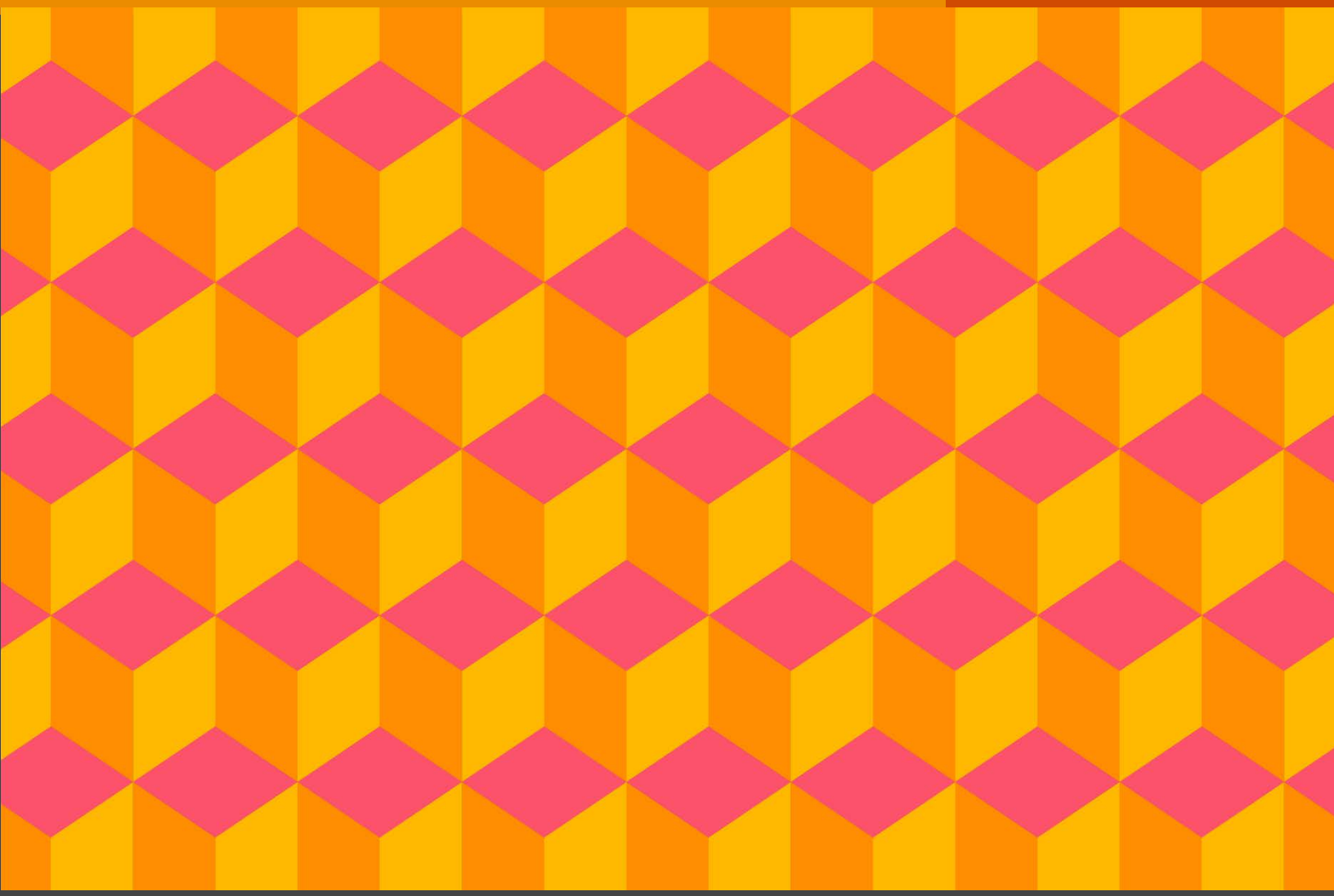
March 2019

# Smarter bots

## PwC's 2019 financial services intelligent automation survey



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# PwC's 2019 financial services intelligent automation survey

**Leading financial services firms are turning to intelligent automation (IA) to solve some long-standing problems. But unlike predecessors like robotic process automation (RPA), IA isn't a single tool. Rather, it describes a collection of automation tools that can solve more sophisticated problems. In fact, financial institutions already use many of these tools independently. Despite challenges, there are practical ways to get started. The payoff—true, end-to-end automation—could be significant.**

**Financial services firms were implementing RPA and just beginning to explore more advanced automation when we conducted last year's IA survey. A lot has changed since then. This year, we learned a lot more about how this technology is working, what we're likely to see ahead, and how your firm can implement and benefit from these innovations.**

In many ways, 2017 is when RPA stopped being exotic. All kinds of financial services firms made serious commitments to implementing the technology, and early adopters began seeing quantifiable benefits in their programs. Most companies we work with have bought into what RPA can do—and it can do a lot. But over the past year, these companies have moved beyond their first few bots and, in doing so, they've bumped up against the limits of how fast they can scale and what they can automate with only "vanilla" RPA.

