

Crowd-sourced Collective Intelligence Platforms for Participatory Scenarios and Foresight

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Introduction

Scenario planning is a structured method for exploring planning and design strategy under severe uncertainty and dynamic change. Most approaches to scenario planning rely on expensive consultants and heavy face-to-face involvement. This poster describes a pilot project in using the collaborative potential of the web to leverage large amounts of participation for emergent scenario creation. The experiment used a “narrative capture” approach to data collection made possible by the Sensemaker™ software platform developed by *Cognitive Edge*.¹

Using an on-line interface, participants from around the world answered four generic questions relating to the near-term future of public services, given the level of financial uncertainty seen around the world.

- What is the future of public service provision under financial uncertainty?
- How will governments and cities adapt to managing public resources under increasing constraints?
- What factors will be critical for public service provision in the coming decade?
- How will these factors combine to influence public service provision in the 2010s and beyond?

In response to the questions, participants submitted brief stories of the future and tagged them via keywords and ‘scenario archetype’ characteristics. The software then clustered these brief stories – ‘narrative fragments’ – based on affinity and representative values, auto-aggregating them into three potential mini-scenarios. The scenarios – essentially mosaics of narrative fragments – were plausible, compelling, and displayed internal logical consistency, thus establishing a basic proof of concept.

Narrative Collection and Tagging

Sensemaker™ software collects data online in the form of stories, anecdotes and narratives about a topic or theme from distributed contributors. Respondents reply to open-ended requests to relate a story that would shed light on the topic.

The screenshot shows a web interface titled "Future of Public Services Under Uncertainty" with the Cognitive Edge logo. The main question is "What factors will be critical for public service provision in the coming decade?". Below this is a large text input area. To the left of the input area is a back arrow icon. Below the input area are two more questions: "If you had to summarise your report in a single sentence, what would it be?" and "Give us a few main keywords about your feedback.", each followed by a text input field. On the right side, there is a small icon of a person and the text "I'm responsible for giving feedback". At the bottom left, there is a small copyright notice: "Copyright ©2007-11 Cognitive Edge. All Rights Reserved."

Figure 1. A screen shot of the submission screen

After submitting their story, anecdote or opinion in a free-form textual interface, users were then asked to code their story against self-chosen keywords, and pre-chosen signifiers. The design thus blended qualitative input in the form of stories, anecdotes and narratives (which have the potential to convey rich social meaning and are easily recalled and communicated), with quantitative indices allowing for this data to be quickly coded, classified and analyzed. The system thereby generated qualitative open-ended narrative data, wrapped in quantitative descriptions that encouraged easier analysis for scenario creation.

Although the core platform allowed for the collection of stories on any topic, the system was adapted for scenario creation through the use of the “alternative futures method” pioneered by Jim Dator (1996). This method suggests that many stories of the future fall within a handful of archetypal categories that follow similar narrative structures and themes. Whilst the details may vary, the overall significance of each archetype remains constant. Examples include story structures such as “the hero’s quest”, “decline”, “collapse”, “continued growth”, etc. Schultz (Curry & Schultz, 2009) and others have codified these archetypes to create narrative indices, which were adapted for use here.

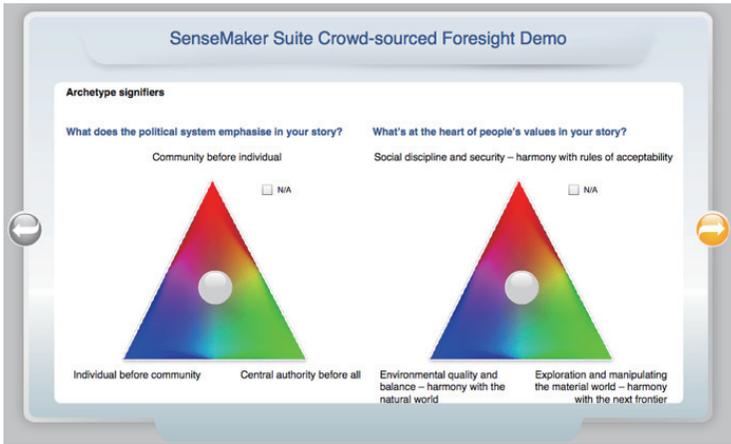


Figure 2. A screen shot of the archetype tagging page

Response

The experiment ran for one week and we received 265 contributions. Contributions ranged from anecdotal stories of personal experience, short analyses of the situation and even just personal opinions. Contributions averaged about two paragraphs in length.

