The way to work

Space, place and technology in 2016

An Orange Future
Enterprise coalition report

HenleyCentreHeadlightVision

orange™

The way to work

Space, place and technology in 2016

Contents

Foreword

No one can predict the future, but we are under more pressure to try to prepare for the future than ever before. The world of work is changing more rapidly than at any other time in our history. Private, public, and third sector organisations are experiencing shifts that make the business models that have worked for decades untenable. The pressure and pace of change feels unrelenting and very few of us truly understand how to adapt.

The organisations of today are expected to be flexible and agile. They must react to unexpected developments and opportunities in the present, while also meeting the whole range of needs presented by partners, customers, wider stakeholders and, of course, their own employees. At the same time, they are supposed to have a clear vision of their future direction to assure the same groups of their continued stability and success – diverse challenges to reconcile.

To make sense of the challenging landscape and understand how to navigate a course through it, the Orange Future Enterprise coalition has been identifying the trends that will shape the business environment of 2016. We don't know what the world will look like in 10 years' time; however we can identify the forces that will shape it. Most importantly of all, we can help organisations understand what they can do now to stay productive and competitive, and retain high-calibre motivated people and start to prepare for the future.

Handling uncertainty and taking risks are acknowledged attributes of entrepreneurs, but not currently of established organisations. This needs to change. Management amid constant change has become an essential skill. Finding the correct balance between controlling employees and intellectual property, and creating a people-focussed, flexible organisation lies at the heart of the challenge organisations face.

In the last Orange Future Enterprise coalition report we looked at the impact of technology on organisational structure. We identified seven common reflections on how it impacts the employee and the employer. In this report we build on those reflections to look at how they will combine to change existing business models.

This report paints a picture of the potential futures for organisations. It considers the implications that the different futures hold and provides recommendations on what organisations can do now to take control of the forces driving change, to create their own, unique future.

By our very nature, human beings are suspicious of change, so we must not underestimate the task of making sure our organisations are prepared for what will happen over the next 10 years. However, we must not forget that change is often a positive force that can create opportunities. The challenge for us is understanding and embracing it.

– Robert Ainger,
Orange Business Services

About this report

In autumn 2005, Orange Business Solutions founded the Orange Future Enterprise coalition, a group of industry and technology experts, academics, consultants and independent thinkers from across public and private sectors. In combination with regular coalition meetings, Orange Business Services commissions ongoing, original research on the role that technology plays in today's organisations.

The way to work is the second report to emerge from the coalition's research programme. It draws on future scenarios methods to help us to envision and plan for the organisations of 2016. The scenarios are based upon thinking that went into the first coalition report, *Organisational Lives*, as well as new research and work spearheaded by the Orange Future Enterprise coalition.

Much research and consultation has gone into the production of what we hope to be a concise yet thought provoking report into the impact of technology on our working lives. We have used a range of methods and sources to develop the findings from *Organisational Lives* and identify further key issues to be explored. This has included consultation of industry experts in coalition workshops, qualitative and quantitative research on the impact of technology in the workplace, and global case study research. Our goal in examining some of the possible future outcomes which emerge from this process is not to produce a definitive roadmap; rather it is to stimulate a healthy and vibrant debate about the best ways to prepare for change.

We decided to use future scenarios methods to get to the heart of – and literally illustrate – what the future might bring. The critical value of the scenarios lies in identifying strategic challenges emerging across the scenarios and then using these to plan for change.

It is unlikely that we are moving toward just one of the four scenarios we depict in these pages. The more likely scenario will be one that combines all four; and certain elements will feature strongly – or be underplayed – depending on your sector or organisational culture. Nevertheless, businesses and organisations should be ready for the changes illuminated by these four future worlds of work. A strong case for their emergence in some form or another becomes apparent in the research accompanying the scenarios. This material makes it clear that, in many cases, the future is already here.

Introduction

It is clear that technology is changing the world in which we live and work, but how much effect will it have on businesses and in what way will it change the operating environment?

From high employee turnover to rapidly changing business models, the current business climate is changing more swiftly and is less predictable than it has been at any other time in recent history[1]. Fortune magazine recently reported a series of trends that underscore today's disorderly mood. One of the more striking was a rise in the number of companies earning 'high risk' Standard & Poor ratings: between 1985 and 2006, the proportion of S&P 500 companies rated as 'high risk' has moved from 35 percent to 73 percent (in contrast, the proportion of 'low risk' companies fell from 41 percent to 13 percent)[2]. Despite the myriad of opportunities generated by rapid change and risk-taking behaviour across all sectors, this change and flux can feel frightening and threatening within even recently established sectors and companies. And it shows no sign of slowing down.

In early 2006, the Orange Future Enterprise coalition identified seven reflections on the future of mobile technology that linked into changing organisational practices and their relationship with technology use. Each of the reflections represents cornerstones of the dynamic developing between employees, employers and the organisations of which they are part.

In its first report, the Orange Future Enterprise coalition urged organisations to consider, for example, key issues around 'switching on, switching off', such as the very personal challenge of mentally disconnecting from one's work at the end of the day and week. Conversely, 'digital Selves' contemplated if companies would begin creating stricter boundaries around communications in one's work and personal life as, thanks to mobile devices and services, we take on identities that encapsulate the personal and professional elements of our lives; and 'living in a data cloud' wondered about how centralised and strict data control might serve to protect organisational interests, on the one hand, and yet limit personal freedoms and opportunities to innovate on the other.

Drawing on all seven reflections, listed here, our intention with this report is to push the debate surrounding organisational change further and to consider the environment into which – in light of evolving business practice and emerging technologies – businesses are heading. Hence the coalition's second report, *The way to work*, which depicts four possible future worlds of work and the role of technology within them.
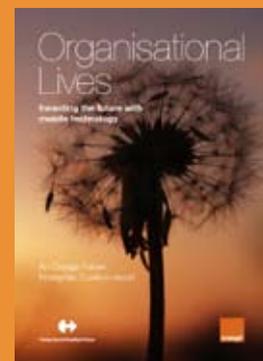
7 Reflections on the future of mobile technology from the first coalition report, *Organisational Lives*

Switching on, switching off

Lonely workers

Digital selves

Digital exclusion

Flexible working, flexible organisations

Selective integration

Living in a data cloud

The way to work: **How we got there**

Scenario development is a type of futures work focusing on critical uncertainties. A helpful way to think about the future is to remember that while it is uncertain, and much of it is beyond our control, we can influence some aspects of it and prepare ourselves for possible outcomes. Futures work is not about predicting or forecasting the future, but rehearsing for it: creating and exploring multiple possible futures, with the purpose of taking responsibility for what the future holds[3].

Good futures work improves organisational agility because it increases the speed at which organisations – from business to public sector to third sector – are able to identify and respond to change in their environment. It helps organisations identify future strategy that will be robust against a range of future possibilities.

The research and thinking that went into this report identified two axes of uncertainty which will likely influence future workplaces and the role that technology has to play within them: **the nature of working relations** and **the control of data**. Our four scenarios emerged from the crossing of the two axes.

Readers will notice that each of the scenarios depicts key social, economic, political, environmental and organisational drivers of change. These include changing transport, environmental concern/awareness, the role of community, working patterns, employer-employee relations, globalisation, social exclusion and more. The drivers interact in different ways in the scenarios. They move in different directions, depending upon how the axes of uncertainty push and pull to create four plausible and internally coherent – but very unlike – worlds.

Whatever future it is that you might prefer or fear most, it is important to remember that these four worlds will probably co-exist, and that the most likely scenario for 2016 involves a combination of all of them. While our descriptions represent extremes, elements of all four are happening right now – at home and around the world. In the workshops in which the Orange Future Enterprise coalition developed and refined the scenarios, members also made the point that these worlds might co-exist within single organisations.

The scenario axes
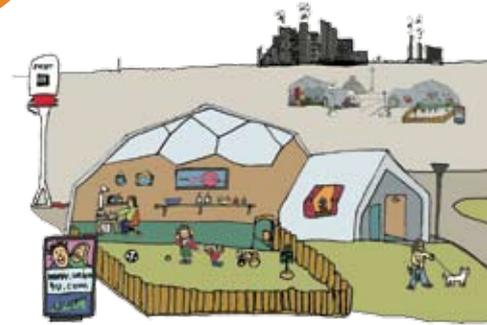
Disciples of
the cloud

Electronic
cottages

Theirs

Somewhere

Mutual worlds

Replicants

Yours

All images by Nick Chaffe of the Young Creatives Network. The future's bright.

Anywhere

The vertical axis: control of data

Theirs – Yours

At the 'theirs' end of the axis, information is centralised and monitored, as are the employees working with it. Powerful networks prohibit access to and adaptation of data for personal need/endeavour. The ability of an organisation to control data often hinges on its reputation.

At the 'yours' end of the axis, technology allows for fluid identities as the boundaries between people and information blur. This end of the spectrum is open source. It is more egalitarian than 'theirs', but systems of hierarchy have emerged.

The horizontal axis: nature of working relations

Somewhere – Anywhere

At the 'somewhere' end of the axis, geographical ties are central to innovation and work being carried out. The meeting of people and data with place is important to getting jobs done. The specificity of time and place matter at this end of the spectrum.

At the 'anywhere' end of the axis, people and data interact directly, but work is not dependent upon location or place. This side of the axis has strong global links.

'It's better to be ready than right'[4]

Our analysis suggests that changes in the workplace are going to come, and that they are going to have effects far beyond our working worlds. The changes will come at different speeds in different sectors, and the magnitude of their impact will vary. Regardless of speed or impact, however, you need to consider them in light of your work.

