Business Models for the Internet of Things: 5 Strategic Questions

Matthew Quint and David Rogers, Columbia Business School
Madhur Aggarwal, SAP

May 2016
Columbia Business School’s Center on Global Brand Leadership creates, gathers, and shares insights on how to build and manage strong brands.

Research designed, conducted, analyzed, and reported by the CGBL
www.gsb.columbia.edu/globalbrands

As the market leader in enterprise software, SAP turns businesses into intelligent enterprises. Our applications and services enable customers to operate profitably and adapt continuously. With a global network of customers, partners, and employees, SAP helps the world run better and improve people’s lives.

Research was sponsored and made possible through the support of SAP
www.sap.com
Table of Contents

- Who and What We Studied
- Five Strategic Questions
  - Financial Case
  - Target Audiences
  - Benefits and Barriers
  - Where Is IoT in the Organization?
  - Public vs. Private Networks
- Strategic Recommendations
- Appendix: Firm Size Differences
- Appendix: Authors, Acknowledgements, and Methodology
Who and What We Studied
How Will the Internet of Things Take Off?

Just around the time that the Internet was forming in the early 1980s, the first non-computer device was connected to it - a Coca-Cola machine in the computer science department at Carnegie Mellon University.

The students who hacked the machine did it for many of the same reasons that will eventually drive 50 billion devices [Source: CISCO] or more to be connected to the Internet - they wanted to gather data remotely and use it for better functionality and service.

There are estimates that the Internet of Things (IoT), and the various subdivisions of it like smart homes and smart cities, will generate trillions of dollars of added value to the global economy [Source: BI, McKinsey, IDC, Accenture, etc.].

In the press, much of the hype has surrounded the consumer implications of IoT. Wearable devices, smart appliances, and smart cars, dominate much of ink in the general media environment. But equally, if not more, influential to IoT’s growth will be its applications in the industrial and infrastructure sectors of the economy.

This report is developed from an online survey fielded to international executives as well as qualitative interviews with executives helping lead IoT initiatives from a wide range of companies.

Our aim in conducting this research was to uncover how companies are investing in IoT initiatives, what strategies they employ to manage the IoT technology stack, what opportunities they hope to achieve with such efforts, and what barriers and challenges worry them as they moved forward with their IoT planning.

We found that for most companies, their top financial goal was to drive cost savings. So the sellers of IoT solutions will gain revenue, but the deeper value to the global economy is likely to come from how companies buying IoT products and services can gain greater efficiencies in operations, personnel, and spending.
Critical questions we set out to explore

What is the financial case for developing IoT?
What amount of spending are they projecting? Are they looking for cost savings and efficiencies or revenue?

What will the future of IoT look like?
Do firms even know yet the offerings they will bring to market? Will it be mostly solutions built for consumers in their homes? Businesses in their operations? Or something else?

What are the biggest opportunities driving IoT investment?
What are the biggest risks and barriers hindering it?
Critical questions we set out to explore

Who is leading IoT initiatives inside firms?
Who are they partnering with outside?

What role do public vs. private networks play in IoT?
What drives firms to decide on connecting their IoT effort in a fully public networks vs. a private network or a hybrid of these choices?

What is the business case for IoT investments?
What form of financial return do firms expect? Are they looking for cost savings and efficiencies or revenue? Do firms even know yet the offerings they will bring to market?
The Internet of Things is on the cusp of exploding.
Input came from diverse executives working directly on Internet of Things ("IoT") initiatives.

All survey respondents were part of the decision-making team for an IoT initiative at their firm, buying products or services to support that initiative.

345 online survey respondents

20 in-depth interviews with selected industry experts. All were developing IoT initiatives for revenue generation.
Respondents came from five countries and had a diverse array of roles.
There was a balanced mix of small and large firms

53% of firms have annual revenues over $1 billion

- 26% of firms have annual revenue less than $250M
- 23% of firms have annual revenue of $250M to less than $1B
- 17% of firms have annual revenue of $1B to less than $5B
- 13% of firms have annual revenue of $5B to less than $25B
- 21% of firms have annual revenue of $25B or more
IoT initiatives were reported from a wide range of industries

NOTE: Software/IT responses not included due to the prevalence of its involvement in most IoT efforts
Some firms also plan to apply their IoT initiative to more than one industry.
There were a variety of planning stages for respondents IoT initiatives

