

Scenarios and the future of London

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What are scenarios?

It is impossible to predict, with absolute certainty, what will happen tomorrow, let alone fifty years hence. Our lives are subject to myriad influences, physical and social forces that shape both the world we live in and the relationships between actors. In a city the size of London, the number of individuals and organisations is enormous, and the number of interactions is probably beyond calculation.

Thinking about the future in terms of current trends is a common approach. For instance, the introduction to this book includes predictions about global population, forecasts about how many of those people will live in London and projections about the implications for the capital's housing, transport and education sectors. These figures are important and thought provoking, they frame debate and help identify priorities. However, simply following trends does not allow for the possibility of substantive, disruptive, change (Lombardi et al, 2012).

When setting out policies that will determine the development of London's housing, flood defences, transport infrastructure or energy supply, it is not enough to say that the future is complex and unknowable. How can we deal with decisions made in an uncertain present that will have long-term consequences, extending into an even more uncertain future?

Even if we can't make accurate predictions or forecasts about the future, we can at least be clear about our assumptions, our decisions and their likely consequences. One way to do this is to consider different 'scenarios'. Scenario analysis has been defined as 'a tool for ordering one's perceptions about alternative future environments in which one's decisions might be played out. Alternatively: 'a set of organized ways for us to dream effectively about our own future' (Schwartz, 1991).

Scenarios are stories, descriptions of alternative destinations, a medium through which to share ideas about possible futures. The scenarios approach can embrace both scientific inquiry about

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the future and real-world planning, bridging the gap between the two and helping to overcome cognitive biases (Xiang & Clarke, 2003).

Scenarios differ from forecasts and predictions, even a simple scenario can make clear the uncertainty that is present, but all too often ignored, when projecting a trendline. Future scenarios attempt to capture the richness of possibilities, stimulating decision makers to consider changes they would otherwise ignore. At the same time, they organize the possibilities into narratives that are easier to grasp than great volumes of data. Above all though they aim at challenging one's mind. When contemplating the future, it is useful to consider three classes of knowledge (Shoemaker, 1995):

- Things we know we know.
- Things we know we don't know.
- Things we don't know we don't know.

A well-drawn set of scenarios will pique interest and stimulate debate, helping people learn, re-perceive and reflect. One outcome should be a keener understanding of the assumptions about the way the world works, and hopefully a clearer view of the present. The end result is not an accurate representation of tomorrow, rather better decisions about the future. The point is not to predict the future, but liberate people's insights (Schwartz, 1991).

Pierre Wack's (1985) words sum up nicely what the purpose of scenarios is:

'Scenarios deal with two worlds, the world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision makers. Their purpose is to gather and transform information of strategic significance into fresh perceptions. This transformation process is not trivial – more often than not it does not happen. When it works, it is a creative experience that generates a heartfelt 'Aha!' from your managers and leads to strategic insights beyond the mind's previous reach.'

London 2062

The UCL London 2062 project considered the future of London in terms of resilience, wellbeing and sustainability (Bell & Tewdwr-Jones, 2012):

Resilience is the ability to recover from, adapt to and live with changes that are beyond our control. A city must have the capacity to bounce back from disruptions and this depends on emergency preparedness and response, government, citizens, economy and infrastructure. Resilience is enhanced when cities have diverse resources and systems, as well as networks of people and structures that can recover and adapt to changing conditions. These include energy systems, flood defence systems, water systems, food systems, waste-management systems and financial systems.

Wellbeing for the people of London is influenced by the city's social and economic conditions, as well the physical environment. Wellbeing concerns include security, health, air quality, culture and heritage. Maximising wellbeing can be considered an ideal for society, politics and the city.

Sustainability covers, among other areas, population, governance, housing and transport. The project recognised that there was a need for coherence in sustainability principles at all levels: across a city, a country and internationally. This is arguably more important than ever, due to complex inter and intra-dependencies that make any intervention problematic.

Resilience	Wellbeing	Sustainability
Energy systems Flood-defence systems Water systems Food systems Waste-management systems Financial systems	Security Health Air quality Culture Heritage	Population Governance Housing Transport

Table 1: The fifteen drivers for change considered by the London 2062 project.

