

DATA:

2006 TEN-YEAR FORECAST SIGNALS SURVEY

Survey methodologies have always been part of IFTF's forecasting toolkit. In its earliest days, founding member Olaf Helmer advanced the Delphi method for aggregating expert opinion. Through the late 1980s and into the early 2000s, sociologist Andrea Saveri and economist Greg Schmid worked on some of the first surveys designed to tap people's views on things they have yet to experience. With these surveys, we characterized infomated households, future workspaces, and the New Consumer—lead users of information-rich technologies that would reshape the landscape of consumer spending. Today, sociologist Mani Pande leads our survey work, bringing a new perspective to what we now call our Ten-Year Forecast Signals Survey.

Signals have become part of IFTF's lexicon of forecasting, especially following Paul Saffo's essay on "Weak Signals" in the *2005 Ten-Year Forecast*. In that forecast, Paul considered the relative value of a few strong, well-defined signals versus clusters of many weak signals—suggesting that in a world of uncertainty, the latter could be more useful.

Strong signals can also be seen as those that are very apparent because they're already widely diffused in the population. These are most useful for near-term forecasting. In contrast are distinctive sets of weak signals that, while much less diffused, point to possibilities that might distinctly change the character of the future.

Our 2006 Ten-Year Forecast Signals Survey produced both strong and weak signals. There are many ways to identify and evaluate the signals. In the case of our Signals Survey, a first step is to develop indexes—clusters of behaviors and attitudes that, taken together, define emerging patterns of innovation or clear trends in a particular area. Having developed these indexes, we can then return to the individual survey questions to highlight the most important responses and cluster them in ways that let us see them as a kind of "signal cloud." These can then be graphed from weak to strong to give us an at-a-glance view of the big transitions in the emerging landscape.

In this summary of the 2006 survey, we provide an overview of six indexes: five are reported in-depth elsewhere in this volume; the sixth is our X-People Index, which is detailed here. In addition, we include our 2007 Signals Survey Summary Graph.

For more information about our Ten-Year Forecast Signals Survey and our analytical methods, please contact **Mani Pande** (mpande@iftf.org).

OUR METHODOLOGY

The 2006 Ten-Year Forecast Signals Survey surveyed 2,002 adults aged 18–74 living in the United States. The sample was weighted to match national parameters for sex, age, education, race, Hispanic origin, and region.

The survey covered a wide range of topics including work, education and learning, creative activities and hobbies, health and nutrition, technology, mobility, extended self, and media. Responses for most questions were collected on a Likert scale that measures positive or negative responses to a statement. These data were treated as ordinal for further analysis. Ordinal data do not have a distribution that resembles a bell curve or what statisticians call a "normal distribution." This raises challenges in data analysis because most statistical techniques are not robust when the data don't have a normal distribution.

Therefore we used structural equation modeling using LISREL for the analysis of the data. Structural

equation modeling assumes that for each ordinal variable Z there is an underlying continuous variable Z^* . The underlying variable Z^* is used in structural equation modeling in place of the observed variable Z . This underlying variable assigns a metric to the ordinal variable, allowing us to use traditional multivariate techniques like factor analysis.

We thus employed confirmatory factor analysis (CFA) for ordinal data using structural equation modeling to build each of the indexes. CFA lets us hypothesize a model based on theory and previous research—and then analyze the fit of the model with the data. The fit can be determined by looking at goodness-of-fit indexes that statisticians have developed over the years. If the model has an acceptable goodness of fit, it forms the basis of an index. Each factor in the index accounts for the intercorrelations of multiple response variables. Factor analysis thus allows us to identify a latent or hidden set of factors.



THE SIGNALS
SURVEY OFFERS
A QUANTITATIVE
VIEW OF WEAK
AND STRONG
SIGNALS OF
CHANGE



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THE INDEXES

This year, IFTF developed six indexes for leading behaviors and attitudes. An index allows one to compare the entire survey population for clusters of responses rather than single responses; it can also be used to score individual respondents and correlate them with other indexes or to specific questions in the survey. This year's indexes are:

Do-It-Yourself

The profile of do-it-yourselfers that emerges from this index is a substantial segment of people who are self-organizing and increasingly skilled at what we call "online sociability." These people tend to be young and married, often self-employed, actively engaged in their own health, concerned about sustainability issues, and likely to use digital tools for a range of online collaborative activities, including online giving to political and religious organizations. There are no correlations between high DIY scores and gender, race, religion, native U.S. citizenship, or political views. For more details, see "Manufacturing: Do It Yourself?"

