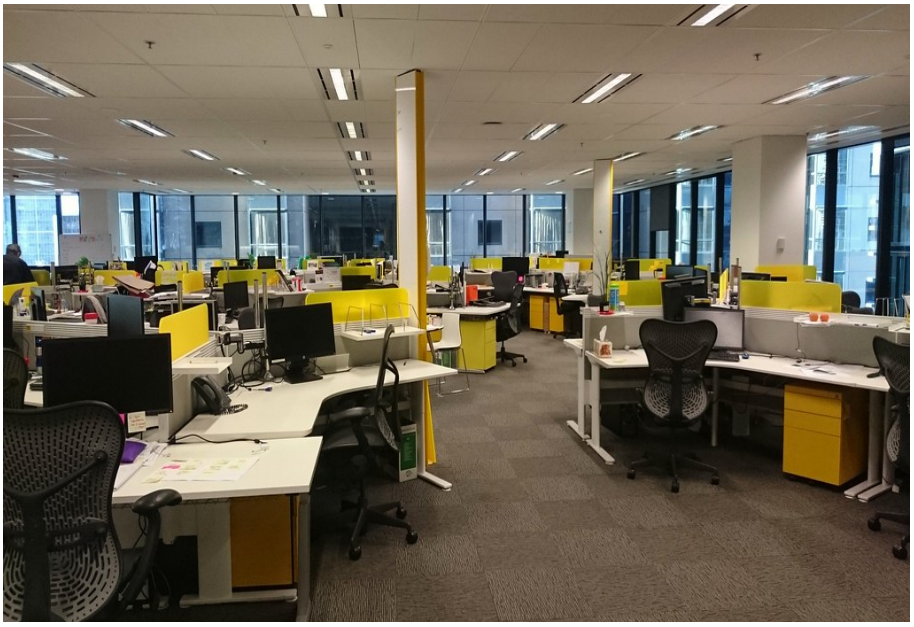
THE ZOOM ECONOMY IN THE POST OFFICE ERA

(VISION[1] POST PANDEMIC SERIES – IN PROGRESS[2] – APRIL 2021[3])



[1] Vision is a think tank and UK Charity dedicated to better understand how INTERNET related technologies are shaping radically new opportunities and risks.
Vision was born out of the initiative of European researchers and managers educated in UK and is getting increasingly global as for the scope of its projects.
Among the most recent projects, the one on a "Taxation System for the 21st century" and "Technologies for the Reform of Civil Justice".
Vision is also developing Social Innovation projects in Europe and Italy that see young people developing technologies that allow the elderly to access remote health services and the elderly engaged in mentoring young people seeking their first job.
At the beginning of October 2020 the first conference on the future of Europe organized by Vision in Messina/Taormina saw the participation of thirty political scientists, economists and intellectuals who produced a MANIFESTO suggesting reforms of the way European Institutions work.
In the months of the first Lockdown (March - July 2020), Vision presented its "Post-Covid Series" with proposals on the "cities of the future", tourism, compulsory civil service and school.
[2] This in progress version introduces the structure of the paper and identifies (with a blue font) the main research questions by section that VISION will address.
[3] Vision working group on INTERNET of BEINGS is multi-disciplinary from the start so that it can tackle and reduce the complexity of a question of very high importance. Members of the group are:

At the time of the Roman Empire, one of the most efficient political and economic construction of History, the relationship between leisure and work time followed just the opposite pattern we have been used to during the last three centuries. In the industrialized west, we normally work and we call leisure the time spared to business. The default mode of spending time was the *otium* (where studying and sports played a big part) and *negotium* (literally not *otium*) was attending to business (including politics, governing justice and preparing wars). Not less important the Romans did not have the notion of the "office" which is largely a British invention in the early nineteenth century (the Lloyds and the British East India Company were amongst the first large offices in the city). The greatest Roman historian suggested to his friend Tacitus to always "take the tablets with you whenever you hunt": the idea is to mix writing and physical activity in the countryside because this will make you more creative and possibly productive, if we want to use a term which has been an obsession of the industrial times. Twenty centuries later T.S. Eliot (who had once worked in Lloyds Bank) appeared to agree with Plinius who said (in the famous "The Waste Land", 1934) of the commuters crossing London Bridge to go to their offices as in the Dante's vision of hell: "I had not thought death had undone so many."

In a sense "remote working", as a method to work which has been greatly enhanced by COVID 19 related restriction policies has thrown us into a social experiment of an unprecedented scale. With 2 million deaths from COVID19 to date, and the largest global economic shock since 1945, the pandemic has been often compared to the two world conflicts which shaped the twentieth century. Wars, however, are also one of the greatest accelerators of innovation and organization transformation we have ever witnessed in history. The latest VISION project on the "Zoom Economy" has got the objective to better understand what we can learn from such an experiment and provide concrete recommendations to policy makers, entrepreneurs, managers and workers on how to navigate the brave new world which is unfolding.

Remote working had been attempted by different countries and different industries with different intensity. The recent PANDEMIC, however, and the ensuing mandatory or semi mandatory arrangements to work from home, are making organizations and workers to discover , all of the sudden, that yes working without being at the office or taking a flight, is possible and may be – up to some extent - more efficient.

The radically new experience that the PANDEMIC has imposed, as, thus, removed archetypes that we took for granted and proved that another world is possible. The very idea of the office born in London, at the big insurance brokers at the beginning of the nineteenth century, seems to have suddenly become a relic of a past which is not going to come back.

