IFTF’s Technology Horizons program illuminates future forces in science and technology that will transform how we live, work, and create change in the next decade. We evaluate discoveries and discontinuities that are likely to have major impacts on organizations, ordinary people, and innovators over the next 3-10 years.

By systematically thinking about the future, we help our clients navigate the zone between technological disruption, shifts in human identity, and the tides of social change. It is at this nexus where new needs, desires, and possibilities become clear. In 2012, join us in designing a blueprint for a more human Internet experience in the next decade.

› AVOID BEING BLINDSIDED BY DISRUPTIVE TECHNOLOGIES with our trusted, independent forecast of emerging technologies.

› REDUCE UNCERTAINTY, and ultimately costs, when making your technology and new product investment decisions.

› IDENTIFY FUTURE, NON-OBSVIOUS LARGE-MARKET OPPORTUNITIES for discontinuous growth as well as competitive risks: “Where’s the market that I don’t currently see?”

› GAIN AN INSIDER’S VIEW OF THE MANY INNOVATIONS—technical, business model, social, and organizational—emerging in California’s Silicon Valley, the San Francisco Bay Area, and other innovation hot spots.

› EXPAND YOUR OUTSIDE NETWORK by interacting with and learning from individuals from a broad range of industries, academia, and organizations.
As Marshall McLuhan famously wrote, “We shape our tools and thereafter our tools shape us.” Our identities, organizations, industries, and societies have slowly but surely been reshaped over the past thirty years of the mass experiment that we call the Internet. We have, like the World Wide Web, re-organized ourselves into new constellations of connected networks and rewired the flow of information, skills, and knowledge. We have built new social relationships on this foundation, which have already profoundly disrupted our economic and political systems.

And we’ve only just begun.

In the next decade we will move into a world of experiences that will transform the very concept of the web: information filter bubbles, friends who are bots, big data for communities, new forms of intelligent organization. New emotional and sensory dependencies on technology will emerge alongside inspiring collaborative solutions to our most pressing social, environmental, and economic issues.

BLUEPRINTING A MORE HUMAN INTERNET EXPERIENCE

In 2012, IFTF’s Technology Horizons program will undertake a yearlong project to blueprint a more human Internet experience for the next decade. We begin by mapping the core technologies that will shape the next ten years of web experience, and finish with a guide to the new values and capacities of an Internet human in 2022. Along the way we will ask: how will we, as individuals, communities, and organizations, be changed or challenged by where the web is taking us? What kind of connective technology do we want for 2022, and what decisions do we need to make in the next few years to get there?

Blueprinting a More Human Internet Experience will provide insight to the emerging concepts and social phenomena that will shape new services, interactions, and living patterns across a wide range of daily-life domains, from work and learning to wellbeing, creativity, and civic engagement.

In 2012 we will also explore an emerging innovation space that we believe will form the basis for a new wave of hardware, software, product and service development over the next decade. Creative Chaos with Chinese Characteristics will forecast the convergence of two open innovation communities: the “shanzhai”, or “bandit” manufacturing networks in China, and the DIY/Maker networks in the West. How will your organization respond to this new design and manufacturing network?

The year is structured as a series of open expert workshops, client meetings, and research deliverables with a renewed focus on practical sharing across the Technology Horizons member network.

We look forward to meeting with you to share ideas, practices, and connections.
**SPRING › BUILDING BLOCKS OF WEB EXPERIENCE 2022**

In the last ten years we have seen the growth of entirely new web experience categories such as social networks, video-sharing sites, and p2p exchanges, which have rapidly reconstructed our social and business environments. In this project, the Technology Horizons team will identify the exciting, fast-growing capabilities that are likely to significantly morph the building blocks of today’s web experiences—things like emotion sensing, information trail analysis, gigabit-to-the-home, and new kinds of reality packaging via photography, AR, and 3D. We already see the growth of brand pages and commercial transactions inside Facebook and Google+, what value will a stand-alone website provide in 2022? With mobile, cloud-served supercomputing, what will happen to personal computing? And with softbots helping us manage our communications, how will we define a social network?

