From Spurling, N. and Kuijer, L. (2016) Everyday Futures. Institute for Social Futures: Lancaster
http://wp.lancs.ac.uk/everydayfutures/essay-collection/

Future-making as collective composition: towards an inclusive design of smart cities

Maureen Meadows (Coventry University, Coventry, United Kingdom) ac3459@coventry.ac.uk
Matthijs Kouw (Rathenau Instituut, The Hague, Netherlands) m.kouw@rathenau.nl

Abstract

This paper highlights the need for a visioning method which involves criteria that safeguard the incorporation of multiple visions of the future into policymaking and decision making. Such criteria enable political means to deal with techno-optimism, a prevalent attitude towards technology that accompanies data-driven forms of urbanism. Techno-optimism views technology as an autonomous process exempt from social influences that society merely has to 'tap into', e.g. gathering data about citizen behavior as an objective and neutral 'good' in and of itself. As a result, techno-optimism downplays societal impacts of technology. Moreover, disagreement about what a smart city is or should be mystify public debates and obscure the interests at play. Our criteria for future-making enable a pragmatic-methodological perspective to evaluate the inclusivity of various forms of future-making, and provide a way to enable inclusivity in future-making. Thus, techno-optimism can be side-stepped in favor of an inclusive methodology of future-making that fosters a multiplicity or plurality of perspectives.

Introduction: Developing a visioning methodology

It is becoming more and more difficult to avoid the notion of the ‘smart city’. An optimistic and firm belief in the ability of ‘smart’ technologies drives efforts to enable efficient governance of urban public spaces, energy flows, and mobility patterns by such technologies. City officials and industrial actors around the world have joined forces to promote the endless possibilities of smart technologies in world expos, demonstration cities and smart city partnerships. The desire to design and construct smart cities is driven by an optimistic view of smart technologies, which is a catch-all term to refer to various information and communication technologies (ICTs), such as sensors, facilities processing 'big' data, wearable technologies, and autonomous vehicles. Implementing smart technologies, it is argued, will lead to more innovative and sustainable cities, and dramatically improve urban life through greener living spaces, more democratic modes of governance, and better health.

The techno-optimism that accompanies smart cities and smart technologies is increasingly criticised by urban social science scholars, who highlight risks such as increased private control over public spaces and the neglect of participation and engagement of civil society in formal decision making processes (Kitchin, 2014; Greenfield, 2013, Gibbs et al., 2014). Smart cities, some argue, is the trend *du jour* in modernist approaches to urban planning. However, such approaches to urban planning ignore social, entrepreneurial and community aspects of livable and resilient cities. Hajer and Dassen (2014) urge scholars to bring such aspects into view, a plea for 'smart urbanism' rather than 'smart cities'. Generally, there is disagreement about what a smart city is or should be, which mystifies public debates and obscures the current interests at play (Hollands, 2008). We suggest that wide and effective stakeholder engagement is a key criterion when generating and debating a plurality of visions around what a future smart city might be.

Following Throgmorton’s idea that “urban planning is persuasive storytelling of the future" (Throgmorton 1996), future visions of smart cities can be aligned with governmental attempts to provide better lives for citizens through new and improved urban designs. James C. Scott’s seminal work ‘Seeing like a State’ (Scott 1998) has pointed out the limits to steering in this respect. In the light of the aforementioned critiques of urban social science scholars, we wish to develop an

Please use the following format if you wish to cite this essay:
Meadows M. and Kouw, M. (2016) Future-making as collective composition: towards an inclusive design of smart cities. In: Spurling N. and Kuijer, L. (Eds) Everyday Futures. Lancaster: Institute for Social Futures. http://wp.lancs.ac.uk/everydayfutures/essay-collection/, pp.65-73

inclusive methodology for developing future visions of cities. We adopt Throgmorton's idea of urban planning as persuasive storytelling, but argue this story needs to be developed in collaboration with a variety of social groups. Thus, techno-optimism is side-stepped in favor of an inclusive methodology that fosters a multiplicity or plurality of perspectives. Such a plurality of perspectives, we argue in more detail below, is needed to unleash the power of smart cities to confront the urban challenges of the future.
In developing the methodology, we draw on the work of Checkland and Holwell (1997), who propose that any research may be thought of as entailing the following elements: a framework of ideas (F), which are used in a methodology (M) to investigate an area of interest (A) (see Figure 1).