Since March a number of questions are creeping into the daily preoccupations and wishes of millions of employers and employees who suddenly become remote workers: what was the point of all the commuting by car to get to my desk if it looks like which I am able to deliver as much as before without all the time wasted in traffic? Were all those flights really so useful if we can meet up by ZOOM with no hassle? Is my work really so indispensable if

few seem to suffer from my absence? And is the very organization that I am paid for, really of any value if I and my colleagues can self-organize our work and sell the product through digital platforms? The answers can obviously change our lives and the consequences are both on an individual and society wide levels. An entire office based working arrangement around which urban societies have been organized, appears all of a sudden fragile as inertia had saved it for decades (see The Economist, Is the office finished? 12th Sep 2020).

The COVID-19 related policies pose a number of questions which are not new. Yet, after one year of such a learning experience, notwithstanding a number of studies, we still don't have precise enough answers to five fundamental questions (whereas each of them needs to be differentiated amongst different industries, different countries, across genders, age and role) which are the following:

1) The impact of remote working on productivity. This means that we need to better understand how competitive dynamics change (especially in service industries), success factors are reshaped, boundaries amongst industries are redefined and firms (as well as their relationship with clients) are re-organized around data: this will be investigated through cases of spectacular success and sudden failures, and the 2020 is full of these examples.
2) The effects of the new arrangements on the quality of life of individuals and families, as well as the regulations of labor markets and welfare systems which are going to be reconsidered.
3) The impact on the shape of cities, and more generally on agglomeration of people and the very price of houses.
4) Technologies themselves because it is evident that the current supply of technological interfaces is both too generic to accommodate for the needs of specific segments (elderly and kids may be the ones being cut off) and risks (during the 9 months of the PANDEMIC people have surrendered to technology providers an amount of personal data which is estimated to be twice as large as in the ten years before).

The four questions are obviously connected amongst them and they structure the research.

The research is articulated as follows:

1. THE FUTURE OF WORK 5
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In the next pages we will introduce a preliminary structure and draft which needs to be developed further.

1. THE FUTURE OF WORK

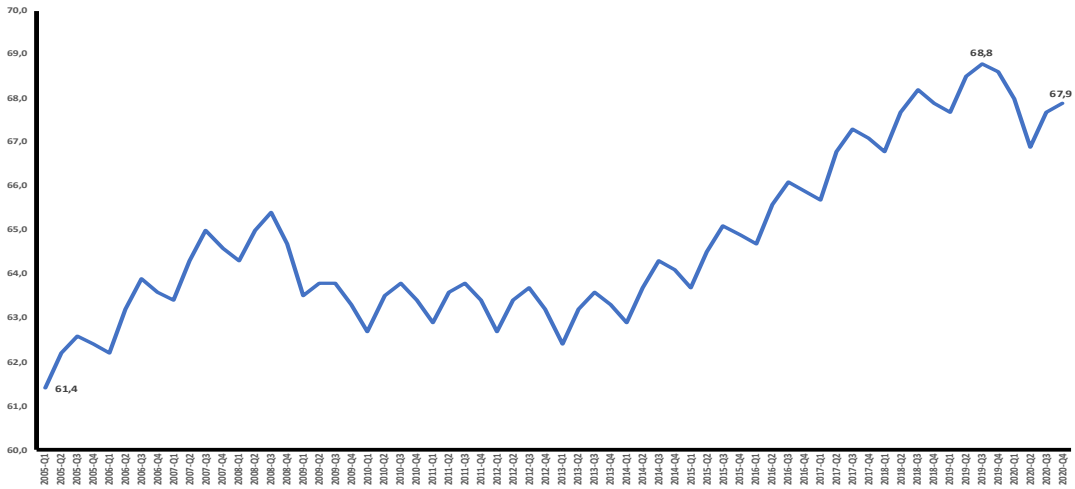
"*The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment*".

This gloomy representation of a future where work does no longer exists was portrayed by Warren BENNIS who, after his PHD at Boston MIT in the 1950s, became advisor to four different US Presidents and a number of Fortune 500 corporations. The idea that automation could kill most of jobs (in 2013, at Oxford Martin School, Carl B. Frey and Michael Osborne estimated that 47% of US jobs may be wiped out of it) is not new. Yet, enabling an experiment of organization change that would have been previously unthinkable, the COVID- 19 pandemic has accelerated the process.

In 1857, Karl Marx envisaged that the arrival point of industrialization would have been the advent of an automaton – what we would now call 'artificial intelligence' - capable of providing us with everything we need, thus, freeing us from work. The German philosopher's historical antagonists seem to share this prophecy: at the World ECONOMIC Forum, the heads of the largest multinationals, recommended to gear up to establish a universal income, financed with a robot tax allowed by the enormous leap in productivity which they may generate. The idea that technological progress harbours what is both a tremendous threat and a radiant promise date back to the time of the first industrial revolutions.

However, forecasts that automatically translate the effects of technology into concrete impact on the lives of people, companies and institutions, should be handled with care. It is unquestionable that the long-term evolution of economic systems has been the one of progressively reducing man's dependence of work. Compared to the years in which class struggle was foreseen by Karl Marx, the time we devote to leisure has increased a lot in the twentieth century. And still, the effect that the Internet was supposed to have on work have not yet materialized. Employment rates have been recently increasing in all countries of the world: in Europe, in the last twenty years, employment rates have risen by almost ten points (as the following graph shows).

