Foresight Brief

Two futures and how to reconcile them

Philippe Pochet
General Director of the European Trade Union Institute,
Professor at the Université catholique de Louvain,
Visiting Senior Fellow at LSE

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Although there is little argument about the fact that climate change and the digitalisation of the economy are the two main trends that will matter most over the coming decades, to date they have predominantly been considered separately rather than together. The first step towards shaping our future is being able to think about it, however, and the compartmentalisation of research efforts (climate change on the one hand and digitalisation on the other) is unhelpful in this respect. Yet cross-cutting investigations present a challenge since the academic communities and social dynamics underlying both fields of research are entirely distinct. The aim of this Foresight Brief is therefore merely to initiate a debate, and in the following paragraphs we will firstly analyse the different versions of these two narratives, before examining their potential interrelation and ranking and then exploring the emergence of digital and green capitalism and its consequences. We will conclude by proposing a scenario involving a two-step approach to change.

Public policies aimed at combating climate change and providing a framework for the digitalisation of the economy will have a substantial impact on corporate business models, the rate of job growth or decline, new forms of employment and working conditions (Degryse 2016; Laurent and Pochet 2015). Despite the fact that the consequences of both climate change and digitalisation are potentially dramatic, however, these two meta-changes are, for the most part, studied in separate research silos. Although a search engine query for both terms together results in many hits, the documents returned almost always shun a truly integrated approach and treat the link between the two topics as a matter of subordinate interest, for example by examining how the digital revolution might promote the green transition, or conversely how this revolution might accelerate global warming owing to the increasing (and often hidden) consumption of power for big data purposes. Yet even though the combined – albeit differing – social impacts of policies on the fight against global warming or the digitalisation of the economy are vitally important, they do not appear to have been tackled head-on in any research carried out to date.

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An attempt to understand and reconcile these two alternative futures – because there can be only one future, after all – is far from easy. The stakeholders and social dynamics are different, as are the academic communities which have made these subjects their own. The options are also manifold, since the data gathered and the future scenarios posited in both fields leave many questions open. A number of projections are broadly accepted because they are based on factors which have been studied in relatively great depth (CO_2 emissions, for example), but others remain unclear or controversial, in particular the potential for job destruction or creation. Certain studies suggest that digitalisation poses a threat to 47% of jobs (Frey and Osborne 2013), whereas others put the figure at less than 10% (Arntz *et al.* 2016). Technological determinism is just as much a myth as environmental determinism; instead, everything will depend on our political, regulatory, economic and social choices and courses of action. We must think about the future in order to shape it, and the existence of two separate meta-narratives is unlikely to make this task any easier.

The following is therefore merely an initial attempt to clarify the situation, and a warning is necessary: in the absence of any unified approach to the two issues, these discussions are based on a personally reconstructed (and therefore, to some extent, subjective) reconciliation of the two futures rather than on an exhaustive review of the literature. This Foresight Brief is made up of four sections: an analysis of the different versions of the two narratives, an examination of their interrelation and ranking, an exploration of the emergence of digital and green capitalism, and concluding remarks on a scenario involving a two-step approach to change.

1. Evolution or revolution: different versions of two narratives

The first point that needs to be made is that each of these two main visions of the future has two (or more) different versions, one involving radical evolution and the other revolution, or in other words a paradigm shift.

In the first of these versions, the tools and institutions of today's society are perceived as being largely adequate to tackle both digital and climate change – the software needs to be upgraded rather than replaced, to put it metaphorically. The modification of social protection systems to meet the needs of modern-day career paths is a good example, and this approach is frequently observed in the Nordic social democracies (open economies where innovation is necessary to stay competitive and where the energy transition was initiated without major internal debate), as well as in Germany's debates on Industry 4.0 (BMBF 2016).

The second version involves a paradigm shift which will require not just adaptation but a complete rethinking of the very foundations of our society. When applied to the environmental and climate crisis, this narrative insists that we must introduce a model of economic degrowth and new systems of redistribution; to take just one example, the basic principles underlying the social protection system must be comprehensively revised, and backing lent to ideas such as a basic income.