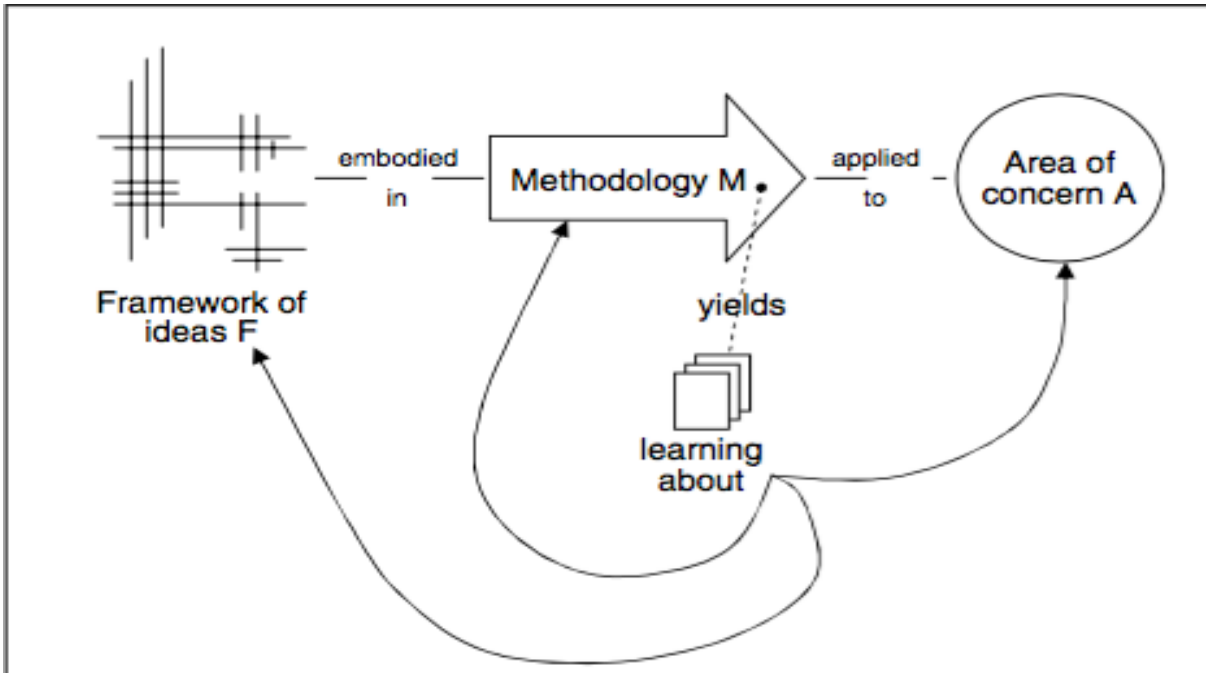

Figure 1 Elements relevant to any piece of research.

[Source: based on Checkland and Holwell, 1997; reproduced in O'Brien and Meadows, 2007]

In this context, M, the 'methodology', may be our visioning methodology under development, which will be applied to A, our area of concern which is to devise an effective, participative and creative process for situations where a plurality of values may be desirable. The specific 'area of interest' (A) may relate to the future of a city - see for example, O'Brien and Meadows (1998) for a discussion of a UK-based project entitled Choices for Bristol; or recent attempts to develop a sustainable energy infrastructure in Amsterdam (de Waal et al. forthcoming). Finally, the 'framework of ideas', F, is the set of concepts introduced and discussed below, which include visions and visioning, multiple perspectives on the future, involvement and participation; alternative futures and creativity. We argue here that there is a need for a methodology for future-making that embodies these perspectives. Checkland and Holwell (1998) note that change to, or modification of F, M, and even A has to be expected in research in the social sciences, where the method of science cannot be applied to material that is not homogenous through time, making complete replicability impossible.
In deciding what to include in the framework of ideas, we are influenced by the need to explore a desirable future for cities vis à vis the techno-optimistic belief in data (the availability of 'big data', the permeation of ICTS in the urban environment, the dissolution of the homogenous geographical entity of 'the city' and the increasing interwining of cities with digital environments, etc.). Data-

