





FUTURE-MAKING: INCLUSIVE DESIGN AND SMART CITIES



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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 “smart” technologies drives efforts to use them to enable the efficient governance of urban public spaces, energy flows, and mobility patterns. 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. *Smart technologies* is used as a catch-all term to refer to various information and communication technologies (ICTs), such as sensors, big-data processing

facilities, 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 criticized by urban social 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 [1]. The

smart city, some argue, is the trend du jour in top-down, technocratic approaches to urban planning that ignore the complexity and dynamics of everyday city life and downplay the 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 considering a plurality of visions around what a future smart city might be.

Following James Throgmorton's idea that urban planning is "persuasive storytelling within a web of relationships," [2] 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 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 sidestepped in favor 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 a time supposedly untainted by technological mediation. Rather, we frame technology as both a technical

and a 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 Peter Checkland and Sue Holwell [3], 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 (A) (Figure 1).

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 that 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, including the availability of big data, the permeation of ICTs into the urban environment, the dissolution of the homogenous geographical entity of "the city," and the increasing intertwining of cities with digital environments. Data-driven forms of urbanism that result from the intertwining of ICTs with the urban environment have become a global phenomenon, establishing 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. For example, 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, 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 visions as a preferred path or destination consciously chosen by an individual or group of individuals, which they can work toward achieving. Another way to consider them is as providing guidance about what core to preserve and what future toward which to stimulate progress.

Workable, winning visions do not just happen; they depend, crucially, on the vision-development process itself. Moreover, if the vision is to produce results, it must be widely understood and enthusiastically embraced throughout the organization. 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

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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 generally agree on the content of the process as involving the following fundamental steps:

- Identification of stakeholders
- Analysis of the organization's current situation
- Identification of a desired future vision
- Comparison of the future vision with the current situation
- Development of action plans.

Visioning processes are often run with one or more representatives from each stakeholder group, typically during a one-off workshop or event. The group analyzes 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 organization 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 toward the realization 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 realize 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 affect, or are affected by, the organization. It would seem logical therefore that key stakeholders should be invited to participate in

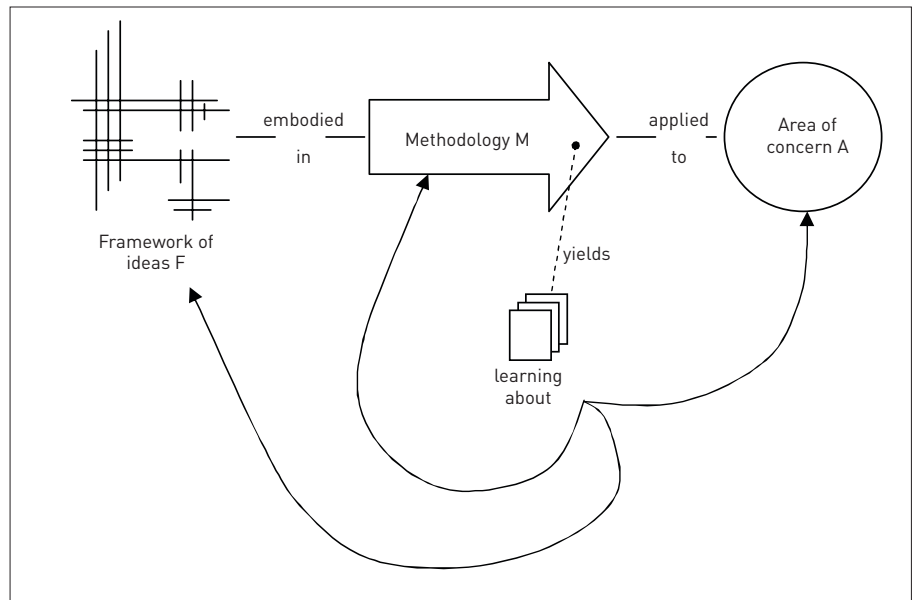


Figure 1. Elements relevant to any piece of research (based on [3]; reproduced in [6]).

the process. Stakeholder analysis can identify stakeholders who will, or can be persuaded to, *actively support* the strategic intent of the organization, as well as those who will seek to *sabotage* the successful management of the strategic intent. This reflects the notion that there may be important differences between stakeholders who benefit from the organization's strategic intent and those who 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 [4] 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, often used in the assessment of future uncertainties concerning an organization's external environment. Such scenarios typically have an external orientation 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 organization should develop a robust set of plans (in contrast to the practice of visioning, where a single vision of the future is usually produced).

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Meadows [5] draw a distinction between *strategic planning* scenarios and *visioning* scenarios. In contrast to the former, the latter are focused on the organization's internal environment and on issues over which the organization 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 be 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 among different, often difficult, choices.

A further but related distinction between strategic planning scenarios and visioning scenarios is the location of control [6]. Strategic planning scenarios describe future possible external environments that are largely out of the control of the organization, whereas visioning scenarios describe possible future states of the organization itself. Future research should reflect the difference between visioning for a single organization (e.g., as part of

SIX PHASES OF THE CHOICES APPROACH

Phase	Key Tasks	Example actions from "Choices for Bristol" (see [5])
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	More than 2,000 ideas for action fed into public meetings, where 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 [5,6]).

the strategic planning for a private business) and visioning for a city, with its plethora of stakeholders and 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 future issues.

We argue that it is desirable to consider different potential visions of the future as part of a participatory journey toward 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 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 [5] describe the CHOICES approach to a public discourse project that develops and uses visioning scenarios as part of a participatory 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.

In conclusion, we have set out the 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 emphasize the need for a visioning methodology that addresses the challenge of including broader societal concerns 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 a benchmark for developing the smart cities of the future.

ENDNOTES

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