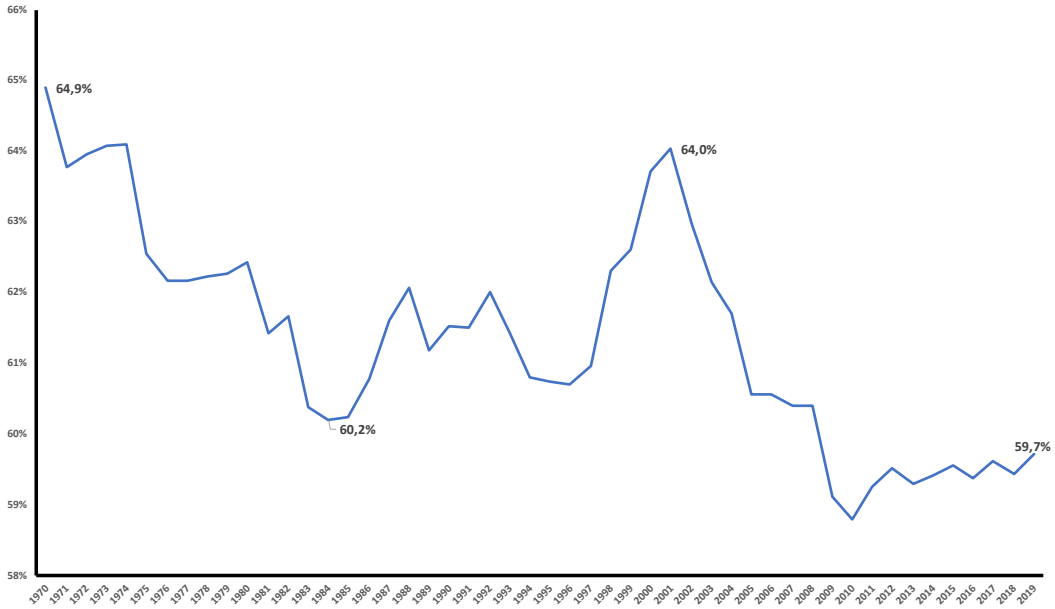
GRAPH 1 - TRENDS IN EMPLOYMENT RATES (EU)



Source: VISION on EUROSTAT data

And, yet, the weight of labor on GDP decreases. This suggest that its “value” is diminishing and that GIG economy- style precarious jobs increase (as the subsequent evidence for the US suggests).

GRAPH 2 - WEIGHT OF SALARIES AND WAGES ON GROSS DOMESTIC PRODUCT (USA)



SOURCE: VISION ON DATA FROM UNIVERSITY OF GRONINGEN (GGDC)

In other words, the number of hours worked is not decreasing, but the convenience to “buy them” is. Alongside, inequality is also growing. On the one hand, there are services such as supermarket checkouts that can already be automated and will therefore soon disappear. On the other hand, it is difficult to imagine a physiotherapist robot (although there is, indeed, a French company about to introduce one).

In this context of powerful and contradictory evolutions, COVID-19 has arrived to accelerate the change. At the beginning of the pandemic, the effect was, in fact, rather dramatic, with a loss of jobs fourteen times greater than the one following the 2008 financial crisis. Over time, however, the effect has primarily manifested itself through remote working. Last September, 60% of British workers and 35% of Italian workers went to the office hardly two days a week. Even more interesting is the figure for New Zealand where, after the pandemic has died down, 27% of work continues to be done from home[4].

… TO BE CONTINUED ...

[4] The Economist, Riding high in a workers’ world, April 10th 2021

2. LITERATURE REVIEW

How large was the immediate impact of the Pandemic via the adoption of remote working? How many jobs can really go remote beyond the administrative distinctions used by different countries to regulate lockdowns? How much is remote working here to stay? How permanent were the transformations and, therefore, how much were the productivity (in the private sector) and quality of services (in the public one) affected by the change? Which segments of population were more or less damaged by the migration to the digital means and who were the ones who more quickly adapted themselves to the new situation? How were individual lives be affected? How is the distribution of people in space (cities versus rural) changing? Were different countries affected differently according to different digital readiness and infrastructure?

The COVID-19 related policies pose several questions which are not new. The lockdowns have, however, created the opportunity to accumulate knowledge at a much quicker pace and it is like we are overcoming a "cognitive block": we never really realized that organizations can function in the ways that we experienced on such a large scale.

Probably the most interesting, large-scale research is the one that Dingel and Neiman (2020) both at Booth School of Business - University of Chicago, proposed during the COVID-19 months. They basically classified the feasibility of working at home for all occupations and merged this classification with occupational employment counts.

The method resembles the work done by Frey and Osborne, 2017, at the Oxford Martin School when they attempted to calculate how many jobs can be automated. Their main finding is that 37 percent of jobs in the United States can be performed entirely at home, these jobs tend to be better paid and that they sum up to 46 percent of all US wages. They repeated the same analysis in another 85 countries and consistently found that lower-income economies have a lower share of jobs that can be done at home.

Yet, after one year of such a learning experience, notwithstanding a number of studies, we still don't have precise enough answers to five fundamental questions (whereas each of them needs to be differentiated amongst different industries, different countries, across genders, age and role) which are the following:

1) How many employees have been affected by remote working during the last 12 months of COVID-19 related lockdowns and restrictions and which percentage of their total labor time was moved back home?
   As far as the USA, Brynjolfsson and others (2020) analyzed data collected by Google's geo-localization services, and Bartik and others (2020) used surveys, whereas both analyses found that the above mentioned Dingel and Neiman estimation is a good predictor. In Italy the Bank of Italy released industry specific data. However, there is relatively little comparison across countries.

2) Which was the impact on firm productivity? How are firms reacting to maximize benefits and minimize costs? Here there is still little information available and Morikawa (2020) was one of the few to explore changes in productivity on a very small case offered by his very firm.

More recently an interesting study[5] conducted on 10,000 IT employees in ASIA during the first wave of the pandemic, show that output per employee may have stayed the same, where the amount of work has actually increased mostly due to a proliferation of web meetings.

The main weakness of these preliminary and partial studies, however, is that they still do not take in account the learning factor: it is true that web meetings, for instance, may have unnecessarily become too many, and yet it is reasonable to argue that this may also change when organizations and employees adapt to the new situation.

