

Superstruct: Reorganizing for the 21st Century

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Hypothesis: Superstructuring our institutions is the fastest way to reorganize ourselves for the challenges we face.

We wanted to understand the changing ecologies of institutions, to tap into a large-scale, passionate community of futures thinkers to answer the question: how are we going to put our communities and economies and governance structures together in order to meet the challenges of the coming decades?

In late 2008 more than 7000 people worldwide joined an online game designed by the Institute for the Future, a small nonprofit forecasting group in Palo Alto, California. Superstruct players created 1500 future stories, joined 500 discussions groups, and established nearly 600 "superstructures." They also created links among the superstructures?which, in turn, created larger "ecologies" of superstructures.

The goal of Superstruct was explicitly to understand the impact of networks on solving large-scale global problems: health, food, energy, security, and mass migration. Players were tasked with creating "superstructures" that could use the affordances of networks to go beyond conventional institutional forms. We asked participants from the public to help us imagine a future landscape of new institutional forms, to help us create a forecast not just of individual superstructures, but entire ecologies of superstructures.

From the large number of media created by Superstruct players (otherwise known as Super Empowered Hopeful Individuals, or SEHIs), IFTF created a series of reports and presentations, all of which are available on the IFTF website, www.iftf.org, via the Ten Year Forecast program page.

The core outcomes were 1) a 2009 Map of the Decade; 2) a set of Superstructuring Strategies, or how-to instructions; 3) a set of 5 Superstruct Ecologies, or important new social configurations that provide insight into what kinds of social and organizational solutions might emerge in the next decade; and 6) a few Superstruct Hypotheses for further exploration.

Superstruct Strategies were lessons learned from both the game play and the game design process. They form the basis for a new way of thinking about social organizing. They can be used as a "toolkit" for approaching large-scale problems of any kind. In fact, IFTF's Ten-Year Forecast program now uses them as a starting point for identifying ways to build resilience into our organizational processes. The goal of these strategies is to create an alternative vocabulary for organization that is more suited to the problems?and science?of the 21st century.

The biggest challenges were programming the online engagement platform in a short period of time, and analyzing the large volume and diverse range of material created by players: video, emails, text, stories, superstructs, websites, wikis, etc. The Superstruct players actually created their own separate wiki platform within one week of the game's formal launch, which was a better interaction platform than the one we had done ourselves. The lesson there was to use tools that players are already familiar with, such as wikis and social media platforms, rather than rebuilding them within the game platform, if possible. This would also significantly reduce the overall cost of this kind of game. We would also have liked to create effective in-game private/instant messaging as a key to drive even more engagement and collaboration. Implementing dashboards for both gamemasters and players to track what's happening in-game is critical, given the large amounts of content generated. This poses particular problems when game activities are occurring outside the game site.

As for analysis, we consider this to be an emerging field and one which bears further attention from the larger foresight and gaming communities. There is a wealth of information online that could be mined for foresight, which is spread across multiple formats and forums. There's considerable opportunity for much more detailed

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analysis using emerging digital trace analysis techniques as well as programmatic content analysis.

How

There has been growing attention to using massively multiplayer online games (MMOs) on the internet as platforms for learning, planning, and policy-making in a wide array of domains. Massively multiplayer games promise the benefits of scale by engaging hundreds and even thousands of participants in gameplay. In 2008, the Institute for the Future conducted its first massively multiplayer forecasting game, Superstruct, designed by a team, led by Kathi Vian as Director of the Ten Year Forecast program, working with IFTF's Director of Game Research and Development Jane McGonigal and Research Fellow Jamais Cascio. The game lasted for 6 weeks.

Superstruct took its cue from the alternate reality game World Without Oil, which Jane McGonigal had also designed. Both of these games created a specific scenario world in a dedicated website. The goal was to transport players into an alternative future world where compelling conditions demand their attention, and to structure engagement so as to elicit personal forecasts and strategic foresight that would not otherwise emerge. Participants were encouraged to play not a fantasy role, but to play themselves. Their engagement began with their personal profiles in the game: they told us about who they are in the future world, who their families are, what kind of work they do, and what they care most about. In other words, gameplay began with identity crafting. In all, about 7000 people from 95 countries signed up.

