Digital Shoring for Networked Innovation

by Matthew Robinson and Mukund Umalkar
Companies are under pressure to innovate faster than ever, and collaboration beyond organizational boundaries is central to accelerated innovation. But few companies navigate collaboration well—or even find the right path to get started.

To move forward, companies must change their operating models to enable “digital shoring,” the latest evolution of organizational “shoring” approaches.
Contents

Introduction 4

Cluster challenges: Digital solutions 5

Opportunity one: Live in the global village 8

Opportunity two: Know your neighbors better 12

Broadening physical clusters: Building out 14

A new route to accelerated innovation 18

Four key questions 20

Finding the digital shore 23

About the research 24
Introduction

Digital shoring builds on digital technologies and capabilities to help innovators find each other—whether they are in the same city or across the globe. By giving digital proximity to organizations with a potential common purpose, companies can leapfrog the natural limitations of physical industry clusters.

In reshaping existing operating models to make digital shoring possible, business leaders need to answer important questions relating to corporate openness, the protection of intellectual property (IP), the use of digital platforms, and the readiness of their people.

Companies have long reconfigured their operating models to find new markets, new suppliers and new sources of labor in physical locations—both near and far from corporate headquarters. In the past, they may have used various approaches such as offshoring, onshoring, and near-shoring, as appropriate, to adjust for optimal physical distances between operations.

The time has come for an operating model overhaul that enables digital collaboration, especially for innovation. Often, companies have not designed their operating models to enable efficient and effective collaboration across company boundaries. Still, some organizations are bucking this trend, through an approach Accenture calls digital shoring.

Through digital shoring, companies collaborate with partners located anywhere—from next door to across the globe. This approach enables companies to not only make collaborations more efficient, but also to enter into new ways of working and unlock previously unattainable value. For example, in the automotive and high-tech industries, many types of organizations are joining together to set common standards for innovative information-and-entertainment solutions for car drivers and passengers. On the other end of the spectrum from formal alliances, executives are taking to social media, such as Twitter, to make and deepen connections with fellow industrialists and innovators around the world.

Valuable models of digital shoring are arising not only because technology enables them, but also because, for many businesses, their geographic location—however prized—presents challenges.

In early 2015, Accenture, in collaboration with Oxford Economics, surveyed 452 executives to understand the importance of location to business competitiveness. Survey participants were senior executives—predominantly from the C-suite—in nine clusters from three industries: life sciences and health; chemicals and process; and automotive.
Industry clusters are a strong mechanism for better growth and increased competitiveness, not only because they offer the clear benefits associated with geographic proximity, but also because they offer a host of less visible rewards (see Figure 1).

What is the key to reaping rewards? An important component is a cluster’s culture, and the relationships that exist between members. As Adam Kingl, executive director of learning solutions at the London Business School, told us, “Physical industry clusters contain key players at their center: organizations and individuals with the ability to make introductions and orchestrate business.” For Frank Bobe, entrepreneur-in-residence at Harvard University’s Wyss Institute, “Clusters are all about people and relationships...the success of certain clusters can be attributed to their open, risk-taking, and collaborative environment...you need to immerse yourself in the culture of the cluster and absorb it.”

An Accenture Institute for High Performance survey corroborated these views. We asked 452 senior business executives in nine physical industry clusters about their experience with clusters. They cited the ability “to build professional relationships and a network for the future” as the second-most-popular choice—69 percent, second only to the importance of sourcing raw materials. Other responses pointed to the significance of culture and relationships: 63 percent reported benefiting from an “improved understanding of the workings and culture of other organizations in the cluster,” and 62 percent cited access to potential collaboration partners.

These answers give a clear sense of what executives hope to gain from location in a cluster. However, the benefits are not easily attained. When we asked the executives how successfully they are extracting the more intangible benefits, we learned that they are struggling. More than half (54 percent) reported that the benefits of collaboration were uncertain; and almost half (46 percent) noted a lack of variety of organizations with which they can collaborate.

**Figure 1: Location benefits**

In an Accenture survey, executives identified several potential benefits that come from location in physical industry clusters. Some were tangible (easier access to raw materials); many were intangible (opportunities to collaborate on new projects).

<table>
<thead>
<tr>
<th>Benefit</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw materials</td>
<td>79%</td>
</tr>
<tr>
<td>Professional relationships and network</td>
<td>69%</td>
</tr>
<tr>
<td>Supply chain integration</td>
<td>64%</td>
</tr>
<tr>
<td>Understanding of workings and culture of other cluster members</td>
<td>63%</td>
</tr>
<tr>
<td>Partners for collaboration on new projects</td>
<td>62%</td>
</tr>
<tr>
<td>Information sharing between cluster members</td>
<td>56%</td>
</tr>
<tr>
<td>Reputational benefits for the organization</td>
<td>55%</td>
</tr>
<tr>
<td>Cluster’s specific culture</td>
<td>55%</td>
</tr>
<tr>
<td>Innovation of new products/services</td>
<td>54%</td>
</tr>
</tbody>
</table>

Resources and markets: % of respondents who report this benefit from their location

Networks, innovation and collaboration: % of respondents who report this benefit from their location

Sample n = 452
We can sympathize, and ask: What do executives see as the most valuable outcome from all this possible collaboration? In a word, innovation. Faster, more effective innovation—the heart of growth and competitiveness. Two-thirds of the executives in our survey selected improved innovation as the key benefit from building relationships with other companies globally—by far the leading response (see Figure 2).

