No company functions as an island in today’s interconnected, digital world. Similarly, no product or service today survives without interconnected, digital platforms.

Behind each new product or service sits a dynamic web of technology-based partners—a business ecosystem—handling everything from analyzing customer desires to supply chain logistics. These business ecosystems are increasingly cloud-based, fueling a global public cloud market that should reach US$178B in 2018, and will continue to grow at a 22 percent compound annual growth rate (CAGR).

Application Programming Interfaces (APIs) and microservices are an admission ticket to the business ecosystems fueling the digital era. To partner with each other successfully, businesses need infrastructures and applications that can “talk” to each other. APIs and microservices make that happen every day—think Netflix or Salesforce.

Eight out of 10 executives say platform-based business models will be core to their business strategy within three years. For a platform-based ecosystem to work, businesses must rearchitect or isolate and shrink their legacy systems in favor of lightweight architectures built on microservices and the cloud. APIs, which serve as a bridge between software components, enable them to do so (see sidebar, page 3).
**APIs and microservices defined**

As a link between two software components, an API allows data to circulate seamlessly between companies, systems and technology products. Most cloud-based services are accessed via an API. For example, travel websites are composed from a collection of APIs from airlines, hotels, car rental agencies and more. These APIs allow customers to book and receive tickets online, planning custom itineraries.

Companies can use APIs to drive ecosystem innovation or engage consumers across multiple channels to offer a more personalized experience. Partners can connect and trial new things quickly, without worrying about data communication snafus.

APIs also help fuel microservices, an IT architecture in which a single software application is developed as a suite of small services. Microservices provide agility, enabling software products to work independently or in tandem, depending on a company’s need. They also make it possible for small, focused teams to work more independently—helping a company become more agile not only outwardly with its ecosystem, but also internally.

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APIs can ease the transition to cloud services by decoupling application access from a company’s cumbersome legacy infrastructure.

APIs are essential to the creation of microservices architectures, providing more modularity and flexibility to businesses so they can decrease time-to-market. For example, by using APIs to integrate their legacy systems with new development in the cloud, retailer Sur La Table is now able to move from prototype to production three to four times faster than with previous point-to-point integration methods.

Microservices do not require any particular technology, but instead represent an approach to technology architecture that allows ecosystem partners to choose—at a micro level—which information they will share and what they will keep behind their own virtual walls. APIs have become the standard mechanism for communicating with microservices that facilitate extreme business agility. For instance, Spotify has implemented a microservices infrastructure using their Apollo API that supports over 20,000 songs added to the catalog every day—each with its own business logic for royalty payments.

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3 | THE CLOUD PARTNERING PROPOSITION: APIs & MICROSERVICES
As APIs continue to proliferate, they create a host of opportunities for ecosystem partners.

Until recently, companies have used APIs mainly to modernize legacy architecture. By using them increasingly to create new business models and enable new products/services, they can begin to tie APIs to business growth. Seven out of 10 companies (71 percent) say APIs are a critical piece of their technology strategy.

With the current explosion in API-related activity as companies move to the cloud and partner in ecosystems, Accenture Strategy investigated the current landscape for insights on the value APIs are bringing to businesses around the world.

Companies fall into three categories:

- **Leaders (23%)**: have already implemented microservices infrastructure, meaning APIs are plentiful.
- **Strivers (52%)**: see APIs as critical to their technology strategy, but have not yet implemented microservices infrastructure.
- **Laggards (26%)**: do not see APIs as critical to their technology strategy and have not implemented a microservices infrastructure.
A SNAPSHOT: API ADOPTION AND USE

Despite companies’ claims about the importance of APIs to their technology strategy, only one in four (23 percent) companies has taken the overarching step of implementing a microservices-based infrastructure. These Leaders are setting themselves up to most fully benefit from application-centric technology solutions. Their counterparts, Strivers and Laggards, have some catching up to do.

