Part 1
Causes
A reformation always has its defining moment, though it’s inevitably one that can only be identified with certainty through the benefit of hindsight. Did Luther realize the impact his Ninety-five Theses, nailed dramatically to the church door in Wittenberg, would have on Western history? It’s unlikely that he understood, or that he would have liked, the changes his actions resulted in. Historical analysis is retrospective, defined by the phrase ‘that was the moment when …’. The moment is rarely obvious at the time it happens.

Yet need that be the case? Can we not now anticipate the history books of future years and speculate about what will come to be seen as the atomic reformation’s Wittenberg moment?

Perhaps that will one day be considered to be the chance conversation between the leaders of two of the world’s largest oil corporations that took
place in early 2000. Or perhaps it will be deemed the moment the Internet really grabbed the public’s imagination and began to proliferate in earnest.

We’ll have to wait and see. For now, let’s isolate what we can be certain about in the present: the factors now propelling us along the road ahead.

In this chapter we look at the first and perhaps most consequential impetus behind the atomic drive – extended connectivity. How can this phenomenon incite major structural change in the corporate world? We look at the impact of increased connectivity on rigid industrial supply chains and corporate structures and then forecast the transformation that it will engender. We conclude the chapter by examining what improvements in communication capabilities will serve to accelerate these developments as we evolve from a verbal era to a ‘visual and virtual world’ of what some argue will be infinite richness.

Are we at the starting line?

The months following the dawn of the new millennium are now just a fading memory for most of us. Not so for the CEO of one particular oil corporation. He remembers clearly the moment he received a telephone call from his most dogged competitor to ask if his firm would be interested in joining a new electronic procurement market.

Surprised, he thought: ‘Why should procurement be a relevant issue at my level? Is this just a diversionary move, or is my competitor really suggesting something that will transform our entire industry?’ A week later, his questions were answered, and the answer to the latter question was a definitive ‘Yes’.

In fact, that exchange was only the first step to an entire rethink of business in the new millennium. Within six months, fourteen of the world’s largest corporations assembled at the headquarters of the Coca-Cola Company in Atlanta and debated where electronic markets could ultimately take industrial collaboration. These major players, such as American Express, BP, Ford, General Electric and Morgan Stanley, concluded that developments would take them well beyond the domains of either the energy sector or the procurement function.
This influential group was, knowingly or not, planning the probable demise and future reconstruction of the entire industrial complex.

**From ethereal to ether …**

The organization of business has remained much the same for a hundred years or more. Production is focused around discrete products or service offers. Competition is based on three key linked factors – accessibility, quality and cost of goods. To succeed in all these areas, corporations have sought to dominate their supply chains right through from raw materials to manufacturing to distribution, direct to the end customer. Shell proudly states that it is offering runs ‘from the well head to the petrol pump’. Consumers are asked to take their pick from a dazzling array of products, either on the supermarket shelf or in the pages of a glossy magazine.

But improvements in connectivity, especially through the Internet, are changing the supply-led pattern of business in a fundamental way. In the highly connected world, the structure of business will need to be reinvented. We anticipate the fragmentation of rigid supply chains and in their place the formation of flexible value networks. ‘From the well head to the petrol pump’ may no longer be something to be proud of.

These improvements will open the way for the coming of corporate atomization.

Meyer and Davis described several years ago how the changes were starting to transform our economy, in their book *Blur*.1 They forecast:

- **Real-time transactions**: Every aspect of business in the connected organization operates and changes at great speed.
- **Electronic connectivity**: Everything is becoming connected to everything else – products, people, corporations and countries.
- **Intangibles**: Every offer has both tangible and intangible economic value. Of these, the value of the intangible elements are growing faster.

In short, when the Internet and with it universal connectivity, enters the picture, everything changes. New e-enabled trading mechanisms, such as
online portals and electronic markets, transform the way business is done across the entire length of the supply chain.

Consider, for example, the experience of a traveller who wants to buy a plane ticket. He or she can instantly compare the price offers of all world airlines through an Internet-based search engine, thereby making a choice based on lowest cost or suitability. Using online auction techniques, the same customer can name a price or ask the airlines to bid for his or her business, as is the case with priceline.com. Such mechanisms are being deployed at every step of the supply chain to improve choice and efficiency.

The power of such ‘intermediaries’ is breaking the stranglehold of players such as Shell, which dominated the traditional supply chains. Instead they are placing increasing power in the hands of the customer.

The introduction of Internet-based techniques and the formation of electronic intermediaries will help to dissolve the stranglehold of large corporations on individual supply chains and instead enable a multiplicity of players to coexist. Let us explore how this works in practice.

The electronic supply chain

The Internet arrived, offering promises of untold opportunities for businesses and consumers alike. As the immense possibilities of the information superhighway began to penetrate the business community in 1996 and beyond, many corporations focused on purchasing over the Internet as the first ‘quick win’ in the new digital economy.

Many leading industrial players (such as BP and Ford) were already well advanced in developing their own electronic procurement systems. These internal, Internet-based systems sought to take advantage of consolidated spend within a single corporation – and we’re not talking pennies here either. This could and often did amount to tens of billions of dollars.

Each sector recognized that by combining its spend on direct and indirect products and services through electronic marketplaces made possible by the Internet, huge economies of scale could be achieved, as well as accompanying structural reforms to entire industries.
In the automotive industry, much progress had already been made through the introduction of industry-wide trading standards and electronic links between the major car corporations and the multitude of component suppliers (15,000 or more). However, Internet-based electronic markets appeared to offer increased performance and trading efficiencies through online electronic catalogues and new market mechanisms such as electronic auctions.

Suddenly competitors were sitting around tables discussing how their entire procurement spends could be amalgamated to produce huge electronic markets with combined purchasing powers often exceeding hundreds of billions of dollars. The additional attraction was the mouth-watering prospect of large equity windfalls arising from a share in a new commercial vehicle. Investment banks were quick to promote the opportunity, with companies such as Morgan Stanley earning millions of dollars in fees by bringing together key sector players.

The number and intensity of market announcements taking place between 2000 and 2001 (shown in Figure 2.1) best illustrates the frenetic

![Figure 2.1](image-url)
interest generated. During this period almost every sector agreed on a new electronic procurement market to capture the numerous transactions taking place between suppliers and business customers. For example, Ford, Daimler-Chrysler and General Motors created an integrated procurement market and Covisint mimicked this for vehicle parts and sub-assemblies. Thirteen of the largest global oil corporations combined their spend through a new market, TradeRanger, and sixty-two consumer product corporations, including old adversaries such as Pepsi and Coca-Cola, introduced Transora.

As we predicted in our first book, many of the marketplaces shown in Figure 2.1 have by now failed. It’s one thing to have a huge combined spend and quite another to set up an industrial-strength marketplace. Integration of internal purchasing systems and processes has taken much longer to achieve than even we forecast, and many of the new markets are struggling to gain critical mass in terms of transaction volumes.