Typically, three types of organizations have worked to make an industry cluster more effective. Chambers of commerce and industry groups play a vital role, providing information and networking services to members. Third parties, sometimes for-profit organizations, accelerate commercial opportunities by bringing companies and institutions together. And individual companies adopt strategies to become more active cluster participants.

However, these solutions can prove costly, time-consuming, and hard to scale. Executives are adjusting: rethinking their operating models to tap into digital solutions as a way of addressing their most important cluster challenges. In the survey, 82 percent of executives who ranked a non-collaborative culture among their top-three challenges believe it can be solved digitally. More than three-fourths of those who selected attracting talent as a challenge see a digital solution. More than 60 percent of those who pointed to a lack of information, a lack of variety or inertia as challenges see digital solutions to these problems as well (see Figure 3).

Figure 2: Close relationships
Why do companies care about clusters? The relationships are critical—especially in service of an improved capacity to innovate. Companies get a number of benefits from building relationships with other companies globally.

Instances of digitalized industrial clusters already exist. The most ambitious not only complement physical with virtual working, but also eschew the limitations of geography. With participants dotted around the world but dedicated to solving a shared problem, we call these networks “digital archipelagos.” Some are formal organizations with official members and rules for participation; others exist informally but can be tracked through the digital connections and conversations of key professionals. An analysis of both types reveals their reach and inner workings.

<table>
<thead>
<tr>
<th>Benefit</th>
<th>% of respondents that gain this benefit</th>
<th>% of respondents that select this benefit as the most important benefit</th>
<th>% of respondents that select this benefit as the second most important benefit</th>
<th>% of respondents that select this benefit as the third most important benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovate new products and/or services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge exchange and network</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn from other organizations outside the cluster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share information with other organizations outside the cluster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Build professional relationships and network for the future</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Join cross-location industry associations and advocacy groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Collaboration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborate with valuable partners on new projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combine capabilities with other organizations to work on a commercial opportunity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop standards with other organizations outside the cluster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share costs with other organizations outside the cluster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share risk with other organizations outside the cluster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Culture and cluster environment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhance the organization’s brand with partnerships outside the cluster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key
% of respondents that gain this benefit
% of respondents that select this benefit as the most important benefit
% of respondents that select this benefit as the second most important benefit
% of respondents that select this benefit as the third most important benefit
Executives cite a variety of obstacles standing in the way of gains from participation in industry clusters. But they also believe that digital tools can overcome these challenges.

- A non-collaborative culture: 36% of respondents citing this within their top three cluster challenges, 82% who face this challenge and believe there is a digital solution for it.
- Uncertainty over the benefits of working with other cluster members: 34% citing, 63% facing and believing in digital solution.
- Lack of variety in the types of cluster organizations: 30% citing, 61% facing and believing.
- Lack of information about other cluster members: 28% citing, 63% facing and believing.
- Difficulty in attracting talent: 25% citing, 77% facing and believing.
- Lack of connections to organizations outside the cluster: 25% citing, 53% facing and believing.
- Difficulty in retaining talent: 24% citing, 51% facing and believing.

Sample n = 452
Opportunity one: Live in the global village

Formal digital archipelagos

A formal network brings together many organizations in a common pursuit. Consider the GENIVI Alliance, a name derived from Geneva, Switzerland (GEN) and “in-vehicle infotainment” (IVI). Composed of 145 members from Tokyo, Munich, Cambridge (United Kingdom), Silicon Valley and many other locations, the alliance exists, as its name indicates, to develop an open-source in-vehicle infotainment platform—a critical part of the “connected car.” The network includes companies from many industries, including automotive, software, consumer electronics and telecommunications (see Figure 4).

Alliance members conduct most of their business from a distance, only infrequently sending delegates to gather in a common physical location. Only 20 percent of the alliance’s efforts to speed up innovation and time-to-market (while significantly reducing costs) are conducted through in-person meetings. Most of the time, its many working groups and teams engage with each other through digital tools on several strategic initiatives.

AutoHarvest Foundation is another example of a formal digital cluster. Founded in 2012 and based in Detroit, AutoHarvest offers its members a digital meeting space for advanced manufacturing innovators who want to test and develop their ideas. Membership draws from a globally diverse group including research and development (R&D), academic, commercial, and public-sector organizations as well as individual inventors.

AutoHarvest’s CEO, Jayson Pankin, believes collaborative innovation is critical to growth in today’s competitive and ever more complex landscape. “Tomorrow’s products are not going to be made by the technologies large companies develop alone under their own roof. Collaboration between different actors, large and small, competitors and partners, is crucial,” says Pankin.