Players were tasked with creating "superstructures" that could use the affordances of networks to go beyond conventional institutional forms. They were encouraged to join these and link them together. They created more than 500 superstructures in the course of the game, but these were disappointing as loci of collaboration. The best collaboration happened outside the game platform. Players collaborated in building wikis and websites. They held face-to-face group meetings in caves along the Pacific Ocean and began a cross-country relay. After the game was over, some even collaborated in new business ventures. The most successful in-game collaborations happened around superstructures that could be elaborated in narratives. For example, the New Pony Xpress superstructure spawned several stories and videos that told the story of how bottom-up networks might replace a collapsed postal service.

We had a **large team** led by Kathi Vian. The game design was led by game designer and director, Jane McGonigal, with Jamais Cascio as leading the development of the in-game scenarios. In addition, the project included programmers from a company called Radical Fusion, video producer Kiyash Monsef, and ten in-game community managers who worked closely with players during the six-week game period.

Scenario development and game design were the primary methods for provoking and collecting foresight. To analyze the results of the game we used both **qualitative and quantitative methods. These included:**

Player-generated ranking: Players linked to new organizations or organizational structures that they found most effective to meet the challenges posed in the game future. Those superstructs that were most densely linked were a form of player analysis.

Contest, judged categories: We had a panel of judges who examined superstructs and awarded them honors based on a range of qualities.

Network analysis tool: to interpret the data and show us how superstructures were connected by membership. To create an ecology, we selected a single superstructure as a starting place. We used an analysis tool developed by Howard Bornstein to set a threshold of density to define the ecology. For the smaller ecologies, the threshold was as low as two shared members. For some of the more densely connected ecologies, the threshold was as high as five shared members. Adjusting the density threshold allowed us to maximize the visibility of connections. Too low a threshold would show everything as connected; too high would leave out important connections and only

reveal a familiar set of the most highly connected superstructures.

First-order and second-order connections were identified. Thus, in addition to the core superstructures, which were all connected to one another, other superstructures emerged from the intersections of two or more of the superstructures. A tool was developed to support this analysis and could be used to analyze any ecology, starting from any of the 500+ superstructures.

Ecological view: we asked the ecologist's questions as we studied the ecology maps: Who's here? Who are they connected to? Why are they occurring together? And how do they improve the energy-efficiency of system they define? (Or do they?)

Game mechanics are some of the most effective and exciting ways **to engage participants**. The game play included in-game rewards, achievements, and feedback. Compelling, immersive, introductory content (videos, text) was designed to quickly convey background information and provoke action in the form of text or multimedia. During live gameplay, in-game community managers continued to introduce thematic updates to core scenarios and frequent missions to inspire participant submissions. We also had a panel of 8 well-known judges who awarded honors on the most interesting Superstructs. Panelists included science fiction writer Bruce Sterling, technology innovator Tim O'Reilly, and online performance artist Ze Frank, and Wikipedia founder Jimmy Wales. The game was promoted via the IFTF website, Jane McGonigal's blog Avantgame, and through television and print media as the game was in process. We also used Facebook and Twitter.

Research Findings

Superstructuring Strategies

EVOLVABILITY. Nurture genomic diversity and generational difference. Take advantage of the fact that evolution is cleverer than you are, and embrace continuous cycles of incremental change. ? give others freedom to make independent improvements ? make the genome visible?be as transparent as possible ? open trumps control

EXTREME SCALE: Layer micro and massive scales for rapid adaptation. Micro-scale means you need to reach down the scale to engage in crowd-sourcing. Invite individual actors to make micro-scale contributions. The contributions need to be small and well-defined enough that massively many individuals or smaller groups can successfully undertake them. These individual crowd contributions can add up, of course, to extremely significant collaboration results. ? push both up and down the chain of scale ? optimize participation bandwidth for different levels ? offer 15 minutes of contribution

AMBIENT COLLABORATION - Leverage stigmergy with environmental feedback. The bigger and more complex a collaborative community gets, the more important it is to provide ambient tools that support real-time self-organization. ? offer both ?blanket? and ?opt-in? collaboration feeds ? give would-be collaborators visual tools for broadcasting their talents, resources, and status ? enlist live superstruct spotters

