Deloitte.

Digital Controllership

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Introductions

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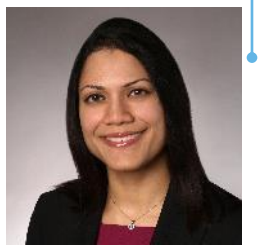

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New technologies have driven the evolution of Finance for decades, but the pace of change continues to increase

Foresight

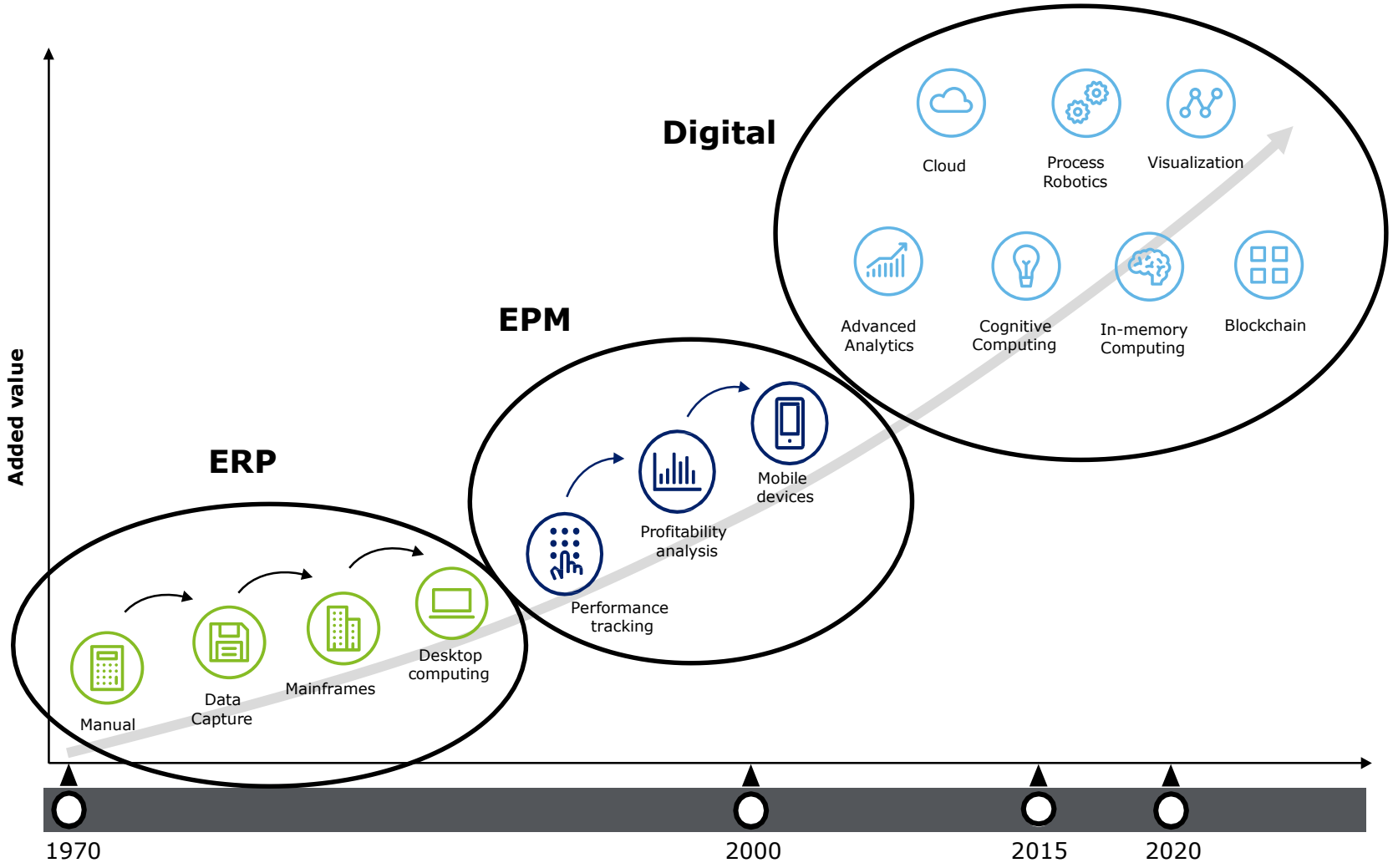
New technologies (Cloud, Robotics, AI, Machine learning, Natural Language Processing, Blockchain)

Insight

Reporting and analytic software

Hindsight

Historical reporting on key performance indicators



Leading companies are already using process robotics, visualization and cloud technologies to modernize their finance organizations

