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Testing the rhetoric: An approach to assess scenario planning's role as a catalyst for urban policy integration

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7 **Testing the rhetoric: an approach to assess scenario planning’s role as a**
8 **catalyst for urban policy integration**
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32 **Abstract**

33 Policy integration has become a high-priority objective for urban planning and management. At the same
34 time, the transportation and urban planning fields have increasingly employed scenario planning
35 approaches, not only to develop long-term strategy, but also—potentially—to strengthen organizational
36 networks and encourage collaborative action. Yet these latter supposed outcomes of scenario planning
37 remain under-theorized and largely untested. In this study, we propose a methodology, based on
38 established theories of collaboration, to test the ability of a particular type of scenario planning to
39 encourage collaboration between participants. We demonstrate the approach using a scenario planning
40 process undertaken within the transportation and urban planning community in Portugal. The pre-/post-
41 test experimental design uses a survey designed to assess participants’ propensity for future collaboration
42 by measuring change in individuals’ perceptions and understandings. The results suggest that the process
43 likely modestly increased participants’ propensity to collaborate, primarily by strengthening inter-agency
44 networks. The effects on participants’ views and understanding remain inconclusive. We suggest that
45 specific challenges in applying this specific scenario planning approach to public sector contexts may
46 limit the method’s potential in achieving inter-organizational collaboration. Nonetheless, only more
47 widespread efforts to formally test the scenario planning rhetoric will reveal the true impacts on
48 organization change.
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53 **Keywords:** scenario planning, policy integration, collaboration, participation
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4 **1. Introduction**

5 As the specific strategic planning approach described by Wack [1,2], scenario planning has been widely
6 used as a means to develop organizational strategy for several decades, with many practitioners
7 documenting its role in a variety of settings [3-6]. While the primary purpose of scenario planning is to
8 develop strategy, advocates also stress its value as an educational and potentially transformational
9 exercise—including its ability to persuade participants to dislodge preexisting views [1,6], improve
10 understanding of the organizational context [7], provide a common instrument of communication among
11 disparate actors [8-10], and encourage relationships among participants [11,12]. In particular, the scenario
12 planning process may be a means of building networks and initiating collaboration [11-13].
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15 While the integrating function of scenario planning is not a new idea, the possibility of using scenario
16 planning as a means for integration takes on a heightened significance in a context where public policy
17 and planning seems increasingly in need of—and resistant to—inter-agency coordination. The need for
18 coordination is especially apparent in the area of transportation policy and metropolitan urban
19 development, where governments must address the complex issues of sustainability and equity, and where
20 policy experts have frequently called for integrated policies that coordinate action across sectors and
21 across space [14,15]. Unfortunately, in the not uncommon situation where government consists of
22 numerous fragmented agencies—as is the case in Portugal—the task of integration encounters significant
23 obstacles [16,17]. Integration between land use and transportation sectors may be the most challenging,
24 but similar coordination is needed between long-term and short-term planning, between neighboring
25 jurisdictions, between policy-makers and technical analysts, between transport modes, and between
26 planning and other disciplines.
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30 The ability of these disparate actors to produce coordinated policies—or, at a more demanding level,
31 integrated policies—depends on their ability to work together at an organizational and individual level.
32 Many authors imply that governments can simply mandate coordination and integration [18], but in
33 practice top-down requirements do not necessarily produce coordinated policies, especially in the absence
34 of other supporting conditions. Faced with legal mandates to coordinate their actions, agencies sometimes
35 comply, but other times they simply go through the motions without engaging in real collaboration. Such
36 behavior has been observed both in Portuguese planning [19,20] and in other policy contexts [21]. While
37 much of the literature on policy integration in transportation and land use has focused on justifying the
38 need for integration and identifying practical barriers [16-18], relatively little has focused on ways of
39 dissolving those barriers or finding ways in which collaboration actually occurs.
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42 In this paper we consider the potential of a particular type of scenario planning to provide a path toward
43 integration, via its ability (or inability) to build inter-organizational relationships and foster organizational
44 learning. Does participation in a scenario planning process increase the likelihood of collaboration? That
45 is, does it increase the likelihood of collaborating to improve prospects for improving urban management?
46 We develop and demonstrate a survey-based methodology designed to investigate this question. Building
47 from a theoretical model of inter-agency collaboration, the survey attempts to quantitatively measure
48 changes in factors which contribute to the propensity to collaborate. We apply the survey to test the
49 impacts of a scenario planning process conducted with Portuguese stakeholders.
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52 This paper begins with a review of scenario planning as a transformative activity, followed by discussion
53 of how it may, in theory, lead to collaboration. Next, we present the survey methodology and results. We
54 then discuss implications for scenario planning, concluding with recommendations for future research.
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57 **2. Scenario Planning**

58 We examine the particular strategic scenario planning approach with origins typically attributed to Royal
59 Dutch/Shell's business planning group. Unless otherwise noted, when we use the term scenario planning
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4 we are referring to the “Shell approach.” Originally used to develop military strategy, scenario planning
5 later became popular in business management and has since been employed in a wide range of contexts.
6 The techniques employed by the Royal Dutch/Shell company in the 1970s, documented by Wack [1,2],
7 set a standard for scenario planning in the private sector and have since been adapted to non-profit and
8 public sector contexts [5,6,22,23]. This specific form of scenario planning develops scenarios, or
9 systematic stories about how the future may evolve, as a tool for strategic planning. The purpose is not
10 necessarily to accurately predict the future, or to paint an ideal future, rather to call decision-makers’
11 attention to the range of plausible futures under which to assess strategies [6,24].
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14 The Shell process of scenario building follows some standard steps. After defining the focal issue and
15 scope, participants identify key local factors and driving forces. *Key local factors* refer to aspects of the
16 local context that impact the issue in question. These factors should be important and uncertain; that is,
17 they should have an expected significant impact on the focal issue and their direction of evolution should
18 be uncertain [25]. *Driving forces* are macro-level forces which influence the local factors, and should also
19 be important and uncertain. For instance, for the issue of urban revitalization in Portugal a key local factor
20 might be consumer demand for smaller apartments, and the underlying driving force may be demographic
21 shifts toward smaller families. Participants then rank the driving forces by importance and uncertainty.
22 Selecting combinations of the top-ranked forces, they construct scenarios that appear compelling, yet
23 plausible and internally consistent. Participants then elaborate storylines detailing how these scenarios
24 might evolve in the given context.
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27 **2.2 Objectives of scenario planning**

28 Scenario planning aims primarily to develop strategy, but advocates also stress its value as a sense-
29 making and capacity-building exercise. According to Wack [1,2] the process of working through the
30 causal relationships of highly complex situations can “change the decision makers’ assumptions about
31 how the world works and compel them to reorganize their mental model of reality” [1]. The collective
32 discussion of driving forces supposedly challenges participants’ existing views of their organization and
33 its context [1,6]. Constructing scenarios helps people overcome intrinsic cognitive biases towards narrow
34 and short-sighted perspectives, “stretching” participants’ mental horizon, and creating a broader and more
35 accurate understanding of their organization’s reality [7].
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38 Several authors suggest that, by bringing together disparate actors in a common conversation, scenario
39 planning works as an integrating activity [8,9,12]. The in-depth discussions presumably build stronger
40 relationships among participants than typical in other forms of networking [11]. By encouraging an
41 unconstrained mindset, hypothetically, the process induces participants to take more open views of each
42 other and, in collectively constructing new mental frames of reference, participants orient their thinking in
43 the same direction. Gray [12] suggests that scenario planning aims to build a “collective appreciation of
44 the interdependencies among the stakeholders” (p. 181), noting the potential value of collaboration among
45 participants. Roubelat [11] suggests that, by reframing their view of the larger context, actors may
46 reconsider their organizational borders and relationships with other organizations. In this paper, we refer
47 to these potential processual outcomes on organizations as second-order effects of scenario planning.
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50 **2.2 Other approaches to scenario planning and futures thinking**

