



TECHNOLOGY HORIZONS 2017



FROM AN INTERNET OF INFORMATION TOWARD AN INTERNET OF ACTIONS

Ubiquitous networking has transformed cyberspace into a pervasive layer atop our physical reality. Meanwhile, the emerging Internet of Things promises to imbue ambient intelligence into every space and every object, from factories and forests to furniture and food packaging. All the devices around us, and inside us, will be sensors and storytellers, keeping a constant vigil on our world and sharing what they learn with the network. A constant flow of real-time data will enable us to index our physical world with a greater resolution than ever possible. That database will become the backbone of a new kind of human-machine interface: a search engine for reality itself. But to what end?

In the next decade, **the web will evolve from an Internet of Information toward an Internet of Actions** transforming everything from how we conduct business to our relationship with the material and natural world around us to how we get things done. A simple, spoken language request will trigger a cascade of search and orchestration of digital and physical activities, collaborations between people and algorithms, to anticipate and meet our needs. Our workspaces will sense our presence and dynamically pull information and ambient resources to enhance the ways we collaborate. We'll buy a new deck for our house online and the network will order the materials, identify and route the best-suited contractors, tightly choreograph the construction, and summon an autonomous truck to deliver the waste to the recycling facility.

The Internet of Actions will get to know us, mining our digital footprints and understanding our intentions. It will anticipate our needs and behave proactively, offering us its services before we even ask. As we move from the Internet of Information toward an Internet of Actions, we will redefine our relationship with the physical world and the digital intelligence that powers it.

Join Institute for the Future's Technology Horizons program as we explore a world in which reality has a search engine, and the Internet knows what we want— sometimes before we do—and just makes things happen. We'll traverse eight opportunity spaces that will be hotbeds of this transformation:

- › **TECHNOLOGY FOUNDATIONS & THRESHOLDS** | Technical innovations emerging in the next decade
- › **INTERACTIONS & EXPERIENCES** | How we engage with objects and spaces
- › **RESEARCH & DISCOVERY** | How we create insight and innovation
- › **RETAIL & SHOPPING** | How we buy products and services
- › **ADVERTISING & MARKETING** | How we capture attention and awareness
- › **EQUITY & INCLUSION** | How we encode values into autonomous systems
- › **WORK & COLLABORATION** | How we create value with smart machines
- › **SECURITY & SAFETY** | How we ensure safety and build trust



2017 RESEARCH AGENDA

WHAT IF ...

- > We could issue commands to objects and spaces as easily as we do to computers?
- > Our physical spaces adapt to our desires as we move through them?
- > Distributed autonomous systems seamlessly fulfill our wants and needs?
- > We had a search engine for reality itself?

As we look toward a future where our physical world is increasingly augmented by machine intelligence, it signals a future where our objects and spaces become as anticipatory and personalized as our communications streams. As we move into a world where layers of machine intelligence create proactive spaces, autonomous mobile systems, and new ways to guide humans and objects through the world, the ways we interact with the physical world will only be limited by our imaginations.

In 2017, IFTF's Technology Horizons program will map out the shift from an Internet of Information toward an Internet of Actions and uncover the emerging threats, opportunities and strategic implications. The 2017 program features a mix of immersive learning, strategic foresight research, and an in-house workshop for your team designed to make this future tangible and urgent today.

DELIVERABLES

> WINTER 2017 | FAST FORWARD FORECAST: EXPERT CONVENING

We'll start the year by hosting an expert convening in our offices in Palo Alto to explore the technical and business foundations of the decade ahead. Designed to engage leading technologists, strategists and futurists, this session will identify the technology foundations and thresholds of the Internet of Actions and explore scenarios of what this future will look and feel like. You'll leave with a glimpse of new possibilities, connections to leading innovators, and insights about potential opportunities to share with colleagues. Following the workshop, we will document and refine these findings and share them with you.

SPONSOR DELIVERABLES:

Participation in expert event: Join us for an interactive deep dive into the technology foundations of the Internet of Actions for a chance to meet and learn from leading innovators.

Research Highlights: Following the event, we'll summarize and document the key findings of the workshop that you can share and easily socialize with your colleagues.





DELIVERABLES, CONT.

