# Innovation

## More than a New Year's Resolution

By Nate Burgos

The beginning of our new millennium didn't just bring change, it dealt it out harshly—the Asian Tsunami on December 26, 2004, Hurricane Katrina on October 8, 2005, the South Asian Earthquake on August 29, 2005, and more.

One force that was particularly shaken was innovation. Like disasters, innovation changes everything and is driven by change.

In business and technology, innovation is a persistent rallying, even lofty, call. But let's ground the term to its fundamental meaning. Innovation's dictionary definition is "making something new." It also means continuous improvement to an existing condition. Realizing good ideas and improving the current state of affairs are shared goals never waning in staying power in change-charged times. Whether as a device, process, method, service or environment, innovation's ultimate aim is improving quality of life.

For the aspiring and practicing innovator, inherent in traumatic events are essential lessons and critical challenges repeated with every force of nature.

# *Ultimate Lesson: Systems are Solutions, but Solutions are Never Final*

As part of its coverage of the Hurricane Katrina aftermath, the front of *TIME* magazine displayed a harsh and reoccurring truth: "System Failure." Disasters disrupt systems. We rely on natural and artificial systems, from land masses and floodwalls to communication and operations, to enable our activities and replenish them. As systems age they face re-evaluation and re-engineering—in short, redesign.

"The concept of redesign underlines the fact that—both as process and product—design always contains a collective, cooperative and cumulative dimension."[1]

Striving for a "collective, cooperative and cumulative dimension" speaks to a systemic that takes ever-active people and their ever-changing environment into account. This coupling of diverse individuals and their diverse contexts points to the dynamic construct of "the whole and its parts" defining systems. Temple Grandin—who is the Associate Professor of Animal Science at Colorado State University and autistic—has said that she "believe[s] that doing practical things can make the world a better place. And one of the features of being autistic is that [she's] good at synthesizing lots of information and creating systems out of it."[2] Grandin's practice of systems thinking takes advantage of an environment where interconnectivity between people, places and objects is thick with possibility. Finding meaning in those connections can transition into opportunities for innovation, large and small.

Mayo Clinic's current President and CEO Denis Cortese commented, "Saving lives requires a system. … Medicine is more complex than ever. And complexity requires systems—industrial-engineering techniques, project management, continuous improvement, all of the stuff that's

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1 "On Seeing Design as Redesign: An Exploration of a Neglected Problem in Design Education" by Jan Michl, 2002.

2 "Seeing in Beautiful, Precise Pictures" by Temple Grandin, This I Believe, Morning Edition, National Public Radio, August 14, 2006.

Getting out into the field and being a sensory witness...can lead to thinking from different angles and edges because problems are not neutral.

done in every other industry in this country. Systems require teams. Teams require collaboration."[3] Though Cortese was addressing the healthcare system, emphasis is on systems, not silos. The points of engaging complexity, continuous progress and collaboration characterize practices to help discover and feed those opportunities for innovation.

## INNOVATION IS NOT ONLY FACING COMPLEXITY BUT MINING IT, BY DESIGN

"Systems design" is mostly associated with hardware and electronic components, but it is also an appropriate classification for capturing the goal of design disciplines—from architecture to product design—under the helm of human-centered design. This is the kind of thinking that is not afraid of engaging complexity toward envisioning holistic solutions. Human-centered design's focus is two-fold: Investigating natural and artificial entities themselves, from people to tools to activities, and examining how they link to other phenomenon like social, political and market forces. Such examination takes into account the intersection of diverse factors—physical, cognitive, emotional, and cultural—and their role in shaping that complex entity called experience.

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3 "Fast Talk: Life Savers" by Christine Canabou, Fast Company, Issue 81, April 2004, Page 49.

After Hurricane Katrina, one of the primary targets of anger and frustration was the system of waterways built to bolster the navigation of commerce, including the caveat of flood control. The Mississippi River Gulf Outlet, made to quickly connect New Orleans to the Gulf of Mexico, was found to have helped intensify a powerful rush of water that overcame the protection levee system when the hurricane hit. Those most agitated with the artificial canals were not sceptical scientists or environmentalists, but the fishermen who were familiar with New Orleans' land and waters through intimate experience: "All these fishermen, they don't have a degree, but you know what they have? Common sense and a knowledge that they have of the hydrology of the water."[4]

