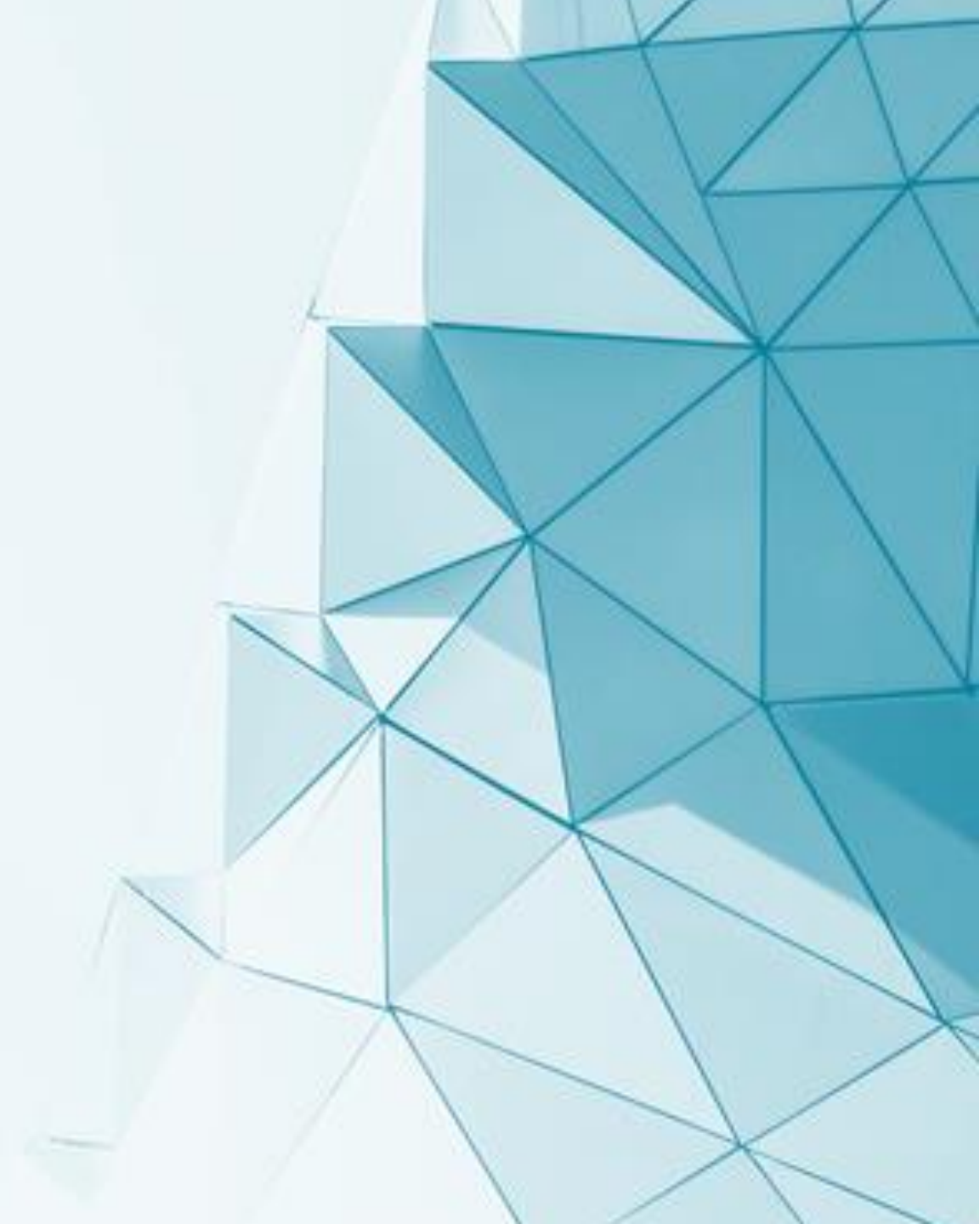


ThoughtLab

Thoughtnomics 2021

Driving business and marketing results

October 2020



Who we are

ThoughtLab is an innovative research firm that delivers fresh ideas through applied economics and advanced analytics. We specialize in assessing the impact of technological, economic, and demographic shifts on companies, industries, and cities.

Our in-house team of thought leadership and subject matter specialists—and global network of economists and in-country analysts—excel at creating valuable decision support that sits at the intersection of visionary thinking, analytical excellence, and innovative client engagement.

We are an independent, full-service research organization founded to take thought leadership to the next level. We do this by conducting smarter diagnostic surveys, interacting with senior executives, and creating evidence-based research and analytical tools.



Thought leadership themes for 2021

1. Everything goes digital

The pandemic has fast-tracked digital transformation as companies prepare for a digital-first marketplace. Digitalization will upend all industries, from remote medicine and education, to eBanking and eGovernment, to supply chain and manufacturing 4.0.

2. All customers will think like millennials

A year of social distancing is permanently shifting the demands, priorities, and shopping behaviors of customers. Immersive digital experiences, hyper-personalization, on-demand delivery, and smart products and services will be the new norm.

3. The future of work is now

The rise of remote working, digitized workflow processes, and the freelance economy predates the pandemic. But the crisis has impelled management teams to rethink how work gets done in offices, at home, and on the factory floor.

4. Emerging technologies will become pervasive

Deep learning, computer vision, and natural language processing will enable most products, services, and business operations. 5G will create seamless connections between tens of billions of devices. Computers will harness quantum power and move to the edge. The private and public cloud will morph into the omni-cloud.

