# Agile Integration Is Critical To Successful Digital Transformation

## Supporting Agile Delivery Teams With An Agile Integration Strategy Drives Success

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**Project Director:**
Sarah Brinks,
Market Impact Consultant

**Contributing Research:**
Forrester's Application
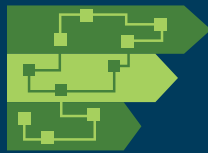Development and Delivery
research group

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# Executive Summary

Agile integration — combining integration technologies, Agile delivery techniques, and cloud-native platforms to improve speed and security of software delivery — is a critical foundation for successful digital transformation. The pace of digital innovation and disruption continues to accelerate, driving the need for faster change to business models, processes, and applications. Firms that can quickly reconfigure and reconnect old and new applications have the advantage, and those with slow integration processes are at serious risk of losing customers. An Agile combination of integration and custom development is needed to meet the customer's expectations and avoid losing market share to competitors that do put the customer first.[1] For this study, we assessed the differences between successful and less successful Agile integration and app delivery strategies, why some firms can change their business faster, and what makes one integration strategy better than another.

In March 2018, Red Hat commissioned Forrester Consulting to evaluate Agile integration at medium-size firms to global firms. Forrester conducted an online survey with 300 respondents with Agile development strategy decision makers at firms with 500+ employees in North America, EMEA, and Asia Pacific (AP) to explore this topic. Firms whose current self-reported integration strategy supports their Agile delivery teams well or very well — meaning their integrations are always already there when needed — were considered "successful," while firms whose current integration strategy supports their integration strategy below average or not at all were considered "less successful."

**KEY FINDINGS**

› **Agile culture is critical.** A key differentiator between firms that are successfully supporting their Agile delivery teams, with their Agile integration strategy, and less successful firms is the culture that supports their development team. Firms that have built a culture of Agile practices combine and integrate a wide range of new and legacy applications, with traditional integration architectures. Agile developers can craft independent integration flow such as microservices, development operations (DevOps), and APIs that best support successful digital transformation practices.

› **Build, use, and support external and internal APIs to speed up delivery and develop agility.** Firms that are successfully supporting their Agile delivery teams have positioned themselves for rapid business change with broad-based integration strategies including multiple integration styles together with business APIs that are open to internal and external third parties. Well-designed business APIs enable rapid reconfiguration to business models and processes. Successful firms also see a higher level of expertise on their development teams with external APIs.

› **Focus on business KPIs creates a significant divide in Agile integration success.** Firms are measuring a number of KPIs to gauge the success of their integration strategies. Successful firms are not only measuring more KPIs they are measuring KPIs focused on business success — where less successful firms are focused merely on improving speed of development and deployment of APIs.

Ninety-three percent of successful firms have development teams using Agile software development practices.

Forty-five percent of successful firms have corporate IT teams that think their integration strategy should be a hybrid of traditional and newer cloud-based integration platforms.

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# Supporting Agile Development Teams Drives Integration Success

In surveying 300 Agile development strategy decision makers, we found significant gaps between the firms that are successfully supporting their Agile delivery teams and those firms that are not. Creating a culture focused on digital transformation and prioritizing agility, digital disruption, and embracing new technology is critical to a successful Agile development team. This study shows the key areas that more successful firms are excelling in and the steps they are taking to win, serve, and delight their customers.

Study results provide the following insights for less successful firms:

› **Successful firms employ broad-based integration strategy.** Firms who successfully support their Agile delivery teams are more likely to include a variety of integration styles and platforms. These include:

  • Data virtualization (60% versus 44% of less successful firms).

  • APIs opened externally to third parties (49% versus 39% of less successful firms).

  • Event processing (40% versus 28% of less successful firms).

  • Cloud-based platforms (64% versus 57% of less successful firms).

Fifty-three percent of successful firms include user experience-level integration as part of their integration strategy versus 27% of less successful firms, leaving a 26% gap.

