The Future of Work is e-Work

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ABSTRACT

During the Industrial Revolution, an appropriate concept of organizational structure was that in order to be “at work”, one had to travel/commute to work. Physical objects were manipulated and transferred among workers, which meant that all the employees had to be in the same place. Location dependency was the key to getting a job. Lack of technological advancement meant the work environment was not flexible. Modern technology allows us to work remotely, anywhere and at any time. In this paper, we assess the future trends influencing e-Work. There are three trends that affect this concept significantly, namely technology, global changes and generational and demographic changes. Basically, e-Work means the utilization of ICT rather than commuting to work. Many data sources were compiled and analysed to generate trends and factors.

Work is intimately related to individual health and well-being. While unemployment is definitively harmful in terms of well-being and health, being employed can help raise individual well-being and health. However, there are also some health risks attached to work. Precarious forms of work can have negative effects on mental health. Industrial work was particularly at risk of physically hazardous working conditions as regards occupational injuries or work-related diseases caused by chemical substances, but as a matter of fact, in many low and medium income countries these risks are still very much a present phenomenon. However, in many developed countries recent changes in the modern world of work have created new mental and psychological demands on individuals, creating stressful psychosocial work environments and working-time related stress. Evidence indicates that jobs defined by high demands and low control, and by high effort in combination with low reward, increase the risk of stress-related disorders, such as cardiovascular disease or depression. While this evidence has clear implications for work practices so that employers have to meet their responsibilities, there is a role for public policies as regards the prevention of health risks at the workplace.

Collective bargaining is an important institutional mechanism to establish negotiated standards regarding pay, working time, and other working conditions. It also has a role in settling distributional conflicts. Compared to legislation, collective agreements can be more flexible as they take into account sectoral or firm-specific issues. Empirical research can show that multi-employer collective bargaining can lead to lower earnings inequality and that coordinated or centralized bargaining is beneficial to a positive economic development. Yet, bargaining systems are quite diverse around the globe, with huge differences in bargaining coverage, union density, and employer organization, as well as a tendency to decline in collective bargaining coverage and increased decentralization; similar differences can also be observed inside individual countries. While collective bargaining is a voluntary system, public policies such as extension clauses and minimum wages can also contribute to shape wage structures in systems with low organizational density

Keywords: e-Work, technology, global changes, generational and demograpic changes.

INTRODUCTION

During the entire history of humankind, location dependency was the key to getting a job. This means that lack of technological advancement prevented the work environment from being flexible. Humans moved from the Stone Age (hunting, gathering, preparing food, constructing human artefacts) to social groups, through agriculture (farming) and different industrial revolutions (physical power) to the modern information and communication technology (ICT) age.

The industrial revolution brought employees from their homes to factories. With ICT, the reverse is possible, with employees now able to move back to their homes. Generally speaking, living and working in the same town does not mean you will save time commuting to work. In some countries (Kenya, Hong Kong, India, United Arab Emirates and Israel) long commutes are not unusual; topping the list of cities with the worst commutes is Rio de Janeiro, followed by Bogota, São Paolo, Istanbul and Salvador.

Nowadays, ICT, and especially the Internet, allows you to work remotely anywhere and at any time. According to the report by OWLLabs, 56% of companies allow remote work. Furthermore, in 2022 the global mobile workforce will be 1.87 billion people, 42.5% of the total global workforce [6]. In fact, based on Workforce Future [7], 84% of employees believe they could work productively outside the company office with the right technology. Generally speaking, some companies still refuse to allow employees to work remotely. Managers still hesitate to believe that employees will work properly when they are alone at home. We are of the opinion that this is due to myths about the effect of e-Work on productivity, losing control of the employee, lack of communication and mutual collaboration. In the past, e-Work has been linked with telemarketing, telecentres and wages below the minimum. Today, working from home is very popular among various professions with the availability of high-speed Internet, cloud-based tools, collaborative modern tools and flexible workplace spaces.

Based on different trends (demographic, economic and technology), we expect e-Work to increase globally in the coming decades. The number of modern jobs well adapted for e-working will increase as a percentage of total jobs. Continuing developments in technology will enable more employees to work outside the office. We are of the opinion that e-Work is a win-win-win option for employers, employees and society.

There are three trends that significantly affect this concept, namely technology, global changes and generational and demographic changes. Many data sources have been compiled and analyzed to generate the trends and factors.

RESEARCH STATEMENT

First, technology and globalization are intimately related forces driving permanent structural change in employment and affecting the global distribution of economic activities and jobs. While there has been permanent technological change, its implications differ with respect to levels of development and speed of adjustment around the globe.

Global integration has become stronger, not least facilitated by modern IT and other technological innovation, leading to declining costs of international transactions, but also by political decisions to remove barriers. This points at the importance of political decisions in shaping the impact globalization can have on the further development of employment patterns. Looking at the most recent changes, workers in different parts of the world have been affected quite asymmetrically by technology and globalization.

Winners and losers of change can be identified, with a certain tendency toward employment polarization in many developed countries, creating societal and political challenges in compensating for losses while not foregoing the potential wins – and by preparing societies to reap the benefits of technological advancements and global integration through forward-looking, preventive strategies.

Second, demographic change is a major driving force in the world of work around the globe. Diversity in the labor market, induced by demographic factors, is on the increase, with rising employment of women, older workers and migration, although significant gaps regarding the labor market integration of women, older workers as well as migrants, continue to exist in some regions of the world. Empirical studies into the effects of diversity create a nuanced picture, pointing at the many dimensions of diversity and its consequences.

But diversity is also often linked to discrimination. In fact, there is empirical evidence on discrimination in the labor market based on ethnicity, gender, age, disability, sexual, or religious orientation – this is not only creating barriers for individual careers but also implying a loss of productive potential in the economy.

Anti-discrimination rules and systematic awareness raising, monitoring and enforcement are therefore justified as are positive strategies to change actual practices in the labor market.

Based on the assessment of the global evidence on core employment issues, I derived some main principles to guide policy- making:

- Opportunity for economic growth should be provided in accordance with ecological sustainability.

- Full and fair employment in the formal sector should be made a central aim.

- Good jobs should be defined by as jobs with the following essential features: jobs that are free of any form of precariousness; that enable the workers to exert come control on their time and tasks; that provide fair employment relation and job security; that offer opportunities to stimulate individual development; that prevent any form of discrimination; and reconcile work and extra- work demands well.

- Inclusive institutions including collective bargaining are needed to provide equitable opportunities for all.

- We recognize that technological change and globalization generate new jobs while undercutting existing employment is essential. If programs addressing job displacement are implemented, efforts to facilitate reskilling are preferable to cash compensation, though either must come with access to public and health services. Using public funds to shape technologies that generate more employment than their destruction should be a priority for regions, nation- states, and transnational institutions.

- Globalization cannot be framed as a race to the bottom, but rather as a process founded on minimum standards for employment everywhere. Of course, policies toward strengthening full and fair employment for all may vary according to the level of economic and social development in different regions of the world as well as according to institutional arrangements at national level.