5. Distance will lose its relevance

The role of distance will change, particularly in industries such as retail, entertainment, banking, and manufacturing, where proximity was critical to the operation. sales or operations.

6. Techno-politics will become dominant

Just like business, politics will be transformed by technology. Ubiquitous interconnectivity will put citizens and communities at the center of politics. But technology will also drive economic power and will need to be managed to ensure digital equality and preserve personal rights.

7. Capitalism will become inclusive

The crisis has served as a wake-up call for business to think, act, and invest for the common good. With social well-being and sustainability on the minds of customers, investors, and employees, firms will move from shareholder to stakeholder capitalism to drive business performance.

Engaging executives through Thoughtnomics

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30 in-house economists and analysts, plus network of 100+ economists and industry experts



Links with top universities

- Wharton
- University of Pennsylvania
- NYU
- IESE Business School
- Carnegie Mellon



Alumni from

- The Economist
- Financial Times
- Institutional Investor
- Oxford Economics
- CFO Magazine
- HBR



Partnerships with the National Institute of Economic and Social Research, UNECE, the Penn Institute of Urban Research, and others.



An extensive global network of in-country analysts, journalists, researchers, and economists.



A worldwide client and social media base of senior executives across industries and functions.



Insight through economics

Our unique approach

Thoughtnomics

When conducting quantitative research, ThoughtLab draws on its in-house team of 30 economists and analysts, including six PhD economists and a network of over 100 economic and subject matter experts.

Our team excels in using advanced analytics and microeconomics to find meaning in data. To do this, we draw on a variety of quantitative methods.

- ✓ Forecasting and scenario framing
- ✓ Cost-benefit and ROI analysis
- ✓ Economic and social impact assessment
- ✓ Modeling and big data analytics
- ✓ Maturity and performance impact analysis
- ✓ Benchmarking tools
- ✓ Indexing and data visualizations



Forecasting and scenario framing

Our economists create forward-looking thought leadership that draw on forecasts and alternative scenarios.

We use economic models to forecast and run alternative scenarios of investment trends, consumer demand, industrial patterns, trade flows, and other worldwide macro conditions.

Our economists forecast trends and impacts through use of [NiGEM](#), a sophisticated globally integrated model used by European Central Bank, the Bank of England, the IMF, and other leading international organizations.

Wealth and Asset Management 2021

Our economists forecast the five-year trajectory of household income and wealth in 26 countries. The forecast took into account demographic shifts in major and emerging markets, as well as the impact of wider digital access.

Smarter Cities 2025

We conducted a survey of 136 cities to determine direct, indirect, and catalytic impacts (GDP per capita and population) from their digital investments. Our economist then projected the cumulative impact over a five-year period to help cities make better, evidence-based decisions.

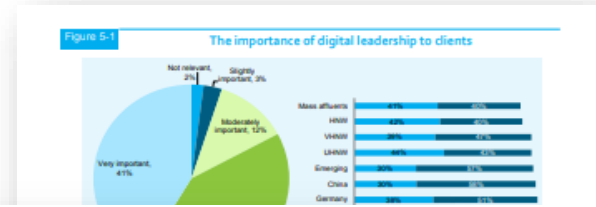
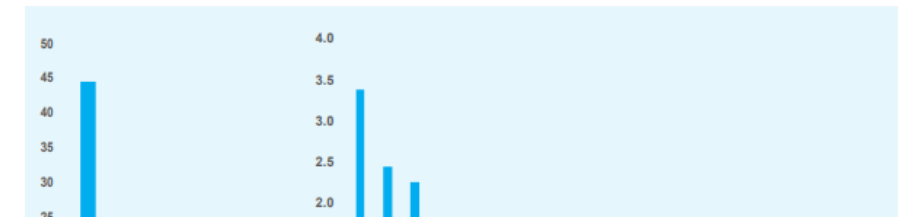


Figure 1-3

Forecast change in household assets 2015-2021 (US\$ trillions)



ESI THOUGHTLAB Smarter Cities 2025 Building a Sustainable Business and Financing Plan

Catalytic impacts

According to our survey, cities across the smart city maturity curve are expected to increase their smart city maturity over the next three years. The biggest increase will be from beginner cities, which will go from an average maturity score of 1.2 to 1.8. As illustrated in our research, smart cities benefits make them more attractive places for people to live and work and for businesses to locate, which will lead to a virtuous cycle of additional economic growth. Our economic analysis found that on average the catalytic impacts associated with becoming a smarter city have the potential to increase GDP per capita by 21% and population growth by 13% over the next three to five years in beginning cities, if they are able to achieve their stated smart city plans. Transitioning and leader cities can potentially see additional GDP per capita and population increases as well, if at a lower rate.

Where will cities be in 3 years? Beginner cities will see the largest growth in GDP and population

The Business Case for Smart Cities

Introduction
Research Methodology
The Path to a Smart City Future
The 10 Pillars of Smart City Success
The Business Case for Smart Cities
Calls to Action

"The smartest cities will provide rich and diverse solutions to meet the growing demands of increasingly mobile city dwellers. A winning combination will see investments in systems that enable smart cities to combine great urban experiences with more efficient and sustainable management of their assets and scarce resources."