We hope that the scenarios will stimulate debate and open up conversations about where the future of work is headed. We do not aim to offer definite answers or brash predictions, but look closely instead at trends and issues facing businesses now – beyond the nuts and bolts of technology. We want to think about where the trends might go, and especially, offer organisations recommendations for creating better futures.

Scenarios allow organisations to plan for the future. Given the implications of all four scenarios, this report identifies seven strategic challenges facing organisations, and recommends a 'way to work' in light of each.

The challenges

Innovation challenge

Cultural challenge

Leadership capacity challenge

Quality challenge

Operational and technology challenge

Brand challenge

Regulatory challenge

Recommendations

Maintain an external focus and engage with others outside your organisation, your sector as well as your customers. Share the costs and fruits of innovation with strategic partners where possible. Move away from deploying innovations from the top down, give areas of your business freedom to trial and refine multiple innovations on a smaller scale.

Create a culture that recognises and complements the values of increasingly empowered employees at all levels. Build on successful core competencies as well as recognise and respond quickly when things can be done better elsewhere. In the context of a more fragmented workforce, understand the limits and relevance of 'implementing' a corporate culture and move towards a more consensual style engagement.

Re-evaluate the role of management in your organisation. Look for ways to make management an enabling force for activity taking place across the organisation, rather than solely a decision function.

Continue to champion quality, of course. But also look at how to champion good service design, which embeds quality in delivery, or even co-creates it with its end-users.

Create a map which includes the story of how your world is changing and why – and what the critical stepping stones will be. It is important that your roadmap allows for divergent future outcomes and that there is spare capacity inside or outside your company to explore these.

Understand the model which matches the value you deliver – and have a risk management programme which understands where the conflicts are likely to flare.

Work with others in your sector and your regulators to develop models of the workplace of the future – and collaborate on building the most effective regulatory regimes for them. Develop an understanding of and engage with the relevant interest groups and NGOs that increasingly influence policy making.

It is time to turn to the scenarios themselves. Readers will notice that case studies, quotations, and data points accompany the scenarios – these are drawn from recent research on current relationships between work technologies and everyday life, which Henley Centre HeadlightVision conducted as part of the scenario preparation. Their relevance to scenarios of 2016 suggests that, in the words of William Gibson, *'The future is already here. It is just unevenly distributed'*[5].

Scenario 1:
Disciples of the Cloud
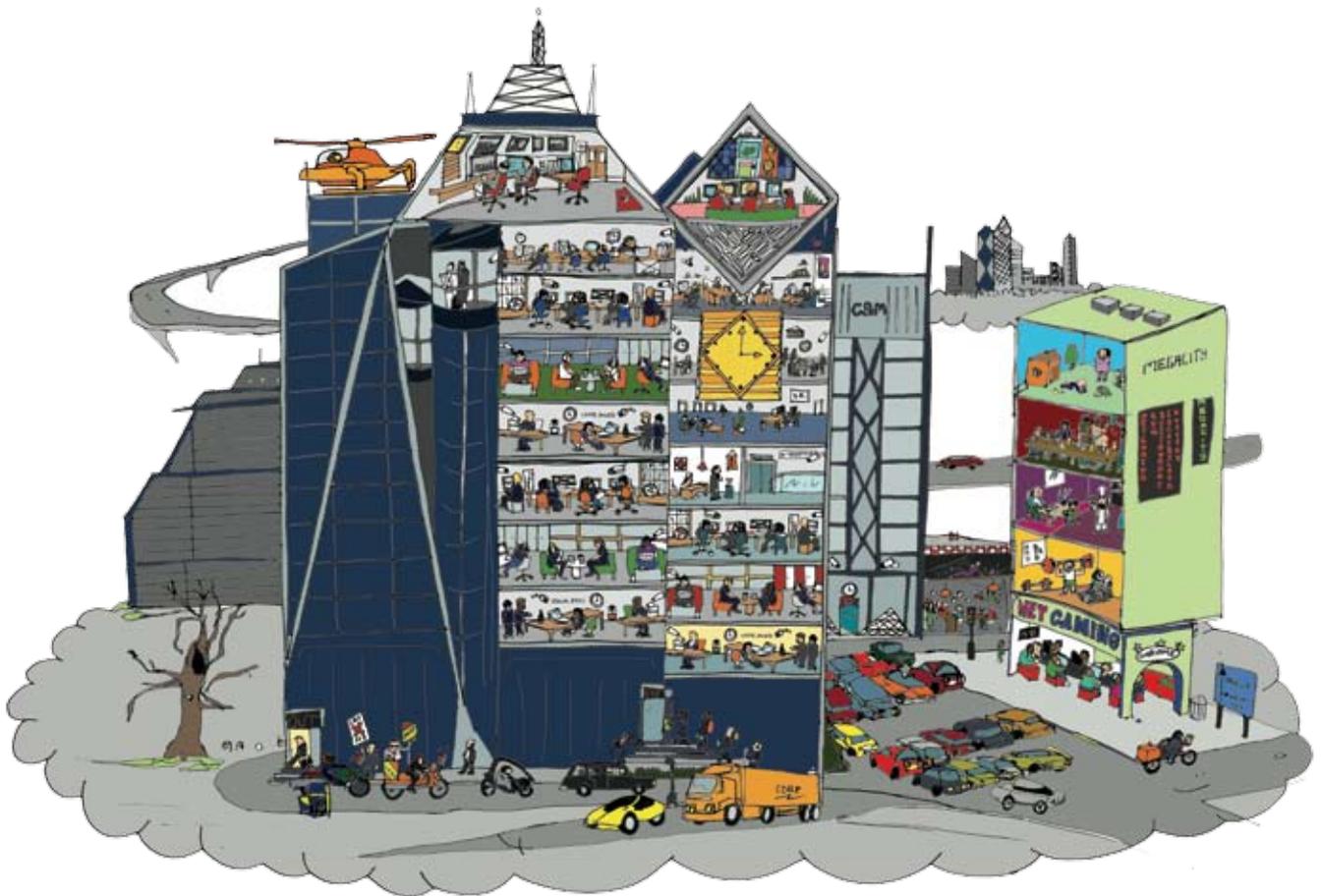
Theirs/Somewhere

It is 2016, and the far-reaching, ultra-mobility of data and employees predicted ten years previously has not emerged. Individuals and organisations alike are increasingly choosing to emphasise the importance of face-to-face interaction in the workplace. A highly competitive business environment is driving companies to focus on efficiency. In 'Disciples of the Cloud', geography, place and the simultaneity of working time matter more than ever.

Global economic growth has been sporadic and unstable in the preceding years, leading companies and workers to play safe. Companies have chosen to consolidate local market positions rather than gamble on overseas expansion. Integral to this prevailingly inward-looking business attitude, has been a lack of reform in areas of trade policy; little progress has been made in recent rounds of multilateral trade talks, with government preferring much more limited regional agreements to global ones.

The dominant business model is central ownership and management of information, with power concentrated in a head office. Information technology is drawn upon to create and preserve this structure, and legal frameworks have not changed enough in the past ten years to cope with open source innovations.

An economic downturn of the last ten years has led to an increased focus on technologies related to worker and workplace efficiency rather than innovation, whilst

> **I sometimes have to stay later to finish everything, but when I leave the office that's it.**
>
> **Lauren, bank worker**

data clouds remain depositories of information about absolutely everything. Access to knowledge is owned and controlled centrally by organisations that draw on it with the dual purpose of creating and capitalising on intellectual property, but also monitoring their resources – including, especially, the efficiency of employees.

Like the early years of the twenty-first century, we see ever-declining levels of manufacturing in the UK, and, as predicted, goods are mostly produced elsewhere, particularly in India and China. Given that they are rare, British products now command a premium. There are high numbers of skilled employees (e.g. sophisticated call centre workers). The loss of rights to work flexibly and growing unemployment in some sectors have been met with rising levels of unionisation and organised labour.

It is a challenge for small businesses to survive in this environment, and many have chosen to pool together to save costs on office space, facilities and basic services. Medium and larger organisations have weathered the economic storm by retrenching and re-centralising the workplace. They have benefited from the loosening of some environmental regulations.

Employees are monitored in their places of work, and even those who are extremely mobile (couriers, repair men, high-level consultants) follow schedules designating where they have to be, and when. When sought, 'flexibility' is for the organisation's benefit, but more often the cost of flexibility in terms of data security and infrastructure investment are seen as organisational barriers. Switching 'off' is relatively straightforward for junior employees – once they leave the site of work they are automatically 'off'. Middle management and directors of organisations have less obvious boundaries between 'on' and 'off', although higher status employees have more authority to determine their use of time.

The devices used by employees outside the workplace have no connection with those used in the workplace. People who master work technologies and work most efficiently often find themselves entrusted with previously unknown responsibility. Lacking a culture of consultation, technology is something that happens to you rather than something that is implemented.

> **The manager knows exactly how long it took me to get from A to B and how long it took me to do my job. If I don't get the job done in the 2 hour time slot, I've failed…. The system is very clever.**
>
> **John, field service engineer**

Given cost savings gained by a focus on efficiency, we find under this scenario that some businesses are saving and thriving as a consequence. Similarly, this scenario suits individuals who previously struggled to switch on and off – who struggled to balance their time and energy as they tacked back and forth between work and personal obligations. This scenario has developed in part as a consequence of backlash against imposed flexibility characteristic of the nought-ies. Many appreciate that clear lines have been drawn between work and personal time.

More rigid guidelines dictating when and where to work has meant that some – especially women/carers – find it difficult to balance the responsibilities of both work and home. This has resulted in the development of two extremes in terms of the ability to recruit and retain female

Scenario 1:
Disciples of the Cloud

employees. Some employers have invested heavily in supporting a workforce which would otherwise have requested to work flexibly, e.g. by subsidising childcare, establishing crèches on site, providing home services on work grounds, and funding local after-school clubs. Nonetheless, it has been difficult for many women to stay in fulltime employment; a steady decline in numbers of female workers in middle-management and senior positions is a feature of this scenario. This is striking to some, given that it follows several decades of growing equality in the workplace.