There has definitely been some good news: RPA has effectively "proved the value" of digital labor. We think financial services firms can now imagine what true end-to-end automation might look like, leaving people free to handle sophisticated analysis and advisory capabilities rather than rote work. And many firms now have a channel to invest in a broader set of advanced tools to bring those visions to life. But they've also been learning that there are limits to where RPA can be effectively used and how the bots can handle the work. They're also discovering that technology might not be the hard part. Many financial services firms haven't evolved their organizational and change management structures so they can effectively scale up today's digital labor technologies, let alone emerging automation tools.

So, they've got the right vision: this is where the industry is headed. And, in our third annual IA survey, many companies reported moving in this direction. They've seen some success in early generation automation programs within individual departments like finance and operations. But fewer than 20% of our respondents said they've achieved enterprise-wide scale. This is consistent with what we've seen at PwC with companies frequently struggling to move beyond their first wave of bot implementations.

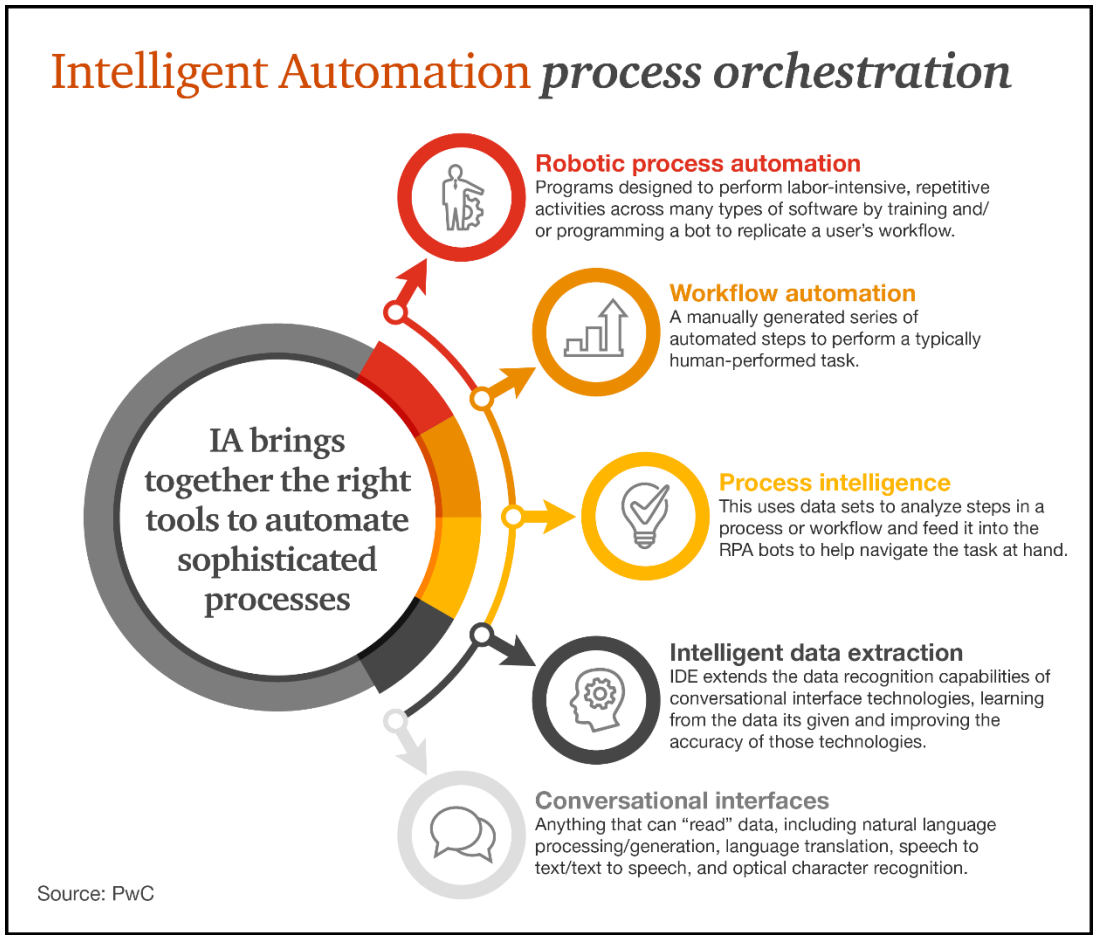
## What will it take for financial services firms to achieve this broader vision? Is RPA still relevant?