Informal digital archipelagos: communities of interest and serendipity

But digital archipelagos are not just about formal alliances and platforms that a small team inside an organization decides their organization should join; they are also about employees who tap into available tools, such as social media, to form their own digital global communities. One way to track these informal digital archipelagos is by analyzing professionals’ activity on Twitter, the social media tool with some 320 million monthly active users.

Our analysis of the Twitter behavior of a group of identified senior industry professionals in six industrial clusters shows how people are forming digital communities around the world with a focus on collaborative innovation. When we looked at the cluster participants’ activity—the people they were following as well as their active conversations—we saw that 70 percent of the connections, on average, were with people located outside the immediate geographic surroundings. In the Basel life sciences cluster in Switzerland, that figure reached 95 percent (see Figure 5).

(For a discussion of how we conducted this research on Twitter activity, see About the research, page 24.)
“Tomorrow's products are not going to be made by the technologies large companies develop alone under their own roof. Collaboration between different actors, large and small, competitors and partners, is crucial.”

- Jayson Pankin, CEO, AutoHarvest
Figure 4: Digitally connected: The GENIVI Alliance’s broad reach

A world map reveals the GENIVI Alliance as a "digital archipelago," joining together participants from many industries and with a variety of capabilities scattered throughout Asia, Europe and the United States. The map shows a selection of the alliance’s 145 members.
Figure 5: Ranging far from home

Twitter activity of life sciences and health professionals in Basel, Switzerland. The map shows how professionals in the life sciences industry around Basel use Twitter to effectively form and participate in a global digital archipelago. To create the map, we identified the accounts they follow and focused on those with which they had at least one public Twitter conversation during the six-month period of analysis. Each bubble on the map represents a city or a county. The bubble’s size represents the number of accounts in a location that professionals follow and have a conversation with. While all cities have been mapped, only the cities and counties with the highest proportion of accounts followed have been labeled. Accounts that had not shared their location publicly on Twitter were excluded from the analysis. The top 10 hashtags by reach—the overall potential number of Twitter accounts that could have seen the hashtag—were also gathered. See the About the research section for more details.
Within or near physical clusters, companies today are using digital tools both to magnify the benefits they already receive from their location, and to better integrate into a particular cluster. These tools include not only Twitter but also global platforms such as LinkedIn, as well as cluster- or industry-specific applications. AutoHarvest’s Pankin believes that such platforms can be “jet fuel” for physical industry clusters. According to him, “People and organizations meet on AutoHarvest based on the subject matter and it turns out they did not know they were located right next to each other. This [kind of connecting] goes beyond what we could physically do. We are not replacing anything, we are supplementing it.” (see Figure 6).

Many of the people we interviewed spoke of “serendipitous encounters”—in conferences and coffee shops—as an advantage of being located in a dense physical cluster. The structured use of digital media, while not a substitute for personal meetings, can increase the frequency and salience of such encounters, potentially “making serendipity routine,” to quote Pankin.

**Figure 6: Finding partners: AutoHarvest’s connective tissue**

AutoHarvest, a collaborative innovation cluster, helps potential partners and innovators, near and far, find each other. Member organizations depicted in the map were selected to illustrate a range by type, industry and location.

Used in these ways, digital technology is not an alternative to physical presence, but an important amplifier of its benefits. Our research revealed that professionals from a variety of organizations are already using digital tools to initiate business relationships within clusters (see Figure 7). In more than half the incidences we identified, the use of newer digital tools trumped in-person meetings and the use of older technologies as a means for starting a relationship.
Figure 7: Tools for starting a business relationship: newer digital technologies lead the way

Companies are more likely today to initiate a business relationship inside their own cluster with a newer digital tool than they are in-person or by e-mail or telephone (462 respondents identified 2,645 incidences in which they initiated a business relationship).
Digital tools also help people participate in a dense physical cluster without having to relocate or travel repeatedly. The Massachusetts Biotechnology Council (MassBio), an association of more than 650 life sciences organizations based in Cambridge’s Kendall Square, uses Twitter to increase its impact throughout the state of Massachusetts and beyond.

In 2014, following the publication of its Impact 2020 report, MassBio created #impact2020 on Twitter to enable ongoing discussions between cluster participants. It hosted entire events on Twitter, featuring regional thought leaders and experts. Sarah MacDonald, executive vice president at MassBio, emphasizes the importance of face-to-face relationships but says these events can “take Kendall Square to those who can’t reach it” as well as bring digital-savvy experts into discussions about the future of the cluster.