Togetherness is a strong workplace value in this scenario, and work in isolation is considered unproductive and off-beat. Paradoxically, individuals perceive themselves as having greater control over their lives because it

is unlikely that work will infringe upon it. As a consequence, we see individuals maximising time off and taking full advantage of what technology has to offer outside the workplace. For example, there has been a massive increase in home broadband take up due to restricted access at work, and 'third spaces' blossom when individuals are not at work. In this scenario, play increasingly occupies the virtual world.

As a consequence of greater emphasis on organisational control and data protection, we witness an increase in investment in office spaces for workers as employers seek to create a campus-like feel to work areas and to keep employees happy. Organisations incorporate services catering to worker health and wellbeing demands.

Given employer concerns about controlling access to the data cloud, there is restricted access to personal IT in the workplace – sometimes this results in illicit use of personal email accounts at work and high turnover of those unwilling to bend to workplace rules and policies.

For those employees who choose to work for large, centralised companies, this is a very fulfilling scenario. It is essential, though, that employee ambitions and personal work goals are matched with the values embedded in 'Disciples'. If they are not, much of this world appears to be a step

back in time, despite obvious technology advances.

The organisations in this scenario are preoccupied by maintaining control of information about the products they create and consume. Data is not available to be used in ways not designated by the organisation, and an organisation's ability to manage its data cloud determines its reputation in the marketplace. The ownership and security of knowledge is paramount and thus has become the most valued currency.

Employee perspective

Living and working in this world would be a similar experience to life at many large companies today, with most employees commuting to work in large centralised offices and strong divisions between work and personal time. Information technology would be very present in the working environment, deployed both to enable new ways for individuals to collaborate as well as maximise efficiency. Much of what employees do is visible and is measured by others in the organisation. All work is tracked, but this brings the benefit of being looked after and provided with a range of facilities and amenities in the workplace.

We might be headed toward 'Disciples of the cloud'…

● A 2006 survey by Forrester of 294 US companies found that more than a third of American companies with 1,000 or more workers say they employ people to read through other employees' outbound email. 32% of the surveyed businesses reported firing an employee within the preceding year for breaking email rules. Around 45% of the companies said they used software to search through their employees' messages for offensive words[6].

● An entire industry is growing around the definition and protection of IP. The US Patent and Trademark Office received a record 406,302 patent applications in fiscal 2005, up from 236,679 a decade earlier[7].

Case studies

Google's New York offices, USA

Google have opened new offices on Madison Avenue to house Advertising and Sales Operations. They have multiple facilities such as a cinema and a playroom. Investing large amounts in physical space may seem strange for a company whose services exist in the virtual world, but cultural motivations seem paramount.

'Google hopes inter-office mingling of advertising types with engineers could lead to interesting new products and revenue opportunities. Water cooler monetization, if you will' – Ad Sales VP Tim Armstrong

'We like having people here … to let marketers breathe in the company's Silicon Valley-perfumed culture' – Penry Price, Google's Eastern sales director[8].

Cemex, Mexico

At the heart of the success of the world's third largest, but most profitable, cement manufacturer is an advanced IT infrastructure that manages manufacturing and delivery processes in 33 countries.

Ready-mix trucks cruise the city and wait for orders while one central operation manages requests for the entire city. The trucks are equipped with computers and GPS receivers so that they can be contacted within seconds and sent to a nearby location. This system has allowed Cemex to cut delivery times to one sixth of what they were previously[9].

Orlando Police Department, USA

The Orlando Police Department piloted a new GPS unit, which allowed a central office to constantly track the whereabouts of police officers. Unexpectedly the pilot program met with strong resistance from the officers and their unions, who felt such monitoring unnecessary and overly intrusive.

'The officers felt it was intrusive to be monitored 24/7 and didn't see much benefit in their day to day work' – CIO of the city of Orlando

He said that the unions 'raised a lot of noise' and the project was cancelled[10].

Scenario 2
Electronic Cottages

Theirs/Anywhere

It is 2016 and the preceding years have seen the cost of personal transportation rise dramatically through a combination of green taxation and high oil prices. Combined with the increasing availability and decreasing cost of communications technology this has helped to make decentralised working both attractive and practical.

In some ways the nature of work is reminiscent of the pre-industrial world and its cottage industries; by this we mean that the notion of the 'workplace' as somewhere people gather and work alongside one another has shrunk away. Instead, people have workspaces within their homes, serviced by computers and rapid network connectivity.

While most people are in a conventional sense employed by companies, employers have found the cost of maintaining expensive city centre offices too much. Deficiencies in the provision of public transport and road gridlock has, in any case, made such places too difficult to get to every day. In an economy increasingly dominated by knowledge-based industries, retail and the service sector, more and more businesses are finding this mode of operation attractive.

Work in knowledge-based industries such as consulting or software development, as now, centres on project-based approaches to work; virtual teams form and re-form, using shared software to ensure that tasks are assigned and fulfilled. However

this approach isn't used just by knowledge-based businesses. Due to the prevalence of the internet as the preferred medium for transactions and interactions for both customers and business and customers alike, fewer functions are performed face-to-face. Though the 'real life' experience is still important for some 'experiential' sectors, the improved quality of the online interactive experience has allowed many formally 'real world' sectors to make the switch to virtual interaction.

In many companies people work in virtual call centres which have also moved away from the late twentieth century model of the 'cubicle farm' to become a network of remote workers. Calls are routed to customer services

assistants who are on call in their own homes. Customers get to speak to you only by voice, but there is a webcam which enables face-to-face contact if there is a management problem for which the worker needs support or advice. Software, owned by the employer, reveals quickly enough who is doing their job effectively and who is not. Although some people find it stressful to be monitored remotely, not least because of the loss of social contact with one's fellow employees, others are more sanguine.

There are advantages to this remote style of work. People have more time because commuting is no longer part of their day. There is more flexibility; the boundary between full and part time employment is evaporating. Flexitime contracts have allowed many individuals back into the workplace who have historically been excluded. Women, older workers and those with physical disabilities have particularly benefited from the combination of home working and flexitime. The environmental impact is lower because people are not travelling to a workplace. (And with the system of carbon credits now being more strictly enforced, people are pleased not to be using up their quota on work.)

Employment legislation and regulation have struggled to keep up with the pace of change in

I have to log into the system and then wait by the phone for a call. They monitor how long it takes you to do a call and how long you haven't been on a call. We have a certain percentage of calls that we need to reach every day. I don't know how they do it because I don't have to and I don't mind that they listen to our calls either. I want to do a good job and know what I need to improve … I can make a call from my work phone, but I don't because all our calls are recorded.

**Allison,
customer service agent**

working practices. Many aspects of employment law that relate to the 'workplace' are no longer fit for purpose due to the increase in home and flexible working. The principal issue being that standards and working conditions for employees dispersed across the country and in their own homes are hard to enforce. A spate of legal cases brought against major employers has focused the policy

agenda, and the issue looks likely to be addressed. Many other issues have to be resolved, such as division of overheads between workers and employers and the applicability of old schemes of taxation. Many rights groups are pointing out that low wages do not go very far when you are paying part of the cost of running the workplace.

The rise in home working has seen a revival of the local economy as people spend more and more time and money in the area where they live. A strong sense of community has emerged, with friends and neighbours cooperating around such needs as child care and crime prevention. Spaces such as coffee shops and gyms have become social centres where people can congregate to counter the time they spend working in isolation.

The housing market has seen some dramatic changes resulting from the shift in working practices. Home locations are now chosen much more on the basis of lifestyle rather than proximity to the work place. People have begun to cluster around centres of like-mindedness; for example, in this scenario, Liverpool has built a reputation as a desirable centre for creative workers and the city authority has given massive funding for arts projects which attract residents. As a result there has been a strong increase in the desire for rural living and decreasing desire to live and work

Scenario 2
Electronic Cottages

in crowded cities. Many older regional centres have been revived as a consequence to the detriment of more traditional economic centres.

In parallel with the increase in local interaction, online social networks seem to have prospered to fill some of the gaps left now that people don't meet at a water cooler or in an office kitchen. One of the beneficiaries of this has been the union movement. This is partly because people have a need to be part of networks which reflect their sector, so are more likely to hear from people who work in other companies. And it's also because the unions have concentrated on working conditions in the new 'electronic cottages' and use online networks effectively to reach new members. Unions and groups representing employees' interests have found fertile ground among dispersed yet highly networked

Employee perspective

Living and working in this world would be very different from many people's current experiences. A large number of employees either work at home or commute a short distance to a small hub office, where they meet with colleagues. Working life is much more integrated into everyday life; often working is just a matter of logging on to the company network. Working schedules are flexible. For example, in the service and retail industry some workers log on only for a few hours at peak times. Employees' work activities are still monitored but now there is a greater emphasis on one's lifestyle, and people are more connected to their local communities.

We might be headed toward 'Electronic cottages'…

● People in the UK who use their personal computers for working from home increased from 5% in 1996 to 8% in 2006 and for doing work brought home increased from 9% in 1996 to 16% in 2006. People who use their personal computers for checking emails rose from 2% in 1996 to 31% in 2002, to 47% in 2006, and using the internet in general increased from 2% in 1996, to 38% in 2002, to 59% in 2006[11].

● 'The average car owner in America spends 500 to 1000 hours per year behind the wheel, the equivalent of between one and two full-time university semesters'[12].