› **Success requires a strong focus on APIs.** APIs provide software-based business building blocks that enable rapid business reconfiguration. Successful firms have already found opportunities for rapid business reconfiguration through greater cooperation and consistency across the enterprise on integration strategy (42% versus 34% of less successful firms) and creating new visions and architectures for a comprehensive approach to integration and digital transformation (42% versus 29% of less successful firms). Organizations with a high or critical priority for changing their business model are twice as likely to provide external APIs. But not just any APIs will do — they must be well-designed. API design is the fulcrum that determines how much value one's API strategy creates.[2]
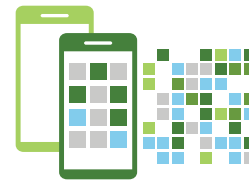
**40% of successful firms include event processing/message queuing/application messaging in their current integration strategy compared to only 28% of less successful firms.**

› **Success comes from development teams using Agile software development practices.** Successful firms are choosing the right technology to support Agile integration practices, this is another critical differentiator from the less successful firms. The selection and usage of technology which supports Agile delivery teams is critical for successful digital transformations. But successful firms go even further with their strategies. This is made clear by the gap where only 47% of less successful firms have 75% or more of their development teams using Agile software development practices compared to 93% of successful firms (see Figure 1).

› **Successful firms dive deeper into APIs.** The level of the deployment teams' expertise was significantly higher amongst more successful firms across all types of APIs. Less successful firm only focused on internal APIs and documentation in developer portals that consume APIs, they have yet to build external APIs. Whereas, more successful firms have expertise in internal APIs as well as event-driven APIs, external APIs, and APIs they charge third-party developers to use. With APIs, developers can more easily compose solutions across diverse technologies, infrastructures, programming environments, and importantly, across enterprise boundaries as well. Among development managers who said that changing their business model was likely to be a critical or high business priority, 62% already have external APIs or planned to have them by early 2018.

**Figure 1**

"To the best of your knowledge, what percentage of the development teams at your company use agile software development practices?"



■ Less successful firms   ■ More successful firms

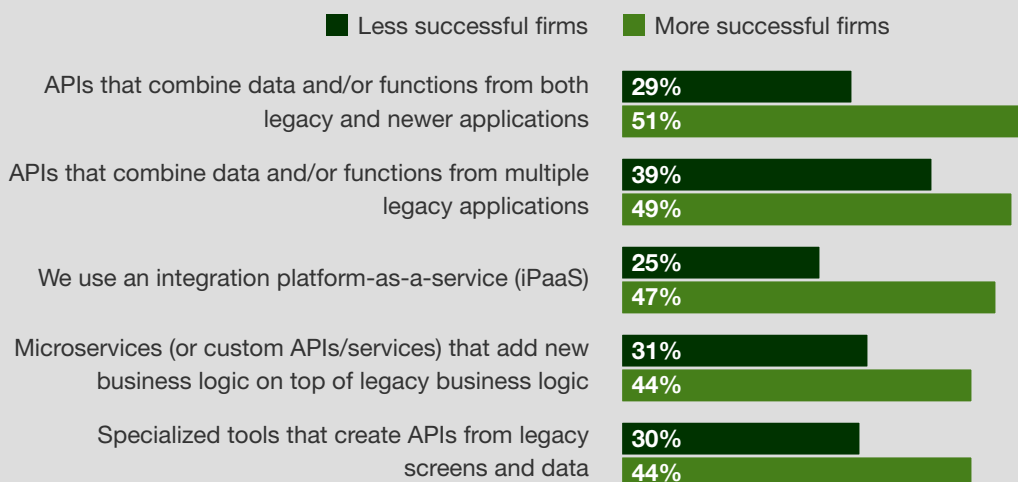| | Less successful firms | More successful firms |
|---|---|---|
| All teams practice or use | 9% | 33% |
| Most teams use (around 75%) | 38% | 60% |
| Half of teams use | 35% | 5% |
| Some teams use (around 25%) | 17% | 2% |
| No teams use | 1% | 0% |

Base: 144 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018

Fifty-three percent of less successful firms have half or less of their development teams using Agile software development practices, leaving them struggling to meet clients' needs at the right time.

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› **Successful firms invest in microservices, containers, and Agile solution architecture.** Increasingly, delivering one business solution requires a combination of application development and integration activities, and the lines are blurring between the two. Microservice-based solution architectures foster agility in multiple ways, including the ability to create unified solutions that combine multiple implementation styles. This allows Agile developers to craft independent integration flows that deploy to their own container instances with a slimmed down integration engine. Such integration-based microservices live alongside custom code to make blended development-integration projects, so it is not surprising that successful firms are more likely to be using microservices (44% versus 31% of less successful firms) that add new business logic on top of legacy.