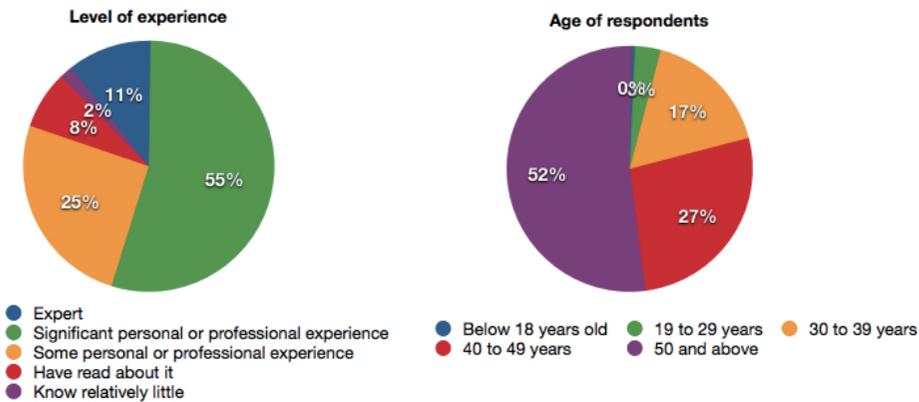


Figure 3. Analysis of respondent characteristics

Demographics

Approximately 10% of respondents called themselves “expert” in the subject matter, around 55% said they had “significant personal or professional experience”, 25% had “some personal or professional experience”, and only about 20% indicated that they had “read about it” or knew “relatively little” about the subject area.

Over 50% of respondents were aged 50 years old or above, 27% aged 40 to 49 years of age, 17% aged 30 to 39, and less than 5% aged 19 to 29 years old.

Origin

Approximately 39% of respondents were from the Americas, 39% from Europe, 19% from Asia and the Pacific, and the remaining 4% from Africa, the Middle East, or elsewhere.

Education Level

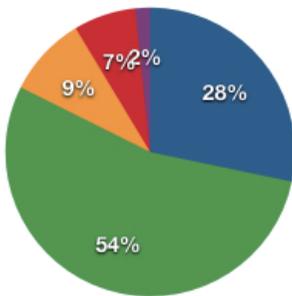
A remarkable 72% of all respondents reported being educated “up to the post-graduate level”, with an additional 16% reporting having education “up to graduate school”. As the experiment was promoted through academic list-serves and email invitations, this is not unexpected, although it could also represent a bias towards respondents who were more comfortable or familiar with this particular form of web engagement.

Significance of Contribution

Two of the questions can be used as a guide for how important people thought their contributions were: “How long will you remember this story?” and “Who do you think should pay attention to this story?”

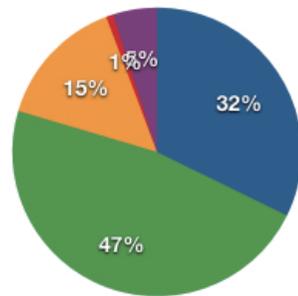
- Approximately 70% stated that they would remember the story “Forever” or “For years”, suggesting that respondents felt strongly about their stories’ significance.
- Over 70% thought that “The World” or “My Country” should pay attention to their story.

How long will you remember this story?



● Forever ● For years
● For a week or two ● It will fade
● It's trivial

Who should pay attention to this story?



● The world ● My country
● My community ● My friends
● No one special

Figure 4. Breakdown of contribution significance by time and social locus

In several post-experiment interviews, respondents indicated that they spent time to make a thoughtful contribution to the exercise. This suggests that the results of the experiment are not trivial and can be used as valid material for the construction of serious future scenarios.

Drivers Identification

One key experimental question was whether this distributed approach could

rapidly collect a rich set of drivers and forces for scenario creation. To address this, the design asked respondents to score their contribution in terms of the “Magnitude of Impact” on various topics, as well as to identify the relative level of uncertainty involved and the time frame of impact.