**DELIVERABLES**

› **EXPERT WORKSHOP IN A FISHBOWL**: Come participate as we invite a select group of developers and visionaries to help us identify the most important technical developments shaping the next decade of Internet experiences.

› **REPORT**: The report will detail the new building blocks of the 2022 web experience.

› **CONFERENCE**: Join us for an intimate two-day experience to learn about the research and engage in close conversation with technology pioneers from academia, start-ups, private and public sectors May 16-17, 2012, San Francisco Bay Area, CA.
SUMMER › CREATIVE CHAOS WITH CHINESE CHARACTERISTICS: AN EMERGING INNOVATION SPACE

In the last ten years, Chinese manufacturing has solidified its dominance in the global economy, nearly tripling its share of total global manufacturing output from 6.9% in 2000 to 19.8% in 2010. During this same period, off-brand or shanzhai manufacturing networks have also exploded, thereby savaging the bottom-end of the global consumer electronic market. Over the next decade, this manufacturing capacity will collide with a new generation of creative entrepreneurs from around the world and within China itself, forming the basis for a new wave of consumer tech products and services.

In 2012, the Technology Horizons team will explore the pioneering community of Western and Chinese makers, designers, and entrepreneurs at the forefront of this new global collaborative creativity. We will analyze key drivers of change, including the changing meanings of shanzhai, the role of open software and hardware, the rapid evolution of Chinese design, and the growing China focus of Western DIY/Maker communities. We will then consider how these forces will reshape the information technology, design, and manufacturing space for the next decade.

DELIVERABLES

› WHITE PAPER: The white paper will introduce key players concepts and implications of new creative convergences between Chinese and Western designers and manufacturers.

› WEB CONFERENCE: Join the research team and invited experts for a walk through the white paper and a discussion of what it means for you and your organization.
In the midst of our economic recession, algorithms, not people, sit at the front of the employment line picking out job candidates in the online job market. In a world of information overload and digital identity management, chatbots are available to help us find information and boost our online profiles. Meanwhile, our children are conducting more of their lives on screens and in virtual worlds, and when they are physically co-located, there is often a device or screen taking part in the interaction. What is happening to human relationships, and what will they look like in 2022, as we rely more and more on software and devices to reach and understand each other?

Working with our Building Blocks of Web Experience 2022 technology report, Guide to the Internet Human 2022 will identify a set of visionary practitioners who are pushing the edges of what is possible with technical and social connectivity. We will conduct ethnographic research with them to understand what they signal about the future for the rest of us, and we will forecast the disruptions we might see in how we give and get attention, express our emotions and creativity, achieve personal change, and get things done in communities.

**DELIVERABLES**

- **MAP:** The map will matrix the technology building blocks for a new web experience with a set of emerging human capacities and values.

- **CONFERENCE:** Join us for an intimate two-day experience to learn about the research and engage in close conversation with technology pioneers from academia, start-ups, private and public sectors November 7-8, 2012, San Francisco Bay Area, CA.
Lyn Jeffery
Program Director
Lyn leads IFTF’s Technology Horizons Program and is a cultural anthropologist whose research focuses on the changing social relationships emerging from the presence of new technologies in daily life. At IFTF, Lyn has worked across the Ten Year Forecast and Health Horizons programs, and led the Global Ethnographic Network, a multi-year ethnographic research program that experiments with reflective personal forecasting methodologies with families in Brazil, Russia, India, China, and Silicon Valley. Additional methodological interests include group processes for collaboration, digital ethnography, and analysis of massive qualitative micro-data.

Lyn has a special interest in immersive experience, technologies that support creative expression, personal data, and the Chinese-language Internet. In the mid-1990s she was awarded a Fulbright doctoral dissertation grant and in 2001 she received a PhD in anthropology at the University of California, Santa Cruz, where her research explored the emergence of Chinese capitalism through the lens of network marketing. Lyn is fluent in Mandarin.