- Currently working on an IoT initiative (50%)
- Will develop one in the next 12 months (40%)
- Planning to develop one in the next 1-2 years (10%)

S1. Is your firm considering or already working on an initiative within the Internet of Things?
All these IoT initiatives build and integrate some or all of these components (aka “The Stack”)

- Sensors (e.g. GPS chip, RFID chip, heat sensor)
- Controllers (e.g. chips that can control elements of a device)
- Devices (integrated hardware, e.g. Fitbit, Nest thermostat)
- Network carrier (e.g. 4G network, broadband, Wifi)
- Network infrastructure (Routers, switches, network software)
- Data storage (e.g. on-site servers, cloud storage)
- Analytics (e.g. database structure and processing software)
- Platform (e.g. middleware, development tools, open source components)
- Applications (e.g. mobile app, dashboard, alert notification system)
IoT initiatives are part of a large vendor and partner ecosystem

<table>
<thead>
<tr>
<th>“The Stack”</th>
<th>Build</th>
<th>Partner and Buy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>38%</td>
<td>60%</td>
</tr>
<tr>
<td>Platform</td>
<td>28%</td>
<td>69%</td>
</tr>
<tr>
<td>Analytics</td>
<td>35%</td>
<td>62%</td>
</tr>
<tr>
<td>Data storage</td>
<td>25%</td>
<td>73%</td>
</tr>
<tr>
<td>Network infrastructure</td>
<td>20%</td>
<td>77%</td>
</tr>
<tr>
<td>Network carrier</td>
<td>15%</td>
<td>83%</td>
</tr>
<tr>
<td>Devices</td>
<td>16%</td>
<td>80%</td>
</tr>
<tr>
<td>Controllers</td>
<td>18%</td>
<td>79%</td>
</tr>
<tr>
<td>Sensors</td>
<td>22%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Please indicate the primary way in which your organization is implementing each of the elements shown below in regard to your Internet of Things initiative: 1) “Build” (manufacture, design, or deploy on your own), 2) “Partner” (do so jointly with others), 3) “Buy” (from a vendor), or 4) Don’t know
The financial case
An array of financial and market considerations are made by a firm when committing to an IoT initiative:

• Is the effort experimental or market-ready?
• Is the financial goal one of cost savings or revenue?
• What spending is committed now and for the future?
• When does the firm expect to get a return on investment from the initiative?
Firms are mixed in their developmental plans for IoT initiatives

- 58% First to market offering
- 23% Following an established use case
- 19% Still experimental

How would you describe your Internet of Things initiative relative to other efforts being developed in your industry?
Firms prioritize a range of financial goals...

- Efficiency of operations: 39%
- Efficiency of personnel: 19%
- New products/services: 19%
- Efficiency of spending: 12%
- Premium pricing for new innovations: 8%
- Performance-based contracts: 4%

Cost savings
Revenue
...but most are focused on cost savings

Split of top financial priority among three cost savings options (241 respondents) and top financial priority among three revenue options (103 respondents)
But firms are looking at both cost savings and revenue goals to make a financial case.

Respondents were asked to check all that applied among the six financial goals, and then to note their top financial priority.

59% of respondents with cost savings as a top priority also checked at least one revenue goal.

70% of respondents with revenue as a top priority also checked at least one cost savings goal.
Firms had not yet committed vast amounts of spending on IoT initiatives...

Q6. How much has your firm committed to spend this year to buy products/services to implement an Internet of Things initiative?

- High, Over $2M: 17%
- Moderate, $500,000-$2,000,000: 32%
- Some, $100,000-$499,999: 35%
- Little, $1-$99,999: 13%
- None/Don't know: 4%
...but most firms expect spending growth

Q7. What is your firm’s planned spending next year on products/services to implement Internet of Things Initiatives, as compared to this year?
Current budgets are not yet influenced by the two core financial cases...

- Spending < $0.5M:
  - Cost savings as top priority: 49%
  - Revenue as top priority: 50%

- Spending > $0.5M:
  - Cost savings as top priority: 49%
  - Revenue as top priority: 48%
... but revenue-focused firms are more optimistic about spending growth

Plan to spend “more” or “much more”

- Cost savings: 69%
- Revenue: 76%
- Cost savings: 72%
- Revenue: 79%

- “Next year” (i.e. 2015)
- “In 2-5 years”
Firms expect to see financial returns in the near-term...
...and cost-savings-based IoT initiatives expect financial returns sooner revenue-based ones.
Target audiences
IoT initiatives target a range of audiences.