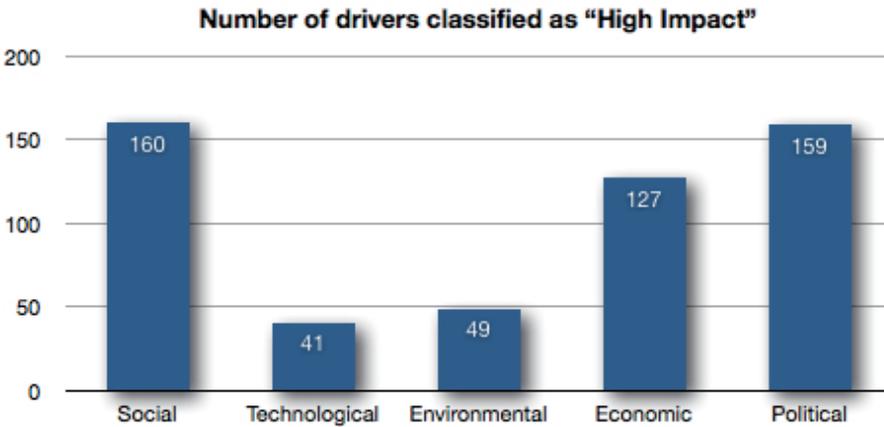


Figure 5. Comparison of high impact drivers across STEEP categories

- 160 stories were classified as high Social impact (>75% score)
- 49 stories were classified as high Environmental impact (>75% score)
- 127 stories were classified as high Economic impact (>75% score)
- 159 stories were classified as high Political impact (>75% score)
- 41 stories were classified as high Technological impact (>75% score)

Note that a single story can be classified as having impact in multiple categories, leading to rich material cross-impact interpretation. Of these responses, 83 were classified as having a “High” level of uncertainty and 21 were classified as having a “Low” level of uncertainty. Finally, 29 stories were classified as “Short term”, 88 as “Medium term” and 55 as “Long term”. This mix of subject factors, uncertainty levels and time frames provided a rich basis for the identification and clustering of impact factors into critical certainties and critical uncertainties.

Narrative Archetypes

A final goal of the experiment was to test the process of using futures “archetypes” as frameworks for semi-automated grouping of responses into pre-defined narrative structures with distinct meanings. The archetypes used were based on Dator’s research as well as content analysis of over 35 different scenarios generated in a range of research contexts (Schultz & George, 2009). Although Schultz’s analysis identifies signifiers for six different narrative archetypes, time and technical constraints of the current Sensemaker™ system limited this work to only *three* archetypes.

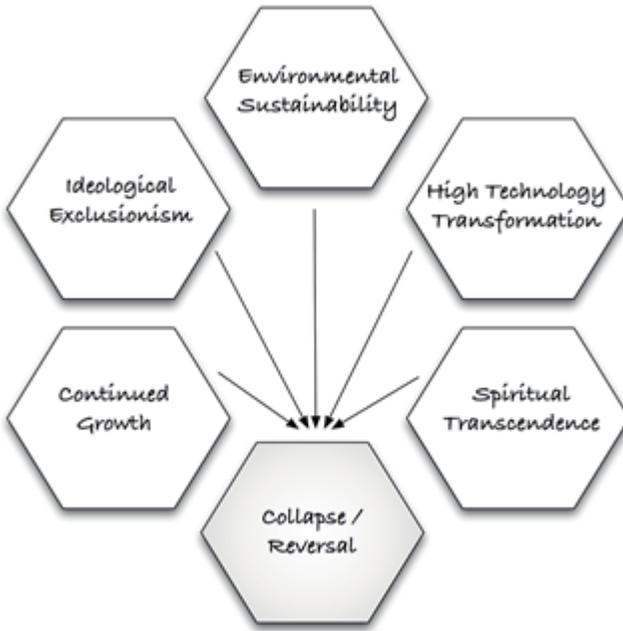


Figure 6. Core futures archetypes

Preliminary results suggest that the coding along “Distinguishing Characteristics” for each narrative archetype was quite successful. Although some respondents reported confusion over the meaning and interpretation of the labels used, preliminary grouping of story fragments into narrative mosaics based on self-coded archetype scores has successfully collected fragments with the right emotional, social and political “tone” that each archetype was designed to represent.