51 We focus on the Shell method of scenario planning because it is generally regarded as the “default” and
52 most commonly used method [26], but it is by no means the only possible approach to thinking about the
53 future. While the Shell approach has been applied to a wide range of organizations and situations [27], it
54 may not be the most appropriate in all contexts. Indeed, poor match between scenario method and the
55 context/purpose may be responsible for the “failure” of many scenario processes [28,29].
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4 Existing research has not adequately examined the effectiveness of particular scenario methods for
5 particular situations. Bishop et al. [26] offer some guidance, reviewing scenario practices and identifying
6 eight types of methods, each of which may have several variations. According to their typology, the Shell
7 model is characterized by its concern with dimensions of uncertainty and is distinguished from other
8 techniques by its methodological focus on driving forces. Bishop et al. assess the Shell method as having
9 the advantage of the “right mix of technical sophistication and ease of use for a professional audience,”
10 but limited by the difficulty of capturing the full range of future possibilities in a limited number of
11 driving forces [26]. They judge it to be moderately difficult to use (about average difficulty compared to
12 other methods) and appropriate for group use. By this assessment, the Shell method seems an appropriate
13 technique for the context at hand (i.e. a group of professionals in transportation and urban planning), but
14 not necessarily the best or only technique.
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18 Other approaches to scenario planning and futures thinking in general may also encourage collaboration
19 among participants. Scenario planning, as typified by the Shell method, constructs *plausible* scenarios,
20 providing a way to develop strategy that accounts for uncertainty. Alternative scenarios methods might
21 ask participants to envision an *ideal* or *preferred* future and discuss how to achieve it (akin to
22 “backcasting”), while other approaches present participants with predetermined scenarios based on
23 archetypes, such as “continued growth” or “collapse” [30]. Some hybrid approaches address both
24 uncertainty and ideal goals by combining the use of plausible and preferred futures [31]. All of these
25 variations on scenario planning, whether they focus on ideal visions or uncertainty, are designed to inform
26 strategy or action around a given issue. This “problem-oriented” approach, as Slaughter [32] would
27 classify it, makes them particularly relevant for policy makers (as in our case).
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30 However, some have criticized mainstream scenario planning methods for their tendency to simply
31 reinscribe current thinking and reinforce the status quo. In contrast, critical approaches designed
32 specifically to question epistemological norms may offer a way to more deeply examine cultural
33 assumptions and transform mental models [32,33]. Inayatullah [34], for example, drawing from Foucault
34 and poststructuralist theory, describes “causal layered analysis,” a critical approach intended to draw
35 attention to differences in epistemological traditions and help participants work across those differences.
36 This approach may generate deeper shared understandings that enable collaboration; on the other hand,
37 the lack of immediate practical implications may fail to interest participants concerned with policy. At
38 the other end of the futures spectrum, at a more technical level, empirical methods like forecasting may
39 increase participants’ understanding of commonalities in their future visions and expectations, but most
40 forecasting processes lack the creative and communicative aspects that might lead to deeper changes in
41 mental models.
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44 Scenario planning, and the Shell method in particular, is not the only approach to futures thinking that
45 might increase the propensity for collaboration, nor is it necessarily the only approach appropriate for the
46 situation at hand. However, given the lack of research evaluating the effectiveness of these methods in
47 inducing organizational change, an assessment of the widely used Shell scenario planning approach seems
48 appropriate and potentially useful in improving our understanding of actual organizational impacts.
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51 **2.3 Literature evaluating scenario planning**

52 Excepting the detailed Shell example [1,2], much of the literature promoting scenario planning’s
53 “transformational” benefits relies predominantly on authors’ subjective experience and a few case studies
54 to support these claims [3-6,11,13]. Relatively few studies report on the outcomes of scenario planning
55 either in terms of organizational performance, as achieved through superior strategic planning, or in terms
56 of the impacts on participants, as achieved through educational and communicative processes. The
57 scarcity of evidence of outcomes has prompted skeptics to question the merits of scenario planning [35].
58 Even supporters agree more evidence is needed [28,29]. Chermack [36] lays the foundations for
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4 empirical research by constructing a theory of scenario planning, but research investigating the theory has
5 only just begun.
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8 A few studies have documented the processual outcomes of scenario planning. Chermack et al. [37]
9 surveyed a group of scenario planning participants (9 total participants) about whether they believed their
10 organization (“a large educational institution”; p. 771) had gained knowledge and problem-solving
11 capacity; most respondents agreed to both questions. Roubelat [11] presents a qualitative case study,
12 showing how scenario planning helped build formal and informal networks within the French Electric
13 Company; however, the study did not attempt to quantify organizational outcomes. Phelps et al. [38]
14 examined the relationship between scenario planning and firm performance in a public sector setting,
15 water provision (22 responding firms), and a private industry, IT consultancy (25 responding firms). The
16 analysis showed a positive correlation in the IT industry, but no significant correlation in the water sector.
17 The study did not distinguish between improved strategy and organizational capacity as possible factors
18 influencing performance.
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21 Focusing specifically on collaboration, Cairns et al. [13] explore the potential of scenario planning as a
22 catalyst for inter-organizational collaboration around the use of communications technology in local
23 government service provision. Using qualitative methods of observation and interviews, the authors
24 describe two similar cases of scenario planning processes in the UK: only one led to enhanced
25 collaboration among government agencies. The authors posit that the variation in the end result was
26 attributable to individuals’ characteristics within the agencies involved. Goodier et al. [39] also present a
27 case of multi-agency scenario planning in which they suggest, among other outcomes, the process may
28 have increased shared understanding and potential for joint solutions, but the evidence presented is vague.
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31 Literature in the urban planning field includes a growing number of studies on collective processes related
32 to scenario planning, such as visioning and consensus-building [40]. For example, Helling [41] evaluated
33 the outcomes of Atlanta’s large-scale public visioning project, which included over a thousand
34 participants, using interviews and a participant survey. The study concluded that the process clearly
35 helped participants build interpersonal relationships and networks, but did not produce any other action or
36 tangible results. In an evaluation of a collaborative regional planning process in South East Queensland,
37 Australia, Margerum [42] found that although the process failed to achieve all of its objectives, it did
38 encourage the planners and policymakers who participated to coordinate on future projects. While studies
39 on visioning and collaborative planning processes are instructive, these activities, as commonly practiced
40 in urban planning, are distinct from scenario planning in that they build on existing views of the future
41 (visioning) and expressly seek consensus (collaborative planning), whereas scenario planning aims to
42 confront existing assumptions and does not require consensus.
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46 In all, the literature on scenario planning has not adequately supported the claim that the technique, with
47 its emphasis on dismantling previously held mental models, holds a unique ability to impact interpersonal
48 dynamics. The existing evidence rests largely on a handful of case studies. Nor has existing research
49 provided empirical methodologies founded on collaboration theory. Without more research on such
50 second-order process-related effects, we cannot know whether, and to what extent, this “organizational-
51 learning” aspect of scenario planning holds true, especially in the land use-transportation planning arena,
52 where some forms of the technique have recently surged in popularity [43].
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55 **3. Theoretical background**

56 **3.1 Communicativist theory**

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58 To understand why scenario planning might increase the propensity for collaboration, we refer first to
59 communicativist theory and second to organizational perspectives on collaboration. Much as collaborative
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4 planning theory was influenced by communicativist ideas [44,45], claims of the educational and
5 transformational effects of scenario planning rest on assumptions shared with the communicative action
6 theory outlined by Habermas [46] and with the concept of structuration proposed by Giddens [47]. These
7 influences are rarely explicit in the literature. Habermas [46] suggests that rationality is constituted
8 through social interaction; that is, during the process of communication, actors jointly construct ways of
9 knowing that govern their understanding of the world. Structuration theory suggests that the structures
10 that govern society are socially constructed and therefore alterable through social practices like discourse
11 [47]. The implication is that the very *process* of collective deliberation, so central to scenario planning,
12 fundamentally alters participants' knowledge, perceptions, and interactions. These theoretical
13 perspectives help explain why we might expect scenario planning to generate strong second-order effects.
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16 Similarly, some authors have drawn from post-structuralist critical theory to explain why certain uses of
17 scenarios might alter participants' perceptions and understandings. The post-structuralist project of
18 deconstructing systems of knowledge, exemplified by Foucault [48], aims to turn attention to how
19 contextually specific worldviews and epistemological norms shape our knowledge and understanding.
20 Inayatullah [33,34] describes how this critical view can be applied in group deliberation about the future.
21 If designed properly, he posits, collective discussions of scenarios can prompt participants to question
22 their own assumptions and consider alternative worldviews, which might ultimately leave them more
23 open to alternative courses of action. However, Inayatullah [34] argues that mainstream scenario
24 planning (i.e., the Shell method) typically does not fulfill this function to the extent that more critical
25 methods do.
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28 **3.2 Collaboration theory**