Needless to say, both the evolutionary and the revolutionary versions of the two main scenarios must be investigated and expanded on separately because they are subject to different forces and shaped by different stakeholders. What makes this task so challenging is that the various future scenarios must then be combined and, in all likelihood, ranked despite the high level of uncertainty – which should be acknowledged in full – surrounding their plausibility. If we consider the transport sector, for example, the possible options include a continuation of the current model based on personal motor vehicles (with a switch to electric power), the expansion of collective transport (train, electric bus) thanks to massive state investment and accompanied by an increase in 'soft' mobility (cycling/walking), or a large-scale electric-powered BlaBlaCar-type system (whether collaborative or capitalist). All three of these potential options combine environmental and technological change, but they involve very different individual and collective challenges and consequences in terms of public and private stakeholders, investments and economic geography.

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2. Structure and ranking

One way of overcoming the gulf between digital and climate-related transitions was proposed in a publication by FING (2015) and summarised as follows in a blog post by *Le Monde*: 'The environmental transition has an end goal but does

not know which path to take to reach it; the digital transition is transforming the world but has no end goal. These two transitions need each other in order to match their goals to the means they have at their disposal. The movers and shakers in the field of climate change must be brought together with those in the field of technology.'[1]

This implies a certain ranking of the two narratives: the environmental transition is crucially important, and failure to achieve it will leave us unable to turn back the clock in a world increasingly vulnerable to extreme phenomena. The IPCC reports, and the scenarios and probabilistic forecasts based on these reports, are becoming increasingly accurate: we are facing climate change at unprecedented levels, even though it is less visible than the 'digital revolution' (with the exception of extreme events), making it harder to mobilise collective stakeholders.

By way of contrast, the new technological revolution (as its name suggests) is merely the third, fourth or fifth technological revolution of capitalism, depending on who is writing (Valenduc and Vendramin 2016). Viewed from this perspective and taking a medium-term approach, the digital transition can therefore be interpreted more conventionally as a growth factor which will provide opportunities for redistribution if it is properly managed and regulated, although this does not gainsay the fact that certain aspects of the digital transition may have a dramatic impact on everyday life and necessitate urgent action (while also allowing rapid mobilisation, as seen in the Uber case).

Having established that we are, indeed, faced with different but equally credible narratives of the future which must be both interrelated and ranked, the next question which arises is the approach to be taken to this task. We propose a two-step approach, identifying firstly the commonalities and secondly the differences.

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2.1 Zones of consensus

The first commonality is the shared belief that a break with the past will occur: in the field of technology, this means a disruption in terms of computing power and data management, whereas in the field of climate science the challenge is to avoid going beyond a threshold level of emissions – a tipping point – which will lead to uncontrollable climate change. This is particularly relevant because it means that we will no longer be able to return to the world of the past, for example the post-war 'Glorious Thirty' years, and that the current period of neo-liberal globalisation cannot continue forever. Both of these facts force us to turn our eyes to the future.

A break with the past necessarily implies a 'transition' over the next 20 or 30 years with an accelerating rate of change, leading towards one of many possible scenarios (ETUI 2017) and presumably a more stable – albeit different – situation in the long term. In principle, therefore, this is a dynamic

process rather than a major tipping point (unless inaction leads to a major climate-related tipping point).

Another commonality between the two narratives is that they are both rooted in an unshakeable faith in the merits of technology. This goes without saying for the 'new' digital world, but there is also a feeling that the challenge of climate change can be overcome – at least in part – with technology, in particular the development of solar, wind and other forms of power with a view to the energy transition. Whereas technological developments tend to represent a break with the past in the first narrative (learning machines, for example), in the second the technologies already exist and simply need to be optimised.