Policies regarding employment protection, unemployment protection and reemployment have a direct influence on stability and mobility on the labor markets. In many countries, institutional rules governing permanent contracts in the formal sector stabilize open- ended employment relationships, but may hamper entry into the core labor market for some groups in the labor force as they tend to reinforce a segmentation of employment.

Furthermore, in many countries both formal and effective coverage of unemployment benefits is very limited, leading to a double disadvantage of those in more temporary or informal employment as their access to unemployment protection is also limited.

Hence, employment and unemployment protection often privileges certain groups over others, creating gaps in protection for the most vulnerable people. Active labor market policies can help promote the re-entry into employment after phases of unemployment, and in fact, there are many options of effective reemployment measures – however, taking a global perspective, the delivery of such policies is quite unequal given institutional, administrative, and fiscal constraints.

All in all, relaxing employment protection while strengthening unemployment benefit systems and active labor market policies can help support individuals in a dynamic economic environment where transitions between jobs need to be secured. This, of course, requires fundamental institutional change and capacity building in many countries.

LITERATURE REVIEW

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 reponse 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 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 work style 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:

- What working conditions and arrangements do workers, broadly defined, want and need from organisations to be truly productive and creative?
- 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?
- What is the economic value of moving to this new set of management practices?

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.

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.

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.

RESEARCH GAP

Drivers for Change

Six fundamental forces are driving change:

- The changing nature of work itself — what workers actually do, how they create value, and the basic sources of competitive advantage.
- Demographics — the changing mix of workers and customers, the ageing of the workforce, increases in diversity (generational, gender, racial, cultural).
- Broad but fundamental changes in society — values, expectations, career choices.
- Technology — the significant impact of computing and communications technologies on how people interact, conduct research, solve problems and produce new knowledge.
- Environmental issues — the costs of commuting, pollution, congestion, building designs and the related consequences on present management practices.
- 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.

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

- **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.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 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.

- **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 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’.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.

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.

An increasing number of businesses understand this value system and are making the adaptations necessary to attract and retain creative class employees.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 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.

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.

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 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.

- **Broad but fundamental changes in society**

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.

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, 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.

- **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, 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.

- **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.

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 my view, however, far more work can be conducted effectively in a 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)

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’.

- **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.

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 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.

OBJECTIVE OF STUDY

Trends in the Evolving Workplace of e-Work

The employment scene is changing at an ever-increasing rate. It is important to know and understand these changes. One of the biggest shifts is how and where work gets done because the landscape has changed. Research indicates that remote work will equal, if not surpass, fixed-office locations by the year 2025.

But the question remains, why are these changes happening? As more organizations recognize the benefits of extending their talents and recruiting over borders, greater work-life balance, lower costs, no commuting, repopulation of small towns and diversity in organizations, e-Work will continue to be the standard for organizations worldwide. It is crucial to understand the three trends, which in my opinion shape the future of e-Work.

Technology

The global economy has changed from only manufacturing to including an information base. Information technologies are changing the basic paradigms in our society. We build communities, share, communicate, collaborate, access information and shape our personal experiences. Big data, the cloud, mobile Internet, the Internet of Things (IoT), automation, video, collaboration platforms and other technologies are changing the way we work and live.

The cloud puts the power of technology into the hands of employees; robotics is forcing us to rethink the jobs that humans can and should do; big data is a revolution that will transform how we live, work and think and how customers transact; IoT brings huge changes to business and to employees working remotely, and collaboration platforms, telepresence and virtual meetings give us the ability to connect our people and information anywhere, at any time and on any device. Furthermore, according to the Global Challenge Insight Report of 2016 , respondents rate the following as the top drivers of change: mobile Internet and cloud technology (34%), advances in computing power and big data (26%), new energy supplies and technologies (22%), the IoT (14%), crowdsourcing, the sharing economy and peer-to-peer platforms (12%), advanced robotics and autonomous transport (9%), AI and machine learning (7%), advanced manufacturing and 3D printing (6%) and advanced materials, biotechnology and genomics (6%).

Using business equipment outside the organization's IT security perimeters can result in a weak link being created in the organization's IT infrastructure. Without proper protection, regular monitoring and maintenance, configuring, updating, using network security systems, firewalls and other measures, all actions/connections can be exploited by threat agents in personal and corporate devices.

In a recent report ISTR, small organizations were more likely to be hit by email threats than large organizations. In 2018, 55% of emails were categorized as spam; Microsoft users are the most at risk of falling victim to email based malware (48%). According to a 2018 Apricorn Survey [18], 95% of UK businesses were still struggling with mobile working and security. Furthermore, an Imation Corp. survey of UK and German remote workers found that the vast majority were not concerned about losing confidential business data. Poitevin emphasizes that "the key to cybersecurity is human." To prevent problems of this kind, it is essential to raise user awareness of IT security issues linked to e-Work. In addition, a report by Online Trust Alliance found that 93% of security breaches in 2017 could have been prevented. Moreover, it is necessary to create policies and procedures that explicitly cover security for e-workers and workers who bring their own devices to work.

In today's world, the structure, content and procedure of work have changed. We conclude that work is now more complex, more team-based and collaborative, more dependent on social skills and technology, more time pressured, more mobile and flexible and less dependent on geography. Change in the workplace is driven by organizational changes, enabling technologies supporting mobility and flexibility and easy access to information.

Global changes

The world population has been undergoing great changes, both in terms of numbers and composition. In addition, the labour force has been going through structural changes and adapting to knowledge-based activities.

The average human lifespan and the wealth of individuals are also increasing, with a growing middle class and widening inequalities across societies. According to the United Nations median projection, the world's population will grow to around 8.5 billion by 2030. The rise of the global middle class is recognized as a key megatrend sweeping the planet. By 2030, the middle class is expected to reach 5.6 billion people. On the other hand, life expectancy has increased globally, while the fertility rate is declining. Human migration between and within countries will increase, as a result of global economic ties, social problems and environmental changes. These changes will have a profound impact on geopolitical, economic and social trends worldwide, affecting global trade, services and business models.

Not surprisingly, as the population has grown, so have demands on the labor force. As a result, the workforce is changing. Today, more women are both educated and participating in the labor market, but for both genders, the global labor force rate is declining. Another significant trend in the labor force is the steadily increasing level of education.

Along with the population increase, the urban population has continuously risen to reach 54.8% in 2017. In 2016, an estimated 54.5% of the world's population lived in urban settlements. By 2030, the figure will have increased by 5.5%. Millennials have been known to move away from rural areas to the cities. Nowadays, the young generation is tending to move back again; this is an important value that contributes to the concept of work. Urban-rural migration is taking place, the so-called counterurbanisation.

Global change is real and probably irreversible. The earth's natural life-support system is declining, as we witness, from corals reefs to rain forests to the destruction of nature. Global warming is increasingly causing extreme weather events around the world, leading to migration, death and serious economic damage. Global energy demand rose by 2.3% in 2018. The consumption and increase of global waste and CO2 emissions are causing ecosystems to collapse, e.g. the destruction of bee colonies.