Beyond being the technology that "proved the value" of digital labor, RPA will continue to serve its purpose in lightweight projects. It's often a great way to integrate systems quickly, and we see it as a foundational component in a broader digital vision. But RPA is, by its design, fundamentally restricted in its capabilities, and firms will need more intelligent tools to achieve that end-to-end automation vision. For bots to "get smarter," they'll have to incorporate technologies that can extract information from paper, process unstructured data, communicate with real humans, and learn business rules. For anyone to use these smarter tools, we'll all have to use technology to implement these tools more quickly and cost-effectively. These new technologies will be seen collectively as the broader category of intelligent automation (IA) tools. Incidentally, *financial institutions already use many of these tools*—but not in this way.

When people talk about IA, they really mean orchestrating a collection of automation tools to solve more sophisticated problems (see Figure 1). IA can help institutions automate a wide range of tasks from simple rules-based activities to complex tasks such as data analysis and decision making.

In the finance department, for instance, RPA bots already build reconciliations by automating data extraction and loading in transactions that can help reconcile revenue and balance sheet data. IA allows managers to automatically find *what* the reconciling items are, identify *why* they are reconciling, pull together documentation justifying those reconciling items, and post entries for review by human analysts. IA might eventually even detect anomalies in the data early enough that reconciliations aren't even necessary. Financial services is full of these kinds of use cases, from employee onboarding to anti-money laundering remediation. By orchestrating these related technologies in an IA framework, firms may be finally able to address a whole set of process breakdowns—those that are simple for humans to understand but, until now, were beyond the scope of computers to solve cost-effectively.

**Figure 1: IA combines a set of related, intelligent automation tools**



## So if they already use many of these tools, why aren't firms adopting IA more quickly?

Truthfully, the RPA journey (see figure 2) has been more complicated and more painful than RPA bot makers would have you believe. Even the automation leaders have struggled a bit to get support for their advanced initiatives, while managing expectations of automation against the actual results. It doesn't help that the road to RPA implementation has been longer than software manufacturers initially led their customers to expect. There's a healthy tension here. It's hard for management to approve bigger go decisions and broader investment for the complex cases until they see they've gotten scale, ROI, and long-term strategy right on the simple cases. Meanwhile, as the software industry matures, it has attracted a lot of VC funding. This has brought some market confusion as buyers try to assess product roadmaps versus what capabilities exist now.

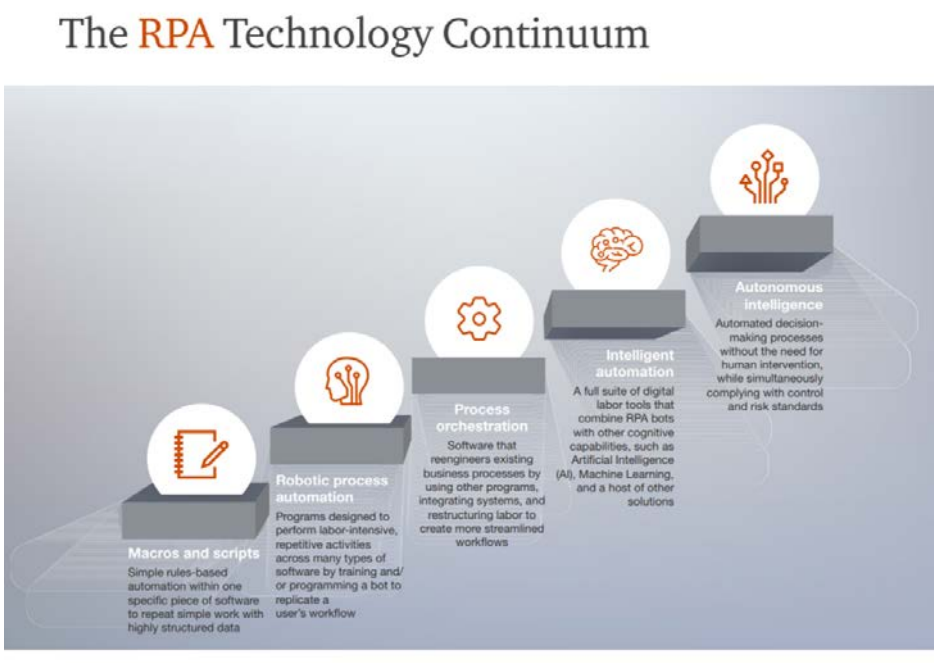
Scale, or lack of it, really is a big issue for almost everyone. We often hear from our clients that, while the technology works, their internal processes haven't caught up. Think about how many steps it takes your company to activate a bot. How many sign-offs do you really need? How does that compare to what you actually have?