Jake Dunagan
Research Director
Jake’s research examines the role of emerging technologies in transforming identity, culture, and governance. His recent research has focused on the social, legal, and political implications of neuroscience, exploring many aspects of life in the neurocentric age. His other specializations include the future of justice and the courts, alternative energies, and media. He has also been leading explorations into new methods for the public communication of foresight, including experiential futures, digital stories, immersive scenarios, and ethical spectacles.

Jake received his Ph.D. at the Manoa School of Futures Studies where he studied neuropolitics, futures theories and methods (including alternative futures), and futures public engagement strategies. He received an M.A. from Temple University, and a B.A. from Auburn University, both in Visual Anthropology. His Master’s thesis, “Alternatives in Anthropological Communication: Ethnographic Surrealism and Fake Documentary,” examined cultural representation and the role of media conventions in the construction of truth.

Devin Fidler
Research Manager
Devin’s interests center on the application of foresight to organizational strategy and strategic planning. He is interested in organizations as systems designed to activate “know how” in the right places and at the right times; he argues that in a post-globalization world “all management is knowledge management.” Additional areas of focus include energy advances, future supply chains, innovation economics, and emerging business models.

Prior to joining IFTF, he was involved with a number of projects in the areas of technology assessment and the future of business, including work in the U.S. Chamber of Commerce’s Research and Analysis Center and as an Analyst for the Royal Bank of Scotland in Edinburgh. He has lived and worked in several countries throughout his career and approaches projects from a strongly international perspective.

Devin undertook his MBA work with a focus in emerging markets at the Budapest University of Economics and the Institut des Hautes Etudes Economiques et Commerciales in Paris, and participated in the inaugural class of Singularity University, a NASA and Google sponsored program focused on the evaluation of emerging technologies.

Gabriel Harp
Research Manager
Gabriel’s research pivots on the ecologies of design and infrastructure as pervasive enabling resources. His work attempts to bridge ecosystems, cognition, and artifacts as substrates for leveraging diversity in technology and service futures. As Research Manager in the Technology Horizons program, Gabriel draws on his experience with the life sciences, public health, water, energy utilities, urban development, education, and experimental media to describe complex systems.

Prior to joining IFTF, Gabriel was a Design Ecologist at the Center for Study of Science, Technology and Policy in Bangalore, collaborating to develop rich-interactive simulations, social media, and gaming tools for cooperation and participation in India’s next generation infrastructure futures.

His interest in complex systems and cognitive biases led to a master’s in fine art from the University of Michigan, Ann Arbor. His interest in narrative structure, suspense, and genre led him to a B.A. and M.A. in Ecology, Evolution, and Behavior from Indiana University, Bloomington for his work on floral trait evolution and host-parasite population dynamics.

Mike Liebhold
Distinguished Fellow
Mike is a Distinguished Fellow focusing on the mobile web, abundant computation, immersive media, and geospatial foundations for context-aware and ubiquitous computing. Previously, Mike was a Visiting Researcher, Intel Labs, working on a pattern language based on semantic web frameworks for ubiquitous computing. In the late 1990s Mike worked on startups building large scale international public IT services and IP networks for rural and remote regions, and for GPS enhanced precision agriculture, a complete IT architecture for schools in Shandong Province China, satellite networks in India, Europe, and Latin America, and was a Principal Investigator for a National Science Foundation project to bring Internet2 broadband IP networks to seventy rural low income communities in the United States.

In the 1990s, Mike was a senior consulting architect at Netscape Communications and a founding member of Netscape’s Strategic Investors board. Previously, Mike was Vice President, Chief Technology Officer for Times Mirror Publishing. For ten years, he was Senior Scientist for Apple Computer researching and developing media technologies, geospatial information systems, and high-speed communications. Mike served as principal technology policy advisor for Apple and drafted core recommendations on the National Information Infrastructure which were later incorporated directly in the Clinton-Gore Technology Initiative.