Furthermore, demand for food is expected to rise at least 35% by 2030, while demand for water is expected to rise by 4%. The problem of water and food resources management will be central in state policies. At the same time, continuous exploitation and growing of natural resources (wood, metal and fossil fuels) will increase geopolitical problems.

Allowing employees to work from home helps organizations to fulfil their corporate social responsibility (CSR) standards, while communities also benefit from better air quality and traffic reduction. As a result, we are of the opinion that e-Work is eco-friendly with a triple win situation for business, society and our planet. It reduces carbon, greenhouse emissions, energy consumption, fossil fuel reliance, paper and plastic waste and promotes better care of the environment. Employees working from home will also save money for the organization. The mutual benefits for both participating parties can contribute to the explosion of e-Work.

Generational and demographic changes

Rapid technological development shapes the ways of working. As ICT allows people to communicate from all over the world, work is no longer tied to a certain location or time dimension. We further add that the range in talent pools is important for further development. By 2016, the workforce was undergoing a seismic change as 3.6 million Baby Boomers were set to retire, one-fourth of millennial workers were taking on management roles and Generation Z (those born between 1994 and 2010) started to enter the workforce.

Generations Y (also known as Digital Natives, Generation Me, Generation Rent or Echo Boomers and Z (also known as post-millennials, iGeneration, Founders, Plurals or the Homeland Generation) are accustomed to living their lives online through every possible device at any time. These generations expect immediate access to the most important information for their needs, expect many options, delivery of ordered goods on the next day

and immediate feedback. Generations Y and Z grew up with a peer-to-peer model, which means they are likely to buy a product based on recommendation by friends rather than a product of an established or well-known brand. Social issues are very important and function as layers of charitable movements looking at many issues with their basis in a social and green environment. A member of Generation Me is characterised as a multitasker and highly educated, positive about technology, entrepreneurial, civic-orientated, environmentally conscious, progressive and flexible [50], and someone in Generation Z is ambitious, a better multitasker, needs independence in the professional sphere and individuality and is global.

PwC data predict that by 2020, millennials will form 50% of the global workforce. Experts estimate that by 2020, millennials will make up over a third of the global workforce and Generation Z 24%. As stated in the Deloitte Report, millennials will comprise 75% of the global workforce by 2025 and will be working for organisations that foster innovative thinking, develop skills and make a positive contribution to society. Morgan emphasises that "the important thing about millennials is not the fact that they might bring new approaches, ideas, values or styles of working; it's that there are going to be so many of them". The latest data from the Deloitte Global Millennial Survey 2019 highlights a disrupted generation with unsettled feelings about the future. Generally, though, the priorities and aspirations of both generations are seeing/travelling the world, earning high salaries, being wealthy, buying homes, making a positive impact on the community and having children. Furthermore, climate and the environment remain a top concern. In the workplace, the millennials and Generation Zs who plan to leave their current organizations in the next two years will do so for the following reasons: financial reward, lack of advancement and learning/development opportunities, poor work-life balance (lack of flexibility), lack of acknowledgement, boredom and workplace culture. For millennials and Generation Zs, joining the gig economy seems to be an alternative.

To overcome the skilled labor shortage worldwide, it is necessary to include seniors, women and disabled workers in the e-Work programmed. Age management at the workplace has become an important feature, because the average human lifespan has steadily increased. In our view, seniors are still the choice for employers compared to the younger generation, because the latter lack valuable skills, e.g. proven leadership ability, empathy and communication skills and the ability to demonstrate their value. The State of Telecommuting in the US Employee Workforce Report found that the average telecommuter is older than the average employee (the average telecommuter is 46 years of age or older) and roughly the same population of men and women telecommute. The impact of baby-boom retirement will certainly put pressure on the social system; therefore e-Work can be an option for increasing the pensions of baby boomers and reducing expenses.

The latest data show that the oldest and youngest generations are interested in combining work and travel; 87% of millennials are interested in the digital nomad lifestyle or learning about it compared to 84% of baby boomers; 98.6% of millennials and baby boomers overwhelmingly feel remote work should be a standard job benefit or option.

According to the results of a meta-analysis of 16 studies related to the influence of gender and attendance on telework, Beno observes that the willingness to do telework is different between males and females. All in all, the meta-analysis points to a tempered but positive view of the effect of gender, based on 11 studies. The lack of flexibility in the workplace is not a new phenomenon. The inclusion of women in the workforce has changed the way we work and divide our time between careers and families. As a result, our working environments need to change, and e-Work seems to be a viable option.

According to the Pew Research Center, 51% of women (compared with 16% of men) say being a working parent has made it more difficult to advance their careers. Further, 56% of women leave their tech jobs mid-career. Another study by the University of Wisconsin-Milwaukee found that one-third of women surveyed had left their tech jobs because companies were not flexible enough to accommodate an adequate work-life balance.

A study by a professional recruiter Robert Walters and a leading UK job board Jobsite found that remote working opportunities are top priorities for women in tech. Among those surveyed, 76% said that the chance to work remotely was necessary if companies wanted to retain long-term staff. The workplace is changing, but as the number of women who work remotely rises, the future of women in the workplace will improve. Employers who embrace flexibility and invest in women will see benefits through their employees and their business; challenges faced will be with tech, culture and communication.

The era of generalists is over; it is time to start the era of the specialist-generalist. Generally, businesses offering e-Work options, paid family leave, flexible hours and other related benefits for a better work-life balance are more attractive to talented candidates. Beechler and Woodward called this era the global “war for talent”. Nowadays, it is evident that employees have the upper hand over the organisation compared to the past, as shown in Table below

The old and new reality that companies operate in

The old reality	The new reality
People need companies	Companies need people
Machines, capital and geography are the competitive advantage	Talented people are the competitive advantage
Better talent makes a difference	Better talent makes a huge difference
Jobs are scarce	Talented people are scarce
Employees are loyal and jobs are secure	People are mobile and their commitment is short-term
People accept the standard package they are offered	People demand much more

To conclude, it is obvious that the best strategy to help retain the talent in a company is to establish practices which allow for flexible working patterns and options for employees, including part-time employment, telework, flexible and mobile working, desk-sharing and condensed working hours. Further expanding of the talent landscape by recruitment of virtual employees will be more common and will spread across the country or even around the globe. We stress that work is no longer defining people, but people are defining work. e-Work arrangements may be the answer to closing the talent gap.

METHODOLY

The evolution of e-Work has been a subject of considerable interest and research over the past few decades. As the global workforce becomes increasingly mobile and distributed, the concept of e-Work has emerged as a critical area of study. This paper seeks to delve deeper into the intricacies of e-Work, exploring its implications, challenges, and future prospects.

Identification of Trends

The initial phase of our research involved the meticulous identification of relevant trends that have been shaping the landscape of e-Work. This process was not merely about recognizing these trends but also involved a rigorous verification and analysis to ensure their significance and impact on emerging areas of work. By examining various sources and publications, we were able to pinpoint the major trends that are likely to influence the future trajectory of e-Work.