› **Supporting their Agile delivery teams allows firms to focus on business practices.** The study shows firms that struggle to support their Agile delivery teams are focused on measuring the outcomes like speed of deployment and delivery not the capabilities that will improve their business. Successful firms are measuring their success by: 1) creating new business models and opening new markets (45% versus 26% of less successful firms); 2) creating greater business resilience in the face of digital disruption and unexpected competition (44% versus 19% of less successful firms); and 3) re-engineering business processes and streamlining organizational structure (36% versus 19% of less successful firms). Business and AD&D leaders at successful firms are focused on business outcomes like higher sales or increased customer satisfaction. This provides an incentive for these leaders to collaborate in the most cost-effective manner to reach that outcome.[3] They plan to achieve those outcomes through a strategic approach to their integration strategy (see Figure 2).

**Figure 2**

**"What are your organization's approaches to integration today?"**



Less successful firms | More successful firms

| Approach | Less successful firms | More successful firms |
|---|---|---|
| APIs that combine data and/or functions from both legacy and newer applications | 29% | 51% |
| APIs that combine data and/or functions from multiple legacy applications | 39% | 49% |
| We use an integration platform-as-a-service (iPaaS) | 25% | 47% |
| Microservices (or custom APIs/services) that add new business logic on top of legacy business logic | 31% | 44% |
| Specialized tools that create APIs from legacy screens and data | 30% | 44% |

Base: 144 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018

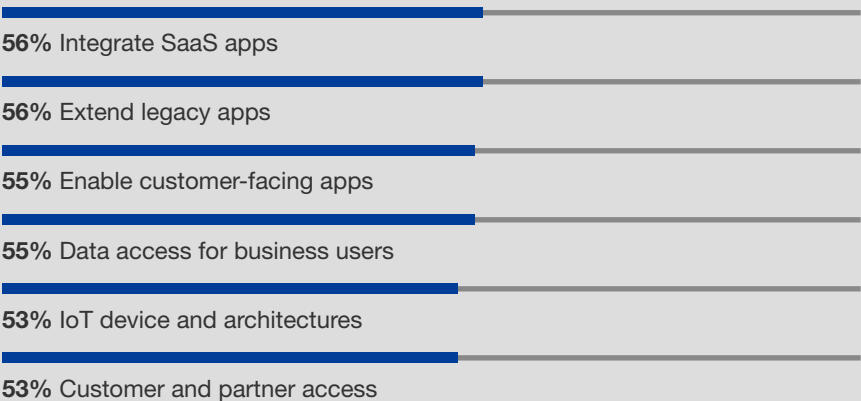FORRESTER®

# Legacy Challenges Affect All Firms

The study reveals significant gaps in the current approaches to integration strategies as part of digital transformation between successful and less successful firms. However, the study also revealed that regardless of firms' ability to support their Agile development team with culture, processes, and technology, all firms are facing challenges. The most significant of those challenges stem from using legacy applications and systems. A failure to modernize your integration strategy will mean a failure to serve your customers in their times of need.

The study shows:

› **SaaS and legacy apps are the most challenging types of integration.** Though integrating software-as-a-service (SaaS) apps and extending legacy apps were the top-rated challenges at 56%, other types of challenges were rated almost equally as challenging (see Figure 3). Here's where deeper skills on APIs can help. With a strong focus on business APIs, teams create business transactions and queries that hide legacy and SaaS application APIs. Business APIs create business building blocks for rapid business reconfiguration.

› **Successful firms are focused on strategic challenges.** Successful firms challenge themselves to link integration to business outcomes — while providing end-to-end security. These challenges are customer-driven and connect directly to their focus on creating new business models and improving business resilience. Less successful firms focus on tactical customer needs, increasing data volumes, and refreshing data in real time — all of which are important but don't provide a "true north" to keep integration agility focused correctly. Until less successful firms can evolve past playing catch-up they will continue to fail at winning, serving, and delighting customers.

