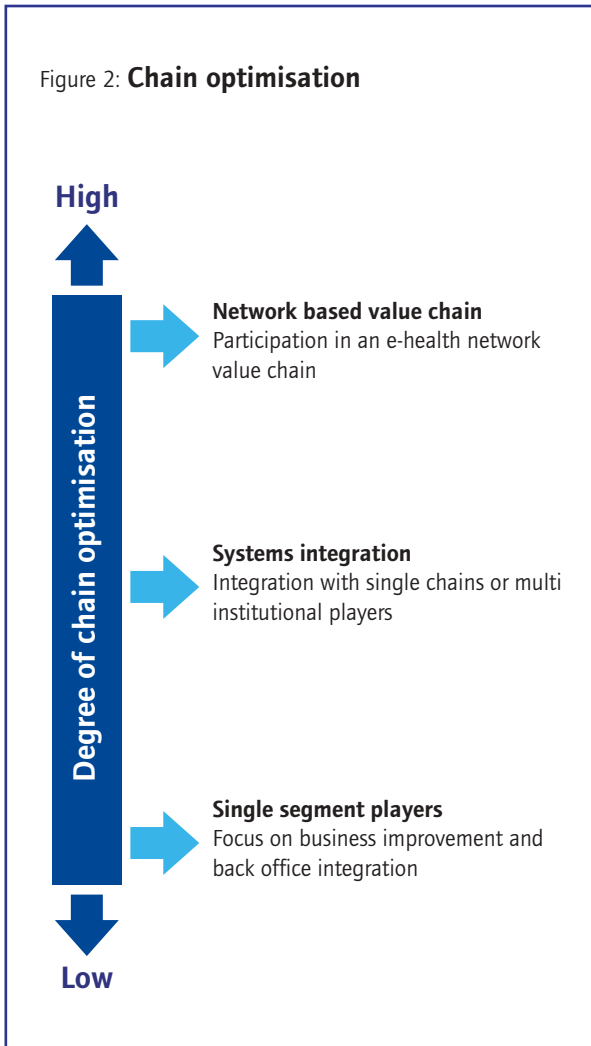
The previous part of this paper describes the major drivers or forces affecting healthcare. Some are permanent, some are new or emerging. In order to prepare and analyse future scenarios, these drivers have been grouped in three different categories. There are the drivers whose implications for healthcare are predictable. Experts believe it is almost certain that they will come into play and that their impact will be significant. These drivers in the healthcare market are considered to be *demand development* (or how demand in volume and quality will impact the system much more than healthcare supply) and *advances in medical technology* by medical supplies, pharmaceuticals and genomics. We called these drivers **Basic drivers**, and we included them in every scenario.

There are other drivers that are surrounded by much more uncertainty. It is not clear how far and how fast value chains can be optimised, nor how radical or far-reaching changes in market dynamics might be. These drivers are used alongside the basic drivers to build various possible models of the future, and we will call them **Scenario drivers**. *Value chain optimisation* and the extension of *market dynamics* fall into this category.

E-Health is likely to be a formidable driver and enabler for the transformation of healthcare from a highly segmented business to a highly integrated and networked one. We will call it the **E-driver**.

It is possible to speculate what impact the scenario drivers might have under a variety of circumstances. The key issues are the speed and the extent of change, or how quickly and determinedly the government and the big players will adopt major transformations

Take *value chain optimisation* (see Figure 2). If value chain optimisation is low, the emphasis will continue to be on the individual players who make up the chain rather than on the chain as a whole. Organisations will focus on improving their own internal working, but there will probably be little co-operation between players. If, on the other hand, there is a high degree of optimisation, the whole value chain will be on-line and the individual players will interact with one another in an e-enabled network. There may be significant outsourcing and centralising of the various players' back office processes, and processes will become much more transparent.



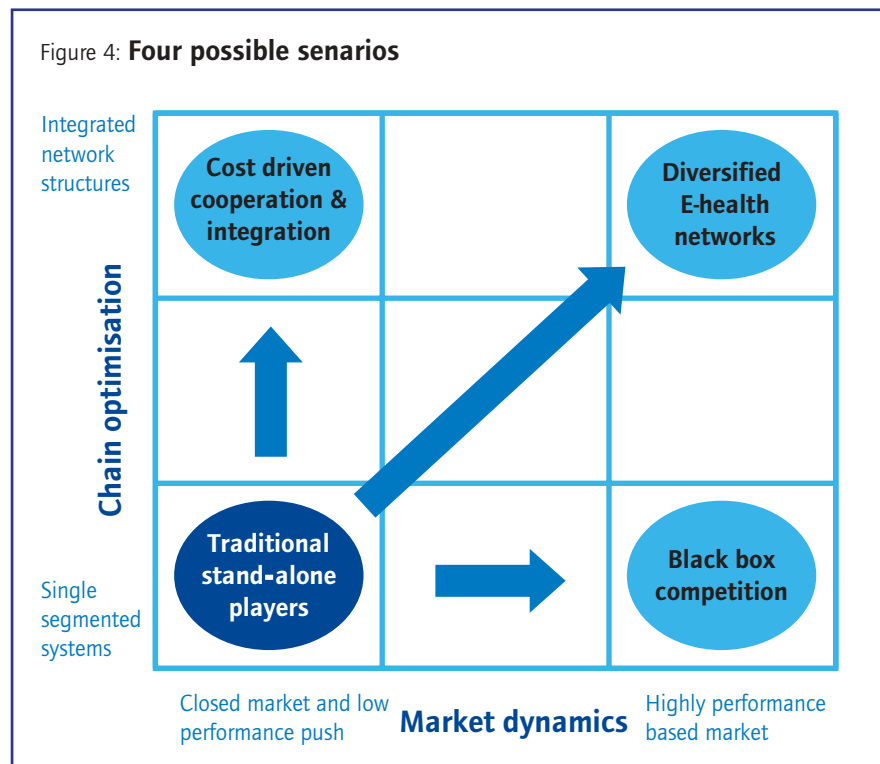
Similarly with *market dynamics* (see Figure 3). If the degree of dynamism in the market is low, there will probably be few market and performance incentives and there will be lots of structural inefficiencies in the system. Supply and capacity rather than consumer demand will continue to be the main determinants of healthcare provision. If there is a high degree of market dynamics, consumer and purchaser decisions will be extremely important, there will be a flowering of tailor-made healthcare services and customer relationship management will become an important skill.