Keyword Analysis

To effectively gather articles that describe, analyze, or test the concept of e-Work, we employed a strategic approach by utilizing keywords related to telework, telecommuting, remote work, and workplace flexibility. This method allowed us to filter through vast amounts of literature and select articles that provided high-quality insights based on the latest conceptual, empirical, and non-empirical data. The keyword analysis was instrumental in narrowing down the scope of our research to the most relevant and informative articles.

Evidence-Based Approach

Our study is grounded in a robust, evidence-based approach that encompasses key elements such as a comprehensive literature review and a full analysis of trends and disruptions. We conducted a systematic literature analysis of publications related to the future of e-Work, which served as the foundation for developing the three main trends identified in our study. This systematic approach ensured that our findings were well-supported by empirical evidence and scholarly research.

Analysis of Trends and Disruptions

The trends identified through our analysis were categorized into three main areas: technological advancements, organizational changes, and cultural shifts. Technological advancements include the proliferation of digital tools and platforms that enable remote collaboration and communication. Organizational changes refer to the structural and policy adjustments that companies are making to accommodate remote work. Cultural shifts encompass the changing attitudes and expectations of employees regarding work-life balance and flexibility.

Understanding the Dynamics of Future e-Work

Our ultimate goal is to gain a deeper understanding of the dynamics of future e-Work and to present the key factors that are influencing today's labor market. The agility of the labor market is a testament to the fact that people can now work from virtually anywhere, at any time. This flexibility has profound implications for how work is organized, managed, and executed. It also raises important questions about the sustainability of remote work practices and their long-term effects on both individuals and organizations.

Conclusion

In conclusion, the future of e-Work presents both opportunities and challenges. As we continue to navigate the complexities of a rapidly changing work environment, it is imperative that we remain vigilant and adaptive. By understanding the trends and disruptions that are shaping the future of e-Work, we can better prepare for the transformations that lie ahead. This paper has laid the groundwork for further exploration and discussion on this topic, and we hope it will serve as a valuable resource for researchers, practitioners, and policymakers alike.

RESULT AND ANALYSIS

WHAT WILL WORK LOOK AND FEEL LIKE IN THE FUTURE?

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

- Who will be doing the work in the future?
- When and where will the work be done (and in what kinds of facilities)?
- How will the work be accomplished (what tools and work patterns will emerge?)
- 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.

- **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**.**

- **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 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 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.

- **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.

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.

- **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.

In my 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.

The future of work can mean anything that may be focused on different fundamental issues related to macro trends, the sharing economy, ecosystem, or social and personal transformation.

As we see it, the key attribute of the future of work is the time horizon. The time scale generally informs our vision of the future, and out of that the challenges, threats and opportunities arise. Relationships between individuals, employers, organisations and policymakers also develop over time; this means that work and society as a whole have changed over time and are continuing to do so. This raises a number of questions: If we believe that modern technology increases productivity, is the spread of flexibility also increasing? The next question is the relationship between modern work forms and health, and its impact on society. It seems likely that these will probably be renewed through a decrease of permanent employment contracts or an increase in the modern forms of flexible work.

Three aspects related to this discussion as follows:

1) the impact of artificial intelligence and automation on work and jobs, and whether we will have enough work and jobs left after that has run its course;

2) the changing models for work and work structure; and

3) whether any of those kinds of evolved work models will become the future, and whether people can work effectively and sustainably and earn sufficient living wages with enough support.

Technology is fundamentally a force for wealth creation in our lives. It is the reason we are always online, the mortality rates decrease, we have more leisure time, and we can work at any time in any place. The arguments in this study are that we can influence the future of work with these factors for the betterment of workers and the wider society.

Rather than make precise forecasts, we have argued for the existence of four major factors that will have an impact on the future, factors that will allow politicians and workers to prepare for a wide range of possible outcomes. The factors we have presented are not exhaustive in their portrayal of the way the world of work may change, but they are intended to be insightful and inspirational.

The question of what the nature of the new world of work will be and how we can shape it positively will always be a global issue. For example, the current flood of refugees worldwide shows us that a globally growing gap in living conditions (on the basis of income and security) is a worldwide problem. Furthermore, megatrends will increasingly show us that the problems of other countries are also our problems. We note that as a consequence of our four major factors the poorest countries of the world are expected to be affected more seriously than other countries. Above all, therefore, shaping the future of work requires a view that transcends national borders.

Each of the factors has distinct implications for the future of work. But the implications described require that action must be taken. To prepare employees for tomorrow's world of work, our study indicates four key areas for consideration by individuals, employees, employers, organisations and policymakers. The above discussion shows that all the following factors play an essential part in impacting on future work, namely technology, innovation, changes in society, globalisation and work flexibility. Therefore, we may assume that each of them has an important part to play in the overall impact.

Changes in technology (innovations) serve as another strong external influence on the structure of work and the content of jobs. The demographic characteristics of the labour force with increased diversity continue to evolve and change. Furthermore, climate forces cause and interact significantly with the restructuring of work. Flexibility at work has become more common and acceptable, with the advances of modern technology making it possible to work remotely and stay connected with the team.

Although some trends do appear to be dominant, it is still difficult to predict the future of work with any degree of certainty. The future of jobs will not be determined solely by the forces of technology, demographics, climate, globalisation and flexibility, but by the interaction of these forces with the strategies, missions, societal structures and policies that decision makers will implement. Nothing in the data we have examined supports the

conclusion that the various changes in today's workplace will lead to the end of jobs in any sense. The conditions and the content of work are changing rapidly, but employment and labour-force participation remain, and modern forms of work are making their appearance. History has repeatedly shown that technology is killing jobs; our study shows that it is only technology can save them.

The Research Question

I have been reading two distinct research projects exploring work-related learning, one European, one British. It is possible to synthesize specific aims and findings from these studies and identify one common theme, which provides the research question for this paper: 'What are the factors influencing work-related learning?' The European project provides some answers, examining

(1) contextual aspects such as the organization of work and changing functional (HRD and managerial) roles in large learning-oriented organizations, and

(2) process issues concerned with motivation to learn, fear and confidence.

The British project provides some answers in the specific context of computer-based learning relevant to SMEs. The project focused on pedagogical issues related to the quality of computer-based learning, but also captured process issues such as motivation and confidence to learn, as well as employee and employer attitudes to e-learning.

Both studies investigated the range of stakeholders involved in workplace learning, including learners, managers (owner/managers) and HRD practitioners. Methodologically, both projects involved qualitative and quantitative data collection and analyses. This paper focuses on the qualitative aspects associated with stakeholders' perceptions of the factors influencing the context and process of work-related learning.

Research Study 1:

Factors Influencing Learning in Learning-Oriented Organizations The first study was a European Union-funded research project, findings from which are reported elsewhere (Sambrook, 2002; Sambrook and Stewart, 2000, 2002; Tjepkema et al., 2002). This two-year project (1998 – 9) investigated: reasons for seeking to become learning-oriented organizations; how practitioners envisioned the role of HRD in stimulating and supporting employee learning; the nature of HRD strategies to enact this vision; and how practitioners cope with the factors inhibiting and facilitating the realization of these strategies.