**Figure 3**

**"How challenging are the following types of integration for your team or company?"**
(Only "Very challenging"/"Challenging" responses were included)

**56%** Integrate SaaS apps

**56%** Extend legacy apps

**55%** Enable customer-facing apps

**55%** Data access for business users

**53%** IoT device and architectures

**53%** Customer and partner access

Base: 300 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018

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› **Business focus leads to business support.** A lack of tools, funding, and knowledgeable resources are challenges for all firms. But successful firms are three times more likely than less successful firm to say that nothing is holding them back from modernizing their integration strategy. Why? Their business focus makes it easier to get buy-in from the business. Less successful firms, focused on tactical challenges, struggle with: 1) poor collaboration and cooperation across teams and lines of business; 2) a lack of executive buy-in; and 3) no clear vision for their strategy/no clear leadership for integration.

## Learn From Successful Firms

Firms that successfully support their Agile delivery teams with their Agile integration strategy have laid out a road map of best practices. Less successful firms must learn to adopt the following best practices or risk losing customers:
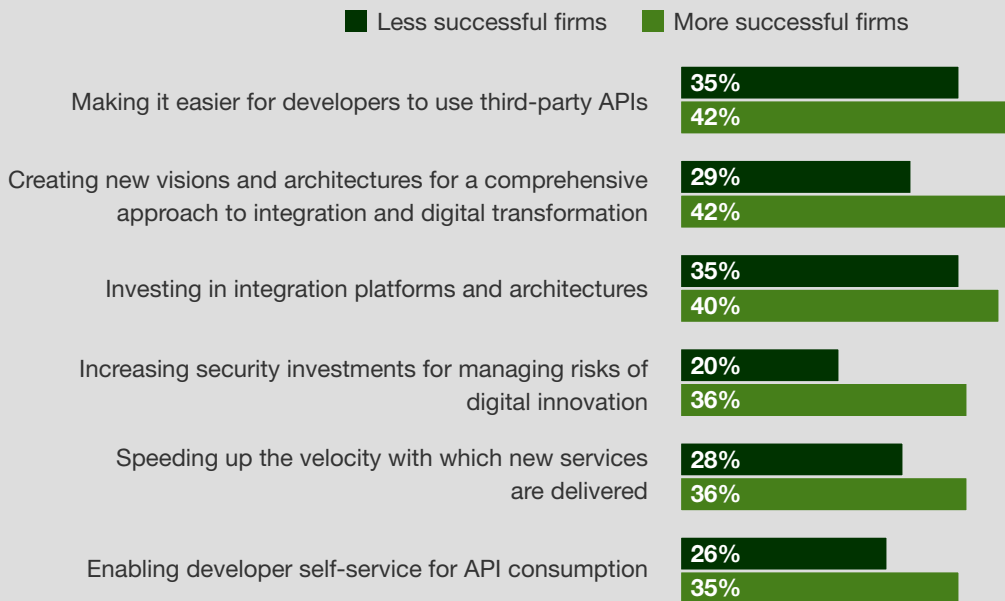
› **Modernize your integration strategy to win, serve, and retain customers.** Successful firms are investing in broadening and modernizing their integration strategy to better serve their customers. While less successful firms are looking for partners or still searching for staff with the relevant expertise. Successful firms have taken steps to make it easier for developers to use third-party APIs, creating new visions and architectures for a comprehensive approach to integration and digital transformation, and enabling developer self-service for API consumption (see Figure 4).

**67% of successful firms find integrating SaaS applications somewhat challenging to very challenging.**

**Figure 4**

**"What steps is your team taking/have you taken to modernize your integration strategy?"**

■ Less successful firms   ■ More successful firms

Making it easier for developers to use third-party APIs
- 35%
- 42%

Creating new visions and architectures for a comprehensive approach to integration and digital transformation
- 29%
- 42%

Investing in integration platforms and architectures
- 35%
- 40%

Increasing security investments for managing risks of digital innovation
- 20%
- 36%