Four possible scenarios

In trying to project ten to 15 years ahead in the healthcare industry we believe the industry could evolve towards four possible scenarios (see Figure 4):

1. Maintaining the traditional stand-alone players scenario;
2. The cost-driven co-operation and integration scenario;
3. The black box competition scenario; and
4. The diversified health networks scenario.

All four scenarios assume what we called basic drivers, i.e. that consumerism is well developed (the consumer is active, demanding and wants to exercise freedom of choice). They also assume that demand for health services will continue to grow (meaning that capacity and costs will always be key issues), that progress in medical technology will lead to better drugs and techniques and that remote medicine will continue to be developed.



Scenario 1. Traditional stand-alone players

All players (GPs, hospitals, specialist clinics, medical insurers, pharmaceutical companies and government agencies) will have implemented significant improvement in their internal processes and introduced some form of basic back-office integration to reduce costs and speed up delivery of their 'product.' But all the players will still be internally focused, rather than trying to find ways of co-operating with other players so that overall performance is improved. But, by and large, the value chain in the second decade of the 21st century will look much the same as it does now. The reasons? There will not be many market mechanisms in such a system and little more transparency or co-operation than exists at present. Healthcare providers, particularly those with large asset bases, will be trying to protect their existing positions. Achieving further improvement either in service or in efficiency without market incentives or developments along the value chain will be most difficult. And if players remain isolated one from another, then there will be few opportunities to realise any of the big benefits that e-business connectivity can bring.

Scenario 2. Cost-driven co-operation and integration

The players will take advantage of the opportunities offered by e-enabled value chain optimisation, but few market mechanisms and performance incentives will come into play. Each of the players will be much more connected to others via information-sharing systems, planning systems or e-procurement networks. However, on the downside, as market mechanisms and performance-based decisions will still be considerably under-developed, players will not find complete incentives to specialise and play a distinctive role in the network. The traditional players will still be the kingpins. Their position and their margins will be protected by regulation and new entrants will be blocked. Traditional publicly owned health services could be in the middle of this crossroad. Branding, vertical integration, capital investments and performance improvement initiatives could be apparently easier, but lack of competition, bureaucracy and politicking considerations will be high barriers for change.

Scenario 3. Black box competition.

In this scenario, market mechanisms are in full play, but there is little integration between players, so few of the benefits of co-operation, transparency and sharing can be reaped. There is freedom of choice for insurers, consumers have a range of providers and suppliers to choose from and there is plenty of competition. But in spite of all these improvements, an old-style value chain connects the players, information is not shared, and there is little connectivity between players. As there is no information available for decision-taking, this adversely affects all potential benefits obtained from internal or external competition between players. In most countries this is an impossible and socially unacceptable scenario.

Scenario 4. Diversified e-health networks.

This scenario is characterised by more internal or external open markets and strong performance incentives in a highly integrated value chain where transparency and connectivity are watchwords. The value chain will mature into a group of healthcare players who have integrated their offerings as far as possible and who will make every effort to co-operate. The industry as a whole may be made up of a series of networks populated by players with a clear and distinctive role.

In this scenario, e-health is used to the fullest for planning, management of patient flows and outsourcing. E-markets (where buyers and sellers of healthcare products and services can come together electronically to transact business) are set up. Connectivity enables health services to be delivered faster, more cheaply and tailor-made to the demands of various consumers.

Many new players are likely to emerge to provide specialist services like data mining (analysing data so that participants can find and recognise new opportunities) and knowledge management (which uses the Net to optimise the use of an organisation's intellectual capital.)