However, some of the larger initiatives still survive, and the economic value of introducing Internet-based markets between the myriad of suppliers and customers in any industry has never been in doubt. Even a 1% saving in transaction costs would be more than ample to cover the costs of establishing these markets. However, after the initial frenzy of activity in creating online procurement markets in the early years of this decade, corporations have become aware that such mechanisms have a much broader scope and impact.

The wired customer
What is happening at the vital customer-facing end of the supply chain? We know that electronic procurement is changing the relationship between large-scale manufacturers and the myriad suppliers doing business with them, but what of consumer relationships? To get things right, we have to start by looking at consumer desires. Let’s consider recent experience in the consumer products sector.

The executive committee of one of the world’s most prestigious consumer products corporations – Procter & Gamble (P&G) – met over a weekend in its hometown of Cincinnati, Ohio in the late 1990s to discuss the perilous state of the corporation. Rarely in its history had such an influential group of executives come together with such a strong sense of common purpose. Despite being one of the most profitable corporations of its kind in the
world, and the envy of major competitors such as Unilever and Henkel, the stock market had discounted its share price by 50%. The real shareholder concern was the clear absence of growth potential in an enterprise whose primary outputs are tubes of toothpaste and boxes of soap powder. Nobody expected the world market for such commodities to suddenly surge ahead beyond a modest 2–3% annual growth rate.

But of equal concern to P&G was the silence from consumers themselves. Buffered by large retail groups such as Wal-Mart, which jealously guard customer information, managers of P&G had been unable to ‘connect’ with their end customers to understand how expectations and needs were evolving. Spurred on by video clips of new economy thinkers, one of the unique outcomes of the meeting was a radical initiative – an electronic beauty portal, reflect.com. This was to help P&G connect with its marketplace and learn at first hand what consumers actually thought.

Reflect.com is about achieving consumer intimacy through the two-way interchange of very personal information. Visitors to the site are asked to input personal details of their skin and beauty needs in return for personal advice and products that address these needs. The challenge for the consumer is to part with this highly sensitive information. For its part, P&G had to assume the role of trusted adviser and reward its customers with relevant treatments based on this information. From being a mass-market producer of Pampers, Tide washing powder and Pantene hair care, P&G thus intended to become a one-to-one personal beauty counsellor to millions of women across the globe.

The value for the consumer was obvious – an effective means of receiving personalized beauty care in the comfort and privacy of one’s home. P&G stood to benefit in two further ways. First, it could build up an intimate relationship with millions of consumers around the world, exchanging vital details of commonly experienced beauty conditions and being able to mine valuable information relating to geography, demographics, etc. The second, and perhaps most significant, benefit was the opportunity to launch and test new beauty products by short-cutting the traditional retail channels and working directly with the end customer.

This could ultimately change the relationship between supplier and consumer from one of self-service to one of co-development.
From customer to co-developer

Reflect.com has had a relatively mixed reception due partly to problems of execution and also because of issues of consumer trust, although the concept is well understood and much admired.

Of more prominence is the case of Amazon.com. When Amazon launched the first online book portal, it created a unique retail destination. Unlike most high-street shops that might stock up to 50,000 books, Amazon offered an online catalogue of over 3 million books. Few, if any, shoppers on Amazon would encounter the familiar disappointment that their choice is not available. The catalogue offers almost infinite range at the touch of a button. However, as most of us know, choice alone is not necessarily the most important buying criteria. We consumers are seeking only a handful of books that will provide us with a unique and unforgettable experience.

What we want most from Amazon is to identify the five or ten life-changing titles in its near infinite range. Amazon is developing powerful techniques to help us navigate towards these titles but, as with health and beauty, it will require us as individuals to codify our unique tastes and personal characteristics as part of the matching process. As Davis and Meyer suggest in *Blur,* it is the exchange of emotional, intellectual and contextual information between both parties that enables the ultimate coincidence of interests to take place. We may be many years from achieving this ideal state, but these two examples illustrate how electronic portals can change the relationship between supplier and seller in many beneficial ways.

Connected corporations

Combining developments at the procurement end of the supply chain, such as procurement exchanges, with those at the customer-facing side, such as electronic portals, we envisage a transformation of integrated supply chains into loose networks of trading parties.

The once rigid relationships between each layer of the supply chain will become transient and subject to constant review and revision. Falling transaction costs, enabled by Internet-based mechanisms, will erode the traditional advantage of supply chain ownership (as we will see in the next
chapter). Corporations are now starting to simplify their activities across the supply chain, becoming specialists at one stage of the chain.

Improved connectivity encouraged newcomers to appear at each stage of the supply chain, both as providers of goods and services and as electronic intermediaries. As the networks of players continue to expand, the original chain begins to blur into a fuzzy cloud of trading entities. At the limit, only the end customer becomes the permanent anchor point in this evolving mass of electronic interactions (see Figure 2.2).

We predict that as connectivity improves, new value networks will evolve into three layers focused on the end customer:

- **The customer management layer** that encourages direct interaction with an individual about a particular need (for example, financial, educational, medical, domestic) and manages that part of his/her life. Reflect.com provides such a personal point of interaction in the sphere of beauty care.

- **The navigation layer**, an electronic intermediary that enables individual need to be satisfied by facilitating the creation of a bundle of products and services from qualified suppliers.

- **The product layer**, that is, the manufacturer or design shops that create the most compelling solution to a specific customer need, be it a physical product or more intangible offer.

![Figure 2.2 The end customer anchors the supply chain.](image-url)
Each is arranged in a concentric circle around the customer, and interconnected by electronic portal and market mechanisms. The product innovators out at the periphery provide an almost infinite choice of offers from which the network navigators and customer managers can choose. As we shall see later, this corresponds closely with the atoms in our post-industrial economy.

Changes in the nature of the supply chain are apparent already and likely to become even more so as electronic intermediaries become more effective in mediating commercial relationships. What we are describing is in fact nothing less than the re-engineering of the entire industrial network.

And as these changes progress, what is happening inside the corporate envelope?

**Multiple points of connection**

Firms are linked via the supply chain to suppliers, customers and also, crucially, other critical stakeholders. These include employees, shareholders and other trading parties. The Global 2000 corporations may have as many as forty or fifty key stakeholders that influence the business on a day-to-day basis, from local communities and governments to media and pressure groups. Many of these relationships are conditioned by traditional and somewhat rigid means of communication, ranging from data and message exchange to face-to-face contact. The Internet and subsequent developments in broadband network technologies can intensify and transform these relationships through higher speed, two-way exchanges.

We would agree with the premise of *Blur,* that any relationship in a connected world represents a complex exchange of financial, emotional and contextual information. According to this view of the world, a relationship consists of a six-lane highway where value is created through constant interactions (see Figure 2.3).

