

Future-making: Inclusive design and smart cities

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

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Introduction: smart cities and the need for a visioning methodology

It is becoming more and more difficult to avoid the notion of the 'smart city'. In the discussions surrounding it, 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 used as 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.

This '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). Smart cities, some argue, is the trend *du jour* in top-down and technocratic approaches to urban planning that ignore the complexity and dynamics of everyday city life, and downplay social, entrepreneurial and community aspects of liveable and resilient cities. Those involved with the design of smart cities disagree about what a smart city is or should be, and diverging designs of future smart cities are proposed as the best way forward. This multiplicity of designs can render public debates about smart cities opaque and may even obscure the interests at play. 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 (1996, xxi) idea that urban planning is "persuasive storytelling within a web of relationships", future visions of smart cities can be aligned with governmental and commercial attempts to provide better lives for citizens through new and improved urban designs. In line with the aforementioned critiques advanced by urban social science scholars, we wish to develop an inclusive methodology for developing future visions of cities. We adopt Throgmorton's (1996) idea of urban planning as persuasive storytelling, but argue that the stories told need to be developed in collaboration with a variety of social groups. Thus, techno-optimism can be side-stepped in favour of an inclusive methodology that fosters a plurality of perspectives. Such a plurality of perspectives is needed to unleash the power of smart cities to confront the urban challenges of the future. It is not our aim to push technology aside carelessly, informed by Luddite angst or a romantic longing for times supposedly untainted by technological mediation. Rather, we frame technology as both a

technical and profoundly social phenomenon that should be intertwined with the interests and perspectives of social groups affected by technological innovation.

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 concern interest (A) (see Figure 1).

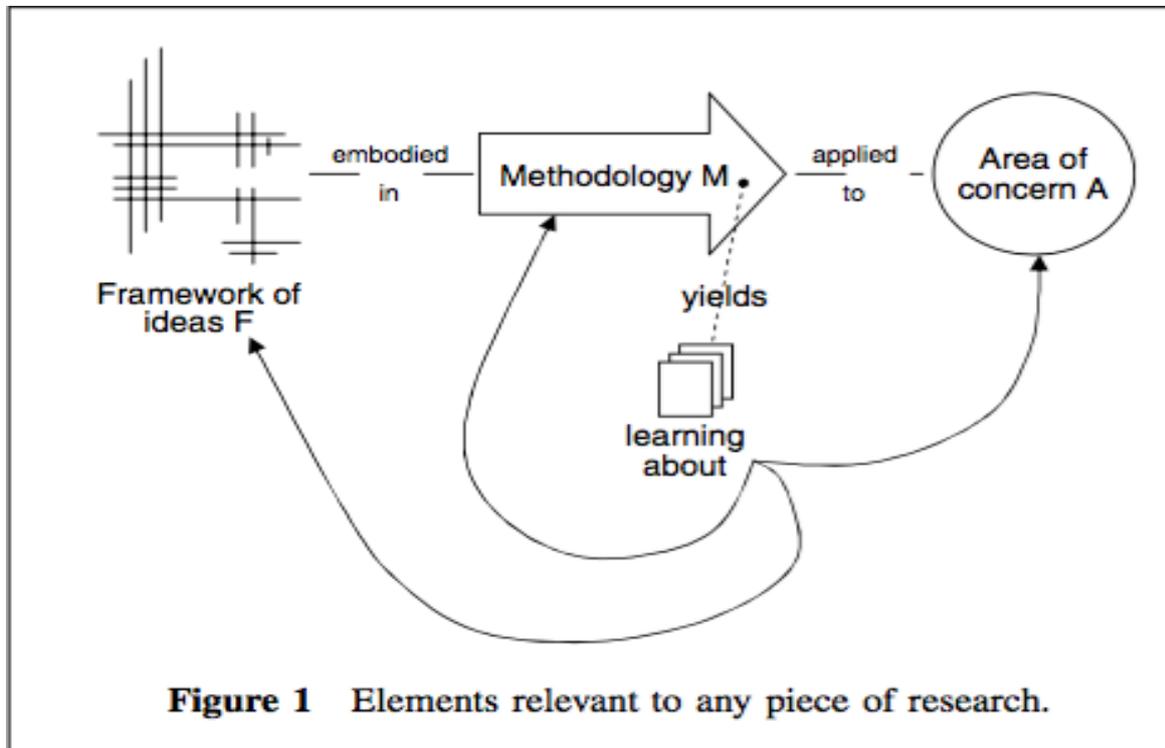


Figure 1 Elements relevant to any piece of research.

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

The 'methodology' M is our proposed visioning methodology, 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 'framework of ideas', F, is a set of concepts which are introduced below. These include visions and visioning, multiple perspectives on the future, involvement and participation, and alternative futures.

In deciding what to include in the framework of ideas, we are influenced by the need to explore a desirable future, while taking into account the opportunities, *and challenges* presented by the growing role of digital data, i.e., 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 intertwining 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 respond to the challenges of integrating these broader societal concerns 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 visioning. The relationship between scenario planning (a widely used approach to making flexible long term plans and robust strategic decisions) 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, no consensus has been reached around the definition of these terms. Many 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. Another way to consider them is as providing guidance about what core to preserve and what future to stimulate progress towards.

Workable, winning visions do not just happen; they crucially depend on the vision development process itself. Moreover, 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 type 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.

There are many recommended methods for vision development, which tend to differ in the sequence of steps they promote, but show general agreement on the content of the process as involving 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 develop action plans 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

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. 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. Moreover, the more diverse the experiences of the participants, the more robust the set of visions they create.

Identifying who should be involved in the process is clearly important, as is the issue of how to involve them. Stakeholders can be defined 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. 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.

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.

Collective composition: scenarios and the CHOICES approach

Ducot and Lubben (1980) provide a classification of different types of possible future, which they term scenario. 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 (in contrast to the practice of visioning, where a single vision of the future is usually produced).

O'Brien and Meadows (1998) draw a distinction between *strategic planning* scenarios 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. According to Ducot and Lubben's 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). 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. Future research should 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. 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. When stakeholder groups are involved in developing and advancing visions for the future, they end up in a process of collective composition – a term we use to describe the process by which a plurality of social groups construct a vision of the 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	Example actions from “Choices for Bristol” (see O’Brien and Meadows, 1998)
Project definition	Establish project team, and identify drivers of need for change	Steering group formed, funding proposal developed
Issue Exploration	Identify concerns of representative stakeholders	Focus groups held, seeking to involve a diverse group of participants
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.	Discussion materials prepared and checked/tested, including a set of questions to form the basis of planned conversations about the future of the city
Dialogue and idea generation	Disseminate and promote dialogue using the discussion materials. Generate ideas for action arising from discussion materials	Discussion materials disseminated via a local newspaper, and in a targeted way by the project team
Producing the vision	Analyze and consolidate ideas for action. Encourage participation in developing a vision	Over 2000 ideas for action fed into public meetings were six broad statements

		were generated
Planning for action	Commitment to action	Booklet published and distributed; follow-up meetings held

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 visioning methodology that addresses the challenge of including broader societal concerns in such situations, and draws on a wide range of stakeholders, while allowing for the possibility of multiple visions of the future. When this plurality of perspectives is included in telling the story of future smart cities, collective composition becomes possible. It is our hope that this ideal of collective composition will become to benchmark for developing the smart cities of the future.

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