- Mike Gedye, Executive Director, CBRE

Cost-benefit and ROI analysis

Cost-benefit analysis is valuable when estimating the costs and benefits of an investment in a project, technology, or strategic initiative. Using this method, executives can decide whether to undertake important investments. Measuring both the tangible and less tangible cost-benefits is important for seeing the full picture.

With ROI analysis, we use diagnostic tools and bespoke economic models to evaluate the financial outcome from specific investments. In addition to financial factors, such as revenue growth and cost savings, we can measure more intangible benefits, such as impact on reputation, customers, and employees.

Visa Cashless Cities

We measured the full benefits and costs of digital payment systems, including the value and cost drivers for consumers, businesses, and local governments.

Driving Cybersecurity Performance

We surveyed 1,000 firms to collect data on cybersecurity investments, risk probabilities, and expected losses. Based on the survey data, our economists developed a bespoke model to calculate the ROI of their cybersecurity investments.

Cognizant The End of Beginning

We developed a maturity curve to segment survey respondents into beginners, implementers, advancers, and leaders. We then calculated the net-benefits (revenue impacts – cost impacts) as firms move along the maturity curve from beginner to leader.



Economic and social impact assessment

What will be the economic and social impact from the CEO's agenda—our economists can shed light through impact analysis.

Our clients use economic and social impact analysis when they want to demonstrate the full value that a project, policy, or business brings to the local economy or society. The value can come from direct, indirect, induced, or catalytic impact—from generating new jobs to less crime to greater economic competitiveness.

Our impact models calculate the economic or social footprint of a project, policy, event, organization, or industry. We can assess these impacts on any geographic area, including local neighborhoods, cities, states, provinces, regions, countries, and the world.

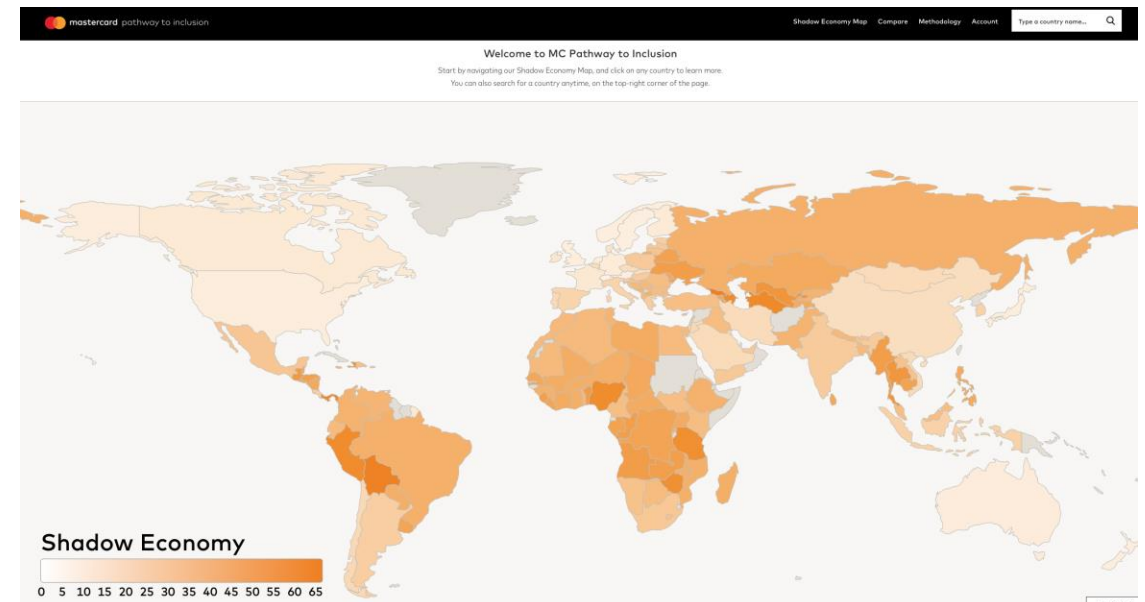
Mastercard Pathways to Inclusion

We estimated the size of the shadow economy in 150 countries and the impact of policies to discourage the use of cash, modernize the payment infrastructure, and encourage the use of digital payments on the size of the shadow economy. We also estimated the potential impact of the reduction of the shadow economy on government revenue, government corruption, and the quality of life as measured by the Human Development Index.



NYC's Nightlife Economy

We calculated the size of the nightlife economy in New York City and estimated the associated direct, indirect, induced, and fiscal impacts.



Modeling and big data analysis

Our economists can draw on large sets of external data to enrich findings, find correlations, and uncover new insights.

Our team of microeconomists has the econometric skills to mine, process, and analyze extremely large and complex sets of data, with millions of observations and variables.

Our analytical insights can help organizations to understand and improve many aspects of their operations, from finding new revenue opportunities to identifying areas for cost improvement to forecasting future trends.