3) Which are the changes experimented in the COVID-19 time which are likely to be permanent? Here a survey financed by Stanford University and the University of Chicago Booth School of Business says that 22 percent of all full-work days will be supplied from home after the pandemic ends, compared with just 5 percent before (Barrero et al., 2020)[6]. The answer to this, however, will largely depend on the above question of productivity: if firms will have enough evidence that productivity is improved (or even stay the same) while cost of renting offices can be cut, it is the natural pursue of profitability that will make some of these changes permanent.

4) How are cities changing due to less commuting? Here studies are being concentrated on the question of how much is pollution and energy waste being cut by less commuting[7] and the paradoxical fragility of more specialized, more affluent cities vis-à-vis remote working[8]. However, the jury seems still out on whether spatial distribution of people will be permanently and heavily transformed[9] or on whether the change has only been temporary[10]. True the price of houses is soaring in USA, however this may be the consequence of monetary policies.

5) What was the impact of remote working on the quality of life of the affected individuals and their families? Which were the most recurrent problems and "happy discoveries"?

Here Barbieri and his colleagues (2020) at the Bank of Italy tried to measure whether the national lockdown that ordered the closure of "not essential" business was capable enough to stop activities with higher exposure to infections. More studies (including a number of briefs of The Economist) focused on commuting and spatial distribution of workers between cities and neighborhoods.

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[5] Michael Gibbs, Friederike Mengel and Cristoph Siemroth (2021) "Work from home & productivity: evidence fro personnel & analytics data on IT professionals"

[6] In addition five mechanisms are found behind this persistent shift to working from home: diminished stigma, better-than-expected experiences working from home, investments in physical and human capital enabling working from home, reluctance to return to pre-pandemic activities, and innovation supporting working from home.

[7] Angeliki Kylili, Nicholas Afxentiou, Loucas Georgiou, Christiana Panteli, Phoebe-Zoe Morsink-Georgalli, Andri Panayidou, Constantinos Papouis & Paris A. Fokaides (2020) The role of Remote Working in smart cities: lessons learnt from COVID-19 pandemic, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, DOI: 10.1080/15567036.2020.1831108

[8] Eckert, F., Ganapati, S., & Walsh, C. (2020). *The City Paradox: Skilled Services and Remote Work* (No. 43). Federal Reserve Bank of Minneapolis.

[9] This is what Derek Thompson of The Atlantic seems certain of "The Remote-Work Revolution Will Be Bigger Than We Think
The past year has offered a glimpse of the nowhere-everywhere future of work." (2nd February 2021)

[10] As the economic geographer Enrico Moretti at University of Berkeley argues on "Remote work is overrated. America's supercities are coming back" (Vox, 1st April 2021).

6) What kind of technologies/ applications/ interfaces did they use for performing different tasks (internal meetings, external meetings, training, etc.)? How adequate were them and which are the margins for improvement?
   As far as this issue is concerned, one of the few systematic accounts is from De Filippis and others (2020) where they studied how the use of emails, the length and the frequency of conference calls changed in different cities across the world

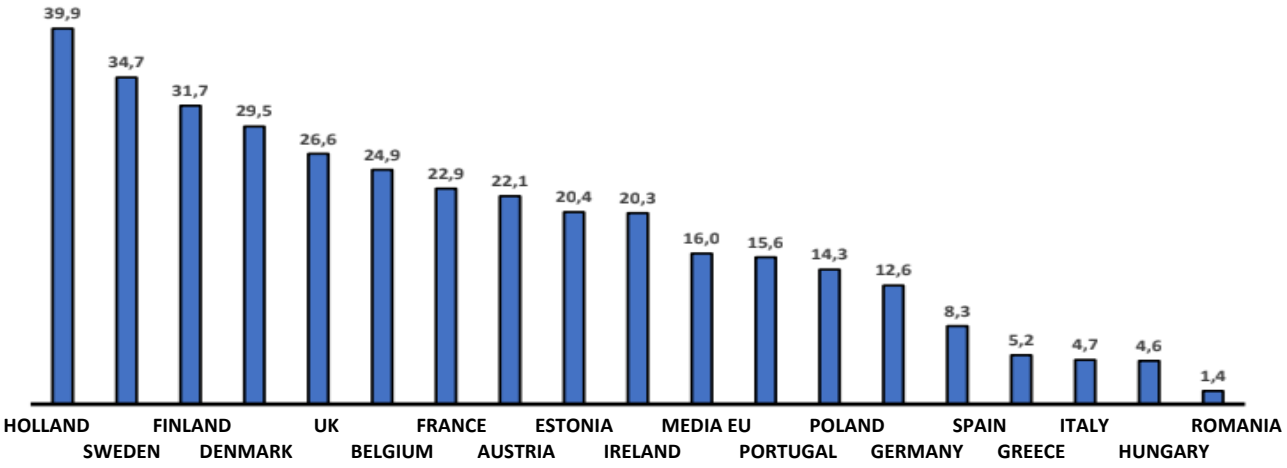
Above research questions can be traced back to the structure of VISION paper.

3. REMOTE WORKING BEFORE AND AFTER THE PANDEMIC OUTBREAK: THE MACRO EVIDENCE

Remote working was not indeed an invention of the COVID19 PANDEMIC and it has been practiced with different intensity much before the COVID19.

The graph below recalls that, for example, many worked from home in Holland even before COVID-19, whereas much fewer amongst Italians or Spaniards.

GRAPH 3 - PERCENTAGE OF EMPLOYEES WHO WORKED FROM HOME BEFORE COVID19, BY COUNTRY (EUROPEAN UNION,2019)



SOURCE: VISION ON EUROSTAT DATA

This would suggest that the impact of smart working is then expected to be probably greater amongst the countries which were less used to it.

4. RESEARCH DESIGN

(still do be developed and agreed with partners)

This paper draws on a large body of research on the future of work to assess the potential impact of COVID-19 on the workforce in the long term so to address the research questions that articulate the paper.