In essence, the new information channels enable us to establish higher levels of intimacy between connected parties, whether corporations or individuals. Applying this thinking to the many critical stakeholder relationships that make up today’s complex corporation, we see how the Internet
may be the vital mechanism to reshape traditional structures in ways that were once thought unimaginable.

We’ve looked at customer relationships – let’s now look at how electronic markets, enabled by the Internet, could transform corporate structures and relationships: we see these as ‘connected employees’ and ‘connected shareholders’.

**Empowering the employee**

Think of employees as stakeholders and you soon get the picture. A critical group of stakeholder that interacts closely with a corporation, payrolls may top tens or even hundreds of thousands of people. Each member of staff receives a regular salary, benefits and career opportunities that extend over many years. This flow of money alone can represent billions of dollars, and the combined purchasing power of this stakeholder community can be vast – for travel, banking, insurance and other services – absolutely anything in fact. Through a combination of cost reduction and service pressures, corporations are linking their employees into human resource (HR) portals.

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**Figure 2.3** The six-lane exchange highway. Source: *Blur* by Stan Davis and Chris Meyer.
to encourage a new self-service approach towards benefit management and career planning.

One example is British Petroleum. It has introduced a global HR network service based on the software and support services of a firm called Exult. Using web-based connections, Exult has taken over the delivery of HR processes and administration throughout the firm. Employees can examine their benefits online, access tax and relocation information for foreign assignments and maintain current personal information. They can also review job opportunities within the firm and apply for new positions. Currently in its infancy, employees might argue that facilities of this new service are relatively sparse, and the absence of a friendly voice to solve personal problems is a step backwards, but consider how such connections may evolve in the future.

The assembled gathering of fourteen Global 2000 corporations mentioned earlier in this chapter had much more ambitious ideas in mind. Imagine that the HR systems and networks of each non-competing corporation were connected together into a communal marketplace or universal employee portal. Brand managers working for Coca-Cola in Atlanta could access job opportunities with Nokia in Helsinki. Engineers on Alaska oilrigs could opt for employment with GE Power in Europe or Asia. HP product designers could apply to join innovation teams in Ford Motor Company. Loyalty and retention would then be issues for the broader community, not far removed from the notion of the European common market.

Take this one step further and these corporations could use their combined community of one million employees to achieve remarkable trade discounts from suppliers of every kind of product and service. By extending the combined purchasing power of these corporations beyond the boundaries of the workplace into the domestic environment, employees could book hotels and air tickets at a small fraction of the retail price. Insurance companies already exert such leverage on consumer product suppliers when they replace damaged items such as TVs or cars. Such benefits could be passed on to employees as a perk of the job. The level of discount could be as high as 40–50% for a BMW, Marriott hotel room, or Virgin ticket across the Atlantic.
These employee portals are not with us yet, but they could be commonplace in the coming years. The implications for job mobility and consumer power will be profound as communities connecting large firms swell into the millions, each member enjoying extended choice and improved purchasing power. In essence, employee portals will begin to blur corporate boundaries by encouraging job mobility.

Over time, individuals could opt to divorce themselves from full-time employment and instead belong to freelance communities that contract with a firm for brief periods of employment – twenty days rather than twenty years.

Just imagine the possibilities of this new connectivity – the possibilities are endless!

**Choice and voice for shareholders**

The critical relationship between corporation and shareholder must also evolve to embrace new technology and the changing structure of business. How?

The relationship between any corporation and its multiplicity of shareholders, both institutional and individual, is a crucial contributor to corporate well-being. It is also vital to the CEO, for the only guarantor of his job is the trust of his shareholders. But what does any corporation do today to foster this important relationship? At best, the majority of shareholders receive an annual report that is six months out of date the moment it goes to print. In a truly connected world, this point of connection can be improved dramatically to the benefit of all parties.

In the case of General Motors, shareholders can now log on to the corporate website and receive almost real-time reports of news and financial indicators. General Electric (GE) has gone a step further by subdividing its shares into over a hundred classes of tracker stock, enabling investors to select from a wide portfolio of investment options within the firm. This greatly empowers shareholders who can, if they choose, invest in GE’s financial services arm, or focus on power and engineering. In effect, GE becomes a stock market of its own making – comparable to the entire stock exchange of many smaller countries. British Petroleum is moving one step further still.
in piloting a system that will enable shareholders to vote online about key corporate policy issues.

In a truly connected world it is quite possible that millions of people across the globe could interact with and influence all key decisions within a major corporation. Corporations, like governments, will become democracies where employees, customers and shareholders participate daily in governance decisions and strategy development. What will this mean for the nature of corporate structures of the future? In such a widely connected environment the concept of a tightly bounded corporate structure loses all relevance.

What is needed now is a whole new Theory of the Firm, where the ownership and management of the firm are recombined.

Taken together, the revolution happening externally across the supply network and internally within corporate boundaries could reshape the entire industrial complex. The main questions today concern the pace of change and the destination point. However, all these developments depend on current Internet-based connections, which are undeniably limited in power.

What if the capabilities of communication links were to improve by quantum leaps? How much further could such structural developments go then?

Revolutionizing connectivity for the new era

Internet technology, as it is, will simply not do. We know that. Many of the opportunities described above depend on Internet technology dating back to the mid-1970s. However, most of us continue to think of such communication as a relatively mechanical exchange of voice, text and data – operating in what we might call the ‘verbal’ mode of information interchange. Such thinking is conditioned by almost a hundred years of gradual evolution in the telecommunications sector centred on telephony, facsimile and electronic mail.

And just as we witness the new multimedia world of personal communication, we expect to see the universal connection of intelligent devices,
from the cars we drive to the ovens we cook with. IBM looks forward to a world in which over a billion people are connected through multimedia devices, and over a trillion devices (a thousand billion) are linked together. Such devices can communicate together through wireless connections using standards such as Bluetooth. They are likely also to know exactly where they are by exploiting GPS satellite information. Tomorrow, our cars, our homes and even our clothes will become complex telematic devices with a wide range of multimedia services, delivered through the airwaves.

The devices that we use to interact with information networks will continue to increase in scope and power, with software becoming increasingly personalized. Using intelligent agents, the ‘intimate’ computer will be able to carry out active negotiation on behalf of its owner, finding useful and relevant information from the increasing number of digital information sources and communications channels. Sometimes the negotiation will involve payment, sometimes a security check. Over time the intimate computer will be able to learn about its owner’s preferences, and actively provide him or her with a relevant diet of entertainment, information, education and home shopping offers.