29 The idea of scenario planning as a collaboration catalyst is consistent with existing research from the
30 organizational and public policy literature on processes of collaboration. In reviewing the many studies
31 that attempt to explain how inter-organizational collaboration arises, from both public and private sector
32 contexts, we identify three categories of factors that help foster collaboration: (1) characteristics specific
33 to the participating organization (e.g. organizational goals), (2) characteristics of the external
34 environment, (e.g. legal requirements) and (3) external catalysts that trigger the collaboration process.
35 Here, we focus on organization-specific factors because these are most likely to be influenced by the
36 scenario planning process. The following paragraphs describe how these factors contribute to
37 collaboration; see, also, Fig. 1.
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41 **3.2.1 Existing actor networks**

42 Actors embedded in strong organizational networks—that is, the set of relevant actors and the
43 relationships between them—are more likely to collaborate and have an increased likelihood of
44 successful outcomes [49-52]. Both the number and quality of inter-organizational connections are
45 positively correlated with the emergence of collaborative partnerships [51]. Partnerships tend to endure
46 longer if parties had previously positive interactions, in part by enabling actors to judge each other's
47 trustworthiness and legitimacy [49]. Pre-existing links also provide information about others' intentions
48 and capabilities, so organizations can recognize opportunities for cooperation and better avoid risks.
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51 **3.2.2 Shared definition of the problem**

52 A common understanding of a given problem's wider context appears important to initiating
53 collaboration, especially for complex issues like urban development, where each partner has
54 responsibility for only a small piece of the entire picture [53]. Agreement on the problem definition helps
55 actors recognize their stake in the problem and the help needed from others to solve it [49].
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4 **3.2.3 Recognition of need for collaboration/Past failure**

5 Unsurprisingly, collaboration requires mutual recognition of the need for collective action in solving the
6 problem [49,54]. Decision makers will more likely recognize this need when previous efforts to address
7 the problem have failed, or when they believe separate efforts are likely to fail [49].
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10 **3.2.4 Common interests and objectives**

11 Organizations that have similar goals and interests—and that recognize those commonalities—will more
12 likely find that collaboration produces efficiencies and synergies. However, some organizations,
13 especially public agencies, may have ill-defined, ambiguous, and/or multiple goals and therefore may not
14 recognize their common interests or may otherwise be less inclined to collaborate.
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17 **4. Methodology**

18 In light of the above, we devise a method to measure the extent to which scenario planning fulfills its
19 implicit collaborative-enhancing potential and demonstrate the approach using a stakeholder-based
20 scenario planning exercise carried out in Portugal. Specifically, we study a scenario planning process
21 designed and implemented by academic researchers as part of a larger project examining, quantitatively
22 and qualitatively, the possibilities for leveraging the land use-transportation interaction to help facilitate
23 urban revitalization in Portuguese cities. Attempting to assess the exercise’s effects, we conducted a pre-
24 /post-workshop survey in which we asked participants to complete one questionnaire before the first
25 workshop (25 January, 2010) and a second questionnaire after the second workshop (2 March, 2010). In
26 addition to the survey, we observed the workshops’ proceedings and reviewed documents reporting the
27 workshops’ output.
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31 At the outset, we must identify several potential shortcomings of the demonstration. First, the results,
32 however tentative, only relate to the “Shell School” of scenario planning. Second, the results regarding
33 the second-order effects of the scenario planning exercise are likely influenced by the quality of the
34 exercise and the facilitators, neither of which were explicitly evaluated. Third, the results, as evidenced by
35 a self-reported questionnaire, may miss more nuanced effects that could only be detected via in-depth
36 interviews or other qualitative techniques. In addition, the limited number of respondents, and their
37 variation across the two surveys, may introduce biases of unknown consequence. Finally, the relatively
38 short time-frame of the pre-/post-experimental design, necessary due to the timeframe of the larger
39 research project, may fail to capture second-order effects with a longer gestation period.
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42 **4.1 Scenario planning workshops and scenario output**

43 The project team invited representatives from 40 different Portuguese organizations—including municipal
44 governments, transport operators, central government agencies, public redevelopment companies, real
45 estate interests, and universities—to participate in a series of three scenario-building workshops focusing
46 on the issue of urban revitalization. While European authorities distinguish between urban renewal, urban
47 regeneration and revitalization, and urban rehabilitation and restoration [55], this particular project used
48 “urban revitalization” as a general term to refer to the challenges cities face due to aging buildings and
49 infrastructures, changing economic structures, etc. Such challenges, by their nature, require integrated
50 policies and actions involving a number of authorities and private sector actors relating to transportation
51 systems, social services, historic preservation, real estate interests, and so on [55]. In Portugal these
52 sectors often operate separately, although the professional communities are relatively small and already
53 overlap to some degree.
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56 Because the scenario planning exercise aimed to inform an integrated urban modeling project, the
57 workshop invitations targeted policymakers and experts rather than members of the general public. The
58 workshop approach followed typical steps of scenario building, as previously adapted to the urban
59 transportation realm [25]. In the first meeting, 37 participants worked in groups to identify key local
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4 factors and driving forces, and categorize them according to relative degree of uncertainty and importance
5 (to the urban revitalization challenge). In the second meeting, 23 participants used these local factors and
6 driving forces to construct possible scenarios, which consisted of combination of driving force “states.”
7 At final meeting, held in July 2010, the project team presented the final scenarios—in this study, we focus
8 only on the first two workshops. The workshops generated three scenarios, ultimately titled “Social
9 Crisis,” “New Dynamics,” and “Technology-led Development.” Appendix A provides a brief description
10 of the scenario development methodology and a summary of the results.
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13 **4.2 Survey**

14 The surveys attempted to measure the “propensity to collaborate” by capturing the organization-specific
15 factors that contribute to collaboration and that might be influenced by the scenario planning workshops
16 (Table 1). Here, we understand propensity to collaborate as a measure of the likelihood that
17 organizations, or individuals in organizations, will enter into and maintain, to some degree, a process of
18 collaboration. We take the individual as the primary unit of analysis, recognizing that individuals are
19 embedded in several other structures—their organization, the group of workshop participants, a network
20 of individuals, and a network of organizations.
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23 **4.2.1 Existing actor networks**

24 Important dimensions of actor networks include the number of inter-organizational links and
25 characteristics of those links, such as frequency of interaction or substance of transactions. Social
26 scientists have developed widely accepted survey methods for characterizing individuals’ social networks
27 [56]; some have suggested adapting similar approaches to organizations [57]. For example, frequency and
28 mode of communication can be a proxy for the strength of relationships, and can be captured by questions
29 like “how often have you communicated with friend X via email in the past 30 days?” The pre-workshop
30 survey borrowed these techniques in order to roughly characterize respondents’ general level of
31 interaction with other organizations. To reflect the formation of new links, the post-workshop survey
32 asked respondents whether they made additional acquaintances as a result of the workshops.
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35 **4.2.2 Recognition of need for collaboration/Past failure**

36 The survey attempted to measure participants’ views on the seriousness of urban revitalization issues and
37 the need for collaboration. Both the pre- and post-workshop surveys asked respondents to rate the
38 importance of urban revitalization policies, given the situation in their city; any shift in the reported
39 degree of importance might indicate the workshops’ influence on participants’ perceptions.
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42 **4.2.3 Common interests/objectives**

43 In both the pre- and post- surveys, we asked respondents to indicate the degree to which they believe their
44 organization shares objectives with other organizations. We also asked respondents the degree to which
45 urban revitalization is relevant to their organization – a question especially important for individuals from
46 agencies more distant from the revitalization issue, who may not initially recognize revitalization’s
47 relevance to their work.
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50 **4.2.4 Understanding of wider context**

51 We expected that, in workshop discussions, the joint construction of understanding would broaden,
52 deepen, and clarify views previously held by participants. To capture changes in understandings,
53 respondents of both pre- and post-workshop surveys were asked to relate their definition of urban
54 revitalization in their own words. The post-workshop survey also asked respondents directly if they
55 believed the workshop influenced their understanding of the issue.
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4.2.5 Shared definition of the problem

We expected the workshops would not only change participants' understandings, but also create convergence among them. The respondents' definitions of urban revitalization were analyzed to assess both the initial incidence of overlap and the degree of convergence in the concepts presented.