We will assess the various factors influencing the future level at which COVID-19 trends might settle, in order to build a set of plausible assumptions for the post-COVID-19 scenario.

The methodology will be differentiated by each of the main four research questions we are posing to ourselves:

a) The impact on productivity and on the very nature of firms; as already argued, this will also be connected to the question of how permanent is remote working going to be.
   The effect of remote working on productivity of firms will be proxied by referring to multiple sources: quarterly statements; primary survey; literature review.
   They will also be differentiated according to industry sectors and countries.
   Our results and the insight they provide into the future of work may be overstated for various reasons - for example, if companies and workers choose to return to the office full-time, if consumers return completely to shopping and dining in person, and if the momentum of digital technologies fades.
b) The implications in terms of needed adaptation of labor markets and welfare to a future of work which will be much less centered around offices and rigid schedules.
c) The effects on spatial distribution of people and, therefore, on cities (as well as not urban dwellings) and transportation (including public ones).
d) The opportunities for much more diversified technologies and interfaces capable to fill digital divides that the pandemic made evident.

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5. THE IMPACT ON THE VERY NATURE OF ORGANIZATIONS AND THE FIRM OF THE FUTURE

"The main reason why it is profitable to establish a firm would seem to be that there is a (transaction) cost of using the price mechanism". It was the Nobel Prize Richard Coase to offer in one of the most famous articles ("The Nature of the Firm", 1936[11]) in the history of management theory, the reasons why firms (and in general organizations organized through command-and-control chains) do exist. Transaction costs are the inefficiencies that prevent an entrepreneur to buy exactly what and when she or he needs through markets. Should these costs not exist, markets should always be preferred so that optimal match between the best possible supply and demand are realized.

[11] Coase, Ronald (1937). "The Nature of the Firm". *Economica*. Blackwell Publishing. **4** (16): 386–405. doi:10.1111/j.1468-0335.1937.tb00002.x

Thing is that in the last decades, those transaction costs have been greatly eroded by the INTERNET, whereas the Covid-19 PANDEMIC has further accelerated the process. Platforms like LINKEDIN or AMAZON have provided an increasingly wider supply of "production costs", at the best possible price and that can be accessed with increasingly short transaction time. ZOOM and Microsoft TEAMS have demonstrated that most of the work can even be done by home. If Coase was right, we may be at the beginning of the end of an industrial and service civilization developed around firms and offices.
The adaptation, however, will be different in different productive sectors: it is only time for the branches of banks, for example, to disappear; whereas contact with the "client" may become even more important for doctors who are realizing how obsolete are health care systems developed around hospitals. Digital technologies will drive a reorganization which will be more or less radical for different types of workers and different countries.
As said the Pandemic crisis has acted as a great accelerator.

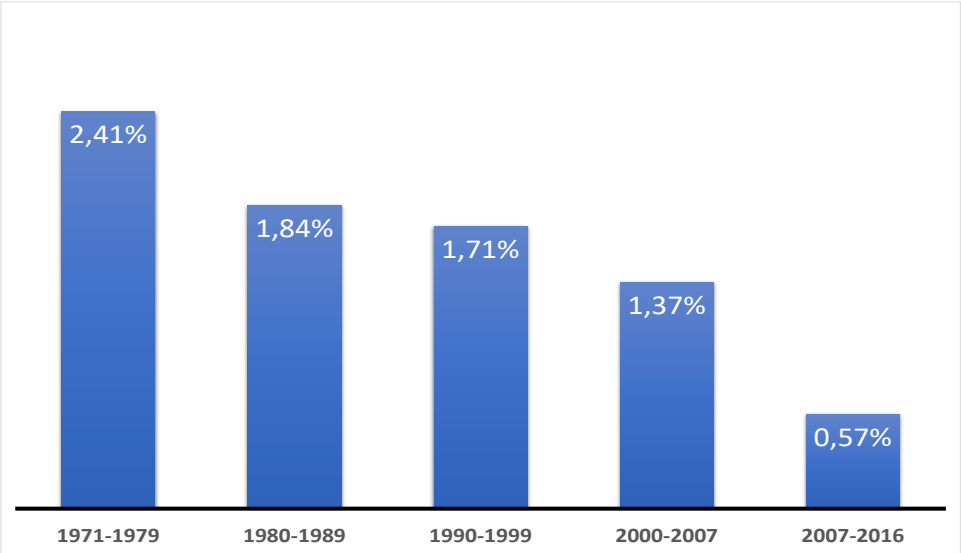
The preliminary question is: at what extent did remote working affect employees and how were different firms and industries affected?
Probably the most interesting, large scale research is the one that Dingel and Neiman (2020) both at Booth School of Business - University of Chicago, proposed during the COVID-19 months. They basically classified the feasibility of working at home for all occupations and merged this classification with occupational employment counts (with a method which resembles the work done by Frey and Osborne, 2017, at the Oxford Martin School when they attempted to calculate how many jobs can be automated). Their main finding is that 37 percent of jobs in the United States can be performed entirely at home, these jobs tend to be better paid and that they sum up to 46 percent of all US wages. They repeated the same analysis in another 85 countries and consistently found that lower-income economies have a lower share of jobs that can be done at home.

As we just mentioned the evidence of the impact of remote working on productivity is still scarce and contradictory and yet we believe it is worthwhile to remind that the "ZOOM ECONOMY" experiment happened in a context where productivity was already one of the main, if not the main problem of advanced economies.

The Pandemic is, in fact, the possibility to explore options to address one of the main paradox to which most developed economies are exposed when it comes to the relationship between technologies and productivity. Robert Solow, Nobel Prize and father of the theory which has dominated for decades the explanations of what makes economies to grow, was the first to notice the paradox when, in 1987, he noticed that "computers are everywhere but in productivity statistics".