NYC's Nightlife Economy

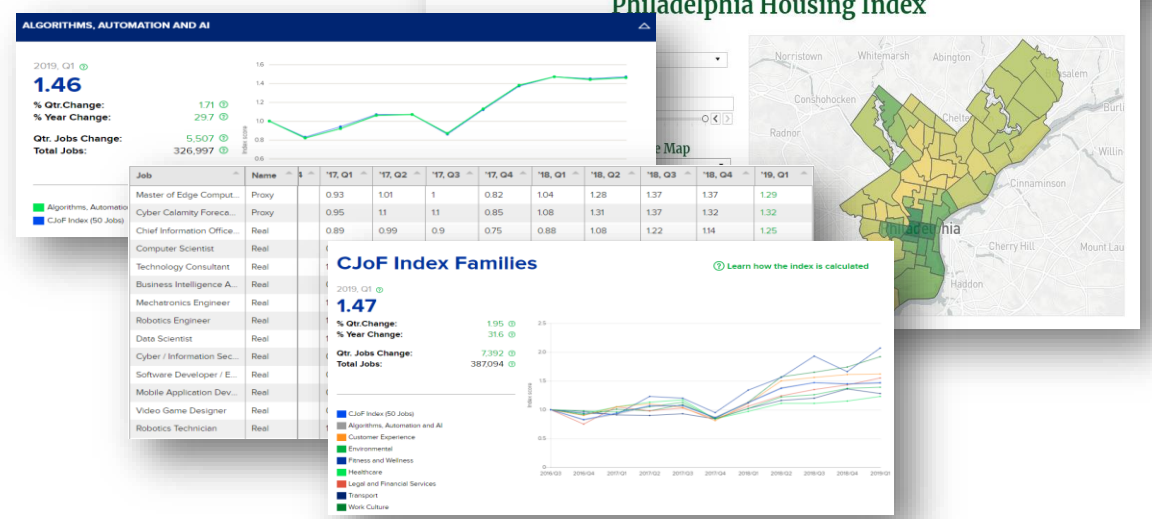
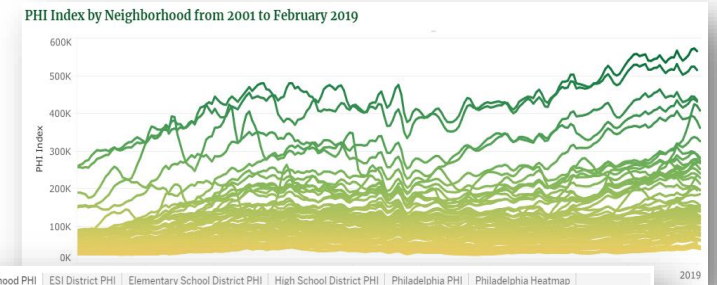
We analyzed every taxicab and Uber/Lyft trip over a ten-year period. We segmented out nighttime rides to help identify the shifting geography of New York City's night life economy.

The Philadelphia Housing Index

The Philadelphia Housing Index measures change in the sales price of Philadelphia's housing units through time, adjusting housing traits to compare like-to-like, with differentiated trends by city district.

Cognizant Jobs of the Future Index

ThoughtLab and Cognizant developed the Jobs of the Future Index (CJoF Index) to measure the changes in demand for a set of 50 jobs of the future. Each quarter we analyzed millions of jobs from the Burning Glass Database to identify key trends across the 50 jobs.



Maturity and performance impact analysis

Our digital maturity framework provides the foundation for how we analyze the impact of technology performance.

By creating a survey aligned with a maturity framework, our economists can help corporate and city leaders understand where they fall along the digital maturity curve. By using the maturity model to frame our impact analysis, we can calculate how the performance impacts differ based on where a firm falls along the curve.

Our framework allows business leaders to assess where they are in their transformation journey, create a comprehensive roadmap to move up the maturity curve, and understand the potential performance results to be achieved by progressing to the next stage.

Our economists have built maturity models that show urban leaders how their smart programs stack up with other [cities](#), enable executives to compare their [cybersecurity](#) practices and results with peer companies, understand the impact of their investments in [AI](#), and help firms compare their digital transformation progress with their competitors.

[PwC Connected and Autonomous Supply Chain Ecosystems 2025](#)

We worked with PwC to develop an index that ranks companies by their supply chain maturity. Based on their scores, we grouped the companies into one of four categories: Digital Champions, Digital Innovators, Digital Followers and Digital Novices.

[ServiceNow CEO Insights](#)

To support their Workflow Quarterly publication, we developed three separate maturity frameworks for [digital platform](#), employee experience, and [customer experience](#) maturity. Based on the maturity framework, we developed a series of roadmaps to help firms move along the curve.

[Hyperconnected Cities](#)

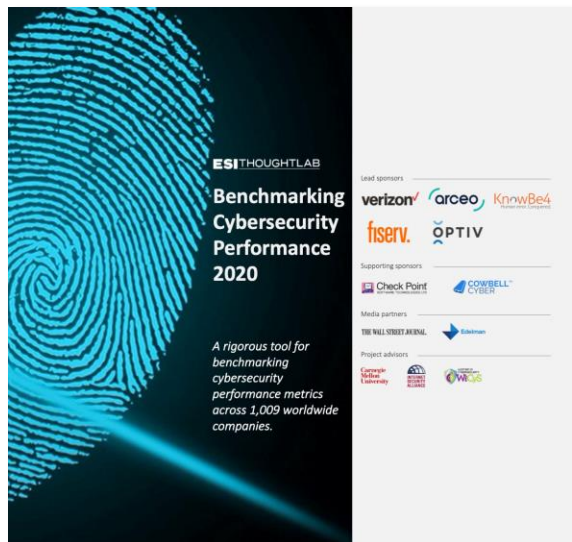
We developed the hyperconnected maturity index that ranks cities by their progress in four key areas of excellence—technology, data and analytics, cybersecurity, and citizen engagement. Based on these scores across the four pillars, the cities were stratified into three categories: implementer, advancer, and leader.