5. Results

Of the 37 workshop participants, 22 responded to the pre-workshop survey and 17 to the post-workshop survey. Workshop participation and survey completion were encouraged but ultimately voluntary, so we unfortunately had no control over respondent attrition. The nature of the sample and the number of responses does not allow generalization to all participants, but the results do afford insights into our measurement methods and the workshops' effects on these particular respondents. The respondents to both surveys represent a reasonable cross-section of the workshop participants in terms of city, sector, and level of government, as shown in Table 2. For questions for which we aimed to detect changes in pre- and post-workshop responses, we apply appropriate statistical techniques to test the differences.

5.1 Existing actor networks

According to responses from the pre-workshop survey, many respondents were already fairly well connected within professional actor networks. Most respondents were personally acquainted with at least one individual in all types of organizations; many knew more than three (Table 3). Although email and telephone were by far the most common modes of inter-organizational communication, 36% said they regularly met with colleagues in person, indicating that some of these inter-organizational ties are quite strong.

The post-workshop survey confirms that the great majority of participants made new acquaintances as a result of the workshop. Out of 17 respondents, 16 said they met new people; 88% reported that they were previously unacquainted with most of the other participants in their discussion group. The majority of respondents met at least two new acquaintances. The number of new acquaintanceships did not correlate with the respondent's sector.

5.2 Understanding of the wider context

To detect potential shifts in respondents' definitions of urban revitalization, we coded responses according to whether they mentioned any of nine concepts that represented the range of ideas contained in all the definitions. Some of the terms overlapped; for example, "sustainability" can be understood to include social and economic issues, but we treated it as a distinct concept. Many respondents mentioned only physical aspects of urban revitalization, such as "rehabilitating historic buildings," while others gave more comprehensive definitions like, "making areas competitive and attractive."

As Fig. 2 suggests, respondents' characterization of urban revitalization did not noticeably change. In the two surveys, although respondents used different phrasing, they mentioned the same concepts at about the same rate. This consistency may reassuringly indicate the reliability of the question. However, the results do not support the hypothesis that the workshops influenced participants' understanding of urban revitalization.

5.3 Shared definition of the problem

As noted, participants' definitions of urban revitalization did not indicate a change in their understanding of the issue. However, when directly asked, most respondents indicated that participation in the workshops *did* improve their understanding of urban revitalization (Table 4). Respondents who worked in central and regional levels of government were more likely than those from lower levels to strongly agree that the workshops improved their understanding of the issue, an expected result, since officials

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4 more distant from urban revitalization issues would have the most to learn. Respondents also indicated
5 that, in general, they found themselves to share common opinions with other participants (Table 4).
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8 Overall, the results prove inconclusive in terms of a shared understanding of the problem. The workshops
9 may have somewhat influenced participants' views, but the evidence does not suggest convergence in
10 their understandings of urban revitalization. This may indicate that: respondents initially held at least
11 some common views, leaving less space for convergence; and/or, the workshops may have, in some
12 cases, caused participants' views to diverge or at least reaffirmed existing divergences.
13

14 **5.4 Recognition of need for collaboration/Past failure**

15 The results of both surveys indicate that, in general, respondents agreed on the importance and relevance
16 of urban revitalization to their organizations. Furthermore, they agreed that organizations will need to
17 work together more to achieve urban revitalization objectives. However, the pre- and post-surveys reveal
18 no significant change in respondents' views about the issue's importance or relevance¹. Of course, we
19 would expect respondents to initially view urban revitalization as important, since all chose to participate
20 in the workshops.
21

22
23 The respondents exhibited less consensus on the effectiveness of existing urban revitalization policies.
24 Most post-workshop survey respondents moderately agreed that existing policies have been effective,
25 while a sizable minority moderately disagreed (Table 4). Almost unanimously, respondents said that
26 agencies need to work together more on the issue of urban revitalization. Overall, these responses suggest
27 general agreement on the importance of urban revitalization and the need for collaboration to improve the
28 situation.
29

30 **5.5 Common interests and objectives**

31 All respondents could name the formal objectives of their organization, and many recognized at least
32 some shared objectives with other organizations. Respondents' perceptions of common objectives appear
33 to have shifted slightly in the direction of more shared objectives (Table 5); however, the shift is
34 significant only for objectives shared with regional authorities. That is, the scenario planning exercises
35 did apparently generate some increased recognition of shared regional objectives, not an unimportant
36 result in the face of the recognized need for, and sporadic movement towards, supra-municipal
37 governance in Portugal [20].
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41 Indeed, 94% of post-workshop respondents indicated that, during the workshops, they held at least some
42 of the same opinions as fellow discussion group members, suggesting that respondents did find areas of
43 common interest. The vast majority of respondents also recognized the relevance of urban revitalization
44 to their own organization, indicating the topic may serve as a common objective. On the other hand, the
45 workshop appears not to have changed opinions on urban revitalization's relevance; that said, since
46 respondents initially believed the issue to be relevant, the workshop was unlikely to increase this
47 perception much.
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50 Together, the findings regarding perceptions of other participants' interests tentatively suggest that the
51 workshops helped participants to find common ground. Evidence from the survey suggests that inter-
52 organizational interaction in the workshops may have, to a slight degree, helped participants to articulate
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56 ¹ We applied the Wilcoxon Rank Sum test (aka, Mann-Whitney U test), with continuity correction, to test for a shift
57 between pre- and post-responses. The test is for a difference in medians between two samples by assigning each
58 element a rank. We fail to reject the null hypothesis of no change in ranking of the "importance" of urban
59 revitalization (W=180; p-value = 0.397) and fail to reject the null hypothesis of no change in ranking of the
60 "relevance" of urban revitalization (W=210.5; p=0.777) by the workshop participants.
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4 previously unrecognized mutual positions. In particular, the workshops seem to have generated increased
5 recognition of shared objectives with regional authorities.
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7 **5.6 Survey limitations**

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9 Our survey methodology faces a number of limitations. First, although the respondents are representative
10 of workshop participants, the response rate does not allow generalizations beyond the particular survey
11 respondents. In addition, due to the need for anonymity/confidentiality, we do not know if the same
12 individuals who responded to the post-workshop survey also responded to the pre-workshop survey. If a
13 different set of individuals responded, the comparisons between pre- and post- may be misleading.
14 Furthermore, the response sample may be biased toward participants who were more interested in the
15 topic and the overall workshop process.
16

17
18 The pre/post structure of the survey also introduces challenges. The post-workshop survey repeated some
19 of the first survey's questions in identical language but not identical order. We hoped that, after two
20 months, respondents would approach each question with a fresh view, but they may have recognized the
21 question and responded in the same way again. To aid in measuring changes in perceptions, the survey
22 also explicitly asked respondents if they believed their views had changed. However, such questions pose
23 their own challenges, since respondents may be inclined to respond with the expected "correct" answer,
24 regardless of its accuracy. Furthermore, participants received the post-workshop survey only two weeks
25 after the second workshop, which may be too soon to capture latent effects of the exercise.
26

