
The future of work: Changing patterns of workforce management and their impact on the workplace

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Abstract

This paper reports on a year-long research project undertaken by the authors and a group of sponsoring corporations to explore the future of work and thereby the workplace. Experiences, ideas and data were shared to address questions about the changing nature of the workforce itself, new workplace designs, new technology capabilities and the economics of supporting and leveraging knowledge workers. But this paper does more than report on specific findings, it interprets, predicts and offers the authors' personal perspectives in order to share with readers their own views of the issues and challenges facing facility managers today as they prepare their organisations for a changing and very different world of work in the near future.

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INTRODUCTION

**Something's happening here. What it is, ain't exactly clear.
Buffalo Springfield**

Every once in a while, the rules change. Businesses are in the midst of a fundamental transformation in what matters and how value is created.

Not only has talent replaced land, capital and raw materials as the primary source of competitive advantage, but the goals and expectations of that talent have also shifted. Just as importantly, the way work gets done is changing. Where people work, how they communicate and how business transactions and interactions are conducted and managed are all shifting, and at an accelerating pace. The developed economies around the world are experiencing change that the authors believe is as significant as the introduction of the printing press, the telegraph, the telephone and the aeroplane were in their times.

The authors have just completed a year-long research programme funded by several major US-based global corporations. They are convinced by this that it is essential for senior executives to recognise and deal with this transformation and its implications for the way they lead and manage their organisations.

Knowledge is clearly the primary source of competitive advantage, and knowledge workers drive business success.¹ Yet most companies are not managing knowledge workers effectively. They do not provide workplaces, working conditions or technology support that meets the needs and wants of their most critical resource, but this research suggests that the costs of the support they do provide are typically 40–50 per cent higher than they should be.

To be even more blunt, the authors believe that the creative, integrated management of knowledge workers, the places where they work, and the technology tools and infrastructures they rely on can reduce workforce support costs by as much as 30 per cent while substantially improving worker productivity, effectiveness and satisfaction.

Furthermore, there is strong evidence that creative redesign of workplace and workforce strategies can also give organisations much more agility — the flexibility to expand and contract the workforce and all its support costs to meet dynamically changing needs in an increasingly volatile business environment.

But achieving these goals requires deep rethinking of all the elements of the workplace and workforce management. Basic assumptions must be re-examined, reconstructed and acted upon. Specifically, the authors believe that future business success depends

**Transformation in
value creation**

**Knowledge as source
of value creation**

**Reduce workforce
support costs by 30
per cent or more**

**Agility through
workplace redesign**

Integrate workplace management, human resources, and IT strategies

directly on an organisation's ability to understand these shifts and to redefine its workforce, workplace, technology and business strategies accordingly. Central to this redefinition is a deep coordination and integration of the functions of Corporate Real Estate/Facilities, Human Resource Management and Information Technology Management. Unless these three areas develop a common view of work, and an understanding of how they must combine their efforts, the broad sweeping changes that can be foreseen are highly unlikely to come about.

Research convinces the authors that there is a powerful business case for making significant change in workforce management practices and workplace design principles. This paper lays out observations, experiences, beliefs and predictions, drawing in large part on the results of the research the authors have been conducting over the past year with a number of global corporations.²

UNDERSTANDING THE NEED FOR CHANGE

Recently, many companies have had to relearn the hard lesson that what goes up (demand, revenue, profitability, headcount, floor space) all too often comes back down. Downsizing, restructuring, refinancing, divesting and refocusing are difficult and painful. Yet, typically, these efforts have produced little more than 'do more (of the same) with less' — reducing the workforce without reducing the work, delaying essential investments, subleasing unused space, cutting travel, eliminating training and development, even shrinking marketing and R&D budgets. While these tactics may help ensure short-term survival, they generally do so only at the cost of weakening long-term viability.

How can organisations more agile, flexible and scalable — in both directions — be built? One should ask: 'How many fixed costs of facilities, technology and human capital can be made variable?' 'How can a dynamic business model capable of expanding and contracting quickly in response to changing business demand be designed?'

This research suggests that successful organisations focus on minimising workforce support costs (technology, facilities, compensation and benefits, travel, development, management), while simultaneously ensuring that their critical workers have access to the information and communications capabilities they need to be highly efficient at all times and in all locations. They create working environments that attract and leverage highly motivated, high-performing knowledge workers.