The majority of companies—the bulging middle—are Strivers; they recognize the importance of APIs but have not yet taken the plunge into microservices. Roughly one in four companies are Laggards, neither seeing the importance of APIs nor investigating microservices. These companies are missing out on growth opportunities—and potentially on some of the ground-breaking ecosystems that could be closed to them later.

The business value of APIs

APIs promote an open business model and can contribute significantly to companies’ bottom line.

The banking industry is a good example, as it moves toward open banking. Open banking requires financial institutions to create sets of open APIs that allow third-party developers to interact with the institution directly, with the consent of account holders.

The business value can be significant. Accenture’s Digital Banking Study states: “Incumbent banks who embrace a digital open economy model will profit from a potential revenue uplift of 20 percent, whereas those failing to do so risk losing 30 percent of their revenue to disruptive industry players by 2020.”

Household names such as Credit Agricole, PayPal, Visa, Capital One and more are already implementing APIs, on their way to a more open model.
For example, Amazon has now sold 75 percent of the world’s smart speakers. Alexa-enabled devices now number in the tens of millions. Amazon dove into the speaker and home automation market with Alexa-enabled devices, not only with their own Echo products, but also with a cadre of third-party manufacturers. Those manufacturers embed Alexa into their devices as almost a standard feature. APIs and microservices fuel the multiple connections that allow this ecosystem to thrive. Other voice assistants have missed first-mover advantage, not sharing in the opportunities Alexa is offered.

Leaders have taken a page out of Amazon’s book, citing growth opportunities as their primary objectives for investing in APIs—more so than their behind-the-curve counterparts.

We do not expect the Leaders group to remain static, but rather to grow, as 42 percent of companies plan to introduce microservices infrastructure in the next year. An additional 29 percent plan to do the same in the next one to three years.

What are the primary objectives for your organization’s investment in APIs?

- **Leaders**: 24% Enabling new digital products and services, 19% Creating new business channels
- **Strivers**: 21% Enabling new digital products and services, 16% Creating new business channels
- **Laggards**: 16% Enabling new digital products and services, 16% Creating new business channels
### APIs and microservice infrastructure by industry

The health insurance and telecommunications industries lead the way in microservices infrastructure, which makes sense because both sectors had to become ecosystem-based very quickly—mainly due to the disruption caused by changing consumer and digital technology.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Leaders</th>
<th>Strivers</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Insurance</td>
<td>30%</td>
<td>56%</td>
<td>14%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>30%</td>
<td>44%</td>
<td>26%</td>
</tr>
<tr>
<td>Healthcare Providers</td>
<td>28%</td>
<td>46%</td>
<td>26%</td>
</tr>
<tr>
<td>Insurance</td>
<td>26%</td>
<td>43%</td>
<td>31%</td>
</tr>
<tr>
<td>Banking</td>
<td>25%</td>
<td>55%</td>
<td>20%</td>
</tr>
<tr>
<td>High Technology</td>
<td>25%</td>
<td>48%</td>
<td>27%</td>
</tr>
<tr>
<td>Utilities</td>
<td>25%</td>
<td>63%</td>
<td>12%</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>22%</td>
<td>44%</td>
<td>34%</td>
</tr>
<tr>
<td>Energy</td>
<td>19%</td>
<td>52%</td>
<td>29%</td>
</tr>
<tr>
<td>Retail</td>
<td>19%</td>
<td>52%</td>
<td>29%</td>
</tr>
<tr>
<td>Consumer Goods &amp; Services</td>
<td>14%</td>
<td>55%</td>
<td>31%</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>14%</td>
<td>60%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Base = Total sample; n=1,100
OBSTACLES TO ADOPTION

Four key obstacles challenge companies as they move to adopt APIs and head toward microservices:

1. Legacy systems
2. Lack of needed skills
3. Lack of budgeting/funding
4. Finding the right APIs for specific needs

The most-cited obstacle for Strivers and Laggards was lack of necessary skills. Not surprisingly, this obstacle was ranked as one of the least of the inhibitors by Leaders. Leaders ranked organizational inertia as their top obstacle. This is a hurdle they must be overcoming or they would not be leaders in adoption.