The fishermen's tenured track record of experiencing the system of nature in New Orleans reinforces the importance of discovery by design. Systems designed in a vacuum are prone to fail as a solution. Critical systems require especially critical investigation. Among other problem-solving disciplines, design can help. Finding out about people's experience in a specific context is at the core of human-centered design. Design methods for observing, questioning, notating and mapping human action in actual circumstances, and reflecting on those findings, informs decision-making and has potential to bring great insight, the precursor to all good ideas. What better source material for ideation than people, their objects and activities, their attitudes and opinions, their experiences? Urbanist Jane Jacobs immersed herself in watching human behavior. "She observed the things she saw, what makes people enjoy a city ... what turns people off, makes places barren and sterile. She really looked to see what it was that made the difference."[5] Jacobs' "experience immersion" helped to understand the complexity of cities in order to plan and promote meaningful spaces.

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4 "New Orleans Poses Challenges for Army Engineers" (St. Bernard Parish President Henry "Junior" Rodriguez) by Laura Sullivan, Morning Edition, National Public Radio, October 27, 2005.

5 "Urban Visionary Jane Jacobs Dies," All Things Considered, National Public Radio, April 25, 2006.

Getting out into the field and being a sensory witness like Jacobs can lead to thinking from different angles and edges because problems are not neutral. Problems connect to natural and artificial conditions. These various connections make problems varied in complexity. Even design methods themselves require innovation. Design researcher Dr. Elizabeth Sanders believes "Informed ethnography is just not enough to support human-centered innovation. Participatory design practices together with an attitude adjustment are needed. Experts design for people. In the future we will be designing and innovating with people, not just for them."[6]

As the practice of human-centered design evolves, emphasis on people and their experiences remains integral to honing in on solutions to issues and problems increasing in complexity. Like the fishermen of New Orleans and their familiarity with the landscape of the Mississippi River Gulf Outlet, local knowledge and an overall sense of locality must be leveraged and never ignored in creating context-sensitive solutions.

## INNOVATION IS DEFYING COMPLACENCY BY CONTINUALLY SEEKING AND SEIZING IMPROVEMENTS, ONE SCENARIO AT A TIME

Scenario planning and thinking was invented to help curb ignorance of deficiencies and risks. A symptom of our data-streaming times is simulation-streaming. Does fascination with simulating scenarios minimize vigilance? Worst-case models were made to render a what-if situation for New Orleans: "All this had been foreshadowed with disconcerting accuracy last summer [2004]. Hundreds of regional and federal officials met in Baton Rouge, La., for an elaborate simulation exercise. The fictional 'Hurricane Pam' left the city under 10 ft. of water and looked a lot like Katrina."[7]

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6 Science in the Making: Understanding Generative Research Now! A conversation with Liz Sanders, Ph.D, NextD Journal, Issue 5, 2004.

7 "Places Where The System Broke Down" by James Carney, TIME, September 19, 2005.

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Though they may seize attention, scenarios don't break down all barriers to solutions, as demonstrated by the aforementioned example where hundreds of representatives from various organizations were present. Countering this out-of-sight, out-of-mind condition reinforces the continual need to nurture awareness.

In contrast to the scale of the simulated "Hurricane Pam," a grass-roots example of scenario planning is the development of "poverty simulations," deployed in a number of U.S. cities to improve understanding of poverty's effects. As part of their STEP UP anti-poverty initiative, Savannah, Georgia holds monthly scenarios where political officials, business executives and civic groups spend an evening role-playing as people struggling to survive with poverty.[8] Another example of grass-roots scenario planning is in North Carolina, where policy-makers are reaching out to learn and understand the experience and plight of Mexican immigrants. Run by the University of North Carolina's Center for International Understanding, the Latino Initiative consists of participants from academia, business, social services and government in educating themselves about the experience and meaning of immigration. From the Initiative's director Millie Ravenel: "You internalize it in your gut. And when you really understand something powerfully, it moves you to act.[9]"

In tackling a large complex problem, from poverty to immigration, simulations and cross-border exchanges seek a point of view. They also demonstrate the potential of local means in helping to make such understanding more common and spreading it. Building and sustaining a wave of

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8 "A City Steps Up: Savannah Confronts Poverty" by Steve Inskeep, Morning Edition, National Public Radio, March 20, 2006.

9 "Policymakers Get Cross-Border View of Immigration" by Jennifer Ludden, Morning Edition, National Public Radio, October 23, 2006.

understanding via small groups can make a big impact across professions combating complacency. Breakthroughs can start small and incrementally (as opposed to large and radical). As cultural anthropologist Margaret Mead famously stated, "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."