A broad consensus, backed *inter alia* by the European Commission (European Commission 2016), supports a further commonality between the two narratives given the overriding importance of technology, namely the concept that life-long education and training are the best way to prepare for the forthcoming changes. Yet despite the fact that almost all of the stakeholders agree on this point, the question of exactly which skills will be needed in the future cannot be answered as easily as one might initially assume. Interpersonal skills and the ability to collaborate and work across disciplines might be the most useful assets in a world where machines learn faster every day and outstrip humans in a growing number of skills.

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2.2 The differences

As a counterweight to these commonalities, certain aspects of the two narratives are different or differently weighted, in particular those relating to the level of action to be prioritised and the trade-off between competition and cooperation.

Local versus global

The narrative of digitalisation tells us that the world is globalised and networked, but this supercharged globalisation means increased competition between workers in all four corners of the world who compete for fragmented tasks, in particular through online subcontracting platforms. An increasing number of professions have fallen prey to these platforms, including those such as translation which previously appeared relatively immune to such developments. New models of production are emerging, and capitalist platforms are radically restructuring the global economic framework.

The environmental narrative is much more regional and increasingly local in scale as a result of its emphasis on the need for deglobalisation owing to rising energy costs and mandatory cuts in transport-related emissions, with an attendant need for short supply chains and a circular econo-

my. One facet of the narrative on digitalisation (the 'makers', 3D printers, the new artisans, Anderson 2012) does, however, also reflect this new localism.

The first point of variance is therefore local versus global (or globalised local, or even localised global), and the question of finding the appropriate level for political, regulatory and social action.

Competition versus cooperation

The digital narrative prioritises competition and innovation; for example, the Digital Agenda for Europe is focused on competition with the United States and the struggle to win out against China in the race for global leadership of the future technology market, based on an acceptance of growing inequality and the 'winner takes all' nature of this new economy (Thiel 2016). The very definition of work becomes nebulous and fragmentary in this narrative (sole traders performing tasks instead of having a job), the boundaries between work and leisure are increasingly blurred in a permanently connected society, and the middle classes are gradually squeezed out of existence.

By way of contrast, the environmental narrative focuses on cooperation and the need to find shared solutions, since issues such as inequality, justice, environmental justice and a fair transition (as it has been termed by the trade union movement) are of vital importance if the energy transition is to succeed. The environmental narrative also emphasises the social economy in the broader sense of the word and the ability to regain control of one's time and find meaning in activities whether or not they involve remuneration (Meda 2013). Evidence is, however, growing that the transition to green capitalism is happening faster than expected, particularly in the energy and transport sectors (see below).

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This is the second point of dissent: how should the watchwords of cooperation and solidarity be expressed in a globalised world? By way of a provisional conclusion, it can be observed that, although the two narratives converge on certain points, there are also major differences between them in terms of the way that work, equality and the reorganisation of space are perceived. These differences are not intractable, however, and complementary approaches may also emerge (Bauwens 2013).

The role of stakeholders

A shift in narrative never involves a dramatic 'tipping point' or a metamorphosis 'from one day to the next'. As emphasised by Robert Boyer (2015, p. 311), 'The consequences of major crises are never limited to amendments scribbled in the margin of the previous model (…). Technological revolutions come to pass only after all the organisational structures, institutions, skills and public interventions involved have been synchronised (…). The sheer number of stakeholders, interests, visions and strategies

means that there is always a long period of trial and error, followed by a period of learning, before a regime change truly takes root at the level of a generation.'

A change of this kind is inherently long and complex, involving setbacks as well as progress and also provoking conflicts because of the large stakes at play, in particular for the winners of the preceding narrative. It is important to remember that time is a vital ingredient in this process, and nothing will change from one day to the next; sometimes developments will appear to reverse the tide of progress or be completely out of place. Flexible adherence to a clear vision of the future is therefore essential, since – as we have seen – different scenarios of this future exist side by side.

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The political alliances of stakeholders which characterise these two narratives are, however, different. The digital narrative is based on capitalist platforms which capture added value with a fragmented, divided and mostly globalised workforce: old news for the left-wing political parties, if not a step backwards to the late 19th century. This is familiar territory in a sense, and the small group of localised platforms (Uber, Airbnb, neighbourhood service jobs such as gardening, babysitting, delivery, etc.) are relatively easy to regulate. Social conflict and trade union demands can be tackled with familiar practices and modes of action, including those relating to the right to reclassify jobs.