● New rights for women in the UK expecting or adopting a child are encapsulated in the Work and Families Act 2006 and are expected to begin in April 2007. Women's paid maternity leave will be extended from six to nine months, and all employers will have to save these women's jobs for them for a year. Every woman will be eligible for a year's maternity leave from the moment she begins her job. Fathers will also have an entitlement to a maximum of six months paternity leave, with some paternity pay if the mother returns without taking her full maternity pay entitlement[13].

● Areas of the UK population are benefiting from lifestyle motivated migration. The population of the area of Scotland, served by the Highland council, has risen by a quarter since 1961 to more than 210,000. Recent surveys show that people from England, and beyond, are moving to Knoydart and other distant parts of Scotland in significant numbers in search of better schools, lower crime, decent health provision, fresh air and – for many – a hitherto elusive community spirit. 'I was fed up with the daily commuting, the traffic and the stress, and wanted a better quality of life for the children,' says Angela Williams, a native of Leeds, who moved to Knoydart five years ago with her partner Mark, a biologist, and two small children[14].

Case studies

jetBlue Remote Call Centre

All 1,000 reservations agents for US airline jetBlue are home-based. Most are female and in their 30s. Just 3.5% of its agents leave each year, and the company receives only one complaint per 300,000 passengers for customer service problems - a third of the rate for the larger US airline carriers.

'People working from home are generally happier. They don't have to commute, they can be doing something on the domestic front and log on two minutes later without having to travel.' – Steve Mayne, jetBlue's operations manager[15]

ITC's e-choupal initiative

ITC is one of India's leading private companies, with annual revenues of $2bn. Its International Business Division was created in 1990 as an agricultural trading company; it now generates $150m in revenues annually.

In order to overcome instabilities in the supply and overall difficulties in sourcing of agricultural

commodities from rural areas of India, ITC started the e-choupal initiative. They created a network or internet kiosks in rural villages, which supply information beneficial to farmers in the local language on market prices, the weather, and farming practices. The kiosks supply ITC with a channel for marketing supplies such as fertiliser and seed. Farmers benefit from more accurate weighing, faster processing time, and prompt payment. Farmers selling directly to ITC through an e-choupal receive on average 2.5% more for their crops than they would receive through the traditional 'mandi' system.

ITC has enabled the kind of efficiencies only achieved via vertical integration in the US and thus has benefited from lower prices and more reliable production.

'Launched in June 2000 … e-choupal services today reach out to more than 3.5 million farmers growing a range of crops – soyabean, coffee, wheat, rice, pulses, shrimp – in over 36,000 villages through nearly 6000 kiosks across nine states'[16].
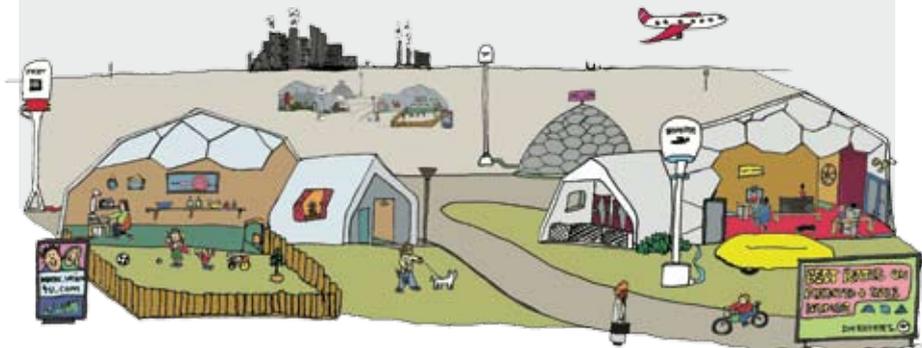
Scenario 3:
Replicants
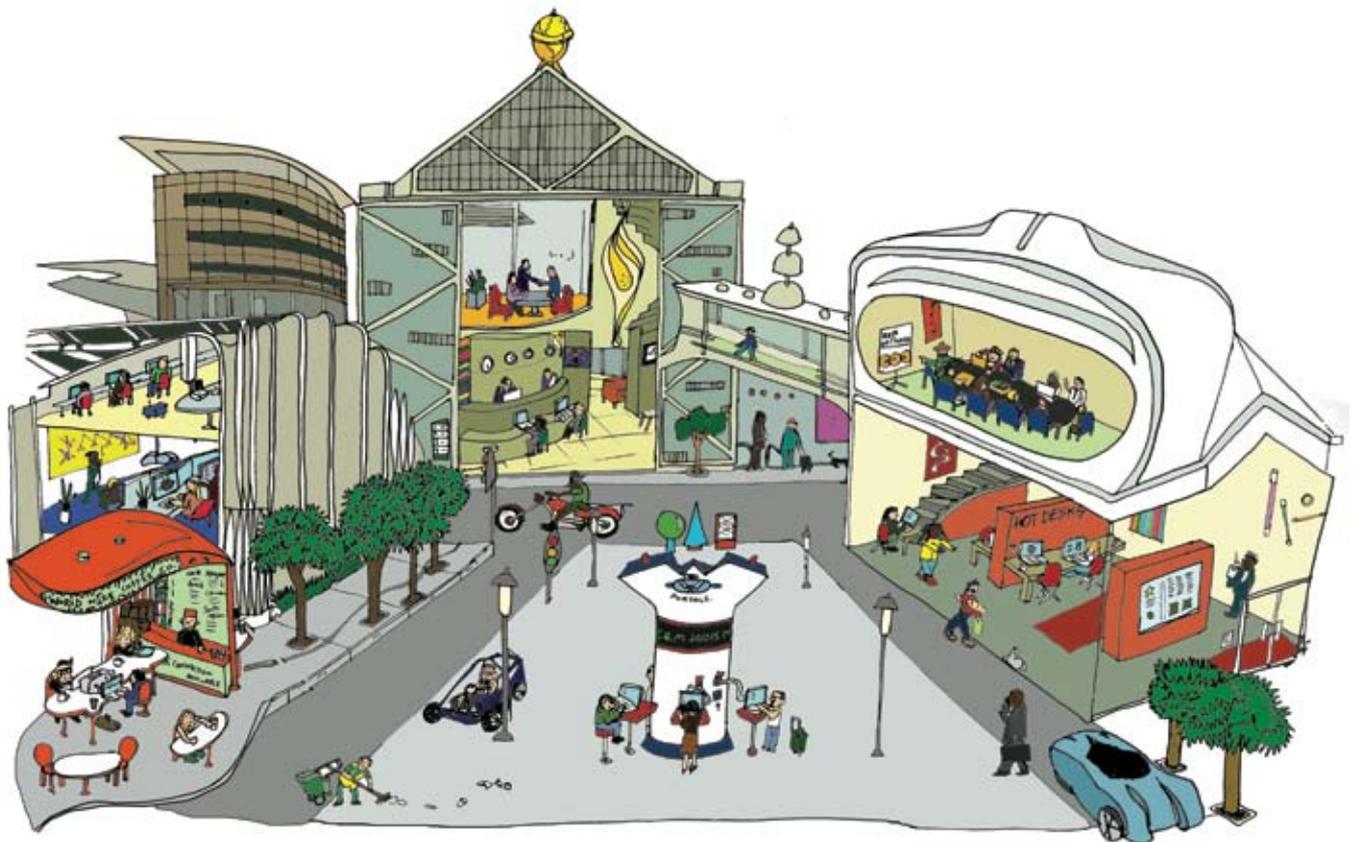
Yours/Anywhere

It is 2016 and the work of organisations has become even more global. In contrast to previous generations, the dominant model is 'open source/ distributed'. In the preceding decade organisations have responded to the fast pace of change and need for constant innovation by becoming less centrally managed and more flexible. More and more what were formally considered to be core functions such as new product development and innovations have been spun off or outsourced to specialists. It is increasingly understood that greater individual

and corporate benefits are possible from a more open approach to commerce and intellectual property.

Recent reforms to IP and corporate law in response to the changes in business practice have facilitated the coming of age of complex and shared – rather than proprietary – business networks. Knowledge is more efficiently distributed and shared than ever before, leaving people much freer to replicate and adapt IP for their own uses. Much of 'innovation' involves taking what is already in the public domain and adding value to it or improving/ streamlining the process involved

in production and distribution. Thus the rewards for innovation are geared towards 'fast followers' – those who can rapidly adopt and adapt processes and innovations to fulfil customer needs.

Company boundaries have become more fluid and flexible; working for a company is no longer an all or nothing affair. It is now common for individuals to become participants in, rather than employees of, a business network. They are able to choose the level at which and the way in which, they interact with organisations. A complex array of arrangements and agreements surround the new

All images by Nick Chaffe of the Young Creatives Network. The future's bright.

ways people have developed for interacting within these networks. For example a company might sponsor members of a network to come up with new approaches to a problem on the understanding that they have limited time frame where they can exploit the resulting IP. After this the IP is free to be shared and exploited widely.

Companies and individuals can be users of networks, thus users are able to access facilities and connect with customers or suppliers. Alternatively one can become a contributor in return for more privileged access and an elevated reputation. The system of contribution has become more complex, and participants have begun to form networks around particular areas of expertise. High-level decisions are taken by privileged groups of individuals on a peer-to-peer basis.

Global innovation and development of IP are centred in local

Technically I have no intellectual ownership over anything I create. I post my work online and people see it and steal my idea.

Rolf, web retailer & designer

'knowledge hubs' and 'lifestyle centres'. These have evolved because of contributors' need for community and shared space. These hubs and centres are similar to Silicon Valley in the late twentieth century, but are more distributed and outward facing.

The opening up of IP has meant that knowledge is shared to a greater extent. The granting of exclusive patents has become increasingly rare as regulatory bodies have realised that the over zealous application of patents harms growth. In this environment patents have become increasingly short term and specific, and network revenues are made from the application of shared IP rather than IP ownership.