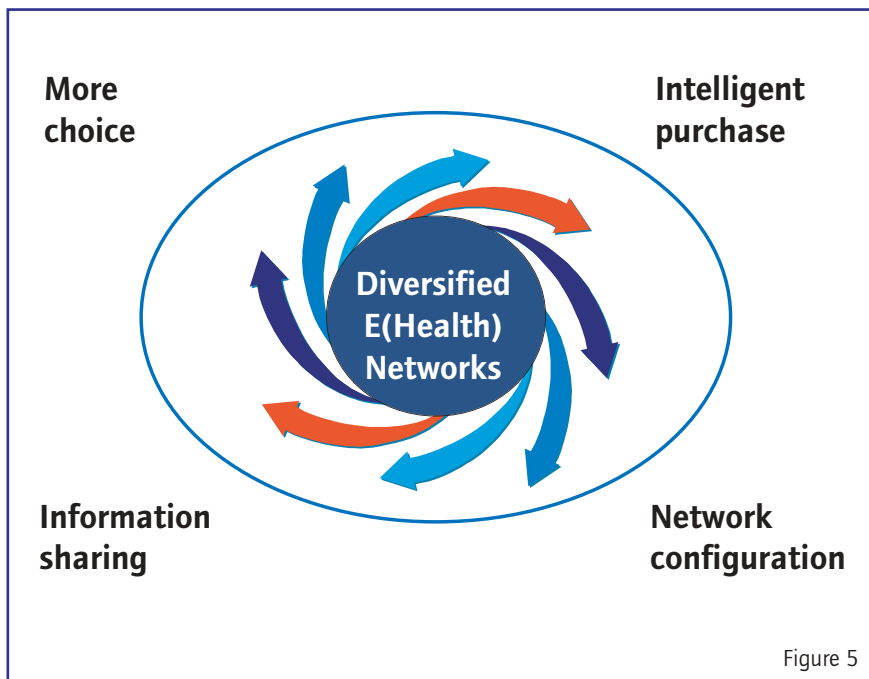
Several decisions and developments need to take place if this is to happen. Crucially, the healthcare market needs to be opened up to planned or regulated competition. The industry needs to introduce, and become used to, financial incentives to improve performance across a wide range of activities, and the players in the marketplace need to commit themselves to using e-health in almost every aspect of their work.

The evolution of this scenario will probably be different in every country, depending on its starting point. In countries where government organisations have been delivering public insurance and provision of health services (i.e. the Nordic countries, United Kingdom, Italy or Spain), the introduction of performance incentives and some market mechanisms will probably not mean that the Government has to move back from operations. But there will probably be some degree of unbundling and specialisation of services. A likely scenario for these countries will include increased hospital autonomy and a less hierarchical and more networked relationship among the parties, facilitated by the web.


An industry transformed

In our view, the most likely scenarios are those of integration, cooperation and networking. Standing alone will no longer be an option. Networking is our preferred scenario and the only one that can really exploit the benefits of connectivity and produce better care at optimum cost.

What will the future of e-networked healthcare look like? In these paragraphs, we envision the main features of this e-transformed industry (see Figure 5). Some of them are already emerging under pilot projects or small scale initiatives



- (a) Information sharing between the main players will improve the speed, costs and quality of service delivery;
- (b) Consumers (patients) and other purchasers (like medical insurance companies) will be able to choose between healthcare providers in a regulated competition environment.
- (c) Purchase and provider selection will be made on the basis of publicly-available information about the performance of the provider,
- (d) Players will transform their organisations to play new and different roles inside the network.



(a) Information sharing. E-connectivity will drive and enable information sharing. Consumers will be able to interact on-line with insurers and healthcare providers. E-enabled value chains will make it easier to gather and share information on patients, protocols and processes, improving the quality, speed, efficiency and costs of service provision. According to a recent survey by Forrester Research in Europe, 72% of hospitals interviewed cited internal and external information sharing as the greatest value of the Internet. "In the future, information technologies will play a central role in the primary process for the doctor and the communication between doctors and nurses, doctors and patients and doctors and insurers", says Geert Blijham, Chairman of the Board of Management of Utrecht University Medical Centre. A good example of how connectivity is improving information sharing in the system is Reseau Santé Sociale in France. By January 2001, more than 30,000 doctors and 200 hospitals had used RSS, and it was producing 110 million prescriptions a year.

Access to electronic patient repositories of clinical information will become the key to arrange efficient patient flows. David Kwo, Director of Information & Systems Services at NHS Chelsea and Westminster Hospital in the United Kingdom, says: "Our Electronic Patient Record System is improving clinical effectiveness through clinical decision support and streamlined processes and is reporting financial savings." The hospital currently has one of most advanced electronic hospital record systems in the country, covering electronic patient booking and administration, results and clinical repositories, prescribing, nurse care plans, multi-disciplinary care pathways and expert decision support systems. Another important example is the ORBIS project in the southern part of the Netherlands (*see Box 3 opposite*).

As processes and medical protocols become more standardised they will be made available on Intranets, secure external Net channels and on CD-ROMS. Education and training for professionals and support staff will become largely web-enabled. For example, Harvard Medical School will be offering next to 200 online continuous medical education courses this year.

Information on patient flows, service volume and outcomes is also valuable for insurers and governments. Because the value chain will be much more transparent, it will be easier to identify improved performance and this will drive overall performance in the industry even further.

Transforming the Dutch healthcare system

ORBIS is a healthcare consortium in the south of the Netherlands which consists of one community hospital and nine nursing homes. The Dutch ministry of health appointed ORBIS a "hospital of the 21st century", thereby asking the group to envision the future of healthcare and subsequently realise this vision. In this vision ORBIS positions itself clearly as the regional leader in the development of ambulatory care, integrated with the clinical care process. In collaboration with other healthcare providers who are not currently integrated in their network, ORBIS is developing an integrated value chain that meets current and future expectations for customer focus, efficiency and quality. In the Netherlands and beyond, ORBIS is setting the standards for a healthcare enterprise network.