The Twitter data in our analysis showed that some 30 percent of all discussions in the six clusters we studied were with accounts located in the center and peripheries of their respective physical clusters. Conversations within national boundaries were also prominent: in the Midlands, England, automotive cluster, 85 percent of the Twitter relationships were UK-based. Cross-border relationships were also significant. In the Cambridge, United Kingdom, life sciences cluster, 30 percent of the relationships were outside the United Kingdom (see Figure 8).
Sarah MacDonald, executive vice president at MassBio, emphasizes the importance of face-to-face relationships but says Twitter can “take Kendall Square to those who can’t reach it” as well as bring digital-savvy experts into discussions about the future of the cluster.
Analysis of the life sciences cluster in Cambridge, United Kingdom, and the automotive cluster in the Midlands, England, shows that in addition to using Twitter to connect with local cluster members, professionals are using it to expand the boundaries of their cluster—primarily to other regions of the United Kingdom, but also to the rest of Europe and other parts of the world. As with Figure 5, to create the map, we identified the accounts they follow and focused on those with which they had at least one public Twitter conversation during the six-month period of analysis. Each bubble on the map represents a city or a county. The bubble’s size represents the number of accounts in a location that professionals follow and have a conversation with. The top 10 hashtags by reach—the overall potential number of Twitter accounts that could have seen the hashtag—were also gathered. See the About the research section for more details.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Hashtag</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>#morgan</td>
</tr>
<tr>
<td>2</td>
<td>#f1</td>
</tr>
<tr>
<td>3</td>
<td>#N24</td>
</tr>
<tr>
<td>4</td>
<td>#FoS</td>
</tr>
<tr>
<td>5</td>
<td>#MRFoS</td>
</tr>
<tr>
<td>6</td>
<td>#72MM</td>
</tr>
<tr>
<td>7</td>
<td>#BMW</td>
</tr>
<tr>
<td>8</td>
<td>#SIAG</td>
</tr>
<tr>
<td>9</td>
<td>#MRBMWM3M4</td>
</tr>
<tr>
<td>10</td>
<td>#LM24</td>
</tr>
</tbody>
</table>

## The Midlands, England executives: Twitter conversations

<table>
<thead>
<tr>
<th>Location</th>
<th>Proportion of conversations with Twitter users in given location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster</td>
<td>24%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>85%</td>
</tr>
<tr>
<td>Europe</td>
<td>90%</td>
</tr>
<tr>
<td>Rest of World</td>
<td>10%</td>
</tr>
</tbody>
</table>

The Midlands, England executives: 10 most far-reaching hashtags

Greater Manchester, Birmingham, Coventry, London, Dublin

Greater Manchester

Birmingham

Coventry

London

Dublin
A new route to accelerated innovation

Digital shoring presents many opportunities for collaborative innovation. Whether formal or informal, local or global, digital shoring requires new levels of openness, comfort with working with third parties, employee participation, and internal connectivity. Policies, procedures and skills created in an earlier era need to be overhauled. Business leaders need to engage their organizations to build and implement a digital shoring strategy. As business leaders reshape existing operating models to make digital shoring possible, they need to answer four key questions:

1. Who are the right partners for collaboration?
2. How open can an organization be to outsiders?
3. How can employees be ambassadors for digital shoring?
4. Are today’s digital tools good enough?
Who are the right partners for collaboration?

In short: almost anyone. The right set of partners can include any organization or individual that can help solve a shared problem.

Concerns about loss of IP are alleviated through both technology and procedure. On technology: the environment can and should be as secure as the topic demands; put another way, pick the right platform for your conversations. On procedure: There is no reason to shun collaboration with competitors; scrupulous adherence to preserving a competitive market means IP sharing with competitors is limited only to areas of common, pre-competitive innovation. Core proprietary IP remains safe.

Organizations must first recognize that the innovation process is becoming more open, digital and global. Digital shoring enables numerous, meaningful conversations for those who understand that the best solutions to problems will not always be developed in-house. Business leaders need to identify external partners with whom they can jointly solve problems central to product/service innovation, rather than regarding collaboration solely as a means of sharing costs or risks.

Organizations may find themselves on the same shores as their competitors. In fact, to address complex problems, they may want to collaborate with competitors who are facing similar challenges in pre-competitive arenas. In such situations, business leaders should maintain their vigilance and consider the mutual benefit that could be gained from a structured dialogue with a competitor in a secure, digital environment. A permitted alliance built through digital shoring with one competitor may aid new market entry, generate growth in market share, or build defenses against new market entrants.

How open can an organization be to outsiders?

Highly open at first with any qualified participant in a cluster, and then more judicious and selective as relationships deepen and valuable IP comes into the discussion.

Business leaders need to establish an open culture that will be the foundation for digital shoring. An organization can have the best people and technology, but without correctly empowering both with the right culture, it will not fully realize the benefits. The default option should be openness. However, being open-by-default does not mean all guards should come down; companies must continue to protect their competitive essence—the unique combination of business attributes that enables a company to outperform rivals.

Organizations should keep in mind, however, that the security of digital tools is not unlimited. AutoHarvest’s Jayson Pankin explained that the cluster serves as an “innovation speed dating platform” in which would-be collaborators find each other and can swiftly work through due diligence. However, after initial discussions in the chatrooms, they are encouraged to move off the platform and connect directly for the more sensitive parts of their deal-making process. This approach offers a higher level of protection for an organization’s intellectual property and enables parties to get to know each other before sharing important information.
How can employees be ambassadors for digital shoring?

All ambassadors—and there may be many—need full backing from their companies if they are to be effective.