The issue of climate change is more complex in this respect, since it involves persuading large swathes of the population, over a significant period of time, that they should consistently make production- and consumption-related choices which support the transition. This requires broad and lasting consensus which transcends electoral cycles (Stern 2015), representing a radical move away from the current political system which is primarily based on opposition to the preceding government's policies (see the policy reversals under the Trump administration in the United States, for example).

An approach where everyone holds responsibility and everyone must take action, however, also risks failing to differentiate between individual responsibilities – the differences in consumption between those living in the USA and those living in Ethiopia, for example – and shutting down critical analysis of capitalism and the limits of green capitalism.

3. Towards digital – and green? – capitalism

This is nevertheless what appears to be happening, since we are witnessing an energy revolution which is progressing much faster than anyone expected. China has been attempting for a number of years to reduce its use of coal and promote green energies, and its efforts are becoming increasingly successful, as proven by a relative drop in the share of coal used. India is following in China's footsteps, with the latest solar power systems promising cheaper prices than coal-powered plants, and Korea, Japan and Taiwan –

along with many others – have also adopted much more ambitious agendas for the energy transition.

This is not so much a victory on the part of those eager for a change to the economic paradigm but rather a win for classical liberalism, since green energies have become cheaper than conventional energies in many areas and will soon become so in many others. Taking the USA as an example, the transition to solar and wind power is progressing most rapidly in Texas for a very simple reason: money. North Texas is extremely windy (particularly at night) and populated by Republican-voting livestock and arable farmers in small rural communities, who can earn tens of thousands of dollars by allowing the erection of wind farms in their fields. Similar developments can be seen in Kansas, a traditionally Republican state filled with windswept plains where over 50% of electricity is generated by wind, and plans are under way to expand these operations and export power to other US states.

Something similar can also be seen happening in the automotive sector: according to projections by Bloomberg (Bloomberg New Energy Finance 2017), in just eight years' time, electric cars will be no more expensive than petrol-powered cars, and they will top conventional cars in terms of global sales by 2037. The cost of electric batteries will also plummet, from USD 1000 in 2010 to USD 73 in 2030 (with the price having already dropped to around USD 280 in 2016).

The prevailing view in the past was that prices for conventional energies would remain high (the 'peak oil' theory) and that substantial subsidies would be necessary – at least initially – to bring about gradual reductions in green energy prices. From where we are standing now, however, there is every indication that green energies are starting to compete seriously against averagely-priced conventional energies, including coal, and that this has happened much more quickly than expected and against a backdrop of falling subsidies.

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The transition to green capitalism may therefore take place at a much earlier date than originally anticipated, and it could be argued that investments will snowball, R&D efforts will intensify and cumulative impacts will arise as more and more people get on board. The political discourse of US President Donald Trump is wholly irrelevant from this perspective, because it is business opportunities and profits which count rather than belief (or disbelief) in the effects of climate change.

The transition to green capitalism will not, of course, solve problems such as the ecological limits of our planet, overconsumption and the limits of mobility (electric cars will not get rid of traffic jams, for example). It will, however, mean that the traditional stakeholders in the capitalist economy make massive investments, resulting in change occurring in traditional sectors (energy and transport) at a much more rapid rate than originally predicted.

This move from a constraint (being more 'green') to an opportunity (making 'green cash') is viewed by some as an opportunity to redefine the basis of green capitalism (Hart 2007), although many others are more scep-

tical, and the current tendency for investments to be swallowed up by giant projects means that there is a risk that new green oligopolies will emerge. If we do witness this transition coming to pass, capitalism will become both green and digital, having undergone a double transformation.