driven forms of urbanism that result from the intertwining of ICTs with the urban environment have become a global phenomenon, and have established the idea of cities as 'knowable' and 'controllable' environments. As a result, the operational governance of city services is becoming highly responsive to a form of networked urbanism in which big data systems prefigure and set the urban agenda, persistently driven by the promise of smart people, governance, mobility, sustainability, and cutting-edge innovation. Thus, the development of data-driven smart cities is primarily focused on technological promise, which may be at odds with broader societal concerns. We wish to respond to the techno-optimistic tendencies in designing smart cities by developing a framework for assessing the inclusivity of future-making. We take the visioning literature as a starting point. The complexity of a case study situation, such as a 'digital vision' for a city, clearly raises the issue of the existence of multiple stakeholder groups who may not be able to come together in a single workshop setting; hence creative approaches to encouraging stakeholder engagement are required. Another key component of the framework of ideas is that of participation in the process, particularly in the context of identifying who should be involved and how to involve them in the process of visioning. The relationship between scenario planning (a widely used approach to making flexible long term plans and robust strategic decisions, see for example Wright and Cairns, 2011; Ringland, 2010) and visioning has been discussed in the management literature; thus the framework of ideas may consider how this literature might influence the design of the methodology.

Visioning: a short summary

While there are numerous examples of vision and visioning in practice in the business and management literature (e.g. O'Connor and Veryzer, 2001; Ifinedo, 2008), no consensus has been reached around the definition of these terms. Collins and Porras (1996) argue that vision provides guidance about what core to preserve and what future to stimulate progress towards. In other words, in their view, companies that enjoy enduring success have core values and a core purpose that remain fixed while their business strategies and practices endlessly adapt to a changing world. Many other definitions emphasize the core concept of a vision as a preferred path or destination consciously chosen by an individual or group of individuals, which they can work towards achieving. In order to make progress towards this preferred future, Frisch (1998) argues that workable, winning visions do not just happen; they crucially depend on the vision development process itself. Moreover, he argues that if the vision is to produce results, it must be widely understood and enthusiastically embraced throughout the organisation. So what are the key issues in establishing a successful visioning process? Important questions include the collection and sequence of steps to follow; who should be involved and how to involve them; whether to consider single or multiple visions of the future; and how to encourage creativity within the process.

We first consider the question, how should you go about developing a vision? There are many articles describing such processes; they tend to differ in the sequence of steps they promote, rather than the actual content of the process (see, for example, Stewart, 1993; Collins and Porras, 1996; Nanus, 1996; Jimenez *et al.*, 1997). O'Brien and Meadows (2001) present a review of visioning methodologies; a visioning process typically involves the following fundamental steps:

1. Identification of stakeholders

2. Analysis of the organisation's current situation

3. Identification of a desired future vision

4. Comparison of the future vision with the current situation

5. Development of action plans

Visioning processes are often run with one or more representatives of different stakeholder groups, typically during a one-off workshop or event. The group analyses the present situation, and then goes on to develop a single shared vision of the future. This shared vision is contrasted with the current situation in order to facilitate the development of action plans that are intended to take the organisation from the present to the future. In the design of future visions, these five steps can be considered as building blocks that help characterize the process.

Multiple perspectives: participation and stakeholder involvement

It is argued that successful visions must appeal to people, and inspire them to work towards the realisation of the vision. However, for this to happen, the visions must be widely understood and embraced. Another key issue, then, is the *involvement and participation* of the relevant stakeholders—as this is the best method of ensuring their enthusiastic and active support for the final product that emerges from the process. For example, Ackoff (1993) notes that participation has multiple benefits; it provides those involved with a valuable opportunity to learn; it increases their commitment to action to realise the goals that have been articulated; and it enhances the implementability of the plans that emerge. The role of participation in building cognitive and emotional commitment in teams at times of strategic decision-making is explored by a number of authors (see for instance Korsgaard *et al*, 1995; Eden and Ackermann, 1998; Witt *et al*, 2000). Moreover, Ziegler (1991) argues that the more diverse the experiences of the participants, the more robust the environment of images which they create. For a discussion of robustness in strategic decision-making, see for example Rosenhead (1989) and Bryant and Lempert (2010).