Alan Kay, father of the PC, sees this as a logical progression from the mainframe of the 1960s and 1970s and the personal computer of the 1980s and 1990s. Mobility will be a primary requirement for such a device as it offers individuals physical freedom to work and relax wherever and whenever. As the boundaries between the workplace, home and social settings begin to dissolve, the intimate computer will provide the single point of media access to support all these activities. Such devices will come in all shapes and sizes, from wall-mounted screens to wearable accessories.

But however powerful these intimate computers become, they are limited in use without multimedia networks to support them. The rollout of high-speed digital switched networks, both fixed line and mobile, is a key priority for most telephone operators today. We anticipate a staged approach, taking us from today’s predominantly verbal networks to tomorrow’s visual and virtual networks.
From verbal to visual and virtual communications

Underlying the verbal-visual-virtual revolution (see Figure 2.4) is the proliferation of transmission and switching systems that are competing to provide low-cost broadband communications. Most nations are liberalizing their telecommunications markets to encourage investment in alternative network infrastructures. Coaxial and fibre optic cable systems are competing with twisted-pair copper wire to support telephony traffic as well as Internet and TV. Radio, or wireless, networks are competing with fixed networks to support voice and data traffic over the airwaves.

Towards the visual era

Although one-way video broadcasting has been with us for over fifty years, two-way interactive visual communications remains in its infancy. But as personal computers evolve into fully multimedia devices, the over-abundance
of broadband transmission and switching techniques will bring us close to a critical transition point in the development of visual communications.

The visual era promises improvements in the quality and richness of personal communications that far outstrip those of the verbal era – ‘a picture is worth a thousand words’. The advances in two-way visual communication will be analogous to the transition from radio to TV in the entertainment world, and the effects will be as far reaching. In the same way that desktop publishing brought down the barriers for small business enterprises to enter various information-based markets, so streaming video has already encouraged, and will continue to encourage, new ways of interacting with stakeholders.

**Surpassing reality – into the virtual era**

The virtual era promises extraordinary new communications services, such as tele-presence and tele-robotics, which could extend communications way beyond where we are today. Virtual reality (VR) techniques, some of which are already practicable, will dramatically augment communications by providing three-dimensional images of scenes and objects. The potential in the entertainment field is most obvious in electronic gaming. Video gamers will meet in cybercafes, at home, and ultimately in the electronic ether, to conduct global leisure wars in three dimensions.

Beyond tele-entertainment lies virtual conferencing in which participants wearing VR headsets can link into a virtual conference room to explore computer-generated artefacts that can range from a whiteboard to a three-dimensional product prototype. In the engineering sector, the concept of a virtual design team is already well established. Such virtual conference tools could enhance the effectiveness of these teams by integrating computer-aided design and simulation modelling into a shared workspace.

With tele-presence, stereoscopic vision and mechanical movement are transmitted between remote locations, enabling one person to be in two places at the same time. It enables a surgeon to conduct a remote operation on a patient by using stereoscopic vision to examine the patient, and robots to carry out the mechanics of the operation. Using new techniques, the surgeon can now experience full tactile feedback from the patient, giving a true-to-life experience.
Because virtual technologies are digital, they are also scalable, which opens the door to a host of new applications. Tele-surgery, for example, could be applied to microscopic situations where miniature robots perform microsurgery.

**Information intimacy empowers relationships**

With the increasing power of digital communications technology, information and the relationships it supports will become increasingly influential in every aspect of our professional and social lives. In the words of *Blown to Bits*, we will have both richness and reach.6

We are about to witness a further quantum change placing the individual, rather than the organization, at the centre of the emerging information web, and mastering information-based relationships will be the key corporate competency in the new economy.

Business and government will need to build a new form of relationship with individual members of society, be they customers or employees, based on anticipation of need and reciprocity of information sharing rather than on one-way broadcasts. The individual will recognize these changes as heralding a new era of self-exploration, where successful partners will provide a better understanding of personal needs through individualized interactions.

Power structures of all kinds have been unsettled by the redistribution of information and computing power. Much of these changes can be linked to information proximity. It has become the era of 'Me' rather than 'Them'.

With improved connectivity and the associated transparency of information, economic power moves away from the corporation, especially those that are internally focused, towards key external relationships. In a connected economy, customer power becomes a determining force in the transaction of goods and services. The concept of mass-markets diminishes in favour of markets-of-one, responding directly to individual need. But it is not only the customer relationship that will generate value in the new economy. As we have seen earlier in this chapter, a corporation has relationships with a multiplicity of stakeholders – the customer being an important but non-exclusive stakeholder.
And the relationships with all stakeholders will be the central links of the extended organization upon which our atomized economy will be constructed.

Instead of being product- or service-centric, tomorrow’s corporations will be relationship-centric. The nature of business will be focused on extracting value from each relationship through constant interactions and information sharing. As we shall see in the next chapter, this vision of the future is still far away from the current realities.

Summary

The ‘steam-driven’ Internet has already started to change the ways that industries work (using electronic marketplaces) and how the main players interact with their customers (electronic portals, for example). New relationships with employees and shareholders are not far behind. And yet we have only just started to scratch the surface of the technology-driven changes in our society. New eras of visual and virtual communication present an ever more ambitious horizon for intimate transactions between individuals, as well as with corporations.

In the new, networked economy, it is hard to contemplate the survival of rigid corporate structures or individual ties to single corporations. Instead, we anticipate a rich and continuously evolving web of relationships that brings us into a new atomic age.

But is the corporation of today keeping up with these changes? In the next chapter we will look at the unchanging corporation and its prospects in the networked economy.

Endnotes

2 This diagram is taken from *The Atomic Corporation*, and is reproduced by kind permission of Cap Gemini Ernst & Young.
3 Pampers, Tide and Pantene are registered trademarks of Procter & Gamble Ltd and related companies.
5 ibid.
We were, not so long ago, full of hope and dreaming of untold wealth and prosperity. Now we have witnessed deep stagnation in the world’s stock markets, with many people wondering not only when, but if, economic recovery will come into view. It will – radical change is afoot. Soon, major reform will sweep through the economic sphere, altering its modus operandi forever. We are on the verge of the most fundamental change the world’s economy has seen in the last 40 years. Just one decade from now, the young observer will look back at the economic landscape of the new millennium in bewilderment and amazement and wonder why or how it ever could have worked.

But why will tomorrow’s student be bewildered? For all to become clear, we need to observe the giants that roam the landscape today – yes, those
mega-corporations that have been hitting the headlines (many of them infamously) of late.

To understand what has gone on, we need to step back. We will discuss why businesses form, why they have grown to their current size, and why we think they have been going in the wrong direction. Then will we reveal to you why they will break apart. It will become evident in this chapter that atomization is not only desirable but also inevitable. We will show you the strong forces which motivated corporations to expand so spectacularly beyond the limits of their ability to exploit scope and scale, and consider the counterforces that will lead to their ultimate collapse and atomic renewal.