## INNOVATION IS WORKING TOGETHER, AS COLLABORATIVELY AS POSSIBLE

Arresting images of how far inland the Asian Tsunami and Hurricane Katrina reached captivated us and held our attention. More so, the footage showed the velocity and viscosity of networks. In the midst of a fast-paced uncoordinated world, the footage showed variety of connections being made in unison. One popular analogy for innovation is a pipeline through which ideas are framed, developed and launched. Beyond the linear mode of a pipeline, and speaking more to the impact of people, innovation is a network through which connections are made. Disasters provoke commonality and links between individuals. Their magnitude galvanizes the masses to be mutually supportive for mutual benefit. The basic dynamic of community is compelled here. It is a dynamic of a fast-paced information-driven society and is essential for making progress. We are critical parts of a human and environmental chain. When disasters strike, communities form, as charitable chains mobilize outreach, as governmental chains provide logistical support, as commercial chains donate operations, et al. The links in these chains echo the powerful networking triad of people, places, and objects that make systems run on a daily basis.

In their book, *Information Ecologies*, authors Bonnie A. Nardi and Vicki L. O'Day describe a system that thrives on collaboration: "Like a biological ecology, an information ecology is marked by strong interrelationships and dependencies among its different parts."[10] Collaboration between diverse

10 "Information Ecologies: Using Technology with Heart" by Bonnie A. Nardi and Vicki L. O'Day, The MIT Press, Cambridge, Massachusetts, 1999, Page 51.

individuals and their diverse specialties yields a network less opaque. Boundaries of ethnicity, age, creed, and professional practice become transparent. Multiple disciplines, from accounting to landscape architecture, enter partnership to help realize relief in an open-source format.

The "network effect" is an innovative ingredient. In contrast to "human capital flight," the fundamental property of networks integral to innovation is the capitalization on connections to potential skills and knowledge. "Human capital is the most important investment, as it's what's left when you are stripped of all other assets and it can never be taken away," says Charles Wheelen, author of *Naked Economics*.[11]

Though the macro-network of goodwill was made visible during Hurricane Katrina, it overshadowed a network greater in potency, a network closer to home. As one New Orleans resident said, "It was the family network we relied on...."[12] This micro-network was aided by another group of people, the neighborhood, described as "closely knit" and tending to "look out for each other." Small networks can make a big difference. Innovation does not need to rely on extensive networks to succeed.

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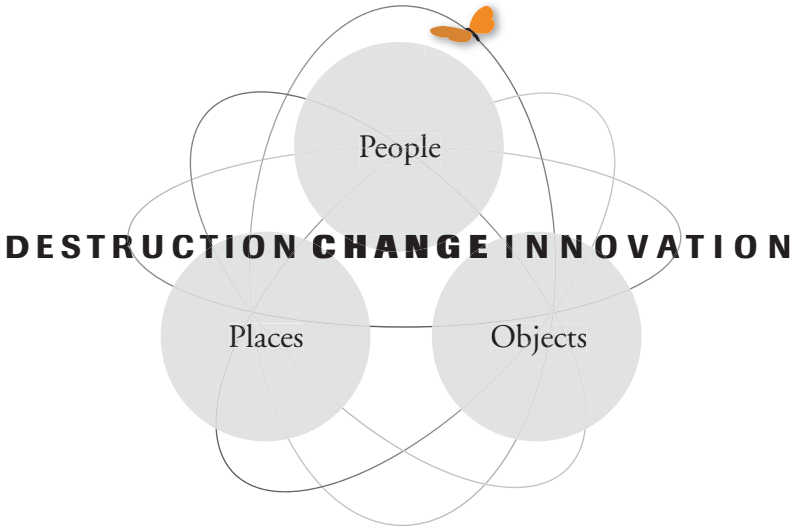
11 "Naked Economics: Undressing the Dismal Science" by Charles Wheelan, W.W. Norton & Company, Inc., New York, New York, 2002, Page 99.

12 "Residents Explain What Makes Honeysuckle Home" by Robert Seigel, All Things Considered, National Public Radio, February 27, 2006.

## INNOVATION: POSITIVE TRANSFORMATION




Disasters remind us of the fragile state of matter over mind and vice versa. Their transformation begets transformation in a never-ending cycle affecting the interconnectedness of people, places and objects. What remains the same are the instructive challenges they reinforce upon us. These challenges recur to help encourage innovation, positive transformation and traction.