- **General consumers** (i.e. B2C): 53%
- **Your business customers** (i.e. B2B): 72%
- **Your employees** (i.e. internal): 38%

**Number of Audiences (B2B, B2C, internal) Targeted by IoT Initiative**

- **Only 1**: 53%
- **2**: 30%
- **All 3**: 17%
Cost-savings-based initiatives are much more likely to target their own employees.
Benefits and barriers
When considering all possible benefits firms focus on actionable data and customer/user experiences...

<table>
<thead>
<tr>
<th>Response</th>
<th>Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive more real-time actionable data</td>
<td>53.8%</td>
</tr>
<tr>
<td>Improve customer service</td>
<td>48.8%</td>
</tr>
<tr>
<td>Improve customer experiences</td>
<td>47.4%</td>
</tr>
<tr>
<td>Solve problems for end users</td>
<td>45.1%</td>
</tr>
<tr>
<td>Provide increased security or control</td>
<td>45.1%</td>
</tr>
<tr>
<td>Improve visibility and optimize operations</td>
<td>43.6%</td>
</tr>
<tr>
<td>Improve operational safety</td>
<td>42.8%</td>
</tr>
<tr>
<td>Create new business models</td>
<td>41.9%</td>
</tr>
<tr>
<td>Provide more customized products and services to end users</td>
<td>41.6%</td>
</tr>
<tr>
<td>Improve strategic decision-making</td>
<td>41.6%</td>
</tr>
<tr>
<td>Gain greater insight on customers</td>
<td>38.7%</td>
</tr>
<tr>
<td>Aid compliance reporting</td>
<td>28.9%</td>
</tr>
<tr>
<td>Improve employee recruitment</td>
<td>22.8%</td>
</tr>
</tbody>
</table>

What benefits does your firm hope to get from implementing an Internet of Things initiative?
...but product and strategic goals rank higher as the top priorities for an IoT initiative

<table>
<thead>
<tr>
<th>Response</th>
<th>Top priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive more real-time actionable data</td>
<td>20.3%</td>
</tr>
<tr>
<td>Solve problems for end users</td>
<td>10.7%</td>
</tr>
<tr>
<td>Provide more customized products and services to end users</td>
<td>10.1%</td>
</tr>
<tr>
<td>Create new business models</td>
<td>9.3%</td>
</tr>
<tr>
<td>Improve visibility and optimize operations</td>
<td>7.8%</td>
</tr>
<tr>
<td>Improve strategic decision-making</td>
<td>7.8%</td>
</tr>
<tr>
<td>Improve customer service</td>
<td>7.5%</td>
</tr>
<tr>
<td>Gain greater insight on customers</td>
<td>7.2%</td>
</tr>
<tr>
<td>Provide increased security or control</td>
<td>6.4%</td>
</tr>
<tr>
<td>Improve customer experiences</td>
<td>4.6%</td>
</tr>
<tr>
<td>Improve operational safety</td>
<td>4.6%</td>
</tr>
<tr>
<td>Aid compliance reporting</td>
<td>1.2%</td>
</tr>
<tr>
<td>Improve employee recruitment</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

What is the top benefit your firm hopes to get from implementing an Internet of Things initiative?
A firm’s financial case also alters how it prioritizes benefits

**Cost Savings firms**
- Top benefits sought:
  - Improve visibility and optimize operations: 22%
  - Improve customer service: 11%
  - Improve strategic decision-making: 9%
  - Solve problems for end users: 8%
  - Receive more real-time actionable data: 8%

**Revenue firms**
- Top benefits sought:
  - Provide more customized products and services to end users: 17%
  - Create new business models: 16%
  - Gain greater insights on customers: 15%
  - Receive more real-time actionable data: 10%
  - Solve problems for end users: 8%

*Columbia Business School Center on Global Brand Leadership*
The top barriers for IoT match those of any data-collection effort