In the hospital, ORBIS has already implemented a powerful and robust back-office ERP system (SAP) that integrates all patient logistics, financial and materials management processes. The patient logistic processes that have been developed prior to the implementation, are based on demand and disease-oriented planning and evidence based-treatment guidelines in a transmural (ambulatory) context. With the implementation of the treatment guidelines into the SAP/ISH, system ORBIS has attracted great national attention. In the years to come, ORBIS will be rolling out their vision beyond the walls of the hospital.

Major initiatives:

- The GPe-Health project lead by ORBIS sets a first but thorough step towards chain integration. GPe-Health focuses on collaboration and integration with the general practitioners in the region. The project goal is to implement a consumer-centred planning and treatment system by the end of 2001, including an order-entry and results-reporting system and an electronic medical record tool.
- As integration progresses, the need to combine individual efforts into shared services to achieve the desired efficiency benefits will emerge. In the project ORBIS will face the issue of either providing the applications and infrastructure themselves or outsourcing (and thereby decapitalising).
- ORBIS is committed to establishing a healthcare network. This commitment drives ORBIS to participate continuously in regional healthcare developments and build a strong regional presence for their brand. A recent example was the take-over of four additional nursing homes. The ultimate goal is to involve other healthcare providers that fit ORBIS's service offering. To complement the full service range private, providers will also be included.
- As part of the hospital of the 21st century initiative, ORBIS is having a new hospital designed and built. The hospital is designed to fit the new way of patient-centred working. Traditional hospitals are broken up into numerous specialised facilities such as a diagnostics centre, care centre, treatment centre etc. The new hospital will provide these expensive facilities to partners in ORBIS' network, and other parties on a commercial basis.

ORBIS is eminently developing the role of brandowner and network manager in their own region. In doing so they have been very active in implementing a new ICT solution facilitating the patient-centered care process and the communication with nursing homes and GP's. The main challenge for the future is to position the consortium among competitive brands and to establish a link to the insurers' networks.

Box 3




(b) Greater consumer choice. In most countries, governments will stimulate regulated competition between players. They will add strong performance incentives and choice for consumers and insurers/purchasers. Consumers and other purchasers will be able to choose between providers. Insurers will have a greater range of providers to choose from and consumers will have this and a greater choice of insurers. New private entrants will access the industry. The role of intermediate agents acting on behalf of the customer will be challenged. New entrants could emerge, to assist patients in decision taking. Consumers will access information, interact with the system of care and even order transactions through multiple channels. Governments will be interested in helping patients in this process. For example, the Dutch Government's Curative Care Modernisation Programme aims to make demand-driven care the foundation of the healthcare system by 2005. The government wants to create an e-enabled healthcare market in which care providers, health insurers and consumers will come together on-line armed with detailed information on price, quality and other key factors.

(c) Intelligent purchase. Evidence-based purchase will expand radically at all levels. Patients and insurers will demand information about the performance of healthcare providers and will only make key purchasing decisions after they have considered such information. Independent consumer groups may measure healthcare providers' performance, as might governments (acting on behalf of consumers) or big purchasers like insurance companies. All sorts of new performance specialists could emerge, offering everything from benchmarking to performance management services. It seems likely that the financing of healthcare provision will be tied closely to evidence about the provider's performance and quality. Individual customers or insurers may enter into bonus/penalty agreements with healthcare providers to keep them up to scratch.

Nowadays, the lack of concrete data to differentiate the outcomes and costs of hospital performance makes it difficult to identify what is or isn't a health provision centre of excellence (COE). COEs have been hard to recognise and quantify. But this situation will change. According to the Institute for The Future, by 2005, about 500 hospitals in the United States will merit the designation of "real" COEs, compared to approximately 270 nowadays. The combination of pressure from purchasers to demonstrate value and of increased capability of information systems to capture information on costs and outcomes will increase the ability of hospitals to differentiate themselves by speciality and defined excellence¹³.

¹³ Health and health care 2010, The Forecast, The Challenge, The Institute for the Future, January 2000



The fact that consumers will be putting increasing demands on providers, and comparing them, will also encourage many providers to think about branding their products and services. A service whose brand becomes synonymous with quality and cost effectiveness will have an edge on its competitors. Providers will start to use the techniques used by other brand owners, such as marketing, customer segmentation and customer relationship management.

Massive data gathering and evaluating will provide more transparency and support for other decisions, like adoption of new technology or regular procurement in hospitals.

- (d) Network configuration** Network-structures will be groups of players that offer speciality services that complement each other's core business. The success of networks will depend on their collaboration, specialisation and branding as well as on optimal allocation of assets and medical functions. The network configuration and the emerging of new business roles are not exclusive to the health care industry - it is going to happen in most industries (*see our Metacapitalism view in Box 4 overleaf*). Inside the network, some players will act as *brand owners* and *network managers* managing the relationship with clients, but concentrating on its main assets and core capabilities and leveraging some non-core processes to other players. A second group of players in the new networks will be the *supply chain participants*. They will focus on finding ways to add value to the service that the brand owners and network managers provide. Finally, there would be *shared services*. As the network goes on-line and starts sharing information and knowledge, the opportunity will grow for players to outsource or set up shared services like clinical, administration and human resources processes.

