# The Future of Work is e-Work

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**Abstract:** During the Industrial Revolution, an appropriate concept of organisational 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 for 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 utilisation of ICT rather than commuting to work. Many data sources were compiled and analysed to generate the trends and factors.

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

**JEL Classification:** J22, O33, M54

## 1 Introduction

During the entire history of humankind, location dependency was the key for 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 [1].

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 [2]. 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 [3]; topping the list of cities with the worst commutes is Rio de Janeiro, followed by Bogota, São Paolo, Istanbul and Salvador [4].

Nowadays, ICT, and especially the Internet, allows you to work remotely anywhere and at any time. According to the report by OWLLabs [5], 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 analysed to generate the trends and factors.

In the following sections, two core questions will be addressed: 1) How is the world of e-Work evolving? 2) Which trends will shape future e-Work?

## 2 Methodology

The first step was identification of relevant trends, followed by verification and analysis, in order to identify major trends and emerging areas.

To identify the articles that describe, analyse or test the concept of e-Work, we used different key words related to telework, telecommuting, remote work or flexibility. To select higher quality articles and reduce the quantity, we decided to limit them on the basis of the latest conceptual, empirical and non-empirical data.

This paper is based on a robust, evidence-based approach, including key elements, such as a comprehensive literature review and full analysis of trends and disruptions. A systematic literature analysis of publications related to the future of e-Work was used in our study. The three trends were developed systematically drawing from this analysis.

Finally, our aim is to understand the dynamics of future e-Work better and to present the key factors influencing today's labour market, because this market is agile since people can work anywhere at any time.

## 3 Three 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 [8].

But the question remains, why are these changes happening? As more organisations recognise 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 organisations, e-Work will continue to be the standard for organisations worldwide. It is crucial to understand the three trends, which in our opinion shape the future of e-Work.

### 3.1 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 [9]; big data is a revolution that will transform how we live, work and think [10] and how customers transact; IoT brings huge changes to business and to employees working remotely [11], 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 [12]. Furthermore, according to the Global Challenge Insight Report of 2016 [13], 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%).

As stated in the PWC Report [14]: "People do not just use technology today—they have a relationship with it. And when it comes to tech at work—the software, systems, and apps employees use in their day-to-day jobs—that relationship status is best described as it's complicated." Frey and Osbourne [15] further emphasise that "technology is now enabling not just the automation of repetitive tasks but also cognitive tasks involving subtle and non-routine judgment. Through robotics, big data, the digitization of industries and the Internet of Things the nature of occupations and whole industries is changing and also the dynamics of economic growth."

We believe that the importance of technology will increase as technologies are adopted quicker and innovation cycles become shorter. We are always connected, and this gives rise to issues of uncertainty regarding the separation between personal, private and professional lives. Report APAC of 2017 [16] underlines that "technology enables workers to deliver efficiencies and improve productivity; further collaborative technology enables office workers to be more innovative. "

Using business equipment outside the organisation's IT security perimeters can result in a weak link being created in the organisation'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 recent report ISTR [17], small organisations were more likely to be hit by email threats than large organisations. In 2018, 55% of emails were categorised 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 [19] of UK and German remote workers found that the vast majority were not concerned about losing confidential business data. Poitevin [20] emphasises 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 [21] 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 organisational changes, enabled technologies supporting mobility and flexibility and easy access to information.

### 3.2 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 [22]. The rise of the global middle class is recognised as a key megatrend sweeping the planet [23]. By 2030, the middle class is expected to reach 5.6 billion people [24]. On the other hand, life expectancy has increased globally [25], while the fertility rate is declining [26-27]. Human migration between and within countries will increase [28] 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 labour force. As a result, the workforce is changing. Today, more women are both educated and participating in the labour market, but for both genders, the global labour force rate is declining [29]. Another significant trend in the labour force is the steadily increasing level of education [30].

Along with the population increase, the urban population has continuously risen to reach 54.8% in 2017 [31]. 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% [32]. Millennials, in particular, have been known to move away from rural areas to the cities [33]. Nowadays, the young generation is tending to move back again; this is an important value that contributes to the concept of work [34]. Urban-rural migration is taking place, the so-called counterurbanisation.