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Total respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data privacy issues</td>
<td>52%</td>
</tr>
<tr>
<td>Security threats</td>
<td>51%</td>
</tr>
<tr>
<td>IT investment keeping pace</td>
<td>43%</td>
</tr>
<tr>
<td>Regulatory challenges</td>
<td>39%</td>
</tr>
<tr>
<td>Wireless broadband availability</td>
<td>38%</td>
</tr>
<tr>
<td>Transitioning from legacy systems</td>
<td>35%</td>
</tr>
<tr>
<td>Lack of proven reliability</td>
<td>34%</td>
</tr>
<tr>
<td>Capital deployment decisions</td>
<td>33%</td>
</tr>
<tr>
<td>Inconsistent standards for device communications</td>
<td>33%</td>
</tr>
<tr>
<td>Unproven business model</td>
<td>30%</td>
</tr>
</tbody>
</table>
Revenue-oriented firms are, unsurprisingly, show more concerned about barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Revenue</th>
<th>Cost savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data privacy issues</td>
<td>61%</td>
<td>49%</td>
</tr>
<tr>
<td>Security threats</td>
<td>60%</td>
<td>47%</td>
</tr>
<tr>
<td>Wireless broadband availability</td>
<td>46%</td>
<td>37%</td>
</tr>
<tr>
<td>Regulatory challenges</td>
<td>43%</td>
<td>37%</td>
</tr>
<tr>
<td>IT investment keeping pace</td>
<td>42%</td>
<td>44%</td>
</tr>
<tr>
<td>Lack of proven reliability</td>
<td>38%</td>
<td>32%</td>
</tr>
<tr>
<td>Capital deployment decisions</td>
<td>38%</td>
<td>32%</td>
</tr>
<tr>
<td>Transitioning from legacy systems</td>
<td>37%</td>
<td>34%</td>
</tr>
<tr>
<td>Inconsistent standards for device communications</td>
<td>34%</td>
<td>32%</td>
</tr>
<tr>
<td>Unproven business model</td>
<td>28%</td>
<td>31%</td>
</tr>
</tbody>
</table>
Perceptions of the challenges of IoT development grow as commitment gets deeper

The most commonly cited barriers for IoT were data privacy, security threats, and levels of IT investment. Addressing these appears to be the price of entry for any major IoT initiative.

We found in our in-depth expert interviews a greater concern about inconsistent technical standards and unproven business models for IoT.

In addition, we found that firms with a current IoT initiative, or spending a higher amount, believe barriers pose a more significant threat.
Where is IoT in the organization?
Which departments are extremely involved in IoT initiatives?

- IT: 66%
- R&D: 40%
- CEO: 39%
- Product development: 37%
- Strategy: 35%
- Asset Management: 29%
- Supply chain: 28%
- Service: 25%
- Procurement: 24%
- Marketing: 24%
- Manufacturing: 24%
- Sales: 23%
- Finance: 20%
- HR: 9%

How involved are the following divisions/departments of your organization in implementing Internet of Things solutions? (TOP 1 "extremely involved")
Business case orientation does vary the level of departmental involvement

<table>
<thead>
<tr>
<th>Departments</th>
<th>Revenue Oriented</th>
<th>Cost-savings Oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D</td>
<td>+19</td>
<td></td>
</tr>
<tr>
<td>Strategy</td>
<td>+11</td>
<td></td>
</tr>
<tr>
<td>Product Development</td>
<td>+9</td>
<td></td>
</tr>
<tr>
<td>Service</td>
<td>+4</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>+4</td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td>+2</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>+1</td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TT</td>
<td></td>
<td>+1</td>
</tr>
<tr>
<td>CEO</td>
<td></td>
<td>+1</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td>+4</td>
</tr>
<tr>
<td>Supply Chain</td>
<td></td>
<td>+6</td>
</tr>
<tr>
<td>HR</td>
<td></td>
<td>+7</td>
</tr>
<tr>
<td>Asset Management</td>
<td></td>
<td>+15</td>
</tr>
</tbody>
</table>

E.g. “Revenue” firms have a 19% higher likelihood that R&D is extremely involved in IoT, vs. “Cost-savings” firms.
Why does the financial case affect who is involved?

**More important to a revenue goal**
- R&D is key to incubating commercial IoT
- Strategy helps commercialize, and determine M&A options
- Product development is core to crafting the offer

**More important with a cost savings goal**
- Supply chains are a key area to find efficiencies
- Marketing can use data for more efficient targeting
- Asset management wants adopt the best use of firm’s current asset base
Public vs. private networks
The Spectrum of Public to Private Networks

The use of the term “Internet” can be a bit misleading when discussing all the players and devices that are being incorporated into the Internet of Things discussion.