Companies can provide this backing by demonstrating a sponsored and structured approach to skills development and experimentation; visible interest and backing from leadership; and systems to harvest and reinvest network connections and knowledge for the future. Leaders should also be prepared for their diplomatic corps to be far larger—and to encompass many more levels of the company hierarchy—than they might have expected.

Organizations need to ensure that they have a structured approach to training their employees and building digital fluency. Therefore, they need to set clear, positive expectations and allocate the time for people to experiment with digital development. Technology is constantly evolving, and exploiting its full potential requires perpetual vigilance and improvement at every level. One effective way to inspire employees is for executives themselves to be digitally savvy and socially networked—and visibly interested in the topics which engage their employees.

Knowledge management and innovation in companies are closely linked. However, effective knowledge management to strengthen the innovative capability of organizations is challenging, especially in the digital age. Members of the increasingly mobile, tech-savvy workforce are building their own digital communities, as indicated by our Twitter analysis.

Organizations need to develop stronger receptors to absorb the external knowledge employees are gaining. These employees have local and global networks of individuals with whom they are discussing cutting-edge ideas. Organizations should actively invest in their knowledge management processes to capture and repurpose this knowledge capital.

Are today's digital tools good enough?

Today's available tools suffer from several limitations, but a portfolio approach can give good results.

When we asked executives to name the top challenges they face with digital tools inside their cluster, they identified cost most frequently (65 percent). Security was cited by 54 percent. The third greatest concern was the fact that today's tools are simply not yet advanced enough. When we asked them to design their ideal digital tools to better enable relationships, they cited similar capabilities: real-time functions (for example, for editing documents), partner matching, and ease of information sharing.

These frustrations were also reflected in the experience of industry leaders. A segment marketing director, from the Life Sciences Group of a global manufacturer, told us in an interview that digital tools are currently only useful for “low-level activity” to maintain relationships with people—usually people who are well-known to each other. He believes that digital tools are too constraining to enable innovation with sustained momentum in the life sciences industry: “Innovation is an unstructured process, yet using digital tools is inherently structured.”

However, portfolios of digital tools are already being deployed to enable digital shoring, with executives working around individual limitations rather than waiting for (or investing in) the perfect platform for their needs. And, of course, a number of formal membership networks have well-developed digital solutions. Business leaders should start using available tools to build and participate in clusters while constantly keeping up-to-date with new technologies.
Finding the digital shore

When companies turned to onshoring, offshoring, and near-shoring as a way of taking on competitive challenges, they adjusted their operating models to make the new approaches work. The same effort is needed for digital shoring.

Business leaders need to promote a culture that is conducive to collaboration. They must invest both in available digital tools and in their employees’ digital networking skills. They also have to find ways to systematically tap into the knowledge employees bring from their communities, whether they are digitally enhanced physical clusters or global digital archipelagos.

Digital shoring gives companies new and better ways to pursue collaborative innovation. Business leaders that understand and actively tap into this potential can accelerate the path to innovation.
Survey
In collaboration with Oxford Economics, Accenture surveyed 452 executives to understand the importance of location to business competitiveness.

In early 2015, we surveyed at least 50 executives (mainly C-suite) in nine clusters from three industries: life sciences and health; chemicals and process; and automotive.

To reflect the diversity of organization types in the clusters, we included professionals from companies directly working in the industry, as well as those from service providers, universities, chambers of commerce, industry associations, and research facilities.

Interviews
We interviewed 24 industry leaders and cluster experts:

Domenico Alexakis, chief executive officer, Swiss Biotechnology Association, Switzerland
Alan Barrell, entrepreneur-in-residence, Judge Business School, University of Cambridge, United Kingdom
Michael Barrett, professor of information systems and innovation studies, Judge Business School, University of Cambridge, United Kingdom
Frank Bobe, entrepreneur-in-residence, Wyss Institute, Harvard University, United States
John Bridge, chief executive officer, Cambridge Chamber of Commerce, United Kingdom
David Cleevely, chair of Advisory Council, Centre for Science and Policy, University of Cambridge, United Kingdom
Lily Cortese, director of business operations and project management, Johnson & Johnson Innovation Centre, London, United Kingdom
Steve Crumb, executive director, GENIVI Alliance, Switzerland
Richard Dowson, senior economic development officer, Middlesbrough Council, United Kingdom
Moharem El Gihani, chief business development officer, Innovation Forum, United Kingdom
Graham Hillier, director of strategy and futures, Centre for Process Innovation, United Kingdom
Ioannis Kakadiaris, founder and director, Computational Biomedicine Lab, University of Houston, United States
Bruce Katz, vice president, The Brookings Institution, Washington, DC, United States
Jin Kim, director of innovation business development, United Technologies, United States
Adam Kingl, executive director of learning solutions, London Business School, United Kingdom
Paul Krutko, president and chief executive officer, Ann Arbor SPARK, United States
Kwang Lim, associate professor of strategic management, Melbourne Business School, Australia
Sarah MacDonald, executive vice president, Massachusetts Biotechnology Council, United States
Jayson Pankin, co-founder, president and chief executive officer, AutoHarvest Foundation, United States
Nina Ryser, chief executive officer, Technology Parks Basel, Switzerland
Jasjit Singh, associate professor of strategy, INSEAD, Singapore
Daniel Wauben, managing director, ChemCologne, Germany
Miranda Weston-Smith, co-founder, Cambridge Network, and former entrepreneur-in-residence, Judge Business School, University of Cambridge, United Kingdom
Confidential interview with a segment marketing director, within the life sciences group of a global manufacturer