27
28 Finally, the subjective nature of the factors we tried to measure introduces substantial challenges. Survey
29 questions cannot easily capture the nuances of people's understanding and perceptions of complex issues
30 like urban development, nor changes in these perceptions. While the methods to measure inter-
31 organizational relationships are relatively well-established, the reliability and validity of other
32 questions—for instance, questions about respondents' perceptions of the workshops—have not been
33 verified.
34

35 **6. Discussion**

36
37 Overall, the approach offers an example of how the second-order effects of scenario planning exercises in
38 the public sector realm can be assessed. The results of the example application suggest that participants
39 began the scenario planning process with a certain propensity to collaborate. The workshops may have
40 increased this propensity slightly, by further developing an already existing inter-organizational network
41 and increasing a sense of shared objectives with regional-level agencies. The latter effect intimates
42 possibilities to support regional-level cooperation, an increasingly recognized need in the urban
43 development sector in Portugal [e.g., 20].
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47 The pre-workshop survey responses indicate that many of the factors contributing to the propensity to
48 collaborate were already present. The results point to prior existence of some inter-organizational
49 connections, some recognition of urban revitalization as a problem, and some common points of
50 understanding regarding the issue—all factors which theoretically contribute to a higher likelihood of
51 collaboration.
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53
54 Beyond this initial level, the findings suggest that the scenario planning exercise likely increased
55 respondents' propensity to collaborate to a small degree, primarily by creating and reinforcing inter-
56 agency connections on an individual level. Based on their responses, participants made several new
57 acquaintances as a result of the workshop. However, the survey reveals little change in factors related to
58 respondents' perceptions—factors expected to derive from the communicative processes during the
59 workshop. When explicitly asked, respondents reported changes in their views, but the pre- and post-
60 questions designed to detect this change do not corroborate the respondents' reports.
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4 The lack of evidence for change in perceptions may have several explanations. First, the survey’s ability
5 to measure subjective changes may have been limited. We used a survey because we intended to
6 demonstrate a method that would provide quantitative evidence of scenario planning’s impacts and could
7 be scaled up for larger studies. However, complex constructs such as a participants’ mental models may
8 be more easily revealed through a combination of survey and interview methods. In addition, the research
9 time frame is important. The most direct indicator of scenario planning’s outcomes would be a measure
10 of how much collaboration has actually occurred. However, collaboration between organizations can take
11 years to develop, especially around complex and long-term issues such as urban planning. We intended
12 to design a method that could detect impacts within a more easily observable timeframe. Realistically,
13 changes in perceptions may take longer than the period over which we attempted the measurements.
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15

16 Second, shortcomings in the workshops’ design or execution may have prevented them from having the
17 expected impact. Although the workshops followed guidance available in the literature on scenario
18 planning [5,6,39] , the workshops may have been too short, or the facilitators too inexperienced.
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21 Third, the findings may indicate that scenario planning via the Shell method does not have a significant
22 effect on people’s views. Or, more generally, the theory that dialogue and mutual engagement in the
23 planning process leads to enhanced perceptions and understandings may simply not hold true in practice
24 to the degree expected.
25

26 Finally, we may have reason to suspect that conventional scenario planning, as typified by the Shell
27 method, is simply not well suited to the setting of multi-stakeholder discussion of urban revitalization in
28 Portugal. As discussed in section 2.2, existing literature suggests the method is appropriate; however, the
29 difficulties of translating scenario planning to a multi-organization, public sector context may pose a
30 fundamental obstacle.
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32

33 **6.1 Match between method and context**

34 Much of the literature on scenario planning implicitly suggests its relevance in situations far beyond the
35 corporate settings for which it was developed [4,5,58]. As Volkery & Ribeiro [9] argue, however,
36 translation of the approach to the public sector introduces some particular challenges. In contrast to the
37 private sector, where organizational boundaries are relatively well-defined, public agencies often have
38 fuzzy boundaries, making the line between internal and external forces unclear [59]. This problem
39 becomes compounded in situations involving multiple organizations: given heterogeneous participants
40 with different realms of influence, factors clearly external to one organization might be within the
41 influence of another, making it difficult to separate scenarios that represent uncertainties from scenarios
42 that represent possible strategies [9,59]. Indeed, outputs of our Portuguese case indicate that, despite
43 facilitators’ instructions, participants often confounded “key factors” with potential policies and
44 “plausible scenarios” with ideal visions.
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47 Multi-organization settings might also pose challenges for the conventional scenario planning method.
48 Originally designed for small groups within a single organization, scenario planning becomes more
49 complicated with a larger, heterogeneous group with vague problems. In our case, the focus issue—urban
50 revitalization—sounded simple and clearly defined, but, like many social issues, it could be interpreted in
51 many ways, further complicating discussions. Even though facilitators outlined a systematic approach,
52 some participants clearly became confused by the number of key factors and possible combinations and
53 by the overall complexity of the process. Adaptations of the method for heterogeneous groups have been
54 demonstrated by others (e.g., [39] and may be more effective.
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57 The confusion of participants, which stemmed from ambiguous organizational boundaries, vague
58 problems, and process complexity, likely undermined the effectiveness of the scenario planning exercise.
59 Even if the workshops had been executed perfectly, however, we doubt that the difficulties inherent in
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4 applying scenario planning to this context could be resolved. Furthermore, the lack of evidence for
5 change in perceptions throws into doubt the claim that scenario planning can foster collaboration through
6 its unique emphasis on questioning participants' assumptions. Potential second-order effects of scenario
7 planning, at least of the "Shell school" approach applied in multi-agency urban land use-transportation
8 applications, should be viewed with greater skepticism.
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11 Other variations on scenario planning might have produced more transformative results. Slaughter [32],
12 for example, questions whether mainstream scenario methods, which are ultimately based on knowledge
13 of existing trends, can actually change a status quo mindset and proposes that only more critical methods
14 such as "causal layered analysis" can truly alter participants' mental models. We cannot say whether
15 such a critical approach would be appropriate for this particular context, nor whether it would have
16 produced more noticeable second-order effects.
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19 **7. Conclusions and directions for future research**

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21 In this paper, we set out to develop and demonstrate a technique to help answer the question: does
22 scenario planning, when applied to an inter-sectoral urban planning challenge such as urban revitalization,
23 actually fulfill its proponents' claims of leading to enhanced organizational learning and collaboration? In
24 attempting to answer this question we hoped to add to the sparse research on the second-order,
25 organizational impacts, of scenario planning, focusing specifically on a sector where scenario planning
26 applications are on the rise. We examine the "Shell school" scenario planning approach and situate the
27 potential second-order effects within a theoretical framework of the propensity to collaborate. Drawing
28 from this theory, we identify several organization-specific factors that may influence collaborative
29 tendencies in an inter-organizational setting – existing networks, shared understanding, recognized need,
30 and common objectives – and operationalize these factors within a pre-/post-test experimental design.
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34 The results from the specific scenario planning application examined, involving representatives from
35 different Portuguese organizations involved in transportation and urban development, indicate that the
36 stakeholder-based scenario planning exercise likely had modest impacts on participants' propensity to
37 collaborate in the future. Specifically, we detected impacts on inter-personal networks and an apparent
38 increased recognition of shared objectives with regional agencies. The latter effect suggests some promise
39 for increasing regional collaboration. Nonetheless, our results should be viewed as tentative, as they come
40 from one particular application with a limited number of participant responses, with effects measured
41 over a relatively short timeframe. We believe that this work offers a valuable precedent for more
42 rigorously examining the oft-claimed organizational impacts of scenario planning exercises and hope that
43 it stimulates additional related research, building from the techniques demonstrated.
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45
46 Several useful extensions to this research exist. Studying the workshops' effects over a longer time period
47 may reveal longer-term effects. For example, a similar survey implemented some time later may capture
48 latent effects and, after two or three years, it may be possible to determine whether the workshops
49 actually did lead to new forms of collaboration, measured, perhaps, through actual projects undertaken.
50 Findings from such an inquiry could shed light on the validity of the "propensity to collaborate" measure.
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53 In addition, if the scenario planning workshops' most significant effect was the creation of inter-
54 organizational relationships, we might ask how these kinds of workshops differ from any other event
55 which convenes related professionals—say, a networking conference specifically designed to foster new
56 relationships. Proponents of scenario planning suggest that the in-depth, future-oriented discussions of
57 scenario-building provide a unique context for forming relationships not available in other arenas [6,58].
58 However, more extensive comparative analysis would be needed to answer this question. In theory, such
59 analyses could also compare the organizational effects of alternative scenario planning and futures
60 thinking methods.
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4 More generally, to better assess the ability of collaborative scenario planning to produce the
5 transformational effects that its proponents espouse, we need better measures of these outcomes. More
6 empirical investigations of scenario planning's second-order effects could help better understand the
7 relatively unsubstantiated organizational effects claims typically used to promote scenario planning.
8 Future examinations could pair survey-based methods, such as the one demonstrated here, with
9 qualitative interviews.