Identifying who should be involved in the process is clearly important, as is the issue of how to involve them. Frost (1995) defines stakeholders as persons or groups that impact on, or are impacted on by the organisation. It would seem logical therefore that key stakeholders should be invited to participate in the process. This view can be justified by considering Frost's claim that a stakeholder analysis is based on two premises; first, the state of an organisation at any point in time is the result of forces brought to bear by its stakeholders (both supporting and resisting forces), and second, the future outcome of an organisation's strategy is the collective result of all the forces brought to bear on it by its stakeholders, from the moment when the strategy is first implemented, through to the future point when the outcomes are evaluated. Eden (1996) argues that it is important, via stakeholder analysis, to identify stakeholders who will, or can be persuaded to, *support* actively the strategic intent of the organisation, as well as those who will seek to *sabotage* the successful management of strategic intent. This reflects the notion that there may be important differences between stakeholders that benefit from the organisation's strategic intent and those that are negatively affected by it.

On the issue of group size, White (2002) comments that there are unresolved difficulties relating to facilitation and problem solving in large groups. Shaw *et al* (2004), discussing the potential use of problem structuring methods, or PSMs, with large groups, suggest that PSMs need to be adapted from use with small groups, adding that large groups bring an additional stress of content management and more complex group dynamics with which PSMs for small groups cannot fully cope. Bryson and Anderson (2000) compare seven approaches for group interaction, and conclude that for methods such as SODA (Strategic Options Development and Analysis; see Eden and Ackermann, 1998) and Strategic Choice (Friend and Hickling, 1987), the number of participants should be limited to 24 at the most. Interventions such as Metaplan (Habershon, 1993) and Vision Conference (Valqui Vidal, 2004) handle larger groups by breaking them down into smaller groups for many activities during the visioning exercise.

Next, we consider how different types of 'future' can be classified and whether it is desirable to consider more than one view of the future.

Alternative futures: scenarios and the CHOICES approach

Ducot and Lubben (1980) provide a classification of different types of possible future, which they term scenario. Such a classification is not only helpful here in positioning an envisioned future in the context of the wider scenario literature; it also allows us to draw from the processes used for developing different scenario types in the development of our visioning method.
Using Ducot and Lubben's scenario classification, the most common type of scenario is classed as descriptive and exploratory, and is often used in the assessment of future uncertainties concerning an organisation's external environment. Such scenarios typically have an external orientation in relation to the organisation, and are based on people's assessment of factual information. They are most often presented as sets of alternative views of the future external environment against which an organisation should develop a robust set of plans. For example, Eden and Ackermann's (1998) alternative futures and the scenario methods described by Wack (1985), van der Heijden (1996) and Ringland (1998) fall into this classification of scenario.

Ducot and Lubben's classification incorporates visions. In defining a vision as a description of a desirable future, one is in fact describing an exploratory and normative (i.e. value-laden) view of a possible future, that is, a scenario. Thus, a vision is a particular type of scenario. We suggest that the scenario planning literature can assist us in developing visioning. First, it insists upon the explicit consideration of multiple views of the future; looking forward from any point in time, multiple possible futures exist, not just one. Second, the use of participation is key to the process of developing the scenarios; scenario development is a process of creating a shared language and understanding of future issues.

We argue that it is desirable to consider different potential visions of the future as part of a participative journey towards creating a shared vision of the future. When involving multiple stakeholder groups, it is important to acknowledge that each group may be concerned about a different set of issues and hold a different and possibly conflicting set of values that could influence their choice of a preferred future. Put simply, each stakeholder group may have their own preferred vision for the future.