Today's knowledge workers are not just looking for jobs, or for income, but for opportunities to contribute and to maintain their preferred lifestyle — to make a meaningful difference in a meaningful way. They want to achieve a new kind of balance in their lives — a balance between work and play, work and family, and work and personal growth. For high-performing talent today, lifestyle has become just as important as workstyle; in many respects, the two have become inseparable. For example, in a recent

Short-term actions weaken long-term viability

Creating attractive work environments

Knowledge workers want to make a difference

Technology transforms workplaces into virtual workspaces

Work can now be conducted anywhere, any time

Workers choose to work outside regular facilities

Three key research questions

workforce survey of distributed workers, the authors found that 54 per cent responded that they agreed with the statement ‘My family life is more important to me than my work life’.

To complicate matters further, computing and communications technologies have transformed the traditional workplace into a virtual ‘workspace’. The idea of working ‘any time, any place’ is rapidly becoming a reality, with hundreds of variations on that theme. Today, knowledge work can be conducted from an office, from an airport lounge, on an aeroplane, in a car, at the local coffee shop, and at thousands of other physical locations. That work often includes real-time communication and collaboration with colleagues located virtually anywhere else on the planet. In the USA, for example, several thousand Starbuck’s Coffee Shops now are ‘Hot Spots’ that provide wireless internet access — for a fee. And in France, there are efforts under way to create a single, free, city-wide wireless network throughout Paris.³ Recently, even McDonald’s has begun providing wireless access (‘Want wi-fi with that?’). Increasing numbers of airports provide wireless access, and there are projects actively under way to turn literally thousands of public parks and other gathering places across the country into free Hot Spots.

Whether it is telecommuting, remote work, mobile work or — most likely — an ongoing and changing mix of all these forms, knowledge workers today have choices about where and when to work — and who to work with. And they are exercising them. For example, the authors’ workforce survey showed that almost 20 per cent of the workforce already spends more than 10 hours a week in ‘third places’ (that is, outside corporate offices and home offices). Those workers also indicated they would increase that amount of time significantly if it were practical.

To attract, retain and develop talent today, and to benefit from its contributions, businesses must be responsive to these new workstyle and lifestyle priorities. Yet building a support infrastructure that provides real-time, all-the-time information and communications access from anywhere to anywhere is not easy — especially when total cost is an issue and scalability up and down is a necessity.

What does it take to develop and support an engaged, high-performing workforce in the new economy? What kind of physical and social environments are workers looking for? What working conditions foster productivity, creativity and commitment? Most importantly, what must companies do to create the workplace environments that will leverage the knowledge and talents of their workers in a truly location-independent fashion? How can all this be achieved at reasonable cost and with substantial flexibility?

The research sponsors said that, ultimately, three questions are critical:

1. What working conditions and arrangements do knowledge

- workers, broadly defined, want and need from organisations to be truly productive and creative?
2. What management practices are required to create an attractive, cost-effective, and highly flexible working environment within which talent will thrive and be able to create economic value no matter where that talent is physically located?
 3. What is the economic value of moving to this new set of management practices?

The nature of work has changed

Research has revealed three basic truths. First, the very nature of work has changed, and continues to evolve. The ‘Information Revolution’ is real, and industrial-age management practices are no longer adequate or appropriate for knowledge-based work and workers.

Workforce support costs can be reduced

Secondly, workforce support costs can indeed be significantly reduced, even as organisational agility and workforce productivity are increased. But these cost savings and productivity improvements can be realised only by accepting and embracing significantly different management practices.

Change is neither easy, nor simple

Thirdly, however, these outcomes cannot be achieved easily, or cheaply. Implementing new workforce/workplace models requires a fundamental change in management thinking. And, no surprise, these new models also impose significant change on the leaders of corporate real estate and facilities functions, and on senior IT and HR executives as well. More importantly, they mean changing the ways that knowledge workers are provisioned, managed, assessed and rewarded.

DRIVERS OF CHANGE

Six fundamental forces are driving change:

Six drivers of change

1. *The changing nature of work itself* — what workers actually do, how they create value, and the basic sources of competitive advantage.
2. *Demographics* — the changing mix of workers and customers, the ageing of the workforce, increases in diversity (generational, gender, racial, cultural).
3. *Broad but fundamental changes in society* — values, expectations, career choices.
4. *Technology* — the significant impact of computing and communications technologies on how people interact, conduct research, solve problems and produce new knowledge.
5. *Environmental issues* — the costs of commuting, pollution, congestion, building designs and the related consequences on present management practices.
6. *Government and public policy* — particularly as it relates to employment, health and retirement benefit programmes, taxation and other factors that affect decisions by both employers and workers.