We further assume that when people work from home, it encourages rural living. Generally, working and living in the big cities does not mean full satisfaction. Overall, rural areas around the world have plenty of pull factors, e.g. less traffic congestion, pollution, fear of crime. An important factor related to work is that there are fewer distractions. One research study shows how crowded streets affect memory retention [35]. In the rural setting, the human worker is able to focus on one thing at a time and therefore be more productive. There is also the benefit of silence [36]. Generally, we stress that the worker enjoys a better work-life balance. The other major advantage is the lower cost of living [37].

Globalisation reflects the world's economic independence (goods, services and supply chains) [38]. Generally, humankind has seen three phases of globalisation: Globalisation 1.0 (up to 1914), 2.0 (from WWII to the late 1990s), 3.0 (from the late 1990s until recently).

Globalisation 4.0 is now taking shape [39]. But, we are now in a new era in which globalisation will decrease. Stueckelberger [40] emphasises there is an imbalance between industrial progress and social development; he suggests that "the technological and economic speed of globalization has to slow down a bit (decelerate) and the ethical, cultural and political globalization has to speed up substantially (accelerate)". Furthermore, the glocalisation of products and services will make its own set of consumer demands. As Robertson [41] states, today only the glocal exists (we are neither global nor local any more).

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 the nature [42]. Global warming is increasingly causing extreme weather events around the world [43], leading to migration, death and serious economic damage. The global energy demand rose by 2.3% in 2018 [44]. The consumption and increase of global waste [45] and CO2 emissions [46] are causing ecosystems to collapse, e.g. the destruction of bee colonies [47].

Furthermore, demand for food is expected to rise at least 35% by 2030, while demand for water is expected to rise by 4% [23]. 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 organisations 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 organisation [48]. The mutual benefits for both participating parties can contribute to the explosion of e-Work.

### 3.3 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 [49].

Generations Y (also known as Digital Natives, Generation Me, Generation Rent or Echo Boomers [50]) and Z (also known as Post-Millennials, iGeneration, Founders, Plurals or the Homeland Generation [51]) 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 [51].

All this will have a significant impact on our society. Employers, HR professionals and career advisers will have to reassess how they manage their employees. We can compare the employees with consumers who live online and increasingly expect to be connected without interruption, even at work. Both generations are fully adapted to the digital environment. The traditional nine-to-five model no longer exists for these generations. According to a study by Bentley University [52], 77% of millennials say that flexible work hours would make the workplace more productive.

PwC data [53] 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% [54]. As stated in the Deloitte Report [55], 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 [56] 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 [57] 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 organisations 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 labour shortage worldwide, it is necessary to include seniors, women and disabled workers in the e-Work programme. 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 [58] 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 [59].

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, on the basis of 11 studies [60]. 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 [61]. Further, 56% of women leave their tech jobs mid-career [62]. 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 [63]. 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 [64]. The workplace is changing, but as the number of women who work remotely rises [65-67], 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.

For many people with disabilities, finding and retaining work is a challenge [68]. Generally, flexible working has historically been seen as a female or parental issue. Pancheri explains: "The benefits can and should apply to all staff whether you are disabled, a carer or simply seeking a better work-life balance [69]." e-Work is the future for a number of economic reasons, but it does more than just save money. Commuting when a disability affects worker mobility is a serious obstacle. Murray and Kenny emphasised in 1990 that telework is a feasible form of employment for disabled persons with appropriate training in the use of computers and advanced telecommunications [70]. One billion people, or 15% of the world's population, experience some form of disability [71]. In our opinion, ICTs and e-Work could offer widespread opportunities for these potential employees to participate in global activities as equals. This also confirms the findings of a study from Turkey [72], where the majority of disabled persons have a positive attitude towards teleworking. Generally, we stress that there are many reasons why an e-Work programme is beneficial for disabled people – especially because it provides a sense of independence and freedom, improves productivity, encourages a work-life balance, facilitates better self-care and allows flexibility for appointments and choice of work [73].

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 [74] 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 1 [75].

**Table. 1** *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.

## 4 Conclusions

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 [76]. 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 [77].

An IWG Survey [78] 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 [48].

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.

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