About the research
Twitter analysis

In conjunction with the Accenture Social Media Analytics team, we conducted a social media analysis to understand the Twitter relationships of professionals in the automotive, and life sciences and health clusters. We sought to understand the nature of industry-relevant conversations that take place in the digital realm, and if they are increasingly between people located outside of immediate geographic surroundings.

Cluster boundaries

Through secondary research and discussions with various industry professionals, including members of the local chambers of commerce, we demarcated the cluster boundaries to include the following areas:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Cluster</th>
<th>Geographic area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>Bavaria</td>
<td>The state of Bavaria (Bayern)</td>
</tr>
<tr>
<td></td>
<td>Greater Detroit</td>
<td>Counties of Wayne, Oakland, Genesee, Washtanaw</td>
</tr>
<tr>
<td></td>
<td>The Midlands, England</td>
<td>Counties comprising the Midlands: Derbyshire, Herefordshire, Leicestershire, Northamptonshire, Nottinghamshire, Rutland, Shropshire, Staffordshire, Warwickshire and Worcestershire</td>
</tr>
<tr>
<td>Life Sciences and Health</td>
<td>Basel</td>
<td>City of Basel, Switzerland</td>
</tr>
<tr>
<td></td>
<td>Greater Boston</td>
<td>Cities and counties within the “495 belt”</td>
</tr>
<tr>
<td></td>
<td>Cambridge, United Kingdom</td>
<td>City of Cambridge, United Kingdom</td>
</tr>
</tbody>
</table>
We selected professionals on Twitter...

...who revealed their location and were active users..

...and represented a diverse mix of organizations...

...leading us to a sample of 180.

We determined who they followed...

...and mapped their conversations...

...while also exploring underlying themes.

We sought to understand the nature of industry-relevant conversations that take place in the digital realm, and if they are increasingly between people located outside of immediate geographic surroundings. To do this, we analyzed the Twitter activity of a sample of professionals working in two industries within six clusters. Our analysis took place over a six-month period between February 20, 2014, and August 20, 2014.

We developed a set of criteria in selecting the sample of professionals on Twitter. For each account, listed credentials were corroborated using public information such as LinkedIn profiles or company websites. Only those users who had chosen to reveal their location were included. Users also had to be active, defined as tweeting at least 25 times over the six-month period of analysis.

We selected professionals from a diverse mix of cluster organizations: companies in the industry; relevant service providers (e.g. financial services, marketing and public relations, management consulting, and legal services); universities; chambers of commerce and industry associations; research institutions; and incubators, accelerators and venture capitalists.

In applying the above criteria, we obtained a sample of 180 Twitter accounts (hereafter, “Sample”). We refer to each individual account as a “Subject”. We obtained between 19 and 41 Subjects per cluster. The Sample contained a broad array of roles: CEOs and directors (37 percent); sales and marketing senior managers (26 percent); business development senior managers (21 percent); researchers and designers (17 percent); other service providers (1 percent).

We used a Twitter analytics tool, FollowerWonk, to determine all the users followed by the Sample (hereafter, “Followees”). Users who did not explicitly reveal their location were removed from the analysis, leaving only those who were geographically identifiable.

We used another tool, Radian6, to monitor which Followees (who shared their location) our Sample had conversations with. In our analysis, a conversation included retweeting, mentioning or replying to a follower. Using Followee location data, we analyzed conversations by geographic spread.

We examined the hashtag usage in the tweets by our Sample, to explore underlying themes. The “reach” of each hashtag was calculated by evaluating the number of followers that the relevant Subject had. We extracted the hashtags with the highest reach, and further identified those that were industry-relevant.
### Key findings

Our typical Twitter user has over 850 Followees (i.e. Twitter users followed), and is using Twitter to talk with roughly nine percent of their Followees. Of these, 70 percent are located outside of their cluster, and roughly one-third are in another country. In all but one of our clusters, nine or 10 of the top 10 conversation topics were industry-relevant, based on the hashtags used. Amongst industry-relevant hashtags, the most prevalent theme was on “industry trends”. Hashtags on industry trends constituted on average 25 percent of the top 10 hashtags used, based on reach—that is, the overall potential number of Twitter users who could have seen the hashtag. The reach of these hashtags averaged two million users per cluster.

### Geographic data collection and analysis

We analyzed the Sample, finding both the total and average number of Followees for Subjects in each cluster. We could further filter for Followees who shared their location, and for those with whom Subjects had conversations. Relative to all those Followees who shared their location, we were then able to calculate what proportion of Followees the Subjects had conversations with. In Greater Detroit, this figure was 11.56 percent, indicating a high level of Subject-Followee interaction, relative to other clusters. In Bavaria, by contrast, it was just 3.45 percent.