Research Design

The research was conducted in two stages. The first stage employed qualitative methods to explore these issues in twenty-eight case studies, with four organizations, representing different types of organizations operating in different economic sectors, chosen from each of the seven European participating countries. Researchers analysed internal documents and conducted semi-structured interviews with senior managers, managers, HRD professionals and other employees (learners). This papers draws on these qualitative data. The second stage involved a questionnaire survey of 165 organizations across Europe, targeted at senior HRD professionals, 'testing' the case study findings.

Findings

Researchers identified contextual factors influencing learning at three levels: organizational, functional and personal. These included the organization of work, the culture of the organization, resources available for HRD activities, and the skills, attitudes and motivations of managers and learners. The key factors identified in all twenty-eight case studies can be categorized into four main themes: motivation, HRD, culture and pragmatic factors (Sambrook and Stewart, 2000, 2002). Each of these themes encompassed factors which both inhibited and enhanced learning, and these were validated in the survey.

Figure 1 summarizes the findings, identifying the three levels of factors and the four main categories of influencing factors – motivation, HRD, culture and pragmatic factors.

Significant inhibiting factors were talked about as: insufficient HRD resources; a traditional culture and entrenched attitudes towards training; business pressures; and poor managerial skills. Key supporting factors included: sufficient HRD resources (human resources such as facilitation skills, learning expertise and flexible solutions, as well as financial resources); management support for learning; and the increasing willingness to learn on the part of employees.

These factors impact on the various stakeholders in learning (managers, employees and HRD professionals) and on organizational culture, the structure of work and resources. Ellinger (2004b) reported similar findings in her study of contextual factors influencing workplace learning.

However, despite being able to identify positive and negative factors, it is possible that some of the supporting factors are necessary but insufficient conditions for organizations to become learning oriented. For example, despite increasing HRD

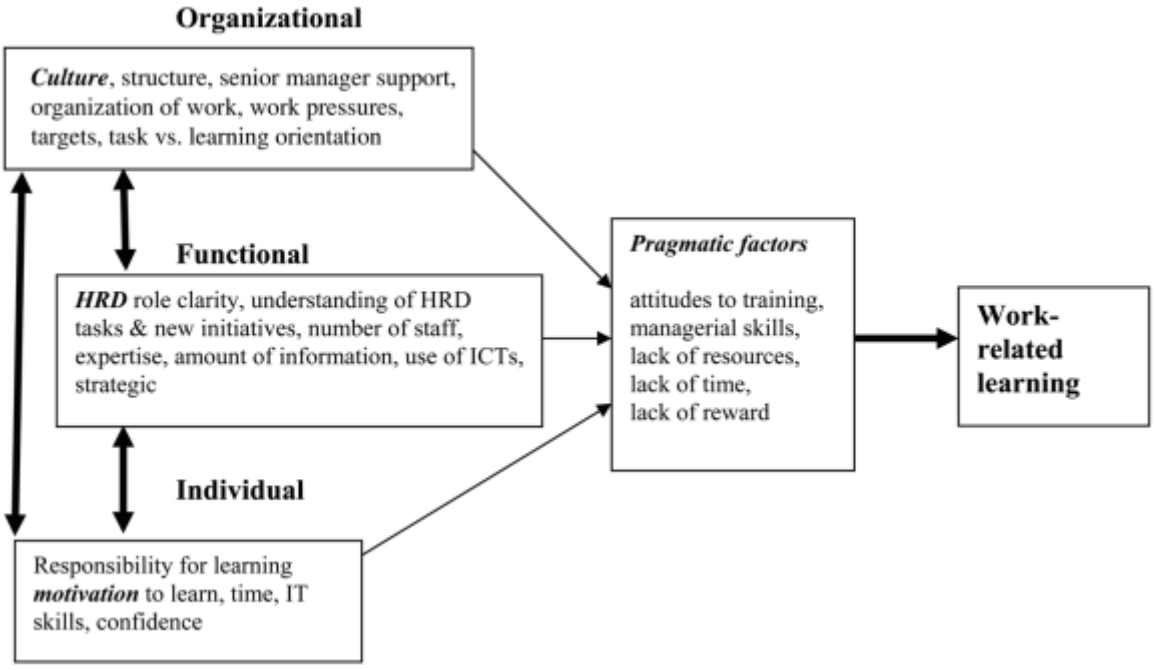

Figure 1. Contextual factors influencing work-related learning

resources and senior management commitment, until workload pressures and the organization of work are addressed, and work time is devoted to learning issues, employees will continue to see learning as extra to their daily work practices, perhaps even unnecessary and worthless. The need to meet targets and a task orientation impede the development of a learning environment. Conversely, inhibiting factors might not necessarily preclude the achievement of becoming learning oriented. For example, in two of the British case studies, the Royal Mail and Rolls-Royce, despite shift work and daily targets, time is being found to enable learning events to be scheduled in work time and in the work environment.

The figure is intended to illustrate the interrelationships between organizational, functional and individual levels. It also reveals, within these levels, factors that are not necessarily focused on work-related learning, but oversight of which might impede such learning. For example, organizational decision-makers might prioritize meeting production targets without considering the effects on the learning environment (stifling future product development, for instance). Or, HR specialists might be more concerned with complying with legislation rather than addressing strategic learning needs. Or, individuals might be more concerned with securing improved terms and conditions than identifying their own learning needs, potentially exposing their ‘weaknesses’ and attracting ‘more work’.

These findings are relevant in the context of large organizations, and where the role of ICTs in facilitating the process of learning was an important issue. However, it is also important to consider learning in the context of small organizations, and so we now turn to the second research study.

Research Study 2:

Factors Influencing Computer-Based Learning in the SME Context The British research project was funded by the National Assembly for Wales and conducted during 1999 – 2000 (Sambrook, 2000). The overall aim was to develop a quality assurance system for computer-based learning materials relevant to the SME context. Two key objectives were to: investigate and compare the quality judgements of computer-based learning materials made by trainers and learners, and investigate the relationship between quality judgements and learning outcomes, the hypothesis being that high correlations would enhance the predictive nature of the evaluation tools. The research design incorporated both quantitative and qualitative methods.

Research Design

The aim of this study was to test evaluation tools, examine the perceptions of learners regarding their quality judgements of a range of computer-based learning materials and compare these with their measured learning outcomes. The study involved 159 participants, recruited from North Wales, with a wide spread of age and experience, including SME employees and recent graduates with SME work experience. The pseudo-experimental design involved completing a pre-intervention knowledge test, using one of a selection of computer-based learning materials, completing a post-intervention knowledge test and then evaluating the material used. Participants selected one from five different computer-based learning materials, which offered a range of subjects and IT skill levels. After working on the material in their own time, they were then asked to complete the Learner Evaluation Tool (online or paper version). Participants were asked to rate specific aspects of the learning material and comment upon both positive and negative features of the learning material. This paper focuses on these qualitative comments.