Joint shared services enterprises or individual companies will provide new services as supply chain participants for the whole network. In Spain, for instance, local hospital consortium Consorci Hospitalari de Catalunya has created new companies providing shared services of information systems, procurement, lab results and even consultancy or interim management to their associates. The UK Government has created a unit in the Department of Health to drive through new partnerships with the private sector in the NHS. General Healthcare Group, Britain's biggest private hospital operator, has announced plans to build a £40m fast-track diagnostic and treatment centre, which it hopes the NHS will contract with for diagnostic services and waiting list type operations such as hips and cataracts¹⁴. Companies like Merck & Co. (Medco) have created companies to offer pharmaceutical and disease management programmes to insurers.

¹⁴ Financial Times; Sep 19, 2001 New unit promotes private sector in NHS

MetaCapitalism - the E-Business driven transformation of markets and value chains

In *MetaCapitalism: The E-Business Revolution and the Design of 21st Century Companies and Markets*, authors Grady Means of PwC Consulting and David Schneider document the economic growth generated by B2B e-business.

The core idea of MetaCapitalism is that

E-business will drive the transformation of the value chain of many industries. The concept describes how companies can increase added value by using new technology to reorganise themselves by integrating new players and entering various partnerships and alliances. This compares with a traditional model in which companies maintain a large internal capital base with, typically, production sites, distribution centres, a large sales force and retail outlets.

The book describes how the search for competitive advantage will drive a shift from optimisation of an enterprise to optimisation of a network. This transformation leads to a new network-based business model in which companies take up different positions, from low-capital brand-owning companies to companies clustered around these brand-owning companies in external or outsourced networks.

The brand-owning companies will devote their energies to meeting customer requirements and driving product innovation. The networks will provide the supply chain, and support services such as financial processing, accounting, technology, human resources for brand-owning companies. The key drivers of a value adding network or community include accelerated market growth, network efficiency, supply chain integration and purchasing power.

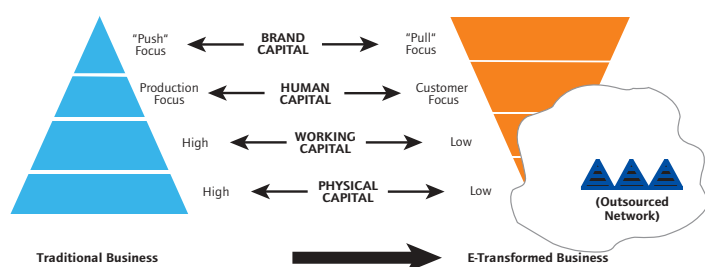
The advantage of owning the physical capital of production capacity will be replaced by the need to dominate the network. These managed networks stay efficient by continuously replacing parts of the supply chain with more efficient players.

MetaCapitalism describes how very sophisticated businesses have already been created around supplying these services, and how large brand-holding companies are increasingly turning to networks that can more efficiently focus on certain parts of the manufacturing supply chain and functional processes. When networks are well developed they can integrate into larger communities that provide services for a wide base of clients, gaining market power and network efficiency.

Unless companies have adopted certain management practices, processes and technologies they will not be equipped to participate in a network (described in the book as a value adding community).

- Companies must have achieved some real degree of supply chain synchronisation (ERP and CRM), process standardisation and sound ERP standards: this enables highly flexible, low cycle time and standard process models.
- A solid IT infrastructure and a good understanding and acceptance of enterprise systems lead to a smooth transition to the technology systems that support network operations.
- Organisations must be transparent. Alliance partners will need clear understanding of the supply chain and business process architecture of their partners.

Companies have to overcome these barriers and show leadership to take a strong position in the evolving networks if they are to be successful in the new E-business era.



Box 4

Strategic issues

The transformation of the healthcare industry in the ways outlined above would have many implications for the various players, from governments to service suppliers. They will all have to consider a number of strategic issues and options (see Figure 6)