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12 Finally, our findings caution practitioners to carefully consider context before undertaking a scenario
13 planning process. In the Portuguese case, difficulties arising from multiple organizations and vague
14 problem definition likely partially compromised the process' effectiveness. In situations involving
15 numerous heterogeneous actors, where problems are not easily defined, methods other than scenario
16 planning—or at least variations on the conventional method—may be more successful.

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19 With regard to the larger context of policy integration, while the evidence suggests that conventional
20 scenario planning may increase the likelihood of collaboration, it may not do so more than other
21 collective, future-oriented activities, especially given the challenges of applying scenario planning in the
22 public sector. Even if it does increase the propensity for collaboration, scenario planning will not lead to
23 better coordinated policies without other supporting conditions in place. With coordination and
24 integration high on the urban policy agenda, we need to deepen our understanding of the various
25 conditions, factors, and mechanisms that truly support collaboration.

26 27 **Appendix: The Scenario Planning Workshops and Summary Descriptions of the Scenarios**

28 The urban revitalization scenario planning participation process consisted of two workshops, supported
29 by additional information synthesis and elaboration before and after the workshops by the project team.
30 During the first workshop (25 January 2010), after introductory discussions about urban revitalization and
31 the scenario planning process, participants were divided into groups representing, within each group,
32 different disciplines, agencies, and urban areas and tasked with identifying local factors and driving
33 forces, categorizing the latter by degree of relative importance and uncertainty. Each group was
34 accompanied by two project members, one for facilitation and one to take notes. The project team
35 synthesized these materials in the period between the first workshop and the second workshop and
36 summarized them with a consolidated set of driving forces. Table A.1 presents the consolidated “latent”
37 driving forces and example variables categorized within each.

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41 In the second workshop (2 March, 2010), the driving forces and the corresponding set of underlying
42 variables were presented and used as the basis for discussion. In this workshop, participants were again
43 divided into groups (with facilitator and note-taker) and presented with the consolidated set of driving
44 forces and underlying variables and tasked with utilizing these materials to elaborate logical and plausible
45 scenario storylines (i.e., with consistent “states” of the underlying variables). Based on this exercise,
46 workshop participants arrived at a set of three scenario storyline plot foundations – consisting of
47 combinations of driving force states, which themselves were associated with directional states of the
48 underlying constituent variables. This process resulted in the three scenarios, summarized briefly below
49 and in Table A.2.

50 51 52 *Scenario 1: “Social Crisis”*

53 This scenario associates a growing Portuguese population with economic stagnation and neutral
54 technological change under a strong central government. The central government asserts greater power
55 over local authorities. This concentrated power allows the government to implement a wide-reaching
56 economic strategy aimed to boost growth and innovation. Part of this plan involves increasing the
57 immigration rate and reviving population in the cities. While the strategy does achieve a more dynamic
58 social structure, the country still fails to gain an edge in an increasingly competitive global economy. As a
59 result, Portugal's economy stagnates and the country undergoes a “social crisis”: many immigrants and
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4 young people are unemployed, leading to social inequality, segregation, and insecurity. Technology
5 continues to evolve, but at a modest rate, and does not contribute greatly to the economy.
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7 *Scenario 2: “Portugal Novo”*

8 This scenario is characterized by strong economic growth, dynamic social structure, and technological
9 advance under empowered local governments. The decades-old decentralization initiative has gained
10 renewed support and the central government devolves several key powers and capabilities to local
11 authorities. The increased autonomy of municipalities leads to sometimes conflicting urban and
12 environmental policies and inconsistent enforcement of regulations. At the same time, however, the
13 intensified competition between cities brings more innovation in urban policies, greater public-private
14 cooperation, and a distribution of public resources that more directly facilitates local economic growth.
15 Increased immigration and in-migration of young people to the city centre revitalizes economic and social
16 life in the historic districts; however, the city’s new residents do not mix well, leading to socially
17 differentiated neighborhoods with localized areas of poverty and crime. Investment in research and
18 technology has helped initiate rapid technological advance that both contributes to and evolves from the
19 continuing economic growth; innovation and change are the norm. New transportation and construction
20 technologies contribute to dynamic life in the city centre. Energy
21 costs rise, but are outpaced by economic growth and technological change.
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25 *Scenario 3: “Technology-led Development*

26 In this scenario, economic stagnation and population aging are associated with technological advance.
27 Here, demographics tell the story. The aging population clings to an inward-looking and insular cultural
28 orientation. Local governments have gained more power and, directed by their constituents, they choose
29 to focus narrowly on local issues; meanwhile the weakened central government fails to implement a
30 coherent economic strategy. Fears about crime and the threat of social change lead to restrictive
31 immigration policies, but, without the added demographic influx, the population continues to decline. The
32 historic city centers lose population as the suburbs retain a more highly desirable status and the
33 fragmented government structure has insufficient capacity to promote urban revitalization. The declining
34 population and lack of coherent strategy contribute to economic stagnation. Meanwhile, the rest of the
35 world develops new technology at an even faster rate and, hoping to spark an “innovation economy,” the
36 government and private sector adopt new technology wholeheartedly. Yet, without the conditions to
37 support economic growth, investments in technology fail to produce strong returns. Despite economic
38 distress, local communities remain strong and are marked by long-term and close-knit social ties.
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[58] P. Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World*, New York, Doubleday, 1996.

[59] EEA, *Looking back on looking forward: a review of evaluative scenario literature*, Copenhagen, European Environment Agency, 2009.

Figure 1

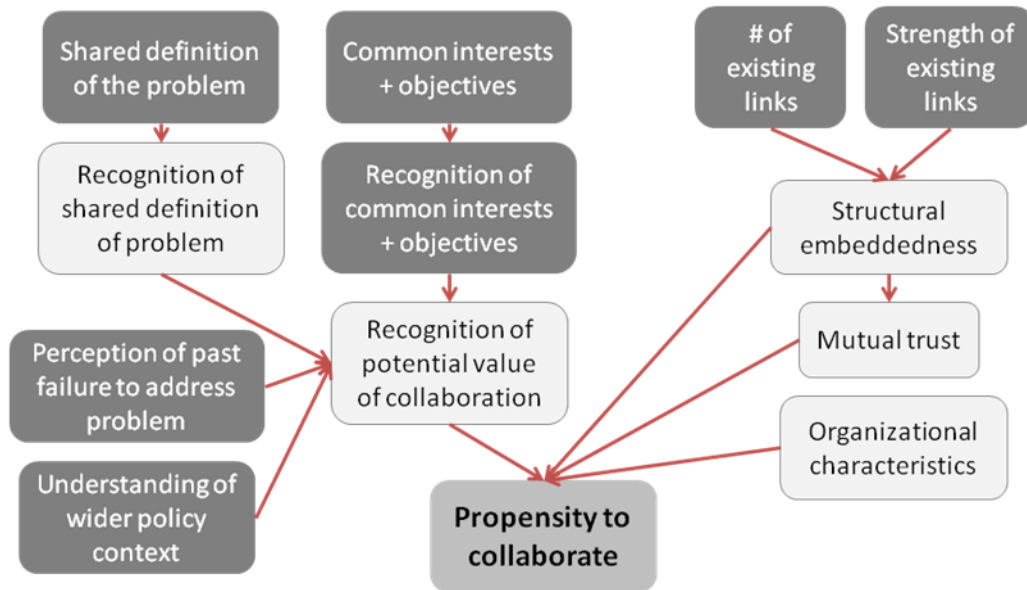


Fig. 1. Organization-specific factors that contribute to the propensity to collaborate. In this study, we attempt to specifically measure the factors in dark gray.