Many of these trends are not new or even surprising; they have been talked about and written about for many years (see, for example, the works of Cairncross,⁴ Drucker⁵ and Hinds and Kiesler⁶). While on its own any one of these factors would have profound impacts on how work is designed, carried out and managed, taken together, these forces are quite literally revolutionising core concepts of what work is, how it can most effectively be designed and conducted, who does what, and even exactly what an organisation really is.

The aspects of these six factors that the authors consider most important will be summarised only briefly.

(1) The changing nature of work

The so-called 'Information Revolution' is by now an overworked and under-appreciated idea. Yet that catch phrase obscures a very significant change in how value is created. The best example the authors know of how work itself has changed, and how those changes affect the workforce and management practice, comes from an extended case study developed over a decade ago by the late Professor Jai Jaikumar of Harvard Business School. Professor Jaikumar traced the two-hundred year evolution of the workforce and the work processes employed by a single manufacturing firm.⁷ Here, in brief, is the story.

Beretta Manufacturing was owned and managed by the same family for close to two hundred years. One result of this remarkable stability is a rich set of records about the company's operations — sales, costs, staffing levels, production volumes, inventory levels, manufacturing processes and procedures.

Perhaps the most interesting insight to emerge from this rich set of historical documents was the way the firm's operations and staffing evolved over time as basic manufacturing technologies progressed through several transformations.

Prior to about 1850, the factory floor was essentially a job shop; each piece of equipment was hand made, there were no interchangeable parts, and the workforce was made up almost exclusively of individual craftsmen, each of whom had trained for years and had a unique style and skill set. No two finished products were identical. Indeed, in many ways the prime source of value in the product was created by the individual craftsman.

In the mid-1800s, the Industrial Revolution swept through the economy. One of the most significant changes to Beretta's work processes was the introduction of interchangeable parts. This remarkable development meant fundamental change in the way products were designed, parts were manufactured, and final products were assembled. First, the products were designed much more precisely; engineering drawings were required to ensure that all the individual parts would fit together, and to enable different workers on the factory floor to produce the same part to the same specifications, over and over. Secondly, parts were produced by

Work has evolved from craft-based manual labour to knowledge-based design and problem-solving

The Industrial Revolution led to interchangeable parts

**Designed work flows
required planning
and management**

**Majority of workers
today are designers,
planners, problem-
solvers**

**Rapid growth of the
'creative class'**

specialists — one craftsman would make hundreds of Part A, a different individual would produce Part B, and so on. Thirdly, those parts were produced for a work-in-process inventory. And, as a result, the processes of production planning, scheduling and inventory management became critical.

The obvious result of these changes in technology and process was a significant shift in the mix of skills within the workforce. Engineers, production planners and managers constituted a growing percentage of the workforce. By the early 1900s, over 25 per cent of Beretta's employees were what the authors would now call knowledge workers.

The first part of the 20th century saw the emergence of the assembly line (think of Henry Ford and Ford Motor Company). Then, in the 1940s and 1950s numerically controlled machines were introduced, and by the 1980s computer-aided design and manufacturing (CAD/CAM) enabled Beretta and other manufacturing companies to begin imagining 'lights-out manufacturing' environments where there were literally no factory-floor workers at all. While such an extreme commitment to technology remains rare even today, there are now many examples of high-tech manufacturing where the 'touch labour' component of the workforce is less than 5 per cent of the total. The planners, engineers, designers, software developers, financial analysts, chemists and technicians — the 'creative class' — produce and apply the knowledge that creates value and drives the economy.

This is why knowledge work and the knowledge worker have become so dominant in the first decade of the 21st century. Once an idea, or a design, or a software program, has been developed, it is possible to produce the product, or deliver the service, in high volume with very little or no direct labour input. And the quality and reliability of the output is incredibly high.

(2) Demographics

Who is doing the work is changing just as dramatically as what kind of work is being done. Basic changes in the characteristics, beliefs, values and expectations of millions of individual workers require equally fundamental changes in the way those individuals are managed.

The rise of the creative class

The rise of knowledge work as the dominant activity in our economy has driven the development, coalescence and emergence of a new class of workers — those who produce and apply the knowledge — now known as knowledge workers, but increasingly being recognised as the 'creative class'. The 'middle class', the 'working class' and the 'service class' were products of the Industrial Revolution and the growing automation of the means of production. As the Beretta story makes abundantly clear, the vast majority of jobs today involve producing, applying and

Creative class makes up over 30 per cent of entire workforce

distributing knowledge rather than things — essentially creative activities.