Benchmarking tools

To drive greater value to clients, our economists can create a unique high-level benchmarking tools for comparing views, strategies, and performance.

By creating a survey aligned with a maturity framework, our economists can help corporate and city leaders benchmark themselves against peers in targeted areas. These tools can show where a company or city stands on a maturity curve and the performance results to be achieved by progressing to the next stage.

Our economists have built models that show urban leaders how their smart programs stack up with other cities, enable executives to compare their cybersecurity practices and results with peer companies, and help financial firms compare their digital transformation progress with their competitors.

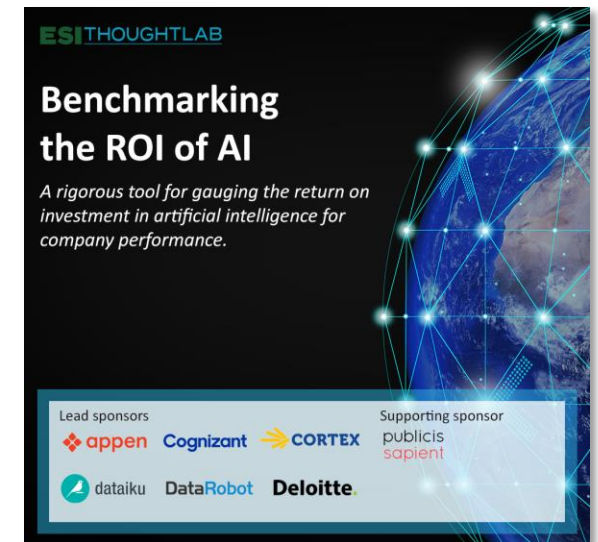


Driving Cybersecurity Performance

With a coalition of industry leaders, we provided the tool to help firms drive the best cybersecurity performance in a complex digital world.

Driving ROI Through AI

To help executives drive ROI through AI, adoption, we conducted a benchmarking survey of 1,200 organizations across a wide range of industries world-wide.



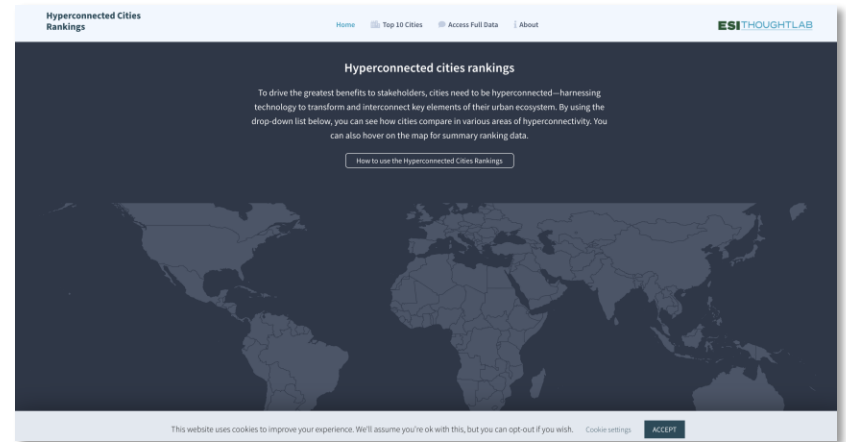
Indexing and data visualization

Our economists can turn data into compelling indexes and data visualizations. We can combine survey data with data from secondary sources.

These tools can take many forms, from at-a-glance indexes to more sophisticated analytical tools that will enable users to navigate, segment, and visualize data from our research. Our team has created innovative indexes the show the rise of autonomous vehicles across countries to emerging jobs of the future in the US.

[Hyperconnected Cities Database and Navigator](#)

ThoughtLab developed the Hyperconnected Cities database using a combination of primary (survey) and secondary data for 100 global cities. The database includes over 1,000 individual datapoints for each city. The data was summarized in an online data navigator



[KPMG Autonomous Vehicle Readiness Index \(AVRI\)](#)

ThoughtLab and KPMG developed the AVRI to measure the level of preparedness for autonomous vehicles. It is a composite index that combines 28 individual measures from a range of sources into a single score. The number of countries included in the index has increased from 20 in the first year to 30 this year.