Analysis

Content analysis was used to categorize and count the qualitative responses. This quantitative approach provides an overview of the emerging factors influencing learners' judgements of quality. Further analysis examined the rich detail provided in learners' comments and explored potential links between the various themes (Sambrook, 2000, 2003, 2004). Overall, from the 762 comments, thirty-three different factors were identified and consolidated into three categories, mirroring Bryman's (1988) model of the stages associated with getting in, getting on and getting out of research sites. This has been adapted to identify and capture key issues associated with computer-based learning (Figure 3). How to get into electronic learning sites includes access issues, such as hardware and software specifications, IT skills, confidence, user-friendliness and navigation. How to get on at these sites includes both content issues, such as presentation, information, level and language, and process issues, such as interest, type of learning and opportunities to practise. The final stage, getting out, focuses

on what to get out of e-learning, (learning outcomes), such as increased confidence, increased understanding and relevant (or transferable) knowledge and skills, for example.

The thirty-three distinct factors are presented in descending order of importance, according to frequency of mention. Some factors appear more than once (lightly shaded boxes). For example, confidence is a significant factor in terms of access, influencing how (or whether) a learner engages with computer-based learning in the first place. Once engaged in the course, confidence will influence how the learner progresses through the material, for example, whether they feel able to experiment, interact and navigate to new sites. Finally, increased confidence could be an outcome of computer-based learning in that the experience helps to reduce any initial fears of ICTs.

Overall, the most significant factor was user-friendliness, reported as a positive factor in 93 per cent of these comments. The top eleven factors (darker-shaded boxes) account for two-thirds (66 per cent) of the total number of comments, suggesting these are the most important factors influencing learners' judgements of quality.

It is important that managers and HRD professionals responsible for selecting computer-based learning materials are aware of factors influencing learners' perceptions of the quality of the resources. Findings from the British project are similar to those from the European project in that the same factors influencing learning can be perceived by different learners as being positive or negative, reaffirming their complexity and subjectivity.

However, although they were asked to consider e-learning specifically, their comments can also apply to learning in general. Therefore, it is possible to construct findings from this study into three hierarchical themes: (1) learning, (2) learning materials and (3) computer-based learning

Getting in and about	*Getting on*		*Getting out*
	Content issues	*Process issues*	
USER-FRIENDLY – ease of use, instructions	PRESENTATION – e.g. clear, accurate, no mistakes	INTEREST – e.g. interesting and engaging or boring	KNOWLEDGE – knowledge gained
NAVIGATION – e.g. moving about package & other sites	GRAPHICS – e.g. pictures, diagrams,	TYPE OF LEARNING – e.g. rote, memory, discussion	UNDERSTANDING – e.g. easy or difficult to understand
IT SKILLS – e.g. appropriate for beginner	INFORMATION – e.g. amount, too little or overload	PRACTICE – e.g. opportunity to use, practice & experiment	USEFULNESS – e.g. relevance, transferability
HARDWARE – e.g. size of screen, use of mouse	LEVEL – e.g. too basic or too deep	INTERACTION – interactive or not	ENJOYMENT – e.g. fun
CONFIDENCE – e.g. sufficient level to engage in computer-based learning	LANGUAGE – easy or too difficult to read, jargon, definitions	ASSESSMENT – pre-test, self-test, post-test opportunities	CONFIDENCE – e.g. reduced fear of computer-based learning
LINKS – to other sites, content	TEXT – e.g. amount & balance with graphics	PACE – e.g. ability to progress at own pace	PROGRESSION – e.g. ability to learn further
SCROLLING – e.g. moving about text within pages	LENGTH – e.g. too short or too long	ENJOYMENT – e.g. fun	FEEDBACK – e.g. on tests, wrong answers
INTERFACE	STRUCTURE – e.g. in chunks, logical	CONFIDENCE – e.g. ability to reduce fear of CBL	
HELP – e.g. online help facility	INTERACTION – interactive or not	FEEDBACK – e.g. on tests, wrong answers	
	EXPLANATION –	LEARNER	
	e.g. how well the material was explained	CONTROL – e.g. choice, self–directed	
	COLOUR – e.g. use of colour in text, to highlight key points		
	EXAMPLES – use of examples		

Figure 2. Getting in and about, getting on and getting out of computer-based learning materials

materials, illustrated in the right-hand part of Figure 4. Factors identified at the generic level – learning – implicitly influence the two lower levels. Similarly, factors specific to learning materials in general also influence computer-based learning materials in particular.

At the lowest, or most specific, level the factors are those more significant to ICT forms of learning. Developing this further, the three themes can form an onion-type model, where generic factors represent the outer skin, or the broadest factors influencing all types of learning. Then, as the outer layer is unpeeled, more specific factors are uncovered, first at the level of learning materials, and then focusing in on computer-based learning materials.

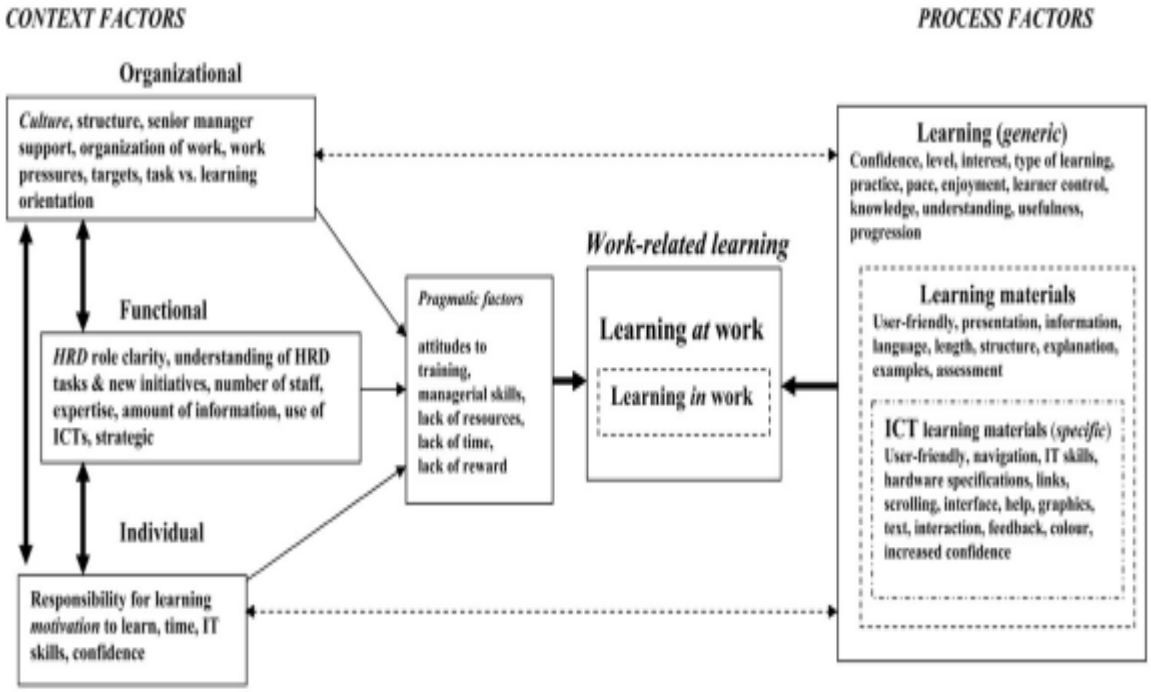

Figure 3. A holistic framework of factors influencing work-related learning

This study also sought the views of employers, SME owner-managers. An initial telephone survey was conducted to identify SMEs using computer-based learning (Sambrook, 2003). The findings provide an insight into the views of employers regarding e-learning. First, barriers to HRD in general were influenced by several factors: owner/managers' attitudes to learning and development; owner/managers' expertise in training and development; and lack of relevant, local training provision. Second, there were barriers specific to e-learning.