Speeding up the velocity with which new services are delivered
- 28%
- 36%

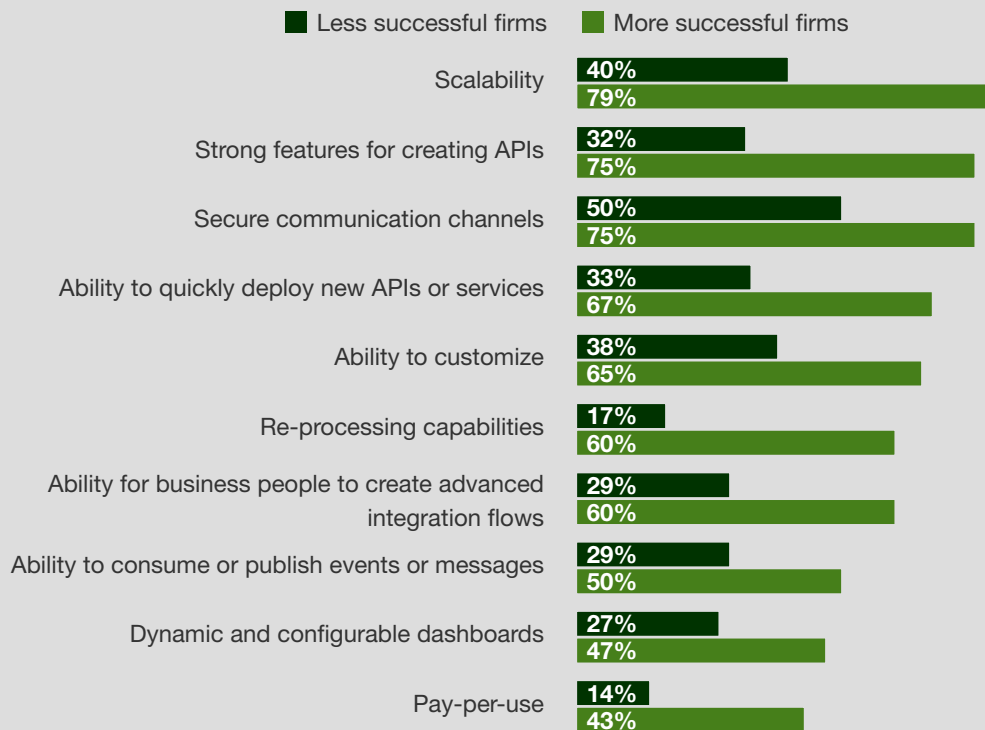Enabling developer self-service for API consumption
- 26%
- 35%

Base: 144 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018

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› **Measure all aspects of integration and business outcomes.**
Successful firms are much more likely to be measuring all aspects of their
integration strategy in order to gauge success. But more importantly, their
metrics connect integration to business outcomes. Less successful firms
are much more likely to be focusing on improving their speed of software
development and deployment of APIs or services. Successful firms are
twice as likely to be measuring their events or messages. Other areas
where we see significant gaps between successful and less successful
firms are in creating digital disruption and re-engineering business
processes and streamlining organizational structures. Successful firms
understand that in order to build a successful integration strategy they
have to measure all aspects of their integration.

› **Identify capabilities with the most significant impact on your digital
transformation objectives.** Successful firms are thinking about their
integration strategy as part of their overall digital transformation strategy.
They have identified key capabilities that allow them to meet their
digital transformation objectives quickly and effectively. Less successful
firms must identify the capabilities that will allow them to drive digital
transformation success. The top capabilities identified by successful firms
are: scalability, secure communications channels, and the ability to quickly
deploy new APIs or services (see Figure 5).

**Figure 5**

**"What impact would the following capabilities have on your company's ability to successfully achieve its digital
transformation objectives?"** (Top 10 shown)

■ Less successful firms    ■ More successful firms

| Capability | Less successful firms | More successful firms |
|---|---|---|
| Scalability | 40% | 79% |
| Strong features for creating APIs | 32% | 75% |
| Secure communication channels | 50% | 75% |
| Ability to quickly deploy new APIs or services | 33% | 67% |
| Ability to customize | 38% | 65% |
| Re-processing capabilities | 17% | 60% |
| Ability for business people to create advanced integration flows | 29% | 60% |
| Ability to consume or publish events or messages | 29% | 50% |
| Dynamic and configurable dashboards | 27% | 47% |
| Pay-per-use | 14% | 43% |