Figure 6: **Overview of strategic alternatives for players**

	Government	Purchasers/ Insurers	Providers	Suppliers	New Players
Brand-Owner	<ul style="list-style-type: none"> ● Brand focus ● Stronger citizen participation and relationship 	<ul style="list-style-type: none"> ● Brand owner of insurers or integrated service delivery network ● Stronger client relationships 	<ul style="list-style-type: none"> ● Brand owner of service delivery network ● Clear profiling around key services ● Stronger relationship with patients 	<ul style="list-style-type: none"> ● B-to-B branding ● B-to-C branding ● Stronger relationship with new decision makers (patients, insurers, government) 	<ul style="list-style-type: none"> ● Brand management function, CRM function ● Choice intermediaries for clients
Supply Chain Participants	<ul style="list-style-type: none"> ● Continue being insurers/providers at the network 	<ul style="list-style-type: none"> ● Focus on insurance process, and/or as part of specific network ● Focus on administration/processing 	<ul style="list-style-type: none"> ● Specific provider inside the network ● Focus on added value role in network ● Outsourced services to brand owners 	<ul style="list-style-type: none"> ● Specific functions inside the network ● Outsourced services to brand owners 	<ul style="list-style-type: none"> ● Portal managers ● International players ● New health services ● New support services ● ASP, telemedicine
Shared Services Participants	<ul style="list-style-type: none"> ● Shared services especially around information gathering 	<ul style="list-style-type: none"> ● Shared services for network participants 	<ul style="list-style-type: none"> ● Shared services for non-key processes 	<ul style="list-style-type: none"> ● Shared services for non-key processes 	<ul style="list-style-type: none"> ● Administration ● Knowledge management and Datamining
Network Managers	<ul style="list-style-type: none"> ● Managerial role on the health system 	<ul style="list-style-type: none"> ● Managerial role on the insurer providers network 	<ul style="list-style-type: none"> ● Managerial role on the provision network 	<ul style="list-style-type: none"> ● Managerial role on the network of suppliers/distributors 	<ul style="list-style-type: none"> ● Managerial role on the network

Governments

The role of the government in this new environment could differ from country to country. But it seems likely that most of them will act as industry managers, involved in policy-making, the provision of financial incentives across the industry and control of the quality, accessibility and affordability of services.

They will be responsible for defining a clear strategy to improve the health of their communities, and establishing national guidelines and standards to be followed in the industry. They will create the framework for transparency and sharing of information inside the system.



To a certain degree, Governments will deregulate the market to increase competitive forces and will incentivise performance-based contracts between purchasers and providers.

“Government has to stimulate the transition to diversified networks by introducing a new incentive system for hospitals which encourages collaboration of clinical and ambulatory care providers in the patient treatment process”, says Floris Sanders, former Chairman of the Dutch Association of Medical Specialists in the Netherlands.

Data-mining and information sharing will be key in decision making. “Better care for patients, and improved health for everyone depend on the availability of good information, accessible, when and where it is needed”, according to *NHS Information for Health*, the main strategic guidelines for the NHS for 1998 to 2001.

A key government job will be defining what constitutes ‘basic health services’ for which insurance (whether through government itself or other institutions or organisations) will be mandatory. Governments will need to be more prepared to promote public debate and make difficult decisions. Technology assessments on proof of evidence and cost-effectiveness analysis will be key in future years.

Most governments will have to focus on a more customer-oriented healthcare system and will be more focused in branding and have more direct relationships with their citizens, often being key providers of information via the Internet and other channels. Many have already gone a long way down this path, launching government-backed or financed health information and service portals on the Internet. These portals are providing good health content and education tools, prevention and health promotion programmes, community interaction, advice and directory of resources, waiting list information and other useful facts. The National Institute of Health in the USA is a good example of how public health portals are leading the market ahead of most traditional first-move private players. In Canada, the most visited of the health sites to date is a comprehensive consumer health information site initiated by the federal government, the Canadian Health Network (CHN). Other good examples are based in Australia, New Zealand, and some European countries. In the UK, the NHS is complementing its website offering with NHS Direct - touch screen kiosks providing access to key health information in supermarkets, pharmacies, and railway stations. Government will have a role as a sponsor for providing technology and communication infrastructure that cannot be initially afforded by private initiatives. But usually, these operations will be moved later to the private initiative. New forms of private – public partnership will be tested. E-health initiatives by the Catalan Government in Spain are examples of this. (see Box 5).

E-initiatives in the Catalan health system

The Catalan Health System, commissioned by the Government of Catalonia, has traditionally pioneered reforms to provide better care and management for the community it serves in the north-east of Spain. The system has a government-run office for planning and community health, a public agency with an insurance function (the CatSalut or more fully the Servei Català de la Salut) and a network of private and public providers, the major one being the government-owned Institut Català de la Salut. The development of a strong private sector and the co-operation between public and private sectors are actively encouraged.


The Government is now promoting a series of major initiatives to bring the public, healthcare professionals and organisations into the information age. The main players in the system are also transforming their information systems. In the process they are creating changes in their internal processes and in their relationship with the community. The different parts of the system are networking and co-ordinating in a loose and voluntary way, based on their common interests. Private firms coming from other industries such as telecoms, media, and insurers are also taking an active part. As a result, new models for service delivery and outsourcing are emerging.

Major initiatives

- Sanitat Respon is a call centre promoted by the Ministry of Health, to provide basic information about services and health advice and to coordinate emergency resources along the territory.
- Viasalus.com is an Internet portal aimed at the public and at healthcare professionals. It is promoted by a consortium of private and public companies.
- The CatSalut has launched a full new information system plan. Among these projects there is a comprehensive demand-driven system, which includes client relationship management systems, quality assurance and a data warehouse for risk analysis and simulation.
- The Institut Català de la Salut is contracting with a telecom operator the development and support of a network and the provision of value added services over the network. These include health information systems for primary, hospital and support processes and multi-channel access for members of the public.
- The Administració Oberta de Catalunya (Open Administration for Catalonia) will be a one-stop contact centre to facilitate relationships between local administrations in the territory. It will include a healthcare section, with proprietary services and links to other initiatives.