Smarter surveys

ThoughtLab

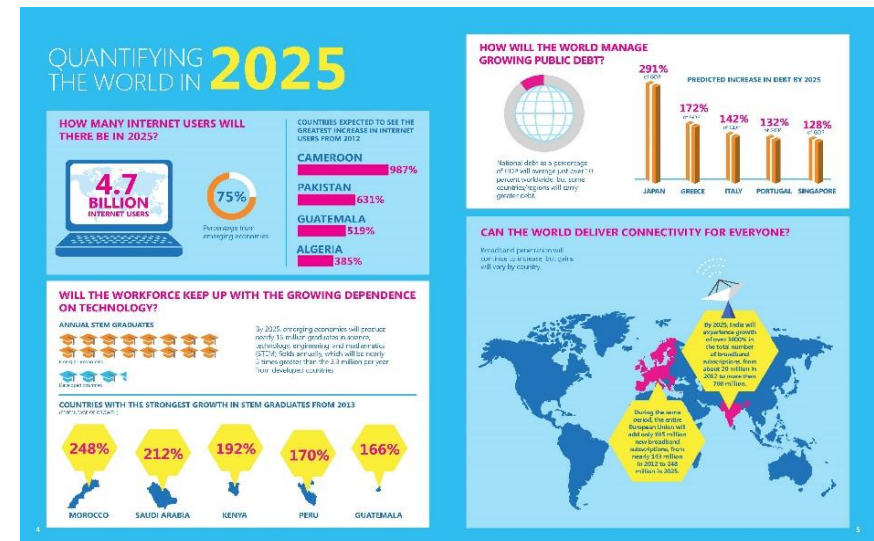
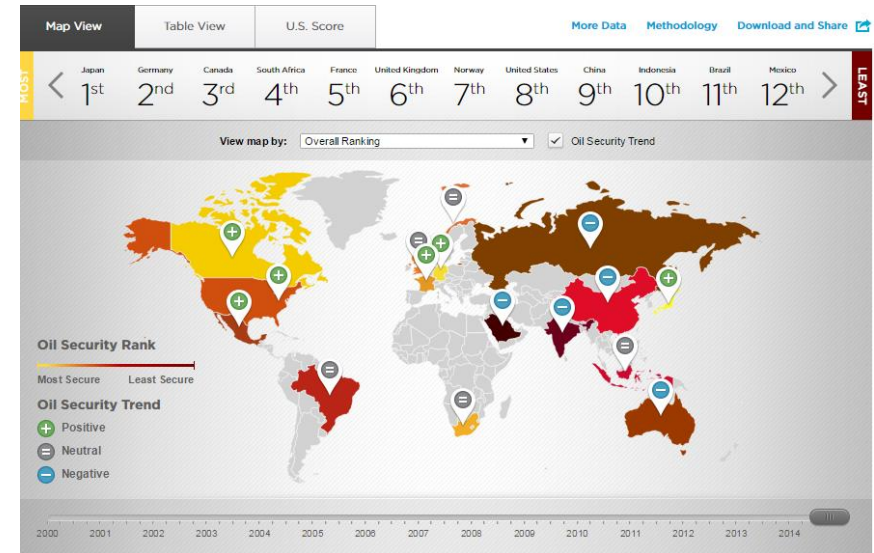
Executive, consumer, and government surveys

ThoughtLab takes a data-driven survey approach that combines analytics with our robust survey capabilities. Our economists and survey specialists handle all aspects of the survey process—from creating and fielding the questionnaire, to running cross tabulations, analyzing results, and preparing presentations and papers on the top findings.

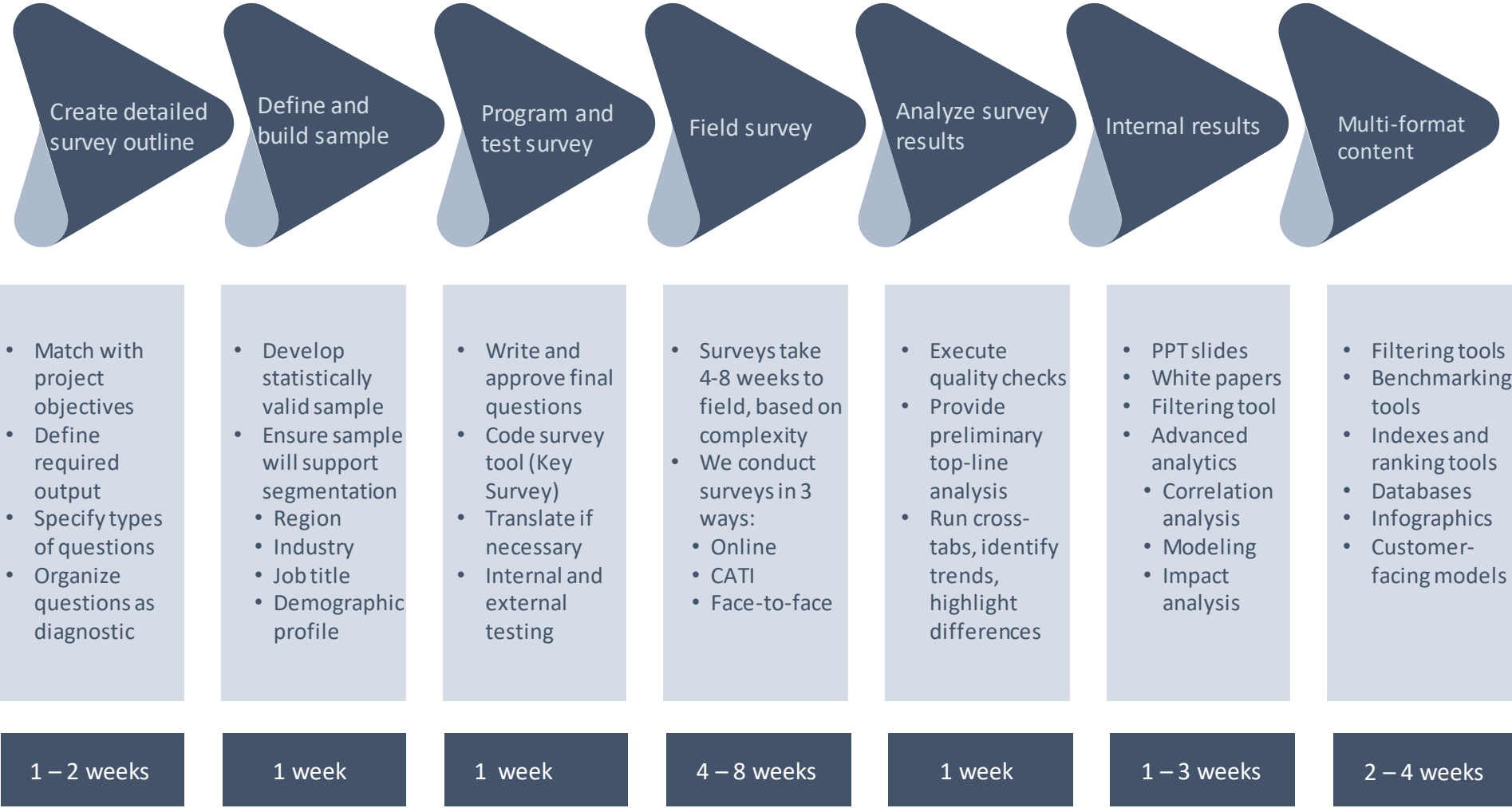
Unlike other survey firms, we extract greater value from surveys by using them to deliver primary data and analytics not available through secondary research. We then correlate survey data with economic data to get deeper insights, and input survey data into bespoke models for benchmarking, forecasting, scenario, and impact analysis.