We believe the “Network of Things” is a more appropriate phrase. A wide range of use cases exists in which devices gather and transmit data, but not all of the data transfers and device activations will take place over the Internet.

For decades, industrial applications under the machine-to-machine (M2M) moniker, have often involved data transfers on private servers, without the need for an Internet protocol.

Today, many of the initiatives involving consumer devices, like smart watches or plugs in the smart home are also not directly connecting to the internet, or not connecting to the Internet at all.

A range of short-range communications protocols – from Bluetooth to Zigbee – are connecting this mesh of devices in the home, the office, or the factory.

It is true that much, or almost all, of the data from these devices may end up in the cloud. But at the same time, the operation and control of these devices may not occur via a remote connection.

Beyond the already established industrial plant examples, on the consumer side one can turn to differences in smart home locks. Some are controlled via remote access, but others can only be opened when a smartphone with unlocking permissions is near the device, using an Internet-free connection like Bluetooth.

In sum, we are building a ubiquitous “network of things,” that will often, but not always, make use of the public cloud of the Internet.
Will your IoT initiative over the next five years be: 1) “private” (i.e. data would only be accessible to internal employees), 2) “public” (data transferred openly through the internet), or 3) “hybrid” (data accessible to customers or developers).

59% of firms have at least some elements of their IoT initiative with public accessibility.

- 41.0% Private IoT plan only
- 32.1% Hybrid (public & private) IoT plans
- 26.9% Public IoT plan
The IoT finance case impacts the choice of public vs. private networks

Spilt between PRIVATE only (142 respondents) vs either PUBLIC or HYBRID as a deployment plan (203 respondents)

- Efficiency of operations: 34% Public, 47% Private
- Efficiency of personnel: 16% Public, 20% Private
- Efficiency of spending: 12% Public, 12% Private
- New products/services: 10% Public, 25% Private
- Premium pricing for new innovations: 8% Public, 7% Private
- Performance-based contracts: 4% Public, 3% Private

Columbia Business School
Center on Global Brand Leadership
Public vs. private networks deliver different benefits

What benefits does your firm hope to get from buying and implementing an Internet of Things initiative? (CHECKED as TOP 1 benefit)

Private IoT firms
top benefits sought

- Improve visibility and optimize operations: 20%
- Improve strategic decision-making: 11%
- Improve operational safety: 11%

Public IoT firms
top benefits sought

- Receive more real-time actionable data: 17%
- Solve problems for end users: 16%
- Create new business models: 15%
- Provide more customized products and services to end users: 10%
- Gain greater insights on customers: 8%

Columbia Business School
Center on Global Brand Leadership
Public networks raise greater concerns about barriers to IoT

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data privacy issues</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td>Security threats</td>
<td>55%</td>
<td>49%</td>
</tr>
<tr>
<td>Wireless broadband availability</td>
<td>49%</td>
<td>45%</td>
</tr>
<tr>
<td>IT investment keeping pace</td>
<td>42%</td>
<td>45%</td>
</tr>
<tr>
<td>Regulatory challenges</td>
<td>39%</td>
<td>37%</td>
</tr>
<tr>
<td>Lack of proven reliability</td>
<td>37%</td>
<td>30%</td>
</tr>
<tr>
<td>Transitioning from legacy systems</td>
<td>35%</td>
<td>35%</td>
</tr>
<tr>
<td>Inconsistent standards for device communications</td>
<td>35%</td>
<td>30%</td>
</tr>
<tr>
<td>Capital deployment decisions</td>
<td>34%</td>
<td>32%</td>
</tr>
<tr>
<td>Unproven business model</td>
<td>32%</td>
<td>27%</td>
</tr>
</tbody>
</table>

Columbia Business School
Center on Global Brand Leadership
Public IoT projects spend more now and are more optimistic about future spending than private projects.

- 54% of respondents spent >$0.5M in firm spending, compared to 40% spending <$0.5M.
- 55% of respondents expect to spend more in the next 5 years, with 78% of public projects and 64% of private projects.