REVERSE SCARCITY - Use renewable and diverse resources as rewards. In any community, different members value different rewards. There doesn't have to be competition for a single reward resource. And the resources you are using as rewards can be completely renewable ones, based on social esteem, social support, and positive feedback. ? increase your social capital ? use improved reputation, rather than financial compensation, as a scalable reward ?I nvent new measures of potential rewards ? create egalitarian opportunities for success

ADAPTIVE EMOTIONS. Confer evolutionary advantage with awe, appreciation and wonder. Extreme-scale cooperation provokes more intense positive emotions, and positive emotions spur even more intense collaboration behaviors. So by deliberately stimulating these highly adaptive emotions in ourselves and others, we are tapping into our neurological hard-wiring for good. ? unleash your ?vagus nerve superstars? ? develop your positive

emotional radar

AMPLIFIED OPTIMISM. Link amplified individuals at massive scales. Super-Empowered Hopeful Individuals are the bottom-up engine of any superstructure. But they need large-scale organizational and institutional amplification to augment their bottom-up optimism with experience, reach, and resources. ? turn your colleagues, constituents, and customers into SEHIs ? look for ways to amplify opt-in SEHI missions ? set goals in with an eye toward the super-long term ROI

PLAYTEST - Challenge everything and everyone in fun, fierce bursts. In a time of major institutional upheaval, play may seem to be the last strategy you would want to adopt. But Superstructures develop and work differently from other kinds of organizations?so they need to be tested and challenged every step of the way. ? plan for failure early and often ? launch open proof-of-concept demonstrations ? use awe-inspiring challenges, with metrics, to get seemingly impossible things done

Superstruct Ecologies

Appleseed Ecology: Food as disruptive economy. The Appleseed ecology suggests a variety of new structures to support urban farming, including things like rooftop and vertical gardening, but also leveraging the new urban infrastructure of communication and commons to make it work. Anchoring this ecology is the Appleseed superstructure, which proposed to create a gaming platform to support farmers sharing information about their gardens as a way to accelerate collective learning about the problems specific to urban farming.

Natural Currency Ecology: Linking Sustainability to Sociability. Underlying all of these currency ideas is a new level of knowledge about the environment?both the natural environment and social environment. Currency becomes the mode of exchange for this information. So currency actually becomes the message, as well as a way to build local value.

Community Works Ecology: Building emergent local and global infrastructures. This ecology re-imagines our infrastructures for community, energy, and education..The internet has defined a basic model for an emergent infrastructure. This model uses openness, peer-to-peer structures, social networks, and most importantly scale. Leveraging patterns of human behaviors and actions that add up to something big?for example, generating energy rather than consuming it.

The Open Fab Initiative Ecology: Remaking the material world out of poverty. The Open Fab Initiative is the starting node for a densely interconnected ecology of superstructures that span the major ideas and innovations in Superstruct. The Open Fab Initiative explicitly links new very small-scale fabbing tools and practices to solving the problems of local distressed communities?creating new local material and economic realities.

Quantum Governance Ecology: bridging across realities. The Quantum Governance superstructure sparks an ecology rich in superstructures concerned with ideas, stories, and knowledge. This is not surprising: in a quantum world, point of view is everything, and many of the superstructures in this ecology?from Meme Machine to Foundation of Hope, and even Open Source Scientists?are designed to help citizens makes sense of the world. Even Quantum Governance, with its Quantum Manifesto, is not so much an action superstructure as an invitation to ideate.

Superstruct Hypotheses

In a superstructured world, the leading organizations are those that are highly interconnected, process-oriented organizations.

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Superstructuring tends to reject traditional forms of security and boundary based protections. It makes sense that structures that are trying to secure their boundaries would be the least connected.

Superstructuring is an inherently creative endeavor that tends to emphasize art and design competencies. The rank and file superstructures of the future will be engaged in these expressive activities.

Further reading

- [Map of the Decade](#)
- [The Superstuct Handbook](#)