When even "quick fix" implementations can have trouble achieving their projected ROI because of your firm's bureaucracy, it's time to revisit the steps.[1] It's possible to implement a streamlined software-delivery life cycle that sits somewhere between traditional IT development and end user computing, but this is a cultural shift, and we don't see it terribly often yet.

Then there's the opportunity assessment problem. To paraphrase an old song, some firms have been looking for bots in all the wrong places. They might spend months trying to apply RPA bots to an area where other technologies could produce a better result. Processes are often more complicated than they appear at first glance, so there are more exceptions, and at some point RPA stops being the right tool for the job. Or they overestimate the benefits as part of a business case to upper management. Either way, they struggle to make good, fast decisions about which technologies to use and what the potential payoff might look like.

Some firms also find that RPA bots themselves need more maintenance than initially expected. Bots may operate consistently for a few weeks and then need to be tweaked or enhanced in some way to continue operations. This isn't unusual, but with limited IT personnel and no bullpen of expertise in emerging technology, many firms can't get to the root causes. That makes it pretty difficult to create a sustainable support model.

**Figure 2: RPA is part of a continuum of technologies leading to true, end-to-end automation**




Source: PwC

[1] In previous publications, we discussed a hybrid, federated model: centralizing some parts of an RPA program, but not all. By using a lean center of excellence model, firms can share resources for functions such as methodology/framework design, software vendor management, policies/procedures, control framework definition, and so on, without slowing down innovation. For more information, read our publication "From theory to practice: Onboarding digital labor in financial services," available at: https://www.pwc.com/us/en/financial-services/publications/assets/fsi-whitepaper-digital-labor-financial-services.pdf

Finally, some firms can't seem to build a strong digital strategy that ties together IA activity with other IT projects. One of the great benefits of RPA is that power users can manage it without waiting for IT to custom build or implement anything, and we wouldn't to lose that. But without a collective strategy that looks at automation tools across different departments, we see firms missing chances to do more with what they've got. Firms often tell us that they have several emerging tech projects going on at the same time, but they haven't identified ways to have them work together. For example, one department may be working on natural language processing (NLP). One department over, another team is using RPA. Both of these are components of IA, but firms don't necessarily think of it that way and only a handful are set up to execute on the vision.

## Is anyone getting it right? If so, how are they doing it?

Leading firms have been trying several approaches to develop and implement IA technology. They're looking at new ways to encourage the technology's development. That includes looking at how to use "smarter" tools to spot areas for improvement, paying more attention to workforce skills and internal processes, and deploying stronger operational and service management teams—using intelligent tools to work more efficiently.

To address the issue of scale, some financial firms are building new development models so they can drive down the cost to "define and deliver." One promising approach is a rapidly evolving area called **citizen-led automation**. Few firms have a central team with the time or skills to program all the bots the firm needs, even if those bots could be reused across the organization to solve similar business issues. Instead, we see leaders redirecting their automation "center of excellence" to focus on the toughest automation challenges and introducing new technology as appropriate. Meanwhile, they've turned to their workforce, empowering some employees to become power users of the technologies and build (and share) their own bots, maximizing automation potential to include all processes, big and small. This approach has the potential to solve business issues faster while also using IT staffing resources more efficiently.

For more effective opportunity assessment, we see some firms turning to **process intelligence** technology to find areas that would be best suited for IA tech and, once identified, how best to implement the insights discovered. This technology records user actions on the desktop and then employs process mining techniques and machine learning to produce a realistic suggested model of a given process. This technique analyzes the collected user data and metrics to identify those places where a process can be improved or, potentially, a completely new way of doing a process. It can take time to collect all the data you need to implement this approach, but you can also find improvement opportunities that you might otherwise miss. The upside can be substantial. Process intelligence can also speed up and simplify the eventual application of IA technologies.