Millions of us are now working and living much as creative types, as artists and scientists always have — with the result that our values and tastes, our personal relationships, our choices of where to live, and even our sense and use of time are changing. Leading the shift in the USA are the nearly 38 million Americans in many diverse fields who create for a living — what Professor Richard Florida of Carnegie Mellon University has called the ‘creative class’.⁸ The creative class now comprises more than 30 per cent of the entire workforce. The choices these individuals make already have had a huge economic impact, and in the future they will determine how the workplace is organised, which companies will prosper or go bankrupt, and even which cities will thrive or wither.⁹

These creative types are today the most highly valued employees of large organisations. They are the scientists, engineers, professors, artists, entertainers, actors and designers of almost everything. They are highly educated, mobile and diverse. Members of the creative class do a wide variety of work in a wide variety of industries — from technology to entertainment, journalism to finance, high-end manufacturing to the arts. They do not consciously think of themselves as a class, yet they share a common ethos that values creativity, individuality, difference and merit.

Creative class workers choose where to work before who to work for

An increasing number of businesses understand this value system and are making the adaptations necessary to attract and retain creative class employees.¹⁰ Where are they? They are in San Francisco, Austin, Boston, San Diego and Seattle, among other cities. They are generally not in Omaha, Pittsburgh or Fargo, North Dakota. There is a very high correlation between the ‘creative class’ and what the authors term ‘distributed workers’. They are the intellectual capital that drives innovation and growth in the Internet economy. And they are vastly different from their predecessors.

Younger workers, in particular, bring significantly different perspectives to the workplace. Many of them today choose where they want to live first, and only then seek opportunities for employment. And their choices are increasingly different from those of earlier generations. Major urban centres such as New York City, Chicago and Los Angeles are declining in attractiveness, while mid-sized communities such as Austin, Seattle, Albany, New York and Portland, Oregon, are becoming much more popular. These ‘new workers’ also have very different expectations about work/life balance, management practices, compensation and organisational careers. And even though the recent economic downturn has softened some of their demands, these shifts are real and will be enduring.

But it is not only the young whose values and expectations are changing. There is also a significant shift in the preferences and

Place and quality of life have grown in importance

expectations of the ever-present (but ageing) baby-boomer generation. As that demographic group approaches the traditional age of retirement, more and more of its members are choosing either to remain in their current jobs rather than retire or — more commonly — to embark on second, third or fourth careers. Frequently, those new careers involve working as part-time employees, ‘free agents’, or independent consultants, and seeking out very non-traditional part-time and temporary employment arrangements.

And, just like those Gen X’ers and Gen Y’ers, these ‘senior’ workers are increasingly inclined to put place and quality of life much higher on their priority list than a specific job or employer.

Increasing workforce diversity

Several separate but interacting factors are leading to a significant increase in the basic diversity of the workforce. And the authors use the term ‘diversity’ to cover all kinds of variation, including not just who people are and what skills they bring to work, but where and when they work, as well as what kind of ‘employment’ arrangements they have. But the diversities that matter most to large organisations are age, gender and ethnicity.

In the USA and most of Western Europe, recent equal rights laws have contributed to very significant changes in the gender and ethnic composition of the workforce. Those changes are well understood and by now not really news anymore.

The most fundamental driver of diversity today, however, is a demographic one — the decline in birth rates in virtually all developed countries around the world. The workforce is ageing, and it is growing at a much slower rate. The result is a much broader range of ages in all professions — generational diversity is the new reality. And the shrinking number of new entrants to the workforce means more importing of labour, more exporting of work, more use of consultants and part-timers, and a growing need to keep older workers in the active labour pool.

In addition, there is an explosion in the number of what author Dan Pink calls ‘free agents’ of all ages — individuals who choose to work for themselves rather than as employees of large corporations. In the USA, there are already close to 20 million free agents, and the number is growing every year.¹¹

This rapid growth is caused by a number of trends and recent conditions, not the least of which is the large number of layoffs and staff reductions since the dot-com ‘bust’. But it is not just out of work dot-commers who have had to learn to find work on their own. There are also thousands of former employees of large corporations who have either been forced out or have chosen to leave full-time employment — and many of them are finding that they like being free agents and have no desire to go back to more traditional working arrangements.

This phenomenon actually fits the ‘new economy’ very well, in

Dramatic decline in birth rates leads to rise of generational diversity in the workforce

Over 20 million ‘free agents’ in the United States

New management challenges

that it enables organisations to scale up by retaining consultants or part-time workers without making long-term commitments. The authors believe there will be more and more free agents because both individuals and companies are finding these new arrangements highly attractive.