In Figure 1 we trace the evolution of labour productivity[i] growth rates in the G7 countries over a period of more than four decades, during which they have continued to fall before and after Solow's observations in 1987.

FIGURE 1 – PRODUCTIVITY GROWTH RATES, G7, %

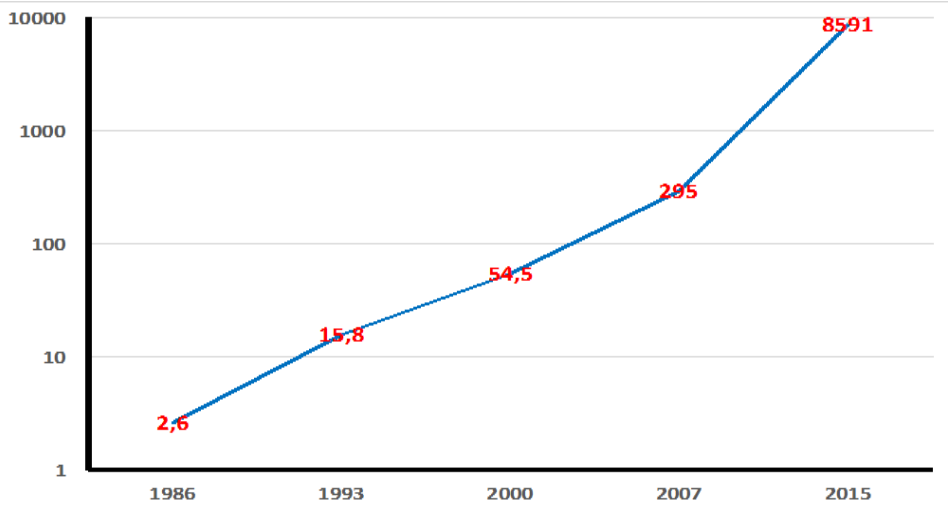


SOURCES: OECD

Coincidentally, the period under consideration starts the year (1971) when the first message was sent from the University of California in Los Angeles on the ARPANET, the network infrastructure funded and operated by the United States Department of Defense, which two decades later developed into the commercial INTERNET.

As a result of this technological and commercial breakthrough, the information stored by computers increased exponentially, following the pattern in Figure 2. Not only the number of digital objects grew; they became more powerful, with the capability of a Chip – the elaboration unit of which computers are made – doubling every 18 months, as per Moore's law; and perhaps even more importantly, digital objects became inter-connected by the INTERNET.

FIGURE 2 – CAPACITY TO STORE INFORMATION OF EXISTING DIGITAL AND ANALOG DEVICES, WORLDWIDE, EXABYTES



SOURCES: INTERNATIONAL DATA CORPORATION, HILBERT AND LOPEZ

The growth of the capacity[ii] of the world media (considering both physical and digital archives) is almost entirely due to computers of different types (e. g. PC, i-Phones) and it has been so impressive that a logarithmic scale had to be used in order to count the information measured in EXABITES[iii]. Every seven years the capacity of what has become a global information system has increased a number of times, with a further acceleration since 2007. The compounded annual growth (CAGR) of the capability of digital devices to store information has averaged 32,2% in the last three decades. Moreover, this result has been paralleled by an even more impressive growth of the capacity of machines to compute information with a CAGR of 83%, as well as to transmit information showing a CAGR of 28% (Hilbert and Lopez, 2011; International Data Corporation, 2018). Today, computers are literally everywhere, as they have also established an integrated global digital network whose ability to store, process and communicate information has grown many times.

Yet, against this information deluge the trend of productivity growth rates has been steadily declining. This has happened over a half century, which is a period longitudinally sufficient to make such evidence strong and persuasive against cyclical up and down turns[iv]. While many variables should be taken into account to explain shorter term variation, the fact is that over the last fifty years the growth in productivity has constantly slowed down, while the information that should allow for the more efficient use of scarce resources has become increasingly cheaper. These two contrasting trends are powerful enough to point to a paradox that, we argue, has not become central enough to economic theory since Robert Solow noticed it.

The spread of remote working alone would not be enough to reverse this trend, but the positive impact is not debatable: the first reason why people decide to work remotely is precisely to increase productivity.
This may seem surprising, but now that we have all experienced remote working, it seems normal. However, this is a phenomenon that is confirmed by academic studies produced by Stanford.
This gives an idea of how significant the benefit of spreading this practice throughout companies can be.
Flexibility at work therefore has numerous advantages for the employee. What is surprising, however, is the impact on work: Angelici and Profeta empirically tested the use of remote working in companies, showing how it can increase productivity. According to the study, those who were able to work remotely increased their adherence to deadlines and concentration. The number of days away from work was also lower than for those who continued to work in the traditional way.

Therefore, remote working should not be seen as a benefit given by the company to the employee: if it is applied in the right way, it benefits both the employee and the employer, creating a win-win situation between the two.
More employers now notice slightly better productivity from their remote workers. Interviews with CEOs on remote working elicited a range of mixed opinions. Some express confidence

that remote working can continue, while others say they see few positive aspects to remote working.

(… to be developed ...)

6. LABOUR MARKET AND WELFARE SYSTEMS FOR THE 21ST CENTURY

(.. still to be developed..)

One starting point is an account of how remote working is impacting the quality of life of the affected individuals and their families so to understand which were the most recurrent problems (but also any "happy discovery" that working from home may have brought about). Here Barbieri and his colleagues (2020) at the Bank of Italy tried to measure whether the national lockdown that ordered the closure of "not essential" business was capable enough to stop activities with higher exposure to infections.

…

Additionally, the scale of the irreversible change that we are witnessing, imposes a drastic change in how we price work (returning, in some way, to the metrics attributed to the "value of labor" by 19th century economists[12]).