Unlike traditional IT service management, bots and automation technology present new challenges that can be difficult to tackle. Some firms have been adopting **automation service management** to deploy, manage, and maintain automation technology at scale. Instead of creating an entirely new IT team to handle bot maintenance, the idea is to use AI-powered tools and platforms that gather information to predict events and bot failures. In some cases, they can even automatically respond to issues, so systems can heal themselves get back online faster. These kinds of service management tools can reboot or reinstall bots as needed and can identify issues that might need a human to intervene. This area is new but shows a lot of promise in keeping automation programs afloat while managing overall support costs.

Leaders in this space have had to work on the "ecosystem challenge," the same technological constraints and bureaucratic difficulties that all firms must deal with. The difference is that they have revisited how their tech initiatives connect to the areas of the business that are most often ignored. They already link their automation initiatives to operations, IT strategy, and human capital strategy, so they know how to cut through red tape to allow IA tech to succeed. Some firms, for example, started their automation journey by having central IT teams lead the way in implementing and calibrating their technology. They later found that IT didn't have enough business process knowledge to effectively build the bots the staff really needs, so divisions started taking the calibration back inside the department, allowing certain power users to use their experience and make the edits they need on the fly.

## Many of these goals seem pretty lofty. What is a practical next step?

One good way for many firms is to start branching out: look into intelligent data extraction (IDE) technologies. Put simply, IDE groups AI and ML technologies to help RPA get better. RPA, as we know it, is rules-based and it needs to work in a formatted world. IDE uses technologies for reading in messy data such as optical character recognition (OCR) and intelligent character recognition (ICR). It helps automate a much broader range of activity by turning data into more useful forms, and it uses these technologies to teach bots to adapt and improve. IDE technology is self-learning: learning based on the different data sets it's given for more accurate and faster data extraction. It's an easy next step to help your RPA program improve.

Apart from beginning to implement IDE, there are a few other practical steps you can work on today. First, develop or continue to improve on a complete **digital strategy** across the firm. Inevitably, you'll want to lead in some areas and to follow in others. Knowing the difference ahead of time can be a huge step forward. Second, we encourage all our clients to begin a **citizen-led automation** program in addition to business-led initiatives. It doesn't take much initial outlay to let a broader group of your employees start adding to your firm's automation knowledge base. People like to share their good ideas, and your return from using them could be substantial. And finally, whether it's IDE or something else, as you start incorporating new IA technologies, don't forget **risk and controls**. IA platforms need the same level of transparency and explainability as other systems subject to risk and controls.[2] Many firms treat this as an afterthought, but it's usually a lot simpler (and less costly) if you design in effective controls from the start rather than remediate later.[3]