But — and this is a very important ‘but’ — managing free agents is a radically different task from managing full-time employees. Not only are free agents less ‘controllable’, but they are often located remotely, and they bring different values, goals and motivations to their work.

Managing workforce diversity means developing systems, structures and interpersonal styles that take all these individual variations into account — gender, ethnicity, location, organisational/individual working arrangements — and at the same time pull individuals together into smoothly working teams that collaborative effectively.

(3) Broad but fundamental changes in society¹²

Modern communications technology has helped change the way the world is viewed. It has changed most basic beliefs about how people interact with one another in commercial, social and learning environments. This is a watershed period of human history. There are technologies that provide worldwide, real-time access to each other and to information needed, when it is needed, and no matter where those communicating are located. Geo-political alliances are shifting dramatically and continuously, aggregating production and purchasing power in completely new ways.

Global corporations and global workforce may lead to more stable geopolitical climate

Indeed, in some ways, these new patterns of production and work are a stabilising force in the world. As columnist Tom Friedman of the *New York Times* pointed out last year,¹³ when India and Pakistan were close to declaring nuclear war, the CEOs of several US-based multinational corporations called the Prime Minister of India to tell him that destabilisation of that part of the world would force them to pull their outsourced call centres and software development operations out of India. Not surprisingly, talk of war subsided rather quickly.

Yet global uncertainties and power shifts will surely be around for many years to come. As differing economic systems, value systems and religious beliefs come into more frequent contact, interdependency is becoming more essential, yet at the same time more difficult to achieve. And this is not just a challenge facing large multinational corporations. Every small business, and indeed even every free agent, today operates globally, whether it wants to or not.

(4) Technology

Clearly, information technology in all its forms is a major contributor to the changing context for work. The Web, PCs, PDAs, cell phones, voice response systems, video conferencing,

**Fundamental
advances in
technology: A
powerful driver of
global workforce**

databases, wireless networks and graphic-intensive applications have combined to empower and connect knowledge workers around the globe. These workers are interacting and creating value for customers in all kinds of new settings as they move continuously back and forth from relatively traditional corporate facilities to individual home offices — and almost every place imaginable in-between.

Technological advancements in communications, such as the internet, enable us to interact differently with the world around us. One's perspective expands with each new iteration. This pattern began with language itself and has continued with the development of various means of mass communication. Over time, the focus has been expanded from the immediate village to a global perspective. The internet has moved millions of individuals on all continents into a global environment within the short span of just a few years. This new reality has had a profound effect on thinking, belief systems and approaches to conducting business.

(5) Environmental issues

There are two critical environmental challenges that are driving changes in patterns of how, when and where work takes place: energy usage and pollution.¹⁴

Several times in the recent past, the western world's almost insatiable demand for energy and, in particular for oil, has brought severe disruption to the world economy when predictable oil supplies have been threatened. In fact, many people believe that the battle for control of oil supplies has been a major contributor to the current instability in the relationship between First World and Third World countries.

In this context — including the growing dominance of knowledge work — the fact that millions of people are still moved into and out of metropolitan areas every day for an eight-hour period is almost ludicrous. Moving workers to work made sense in the early industrial era when the means of production were large machines and highly structured assembly lines located near sources of power (meaning that workers had to travel to the machines to get work done). But today, especially for the important creative class, this is no longer a necessity. There is a tremendous opportunity to stop moving people, and instead move the work to them. It requires far less energy (and economic cost) to establish a high-speed internet connection that links workers to each other and to the information they use than it does to put bodies in petrol-consuming vehicles and make them travel for two or more hours a day just to get their work done.

Of course, there are still many times when it is essential — and worth the cost — to bring people physically together. In spite of the power of the new collaborative technologies, there is at times no substitute for face-to-face interaction. In the authors' view, however, far more work can be conducted effectively in a

**Environmental
concerns increase
interest in moving
work to people,
rather than people
to work**

distributed fashion than most managers realise. Physical presence, once taken for granted, is now a choice that can (and must) be made, rather than a foregone conclusion.

In addition to burning so much petrol unnecessarily, all this individual travel has another by-product: air pollution. Literally tens of tons of pollutants are removed from the atmosphere when routine commuting is reduced. A reduction in worker traffic of only 30 per cent would significantly reduce air pollution and, as an additional indirect benefit, would also significantly improve the general health of metropolitan area residents. This is becoming a serious public policy issue.