In debt-ridden public administrations, for example, fewer and fewer controls on hours worked (which have obsessed generations of ministers worried by laziness of their clerks) will change the way we measure and determine how much people should be paid. And more and more, organizations will be fragmented into working groups with specific objectives too be met certain deadlines: this will eventually determine salaries and careers.

The transformation from a FORDIST/ TAYLORIST system to one where work is paid on the basis of results, will also impose the need to invent a new WELFARE.

In order not to be cut off from global competition, countries will have to move entirely protections that today stiffen the labor market (even more during the COVID19 emergency) to packages of subsidies and training that must reach everyone: in this sense, in a POST COVID world, the idea of the universal basic income (UNIVERSAL BASIC INCOME) is set to become central piece of new WELFARE systems.

Additionally, it seems that work flexibility is effective in increasing workers' satisfaction in reconciling private and professional life; it therefore affects their quality of life. Again, it seems that women benefit more than men.

Forecasts that all too automatically translate the effects that technology makes possible into a concrete impact on the lives of individuals, companies and institutions should be treated with caution. There is no doubt that the long-term evolution of economic systems has been to progressively reduce man's dependence on work. The time we devote to non-work activities has increased enormously compared to the years when class struggles were foreseen, and it is free time itself that has become a vehicle for building sociality.

[12] The notion does, of course, include MARX himself who based the entire theory of "DER KAPITAL" on such value.

The other less encouraging aspect of working at home is that of physical and psychological wellbeing. A large proportion also complained of difficulties in concentrating because of the constant interference of family members during work.
Finally, there is the aspect of socialization and confrontation with colleagues, which is missing with remote working and has implications in terms of corporate culture, as well as being an important loss from the point of view of employees' professional development.

Some data show that some workers had difficulty in clearly separating their professional and private time.

7. THE CITIES OF THE FUTURE IN A SMART WORKING ENVIRONMENT AND THE IMPACT ON REAL ESTATE

(… very first elements ...)

Zoom economy will also impact the very distribution in space of workers and families. During the pandemic some of the greatest cities like New York did almost cease to function (as for The Economist, Cities worldwide will struggle, but will avoid a mass exodus, Nov 17th 2020) and many predict that the exodus of population from downtown to neighborhoods will be permanent.

Indeed, the encouragement of remote working is having a tangible effect on our cities and may in the future change their urban planning. With remote working, it is no longer necessary to reconcile the place of residence with the place of work. This is translating into a partial shift of people away from the metropolis and towards the suburbs and rural areas. In addition, many of those who had previously moved north in search of greater job opportunities are now able to return to their home towns, while retaining their jobs.
If the spread of remote working remains high in the long term, the workforce could move from the metropolis to smaller cities or rural areas. In this way, workers would keep the same salary but see large savings in the cost of living. The cities would experience a crisis both because of a change in the trend of the real estate market and because of a loss of the ancillary activities generated by the employees in the cities (with impacts mainly in shops and restaurants). On the other hand, suburbs and rural areas, which have been increasingly abandoned in recent years, would go through a process of rehabilitation and revaluation.
But when analyzing the risks associated with this change, we can see that one obstacle to remote work productivity in rural areas could be connectivity; in fact, a researcher at Stanford University found that some people reported having fast internet service but in many parts of the world the connectivity infrastructure is poor or non-existent. Developing the digital infrastructure will require significant public and private investment.
Another consequence we can see is that the cost of real estate is skyrocketing in metropolitan cities, and with good reason. These cities are important employment centers that attract people from all over the world looking for job opportunities. Working remotely can mean that people no longer need to live in certain areas. They can move to cities where the quality of life is high but job prospects are few and far between.

This should lead to an increase in property values in the nicest locations as people reluctantly leave better environments for their undesired area.

People who want a house in the suburbs can escape the city, accepting a longer daily commute if they only have to make the trip a few times a week. In return, however, they will enjoy the larger homes, lower property prices, better schools and less crime-ridden neighborhoods that typically characterize the suburbs.

Real estate and technology used to be seen as different domains, but remote working has erased the distance between the two. Before, it was important for real estate investors to closely monitor these trends to understand how technological advances would affect the future of real estate. Now it is impossible for many real estate offices to even function without fully embracing remote working.

8. BEYOND ZOOM. THE CHALLENGE TO TECHNOLOGIES THEMSELVES (WITH MUCH BETTER HUMAN - MACHINE INTERFACES)

The story of Zoom is paradigmatic of what a merger of Chinese dedication to work and American innovation culture can achieve. Eric Yuan's idea of using videotelephone was first inspired while he was still studying applied mathematics in TAIAN, in the Shandong Province.

"*I first imagined Zoom when I was a freshman in college in China and regularly took a ten-hour train ride to visit my girlfriend (who is now my wife). I hated those trips and imagined other ways I could see her. And those daydreams eventually became the basis for Zoom*" he said in an interview with US blog Thrive Global.

At that time, in 1987, China was one of the poorest countries of the world and we still had to enter into the mobile phones era. Eric did later get to Stanford in 2006, he joined CISCO which he left to found Zoom in 2011. At the time of ZOOM's IPO in April 2019, the market capitalization of the firm was around 16 Billion EURO and it is hard to imagine a better timing. One and half year later, ZOOM's market value was ten times higher (at 160 billion it overcame the market cap of the 130 years old EXXON mobile) and the daily number of participants to ZOOM meetings raised by about 10 million in December 2019 to 300 million in April 2020.

ZOOM is a paradigmatic case of exponential growth which did not have its management, the consumers and the governments time to scrutiny. Federal prosecutors have recently questioned ZOOM's independence from CHINA and its reliability of privacy grounds. More importantly, however, the need of responding to the restrictions left no time for more flexible, customer specific interfaces.