We can already see some of these forces in action. Take Ford as a quick example. As the Ford Motor Company expanded to produce cars for customers across the globe in the twenties and thirties, it bought rubber plantations in Brazil and steel mills in the United States, thereby securing the base materials for its mass-produced vehicles. One of the world’s largest manufacturers today, Ford is no longer vertically integrated – it now owns neither the sources of its raw materials nor the means of distribution of its products. Indeed, less than 25% of the value of a modern Ford car originates from within the company. Taking this trend to its limits, Dell Computers neither manufactures the components of its personal computers nor does it perform anything more than basic sub-assembly. Indeed, it never takes possession of some of the key components at all – Dell is a pure-bred information company.

But when product manufacturers are abandoning the philosophy of vertical integration, what on earth possessed international media giants AOL and Time Warner to join forces in 2001? This enabled them to integrate content (films, magazines) with packaging and distribution (Internet and Cable TV) and perhaps they believed that the new ‘online’ and hi-tech industries are different from ‘on-land’ activities. They got it badly wrong, as opening any newspaper will confirm. AOL-Time Warner has achieved one of the largest destructions of shareholder value of all time. Well done, lads! And they are not alone – HP-Compaq has rushed headlong to follow this pursuit of financial ruination. Big companies can have small brains – welcome to the land of dinosaurs!
Make or buy?

In the early days of industrialization, the greatest barrier to corporate formation was the lack of financial investment for innovation and new plants. However, the wealth of the economy steadily grows and, as there is more money around to invest, the ‘capital barrier’ becomes less and less relevant. That said, in the early part of the twentieth century, capital scarcity dominated industrial logic, and companies expanded to gigantic proportions, often exceeding a few hundred thousand staff. Many companies now in the Global 2000 list have inherited structures that reflect conditions in the early to mid part of the last century rather than the present day. In the context of recent developments, many are struggling to overcome the constraints imposed by large concentrations of capital plant and labour.

Received wisdom indicates that entrepreneurs start businesses when they believe they see an efficient way of converting inputs (raw materials, knowledge, labour) into more valuable outputs (products and services). The shape and boundaries of a business are governed by this single question: is it more efficient for us to make each component of a product or service or buy it in from outside? In other words, where do the inputs stop and the outputs start?

The subsequent make-or-buy decision is governed by two factors:

• Price – i.e. what is the price of this component on the open market?
• Transaction cost – i.e. what does it cost me to buy this component in addition to the price I pay to an external supplier?

The price factor is easy to understand (can he make it at a lower cost than I can?), and we can use the Ford example to illustrate the transaction cost element.

From its inception, Ford Motor Company obviously needed tyres to produce its cars. However, as we mentioned earlier, the company had problems guaranteeing a low-cost and reliable source of rubber with which to make the tyres. Identifying potential suppliers, comparing prices and negotiating sourcing agreements consumed time and manpower for both Ford and its suppliers. This added to the overall cost of the car, and eventually Ford took ownership of the rubber plantations to eliminate the armies of
bureaucrats involved in the sourcing transaction, including procurement people, accountants, lawyers and the like.

Ford is not alone here. Every business incurs discovery, sourcing and contracting costs when procuring materials and subcomponents for its end products. There are clearly trade-offs between the price reductions obtainable from playing suppliers off against each other and the benefits of eliminating these transaction costs. This becomes especially compelling in a global marketplace, where large companies have access to resources (material and labour) from every part of the world.

The next stage of the logic implies that it makes great sense to extend your reach up or down the supply chain if the cost of guaranteeing supply is high, or if you can raise capital more cheaply than your suppliers can. That is clearly the logic behind oil companies controlling everything from the wellhead to the fuel pump.

However, doing everything yourself may not be cheaper. Just as there are discovery, sourcing and contracting costs when doing business outside the corporate boundaries, there are transaction costs associated with the ‘make’ decision as well.

If you do decide to make rather than buy, you will need to hire layers of management to oversee the new activities. This increases further your costs, as you have to find a way (which we generally call ‘management reporting’) of overcoming the political infighting and the isolation from reality that these layers of management cause. Middle management is well known for whiling away the hours sending endless emails to colleagues, and while individually small, the combined effects are often catastrophic – the more the firm expands, the higher these internal costs get and the less agile the firm becomes.

All of us who have worked for large firms know the frustration of getting things done internally, and have at some time probably gone to outside suppliers because it’s faster or cheaper than persuading someone to do the job in-house. It is often quite simply less hassle, isn’t it?

The crucial point is this: organizations balance the ‘pain’ of trading and the ‘pain’ of doing things themselves.
The insight that transaction costs balance out, though vitally important to our theory, isn’t particularly new: Nobel laureate Ronald Coase first published it in 1937.\textsuperscript{2} Since then, a whole school of transaction cost economics has been founded around it and other writers have extended Coase’s work to look at how other institutions,\textsuperscript{3} such as bank clearing houses and commodity markets, arise in order to economize on transaction costs.

\textit{Firms expand until the costs of internal bureaucracy are equal to the cost of transacting externally.} This equilibrium is illustrated in Figure 3.1.

The importance of this is simple – the new forms of connectivity we discussed in the last chapter mean that the costs of connecting to your external stakeholders will fall much faster than internal costs. The conclusion is simple: large corporations are increasingly economically inefficient.

### The corporate tug-of-war

Our next theme is the ongoing struggle between scale and agility that still faces most businesses today. Since the recession of the early 1990s, companies have been drawn into a corporate tug-of-war.

![Figure 3.1 The Coase equilibrium.](image-url)
See how it works. On the one side, senior executives see aggressive M&A programmes as pathways to scale efficiencies and stock market glory. Investment bankers with prospects of gigantic fees and commissions happily egg them on. On the other side, managers fight to rid their firms of unnecessary layers of management by successive bouts of downsizing and re-engineering, and introducing enterprise-wide information systems. The result is inevitably a constant battle between scale and agility that continues to this day, fought out on the fields of post-merger integration programmes. This drain on management attention is severe, and we contend that this is like navigating by looking through your rear-view mirrors.

Getting larger – full-fat mergers
We talk about mergers in Chapter 10, but we can summarize that discussion by saying that the rush to consolidation usually destroys shareholder value and, at best, has limited merit. In a world of healthy inflation in the 1990s, the pressure to generate growth in revenues and profits was at an all-time high, as were expectations on Wall Street that activity of any kind spelled progress. Investment bankers were also very compelling in their logic and heavily focused on their Christmas bonuses, although they had little interest in outcomes once the transaction fee was extracted. And to make matters worse, corporate ego and greed escalated to new levels of excess – witness WorldCom, Vivendi, Marconi and the feeding frenzy that occurred in the telecommunications and media sectors. However, the ensuing effects were undeniable – over-valuation, over-leveraging and inevitable bankruptcies.