Sean Ness
Business Development Manager
At IFTF, Sean oversees business development, with a focus on the Technology Horizons and Ten-Year Forecast programs. He looks for creative ways to interact with outside organizations and works tirelessly to keep IFTF’s client database accurate and up to date. He also hosts monthly potlucks so that the IFTF crew can get to know each other better.

From 2006 to 2009, Sean was a co-founder of the STIRR Network, a group that helped catalyze early-stage entrepreneurial activity in Silicon Valley and beyond. He has previously worked at Forrester Research and ComputerWire. Sean holds a B.S. in Polymer Science from Penn State University, with a minor in Chemistry. During the week, Sean is connected to work 24/5, but he keeps the weekends for himself. That is when he pursues his favorite hobby, wine collecting.
David Pescovitz  
Research Director  
David Pescovitz is co-editor of the popular blog BoingBoing.net and also editor-at-large for MAKE magazine. Pescovitz co-wrote the book Reality Check (HardWired, 1996), based on his long-running futurist column in Wired magazine where he remains a correspondent. He has also written for Scientific American, Popular Science, New York Times, Washington Post, Salon, and New Scientist, among many other publications. In 2002, he won the Foresight Prize in Communication, recognizing excellence in educating the public and research community about nanotechnology and other emerging technologies. Pescovitz holds a Bachelor of Fine Arts in Electronic Media from the University of Cincinnati and a master’s in Journalism from UC Berkeley. Pescovitz has also contributed to the Los Angeles Times, IEEE Spectrum, Industry Standard, Spin, MTV Online, Discovery Channel Online, and Encyclopaedia Britannica Online. His writings on technology and culture are featured in the books What Are You Optimistic About? (Harper, 2007), The Happy Mutant Handbook (Riverhead, 1996), and The ‘Zine Reader (Holt, 1997). In 1996, Pescovitz created Nrrd, a critically acclaimed technology and youth culture web site for Turner Entertainment. Pescovitz is a member of the International Academy of Digital Arts & Science and has appeared on numerous television and radio programs and networks including CNN’s Sonya Live, NPR, Fox News, ZDTV, and CNET.

Anthony Townsend  
Research Director  
Anthony’s research focus is on the impact of new technology on cities and public institutions, and the role of technology in economic development. Anthony is working on several inter-related topics: the impact of urban data on the poor, national innovation strategy for a major emerging economy, technology and restructuring of large public organizations, and the role of science and technology parks in economic development.

Nicolas Weidinger  
Research Assistant  
Upon graduating from design school at Ohio State University, Nicolas co-founded Cobego, an industrial design startup that specializes in making ideas come to life. In the summer of 2011, he moved to San Francisco to expand his horizons and to participate in the IFTF internship program. Though he spent most of the summer mumbling about boats in space, IFTF decided to keep him. Now Nicolas spends his time developing Artifacts from the Future and investigating novel technologies/experiences.

Outside of IFTF, he enjoys playing video games, tinkering with matter replicators, and designing an underwater research facility.
**PROGRAM COST**

The Technology Horizons program is an ongoing, cost shared research effort. Each member pays $65,000 per year. Membership includes attendance at two cross-industry conferences, print copies of all program deliverables, and electronic access to the Technology Horizons program website.

**PROGRAM MEMBERS**

(partial)

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**ABOUT THE INSTITUTE FOR THE FUTURE**

The Institute for the Future is an independent, nonprofit strategic research group with more than 40 years of forecasting experience. The core of our work is identifying emerging trends and discontinuities that will transform global society and the global marketplace. We provide our members with insights into business strategy, design process, innovation, and social dilemmas. Our research generates the foresight needed to create insights that lead to action. Our research spans a broad territory of deeply transformative trends, from health and health care to technology, the workplace, and human identity. The Institute for the Future is based in Palo Alto, CA.

Cover images: signindustry.com, Paul Butler/Facebook