Figure 2

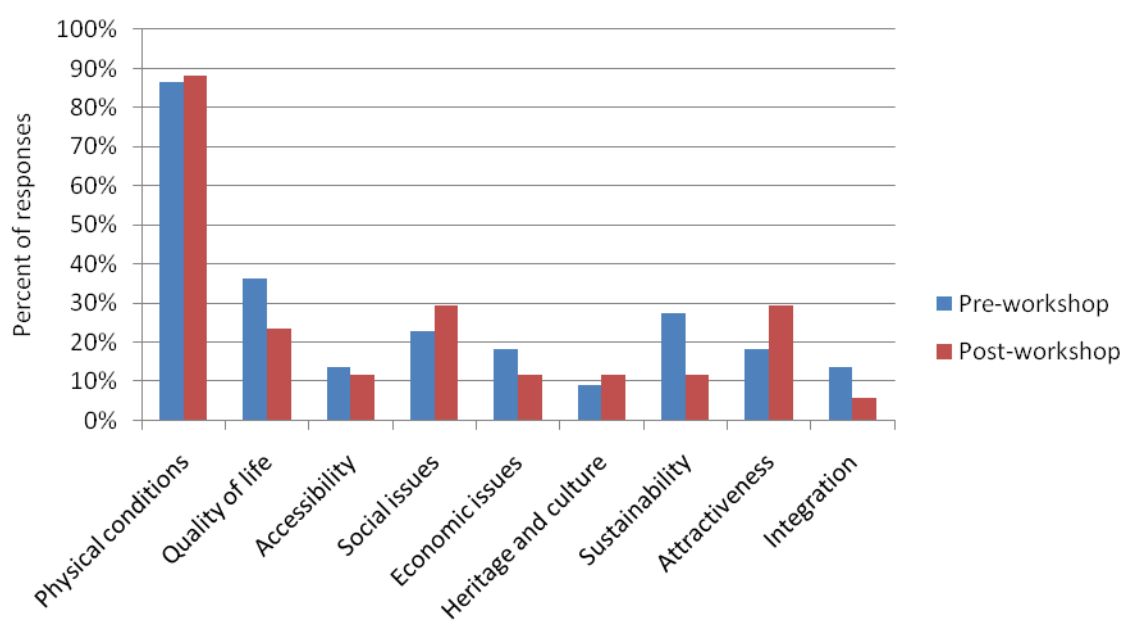


Fig. 2. Concepts in definitions of "urban revitalization", pre- and post-workshop surveys.

Table 1

Factors that Contribute to the Propensity to Collaborate, as Measured by the Surveys.

Meta-factor	Factor	Pre-workshop measure	Post-workshop measure	Expected change as result of workshops
Actor networks	Number of existing relationships	Number of acquaintances	Number of new acquaintances	Increased number of connections between participants
	Strength/quality of existing interaction	Frequency, mode of, reason for interaction	-	More frequent and more substantive interaction (not immediately measurable)
Actors' perceptions	Recognition of need for collaboration	Rating of importance of issue	Rating of importance of issue, rating of effectiveness of existing interventions, opinion on need to work together.	Greater perception of need
	Common goals and interests	Statement of organizational objectives	-	No significant change expected
	Recognition of common interests and objectives	Perception of common objectives; rating of relevance of urban revitalization to own organization	Perception of common objectives; rating of relevance of urban revitalization to own organization	Greater recognition
	Understanding of wider institutional and policy context	Definition of urban revitalization; rating of relevance of urban revitalization to own organization	Definition of urban revitalization; rating of relevance of urban revitalization to own organization	Increased understanding—scope, depth, and clarity. Greater understanding of own role in urban revitalization.
	Shared definition of the problem	Definition of urban revitalization	Definition of urban revitalization	Increased agreement (convergence of definitions)

Table 2
Survey Respondent Characteristics.

	Pre-Workshop		Post-Workshop	
	Response Count	Percent	Response Count	Percent
Total responses	22	-	17	-
In which geographic areas do you currently work?				
Coimbra	3	12.0%	2	11.8%
Lisbon	12	48.0%	8	47.1%
Porto	9	36.0%	7	41.2%
Other ^a	1	4.0%	0	0.0%
What are your main areas of responsibility?				
Regional and Urban Planning	8	33.3%	5	29.4%
Transport Planning	7	29.2%	9	52.9%
Transport Operation	4	16.7%	6	35.3%
Public Administration	9	37.5%	6	35.3%
Real Estate	2	8.3%	1	5.9%
Urban Rehabilitation	6	25.0%	4	23.5%
Citizen Representation	0	0.0%	2	11.8%
Education and Research	2	8%	1	5.9%
Other ^b	7	29.20%	2	11.8%
At which level are the main responsibilities of your organization?				
National	6	26.1%	6	35.3%
Regional	6	26.1%	6	35.3%
Metropolitan	5	21.7%	5	29.4%
Municipal	15	65.2%	10	58.8%
Freguesia ^c	3	13.0%	0	0

^a “Other” refers to the municipality of Aveiro

^b “Other” refers to parking, environmental assessment, construction, and management of European Union funds.

^c A sub-division of a municipality; similar to “civil parish” in the United Kingdom.

Table 3

Number of respondents' Acquaintances in Various Organizations: Pre-workshop Survey.

How many individuals in the following types of organizations do you know personally?			
Organization Type	Percent of Responses		
	More than 3	Between 1 and 3	None
Central government agencies	57%	33%	10%
Regional authorities	50%	45%	5%
Municipalities	73%	18%	9%
Transport operators	48%	43%	10%
Real estate associations	43%	24%	33%
Citizens' groups	59%	23%	18%

n= 22 total responses

Table 4

Respondents' Opinions of the Workshops and Urban Revitalization in General: Post-workshop Survey

	Strongly agree	Moderately agree	Moderately disagree	Strongly disagree
The workshop helped me gain a better understanding of urban revitalization issues	29%	59%	6%	6%
I found that I shared similar opinions with other participants in my discussion group.	41%	53%	6%	0%
I now have more ideas about policies and strategies to promote urban revitalization	35%	29%	35%	0%
The workshop did not change my ideas about urban revitalization at all	13%	25%	31%	31%
The existing urban revitalization strategies and policies in my city have been very effective	0%	59%	35%	6%
We cannot achieve our urban revitalization objectives without changing the institutional system	59%	24%	18%	0%
If we want to be successful in urban revitalization, the various agencies need to work together more	88%	12%	0%	0%
Our current system can achieve our urban revitalization objectives, if only we have the political will to implement the right policies.	47%	47%	6%	0%
I am pessimistic about the capacity of my city to address issues of future urban development.	0%	24%	59%	18%

n=17 responses

Table 5

Perceptions of Shared Objectives with Various Types of Agencies

To what extent do you think your organization has the same objectives as the following types of organizations?	Proportion answering “some,” “many” or “all”	
	Pre-workshop (<i>n</i> =22)	Post-workshop (<i>n</i> =17)
Central government agencies	0.50	0.56
Regional authorities	0.29	0.53*
Municipalities	0.52	0.59
Transport operators	0.35	0.38
Real estate associations	0.15	0.13

Note: * p-value = 0.063, difference in median ranks (1=no shared objectives, 5=all shared objectives), based on the Wilcoxon Rank Sum Test with continuity correction. To test whether the shift in objectives shared with regional agencies is due to the lower representation of municipal organizations in the post sample (see Table 2), we applied the Fischer's exact test (a statistical significance test for contingency tables with small sample sizes), which revealed no evidence of a relationship between the respondent's organization and the pre-post test scores. For example, there is no evidence that respondents from municipal agencies necessarily shared more or fewer objectives with regional agencies, either before or after the workshop.