The alluring promise of most mergers and acquisitions is based around economies of scale and the ability to control key distribution channels. By elevating itself to become the eight hundred pound gorilla in any sector, a company can purchase or supply materials at the lowest possible cost and raise capital on equally advantageous terms. This should give the company a commanding lead – subject to the necessary regulatory constraints. Equally, strength on the ground across the main channels of distribution (be they business-to-business or retail) can help suppliers to manage pricing to their advantage down the supply chain.
However, the realities are often quite different to these lofty aspirations. First, in the majority of cases the benefits of consolidation have been underwhelming and leave behind mountains of debts that even the investment bankers that instigated the deals have difficulty in restructuring. The second consequence is the scale of the bureaucracy that frequently ensues, with political infighting for key positions and irreconcilable differences in cultures. Sound familiar? For many of you who have endured a major acquisition or merger, you will no doubt feel that we are understating the problems. There are of course notable exceptions to this rule. BP beat all stock market expectations with its successive acquisitions of Amoco, Arco and Castrol, and Cisco and WPP has built world-class companies on the back of carefully structured acquisitions.

But the failures are equally visible and sadly much more numerous.

**Getting smaller – the corporate re-engineering diet**

There’s a story that in an office at MIT’s Sloan School in 1990, a group of three people were reviewing the outcome of a five-year multi-client study, ‘Management in the Nineties’. Suddenly, one member of the team rushed out of the room and screamed down the corridor, ‘Let’s start to re-engineer the corporation.’ From this ‘eureka’ moment, Professors Michael Hammer and James Champy created the most powerful management consulting tool of all time – transformation on a grand scale. A whole new industry was created on the back of business re-engineering, and the effects can still be felt.

The task of most companies, whether product manufacturers or service providers, can be divided into simple but significant activities. They must acquire and retain customers (the life-blood of any commercial enterprise), they must accept and process orders from these customers, they must develop new offers to satisfy changing customer needs (generating new sources of revenue), and they must manage the business enterprise and shareholder expectations.

All these activities span several internal functional boundaries and they frequently fail because staff lack sufficient visibility of information to make effective decisions. Business process redesign (or ‘re-engineering’) emerged as the key tool to tackle and eliminate inefficiencies across the entire organization. In the words of Michael Hammer, this insight led to
quantum improvements in performance – from the 10% improvement of Total Quality Management (TQM) to the times ten improvement of re-engineering.

Re-engineering is the latest in a long line of corporate fads, inspired by new management thinking and the desires of consultancy firms to extend the scale and duration of their client engagements. In the 1970s, consultants such as McKinsey & Company introduced the idea of the ‘standard business function’ and promoted certain corporate absolutes like standardized finance and accounting operations. This introduction of best practice led to shared service centres that helped eliminate bureaucracy and waste. The 1980s brought an increased focus on efficiency with TQM and similar techniques aimed at improving functional performance. However, it was not until the early 1990s that attention moved beyond functional boundaries to consider entire work processes.

Despite the dramatic prospects of improvement held up to potential buyers of re-engineering services, the technique did little more than streamline systems and remove layers of middle management. Transformational benefits were hard to realize given the enormous task of trying to change culture, work flows and information systems in a single big-bang approach. Companies spent millions of dollars to achieve change, but in the end found marginal competitive benefit because everyone else was doing exactly the same thing. Re-engineering has left no sustainable advantage to date, and it has a failure rate that vies favourably with mergers and acquisitions. Cynics may argue that the real benefactor of the re-engineering revolution was the consulting sector itself.

The role of the consulting sector
From modest beginnings early last century to a multi-billion dollar industry, consulting has become one of the most dynamic growth sectors in the new economy. Fuelled by technology-driven change, there is every prospect that the sector will continue to prosper and evolve for several decades to come, although we believe its form will change (see Chapter 11).
In its early form, consulting emerged in the 1930s as a service to manufacturing industry. The main offering was work-study measurement, designed to identify and overcome inadequate work practices on the shop floor. A science based on improving factory performance emerged as a consequence, and several consulting firms, such as Urwicks and PE-International, grew to prominence. These techniques predated computer automation by two or more decades.

By the 1960s a new group of influential firms emerged to focus on broader corporate policy and planning issues fuelled by structural changes taking place in the world economy. These included now familiar names such as McKinsey, A.T. Kearney and Booz Allen Hamilton. At the same time a further group of management advisers focused on technology-driven issues. These included names such as Arthur D. Little, PA Consulting and SRI International.

With the explosive growth of information technology throughout the manufacturing and service industries in the 1970s, the major five accounting firms diversified into management consulting. Despite consolidations and spin-offs, these firms continue to occupy leadership positions in this segment of the consulting services market. In addition to IT, privatizations of national utilities and telecommunications companies gave these firms a welcome boost.

In 1990, business re-engineering spawned yet a further wave of consulting boutiques, such as Index and Gemini, as well as a mainstream response by the larger houses. This wave has been followed by e-business almost a decade later, and a subsequent group of start-ups such as Sapient, Scient and Viant (referred to as the ‘fast five’ for their meteoric rise and equally meteoric descent).

As the consulting business matures, the inevitable rounds of mergers and acquisitions have taken place, leaving a handful of full-service providers such as Accenture, CSC and IBM (which recently acquired PricewaterhouseCoopers’ consulting arm). Other global contenders include the remaining independent strategy houses and many niche players.

The re-engineering revolution continues but under different guises. In the last five years we have been tearing down national rather than functional boundaries inside multinational corporations to pursue further economies
of scale and globalization models. More recently we have started to see the introduction of web-based processes to further enhance efficiency and speed.

The outcome of progressive waves of re-engineering has been a reduction in corporate size, and in some cases it has led to highly efficient structures with global reach and range. However, the emphasis has been purely internal and has had little impact on corporate effectiveness in a rapidly changing external environment.

**There’s a world outside your window**

Ok, so all this corporate rewiring, streamlining, and redesign does reduce the costs of internal operations. And in turn this reduces internal transaction costs, which reinforces the structural status quo and should, in theory, help firms to survive and even grow larger.

But as we all know, corporations don’t exist in a vacuum. Take the accounts payable function, for example: it spans not just internal boundaries but also extends into those of the corporation’s suppliers and probably into a bank or two – in the case of international trading, governments may be involved. An efficient process would, of course, extend information visibility to these entities as well.

In the real world, even the links between the accounts receivable system of the supplier and the accounts payable system of the customer are almost always implemented using paper. Corporations implementing state-of-the-art information systems increasingly became islands of automation in a sea of poor practice.

Kicking management consultants for this omission, although tempting, is hardly fair – there was little choice but to take an internal focus. Apart from painful implementations of electronic data interchange (EDI), there was no mechanism to share information across corporate boundaries.