To ensure the quantitative rigor of our survey analysis, we:

- ✓ Build statistically valid samples to enable projectable results and segmentation analysis.
- ✓ Validate the survey tool and results by applying quality testing and statistical techniques.
- ✓ Analyze survey results using advanced quantitative methods, such as correlation and regression analysis.
- ✓ Transform data output into customer-facing analytical tools, models, and data visualizations.



Our survey process



Our unparalleled reach

With over 4.5 million survey panelists, ThoughtLab's survey reach goes wide and deep. We can conduct surveys across 200 countries, in every industry, most cities, and nearly any language. At the same time, we can target executives across all functions and levels of seniority, consumers across wealth levels and demographic profiles, and government officials from the national, regional, state, and city levels. Our subject matter expertise enables us to create valuable, thought-provoking surveys.



Executive panel

- 1.5 million pre-recruited executives
- Segmented by:
 - Industry classifications
 - Location (city, region, country)
 - Type of company
 - Revenue level and growth
 - Market share
 - Employee size
 - Job title/role
 - Level of internationalization
 - Digital maturity
 - And more....



Consumer/investor panel

- Over 3 million pre-recruited people
- Segmented by:
 - Age and gender
 - Household size
 - Language spoken
 - Household income
 - Wealth levels
 - Occupation and education
 - Marital status
 - Location
 - Hobbies, shopping habits
 - Psychographic profile



Government panel

- Thousands of government decision-makers
- Segmented by:
 - National, regional, state, and city levels
 - Mayor/chief executives
 - City managers
 - CIOs, CFOs, COOs, CTOs
 - Smart city transformation executives
 - And more.....

Our survey-based projects

ThoughtLab’s capabilities span diverse industries and topics, from wealth management to cybersecurity. **We are able to go beyond the traditional audiences of business leaders and consumers and survey diverse groups of investors, students, futurists, and government leaders.**

[Building a Hyperconnected City](#)

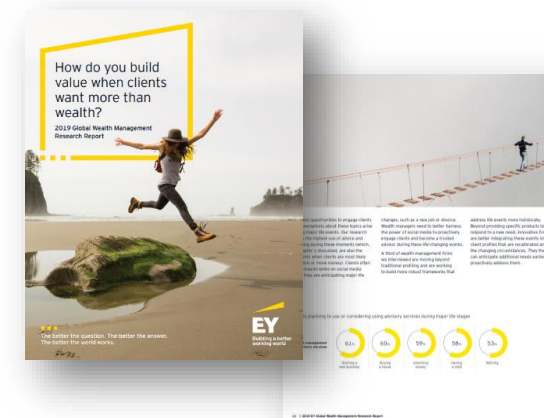
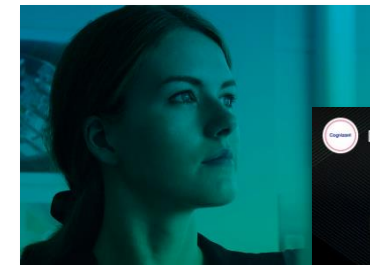
We conducted an in-depth benchmarking survey of 100 city leaders across six continents. The respondents included executives from the mayor’s office, chief operating officers, chief of staff, directors of smart city initiatives, heads of innovation, and other senior city executives.

[Cognizant The Work Ahead Mastering the Digital Economy](#)

As part of a comprehensive research program, in addition to surveying 1,000 c-level executives, we also surveyed MBA students, futurists and middle-level managers to better understand how work will change in the future.

[EY 2019 Wealth Management Study](#)

ThoughtLab conducted a global survey of 2,000 investors in 26 countries for EY. We profiled investors not just by traditional segments, such as age, gender, wealth, and location, but also by level of education, profession, investment knowledge, risk appetite, and psychographic profile.



Pulse surveys

The pandemic is just one example of disruption that businesses will face in the future. During periods of disruption, companies need timely data. We have the capability to conduct executive research as events are playing out. **Using shorter and more targeted pulse surveys, we are able to go from survey inception/design to complete results within 3-4 weeks.**

Cognizant Covid-19: The View from the C-suite

Cognizant commissioned ThoughtLab to conduct a survey of 500 senior executives at U.S.-based companies across six industries. The survey focused on the impact that the pandemic has had on the use of modern technology, customer behavior, business operations, and employee experience.