Table A.1

Final Scenario Driving Forces and Example Underlying Variables.

Driving Force	Examples of Underlying Variables
<i>Economy</i>	<ul style="list-style-type: none"> • Economic growth (purchasing power, etc.) • Consumer access to credit for housing • Producer access to credit for real estate • Etc.
<i>Political/ Administrative</i>	<ul style="list-style-type: none"> • Capital city-centrism (public investments and policies) • Effectiveness of enforcement (e.g., of zoning, expropriations, definition of preservation and heritage) • More movement to “ideal” land and property tax system: e.g., Real estate taxes penalizing long-term vacant property, Split-rate property taxes • Etc.
<i>Demographic/ Societal</i>	<ul style="list-style-type: none"> • Influx of students • Average population age in city centre • Capacity to attract young middle class families • Consumption preferences (shopping, healthcare, education) • Etc.
<i>Technology</i>	<ul style="list-style-type: none"> • Transportation Technologies Size • Transportation technologies combustion: speed of adoption of cleaner, quieter • Communication technologies e.g. virtual travel, tele-presence • Etc.

Table A.2
Scenarios Selected and Corresponding Driving Force States.

Drivers	Scenarios and Corresponding Driver States		
	Social Crisis	New Dynamics	Technology-led Development
Economic	Stagnation	Growth	Stagnation
Social/Demographic	Dynamic	Dynamic	Fading
Political/ Administrative	Strong central government	Less-centralized	Less-centralized
Technology	Neutral	Advance	Advance

PRE-WORKSHOP SURVEY

A. Organization and Respondent Characteristics

A.1. In which metropolitan area do you currently work?

- Coimbra
- Lisbon
- Porto
- Other

A.2. What are the main responsibilities of the organization in which you work? (Check all that apply.)

- Urban and regional planning
- Mobility and transport planning
- Transportation operation
- Public administration
- Real estate
- Urban revitalization
- Citizen representation
- Education and Research
- Other (please specify)

A.3. At which level(s) of government are the main responsibilities of your organization?

- National
- Regional
- Metropolitan
- Municipality
- Local (Freguesia)

A.4. What are *your* main duties and responsibilities within your organization? Please answer in 2 or 3 sentences

[open question]

A.5. Please list the three most important issues or challenges that currently face your organization.

[open question]

B. Urban Revitalization Issues

B.1. Many cities have been concerned with “urban revitalization.” In one or two sentences, how would you define the term “urban revitalization”?

[open question]

B.2. Considering the situation in the metropolitan area in which you work, how important do you think it is to have a strategy and policies to promote urban revitalization?

- Very important
- Somewhat important
- Not very important
- Not at all important

B.3. How relevant do you consider the issue of urban revitalization to the organization in which you work?

- Very relevant

- Somewhat relevant
- Not very relevant
- Not at all relevant

C. Communications

C.1. Please consider other organizations in metropolitan area in which you work, as well as agencies in the central government. In the past 12 months, approximately how often have you communicated with someone in the following types of organizations (aside from your own) via *email, mail, or telephone*? Please consider only communication about work-related issues.

	once a week or more	once or twice a month	a few times a year	about once a year	have not interacted in the past 12 months
central government agencies					
regional planning authority					
municipal governments					
transport operators					
real estate associations					

C.2. In the past 12 months, approximately how often have you spoken *in person* with someone from the following types of organizations (aside from your own)? Please consider only communication about work-related issues.

	once a week or more	once or twice a month	a few times a year	about once a year	have not interacted in the past 12 months
central government agencies					
regional planning authority					
municipal governments					
transport operators					
real estate associations					

C.3. With which single organization do you communicate most often (Considering the types of organizations listed in the previous question)?
[open question]

C.4. What is the main reason for your communication with this organization?
[open question]

C.5. Please indicate in the table below how many individuals you personally know in the types of organizations listed. Consider the other organizations in the metropolitan area in which you work, as well as agencies in the central government.

	More than 3	1 to 3	None
central government agencies			
regional planning authority			
municipal governments			
transport operators			
real estate associations			

D. Organizational Goals

D.1. Does the organization in which you work have officially recognized goals or mission statement? (for example, a formal statement of goals.)

- Yes
- No
- Don't know

[IF YES] D.1.a. What are the goals of your organization? (Please list up to three.)
[open question]

[IF NO OR DON'T KNOW] D.2.b. How would you describe the goals of your organization?
(Please list no more than three.)

D.2. Please indicate in the table below the extent to which your organization shares objectives with the types of organizations listed. Consider other organizations in your metropolitan area, as well as agencies of the central government.

	We share almost all objectives (5)	We share many objectives (4)	We share some objectives (3)	We share few objectives (2)	We do not share any objectives (1)
central government agencies					
regional planning authority					
municipal governments					
transport operators					
real estate associations					

D. 2.a. [IF (1) or (2)] For those organizations with which you do not share objectives, do you think that having different goals has been a hindrance to the activities of your organization? Please explain why or why not.
[open question]

POST-WORKSHOP SURVEY

A. Connections as a Result of the Workshop

A.1. Have you met any new acquaintances as a result of these workshops?

- yes
- no

[IF YES] A.1.a. How many new people have you met in each of the following types of organizations?

- Central Govt Agencies
- Regional Planning Authority
- Metropolitan Planning Agencies
- Municipal Government
- Municipal or Regional Transport Operators
- Urban Revitalization Agencies
- Real Estate Associations

A.2 Do you agree or disagree with the following statement: I already knew most of the participants at my table in the workshops.

- Agree
- Disagree

B. Urban Revitalization Issues

B.1. Many cities have been concerned with “urban revitalization.” In one or two sentences, how would you define the term “urban revitalization”?

[open question]

B.2. Considering the situation in the metropolitan area in which you work, how important do you think it is to have a strategy and policies to promote urban revitalization?

- Very important
- Somewhat important
- Not very important
- Not at all important

B.3. How relevant do you consider the issue of urban revitalization to the organization in which you work?

- Very relevant
- Somewhat relevant
- Not very relevant

-Not at all relevant

B.4. Please indicate how much you agree with the following statements.

- The workshop helped give me a better understanding of urban revitalization issues.
- I found that the other participants at my table held views on urban issues that were very similar to my own.
- I now have more ideas about policies or strategies to improve urban revitalization.
- The workshop has not changed my ideas on urban revitalization at all.

B.5. Please indicate how much you agree with the following statements.

- My city's efforts to address urban revitalization have been very effective.
- We cannot reach our urban revitalization goals unless the institutional system changes.
- If we are to be successful in urban revitalization, different agencies need to work together more.
- Our current system can achieve the goal of urban revitalization, if only we have the political commitment to implement the right policies.
- I am worried about the ability of my city to address future challenges of urban development.

C. Organizational Goals

C.1. Please indicate in the table below the extent to which your organization shares objectives with the types of organizations listed. Consider other organizations in your metropolitan area, as well as agencies of the central government.

	We share almost all objectives (5)	We share many objectives (4)	We share some objectives(3)	We share few objectives (2)	We do not share any objectives (1)
central government agencies					
regional planning authority					
municipal governments					
transport operators					
real estate associations					

C.1.a. [IF (1) or (2)] For those organizations with which you do not share objectives, do you think that having different goals has been a hindrance to the activities of your organization? Please explain why or why not.
[open question]

D. Organization and Respondent Characteristics

D.1. In which metropolitan area do you currently work?

- Coimbra
- Lisbon

- Porto
- Other

D.2. What are the main responsibilities of the organization in which you work? (Check all that apply.)

- Urban and regional planning
- Mobility and transport planning
- Transportation operation
- Public administration
- Real estate
- Urban revitalization
- Citizen representation
- Education and Research
- Other (please specify: _____)

D.3. At which level(s) of government are the main responsibilities of your organization?

- National
- Regional
- Metropolitan
- Municipality
- Local (Freguesia)