Spilt between PRIVATE only (142 respondents) vs either PUBLIC or HYBRID as a deployment plan (203 respondents).
Strategic recommendations
What to Consider in Developing Your IoT Business Model

- Clarify your benefits, audience, and ROI model – to set budget, timetable, and who will lead
- Address your key barriers upfront
- Figure out if you’re connecting to public cloud, or just a closed network
- Plan for your full stack (i.e. how do you get there?)
There are only a few key areas where firm size influences elements of an IoT initiative

<table>
<thead>
<tr>
<th></th>
<th>Small firms</th>
<th>Large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue &lt;$250M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently working on an IoT initiative</td>
<td>42%</td>
<td>54%</td>
</tr>
<tr>
<td>Targeting consumers with IoT initiative (B2C)</td>
<td>46%</td>
<td>57%</td>
</tr>
<tr>
<td>Cost savings is top financial priority</td>
<td>57%</td>
<td>73%</td>
</tr>
<tr>
<td>Unproved business model is a barrier to IoT</td>
<td>15%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Spilt between small firms (below $250M revenue - 89 respondents) and large firms (above $250M - 256 respondents)
Matthew Quint (mq2120@columbia.edu) is the Director of Columbia Business School’s Center on Global Brand Leadership, which creates, gathers, and shares insights on what it takes to build strong brands. In this role, Matthew researches, writes, and presents on a wide range of issues critical to successful brand building and management. He has particular expertise in marketing ROI, strategies for marketing in the digital age, and the development of creative and effective brand communications.

Matthew is the co-producer of the Center’s acclaimed BRITE Conference series on brands, innovation, and technology, now in its 9th year, which brings together over 500 big thinkers in industry and academia to discuss how innovation and technology help build strong brands. He has worked with senior executives from various leading companies — including Aimia, Coach, Deloitte, Edelman, Lonza, and SAP — to conduct research, produce events, and promote knowledge sharing among branding and marketing leaders.

David Rogers (david.rogers@columbia.edu) is a globally recognized leader on brands and digital business strategy, known for his pioneering model of customer networks. He is author of three books, most recently, The Network Is Your Customer: 5 Strategies to Thrive in a Digital Age, as well as the forthcoming, The Digital Transformation Playbook (2016).

At Columbia Business School, David teaches global executives as the faculty director of Executive Education programs on Digital Marketing Strategy. His recent research has focused on in-store mobile shoppers, big data, and digital marketing ROI. He is also the founder of the Center on Global Brand Leadership’s acclaimed BRITE conference.

David has consulted and developed executive programs for global companies such as Google, Toyota, Pernod Ricard, Visa, SAP, Lilly, Combiphar, IBM, China Eastern Airlines, Kohler, Saint-Gobain, and MacMillan, among many others. He has delivered strategic workshops for executives in hundreds of companies from 64 countries. David is a board member of the Marketing Hall of Fame, and is president-elect of the NY American Marketing Association.
Acknowledgments

Deep thanks go to Fatima LaHay and Annie Balant from Vision Critical for their project management and fielding of the survey. Crucial support, comments, and questions came from the Aimia Institute team (a sponsor of the Center on Global Brand Leadership) during the early days of survey development and in feedback on the data analysis. Thanks to Aaron Dauphinee, Martin Hayward, Michelle Stern, Nicola Waterman, and Laura Hewitt.

Finally, special thanks go to Isadora Levy, a graduate student at Columbia Business School, who supported the data analysis, and Gabriela Torres Patiño and Allie Abodeely from the Center on Global Brand Leadership for their research and editing support.
Methodology

The online survey was designed by Columbia Business School and fielded by Vision Critical from February 3-11, 2015. A total of 8,160 respondents completed the survey: 2,004 from the United States; 2,036 from the United Kingdom; 2,111 from Canada; 1,007 from France, and 1,002 from India. Qualified respondents were age 18 or older, and resided in the US, UK, Canada, France, or India. The respondents were closely representative of the general population (not just the online population) of age 18+ respondents in each country, with the exception of India, where the respondents slightly over-indexed as younger and more affluent than the overall Indian population.

For the industry-specific sections — primarily the Findings sections 2 & 3 — each respondent was randomly provided two (of six) industries to consider. Comfort-related questions used a standard 5-point Likert Scale from Very Comfortable to Very Uncomfortable. Agreement-related questions used a standard 5-point Likert Scale from Strongly Agree to Strongly Disagree. The brand trust section used a 3-point scale: Much more likely to share, Somewhat more likely to share, No more likely to share. The data-enabled benefits section used a standard 5-point Likert Scale from Very Likely to Very Unlikely. A downloadable copy of this research report and a complete list of the survey questions can be obtained online at: gsb.columbia.edu/globalbrands or visit Aimia Institute at aimia.com.