As the formal notions of an employee and employer become less relevant, so has the rigidity of the working week. Self determination of working hours is increasingly the norm in knowledge economies like that of the UK. This has given people an unprecedented opportunity to structure their working lives as they see fit. However this has also meant that workers have had to take on an increasing array of responsibilities for themselves; such as training and development, IT and self assessment of taxes. A massive expansion in personal services has resulted from employees' need to offload such burdens and focus on their areas of expertise.

My job role can really vary and I have to know how to do a lot of different elements. It's great for the client as they can hire one person to do the whole job, but it makes you worry…you have to cover so much and you have so many balls in the air at one time.

Ivan, documentary maker

Though workers experience unprecedented levels of self determination, the highly competitive nature of the system and the need to maintain one's reputation has meant that many individuals have to work harder, and that many are finding it harder and harder to 'switch off'. At the low skills end of the spectrum, workers in high cost countries such as the UK have become increasingly disenfranchised by competition from those in low cost countries. This has lead to an increasing divided society in which high level knowledge workers are part of a global and privileged class, and their pay and conditions are increasingly less related to local country norms.

Scenario 3: Replicants

Consumers have benefited from competition inherent in this model and live in a world where they are free to source many goods and services on a more global basis. Some work can go abroad and some cannot. The UK economy is centred on high level knowledge workers and those in the service sector. Manufacturing and other labour and capital intensive industries have long since migrated to low cost centres abroad.

You can now purchase your carpet directly from a wholesaler in India represented by a furniture network. This has rendered difficult (often irrelevant) the regulation of arcane aspects of global trade such as quotas and tariffs. Trade is increasingly free and often more direct, with suppliers of goods able to strike up direct relationships with customers around the world. The coffee industry exemplifies the changing nature of trade, with consumers now able to buy direct from their favourite 'estates' in Colombia or Java via food networks.

The more globalised nature of trade is underpinned by the evolution of highly integrated logistics and distribution networks which, due to a requirement for high capital investments, function as a combination of centralised businesses and informal networks. Competition between parties within these networks has substantially lowered the geographical barriers to entry for the global trade in goods.

Employee perspective

Living in and working in this world would be much like being a freelance consultant today. It is uncommon for people to be directly employed by companies. It is not unusual for someone to work for two or three companies simultaneously. Working life would be much less predicable, routine and secure than it is now, with the flip side that people are free to choose where, when and how much they work. There is a great deal of home working with spells of being 'embedded' in a client's/employer's office. Since work is unpredictable, people often work intensely for part of the year before taking periods of time off. This is a world in which people must look after and find work for themselves, and in which companies have very little responsibility for staff, although they must work hard to be attractive to them.

We might be headed toward 'Replicants'…

● Today, the number of UK workers stands at around 28.5 million. Of those, 3.64 million (13%) are self employed, 7 million (24%) are part-time workers, 7% are freelance workers and 11% are in businesses with no employees,

according to research study carried out by Leeds Business School and people resourcing company Xchangeteam.

Emma Brierly, CEO and founder of Xchangeteam said: 'Our survey suggests that there is a quiet revolution steadily transforming the way that Britain works, as more and more people are opting for alternative methods of working. With 40% of freelancers being hired into managerial roles and a further 20% at director level it is clear that clients are recognising the wealth of talent that is on tap to them as they need it'[17].

● According to Barclays, the number of UK start-ups during 2004 outstripped anything recorded since tracking the market started in 1988. The total number of new businesses has increased by 13% from 400,000 in 1988 to 453,000 in 2004[18].

● 'A new study from the University of Michigan and University of Chicago shows that the internet's ability to spread knowledge beyond university classrooms has diminished the competitive edge that elite schools once held. Top universities once benefited from having clusters of star professors. The fast flow of information and the waning importance of location – which blogs exemplify – has made it easier for economists from any university to have access to the best brains in their field. That anyone with an internet connection

can sit in on a virtual lecture from [a professor] means that his ideas move freely beyond the boundaries of [the university], creating a welfare gain for professors and the public'[19].

● Since 2003, the blogosphere has doubled every 6 months. The blogosphere is over 60 times bigger than it was only 3 years ago and 19.4 million bloggers (55%) are still posting 3 months after their blogs are created[20].

● In the UK, 40% of shoppers have bought Fairtrade products and over 1,500 Fairtrade products are now available – an 80% increase from 850 in 2005. Companies are making major announcements about furthering their commitment to Fairtrade: Marks & Spencer (switching all its tea and coffee to Fairtrade certified), Virgin Trains, Sainsbury's, Co-op, Tesco, Asda and Waitrose[21].

Case studies

Lending websites: San Francisco-based Prosper Marketplace and UK and US based Zopa

Lending websites allow internet users to bypass major financial institutions and buy and sell loans to one another directly. Prosper Marketplace and Zopa position themselves as institutions for the modern age, utilising community aspects of the web[22].

Central is the idea that people want control over their money and want to invest in things that seem 'human'. Often members make special requests regarding who they want to lend their money to, thus making the investment more personally rewarding.

'The opportunity lies in consumers' mistrust of financial institutions'[23].

P&G Connect and Develop Model for Open Innovation

Since 2000 Proctor and Gamble have radically transformed their innovation process. 'By 2000, it was clear to us that our invent-it-ourselves model was not capable of sustaining top line levels of growth. Our R&D productivity had levelled off, and the percentage of new products that met financial objectives had stagnated at around 35%[24].

P&G now use a connect and develop model to identify opportunities from external innovations globally, which are then adapted and deployed.

'45% of the initiatives in our product development portfolio have key elements that were discovered externally … our R&D productivity has increased by nearly 60%. Our innovation success rate has more than doubled, while the cost of innovation has fallen'[25].

Lego Factory Website

Lego have started to involve consumers in their innovations process and are allowing them to create and purchase their own designs. Their personal designs are also posted on the website for other customers to comment on and even purchase themselves. This is true customer innovation.

Jacob McKee, Lego's global community relations specialist, explains the motivation for letting consumers co-create products: 'At Lego Factory, users can create their own unique Lego models – using interactive software… We want to release more and more content and development tools to help that process along. The hope is that they really start to take this on and start to do things we haven't even thought of yet'[26].

Scenario 4:
Mutual Worlds

Ours/Somewhere

It is 2016. The combination of online mapping services, social networking and complexity-based management systems has given fresh energy to the development of a traditional form of business organisation which has previously been written off: the rise of the mutually networked world. In essence technology has created new types of connection between people, services, and their physical or geographical surroundings. Technology has enabled a new grass roots business models to evolve where 'altruistic' behaviour is recorded and reciprocated.

Many business models are organised on a peer to peer basis with very little organisation at a higher level.

The ability of technology to efficiently manage services and enforce the rules governing their usage has created an environment where cooperation is fostered because good 'citzenship' is rewarded and bad 'citizenship' is not. A good example of this can be found in car sharing networks. Here members must return cars to the correct location, clean and with petrol; if any of these things do not happen the user is contacted promptly and warned;

further infringements damage the user's reputation and risk forgoing membership and the deposit.

The world enabled by this technology is one of producer-led and consumer co-operatives, membership organisations which are driven by the prospects of gaining leads for work or improved quality of service. Many traditional local and other services have migrated to these new membership-based organisations, which maintain quality standards and enable training for members. Some people are members of several such organisations. Work culture is highly entrepreneurial,
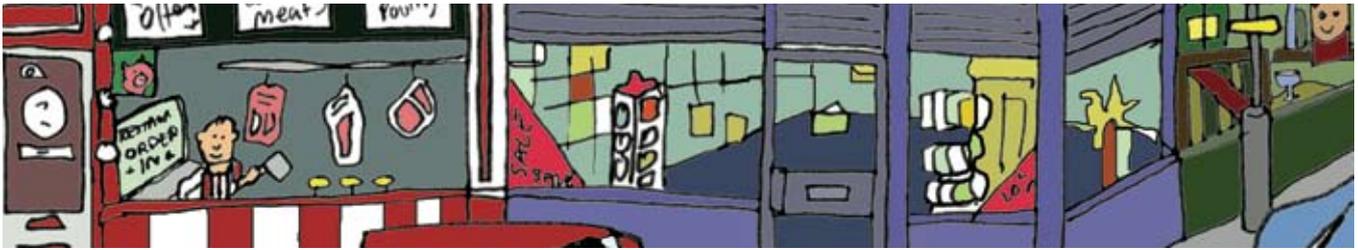
the low costs involved in reaching customers mean that new companies are constantly coming into being.

In 2011, Bedfordshire Housing Corporation announced that it was transferring many of its maintenance functions to a Craft Service Mutual. The details of a job are posted to members; anyone who can guarantee completion within the service delivery time can bid for it. Service users grade their customer experience online, which encourages speed as well as quality. It may not be an effective way to build a power plant, but it works for fixing broken windows. In mid-Wales, the Assembly has sponsored a pilot using a similar

approach for local rural public transport. The most successful schemes seem to have harnessed the technology to increase levels of social interaction, both virtually and in the physical world.

The technology underpinning all of this is at a minimum inter-operable. Much is open source. (It has to be to keep membership costs and joining costs down.) Some of the more complex applications are written as shareware.

Ever present in this world is the availability of 'linked in' data that is relevant to one's specific geographical context. Contextual information services use multiple factors to provide the most useful information possible; for example, restaurant recommendation engines take into account your specific location, the time of day, availability of tables, restaurant reputation and your previous preferences.