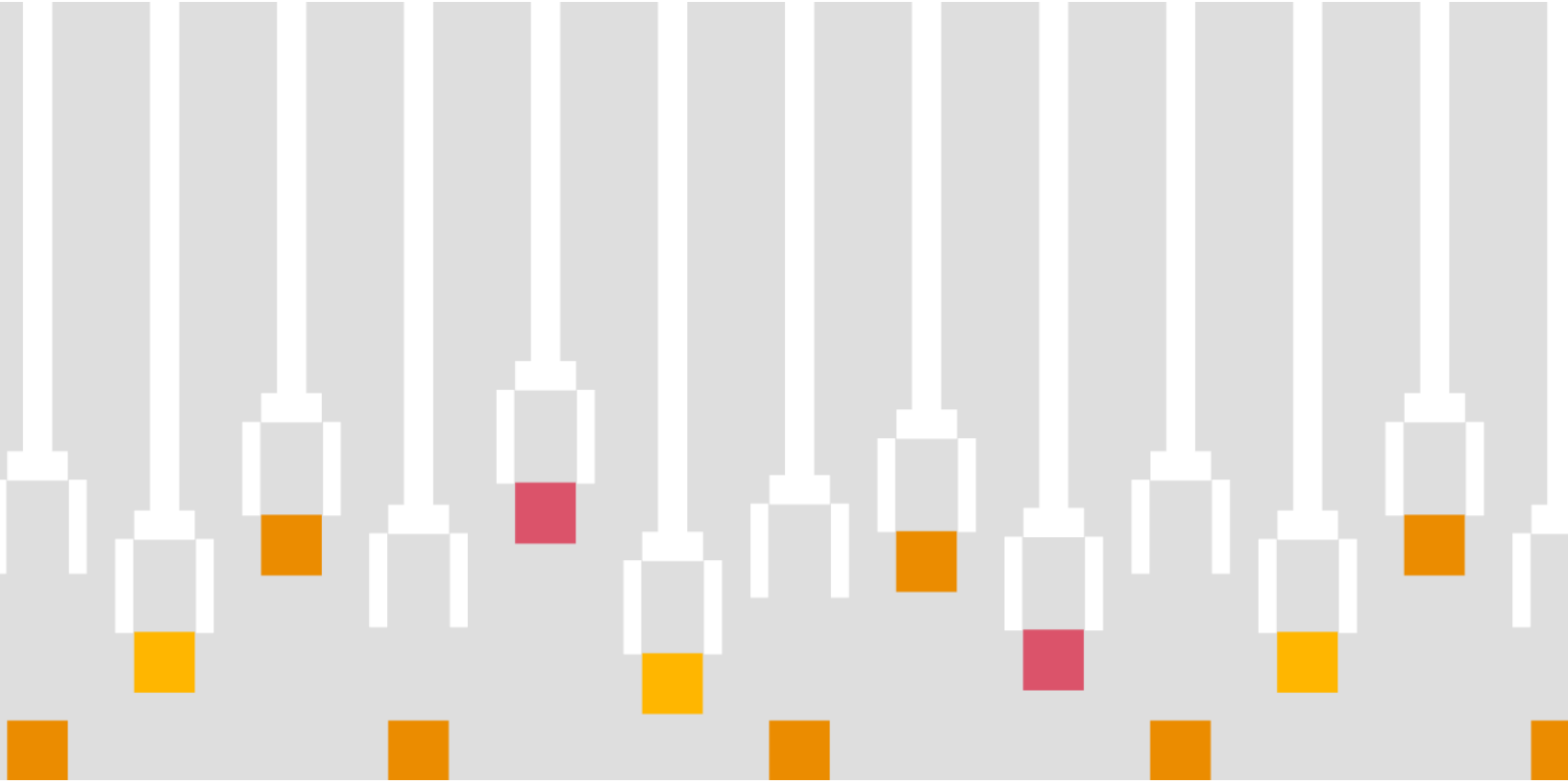
### Here are some other lessons from successful RPA implementations.

Entitlements and provisions can be automated. While firms often overlook this, it's a prime example of processes that don't involve much decision making but need coordination across many systems.

Workforce transformation is now gaining the attention it deserves. IA clearly affects a financial institution's workers, and it's best to start thinking through issues related to your workforce of the future (training, upskilling, hiring, etc.).

[2] For more information on risk and controls for emerging tech, read PwC's "2018 AI Predictions," available at https://www.pwc.com/us/en/services/consulting/library/artificial-intelligence-predictions.html

[3] For more information on controls around RPA implementation, read "Who minds the robots? Financial services and the need to control RPA risks," available at: https://www.pwc.com/us/en/industries/financial-services/library/financial-services-RPA-risk-controls.html



## With how fast IA tech is changing, what will automation look like in the future?

It's tough to say, but the developments in automation technology certainly have us excited for the future, whatever scenario may occur.

Today we are seeing the beginnings of a bot marketplace. You can think of it as a hub where regular users can get bots that are created to handle different issues. Companies that have already done the hard work of calibrating and customizing a bot to solve certain problems in one area are starting to reuse them in another—or even sell them to external parties facing the same issues. It's a nascent concept, but it has a lot of promise. Being able to find those bots quickly and install them with just a few simple clicks would circumvent some implementation woes.

We also see technology startups being funded to provide autonomous intelligence or algorithmic business solutions. These both boil down to the same result: automation in which the bots make the decisions and require only high-level review at the end. This technology could allow businesses to act faster than human staff could, with faster threat assessments or even dynamic pricing.

In the longer term, we envision a world where IA technology takes a basic set of rote steps that currently need structured data and eliminate the pre-formatting that we still need to do today. These technologies could create automation that determines its own workflow and formats its own data sets to do the work that would take days in a matter of minutes.

The technology continues to evolve rapidly, and new ideas will emerge that none of us can predict. But the future really doesn't depend on what the technology does as much as how, where, and why we deploy it. If it takes extensive reviews over a course of a few months to install a bot, it really doesn't matter how intelligent the automation is.

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