4. By way of a conclusion: a two-step approach to the narrative shift

The fact that the left-wing political parties and the trade unions currently lack clout, paired with the lack of a strong social movement, means that action must be taken in two stages. This by itself will not be enough, however: it must be possible to establish a critical understanding of the issues, and in particular to create a genuinely innovative narrative shared not just by a small elite but by a large majority of stakeholders, and allowing digital discourses and practices to be diverted away from a model of extractive capitalist platforms and towards a collaborative model (Bauwens and Niaros 2016). The strength of capitalism lies in its capacity for rapid adaptation, and this paradigm shift will involve a constant and consistent change of direction. A distinction must therefore be made between short- and medium-term strategies and long-term strategies, and these strategies must be located in time and space.

In the short and medium term, the main challenge is to bring together the various groups with a view to building an increasingly powerful force for change – trade unions, social movements, NGOs, consumer organisations focused on issues relating to sustainable development and consumption, business owners, SMEs and self-employed workers, all of whom share a vision of an economy which is 'sustainable' (circular economy, recycling, new models of resource management which are more responsible and also more efficient) and often also 'fairer' (in particular from the perspective of subcontractors who work for large companies or farmers who work for agri-business and wholesale companies and who are gradually being crushed by the financial models of those who buy goods or services from them).

If the aim is to gather together as many people as possible, there is no need for a long list of detailed demands; instead, all that is needed is a small number of strategic points which can gradually be accepted by as large a proportion of the population as possible. We believe that the topic of inequality is of vital importance in this respect, with the main challenge being to escape a model of predatory capitalism. In methodological terms, increasingly powerful strategies must be used in order if these groups are to (re)discover their ability to exert genuine influence over the global narrative, a task made much more complex by the foreseeable ferocity of the opposition to change.

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This goal could potentially be achieved through the establishment of 'consensus-based round tables' and 'conflict-based round tables'. The for-

mer would involve a joint examination of the points on which stakeholders agree; for example, a number of agreements and collaborative ventures have already been formed between left-wing and centrist political parties, NGOs and trade unions, certain groups of business owners and even players on the financial markets. To cite an interesting example in the field of climate change, UK trade unions (TUC) and Greenpeace have collaborated on the authoring of a joint document outlining the points on which they do and do not agree, such as the issue of carbon capture.[2] According to this approach, differences of opinion should be acknowledged, since this makes it possible to build gradually on areas of agreement; genuine conflicts and challenges cannot be avoided, and no attempt is made to do so, but the establishment of dialogue makes it possible to discuss these disagreements and thus to make progress. A further example of this approach is the BlueGreen Alliance in the United States, which groups together a number of large US trade unions and environmental NGOs. This is not always the most straightforward approach, but there may be no alternative if the goal is to join forces in the long term.

<p style="color:teal; font-size:large;">In our opinion, large cities are the most appropriate venue for these endeavours.</p>

In our opinion, large cities are the most appropriate venue for these endeavours: despite electoral debacles at national level, many are governed by social-democratic groups, frequently in alliances with other left-wing, environmental or centrist parties. These cities are a place of innovation and experimentation, *inter alia* as regards new forms of governance and participation (the cities involved in the C40 project are a good example in this respect). They are also places of shared experience – of traffic jams or air pollution, for example – even if some individuals experience a greater share than others, and places where progress can be monitored and observed within a relatively short space of time.

Finally, we must engage in joint reflections on our long-term future, within some sort of timeframe and with the aim of an inclusive society where the economy is a means rather than an end, where work and employment are aimed at human development and self-fulfilment, where inequalities are reduced, and where society takes collective responsibility for social and environmental risks.

A central balance of power will be required to achieve this inclusive society, since the elite who benefit from the current situation will oppose a more equitable society with all their might, and a commitment to placing the issue of redistribution at the top of the political agenda will also be necessary. Over the long term, we must join forces and set out our vision consistently, relentlessly but also flexibly; these should be our priorities when facing the challenges we will encounter over the next 20 or 30 years. ●

2. UK trade unions claim that this technology is viable, not least because Scotland intends to use its oil wells for this purpose. NGOs believe that carbon capture is a dead-end technology.

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