Base: 144 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018
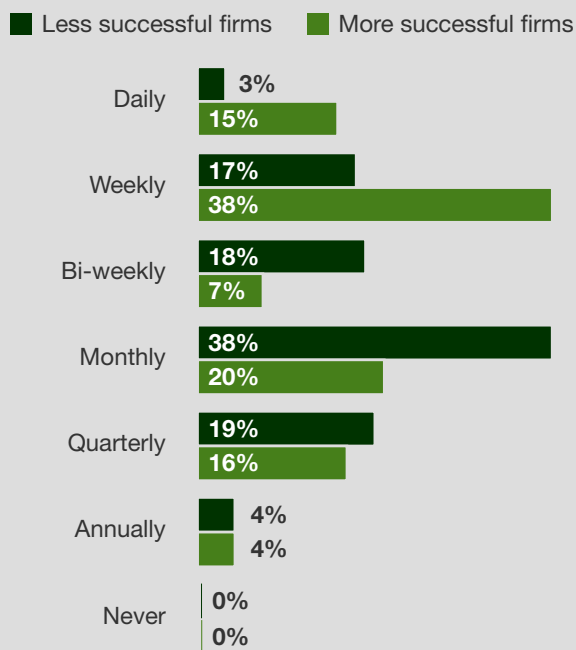
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› **Achieve faster API releases and updates by supporting Agile integration.** The gap between how quickly successful firms are able to release APIs and updates is significant compared to less successful firms. Over half, (53%) of firms can release APIs or updates weekly or even daily. Whereas, 38% of less successful firms are limited to monthly releases (see Figure 6). By releasing updates faster to customers, more successful firms are able to avoid customer experience pitfalls from errors that are slow to be fixed. Customer-obsessed organizations are under pressure to innovate quickly, and their software delivery teams feel that pressure every day. In response, AD&D leaders are upgrading their practices and technology by increasingly adopting Agile and DevOps models and delivering software via a continuous delivery (CD) life cycle. In this modern development environment, testing also becomes continuous and pervasive throughout the CD life cycle. Our Agile adoption research shows that 54% of expert Agile firms — those that are more successful with Agile — use continuous testing, while just 30% of Agile neophytes do.[4]

Successful firms are five times more likely than less successful firms to be able to release or update their APIs daily.

**Figure 6**

**"How frequently do you release or update APIs with new features or added content?"**

Less successful firms    More successful firms

| | Less successful firms | More successful firms |
|---|---|---|
| Daily | 3% | 15% |
| Weekly | 17% | 38% |
| Bi-weekly | 18% | 7% |
| Monthly | 38% | 20% |
| Quarterly | 19% | 16% |
| Annually | 4% | 4% |
| Never | 0% | 0% |

Base: 144 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018

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# Key Recommendations

To meet the demands of digital transformation, organizations must broaden and deepen their focus on integration. They must approach integration not from a standpoint of "connecting silos," but rather, by driving business change. Agile culture combines desired business outcomes with rapid app development and a variety of integration styles. Forrester's in-depth survey of 300 respondents with Agile development strategy decision makers about their integration strategies yielded several important recommendations:

**Blend Agile integration with Agile development.** Traditional integration, focused only on connecting app silos, builds walls between development and integration teams. By blending app development and integration, newer integration styles mix better with Agile development teams' container platforms and cloud strategies. For example, traditional integration flows may be individually packaged as microservice components and deployed as part of an Agile team's application. The study shows implementing cloud-based apps is the top digital initiative for firms, and 42% of successful firms are creating new visions and architectures for a comprehensive approach to integration and digital transformation.

**Broaden your integration strategy and architecture.** APIs, data virtualization, events, and other advanced integration styles blend app development and integration — cloud platforms, including integration, provide flexible deployment options. B2B, enterprise service buses (ESBs), and other traditional integration styles still fills important needs, but a broad-based integration strategy places better bounds and context around when and how to use them.