### DESIGN WITH PEOPLE AND CONTEXT IN MIND

Gated communities of knowledge and practice are an obstacle to human-centered engagements. Designing without considering, or even exploring human, cultural and environmental factors is designing without discipline. This sentiment was expressed by one reporter covering the aftermath of Katrina: "These are not low-lying ghettoes. These aren't disposable neighborhoods to be turned into green spaces or condos or Creole Disney World. This is sacred ground."[13] "Design thinking" is focused on responsible decisions, incorporating multiple pieces of information and perspectives, and making respectful products, services and spaces. One would imagine this quality of thinking is inclusive and institutionalized on an organizational level when a design culture turns into an innovation culture.

### WATCH FOR SLACK POINTS IN THE SYSTEM

Systems succeed when they know no shelf-life. Emphasis here is on systems sustainability. Can the needs and benefits of existing and future systems parallel those of end users? At the core of sustain-

13 Dr. John: We're Gonna Be Back in New Orleans by John Burnett, Morning Edition, National Public Radio, March 2, 2006.

ability is the essential premise of achieving positive outcomes by preserving authenticity and diversity. However, engaging opportunities for change is only one part of the process of innovation. The majority deals with mindfulness of how systems, the whole and its parts, are performing. "Something should be in place" is a curious proposition. In comparison to what, and what impact should it have? In his book, *The Elegant Solution: Toyota's Formula for Mastering Innovation*, Matthew E. May describes a slack point as an "undetected and counterintuitive inefficiency."[14] Sustaining, even innovating, systems cannot let any part slip through a loophole. What was necessary at the time may not hold true for the future.

## FIND PROVIDENCE IN PROXIMITY

Social networks are vaunted as idea generators, but they also leverage a fundamental property that makes them an enduring phenomenon: Connections. The innovative thinker Henry David Thoreau believed in having "Faith in a seed." Human connections are seeds in themselves and prime for empathy, an investment more socially and economically viable. Social networks are deposits in the compounding capital of empathy and begin with one's family and community. These are the root building blocks of a larger and far-reaching ecology. The neighbor network can be a powerful tonic in times of change. The open pathway to advancement is closer than we know.

What's the next big thing? This question is plastered throughout media and can be misleading. When it comes to innovation, size and scope does not matter in improving lives. One's sphere of influence, however small, can lead to critical and incremental change, from home to classroom to workplace.

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14 "The Elegant Solution: Toyota's Formula for Mastering Innovation" by Matthew E. May, Free Press, New York, New York, 2006, Page 163.

## STRIVE FOR AN INNOVATION ARC

A story arc is a continuing storyline. Its purpose is to move a character or a situation from one state to another, or to galvanize change. This is a pattern evident in work and play, in Life itself. Innovation is more than one shot, more than a chapter. What it constitutes is a narrative series in which one episode of change unfolds into another. Like a story arc, innovation can result in dramatic effect but it is and remains hard work. Innovation can be described as episodic reaching of a high point. It brings out the best in us. The motivation of innovation-charged groups can be striking. Cooperation, not competition, is the driver of positive outcomes toward an empathic future.

"The amplitude and velocity of change is such that companies are more at risk," says Paul A. Laudicina, author of *World Out of Balance*.[15] The word "companies" means people. In as much as there is a drive to have a strong command of preparation when disasters happen in order to respond to sudden change, there is a drive to help people live and work collaboratively and efficiently. This same drive embodies innovation. In asking the tough question "What if…?" innovation's intent is that the best, not the worst, is yet to come.

Innovation is more than a new year's resolution, it is the pursuit of betterment in a world both troubling and interesting at the same time. Like disaster's continuum of change, the continuum of innovation also persists. Individual efforts are conducive to leaving our world a little better. Aligned to Grandin's passionate practice of "doing practical things" and "creating systems," innovation is not beyond one's abilities. With this in mind, anyone can innovate.

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15 Mastering Disaster by Jennifer Reingold, Fast Company, Issue 107, July/August 2006, Page 38

# info


## ABOUT THE AUTHOR

Nate Burgos is an empathic information design professional. He believes that the poetics of information can enable people, clients and the consumers they serve. He was the first recipient of IIT Institute of Design's Master of Design Methods (MDM) degree and part of *Fast Company*'s debut "Fast 50 Champions of Innovation." He is also the recipient of the "Ideas that Matter" grant—given to support design for the public good—from Sappi Fine Papers, sustains the peer-endorsed design webliography Design Feast and self-published "Thought Leadership by Design: Inspiration for Designers, Businesspeople and Design Evangelists."

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