These included: availability of regional infrastructure, organizational hardware, relevant software and e-learning expertise (local and/or internal); lack of resources – e.g. financial, time and trust; and difficulties associated with determining the cost of e-learning. These findings, from SMEs, are similar to the contextual factors identified in large organizations in the European study.

Having explored the findings from the two research studies, the next section attempts to synthesize these.

A Holistic Framework of Factors Influencing Work-Related Learning

The analysis so far has concentrated on identifying organizational, functional and individual factors influencing work-related learning, and factors influencing computer-based learning.

However, it is useful to synthesize these findings into a holistic framework, as presented in Figure 3. This provides a systematic way of raising awareness of, and thus being able to cope with, the many factors influencing learning in and at work. The utility of the framework is in assisting HRD professionals, managers and learners to analyse factors which might both inhibit and/or enhance learning – to help them address the problems and promote the successes. The framework is a unique synthesis of contextual and processual factors.

With contextual factors, the framework is not intended to represent a hierarchy and does not position organizational and functional factors above individual factors, but illustrates some of the factors at organizational, functional and individual levels that can inhibit or enhance learning. One is no more important than another, although organizational factors can, and do, influence other factors, such as HRD resources and individual time for learning, a finding confirmed by Stead (2004) in her work to evaluate HRD interventions.

Although distinct, these categories are interrelated, as illustrated by the arrows. While organizational factors can influence how work is scheduled and monitored, causing a lack of time and facilities for learning, individuals, managers and HRD practitioners could act to influence the culture of the organization, and thus shift the focus from a task to a learning orientation. Similarly, the 'onion form' of process factors does not suggest that factors associated with learning in general are more important than those associated with computer-based learning (specific) – it depends on the focus of interest and, again, there are interrelationships between each level.

There are also connections between the first half of the framework, illustrating factors inherent in the work context, and the second half, featuring factors influencing learning. Confidence, fear, motivation and IT skills were mentioned by learners in both studies. This suggests further connections between context and process. For example, an individual's motivation to learn will influence whether they decide to engage in any form of work-related learning, whether traditional classroom and trainer based or electronic.

The European research study found that learning could occur at the workplace, in formal classrooms or in dedicated learning rooms located just off the shopfloor. Learning could also occur in work processes, through secondments, projects, coaching and mentoring, for example. Pressures of work, lack of time or difficulties due to shift patterns may all inhibit an individual from engaging in learning.

Yet, the availability of e-learning materials, perhaps in open learning centres, might help overcome some of these organizational problems. An example from the European research was the use of an electronic induction programme for postal workers in isolated locations in the United Kingdom. Conversely, computer-based learning can cause other problems, such as isolation for the learner sitting at a lonely terminal rather than in a training room full of colleagues.

An increasingly significant problem is mistrust of the learner by the manager who fails to appreciate the possibility and value of learning by sitting at a personal computer. SME owner/managers who participated in the British study expressed their concern over employees merely surfing the Internet for personal reasons rather than work-related learning. Managers in SMEs also identified the difficulty in assessing the cost of such learning, noting the apparent ease of calculating how much it costs to send an employee off to college for a day. Yet, problems of how to transfer knowledge and skills from traditional, off-the-job learning to the workplace could be addressed by using electronic learning embedded in work processes.

There is a further connection at the organizational level. In the European research, the way work was organized, including shift patterns, performance targets and sheer work load, created barriers to learning and developing learning environments. Yet, many aspects of computer-based learning identified in the British project, such as accessibility and flexibility, could help overcome such inhibiting factors and help create virtual learning environments. At a functional level, findings from the European project suggest a changing role for HRD practitioners, where specialists become internal consultants, advisers to managers and learners, and facilitators of learning rather than trainers.

With the increase in ICT forms of learning, the role of the HRD practitioner might become ICT instructional designer, or purchaser, broker, adviser and facilitator of electronic learning. Within smaller organizations, such a role is often the responsibility of owner/managers, who may lack knowledge of the complex factors influencing work-related learning. The framework, therefore, could be useful to stakeholders in both contexts.

MAJOR FINDINGS OF THE STUDY

INTEGRATING THE MAJOR SUPPORT FUNCTIONS

The integration of major support functions within an organization is a pivotal strategy for adapting to the evolving landscape of work. As the nature of work undergoes a transformation, driven by technological advancements and changing workforce expectations, the roles of Human Resources (HR), Information Technology (IT), and real estate/facilities management become increasingly intertwined. These three domains represent significant line items on the balance sheets of most companies, and their integration is believed to be key to realizing the economic benefits of new work paradigms.

The New World of Work

The 'new world' of work is characterized by a shift towards greater flexibility, autonomy, and digital collaboration. Executives at the helm of HR, IT, and real estate/facilities management must navigate this shift, preparing for the changing expectations of a workforce that is no longer bound by traditional office spaces or fixed schedules. The integration of services and support strategies across these functions is not just a matter of operational efficiency; it is a strategic imperative that can lead to significant cost savings and enhanced employee satisfaction.

Case Study Insights

The experiences of Sun Microsystems and Cigna Insurance offer valuable insights into the practical implementation of flexible work arrangements and their impact on organizational performance.

Sun Microsystems' iWork Programme

Sun Microsystems' initiative to introduce a flexible office arrangement for its field sales force and development engineers was a response to the observation that a significant portion of these employees did not utilize their assigned office facilities regularly. The iWork programme, which allows employees to use personal office space on a first-come, first-served basis, has led to over 60 buildings being reconfigured as flexible offices. This strategic move is projected to reduce real estate and facilities management costs by over $50 million annually, showcasing the economic advantages of embracing workplace flexibility.

Cigna Insurance's E*Work Programme

Similarly, Cigna Insurance's E*Work programme embodies the philosophy of 'work where — work wherever work occurs.' This approach has yielded numerous benefits, including heightened employee and manager satisfaction, a 50% reduction in employee turnover, a return on investment (ROI) of 75% over five years, a 6% increase in worker productivity, and reports of improved communication, time management, and collaboration among team

members. Additionally, employees have reported better work/life balance, and the company has seen a substantial reduction in its real estate portfolio.