Technology, skills and training, organizations need to go well beyond the ZOOM (as well as Micro Teams or WEBEX). Interfaces will have to adapt to age segments that - while services have suddenly migrated to home computer screens - have simply been cut off: elderly users

of banking or health services, primary school students are, for instance, not only a problem but a gigantic opportunity that markets have so far ignored.

Regarding this problem, one of the few systematic accounts of what happened during the pandemic is that of De Filippis et al. (2020) where they studied how the use of e-mail and the length and frequency of conference calls changed in different cities around the world.

In addition to this, the massive use of remote working, especially by companies that have never used it before, risks jeopardizing the protection of company data (both personal and non-personal): this risk is due, for example, to the improper use of company devices by employees or the hasty use of employees' personal devices without the security measures normally adopted in a company.

On the other hand, some employers, in an effort to protect company data and devices, may decide to equip themselves with tools to remotely monitor their employees' activities, risking undue access to their privacy.

(.. to be developed..)

9. THE WAY FORWARD: HINTS FOR BUSINESS LEADERS AND POLICY MAKERS

(..very preliminary..)

The greatest of the 20th century poets, Thomas Eliot described the employees in CITY who were swallowed up by bank offices as soulless automatons. One hundred years later, machines are replacing an industrial civilization built around those offices. It will take courage and imagination, political leadership and confidence to regain the sense of progress that is sort of moving beyond our control.

The effect of this "suspension", however, is cognitive: workers, managers, students, doctors, patients and teachers were engaged with a large-scale experiment and realised that certain transformations are possible. This will come with three implications that we will soon have to deal with.

The first one has to do with the very nature of organisations. A company or an administration that continues to have half of its people working remotely will have to change the tools with which it measures performance and communicates objectives. It will no longer be able to count on the camaraderie which is created around a coffee machine when looking into each other's eyes. This will also have important effects on individual and sector contracts (how do I define overtime work done at home?) and even on tax legislation (to which region or state should taxes and contributions be paid for a business process with employees spread around the world?). Furthermore, it will also be much more difficult to measure the quality of public services, especially, with regard to classrooms and hospitals and this will be certainly a challenge that will need attention.

The second effect is on technologies themselves. We have dealt with the pandemic by using platforms provided by a very few companies (ZOOM, MICROSOFT, GOOGLE) and adapting them to completely different types of encounters and users. This is producing a widening of gaps and, as usual, it is the elderly and children who have paid the price of exclusion. There is a plethora of possible innovations to which an offer designed entirely for adolescents has not yet responded, and great are the opportunities we would have if, with humility and pragmatism, States and companies coordinated entrepreneurship in these areas.

The third most devastating impact is political. The pandemic has had the effect of making life better for those who have jobs that can be done remotely. And this is especially true when the occupation has strong intellectual content - and much worse for those who, on the other hand, have jobs that governments have defined as 'essential' (for example, in food logistics and home delivery). The latter are paid less, are exposed to the massive entry of new-generation robots (drones) and have faced a chance of contagion and death from COVID-19 ten times greater than the others (as reported by studies in Canada, the United States and confirmed by researchers at the Bank of Italy[13]).

The thing is that if a truly indispensable worker finds himself on the wrong side of a growing inequality, we could soon find ourselves in a condition similar to the one MARX described when observing life in the factories, foreseeing bloody revolutions. The proposal to make a safety net available to all, to be financed for by ROBOTS (BILL GATES spoke about it some time ago) seems today to be the visionary provocation on which to build a WELFARE suitable to the 21st century.

It would be vital not only to save cohesion from processes that are digging tunnels under the feet of our fragile certainties, but also to finally make it possible to use the extraordinary potential that we have accumulated in machines; after all, it is a potential which we are giving up because we have convinced ourselves that our social arrangements cannot afford it.

Businesses and policy makers can accelerate many of the future of work imperatives that were already clear before COVID-19. Companies have a new opportunity to reimagine how and where work is done, thinking through specific work arenas and occupational activities. Speedy and effective worker redeployment will be needed, for example by recruiting and retraining based on skills and experience rather than academic degrees. Policy makers might consider prioritizing equitable access to digital infrastructure as well as new ways of enabling occupational mobility. As the share of independent workers grows, more innovation may be required to secure benefits for them. The pandemic will eventually fade, but the agility and creativity of policy makers and businesses evident during the crisis will need to continue, to find effective responses to the looming workforce challenges

[13] Barbieri, T, G. Basso and S Scicchitano (2020), “Italian workers at risk during the COVID-19 epidemic”, Inapp Working Paper n. 46 (also as Banca d’Italia, Occasional Papers, forthcoming).?

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The Economist, Cities worldwide will struggle, but will avoid a mass exodus, Nov 17th 2020

[i] We will refer to labor productivity proxied by the measurement of added value per employee. Total factor productivity is the growth that cannot be explained after having considered the impact of variation of both labor and capital. Therefore, extra growth of labor productivity can be explained by an extra increase of capital (this may be the case of China) and not by higher efficiency or better skills.

[ii] The table only considers the capacity of the stock of available, functioning digital and physical media. Therefore, the numbers do not consider supports (for instance a notebook or an i-PAD) which were thrown away or cancelled.

[iii] EXABYTE is a unit of measure to count information. One EXABYTE equals 1 Billion Gigabytes and a Gigabyte is equal to 1 Billion Bits (one Bit is equivalent to one word): the entire knowledge produced by mankind and that humans have stored in their history until the year 2000 using all ANALOG devices (books, newspapers, movies, pictures, artefacts, including all their copies) is equivalent to 130 EXABYTES.

[iv] The contradiction has grown after the 2007 financial crisis. Since then GDP growth rates in the most developed countries have averaged about 1.7%, which is three times more than the increase in productivity. The recovery happened only by increasing jobs-- unemployment rates went down to around 4% in the USA and the UK, a number close to the "frictional", minimum level-- at the expense of the average economic value that each job generates.