> SPRING-SUMMER 2017 | **STRATEGIC FORESIGHT-TO-INSIGHT-TO-ACTION WORKSHOP**

We'll work with you to plan a tailored, day-long foresight-to-insight-to-action workshop for you and your team. Join us in our offices in Palo Alto—or we can visit your team—to dive deep into the early findings of Internet of Actions research, or into previous Technology Horizons research such as *When Everything is Media: The Future of Ambient Communications*, *The Automated World: Toward Human+Machine Symbiosis*, or *The New Body Language: Wearables, Implantables, and Body Area Networks*. This workshop will give you the tools to jumpstart and socialize foresight content with your team and develop a shared perspective on the future that you can use to accelerate your long-term strategy and innovation work.

SPONSOR DELIVERABLE:

Foresight-to-Insight-to-Action Workshop: This tailored workshop will enable you to immerse your colleagues in the future to develop a shared perspective of emerging technologies.

> SUMMER 2017 | **EXPERT STRATEGIC INSIGHTS**

Over the summer and fall, we will continue to dive deep into the Internet of Actions by conducting in-depth interviews with experts in logistics, work and collaboration, interface design, advertising and security to develop deep perspectives into how the tools of the Internet of Actions will affect these key domains. We will capture these interviews and share them with sponsors over the course of the summer to enable sponsors to continue to build foresight and understanding of this space.

SPONSOR DELIVERABLE:

Curated insights: This virtual insight exchange will highlight some of the key findings from our research process and curate key threats and opportunities to explore with your team.

> FALL 2017 | **ANNUAL RESEARCH EXCHANGE AND STRATEGIC RETREAT**

In the fall, join us in Palo Alto, Ca. for our annual research exchange and strategic retreat to experience a future of the Internet of Actions. At this three-day retreat, IFTF will synthesize and share critical findings from the year's research. Designed as a research exchange and working session, you'll have the chance to meet leading innovators, immerse yourself in emerging technologies, and work through a series of processes to explore and identify unexpected opportunities. You'll leave with new connections to early innovators, a visual executive summary—in the form of our map of the decade—our annual *Future Now* book of provocations providing in depth articles and a set of rich, annotated slide decks that you can use to share key innovations and insights with colleagues.

SPONSOR DELIVERABLES:

Future Now Annual Book of Provocations: Drawn from across Technology Horizons' extended network of researchers, our Future Now annual curates in depth articles and provocations to enable you to engage deeply in tech futures topics.

Map of the Decade: Our annual map of the decade provides a visual synthesis and framework for identifying opportunities and threats, new innovation spaces and for plotting strategic responses in a changing landscape.

PROGRAM BENEFITS

As a leading voice for technology foresight, the Technology Horizons program helps many of the world's most influential institutions navigate complex strategic landscapes.

- **ANTICIPATE THE FUTURE** by understanding signals and forecasts that point toward emerging opportunities and critical threats and disruptions.
- **EXTEND YOUR INNOVATION NETWORK** by connecting with researchers, startups and technology strategists from multinational organizations.
- **EXPERIENCE THE FUTURE** through immersive in-person experiences that make the future feel tangible.
- **LOOK LONG TO ACT NOW** through research tools and deliverables that combine deep research with rich illustrations to enable you to share the future and jumpstart your strategy and innovation processes.

ABOUT TECHNOLOGY HORIZONS

For more than 30 years, IFTF's Technology Horizons program has combined a deep understanding of technology and societal forces to identify and evaluate the discontinuities and innovations in the next three to ten years. Our approach to technology forecasting is unique—we put people at the center of our forecasts. Understanding humans as consumers, workers, householders, and community members allows IFTF to help companies look beyond technical feasibility to identify the value in new technologies, forecast adoption and diffusion patterns, and discover new market opportunities and threats.

As a networked research organization, we work with a vanguard of leading companies, government entities, nonprofits, academics and startups including a partial list below:

3M	Informational Technology Senior Management Forum (ITSMF)	SRG SSR
California College of the Arts	Innovation Lab Denmark	Swisscom
Cigna	Kellogg Company	Syngenta
Cox Enterprises	North Atlantic Treaty Organization (NATO)	The Hershey Company
Huawei Technologies	NYC Media Lab	Telstra
Hyundai Motor Group	Siemens	YBCA

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ABOUT THE INSTITUTE FOR THE FUTURE

The Institute for the Future is an independent, nonprofit strategic research group with nearly 50 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. Institute for the Future is based in Palo Alto, CA.