In this world the use of technology, e.g. via shared services and linked information, supports the local economy. Alongside enabling technologies, the strengthening of localised economies has been driven by the increasing expense of long distance transport and rising pride in localised culture. This is especially true in the area of food, drink and highly skilled crafts. A recent example can be found in Kent, where the UK's gradually warming climate has allowed a burgeoning wine industry

with thriving cooperatives of small scale growers. The success of the Kent wine industry is due in part to the development of thriving knowledge culture within the industry. Information about successful production techniques and marketing strategies are exchanged both within the local business community, helping to collectively improve standards and levels of knowledge.

In manufacturing, flexibility and speed have become more important than pure cost and economies of scale. In many areas micro manufacturing geared towards the production of more bespoke or specialised products has become prevalent. Environmental benefits have also emerged from this situation with region-based manufacturing and recycling facilities in some industries. This has also allowed much more efficient 'closed loop' recycling of waste, so reprocessed materials can be fed straight back into the production of new goods.

Sophisticated software and systems once only available to large companies are increasingly easy to manage and accessible to independent or small scale operators. What these systems do is allow many smaller market players to function with similar levels of efficiency and reach as large companies while also enabling greater dynamism.

Scenario 4:
Mutual Worlds

A prime example of this is in the taxi trade where localised GPS enabled networks let consumers hail any independent licensed driver in the vicinity. The consumer can choose from among the first two to respond and is able to access a digital reputation for the driver. Tipping has virtually vanished in this culture, as it is automatically in the driver's interest to maintain a good reputation. Those with the best reputations work the best hours and have an incentive to differentiate themselves via their service. Better information sharing also allows a greater degree of interoperability between small businesses; automatic orders can be placed by a local restaurant to a local supplier as their inventory runs low.

There are several social effects which aren't completely expected. The first is that the notion of 'joining' a membership organisation to support one's working life creates a more formal distinction between work and social life – people 'log in' when they start work, and 'log out' when they finish. The second is that people can choose how hard they want to work. Quality pays: people will wait longer for a repair by a carpenter with a good electronic reputation, and don't mind paying more. Finally, the rise of electronic networks is enabling new currencies to emerge; the time-bank movement, which enables people to use skills in their neighbourhood, is taking on a new life.

Employee perspective

Living and working in this world are based in the local community and working life is dominated by a cooperative style of working rather than domination by big business. Commuting is largely a thing of the past with people preferring to work in small local ventures, often connected to networks of similar ventures elsewhere. Working life is cooperative; indeed, not cooperating is bad for your reputation and for your business.
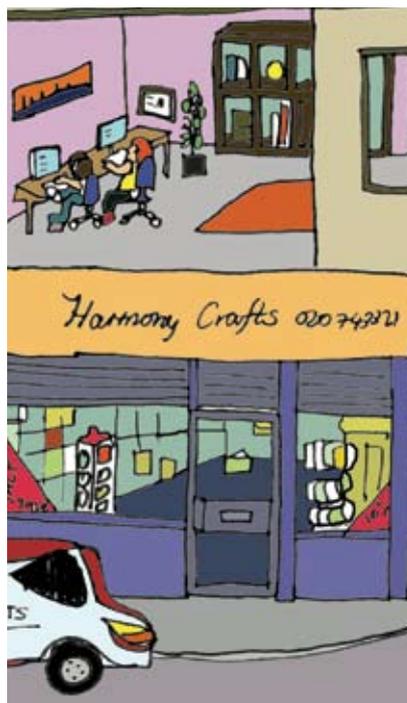
We might be headed toward 'Mutual worlds'…

● 'A growing number of cities in the US are treating high-speed internet as a basic amenity for citizens, like running water or the electricity grid'[27]. 70% of Austin Wireless (AW) partners are small businesses like cafés and book stores who want to attract customers with free internet access. The rest are city-controlled venues like parks and libraries. Mayor Thomas M. Menino of Boston plans to raise $16m from local businesses and foundations to blanket the city with 'open access' wireless internet connections. Other cities such as Philadelphia and San Francisco turned over responsibility for their wireless data networks to outside companies such as Earthlink, Inc. and Google, Inc.[27].

● Top five countries for hotspots: US (31,074), UK (12,004), Germany (8,714), France (4,014), Japan (2,738)[28]

● John Tobin, Boston city councillor, engages directly with voters through his vlog, or video blog. He regularly reports and shows his voters the positive and negative about their community, such as a new mural or graffiti problems. He is convinced that by the 2008 presidential elections, most politicians in the US will 'vlog or die in the public eye. It is going to be mandatory … voters won't accept that they don't have it. It

All images by Nick Chaffe of the Young Creatives Network. The future's bright.

is a cheap, accessible and locally relevant way in which to engage with and be visible to the very people who voted you in'[29].

● Podnosh calls itself a Grassroots channel and is another example of how new channels for media can give local communities a voice. 'On a podcast, Birmingham Community Empowerment Network, local residents share experiences, short stories, local campaign news and resources, as well as support each other as "active citizens"'[30].

● 47% of UK consumers, 47% of French consumer, 52% of Spanish consumers, 64% of German consumers, 48% of Italian consumers, and 53% of American consumers agree with the statement 'I always prefer to buy products which have been made locally'[31].

● A recent YouGov survey commissioned by Marks & Spencer found that 78% of shoppers would like to know more about where produce comes from[32].

Case studies
FON, Grassroots Peer-to-Peer Wi-Fi

FON is a bandwidth-sharing movement inspired by peer-to-peer principles. The purpose of the system is to overcome currently limited Wi-Fi coverage.

The network allows members to share existing bandwidth, as a 'Linus' or a 'Bill'. As a Linus, a member allows any other 'fonero' to use his or her bandwidth, and can access others' for free. As a Bill, the member sells bandwidth from his or her hotspot for $2 or €2 a day to a third category of users, the 'Aliens,' who aren't part of the network.

'The $2 rate is a bargain for 24 hours…With this rate, we become the EasyJet [low-cost airline] of Wi-Fi,' says Martin Varsavsky[33].

Down and out in the Magic Kingdom by Cory Doctorov

Imagine a world in which money is not society's most valued resource. In this other world, the basics of sustenance – food, shelter, information – are available to everyone, while additional desirables are not bought with cash, but earned by accumulating esteem and respect from other people.

Cory Doctorov, in his novel *Down and Out in the Magic Kingdom,* has created this moneyless utopia, in which a citizen's

reputation, known as his or her Whuffie, is the only currency. When your Whuffie is high, you are a god; when it is low, you are looked down upon; and when it is zero, you are a nobody. People with zero Whuffie will not starve; they will just not enjoy the extra benefits of life, like a trip to space, or membership in one of the adhocracies that run Disney World. Work is not mandatory in this world but is a way of building up one's Whuffie[34].

Carsharing: Zipcar in America, Greenwheels in the Netherlands

Zipcar is a critical element of the transportation network of many cities and university settings in America. Each zipcar replaces over 20 privately owned vehicles as over 40% of Zipcar members decide against purchasing a car, or choose to sell their own. 'We promote a deeper sense of community as members within a small geographic area share a common resource'[35].

Greenwheels carsharing group offers the same services in 42 cities in the Netherlands and 23 cities in Germany. It was awarded the 2006 World Technology Environment Award for its high-tech operations. The average time it takes to order a vehicle is less than one minute and the average walk required to get to the nearest vehicle in Amsterdam, for example, is 300 metres[36].

Strategic challenges

Our intention in this report is to enable companies to visualise and prepare for the implications of technological change. Companies are likely to be making comprehensive and wide ranging changes.

The following 'strategic challenges' are the result of a dialogue with coalition members around the four future scenarios and the issues companies are likely to face in adapting themselves to these worlds.

Innovation challenge

Given the current pace of technological change in many sectors, it will come as no surprise that innovation is a hot button issue in each of the scenarios. Even progressive high tech companies, such as Microsoft and Dell, are facing constant challenges to their business models. In this climate, how should companies cope with the pace of change, and how can they ensure that the ways they innovate are not a case of *plus ça change....?*

How are companies going to meet the increasing demands of innovation on their businesses, both in terms of specific innovations and in terms of their core business model?

Businesses will need to examine what is best done internally and what technology allows them to source externally. In a similar way, strategies for generating, exploiting and protecting IP will need to be re-examined.

Companies will need innovation strategies that take into account a diverse range of possible sources of growth. They will need to be able to consistently create relevant innovations and react quickly to disruptive technologies. Being too entrenched in a particular view of the future can be disastrous, and the coming innovations challenges will leave very few sectors untouched.

Cultural challenge

Much has been said about the importance of corporate culture in recent years. An organisation's culture is hard to define and yet it touches on every aspect of what companies do.

According to McKinsey, the number of American jobs that emphasis 'tacit' interactions (complex interactions requiring a high level of judgment) has grown two and a half times as fast as the number of 'transactional' jobs (interactions that can be easily automated or scripted) and three times as fast as employment in general, now accounting for 40% of the American labour market[37].

Given the rising importance of more sophisticated 'tacit' skills, the challenge to organisational culture becomes more acute. As an employee's ability to think becomes more crucial to a company's bottom line, companies are faced with the challenge of how, in an increasingly competitive environment, they create a culture that attracts and fosters such employees.

This is by no means straightforward as technology allows people to work more independently as well as more collaboratively. It allows for tighter control and visibility of an individual's actions and enables freedom of flexibility and independence. How are companies to create cultures that respond to change in a successful and forward looking way?

Leadership capacity challenge

Leadership challenges and cultural challenges are essentially two sides of the same coin. Many aspects of change depicted in our scenarios challenge what leadership means and to what extent it is even necessary. Whichever direction technology takes, it will certainly follow many paths simultaneously: those engaged in business in 2016 are likely to need quite different skills from those involved in business today. These skills might require leaders to persuade and influence a more independent workforce and manage the uncertainties and opportunities emerging dynamic and fragmented company structures. They will need to rethink the level at which strategic decisions are taken and what needs to be managed centrally – or decided closer to the ground.