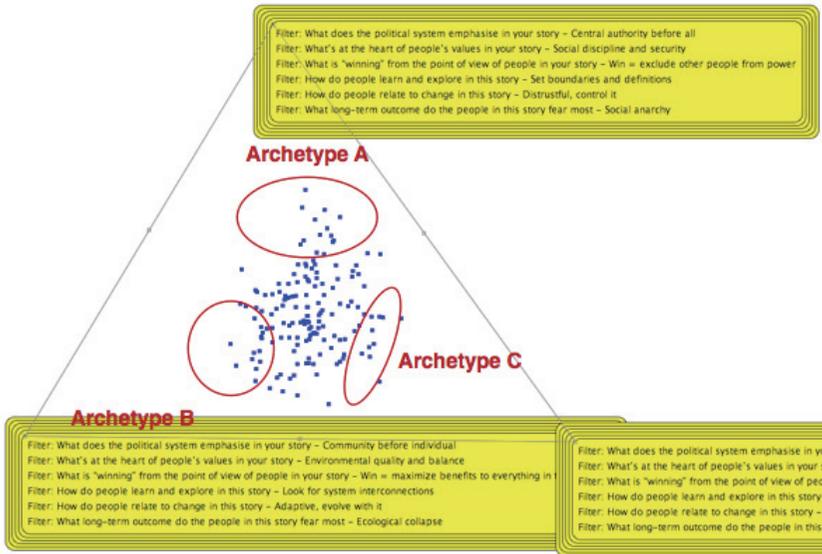


Figure 7. A screen shot visually mapping extreme responses against archetype signifiers

In the screen shot below, the window to the left displays the title of five stories that displayed high values associated with the “Environmental and Social Balance” archetype. The window to the left displays the text for the highlighted story. The story describes a situation where different groups need to reassess their values and collaborate together to create balanced policy. The author called this resetting their “inner operating system”. Both the tone and the language of this story is highly consistent with the values of this archetype, which typifies values of balance, harmony, equality and integration.

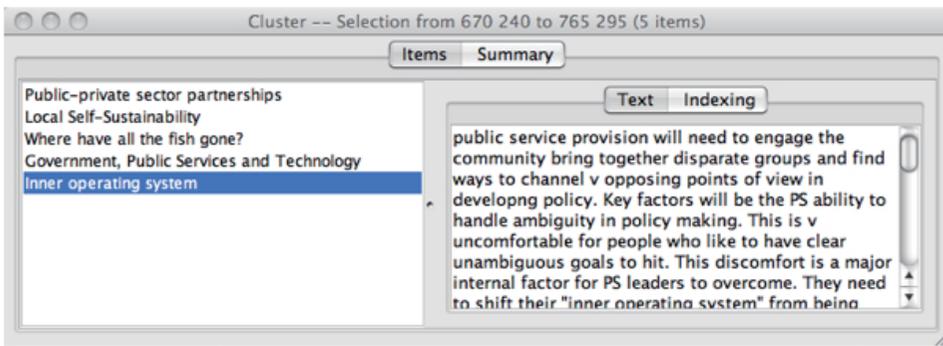


Figure 8. Screen shot of Sensemaker narrative fragment output

Resulting Scenarios

Draft scenario plot lines were selected from this sample of drafts by the

researchers, based upon their internal consistency and narrative plausibility. This entailed a degree of professional judgement and discretion typical of a normal scenario planning project. No user or participant feedback was used at this stage.

The final scenario logics were then sorted into a system of relationships, linking inter-scenario themes into a plausible framework. This used a modified inductive approach that explored the causal links between scenarios as part of the overall scenario selection process.

Possible Scenario Pathways: The Future of Public Service
Raford, 2011

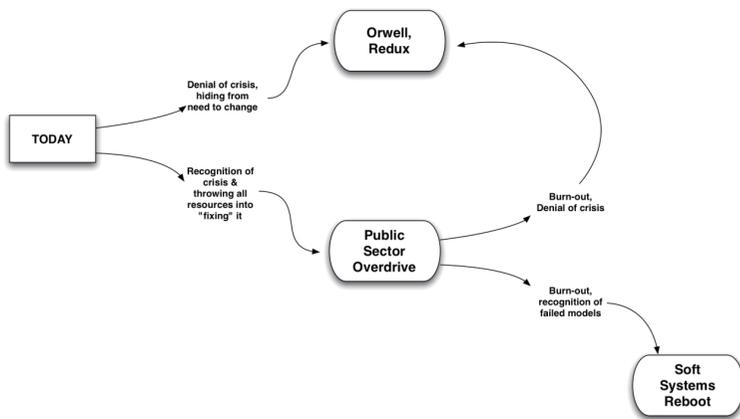


Figure 9. Schema of the final scenario set

Scenario 1 – Orwell, Redux



This scenario is the result of diminished public resources and higher expectations from a demanding public. Less staff, fewer programs and reduced budgets produce more pressures for “operational efficiencies”, internal control, cost cutting and doing more with less. This translates into an attempt to control risk by resisting change, doing as little as possible and working existing staff harder and longer whenever possible.

To mitigate the negative impression of such cost cutting, there is an increase in spin, double-speak and propaganda about government services. Stronger rhetoric

about ‘new partnerships and increased flexibility’ tends to mask a shedding of responsibility by the public sector, where ‘innovation & collaboration’ become buzzwords for giving up responsibility and closing programs. Being forced to do “more with less”, especially in situations where your job may be under threat, turns out to produce a risk-averse, fearful public service culture that tries to reduce costs and minimize effort while delivering fewer and fewer services. This combination of decreased resources and increased spin actually produces less innovation, lower performance and increased stagnation.