<table>
<thead>
<tr>
<th>Industry Cluster</th>
<th>Subjects per cluster</th>
<th>Average number of Followees per Subject</th>
<th>Percentage of Followees who shared location and who Subjects had conversations with</th>
<th>Proportions of Followees who shared location, and who Subjects had conversations with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>Bavaria 19</td>
<td>12,394</td>
<td>275</td>
<td>652 419 14</td>
</tr>
<tr>
<td></td>
<td>Greater Detroit 40</td>
<td>52,032</td>
<td>4,477</td>
<td>1301 968 112</td>
</tr>
<tr>
<td></td>
<td>The Midlands, England 30</td>
<td>32,319</td>
<td>2,500</td>
<td>1077 728 83</td>
</tr>
<tr>
<td>Life Sciences and Health</td>
<td>Basel 25</td>
<td>16,604</td>
<td>746</td>
<td>664 415 30</td>
</tr>
<tr>
<td></td>
<td>Greater Boston 41</td>
<td>28,302</td>
<td>1,933</td>
<td>690 562 47</td>
</tr>
<tr>
<td></td>
<td>Cambridge, United Kingdom 25</td>
<td>18,192</td>
<td>1,022</td>
<td>728 404 41</td>
</tr>
</tbody>
</table>

Note: the columns are numbered A1–B3 to help show how the final column is derived.

The location data of the accounts with which our Sample had conversations was fed into the data visualization software, Tableau, generating the maps depicted in Figures 5 and 8. This allowed us to map the geographic spread of our Sample’s Twitter conversations.

Using this location data, we calculated the proportion of conversations with Followees that took place within and outside the clusters. We looked at four broad regional categories: within the cluster, within the same country, within the same continent, and with Followees located in the rest of the world. In Basel, over half (55 percent) of conversations with Followees were with those located outside of Europe, and only 5 percent within the Basel cluster. In Greater Detroit, by contrast, half of conversations were with Followees who were located in the local cluster, and only 3 percent outside of North America.
The table below shows the results for all six clusters.

<table>
<thead>
<tr>
<th>Sample (Total = 180 Subjects)</th>
<th>Regional distribution of Followees who shared location and Subjects conversed with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>Cluster</td>
</tr>
<tr>
<td>Automotive</td>
<td>Bavaria</td>
</tr>
<tr>
<td></td>
<td>Greater Detroit</td>
</tr>
<tr>
<td></td>
<td>The Midlands, England</td>
</tr>
<tr>
<td>Life Sciences and Health</td>
<td>Basel</td>
</tr>
<tr>
<td></td>
<td>Greater Boston</td>
</tr>
<tr>
<td></td>
<td>Cambridge, United Kingdom</td>
</tr>
</tbody>
</table>

Hashtag collection

We used hashtags to interpret conversation topics. We evaluated the tweets using Radian6 software to establish the frequency of tweets and hashtags, as well as the number of unique hashtags that were used.

While the total number of hashtags suggested that multiple conversations took place, unique hashtags indicate the variety of conversation topics. By calculating the average use of each unique hashtag, we could gauge the average traction of a conversation. The higher usage of a hashtag suggests greater discussion about the corresponding topic. Basel's score of 4.4 for average use of each unique hashtag indicates that, on average, topics are discussed more than in Cambridge, United Kingdom, for example, where the score is 2.0.
Hashtag analysis

We aggregated various hashtags where the meaning was the same (such as #pharma/#pharma!/#pharma?). This allowed us to identify the top 10 hashtags in each cluster based on reach—that is, the overall potential number of Twitter accounts that could have seen the hashtag. In all clusters except for Bavaria, at least nine of the top 10 hashtags by reach were relevant to the industry (non-industry-relevant hashtags included #worldcup or #GameOfThrones, for example).

As well as calculating which of the top 10 hashtags were industry-relevant, we could see how many times such hashtags were used, and the total reach of these hashtags. For example, as the table shows, in Greater Boston all 10 of the top 10 hashtags by reach were industry-relevant. Their aggregated frequency of use was 1,721, and their reach was 5,569,000 users.

A more in-depth analysis of these hashtags could then be conducted, allowing for a categorization of hashtags into two broad themes of “industry-relevant” and “other” (i.e. not relevant). This gave us a better understanding of the topics that cluster participants tweeted about.

Industry-relevant hashtags fell into four broad categories: "Ideas", "Events/Conferences", "Brands", and "Geographic Regions". The category of "Ideas" was further disaggregated into "Industry trends" (such as #digitalhealth, which is specifically relevant to the life sciences and health industry) and "General industry topics" (such as #b2b or #leadership).
By using this framework, we were able to identify the industry-relevant hashtags within each cluster that had the highest reach. The table below shows the number of top 10 hashtags that appeared under the given theme (N), their aggregated frequency of use (F), and their combined reach (R).