Operational and technology challenge

The need to be responsive to changing market conditions and models within businesses without interrupting operations will continue to create huge challenges. Companies will need to prepare themselves for the rapid deployment of technologies that fit their business models; very different architectures will be needed for different roles. They will need to mitigate risks and costs involved with rapid change and, as working patterns become more widely distributed, companies need to assess what provision is needed to enable individuals and companies to maintain and operate systems and devices. There is likely to be increasing pressure to make information both always on and always accessible. Ensuring the most appropriate people have access to crucial information – whilst simultaneously maintaining security – is likely to be complex, costly and time consuming.

Brand challenge

An organisation's brand has a multifaceted role to perform. It must communicate with multiple audiences, such as consumers, employees and shareholders, as well as a wider community of commentators and pressure groups. Many of the directions for change we have explored will make managing a complex brand challenging.

As companies outsource more of what they do to 'external' individuals or organisations, they need to ask themselves how best to manage the impact of external agents on their brand. It will not always be obvious that your reputation is at stake or who is responsible when things go wrong.

Many of the strategies that can be used to cope with rapid change make coherent brand management difficult. The decentralisation of decision making, opening innovation and mass customisation have the potential to make communications highly discordant. Organisations nevertheless will need to make brand communications coherent and clear.

Quality challenge

Closely linked to the 'brand challenge' is the challenge of maintaining quality and consistency of customer service and product delivery. In recent years we have all experienced the problems that new methods of delivery can bring, such as poor or inconsistent service from outsourced call centres. But they have also brought promise and possibility (e.g. jetBlue). Future changes to business models demand that this become the norm.

Regulatory challenge

Changing working practices will render many aspects of current employment law and the processes by which it is enforced no longer fit for purpose. This presents very specific challenges for companies, as changes to such frameworks need to be made indirectly by government and regulatory bodies, and commonly happen only gradually – often via a discourse with a widening set of interest groups and communities. The necessity of doing this across markets and borders is even more formidable.

Moreover, changes in the way IP is developed, deployed and owned are already causing high-profile problems. Overly-protective patents are often a disincentive to development and threaten more dynamic business models such as open source software.

Competition enforcement and regulation may need to change as company structures change and informal collaboration between companies increases. When does a network or alliance become a business and hence become one of the 'regulated'?

Companies will need to act early to engage external bodies in a dialogue about the necessity of change. It will be important to be active in multiple debates around IP, conditions for home employees, and the nature of laws required to cope with highly flexible employees with multiple working contracts.

Issues around IP are emerging as an area of difficulty. Earlier this year RIM makers of the BlackBerry settled a hotly contested patent infringement law suit for $612.5m with the makers of educational software NTP. The dispute raised a 'substantial new question of patentability', e.g. what can and should be protected by patent law[38].

Recommendations:
Where to go from here

The future carries risks, but it also carries opportunities. The evidence suggests that companies which take steps to embrace the future before it arrives, and to rehearse the implications of change, are more likely both to manage the risks and to seize the opportunities. Rehearsal improves anticipation and the speed of the organisational response. To be successful, the literature suggests, an organisation needs a 'memory of the future'[39].

In the spirit of testing the future, then, this section identifies a set of actions – corresponding to the 'strategic challenges' identified in the previous section – to help organisations imagine the future and assess its likely impact. As the French futurist Gaston Berger said, 'Looking at the future disturbs the present'[40].

Innovation

Much of the disruptive innovation across a range of sectors will come from networks or entrepreneurs in the lower half of the scenarios space ('Replicants' and 'Mutual worlds'). This isn't just about technology; think of the US basketball star who's put together a programme to sell high quality trainers at $20 a time in poor US districts, working with third sector and public sector organisations, because he's worried about the damaging effect of 'trainer culture' on young African American kids[41]. But technology makes it worse, often very low financial barriers to entry make innovation a game that almost anyone, not just established companies can play. Increasingly having a dedicated well funded innovations team inside your organisation is valuable but not enough on its own. Companies such as Google have these but continue to acquire external innovations at a bewildering pace.

What to do? Having an external focus and having a structured way to engage with others outside your organisation, your sector as well as your customers is key. Share the costs and fruits of innovation with strategic partners where possible. Move away from deploying innovations from the top down, give areas of your business freedom to trial and refine multiple innovations on a smaller scale.

Culture

Three-quarters of a century of production line economics has created an expectation within companies that they set the terms in the workplace. The combination of rapid technological change and affluence (at least in the countries of the 'North') means that workers, at least those with skills, have a far greater say in how, and when, they want to work. Or as Daniel Pink, author of Free Agent Nation puts it 'Talented people need organisations less than organisations need talented people'[42].

The use of technology will continue to mean that new organisational and geographical boundaries are overcome. Many kinds of work can and will be carried out 'anywhere' by people both inside and outside of organisations. The individuals that make up organisations will be drawn from an ever wider talent pool for which there will be increasing global competition.

What to do? Create a culture that recognises and complements the values of increasingly empowered employees at all levels. Your culture should enable you to build on successful core competencies as well as recognise and respond quickly when things can be done better elsewhere. In the context of a more fragmented workforce, understand the limits and relevance of 'implementing' a corporate culture and move towards a more consensual style of engagement.

Recommendations:
Where to go from here

Leadership

We're used to leaders 'leading from the front', and organisations being 'run from the top'. Across the scenarios, the new energy in organisations is coming from the edges, even from outside of them. Leaders need to be connectors and collaborators instead, spotting flows and encouraging the interesting ones[43]. When facing an unpredictable future it is important that management is not allowed to single-mindedly channel an organisation down a blind alley.

What to do? Re-evaluate the role of management in your organisation. Look for ways to make management an enabling force for activity taking place across the organisation, rather than solely a decision function.

Quality

Across most of the scenarios, quality is assured only because employees or associates have internalised the desire to do it right. This makes organisations vulnerable: in the words of the placard seen a few years ago at a French demonstration, 'Why go on strike when you can destroy the company with surly service?'

What to do? Continue to champion quality, of course. But also look at how to champion good service design, which embeds quality in delivery, or even co-creates it with its end-users.

Operational and technology challenge

Seeing the big picture is always valuable, but applying it to your organisation is usually harder. Not everyone in the organisation will understand the need for a change in your approach to the way you do business.

What to do? You need a map which includes the story of how your world is changing and why – and what the critical stepping stones will be. We recommend the use of 'Futures Road Maps' – similar to 'Technology Road Maps' – which can capture on a page the social and consumer drivers which are influencing change, as well as the technology and regulatory changes, and shows how they are changing your markets, your customers and your organisation. It is important that your roadmap allows for divergent future outcomes and that there is spare capacity inside or outside your company to explore these.

Brand

Many organisations will end up with different business units and suppliers working across the different organisational models. But at the heart of your brand will be a view of the world which aligns most strongly with one type of organisation. In our view, for example, Nike's business model is in 'Disciples of the Cloud', with close knit innovation teams, and tightly controlled IP and endorsement relationships. But a lot of their marketing and sponsorship models embrace Mutual Worlds. The open source software Linux is a 'Replicant', which is why they let people using Linux be playful with their penguin logo – a 'Replicant's' view of branding.

What to do? Understand the model which matches the value you deliver – and have a risk management programme which understands where the conflicts are likely to flare.

Regulation

Regulation is often the slowest area to change, sometimes for good reasons. It often applies existing models of regulation into new working environments. The ergonomics of working in the home is one example.

What to do? Work with others in your sector, and your regulators, to develop models of the workplace of the future – and collaborate on building the most effective regulatory regimes for them. Also develop an understanding of and engage with the relevant interest groups and NGOs that increasingly influence policy making.

Response by Charles Leadbeater

Organisations exist to get work done. And to do that a successful organisation must achieve three things. It must motivate people to work, to make the most effective contribution to the collective endeavour. It must coordinate the work of many people to make sure it all takes places in the right order, to fit together. It must innovate by learning, adapting and evolving with the demands of the environment, exploring opportunities for change. Sounds simple: motivate, coordinate, innovate. Yet traditional corporate organisations are in continual crisis over their shape, structure, management, pay systems and ethos because they find it so hard to meet all these challenges at the same time.

An organisation that prides itself on a high quality, branded experience, the same the world over, cannot have too much room for diversity or difference. Motivating people to be efficient is difficult but not impossible: at least there are quantitative goals. Motivating people to innovate, often working collaboratively, is much more difficult. The outputs are harder to measure (who exactly had that great idea and when?) and anyway creative people are often not motivated by money. Motivating people to innovate and be efficient is very troubling. That is why so many of our organisations seem to be in a state of civil war, with people pulled in different directions.

The same tensions afflict the authority of leaders and managers. A key question in any organisation is 'What do I do next?' In the industrial era, organisations and people were allocated to tasks by a division of labour. If a worker was not clear what to do next, he could have a look at his job description. If that did not provide the answer then he could look up and ask someone in authority to provide guidance. Neither really work if an organisation needs continual flexibility and adaptation.

This report confirms these dilemmas. Old recipes of organisation, work and leadership are increasingly outmoded. The organisational civil wars we are living through are creating opportunities for new ways of working to emerge, that might allow us to coordinate, motivate and innovate at the same time, without all the pain and friction of a large organisation. These new ways of working are likely to be more open and networked, drawing inspiration from Wikipedia the online encyclopaedia to Linux, the open source software collaborative. They will be organised without having much by the way of organisation or hierarchy. Work is likely to be organised much more through self-distribution to tasks rather than a division of labour. Good leaders will also have to be open: they will operate in conditions of unprecedented transparency and scrutiny; they will have to be open to ideas from many sources.