In summary, re-engineering was a fine idea but it didn’t, and perhaps couldn’t, go far enough. Deeper efficiency could only have been achieved by extending the redesign beyond the corporation’s immediate identity. But now there is the opportunity to do just that. The new, richer interconnectivity between corporations means we can at last concentrate on the re-engineering of the entire supply chain.
Causes and consequences

_Pulling the trigger for atomization_  
The causes of atomization are changes to the nature of customer demand (which we covered in the last chapter) coupled with the collapse in the stock market. The trigger for atomization is the fall in external transaction costs, and that brings us back to the Internet.

The formation of electronic markets and Internet-based portals represent two significant external developments that begin to challenge the status quo. Though currently limited in success, we expect rapid falls in the costs of doing business externally. This, according to the Coase equilibrium, negates the advantage of size but leaves behind a heavy administrative overhead. So we would expect to see a gradual and progressive erosion of corporate boundaries.

Wholesale atomization of the corporate sector is coming, and it’s not going to be gradual and progressive. To understand why not, we have to look at two changes – one past (the Internet) and one present (outsourcing) in the economy.

_Are the streets really paved with gold?_  
Talk about follow my (blind) leader. Just when the large corporations began to feel sleeker and fitter in the late 1990s through years of downsizing and re-engineering, a new threat arrived. The advent of the Internet in the 1990s brought with it a new kind of lusty greed on the part of ambitious entrepreneurs. The dot-com era of small, agile start-ups, more able to exploit new technologies and business models, posed a more serious threat than established competitors. Some were genuinely good but many were simply a case of hotshots believing that ‘anyone can do it’. Spurred on by venture capitalists and consultants, senior executives began to leave the big corporations in the thousands to create new companies designed to destroy traditional players. By the start of the new millennium we were witnessing the largest migration of financial and human capital into start-up companies, each fuelled by the prospect of unimaginable wealth and success. NASDAQ reached the dizzy heights of 5,000 points.

The promise was simple. The take-up of Internet connections, both commercial and domestic, was advancing at 15% monthly compound
growth. That’s phenomenal by any reckoning. This growth implied that an increasing percentage of products and services would be bought directly online. Taking this to the limit would mean that established retailers and distributors would lose control of their customer base and the new electronic infomediaries would call the shots.

In areas as diverse as financial services and pet foods, newcomers sought to acquire customers online, offering them cut-price bargains with flashy ads. Large corporations responded by liberating their own ‘intrapreneurs’ to engage in similar new ventures. There were successes, even in the sleepy UK, where the retailer Dixons, which launched an Internet Service Provider, Freeserve, and the Prudential Insurance Company, which created a new electronic bank, Egg. A lot of consultants made a lot of money.

However, the dot-com boom didn’t last. Despite the energy and commitment of the founding fathers, this revolution was short-lived. The most obvious shortfall was the absence of established relationships among the new start-ups.

Consider the online sports and footwear retailer FogDog, which arrived in Europe with a young chief executive and a well-proven US business model. The company planned to open up websites in seven countries in the space of six months, and build a catalogue of over 20,000 stock units. The reality facing FogDog and others like it was the need to acquire millions of customers, hundreds of employees and thousands of suppliers. Each represented a costly investment as well as careful design and execution. No amount of capital could pay for such a rapid expansion in reach and range of retail activities. In hindsight, it would have been cheaper to open up high-street stores across Europe than to recruit shoppers to FogDog’s website!

When the NASDAQ collapsed in March 2000 the investment rug was pulled from under the many struggling dot-com start-ups, and the majority of them just disappeared from view. Survivors were those who had been fortunate enough to attract sufficient customers to achieve viability. For example, many of the search engines such as Yahoo! and Google were well-established brands with millions of customers and could continue to command advertising revenue and click-through income. Auction sites such as eBay generated enough trade to maintain their position. Retailers such as Amazon and e-Toys were beginning to bite into the high-street trade and are
today highly acclaimed. But, if you remember back to the last chapter, they also offered something unique – help in navigating us towards life-changing experiences, not simply breadth of stock – a matching service if you like. Also, specific service categories such as travel, recruitment and finance offered the customer sufficient choice and value to be a viable alternative to established competitors.

As Clayton Christensen observed in his book *The Innovator’s Dilemma*, the arrival of a new disruptive technology, the Internet, was not in and of itself sufficient to erode the strong positions of the many incumbents (at least, not in a matter of months). It is a transmission technology, nothing more, an ‘enabler’. The corporate dinosaurs may have been wounded, but not terminated.

What all this dot-commery did do was to force many to look once again at the customers’ role in the corporation, and to question whether the rigid old corporate structures were correct – roll on atomization!

**Hauling out the trash**

The biggest threat to the traditional corporation today is not Internet start-ups, it’s outsourcing. We’ve talked already about make-or-buy decisions and the corporate re-engineering diet. Outsourcing is a logical extension of this, as large companies try to combine functional activities into shared corporate services to increase standardization of practices and reduce overall costs, or even to get rid of them altogether. That’s logical and financial sense.

In many companies today, such as Procter & Gamble and Shell, functions such as finance, HR and IT are located in a few global ‘mega-centres’ serving hundreds of business units. The consolidation of such services has been so successful that senior managers are now considering what to do next – maintain the shared services in-house or look for suitable external partners.

At the same time, what else is happening? Well, large IT service organizations, such as EDS, CSC and IBM, are beset by a declining IT spend among their major customers, and extreme pressures to find new sources of income. All have recognized that the outsourcing of non-core functions could yield vast new growth opportunities, and companies such as these have been offering powerful incentives to the large corporates to transfer
such assets to their safe keeping, such as cash up-front and guarantees of operating cost reductions over periods of years and decades. With the large corporates in the throes of a deep recession and profit squeeze, such offers look too attractive to pass up. In addition, they enable businesses to simplify their internal operations down to the basic core.

The decreasing real cost of telecommunications has another effect – the availability of highly skilled and very cheap labour in developing countries such as India and China means that an increasing number of CEOs are tempted to relocate large chunks of their corporate activity offshore. Service providers are also wise to this, and most are setting up vast brain farms in Asia to offer IT and business process outsourcing. Just as the West found it could not compete in manufacturing without protectionism (that means you, America), so we are starting to move into a post-service economy.

We will talk at greater length about outsourcing in Chapter 9 and about the IT services sector in Chapter 11. In summary, though, we are witnessing a massive transfer of corporate assets from the ‘old economy’ companies, such as oil, finance and utilities, into the ‘new economy’ IT services sector. This process will accelerate as IT services companies learn to manage these assets in an efficient way – through the application of re-engineering techniques.

**Summary: get into shape!**

It’s now pretty clear that universal connectivity is rapidly changing our roles as individuals, either as individual employees or individual customers, from one of response to one of demand. We in the developed world finally have a way of expressing all of our demands, and those demands are to increase our experience rather than to consume your product.