Dr. Eduard Rius, Minister of Health and Social Security of the Catalan regional government said: "These initiatives are designed to make the healthcare system more accessible to the public and could bring about rich improvements in terms of quality and efficiency in health services for professionals. Therefore, these initiatives will be a priority for our government in the coming years."

Box 5



European governments, based on a national health service model, could continue taking an active role in the industry, as healthcare service purchasers or providers in the network, while giving a pace to new decisions based on performance. "I do not foresee a shift from the public insurance system to a private insurance system in Denmark in the near future. There might, however, be a larger shift in the health care financing system, where the trend in Denmark is to go from block funding to production-based funding ('the money follows the patient')", says John Erik Pedersen, Head of the Ministry Office responsible for the General Health Care Policies in Denmark.


Finally, governments will have to decide what sort of privacy and access issues are raised by the freer flow of information around e-enabled diversified networks. As countries move towards things like web-based electronic patient records and patient portals all sorts of new privacy concerns will arise.

Insurers

Insurers (as private companies or public agencies) will face a number of key challenges: improving their operational efficiency; satisfying customers with better access, better information and a more personalised service; managing risks more efficiently; and implementing performance-based purchasing. Improving operational efficiency will imply reducing costs and redesigning the value chain according to people's needs. Satisfying the customer will mean helping and meeting their demands for choice, access, and service through proactive actions, tailored programmes and integrated services that address their individual needs for empowerment and convenience. Managing health risks will involve the proactive identification of health risks and the delivery of education and preventive interventions to reduce risks and promote well-being. Implementing performance-based purchasing will imply access and data mining information on outcomes from providers to make the right decisions and selection.

As consumerism grows in healthcare and market mechanisms are introduced to spur competition and improve performance, insurers will have to keep their eyes constantly on performance measures. In this sort of environment, customer relationship management, branding and differentiation of services will all become important. Tailor-made insurance products will become common. Insurers are likely to find themselves making contact with customers through many channels – correspondence, call centres, fax, and the Web. But as the proportion of contacts made electronically increases, they will accumulate large amounts of customer data which can subsequently be mined for information that will help in everything from marketing to spotting new business opportunities.

One example of how an insurer is transforming its way of doing business using the Internet is Cigna in the USA. Cigna decided to improve customer service by the way of enabling 'one and done' service, improving the accuracy of customer service responses, providing centralised status of information, achieving consistent service availability, and providing comprehensive quality management. To achieve this objective, Cigna has designed a technology architecture



that provides a customer service-focused bridge across an evolving array of operational systems and functional departments. Other insurers in European countries are taking similar approaches.

The role of insurers as health network managers will build the network through acquisition or contracts and alliances, and it will drive cost efficiency and transparency in the network. Insurers will be very important in keeping costs down. They will be big purchasers of healthcare services, directing clients towards approved healthcare providers, and will shop around for the best deals before giving their approval.

Because they will have better access to information, they may also become more active in health management, monitoring the success or failure of medical technologies and drug prescribing regimes. Insurers will work together and establish alliances with providers to assure best quality and results for their clients. Critical to success under the evolving health management paradigm is the ability to truly satisfy and delight consumers by meeting their demands for choice, access, and service through tailored programmes and integrated services that offer them empowerment and convenience.

Inside the network, some players' roles could evolve. They could evolve towards becoming brand managers or developing purchasing power for an insurance or health provision network, towards managing the provision network to enforce cost efficiency, transparency and quality, or towards specialising as a supply chain participant for other insurance companies. Some new players and shared services could appear in order to supply special products or services.


Public bodies acting as insurers would have to cope with much more competition if the insurance function were partially or totally deregulated. In that case, branding and acquiring the trust and loyalty of the community and health professionals would be vital. In publicly owned systems, relationships among insurers and providers will be more complex and subtle. Commercial and business-like structures will be developed.

Healthcare providers

Most providers are likely to become part of a branded integrated health network. If they are to be successful members of such a network they first need to improve their own internal information systems and make processes more efficient and then prepare themselves for integration into an e-enabled value chain by increasing transparency, standardising processes and protocols so that they fit neatly with those of other chain members, and sharing information. There needs to be a high degree of connectivity between, for instance, GPs, hospitals and others in the chain of health service provision.

According to a recent study by PwC in the USA, 61% of physicians interviewed considered that the Internet was going to radically improve communications among patients, providers, and payers. Scripps Health in the United States is an example of the shape of things to come for healthcare providers. It is spending \$75 million to create a virtual hospital of the future¹⁵.

¹⁵ The Industry Standard, 2000



Its e-health system will embrace everything from telemedicine and remotely accessible electronic medical records to on-line procurement.

At the centre of all these initiatives will be the repository and access of clinical information. Government in Malaysia is working to integrate the public health care providers in the system. In the United Kingdom, about £1 billion have already been earmarked for the new NHS IT systems that will enable the transfer of clinical information from GPs to healthcare facilities. Accessing clinical information will be a key development for patients as well. The Seoul National University Hospital is establishing a comprehensive clinical information system, which will provide patients with online access to their medical records.