Praising the advantages of an environmental law it has criticised, the Bush administration announced agreements Wednesday with Archer Daniels Midland Co. and Alcoa Inc. to reduce air pollution in 16 states. The settlements under the 'new source review' provisions of the Clean Air Act will result in nearly \$680 million in spending to reduce about 130,000 tons of air pollution a year, Environmental Protection Agency and Justice Department officials said. (From the *Miami Herald*, 9th April, 2003)¹⁵

A similar impact could be achieved without expenditure just by letting go of the idea that co-workers have to be in the same place at the same time in order to 'work'.

(6) Government and public policy

There are three significant public policy issues associated with distributed work programmes and the evolution of organisations towards greater agility. First is the provision of health care to workers. At present, at least in the USA, health care programmes are deeply subsidised by employers. Individual health insurance is patchy and difficult to obtain at reasonable cost. In fact, survey research shows that the lack of availability of affordable individual health care is the largest factor restraining workers from leaving full-time employment to become 'free agents'.

Secondly, the portability — or rather the lack of portability — of retirement funds is another barrier to the expansion of alternative work programmes for most workers. People want a number of different employers to be able to contribute to a personal retirement fund without penalising them for changing career paths six or seven times during their working life. Currently, there is legislation working its way through the US Congress that would address this issue and place the responsibility for managing retirement funds in the hands of workers rather than employers.¹⁶

The third public policy issue that affects the ways people work is the changing nature of the social contract between individual workers and their employers. This research shows that there is a huge pent-up demand for a different approach, from both workers and employers. For workers, the interest in change stems

Separating retirement programmes and health insurance from employment will further weaken bonds between individuals and organisations

Labour laws fail to recognise new relationships between workers and organisations

from a desire for more flexibility and freedom in the type of work they do, and for whom they do it. For companies, the demand comes from a business interest in moving the largest fixed cost factor (labour) to a variable cost. The basic impediment to change is a shortcoming in labour laws, which do not recognise an emerging new kind of relationship between labour and the organisations who consume that labour. The taxation-based concept of an ‘employee’ or even an ‘independent contractor’ is proving to be inadequate for dealing with the new ways in which both workers and organisations want to relate to each other and exchange economic value.

Again, these six factors are individually well known and reasonably well understood. But few companies have actively considered their cumulative impact or taken them into account as they develop designs and make commitments for future workplaces and working arrangements.

THE NEED FOR FUNDAMENTAL TRANSFORMATION

Yet in the midst of these fundamental forces of change, companies are under severe pressure to perform — both today and tomorrow. The past two years have been an incredibly difficult time; lay-offs, budget reductions, restrictions on travel, pay cuts, vacant office buildings, negative revenue growth and red ink — all have been far too common as businesses struggle to get through the economic slowdown and the uncertainties of the global economic and political climate.

Senior executives are eager to return to growth and profitability — but with a difference. This time there is a strong commitment to growing smart — to becoming more agile, more able to expand and contract easily along with the business cycle, more efficient in leveraging knowledge worker capabilities, and more aligned with the wants and needs of an increasingly frustrated, sceptical — and independent — workforce.

In spite of continuing intense pressure for productivity and profitability, however, most large organisations terribly under-use their managerial and professional talent. Just as significantly, they fail to understand the level and kind of support these knowledge workers need to perform at their best, wherever and whenever they are ‘at work’. Too many organisations remain ‘stuck’ in industrial-age models of how to organise, support, measure and manage workers.

The authors’ research is pointing to a very different vision of what work will look and feel like in the future — and the future is not all that far away. In fact, this work has been guided by a statement attributed to the science fiction writer William Gibson: ‘The future is already here — it just isn’t evenly distributed.’ That is, the authors look for (and find) examples in existence today that they believe are harbingers of how the world in general will be working tomorrow.

Organisations are stuck in industrial-age models of management

WHAT WILL WORK LOOK AND FEEL LIKE IN THE FUTURE?

This research project has focused on four broad but very pragmatic questions:

1. Who will be doing the work in the future?
2. When and where will the work be done (and in what kinds of facilities)?
3. How will the work be accomplished (what tools and work patterns will emerge?)
4. What organisational forms and management practices will be required to ensure productivity and attract and retain high-quality talent?

The answers to these questions draw on the six driving forces identified earlier, plus observations of what is already happening in a number of large corporations. What follows are the authors' basic beliefs and predictions about the future of work.

(1) Who will be doing the work?

A more diverse population of workers

The old pattern of working from the age of 18 to 65 will change. Most people will continue working well into their seventies and, as demographics change, there will be a smaller number of workers (proportionately) in the 35–55 age bracket. In addition, a third of the workforce will be 'free agents' who will float from assignment to assignment, and even more will be part-timers and temps seeking employment but not on a regular, full-time basis.