The fight is on between the big, powerful enterprises and the small, versatile ones. As corporations find further (unconvincing) reasons to increase in size and scope through mergers, acquisitions and global aspirations, other forces seek to disrupt their efforts. These forces include Internet-based
electronic markets and dot-com start-ups as well as moves towards outsourcing non-core functions and activities into externally provided service platforms. The short-term effect appears to be a tug-of-war between the forces of scale and scope and those that encourage agility and simplification.

It’s clear that most older corporations set in their ways are not ready to embrace this change in role, being too centred on their products and their internal functions. We want to shout, ‘Focus on agility: you can’t be big and agile at the same time, so make the changes and get in gear.’ Fragmentation is looking more and more attractive as the internal cost of movement is high. For many players in the economy ‘critical mass’ now translates as ‘critically ill’.

However, as we will see in Chapters 4 and 5, the outcome will accommodate both sides, with an increasing polarization between small, agile entities that look after the interests of customers and product innovation, and the large-scale utilities that provide global scale and scope in production, logistics and key functional tasks. Each company has to accept its place in the bigger picture. This is the new universe of atomization, and the countdown has begun.

Simultaneously, the market capitalization of traditional giants continues to drop, and corporations that are winning the battle for shareholder trust (the only real safeguard of CEO survival) are agile, inventive and relationship-focused. If the giants are to survive in any form, CEOs must find a way to realize and unlock the value tied up in their organization to ensure competitive advantage and, often, bare survival. The equilibrium between internal and external transaction costs has shifted. Sure, re-engineering and internal web-enablement will streamline process, but the costs of doing business with other organizations will drop further and faster. This challenges the old logic about corporate size at the most inconvenient time possible.

Environmental changes are pushing an unstable system and the only possible outcome is radical change. For those who embrace it, the prize in terms of unlocked relational capital is enormous (see Chapter 8). The change will take time – it will be another ten years before its new shape becomes clear – but that doesn’t mean we won’t see it happening. We surely will, and soon.
New atoms will take over as units of production and distribution, customized for all individual demands imaginable. The next decade will feel like snowboarding in front of an avalanche – be prepared and enjoy the ride!

Endnotes

4 Electronic Data Interchange, an early form of e-commerce involving fixed-format messages defined by standards such as ANSI X12 and UN EDIFACT. EDI proved difficult and costly to install and maintain, although fairly efficient once operating. Modern standards such as Extensible Mark-up Language (XML) offer the same benefits and increased flexibility at lower cost.
Before we move on to the new theory of the firm, let’s take a look back over the last three chapters and simultaneously over the last hundred or so years of corporate development.

In that time, corporations attained vast scale and scope. Some now approach the size of larger national economies. General Electric could, for example, reach the size of the French economy by the end of this decade if it continues to achieve its historic growth rates (or France continues along its current economic decline).

For over forty years, academics have developed theories on how to manage scale and complexity effectively, and thus keep ever-expanding corporations alive. Peter Drucker invented the science of management in the 1960s and many great thinkers have emerged since then, covering every aspect of large-scale corporate activity, from strategy and governance to structure and control. A whole industry,
consultancy, has developed and prospered by assisting large corporations to remain effective in changing economic circumstances.

The advantages of scale have been numerous. They range from lower cost of capital and improved procurement leverage to global brands and well-stocked product portfolios. In a supply-driven world, large-scale production facilities – be they factories for producing goods or armies of skilled workers for delivering services – have returned a healthy profit for their owners.

But we think that now the game has changed. Gone are the value and central importance of the unified corporate entity. Many forces are challenging the once indestructible corporation. These include:

- Collapsing stock markets: The recent rapid decline of shareholder value illustrates the loss of faith of global stock markets and investment institutions. Shareholders are becoming increasingly sceptical about the ethics of large corporations and the managers who run them.
- Over-provisioning of production capacity: In many sectors there is a glut of production capacity, for example in chemicals, steel and electronics. With ever more volatile patterns of demand, fixed production capacity has become a liability rather than an asset.
- Inflexible sourcing arrangements: Long-term supply partnerships were considered an enduring asset in many sectors. With the gradual but inevitable growth of electronic markets and intermediaries (not to mention the destabilizing effects of rapid price shifts), rigid supply arrangements become costly and cumbersome.
- Remote and insensitive customer service: The world today is plagued with remote and impersonal call centres as well as warehouse-styled retail outlets that offer reduced cost of operation at the expense of poor customer service. Corporations are clearly focused on their products, not on their customers.
- Lack of genuine product innovation: Most large corporations have either disbanded their research labs or turned them into development centres geared towards incremental product enhancement rather than genuine innovation. Some large corporates now admit to having run out of innovation capacity altogether.

All these factors might suggest a radical rethink of the traditional business model. In most respects, large is no longer beautiful. Instead it spells rigidity, remoteness
and inefficiency. In a connected world, new capabilities are required to compete effectively. Companies must be prepared to listen carefully to their customers through new interactive marketing channels. They must also be able to innovate more rapidly to reflect changing consumer attitudes and behaviours. They must also build more flexible and responsive supply relationships to respond to demand volatility.

In subsequent chapters, our new corporate blueprint for a connected economy asserts that business success will come from excelling in just one of four dimensions.

The first dimension is product and service innovation. Organizations engaging in these activities will become the engines of the connected economy. These organizations will need to be small and agile to anticipate and respond to changing consumer needs. We agree with Clayton Christensen’s assertion that large companies cannot introduce large innovations. Needless to say, we do not hold out too much hope for the mega-corps of today, which have not the culture, the agility or the market connectivity to succeed in this space.

The second dimension is relationship management. Improvements in connectivity with customers, suppliers and other business partners will reward ever-greater know-how and the ability to extract value from relationships. They can be created and sustained by facilitating the two-way exchange of commercial, financial and personal information.

The third dimension is risk management. As traditional industrial structures fragment, greater emphasis will be need to be placed on managing a portfolio of different industrial entities, each contributing specific competencies to a complex business network and each carrying its own set of rewards and risks. Many shareholders will look towards portfolio managers as their personal ‘front line’ in the battle for equity growth.

The final and crucial dimension is industrial ‘heavy-lifting’ equipment. Small, agile atoms will need efficient yet flexible manufacturing and distribution capabilities to bring their new ideas to a global marketplace. To avoid the old mistakes of over-capacity, the product and service innovators will probably subcontract such activities to third parties who can balance variable demand across geographies, companies and sectors. They will also want to offload generic activities such as HR, IT and finance to third parties that can operate efficient and modern shared service centres.
The glaring inadequacies of today’s bloated and lethargic corporations can be overcome by applying these new operating principles. Now let’s move on to the next chapter to understand how these ideas can be embedded into a new economic structure – that of the atomic corporation.