Over time, the public and the markets begin to catch on. Like what happened in Greece, there will be an increasing willingness to take to the streets in protest; both as an act of political opposition and as a culture effort to reclaim the streets and make people feel like they have some say in their lives. If unaddressed, this situation could escalate into more aggressive examples, thereby creating jitters in the international credit and currency markets. This could possibly leading to downgrading, currency speculation or worse, depending on their interaction with other elements of the economy. The final result would be increased polarization, politicization of the public services and rising anger and frustration with ever diminishing public services.

Scenario2–Soft Systems Reboot



The government’s inability to meet citizen demands leads to a crisis of governance in the face of diminished resources and income. Rapid changes and complex, new problems produce a public sector dilemma that is unable to cope with its new reality. Metaphorically speaking, the ‘nerve systems’ of most public institutions are put under such serious strain that, in some cases, collapse.

This creates recognition of a deep need to rethink our approach to public services. A growing group of stakeholders demand give mandate for bold and creative leadership which sees transition and transformation as the way to overcome the fear and stagnation.

New organizational structures and experiments arise from within civil society that connect the dots between government, private sector and the citizenry. Such efforts reflect a more mature appreciation for public-private partnerships, which combine with new tools for facilitating social change and lead to a range of new approaches to public service.

Social media, the Web and networks become an integral part of this new leadership, leading to increased resilience and self-reliance in many communities. Community-based, social entrepreneurship that rewards entrepreneurs, civil servants and local residents is held at a premium. Communities

Conclusions

The process proved to be robust to a variety of challenges and served to address the main goals of this case study, i.e., can alternative formats of user input be utilized instead of highly structured, expert-analytical web forms, and second, can scenario archetypes be used to “auto-generated” draft story lines for subsequent refinement. Given that the capture and analysis period took less than two weeks, from start to finish, it is easy to imagine how this approach could be adapted to a more rapid-fire engagement process. The inclusion of more granular demographic capture information, for example, would also allow more fine-scale stakeholder based representations to be made. Whereas the current case study selected from the entire sample population to generate the scenarios, it is easy to see how, with enough participants, different scenario sets could be generated for different stakeholder groups. This would provide rich material for implications development, as well as useful meta-data on conflicting points of view and images of the future. These could be useful either as a stand-alone exercise or as part of a larger process (either workshop based or otherwise). It is therefore suggested that this case demonstrates a proof-of-concept data generation tool that may be of further use for urban planning researchers in other areas of inquiry.

Reflections on the Yeditepe Conference Gathering

They say that pioneers are a lonely bunch: blazing new trails in unknown lands without the support of friends and comrades back home. Settlers have it a bit easier, bringing a cluster of colleagues and relatives along for the journey, helping to settle new territories together. And then, over time, we become urban planners, helping to regulate and incrementally improve a stable, well-functioning society of many, many strangers living together in close proximity.

For me, the most enjoyable part of the Yeditepe Conference was the joining together of a small group of explorers, from California to Turkey, with whom I rarely get to meet. In fact, the Conference marked a small transition for our group, from being pure pioneers - each actively exploring our own lands, in our own ways, on our own energy - to that of a small community of settlers. For that brief moment, we became a gathering of adventurers who, although many of us never met, could sit down by the fire, share our tales, compare our notes, and revise our maps; together.

In time, the kinds of projects we discussed will come to seem primitive and elementary in their simplicity, like evolving from navigation by stars and scent to the complexity of GPS and satellite images. But for that brief conference, we were able to come together, as a group, and outline the edges of our explorations, together.

Now, months later, we've each gone off on our separate ways, exploring new valleys and mountaintops on our own paths. But the next time we meet, thanks to Yeditepe, our maps will be a little more complete, our confidence will be a little more secure, and our spirits will be a little more elevated. Thanks, in no small part, to the Conference organizers and their generous willingness to listen to a bunch of trail-wizeden travelers rave about the wonders to be found on the other side of the hill.

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Notes

- 1 The method was developed in partnership with Dave Snowden of *Cognitive Edge* and Wendy Schultz of *Infinite Futures*.

References

- Curry, Andrew, & Wendy Schultz. (2009). "Roads less travelled: Different methods, different futures." *Journal of Futures Studies*, 13(4), 35-60.
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