Economic and Social Implications

The economic implications of integrating HR, IT, and real estate/facilities management are clear from these case studies. Cost savings, increased productivity, and higher ROI are tangible benefits that can be directly attributed to the adoption of flexible work arrangements. However, the social implications are equally significant. Enhanced employee satisfaction and reduced turnover suggest that workers value the autonomy and flexibility that such arrangements provide. This, in turn, can lead to a more engaged and committed workforce, which is crucial for the long-term success of any organization.

Strategic Integration for Future Success

For companies to fully capitalize on the benefits of the 'new world' of work, a strategic integration of HR, IT, and real estate/facilities management is essential. This integration involves not only aligning service offerings but also rethinking support strategies to accommodate the needs of a distributed workforce. It requires a holistic view of the organization's operations and a willingness to embrace change.

Conclusion

In conclusion, the integration of major support functions is a critical component of organizational strategy in the face of an evolving work environment. The case studies of Sun Microsystems and Cigna Insurance serve as exemplars of how such integration can lead to economic efficiencies and improved workforce dynamics. As organizations look to the future, they must consider how best to adapt their HR, IT, and real estate/facilities management practices to meet the demands of a changing world of work. By doing so, they can position themselves for success in an increasingly competitive and flexible business landscape.

LIMITATIONS OF THE STUDY

While it is useful to identify the factors influencing learning, no attempt has been made to suggest how organizations, HRD practitioners and individuals address the barriers. The purpose of the framework is to provide an overview of potential factors hindering and/or helping work-related learning.

It is recognized that it draws upon limited empirical research findings, but it is possible to use it as an analytical framework to determine to what extent particular factors are influencing – either positively or negatively – work-related learning within a given organization – whether large or small. The framework is not intended to provide quick-fix solutions to identified barriers. Individuals and organizations operate in different contexts, and it could be argued that there is no 'one best way' to solve work-related learning problems.

However, it is possible to provide a comprehensive overview of potentially positive and negative factors, as identified by managers, learners and HRD professionals, to help analyse existing, or plan future, work-related learning.

The study "The Future of Work is e-Work" provides a comprehensive analysis of the integration of major support functions within organizations and the transition towards e-Work. However, like any research, this study has its limitations, which are important to acknowledge for a balanced understanding of the subject.

1. Generalizability of Findings

The case studies of Sun Microsystems and Cigna Insurance offer valuable insights into the implementation of e-Work strategies. However, these findings may not be universally applicable. Different industries and organizational cultures may experience varied outcomes when adopting similar e-Work practices. The generalizability of the study's conclusions is thus limited to contexts that share characteristics with the case studies presented.

2. Longitudinal Impact

While the study presents the immediate economic and social benefits of e-Work, it does not extensively cover the long-term effects. The sustainability of increased productivity and employee satisfaction over extended periods remains uncertain. Future research could benefit from a longitudinal approach to assess the enduring impacts of e-Work arrangements.

3. Technological Bias

The study emphasizes the role of technological advancements in facilitating e-Work. However, this focus may overshadow other critical factors such as policy changes, economic conditions, and social trends that also significantly influence the future of work. A more holistic approach that considers these additional elements would provide a more nuanced understanding of e-Work dynamics.

4. Employee Experience

The reported increase in employee satisfaction and work/life balance is based on self-reported measures, which may be subject to bias. Objective measures of employee well-being and the potential negative effects of e-Work, such as social isolation or work intensification, are not thoroughly examined in the study.

5. Managerial Challenges

The study highlights the positive outcomes of e-Work for managers and employees alike. However, it does not delve deeply into the challenges managers face in leading distributed teams, maintaining company culture, and ensuring consistent productivity in a remote work environment.

6. Equity and Access

The assumption that all employees have equal access to the necessary technology and suitable environments for e-Work is another limitation. The study does not address the digital divide and how disparities in access can affect the feasibility and effectiveness of e-Work for different socioeconomic groups.

7. Security and Privacy Concerns

With the shift to e-Work, data security and privacy become paramount concerns. The study does not explore the potential risks and the measures required to safeguard sensitive information in a decentralized work setting.

8. Organizational Resistance

The study assumes a level of readiness and willingness among organizations to integrate HR, IT, and real estate/facilities management towards e-Work. It does not consider the resistance that may be encountered from stakeholders who are accustomed to traditional work arrangements.

9. Environmental Impact

While e-Work has the potential to reduce the carbon footprint associated with commuting, the study does not address the environmental implications of increased digital infrastructure and energy consumption required to support remote work.

10. Regulatory and Legal Framework

The study does not discuss the regulatory and legal challenges that may arise with e-Work, such as compliance with labor laws across different jurisdictions, taxation issues, and the complexities of international remote work.

CONCLUSION

Generally speaking, education, age, gender and race are all statistically significant factors in explaining e-working behaviour, but we are of the opinion that the industry in which a person works and the type of job he or she does is important. e-Work is a good solution for many, but it is not suitable for everyone. As more companies adopt e-working practices, the benefits are clear. This kind of work is not just a vague dream any more; it has become the future of work.

Technology, global changes, globalisation and Generations Y and Z have an immense influence on the employment picture, which is changing very fast, and it is vital to know and understand these changes. More businesses will start introducing benefits to increase employee satisfaction and loyalty. As the millennial and Generation Z workforce increases, flexible working will become even more in demand. And different means of communication will become more mainstream as businesses adjust to the ways in which this ever-evolving demographic engages.

An IWG Survey found that 85% of respondents confirm experiencing increased productivity as a result of greater flexibility when more than a half of the employees were off the office premises for at least 2.5 days a week. Statistical evidence seems to prove that e working will become the predominant way of working.

According to our data, e-Work will continue to increase in popularity because of reduction of overhead costs, elimination of the stress of the daily commute, minimising the environmental footprint for both the employer and the employee and a winning solution for both because e-Work serves the interests of both players in the work situation by increasing productivity while reducing overhead costs and granting the employer improved retention of the best global talent.

The e-Work option is a win-win-win situation for employers, employees and society. But we are of the opinion that the biggest obstacle to e-working is management's mistrust of whether the workers are working. The system must be built on trust and integrity. Organisations must be confident that employees can work productively even off-site. A further obstacle is compatibility of the job with e-working, because some jobs still have to be performed on site. IT infrastructure and technology are crucial to the success of any e-Work programme. Organisations that have unrealistic expectations put e-Work programmes at risk.

We can sum up by saying that, as the evidence indicates, there is no doubt that working away from the office has great benefits for all concerned. More and more employers are appreciating the advantages of e-Work and are consequently giving employees the option of this type of work. Furthermore, as modern technology and the demands of specialised distributed workforce evolve, e-Work will continue to evolve in tandem with them. A new generation of workers with different values is defining how and where work will be carried out. To attract and keep the best, organisations must continue to explore modern ways for

employees to carry out their duties at the workplace, regardless of kilometres and boundaries. It is clear that the future of work is undoubtedly e-Work. We are seeing the beginnings of a massive shift in the definition of where work is done – the "office" may just be wherever the employee has an Internet connection.

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.

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.

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.

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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