Top obstacles
Companies that have already implemented microservices infrastructure are more often triggered by disruption to modernize.

Leaders’ top motivation is disruption, but it is strategic disruption. They anticipate massive change in new technologies in the future or see a chance to significantly upgrade their existing technology. Strivers, on the other hand, tend to act because of disruptors that show less foresight—short-term costs (34 percent) or the realization they’re no longer getting value from their system (34 percent).

**What factors do you consider when deciding whether to modernize existing applications or move completely to new technologies?**

<table>
<thead>
<tr>
<th>Factor</th>
<th>LEADERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of significant upgrades to my existing technology</td>
<td>52%</td>
</tr>
<tr>
<td>Expectations for massive change in new technologies in the near future</td>
<td>50%</td>
</tr>
<tr>
<td>What new technologies are available to move to</td>
<td>49%</td>
</tr>
</tbody>
</table>
Leaders use the need for innovation as a motivator, with almost half (48 percent) of Leaders agreeing innovation will suffer if they are not part of an ecosystem. By contrast, only 42 percent of Strivers and 38 percent of Laggards feel the same.

In addition, Leaders see IT as a partner in this innovation, viewing legacy as an inhibitor to agility and growth.

**Percentage of Leaders who strongly agree with each of the following statements:**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our business has a high degree of trust in our IT group</td>
<td>44%</td>
</tr>
<tr>
<td>We are extending our legacy systems to support new digital business processes</td>
<td>40%</td>
</tr>
<tr>
<td>Companies with significant legacy cannot be disruptive</td>
<td>38%</td>
</tr>
<tr>
<td>Our organization is addressing legacy applications in a way that improves our ongoing flexibility and business agility</td>
<td>38%</td>
</tr>
</tbody>
</table>

Innovation with APIs can open avenues of growth. For example:

**Enabling new digital products and services in banking**

EU banks are required to publish open APIs, making them accessible to approved third parties in multiple areas of the business, by the Revised Payment Service Directive (PSD2). Online payments is one of those areas, which suggests real-time payments directly from an individual's bank account could soon replace slower, more expensive payment cards. If banks focus on innovative API-fueled partnerships in this area, they could digitally transform consumer and corporate banking—offering a host of new digital services tailored to their clientele.
Ecosystems are here to stay. They are the new way of doing business in a digital age—a way that should fuel innovation and growth. APIs and microservices are essential to opening up the partnering growth opportunities that can distinguish your company from the pack. A few first steps are helpful:

**Follow the business value trail**
Prioritize moves to APIs and microservices from a business perspective, not a technology perspective. Ask yourself where your company can glean the most business value from increased partnering, and start there.

**Consider microservice architectures for new in-house developed systems**
Also, favor third-party software that conforms to this pattern. This will provide far more agility and flexibility in the long term than traditional applications.

**Map your company’s monolithic legacy systems, to envision how they can be split – chunk by chunk – into microservices**
This action takes your enterprise one step closer to the cloud infrastructure so beneficial to partnering in an ecosystem.

As businesses become increasingly digital—moving more and more of their interactions and data to the cloud—APIs and microservices will continue to proliferate. Becoming familiar—fast—with these essential technology tools will accelerate your company’s path to successful partnering.

With eight out of 10 executives making platform-based business models core to their growth in the next three years, there is no time to waste. Digital partnering is the proposition that can catapult companies into their next era of growth.
ABOUT ACCENTURE STRATEGY

Accenture Strategy operates at the intersection of business and technology. We bring together our capabilities in business, technology, operations and function strategy to help our clients envision and execute industry-specific strategies that support enterprise wide transformation. Our focus on issues related to digital disruption, competitiveness, global operating models, talent and leadership help drive both efficiencies and growth. For more information, follow @AccentureStrat or visit www.accenture.com/strategy.

NOTES

2 Accenture Technology Vision, 2018
3 https://blogs.mulesoft.com/biz/api/benefits-api-led-connectivity