Considering four scenarios

To illustrate the use of scenarios, and the contribution that they can make, we will consider scenarios developed by four different organisations. It is instructive to consider how, and why, scenarios differ. Different organisations will compile different future visions, reflecting their own concerns and focus. Differing definitions of key outcomes also play an important role. There will be also be differences in the drivers of change between organizations and groups that are devising future scenarios. The differences can be dictated by different uses of the scenarios, or how the outcomes are valued. Differences can also arise due to differences in geopolitical context, timescale, depth, or what the dominant force is considered to be.

The four different scenario sets are presented below, along with a brief summary and discussion. While there are no universally accepted definitions for sustainability, human wellbeing, or the resilience, the discussion of each set of scenarios includes a brief comparison against the fifteen drivers for change developed for the London 2062 project (Bell & Tewdwr-Jones, 2012):

Arup scenarios

Arup is an independent firm of designers, planners, engineers, consultants and technical specialists. The Arup scenarios consider four visions of the UK in 2040: 'let it rip', 'technofix', 'carbon rationing' and 'fortress mentality'. The four futures are considered in terms planetary health and economic prosperity. Although the focus is the UK, worldwide effects are considered. The scenarios are broad but concise, providing a timeline and key facts and figures. This set of scenarios uses STEEP (Society Technology Economy Environment Politics) indicators. Most of the fifteen drivers of changed are covered, though nothing is mentioned about air quality and heritage, with flood defences, security and housing taking a secondary role in comparison with other drivers.

It is apparent that the economy and the environment are the main drivers and society is somewhat left out, although it is mentioned within each of the scenarios (Arup, 2009).

Let it Rip (positive economic growth, negative planetary health): Economic growth and consumerism have been pursued at the expense of the environment.

Technofix (positive economic growth, positive planetary health): Economic growth remains politically important, but development of green and innovative technology is promoted by state.

Carbon rationing (negative economic growth, positive planetary health): Carbon is the new currency and a strict and enforced scheme of carbon consumption imposed by the central UK government is affecting people's lives.

Fortress mentality (negative economic growth, negative planetary health): Energy poverty reflects economic poverty as people lose their jobs and homes.

DHL scenarios

This set of scenarios comes from DHL (Deutsche Post AG), a multinational mail and logistics services group. They developed five scenarios covering the prospects of their business in 2050: 'untamed economy–impending collapse', 'mega-efficiency in mega cities', 'customized lifestyles', 'paralyzing protectionism' and 'global resilience–global adaptation'.

The futures take a global perspective, and are highly detailed. Although they concentrate on the logistics industry, they bring in a lot of detail about the world in general. Furthermore, it is clear that a great deal of time and effort has gone into compiling the scenarios, producing high quality results. Professional input was sought, including Peter Schwartz and Professor James Allen Dator, world leaders in future studies.

A thorough process was used to choose the key factors in this set, an initial list of 62 factors was reduced to fourteen. The key factors included those heavily linked to the logistics industry, and the main driving forces seem to be the economy, technology and trade. Most of the fifteen drivers of change are covered, however, health, food systems and particularly housing are not covered in detail, and flood systems and heritage are completely absent.

The scenarios were the result of a search for robust strategies to widen the company's perspective, continuing their 'Delivering Tomorrow' series. The study aims to foster dialogue about the future of logistics by describing a number of different pictures of the world in 2050 (DHL, 2012).

Untamed economy–impending collapse: The world is characterized by unchecked materialism and consumption and quantitative growth is blooming while sustainable development is rejected.

Mega-efficiency in megacities: Megacities are both the main drivers and beneficiaries of a paradigm shift towards green growth.

Customised lifestyles: Individualization and personalized consumption are pervasive worldwide, due to increasing education levels, considerable technological progress and growing global affluence.

Paralyzing protectionism: Globalization has been reversed triggered by economic hardship, excessive nationalism and protectionist barriers.