**Center on business design, not application silos.** Business APIs and the way they create business building blocks are just one example of how these newer integration styles foster a stronger focus on business design. The focus of successful teams on business outcomes is the starting point for choosing between a variety of integration styles.
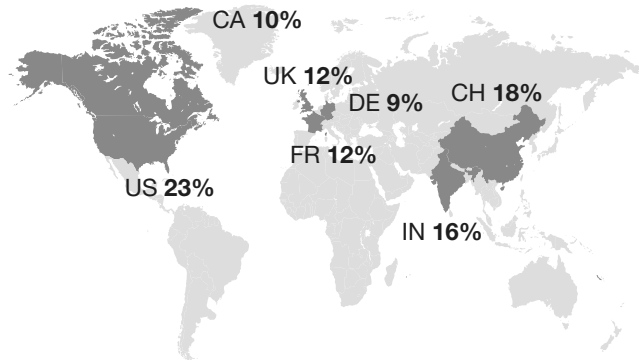
**Blur the lines between internal and external integration.** Business APIs provide a great example here, too. Whether an order is submitted by your mobile app, a SaaS app, a B2B partner, or an enterprise customer, it can always come through the same "submit order" business API. An API management solution allows coordinated publishing for any API user.
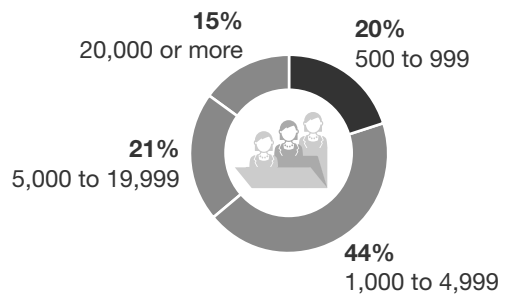
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# Appendix A: Methodology

In this study, Forrester conducted an online survey of 300 Agile development strategy decision makers in North America, the UK, France, Germany, India, and China to evaluate API integration strategy. Questions provided to the participants asked about their current approach to an Agile API integration strategy, their maturity level, and plans for the future. The study began in April 2018 and was completed in May 2018.
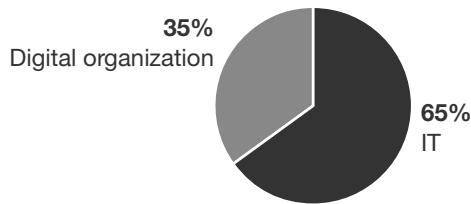
# Appendix B: Demographics/Data
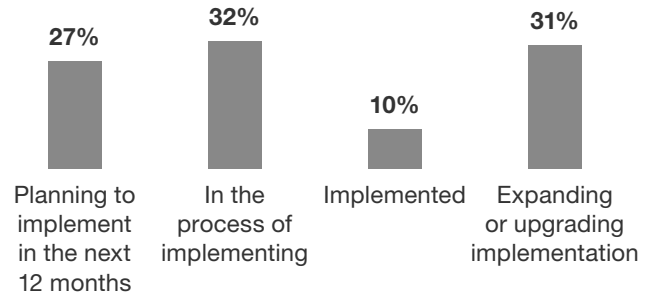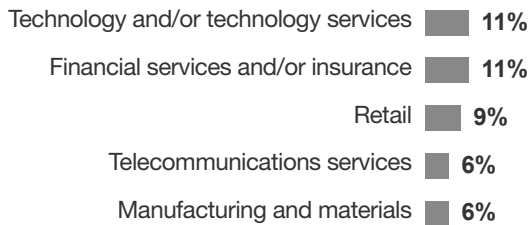
**"In which country are you located?"**

CA **10%**
UK **12%**
DE **9%**    CH **18%**
FR **12%**
US **23%**
IN **16%**

**Company size (# of employees)**

**15%**
20,000 or more

**20%**
500 to 999

**21%**
5,000 to 19,999

**44%**
1,000 to 4,999

**Position/department**

**35%**
Digital organization

**65%**
IT

**Integration strategy investment plan**

**27%**
Planning to implement in the next 12 months

**32%**
In the process of implementing

**10%**
Implemented

**31%**
Expanding or upgrading implementation

**Industry (top 5)**

| | |
|---|---|
| Technology and/or technology services | **11%** |
| Financial services and/or insurance | **11%** |
| Retail | **9%** |
| Telecommunications services | **6%** |
| Manufacturing and materials | **6%** |

Base: 300 global enterprise Agile development strategy decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of RedHat, May 2018

# Appendix C: Endnotes

[1] Source: "The Integration Imperative Of Digital Experiences," Forrester Research, Inc., August 31, 2018.

[2] Source: "Create Great API Designs And Documentation With Integration Across The API Life Cycle," Forrester Research, Inc., February 13, 2018.

[3] Source: "How To Fund DevOps And Spur Innovation," Forrester Research, Inc., May 17, 2017.

[4] Source: "The Forrester Wave™: Modern Application Functional Test Automation Tools, Q4 2016," Forrester Research, Inc., December 5, 2016.

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