My strong feeling is that these open, highly distributed styles of organisation will be the most dynamic future models of organisation, precisely because they are finding ways to mobilise resources and ideas en masse at low cost. Computer games are an outstanding example: both very efficient, profitable and innovative, because the game's users and players often become co-developers.

The neat categories we used to divide the world up: work and leisure, consumer and producer, supply and demand, are breaking down. In the world of YouTube and eBay, leisure can often become a form of work if you use it to make films or pursue a hobby; demand can create its own supply if the users have tools to create their own content; the consumers, at least some of them, some of the time, want to become participants and players, not just spectators on the sidelines.

Does that mean the death of the traditional, top down, closed organisation? As the report makes clear, far from it. In some fields, where experimentation is costly, regulation tight, capital costs high, traditional top down organisations will still prosper. Not all consumers want to be participants and none do all the time. Many will still want to be served, efficiently, with low cost, high quality items, delivered by tightly managed global supply chains.

So what we are likely to see is an expanding range of organisational possibilities, from Linux at one end to Microsoft at the other; eBay to Walmart; YouTube to News Corporation. Nor will it be an 'either or' choice, to be ultra open or traditional and closed. Although there will be lots of competition and conflict even between open and closed organisations that is not the only possible outcome.

For in addition we will see lots of hybrids growing in the middle ground, attempting to mix up these different organisational recipes.

The Dutch consumer electronics company, Philips, for example, is trying to open up its research labs in Eindhoven, and then turn them into a platform of a technical community. Nokia, P & G and Intel have developed open and networked approaches to innovation, that complement more traditional internal approaches. The BBC will in future deliver content

to us wherever and whenever we want, but it could also be a public platform for mass media participation. Meanwhile otherwise closed companies are trying to buy into the open world – News Corporation with MySpace, IBM with its support of open source. In China, support for open source as a counterweight to the dominance of Microsoft, will run alongside very traditional, former state run enterprises.

What does this mean for the way we work? There will be more and different ways to work. Across our lifetimes what used to be called careers may well become more complex, with many more stages and fragments.

But the drift in my view will be towards the open pole: organisations will have to become more democratic, transparent and in ways more egalitarian. Why? Because open style organisations – drawing lessons from the likes of Linux and Wikipedia, eBay and Craigslist, YouTube and MySpace – will provide new and powerful answers to the challenges organisations face: how to motivate, coordinate and innovate all at the same time?

Charles Leadbeater is one of the world's leading authorities on innovation and creativity in organisations. He has advised companies, cities and governments around the world on innovation strategy. Charles is the author of *Living on Thin Air*, the bestselling guide to living and working in the new economy. His forthcoming book, *Go Barefoot* (due out in 2007), explores the rise of what he calls the mass innovation economy.

Coalition members

The Orange Future Enterprise coalition is a group of individuals from a range of backgrounds whose attendance at regular meetings generates cutting-edge thought leadership on the future of the enterprise. Members include academics, journalists, consultant, lawyers, public sector representatives, business decision-makers, business users and industry pundits.

The range of backgrounds and combined breadth of experience within the coalition makes it a powerful body, and much of the content of this paper is derived from the output of discussions held in coalition meetings in workshops or with individual members. The coalition will continue to generate insight into the future of the enterprise and the role that technology has to play within it.

A full list of current members is given here:

Robert Ainger
Orange UK

Stuart Brough
Strathclyde University

Andrew Curry
Henley Centre HeadlightVision

Mark Curtis
Fjord

Eunice Edwards
BDO Stoy Hayward LLP

Jonathan Etheridge
First Direct

Tony Gerrard
DTI

Karen Gill
Everywoman

Alan Harrison
Yorkshire Water

Alexandra Jones
The Work Foundation

Nico MacDonald
Spy

Peter McInerney
Sheridans Solicitors

Paul Miller
Demos

Duncan O'Leary
Demos

Shaun Orpen
Orange UK

Tim Page
TUC

Louise Potter
British Chambers of Commerce

Neil Scales
Merseyside Passenger Transport Executive

Mark Taylor
Avanade

Kay Winsper
Siemens

Tunc Yorulmaz
Accenture

For more information about the coalition, please contact:

Jenny Thorpe
Orange Business Services
0870 3731750

Rebecca Nash, Philip Goad or Mia Belldegrun
Henley Centre HeadlightVision
020 7955 1800

Orange Future Enterprise coalition web forum

The findings of the coalition have stimulated debate and provided a platform to discuss the role and impact of mobile technologies on businesses - now and in the future.

It's time to open this debate to a larger number of stakeholders to get a real sense of the challenges and opportunities facing organisations. We would like to encourage you to visit the Orange Future Enterprise coalition online forum, a place to share research, debate and lead thinking on the future of organisations.

Please visit the forum at
http://www.orangecoalition.com/
and register to add your own thoughts.

1 Gillinson, Sarah and Duncan O'Leary (2006) Working Progress: How to reconnect young people and organisations. London: Demos.

2 'Managing in chaos: The great challenge of our era? Get companies to change quickly enough to survive a world that's crazier and riskier than ever', Geoffrey Colvin, 19/9/2006

3 Curry, Andrew, Lloyd Burdett and Crawford Hollingworth (2006) Scenarios for Fast-Moving Sectors. In Scenarios in marketing: From vision to decision. Gill Ringland and Laurie Young, eds. Pp. 139-158.

4 Tamar Kasriel, Head of Knowledge Venturing, Henley Centre HeadlightVision, see http://strange.corante. com/archives/2006/03/27/changing_media_final_ keynote_and_closing_remarks.php and http://www.bbc. co.uk/blogs/theeditors/Bournemouth030606.txt

5 William Gibson, quoted in the Economist, 23/06/2000.

6 Carlson Analytics (Australian research analysis and strategies consultancy), Privacy Guide, June 2006

7 Christopher Farrell, Mining the Vein Of Great Ideas, Business Week, January 2006

8 http://www.clickz.com/showPage. html?page=3623581

9 Peter Katel, Bordering on chaos – the Cemex story, Wired Magazine, May 1997; Ricardo Sandova, Block by block, Stanford Social Innovation Review, Summer 2005

10 March 01, 2004 Computer World Website http://www.computerworld.com/ printthis/2004/0,4814,90518,00.html

11 The Target Index Group (TGI), GB surveys 1996, 2002, 2004, 2006

12 Book review, Time power: a proven system for getting more done in less time than you ever thought possible, by Brian Tracy, Realtor Magazine Online, October 2004

13 DLA Piper Global Legal Services, UK Legislation Tracker, September 2006

14 Guardian Unlimited Website, Wednesday August 30, 2006 http://environment.guardian.co.uk/ethicalliving/ story/0,,1860592,00.html

15 Guardian Unlimited Website, Saturday October, 2005 http://money.guardian.co.uk/work/ story/0,1456,1592547,00.html

16 http://www.itcportal.com/sets/echoupal_frameset. htm

17 Onrec.com, UK businesses increasingly turn to freelance consultants, December 2005

18 Bytestart.co.uk- the small business portal. UK start-ups reach new peak, March 2005

19 The Economist, The invisible hand on the keyboard, August 2006

20 David Sifry, State of the Blogosphere, Sifry's Alerts, April 2006

21 Fairtrade.org.uk

22 Robin O'Brien Lynch, Lending website banks on the eBay generation, Irish Times, June 2006

23 Timothy J. Mullaney, Lot of loans but no banks, BusinessWeek, July 2006

24 'Connect and Develop', Inside Proctor & Gamble's new Model for Innovation, Larry Huston & Nabil Sakkab, Harvard Business Review, March 2006

25 ibid.

26 Mass-customisation blog Entry dated August 30, 2005 http://mass-customization.blogs.com/mass_ customization_open_i/openuser_innovation/index.html; Lego Press Release Dated 29/08/2005 http://www. LEGOFactory.com

27 BBC News 'Wifi cities spark hotspot debate', Matthew Davis, 10/20/2005

28 ibid.

29 Jo Twist, The year of the digital citizen, BBC News, February 2006

30 ibid.

31 HenleyWorld 2006

32 Anthony Fletcher, Industry targets growing demand for local food, Food and Drink Europe.com, March 2006

33 The Register Website, Sunday 12th February 2006 11:34 GMT, http://www.theregister.co.uk/2006/02/12/ utopian_fon/; see also http://en.fon.com/info/whats_fon. php

34 Doctorow, Cory (2003) Down and out in the magic kingdom. Patrick Nielsen Hayden, ed. New York: Tom Doherty Associates, LLC.

35 zipcar.com

36 The Commons, World Technology Environment Award 2006: Greenwheels, May 2006

37 McKinsey Quarterly, The Next Revolution in Interactions, 2005 number 4

38 http://en.wikipedia.org/wiki/Research_in_ motion#Patent_litigation; IT Vibe article March 16, 2005 at 22:47 by Kathleen Hill http://itvibe.com/news/3365/

39 de Geus, Arie (1999) The Living Company. Campbridge: Harvard Business School Press

40 Berger, Gaston (2004) "Etapes de la prospective", PUF, 1967, quoted by Michel Godet, Scenarios and strategies: a toolbox for problem solving. LIPSOR.

41 Cull, Andrew (2006) "Marbury's stamp-down starts budget footwear revolution", Guardia, 24 August. www. starbury.com.

42 Economist, 'Masters of the Universe', October 7th-13th 2006

43 Cleveland, Harlan (2002) Nobody in Charge: Essays on the future of leadership. San Francisco: Jossey-Bass.

The way to work

Space, place and technology in 2016

Organisational Lives

Inventing the future with mobile technology

An Orange Future Enterprise Coalition report

HenleyCentreHeadlightVision

orange

HenleyCentreHeadlightVision

orange™