Global resilience–local adaptation: A high level of consumption thanks to cheap, automated production initially characterizes the world.

SLU scenarios

This set of scenarios comes from SLU (Sveriges LantbrukUniversitet), the Swedish University of Agricultural Sciences. There are five different futures in this set of scenarios: 'an overexploited world', 'a world in balance', 'changed balance of power', 'the world awakes' and 'a fragmented world'.

The horizon of the scenarios is 2050 and the perspective is both global and regional (Europe). The scenarios give a clear idea of the possible future, without going into very much detail. Social, political and environmental factors were the driving forces, with some coverage of food production and land use.

Eight main general factors were used for the global analysis and seven for the European analysis. The method used for the study is called general morphological analysis, which is applicable because several of the factors analysed are not quantitative. Most of the fifteen drivers of change are covered, but some are either mentioned without expansion, or not mentioned at all: air quality, flood-defence systems, waste-management systems, security, health, heritage and housing.

The scenarios have been constructed by researchers from different disciplines guided by the Swedish Defence Research Agency (FOI), and the scenarios were constructed as starting points for identifying challenges facing food production and land use, and as a basis to formulate research issues within the research programme 'Future agriculture – livestock, crops and land use' (Öborn et al, 2011).

An overexploited world: Population growth is high and poverty is prevalent in the world, while climate change is large and there is considerable pressure on land resources.

A world in balance: Economic development is strong and population increase is lower than the UN's forecast, while global warming is kept low and pressure on land is limited.

Changed balance of power: Population growth is relatively low, climate and the environment are not priorities and power has moved to the East.

The world awakes: Population growth is as the UN forecast and action is taken towards sustainable development

A fragmented world: Population growth is high, there are no measures to regulate climate change and pressure on land resources is very high.

Natural England scenarios

This set of scenarios comes from Natural England, a non-departmental public body of the UK government, responsible for ensuring the protection and improvement of England's natural environment. There are four different futures in this set of scenarios: 'connect for life', 'go for growth', 'keep it local' and 'succeed through science'.

The horizon of the scenarios is 2060 and although they concentrate on the UK, many of the points could be applicable elsewhere. The scenarios are the most detailed considered here, perhaps too detailed. They concentrate on the natural environment, but other aspects are fully analysed as well.

There are fourteen main drivers used, covering many important issues. Though the work concentrates on the natural environment, the drivers used are applicable to other research areas. Most of the fifteen drivers of change are covered in detail, apart from flood-defence systems, waste-management systems and air quality, which are not mentioned.

This work has been conducted to support Natural England's approach to strategic thinking and in particular, the development of its long-term vision for the natural environment. Exploring a range of plausible futures will help Natural England anticipate and appreciate some of the long-term challenges and opportunities facing the natural environment (Creedy et al, 2009).

Connect for life: People now connect through vast global networks, though decisions and economies are based locally.

Go for growth: Making money is a priority and economic growth continues to be driven by consumption and new technology. Few people worry about the environment and almost everyone continues to consume at will.

Keep it local: Society now revolves around nations feeding and providing for themselves. Resources are limited and are tightly controlled, but consumption remains high.

Succeed through science: The global economy continues to be driven by innovation and everyone relies on business to keep the country growing.

Archetypes and London's futures

None of the eighteen futures above were devised with a specific city in mind. Can we apply these different visions of the future to London? It would be difficult, if not impossible, to prepare for eighteen different futures. It is, however, possible to identify common threads in the four scenario sets. In the section below, we have drawn out four archetypal futures and used them to categorise the scenarios.

The drivers of change in the scenarios described above are similar, and cover factors that are important for the survival and growth of a city. There are common narrative themes across scenario projects, part of this similarity is due to similarities in drivers. Despite these similarities, the stories themselves can vary considerably, due in part to the different emphases and immediate personal experiences brought by those constructing the stories. For instance, the media and the social environments bring different trends to our attention at different times. While there can be similar patterns, the devil is in the detail, since the impacts on specific decisions in specific environments will be defined by the detail most relevant to those decisions and environments (Natural England, 2009).