People (atoms) will combine into teams (molecules)

People will become highly networked for the duration of individual projects. They will form 'molecules' of several people, stay together for a project, break apart and then recombine into new 'molecular' forms for new projects. In effect, this is like the currently prevalent 'Hollywood model' in which independent studios enable actors, directors and producers to come together for one project and then re-group for others — with each film essentially operating as a separate but temporary business.

(2) Where and when will work be done?

Work will take place in a greater range of locations

The authors' recently completed workforce survey indicates that individual workers would prefer to spend significantly more time working out of home offices and in 'third places' such as coffee shops, bookstores and other public facilities, than they do at present. The authors are convinced this trend will continue.

Eventually, the authors believe that about 50 per cent of the workforce will work in multiple locations, depending on the task at

**Population diversity
will increase**

**Workers will form
temporary teams to
complete projects**

Work will take place across a wide variety of settings

hand, the ‘tools’ available and the requirements of the customer. The industrial model of everyone at the same place at the same time (which was built on an ‘economy of scale principle’) will begin to disappear. Work activities will be distributed across central offices (40 per cent of the time), remote locations (40 per cent of the time) and transient community locations (20 per cent of time).

Work will be spread out over a 14-hour day

Work will be spread out in time (not the 8 to 5 agricultural clock)

The ‘normal’ eight-hour workday will be spread across a 14-hour window to accommodate collaboration across continents, quality-of-life needs, and for workers and their families to be synchronised with community and educational activities.

(3) How will the work be done?

The work world of the future will look more like a basketball game than a baseball game. Baseball is a methodical game with defined roles and a metred pace. Basketball players have defined positions, but when they stay in one place they fail. In fact, a successful basketball team constantly moves, shifts and rotates the ball — and good players move constantly, even when they do not have the ball. Constantly shifting roles, responsibilities and required competencies will be the hallmark of the new worker. Brute force will be replaced by stealth. These changes imply the demise of the logic of ‘economies of scale’ that characterised the industrial age.

More collaborative work

Work will be more collaborative, less individualistic

People will focus their work activities on their core competencies for approximately 80 per cent of their work time. Everything else will be handed off to someone with complementary competencies. Individuals themselves will become less ‘vertically integrated’ and more specialised; they will develop loosely coupled collaborative networks to meet their needs outside their core competencies.

Re-emergence of ‘guilds’ as worker communities

(4) What organisational forms will be required?

Back to guild structures

The basic structure of work behaviour is also changing. Our society (at least in the developed world) is moving away from an industrial model to a community-based model, which surprisingly resembles how workers organised themselves long before the Industrial Revolution. So, it is ‘back to the future’ of work.

Specially organised groups known as guilds exercised control of economic life in the Middle Ages. The essential purpose of guilds was to create monopolies for their members. They attempted to exclude from the local markets both the outside traders and the independent traders who were not members of the guild. Their social attitude was to some extent influenced by the church, but

their aim was to manage the town market peacefully, profitably and pleasantly for themselves alone.¹⁷

In the authors' view, these early organisations represent only the beginning of change. If flexible working arrangements become even more common in the future, more comprehensive ways of meeting the human needs of the individuals who work in them will need to be defined.

INTEGRATING THE MAJOR SUPPORT FUNCTIONS

Executives leading the HR, IT and real estate/facilities management organisations must be prepared for this 'new world' of work, and for the changing expectations that the changing workforce brings with it to the workplace. Facilities, HR and IT are the three largest expense items on most balance sheets; the authors believe that companies will realise the economic benefits of the new approaches suggested only by actively integrating the service offerings and support strategies of these three critical areas.

Case study 1

Sun Microsystems' iWork programme saves over \$50m per year

Sun Microsystems recently initiated a flexible office arrangement for its field sales force and many of its development engineers. After discovering that over 70 per cent of the field sales staff and 30 per cent of the development engineers did not go to their assigned office facilities on any given day, Sun developed its iWork programme, in which workers use available personal office space on a first-come, first-served basis (some staff are eligible to reserve space ahead of time). With over 60 buildings now configured as flexible offices, Sun estimates that the iWork programme will ultimately reduce its real estate and facilities management costs by over \$50m per year.