O'Brien and Meadows (1998) draw a distinction between *strategic planning* scenarios (i.e. scenarios that are focused on the organisation's external environment, and are therefore based on factors that are generally viewed as being beyond the control of the organisation) and *visioning* scenarios. The latter, in contrast to the former, are focused on the internal environment of the organisation and on issues over which the organisation has control. Returning to Ducot and Lubben's scenario typology mentioned above, they are exploratory, and also normative, meaning 'subjective' or values-laden as they are intended to address the deep concerns of participating stakeholders. Indeed, visioning scenarios are developed from the initial viewpoints of the stakeholders, in such a way that each scenario represents a contrasting and strongly held perspective on the issues under consideration. The intention is not necessarily that a particular visioning scenario is chosen as 'the way forward'. Rather, the set of visioning scenarios can act as a vehicle to promote informed debate. For instance, attention could be drawn to the possible trade-offs that might exist between different, often difficult, choices. A further but related distinction between strategic planning scenarios and visioning scenarios is the location of control (O'Brien and Meadows, 2007). We return to the point that strategic planning scenarios describe future possible external environments that are largely out of the control of the organisation, whereas visioning scenarios describe possible future states of the organisation itself; in highlighting a need for a new methodology, our future research agenda must fully reflect the difference between visioning for a single organization (e.g. as part of the strategic planning for a private business) and visioning for a city with its plethora of stakeholders and driving forces that have the potential to shape its future.

O'Brien and Meadows (1998) describe the CHOICES approach to a public discourse project which develops and uses visioning scenarios as part of a participative journey toward creating a shared vision of the future. Table 1 shows the six phases of the CHOICES approach and outlines the key tasks and activities that are conducted during each phase. We propose this approach as a useful basis for future methodological developments.

Phase	**Key Tasks**
Project definition	Establish project team, and identify drivers of need for change
Issue Exploration	Identify concerns of representative stakeholders
Preparing discussion materials	Project team to produce a set of discussion materials containing a brief history of the organization and a summary of the current key issues and concerns, representing different stakeholder perspectives; an overview of the project process with timescales; a set of visioning scenarios, each describing a future nature or state of the organization from a contrasting perspective.
Dialogue and idea generation	Disseminate and promote dialogue using the discussion materials. Generate ideas for action arising from discussion materials
Producing the vision	Analyse and consolidate ideas for action. Encourage participation in developing a vision
Planning for action	Commitment to action

Table 1: Summary of the CHOICES approach (adapted from O'Brien and Meadows, 1998, 2007)

In conclusion, we have set out above criteria and some resources for the development of a visioning methodology that is appropriate for addressing challenging questions such as the future of a city. In setting an agenda for future work, we emphasise the need for a visioniong methodology that counters the potential problem of techno-optimism in such situations, and draws on a wide range of stakeholders, while allowing for the possibility of multiple visions of the future.

References

Ackoff, R.L. (1993). Idealized design: creative corporate visioning. *Omega* **21**: 401–410.

Bryant, B.P. and Lempert, R.J., 2010. Thinking inside the box: a participatory, computer-assisted approach to scenario discovery. *Technological Forecasting and Social Change*, *77*(1), pp.34-49.

Bryson, J.M. and Anderson, S.R. (2000). Applying large-group interaction methods in the planning and implementation of major change efforts. *Public Administration Review* **60**: 143–162.

Checkland, P. and Holwell, S. (1997). *Information, Systems and Information Systems*. Wiley: Chichester.

Checkland, P. and Holwell, S. (1998). Action research: its nature and validity. *Systemic Practice & Action Research*, 11, pp. 9–21.

Collins, J.C. and Porras, J.I. (1996). Building your company's vision. *Harvard Business Review* **74**(5): 65–77.

Ducot, C. and Lubben, G.J. (1980). A typology for scenarios. *Futures* **12**: 51–57.

Eden, C. (1996). The stakeholder/collaborator strategy workshop. In: Huxham C (ed). *Creating Collaborative Advantage*. Sage Publications: London, pp 44–56.

Eden, C. and Ackermann, F. (1998). *Making Strategy—The Journey of Strategic Management*. Sage Publications: London.

Friend J and Hickling A (1987). *Planning Under Pressure: The Strategic Choice Approach*. Pergammon: Oxford.

Frisch, B. (1998). A pragmatic approach to vision. *Journal of Business Strategy* **19**(4): 12–15.

Frost, F.A. (1995). The use of stakeholder analysis to understand ethical and moral issues in the primary resource sector. *Journal of Business Ethics* **14**: 653–661.

Gibbs, David, Rob Krueger, and Gordon MacLeod. (2013). Grappling with Smart City Politics in an Era of Market Triumphalism. *Urban Studies* **50** (11):2151-2157.