Many scenario exercises produce four different futures, with a few having one or two more or less. It is useful to consider these alternative futures as variations on a set of four archetypal alternative futures. It should be mentioned here that a worst-case or best-case scenario do not necessarily exist, since in every 'disaster' there are always 'winners' and 'losers', and utopias probably remain impossible dreams. All scenarios can be 'positive' to those who prefer them and negative to those who don't (Dator, 2009).

The first of our archetypes is continued growth or 'business as usual'. In this future, governments, educational systems and organizations aim to build a vibrant economy, and develop the people, institutions and technologies to keep the economy growing and changing, forever (Dator, 2009).

The second alternative future's common theme is social and/or environmental 'collapse'. In this future, the economy cannot keep growing in a finite world, and for different reasons that people fear collapse occurs. This collapse can come from invasion, hurricanes, tsunamis, earthquakes, rapid global warming, pandemics, and so on. The end result could be anything from a globalised New Dark Ages to extinction of all humans (Dator, 2009).

The third alternative scenario's common theme is discipline, a future that makes 'sustainability' the priority. In this future, continued economic growth is deemed undesirable or unsustainable, and people feel that precious places, processes and values are threatened or destroyed by allowing continuous economic growth. In this case, people wish to preserve or restore these places, processes and values. Also, others might feel that although continued economic growth is good, or necessary, given the extent of poverty in the world, nonetheless we live on a finite planet with rapidly depleting resources, and a burgeoning population and waste. Thus, survival and fair distribution are more important (Dator, 2009; Natural England, 2009).

The fourth alternative scenario's common theme is 'transformation through technology', or a paradigm shift future that overturns current assumptions about governance and economy, connected with a worldview and value shift, enabled by new technologies. In this future, technology is a transforming power through robotics, artificial intelligence, genetic engineering, nanotechnology, or even teleportation and space settlement (Dator, 2009; Natural England, 2009).

It should be noted that although futures may share a category they are not the same future. The categorisation is made because they share important characteristics. Some of the futures can be categorised with relative ease, as they match closely one of the paradigms. Others have been placed where they fit best, and in some cases, where the scenario has aspects of more than one paradigm, it is categorised as both.

		Business as usual	Collapse	Sustainability	Paradigm shift - Technology
Arup	Let it rip	◆			
	Technofix				◆
	Carbon rationing			◆	
	Fortress mentality		◆		
DHL	Untamed economy - impending collapse	◆	◆		
	Mega-efficiency in megacities				◆
	Customised lifestyles	◆			
	Paralysing protectionism		◆		
	Global resilience - global adaptation		◆	◆	
SLU	An overexploited world	◆	◆		
	A world in balance				◆
	Changed balance of power	◆			
	The world awakes			◆	
	A fragmented world		◆		
Natural England	Connect for life			◆	
	Go for growth	◆			
	Keep it local		◆		
	Succeed through science				◆

Table 2: The eighteen futures from the four scenarios under consideration can be classified using four archetypes.

One thing that becomes apparent straight away is that DHL's futures tend to be towards 'business as usual' and 'collapse'. SLU also has two futures that are 'business as usual', and all others have their futures dispersed across all four main categories. Taking a closer look at the table, we can see that seven scenarios are 'collapse', six are 'business as usual', four are 'paradigm shift-technology' and four are 'sustainability'. In two cases a 'business as usual' future was also a 'collapse' future, which seems to suggest that people believe that continuing on the current path of economic growth will result in collapse at some point. The path of a 'paradigm shift' assisted by 'technology' seems to be the best-case scenario, while a 'sustainability' future, where problems have reached a point where immediate changes in attitudes and discipline are needed to achieve survival in a sense, seems to be the least desirable case.

London's futures

We will conclude by considering what the scenarios can tell us about the London we might expect in thirty to fifty years. We will also consider how the futures can be achieved or avoided. Again, it is important to notice that specific futures might be positive to some and negative to others depending on their interests, and especially when a city is the centre of attention.