If, as seems probable, healthcare providers start to concentrate on their key activities and assets and differentiate their offerings, there may well be a considerable shedding of assets by some players. "In Denmark the whole hospital system is being restructured. Traditionally each hospital offered the whole range of medical and surgical services, even when they had a small patient base. Now there is a move to set up specialised acute and elective units at dedicated locations, serving all the hospitals, which no longer have to provide those services themselves", says John Erik Pedersen. This new role will mean an important effort in terms of identifying partners and competitors, managing clients, realigning the company to deliver the promise (people, processes, ICT), and implementing control systems for continuous improvement.

Pure consolidation or more complex networking will help to restructure the service supply and counterbalance the purchase power of major public and private insurers. Independent GP's or specialists will group and create well-managed commercial structures.

This trend could signify important changes for the future. Some providers will concentrate their efforts in performing branding, retaining the relationship with clients and managing provision networks, while some other participants could specialise in being supply chain participants in the network. Process standardisation and quality management will be key in the network. Finally, shared services companies and new entrants will appear providing any kind of basic or specific services inside the network such as assets, support services, care planning, or administrative billing.

In any case, outsourcing non-core processes and activities will be common in the industry, and will ultimately depend on the specific priorities of each player, and performing a business case for each opportunity will be the common standard to go along with it.

Suppliers

Suppliers will face new challenges because of this new situation. As players such as governments, insurers, providers and the public, take a more active role in decision taking, branding and accessing these new clients will be key to their business.

Some big medical suppliers and pharmaceutical companies will focus in branding and establishing long-term relationships with clients. Relationships with new decision-makers will be based more on long-term commitments and will require new value-added services and a greater risk assumption in the chain from suppliers.


This will put far more emphasis on business-to-consumer and business-to-business marketing and customer relationship management. Suppliers could even assume new vertical roles on the health care value chain, as health or disease managers. It is increasingly common to see pharmaceutical or medical supplies companies taking care of insurers' disease management programmes.

Marketing and relationship with the end customer will be reinforced. Consumers will demand better support programmes, and will exert more influence on prescribers - creating a demand for access to better information. Pharmaceutical and medical supplies companies will also need to obtain access to diagnostic and population profile information to guide their R&D efforts.

The trend towards individualised health management will create enormous opportunities for manufacturers and service providers within the pharmaceutical industry, by enabling them to enhance their traditional offerings and to exploit entirely new market spaces. It will open up the possibility of producing a better quality of life for individual patients, better health for whole populations, and better returns for the shareholders who underwrite those improvements. In other words, it will offer pharmaceutical companies a wider range of strategic options than ever before¹⁶.

Their operations will change just as radically as those of others in healthcare networks. Increasing standardisation in medical processes and treatments could lessen the power of the pharmaceutical industry in the healthcare market place. New products will be subjected to more pharmacoeconomic scrutiny to ensure efficacy justifies cost/price. Diagnostic tools for physicians may be required as part of the approval of new products. Regulation and pressure on reduction of product prices will intensify and the hurdles for obtaining approvals will become stricter.

¹⁶ Pharma 2005, PwC 1999



E-procurement will change the way drugs and medical supplies are bought and sold. Buying communities will become larger and will operate cross-border. Decisions will be based more on price and performance. Outsourcing of purchasing and supply activities will be common and distribution complexity will increase with more end-user (patient home) delivery.

Pressure for effectiveness and efficiency in the industry will bring an increasing pressure on these companies to improve their own processes. As everyone pushes for optimisation of the healthcare value chain, there will be increased outsourcing of business processes. Players will delegate a large part of the processes of their own traditional value chain to others and will become managers of this network. "As we move forward, success in the pharmaceutical business will not depend on the number of hands you have to turn a task. It will depend on the number of connections you can make between minds, and the level of productivity gains you can achieve as a result," the President and CEO of a big pharmaceutical company said recently. Because of this trend, some of the players will be network managers in specific targets, while other existing players will concentrate as procurement or supply chain participants in these networks, and new companies will emerge and lead parts of the chain.

Most of the current large pharmaceutical and medical supplies companies will be fragmented into networks of alliances and joint ventures. Some of them will diversify into diagnostics to support therapeutics, some will diversify into preventive fields such as functional foods, vitamins or herbal products. Some will develop alliances with health information providers, and some will participate in specialist health networks such as disease franchises.

New players

New entrants (companies from outside the health industry, like financial services, telecom operators, or utilities; or pure e-business players) may take powerful positions as intermediaries between consumers and traditional players, or even as brand managers. They may find ways to harness the buying power of groups of patients and consumers. However, they should take into account the important leverage of existing players. The most successful initiatives will probably be those offering real added value to traditional players and the public.

Others might set up in business as database and information flow managers, as providers of services the main players want to outsource, or even as direct competitors in diagnosis, treatment and care.

They are not new, but companies taking advantage of the inefficiencies of the public system, or as a result of active or passive privatisation processes, will play a more important role than ever before.

New players will not accept easily the current status and could be unpredictable and alter the way that present players play.

A changing world

Innovation and change are deeply embedded in medicine and medical technologies. However, industry structure, business processes and information technology have not changed at the same pace. In the years to come, cost containment pressures, consumerism, market dynamics and the Internet, among other forces, will make healthcare players transform the industry much more than ever. Combined new and old forces will make change inevitable.

We envision a future of competition and cooperation in the industry. A client-focused, market-driven, web-enabled network of healthcare professionals, businesses and institutions could be the cure of healthcare.

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