Case study 2

Cigna's E*Work programme produces 75 per cent ROI and 6 per cent gain in productivity

Cigna Insurance has moved a substantial portion of its workforce into flexible office arrangements over the past several years. The 'E*Work' programme takes as its mantra, 'work where — work wherever work occurs'. Lynne Lewicki, the programme sponsor, claims the following benefits:

- high satisfaction among both managers and employees
- 50 per cent reduction in employee turnover
- ROI of 75 per cent over five years
- 6 per cent gain in worker productivity
- worker and manager reports of improved communication, time management and collaboration between team members
- self-reported improvements in work/life balance
- substantial reduction in the real estate portfolio.¹⁸

CONCLUSION

It is known today that a constellation of forces is driving the economy towards a globally distributed workforce with new values

and aspirations. What one needs to know is how to manage in this new world, how to create work environments that meet the needs of both individuals and organisations, and how to help companies to move from a fixed-asset to a variable-cost economic base so they can achieve the agility they need to thrive in a dynamic, unpredictable economy.

The authors' research conducted over the past year indicates there is a growing momentum towards a radical re-formation of the way in which people (especially knowledge workers) earn a livelihood and manage their lives. The authors believe the USA has reached a tipping point in that about 15 per cent of the workforce is already engaged in these new ways of working. And the growth rates are striking.

HR, IT and facilities must be managed as strategic assets in an integrated fashion

The technologies and processes that support work — the infrastructure — are becoming commodities. Strategic assets such as human resources, technology and facilities must be managed in an integrated fashion. Further, these activities are increasingly moving to outsourced functions as businesses retreat to managing their core competencies — a shift that enables the movement from a fixed-cost economic structure to a variable one.

The basic nature of work itself is changing. The work that matters is knowledge work — the only true source of innovation and competitive advantage. The old industrial model of predictable, repeatable tasks and top-down management control is giving way to more flexible leadership-based models. Leadership, not management, is appropriate for a fluid, dynamic, unpredictable economy characterised by small, autonomous and ever-changing project teams that form and re-form, depending on what needs to be done at a given point in time.

The basis of work and value has shifted from financial to social capital

Lastly, the basic economic value of 'work' is also changing. It is no longer rooted in financial or physical assets, but instead in the 'social capital' of the firm — the ties between workers and the organisation, and among the workers themselves. This social capital is highly mobile, volatile and attracted by a different set of psychological motivators from the workforce of the past. The implied contract between employees and employers is also changing.

Innovation, collaboration, integration and agility — the keys to survival

In conclusion, the watchwords of the future of work are simple: innovation, collaboration, integration and agility. In the authors' view, organisations that adopt the management values and practices described here will thrive; those that do not will cease to exist.

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1. 'Knowledge worker' means those individuals whose primary tasks involve the collection, creation or processing of information to produce new ideas and new designs, to solve problems or to process transactions. This is admittedly a broad definition; there are, of course, many different kinds of knowledge workers who individually carry out a wide variety of tasks. Our primary focus in this paper is on workers who use, process or create information, as opposed to those who build physical things (ie manual labourers) or provide simple services (such as retail sales clerks).

2. The research project on which this paper is based was focused on three general areas of inquiry: (1) How will broad social, economic and technological trends impact organisational agility and drive change in work practices? (2) What will 'work' look like in three to five years, and what are individual workers looking for in terms of organisational support, physical work environments and technology capabilities? (3) What are the economic trade-offs and returns involved in moving from traditional corporate workplaces to flexible office arrangements, remote and mobile workers, and new HR management practices?

This project, which was supported by Agilent Technologies, Capital One, Cisco Systems, Intel, Herman Miller and PeopleSoft, involved building a set of diagnostic and measurement tools to assess organisational practices and capabilities for change, to measure workforce practices and preferences, and to enable comprehensive analysis of all the costs involved in enabling a workforce (facilities, technology, administrative and managerial support, and human resource practices and support). The research itself was conducted through a series of executive interviews, the preparation of a number of proprietary white papers and case studies, and the distribution of a workforce survey. The organisational assessment process involved meeting with senior executives in each sponsoring company to develop a quantified profile of their organisation. We then compared these profiles with similar data from approximately twenty other organisations that constitute a proprietary normed database. The workforce survey was administered to over 500 employees in the sponsoring companies and to a national sample of several thousand other corporate employees and self-employed 'free agents'. We received valid responses from over 600 individual workers, an overall response rate approaching 15 per cent. The detailed findings from the survey are proprietary to the project sponsors. However, we have included in this paper a number of our general findings and conclusions.

We want to take this opportunity to express our deep gratitude to these six companies for their support and their enthusiasm for our work. Given the economic conditions of the past year, it took genuine foresight for them to commit resources now to planning for an uncertain future. Our sponsors deserve genuine credit for their recognition of the importance of these issues.

For a more specific description of the research, see <http://www.thefutureofwork.net>

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