London in a 'business as usual' future

This London is in the grip of environmental insecurity, with a rise in temperature and modified weather patterns. Since the sea level has risen, massive expenditure for flood protection is required. There is increased demand for energy and raw materials, while at the same time natural resources are becoming more expensive. Traffic has increased, and waste disposal and air pollution present massive problems. The pressure on land is considerable and the availability of clean water is low. There will probably be occasional climate shocks, requiring state intervention.

The population is growing and there are densification problems. The gap between rich and poor has widened, and there is increased demand for overstretched health services. The average age of the population is increasing, and London is increasingly reliant on inward migration. The city's knowledge industry has not deteriorated yet, but is under threat due to lack of resources and a global power shift to the East.

London is still economically powerful, though increasing temperatures and flood risk are beginning to present problems. At the same time, widening social gaps, such as marked income inequalities, are leading to increased social unrest. In the longer term environmental degradation is expected to lead to an economic slowdown, with some predicting catastrophic collapse.

London in a 'collapse' future

Lifestyles have become unsustainable, natural resources are scarce and there is a considerable rise in temperature and sea levels, leading to major flood risks for the capital. Waste disposal and air pollution are massive problems, especially since technological development is lagging. The massive pressure on land resources and limited clean water availability, are sparking social unrest. This insecurity has caused major health problems. The city's population hasn't drastically reduced, due to high inward migration.

London's citizens must deal with underfunded infrastructure, flood risks and overcrowding. Large social units cluster together in the inner city, and fortress gated communities are becoming more prevalent, fuelling intergroup aggression. The centre of London is very densely developed, while in the outskirts, development is uncontrolled and disorganized. Though the South East is not a centre of gravity anymore, London is still attractive as a dynamic metropolitan centre, since some funding has been used to maintain or modernize infrastructure. Overall the city's economy is contracting. A slow down in imports or exports, has been accompanied by entrepreneurs and professionals leaving the city. Many consider the city to be in terminal decline.

London in a 'sustainability' future

Carbon is the new currency, and a strict and enforced scheme of carbon consumption imposed by the central UK government affects everyone. Energy prices are high and tariffs on emissions from fossil fuels limit their use. Temperature and sea levels have risen, but not radically. Some adaptation to climate change is necessary, and investment in mitigation measures needs to be maintained.

The city's population has grown, due to a combination of technology, medicine and immigration. Availability of clean water for such a large population presents problems, and water recycling schemes are being extended. There has been a restructuring around smaller localised service centres. Parks and green areas, along with roofs and walls of buildings are used for small-scale farming. Large corporations have declined, with smaller firms comprising a larger section of the city's economy. Overall, economic development in the West is weak, unlike in China and India, but the UK and especially London is growing modestly in economic terms.

London in a 'paradigm shift - technology' future

There are stringent environmental regulations for industries and everyday life. Carbon pricing is used for all products and services. The maximum warming target of 2°C has not been reached, limiting the negative impacts of climate change. Pressure on land resources is limited with urban agriculture, green retrofit, green roofs and walls becoming more common. Biospheres exist within the urban fringe, creating a looser urban fabric. Waste and wastefulness have been significantly reduced over the last generation. People trust technology to enable growth within environmental and resource limits, but some worry it may not always have the answer. The population has increased due to medicine, technology and immigration. More people have also moved to urban areas. London is a prime megacity, which is the main driver and beneficiary of a paradigm shift towards green growth.

The city remains the epicentre of social, economic and political development and provides an attractive lifestyle, while living quarters are well guarded. London is a technological centre of gravity and still driving economic activity as a world leader in green technology, though international financial sector is much reduced.

Conclusion

Some, or none, of these things will come to pass. But the point of scenarios is not to provide a crystal ball, instead they ask well structured 'what if?' questions. When done well, they do so in a plausible way, with an internal consistency that makes participants question their assumptions, and follow the consequences of interventions to their logical conclusions. When we consider London in terms of pre-existing scenarios considered above, we begin to reveal possible impacts in many important areas. Hopefully, doing so will prompt questions about our priorities, the possible impacts of today's decisions and our capacity to realise a sustainable future for London.

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