Broadridge Next-Gen Technology Pulse Survey

ThoughtLab conducted a pulse survey of 500 global financial services executives for [Broadridge](#). This study provided timely data on how the pandemic was impacting the sector - where financial firms are, where they are going, and how they will use technology to get there.



Research and expert opinion

Advisory boards and expert panels

Qualitative research can provide valuable insights into CEO strategies and views, as well as useful context for quantitative analysis. Our team has long experience in gathering qualitative perspectives through advisory boards and expert panels.

Advisory boards. Our senior team is skilled at giving presentations and leading discussions. By leveraging our executive contacts and the ThoughtLab reputation, we are able to organize meetings of key decision-makers from business, government, and academia.

Expert panels. In addition to our internal intellectual firepower, we manage an active network of over **100 global economists, industry, and subject matter experts** who contribute to research projects and participate in meetings. We can also draw on research partnerships with top economic consultancies, global research firms, academic institutions, and think tanks.



Senior executive interviews

Do you need help interviewing CEOs? This is one of our key strengths.

We often conduct interviews with top decision-makers from business and government to obtain their perspectives on critical issues.

Thanks to the seniority of our staff, and their years of experience, ThoughtLab has the ability to reach executives at the highest management levels. For example, our senior staff interviewed private equity founders for EY. For further background, please take a look at *Part 2: The View from the Top* in the paper that we link to below:

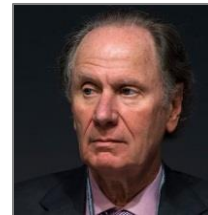
[Click here to see: How Can Private Equity Transform Into Positive Equity](#)



Stephen Schwarzman
Chairman, CEO,
and Co-Founder
Blackstone Group



Glenn Hutchins
Co-Founder
Silver Lake
and Chairman
North Island



David Bonderman
Chairman and
Founding Partner
TPG Capital



Charles (Chip)
Kaye
Co-Chief Executive
Officer
Warburg Pincus



Shane Feeney
Senior Managing
Director
*Canadian Pension Plan
Investment Board*



Professor Josh
Lerner
*Harvard Business
School*



David Rubenstein
Co-Founder and
Co-CEO
The Carlyle Group

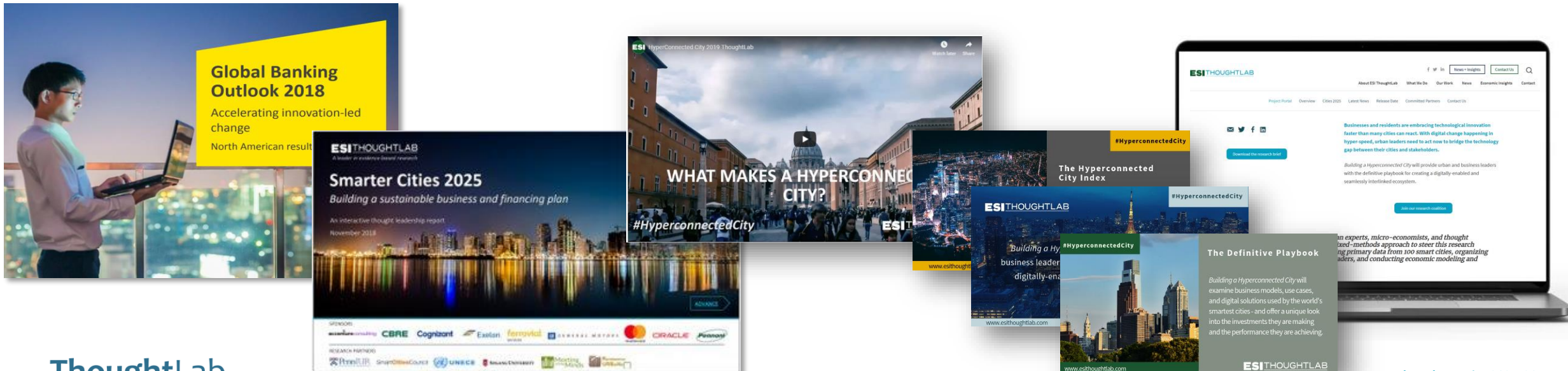


John Canning
Founder and
Chairman
*Madison Dearborn
Partners*

Our multiple formats

At ThoughtLab we not only use analytics to conduct research, we use it to deliver results in compelling formats for the C-suite.

- ✓ Articles
- ✓ Blog posts
- ✓ Think pieces
- ✓ Benchmarking tools and indexes
- ✓ ROI and cost-benefit models
- ✓ Case studies
- ✓ Q&A write-ups
- ✓ White papers
- ✓ Executive summaries
- ✓ Interactive eBooks
- ✓ Infographics and data visualizations
- ✓ Databases and data navigators
- ✓ Webinars and meetings
- ✓ Twitter chats
- ✓ Microsites, video, digital media



ThoughtLab

ThoughtLab is an innovative thought leadership and economic research firm providing fresh ideas and evidence-based analysis to help business and government leaders cope with transformative change. We specialize in analyzing the impact of technological, economic, and demographic shifts on industries, cities, and companies.

To learn more about ThoughtLab, visit: www.thoughtlabgroup.com

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