Sustainable Citizens

Sustainable citizens are people who create a link between personal care and healthy communities. They tend to buy locally, support local farmers, recycle and buy recycled goods, eat organic food, buy products that are not tested on animals, and consider health benefits when buying many different kinds of products. They tend to be do-it-yourselfers and smart networkers who contribute to online sites. They also fit the profile of X-People.

They are almost mainstream in U.S. society. For more details see "Communities: Citizens of Sustainability."

Smart Networking

We first created the Networking IQ Index in 2005. We updated it this year based on survey results, which showed a number of key behaviors around group participation, collective behavior, online lifestyle, mobile communication, locative behavior, and computer connectivity. Youth have the leading edge in this index, which is still a "lead-user" phenomenon. More men than women score high; they have a slightly higher education level and they tend to be slightly more liberal in their politics. There is no relationship with income. For more information, see "Culture: Digital Natives, Civic Spaces."

Collective Behavior and Sociability

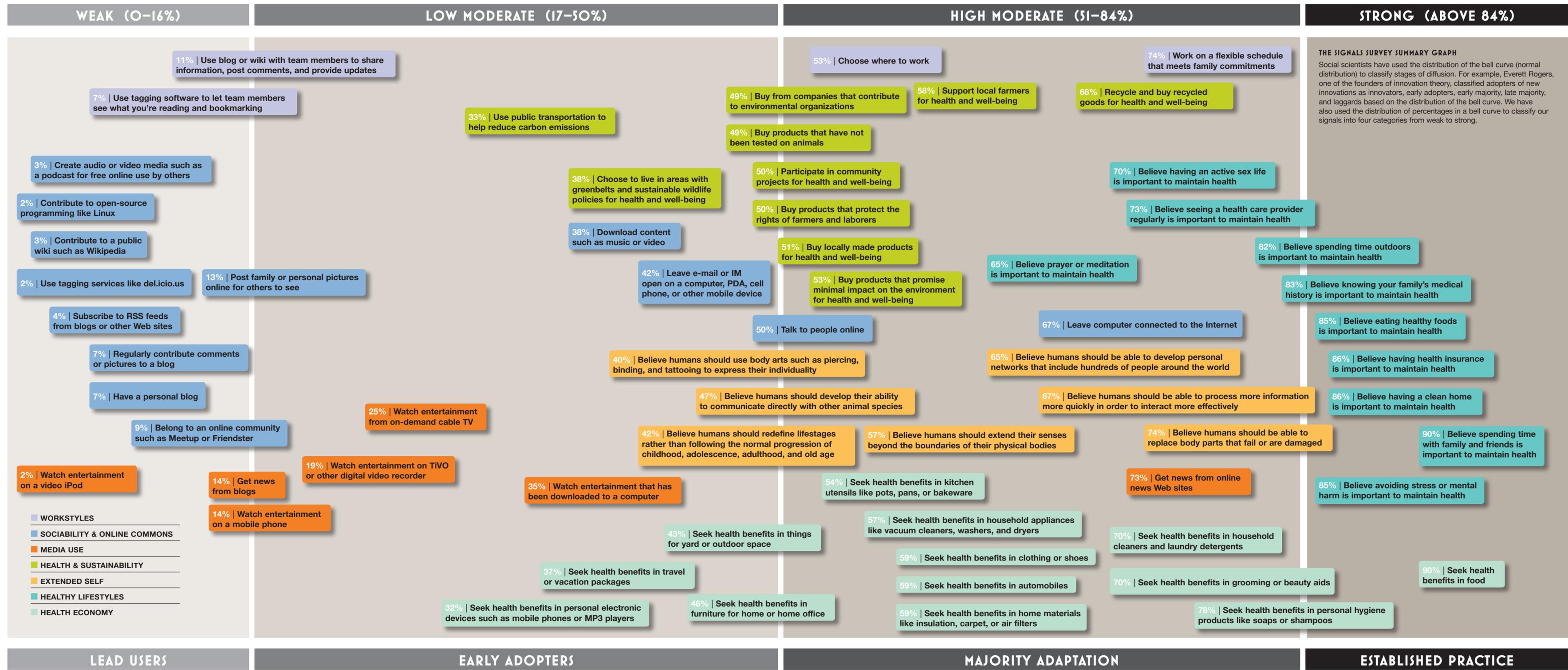
Two key sets of behaviors define this index: social-network development and social-identity creation. As with the Smart Networking Index, high-scorers on this index tend (slightly) to be young, male, and better educated. There are no political, religious, or income correlations with this index. For more information, see "Culture: Digital Natives, Civic Spaces."