<table>
<thead>
<tr>
<th>Industry Cluster</th>
<th>Subjects per cluster</th>
<th>Industry Trends</th>
<th>General industry topics</th>
<th>Events</th>
<th>Brands</th>
<th>Geographic regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bavaria</td>
<td>19</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95</td>
<td>257</td>
<td>1</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Greater Detroit</td>
<td>40</td>
<td>3</td>
<td>1,759</td>
<td>1</td>
<td>383</td>
<td>3,553</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,413</td>
<td>5</td>
<td>1</td>
<td>187</td>
<td>558</td>
</tr>
<tr>
<td>The Midlands, England</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>423</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,796</td>
<td>1,451</td>
</tr>
<tr>
<td>Basel</td>
<td>25</td>
<td>5</td>
<td>957</td>
<td>3</td>
<td>1</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,858</td>
<td>2,128</td>
<td>1</td>
<td>130</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Greater Boston</td>
<td>41</td>
<td>4</td>
<td>721</td>
<td>5</td>
<td>1</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,445</td>
<td>2,442</td>
<td>1</td>
<td>681</td>
<td>-</td>
</tr>
<tr>
<td>Cambridge, United Kingdom</td>
<td>25</td>
<td>3</td>
<td>48</td>
<td>1</td>
<td>3</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>288</td>
<td>288</td>
<td>1</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41</td>
</tr>
</tbody>
</table>

As shown in the table above, five of the top 10 hashtags in Basel related to industry trends. The aggregated frequency of use of these hashtags was 957, and they reached 2,858,000 users. While half of Basel’s top 10 hashtags were about industry trends, in Greater Detroit the top 10 hashtags tended to be more about brands. The five hashtags under this theme had an aggregated frequency of use of 383, and reached 3,553,000 users.
Glossary of Twitter methodology

Conversation — Any form of public Twitter interaction with other users, through replies, retweets or mentions. Private messages between users are not included.

Follow — Subscribing to receive the tweets of another user.

Followee — An account that another Twitter user has followed. In this study we focus specifically on Followees who had chosen to reveal their location.

Follower — A Twitter user who has followed another account.

FollowerWonk — A tool that helps users explore and grow their social network. Used in this study to understand who Followees are and where they are located.

Handle — An account’s username, preceded by the @ symbol. Sending a tweet that includes a specific @username notifies that user of the tweet. It can be used in mentions or replies.

Hashtag — Any word or phrase immediately preceded by the # symbol.

Mention — A reference to another user in a tweet, through the use of the other user’s handle.

Radian6 — A tool used to monitor and analyze social media activity. It was used in this study to identify which Followees our Sample had conversations with.

Reach — The overall potential number of Twitter users who could have seen a tweet or hashtag. If multiple users deploy a certain hashtag in their tweets, the reach is determined by aggregating their followers.

Reply — A tweet directed in response to another user’s tweet, using the other user’s handle.

Retweet — A tweet that a user forwards to his/her followers. Often used to pass along news or other valuable discoveries on Twitter, retweets always retain original attribution.

Sample — Our sample of 180 industry-related professionals selected for Twitter analysis.

Subject — An individual member of the Sample.
Research team, Accenture Institute for High Performance

Matthew Robinson
Managing Director

Jonathan Prosser
Research Fellow

Mukund Umalkar
Research Manager

Alice MacNeil
Research Analyst

Niaz Souti
Research Assistant

Babak Moussavi
Research Assistant

Contact
For more information about this report, please contact:
matthew.c.robinson@accenture.com

Acknowledgements
The authors would like to thank the following individuals for their contributions to this study:
Dylan Akbeg, Domenico P. Alexakis, Professor Alan Barrett, Professor Michael Barrett, Dr. Frank Bobe, Don Bogojevich, John Bridge, John Chandler, Shiva Chandrasekaran, David Cleevely, Gary Cobin, Jason Coffman, Ranjana Combs, Lily Cortese, Steve Crumb, Richard Dowson, Moharem El Gihani, Dan Elron, Simon Giles, Mary Hamilton, Dr. Graham Hillier, Francis Hintermann, Ioannis Kakadiaris, Bruce Katz, Jin Kim, Adam Kingl, Paul Krutko, James Lambert, Kwang Lim, Sarah Macdonald, Erika Mantoura, Johanna Masket, Yvonne Omiyi, Ruth Ormsby, Jayson Pankin, Bob Paton, Cameron Peake, Kendra Quinland, James Rice, Nina Ryser, Tomer Shahar, Jay Shetty, Colin Sims, Professor Jasjit Singh, Mark Skilton, Nigel Skinner, Avinash Vashistha, Daniel Wauben, Dan West, Miranda Weston-Smith, and David D. Yankovitz.

About the Accenture Institute for High Performance
The Accenture Institute for High Performance develops and communicates breakthrough ideas and practical insights on management issues, economic trends and the impact of new and improving technologies. Its worldwide team of researchers works in collaboration with Accenture's strategy, digital, technology and operations business leaders to demonstrate, through original, rigorous research and analysis, how organizations become and remain high performers.

About Accenture
Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions—underpinned by the world's largest delivery network—Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With approximately 373,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at www.accenture.com.