Greenfield, Adam. 2013. *Against the smart city*. Amazon Digital Services LLC.

Habershon, N. (1993). Metaplan: achieving two-way communications. *Journal of European Industrial Training* **17**: 8–13.

Hajer, Maarten, and Ton Dassen (2014). *Smart about cities: visualizing the challenge for 21st century urbanism*. Rotterdam: nai010.

Hollands, Robert G. (2008). Will the real smart city please stand up? Intelligent, progressive or entrepreneurial? *City* **12** (3):303-320.

Ifinedo, P., 2008. Impacts of business vision, top management support, and external expertise on ERP success. *Business Process Management Journal*,*14*(4), pp.551-568.

Jimenez, J., Escalante, J.C. and Aguirre-Vazquez, J. (1997). Application of the search conference methodology to planning in higher education. *Systems Practice* **10**: 225–269.

Kitchin, Rob. (2014). *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences*. London: SAGE Publications.

Korsgaard,M.A., Schweiger, D.M. and Sapienza, H.J. (1995). Building commitment, attachment and trust in strategic decision-making teams: the role of procedural justice. *Academy of Management Journal* **38**: 60–84.

Latour B (2002) *War of the Worlds: What about Peace?* Translated by Charlotte Bigg. Chicago, IL:

Prickly Paradigm Press.

Latour B (2013) *An Inquiry into Modes of Existence: An Anthropology of the Moderns*. Translated by Catherine Porter. Cambridge, MA: Harvard University Press.

Nanus, B. (1996). Leading the vision team. *The Futurist* **May–June**: 21–23.

O'Brien, F.A. and Meadows, M (1998). Future visioning: a case study of a scenario based approach. In: Dyson RG and O'Brien FA (eds). *Strategic Development: Methods and Models*. Wiley: Chichester. pp 39–54.

O'Brien, F.A. and Meadows, M. (2001) How to develop visions: a literature review and a revised CHOICES approach for an uncertain world. *Journal of Systemic Practice and Action Research* **14**: 495–515.

O'Brien, F.A. and Meadows, M. (2007) Developing a visioning methodology: Visioning Choices for the future of operational research. *Journal of the Operational Research Society* (2007) **58,** 557–575.

O'Connor, G.C. and Veryzer, R.W., 2001. The nature of market visioning for technology-based radical innovation. *Journal of Product Innovation Management*, *18*(4), pp.231-246.

Ringland, G., 2010. The role of scenarios in strategic foresight. *Technological Forecasting and Social Change*, *77*(9), pp.1493-1498.

Ringland G (1998). *Scenario Planning: Managing for the Future*. Wiley: Chichester.

Rosenhead, J., 1989. Rational Analysis for a Problematic World: Structuring Methods for Complexity, Uncertainty and Conflict. John Wiley & Sons, London.

Scott, James C. (1998). *Seeing like a state: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.

Shaw, D., Westcombe, M., Hodgkin, J. and Montibeller, G. (2004). Problem structuring methods for large group interventions. *Journal of the Operational Research Society* **55**: 453–463.

Stewart, J.M. (1993). Future state visioning—a powerful leadership process. *Long Range Planning* **26**: 89–98.

Throgmorton, J.A. (1996). *Planning as Persuasive Storytelling: The rhetorical construction of Chicago's electric future*. Chicago: University of Chicago Press.

Valqui Vidal, R.V. (2004). The vision conference: facilitating creative process. *European Journal of Operational Research* **17**: 385–405.

van der Heijden, K. (1996). *Scenarios—The Art of Strategic Conversation*. Wiley: Chichester.

Wack, P. (1985). Scenarios: unchartered waters ahead. *Harvard Business Review* **63**: 73–90.

White, L. (2002). Size matters: large group methods and the process of operational research. *Journal of the Operational Research Society* **53**: 149–160.

Witt, L.A., Andrews, M.C. and Kacmar, K.M. (2000). The role of participation in decision making in the organizational politics-job satisfaction relationship. *Human Relations* **53**: 341–358.

Wright, G. and Cairns, G., 2011. *Scenario Thinking*. Palgrave Macmillan,.

Ziegler, W. (1991). Envisioning the future. *Futures* **23**: 516–527.