Literacy of the Commons

The Internet represents a new kind of commons, and a small population of lead users is defining a new literacy for it. This literacy involves two main factors: maintaining the commons and personal expression. Again, the lead population here tends to be younger, though there is no correlation with gender, education, political affiliation, or income. For more information, see "Culture: Digital Natives, Civic Literacy."

X-People

Based on research over the last few years, we have identified a trend toward what we call "extended self." To determine the nature and extent of this trend, we developed an X-People Index. The two defining attitudes of X-People concern factors that we call artificial bodies and transhumanist values. When we score all the survey respondents, it turns out that the X-People profile is normally distributed—that is, nearly mainstream. For more information, see the back page of this survey summary.



X-PEOPLE:

A PERVASIVE CULTURAL BIAS

As individuals discover that technology can extend their bodies and minds—and even their lives—beyond what has been taken to be normal for humans, a segment of the population is working to resolve two inherent contradictions of contemporary life. The first is conflicting trends toward increased individuality versus collective identity. The second is the power of technology versus the integrity of the natural world. We call this segment “X-People” for the extensions they are experimenting with.

X-People express a kind of transhumanism—that is, a sense of connectedness with the larger world, on one hand, and a positive belief in the potential for rapid human evolution, on the other. At the same time, they also see the body as a platform for highly individual experimentation and expression, with a disregard for what’s “natural.” In short, they define themselves by two factors: artificial bodies and transhumanist values.

While it often appears that X-People are outliers, the survey results show that the underlying attitudes are actually pervasive in U.S. culture: the distribution of X-People scores across the population is nearly normal.

I THE FACTORS THAT DEFINE THE X-PEOPLE INDEX

FACTOR 1: ARTIFICIAL BODIES

Agree with:

- Using body art such as piercing, binding, and tattooing to express their individuality
- Ability to replace body parts that fail or are damaged

Disagree with:

- Never tampering with your own body
- Making the most of safe technologies to enhance personal capabilities
- Ability to process information more quickly in order to interact more effectively

FACTOR 1 is a measure of the extent to which humans think of the body as a platform for individual self-expression and experimentation; it captures the desire for a fierce individuality and a disinterest in collectivity.

FACTOR 2: TRANSHUMANIST VALUES

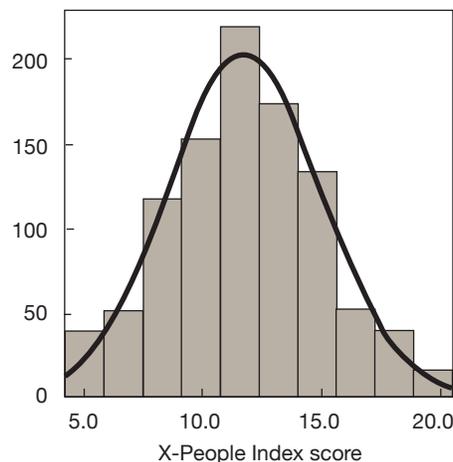
Agree with:

- Making the most of safe technologies to enhance personal capabilities
- Never tampering with your own body
- Ability to shed old skin in favor of new, just like snakes
- Ability to process more information more quickly in order to interact more effectively
- Developing ability to communicate directly with other animal species
- Ability to live forever in the foreseeable future
- Redefining life stages rather than following the normal progression of childhood, adolescence, adulthood, and old age
- Ability to replace body parts that fail or are damaged

FACTOR 2 is a measure of the extent to which humans are willing to extend and evolve human capabilities individually and participate in reshaping collective capacity.

2 DISTRIBUTION OF X-PEOPLE INDEX SCORES

Number of people



Source: 2006 Ten-Year Forecast Signals Survey