Core Modernization

Here now

Process Robotics

Visualization

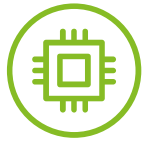
Cloud

Exponentials

Emerging Quickly

Advanced Analytics

Cognitive Computing



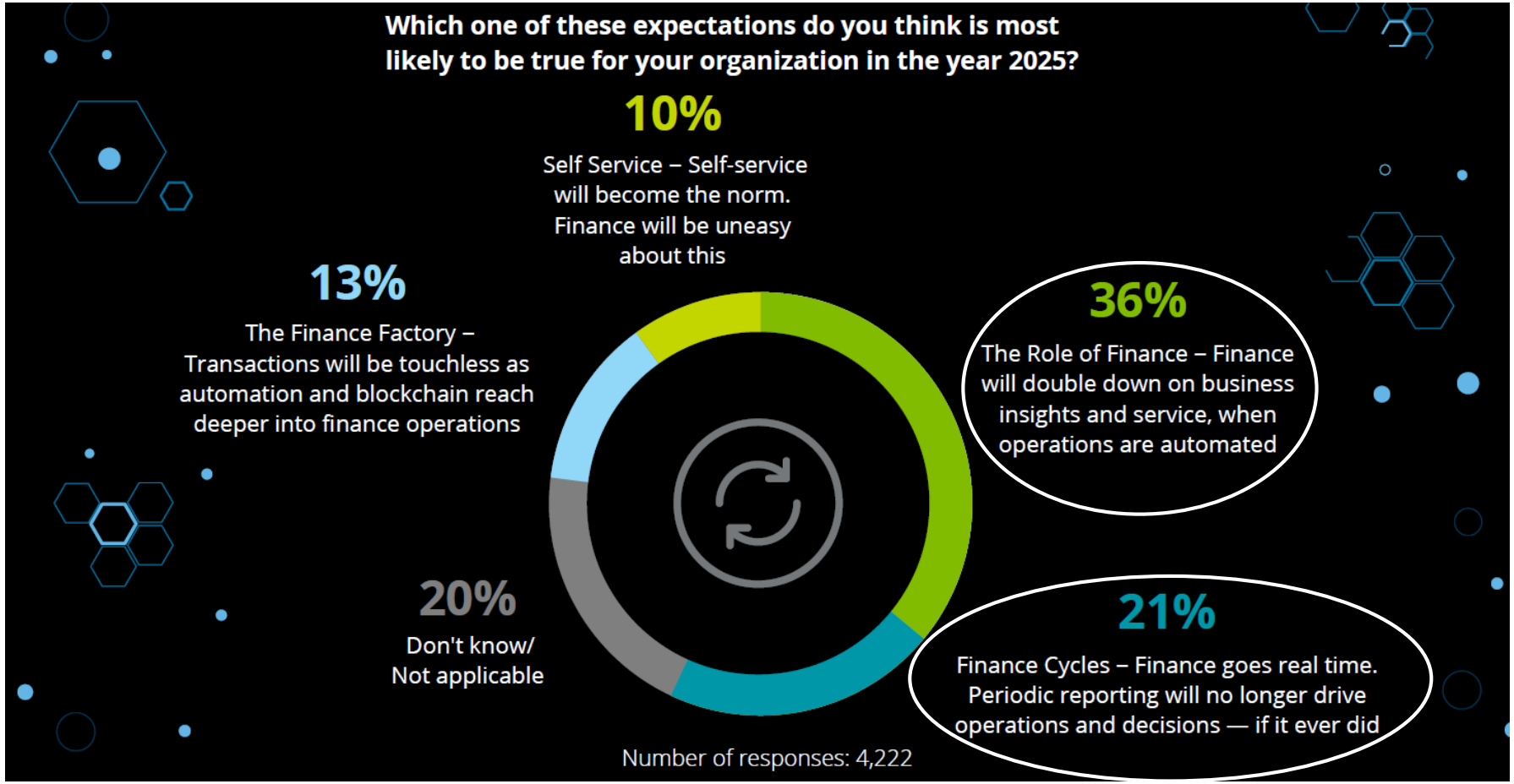
In-Memory Computing

Blockchain

Analytics
Overview

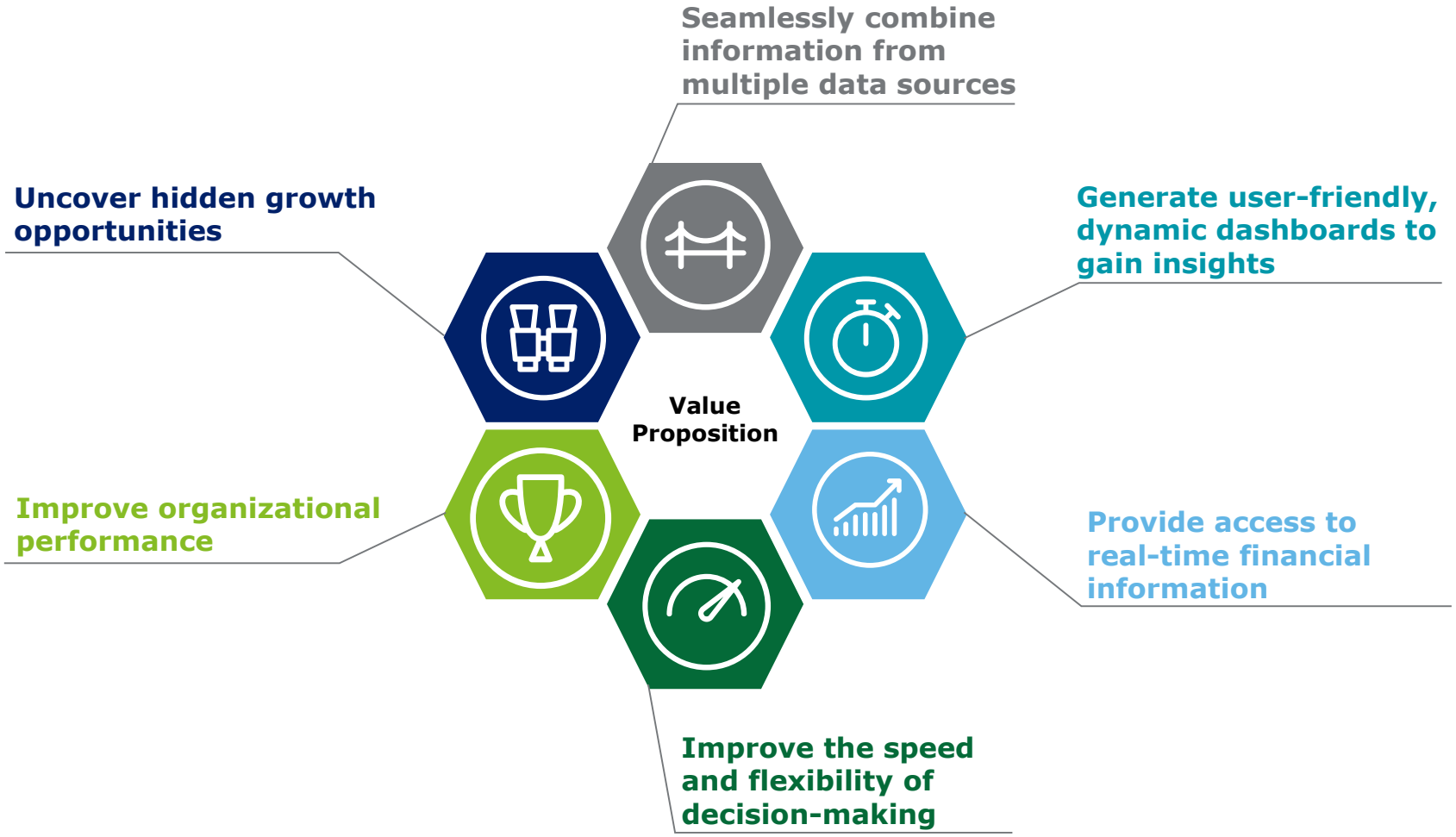
Finance of the Future

In September 2018, 5,096 people attended a finance executive Dbriefs webcast on our Finance 2025 predictions, during which they were polled about a few related topics. Here is one of the highlights…



Why is Analytics Important?

The increasing **value of data** has highlighted the **importance of analytics**.



What is Analytics?

Analyzing **data** to gain **insights** and **achieve** a business goal.

Descriptive or Visual analytics

Presenting data visually to communicate insights more effectively and with more impact.

"Hindsight"
What has happened?

Predictive analytics

Extracting information from data in order to develop predictions, forecasts, or expectations about some future outcomes or trends.

"Insight"
What could happen?

Prescriptive analytics

Leveraging machine learning techniques, optimization, and simulation algorithms to interpret data, advice on possible outcomes, and recommend actions.

"Foresight"
What should we do?

Let’s try this… count the fives

7	6	2	7	6	7	8	4	3
8	6	0	3	7	1	5	7	2
8	0	5	8	6	3	3	7	9
6	4	6	5	9	7	3	8	7
4	6	9	8	2	5	9	5	6
3	5	2	3	3	7	8	1	2
0	3	3	7	9	8	8	2	3
8	0	4	0	4	7	6	5	9
5	2	5	6	3	2	4	6	2
3	9	7	2	4	1	3	5	8
9	5	6	8	0	9	1	6	9
8	4	2	4	9	2	8	4	6

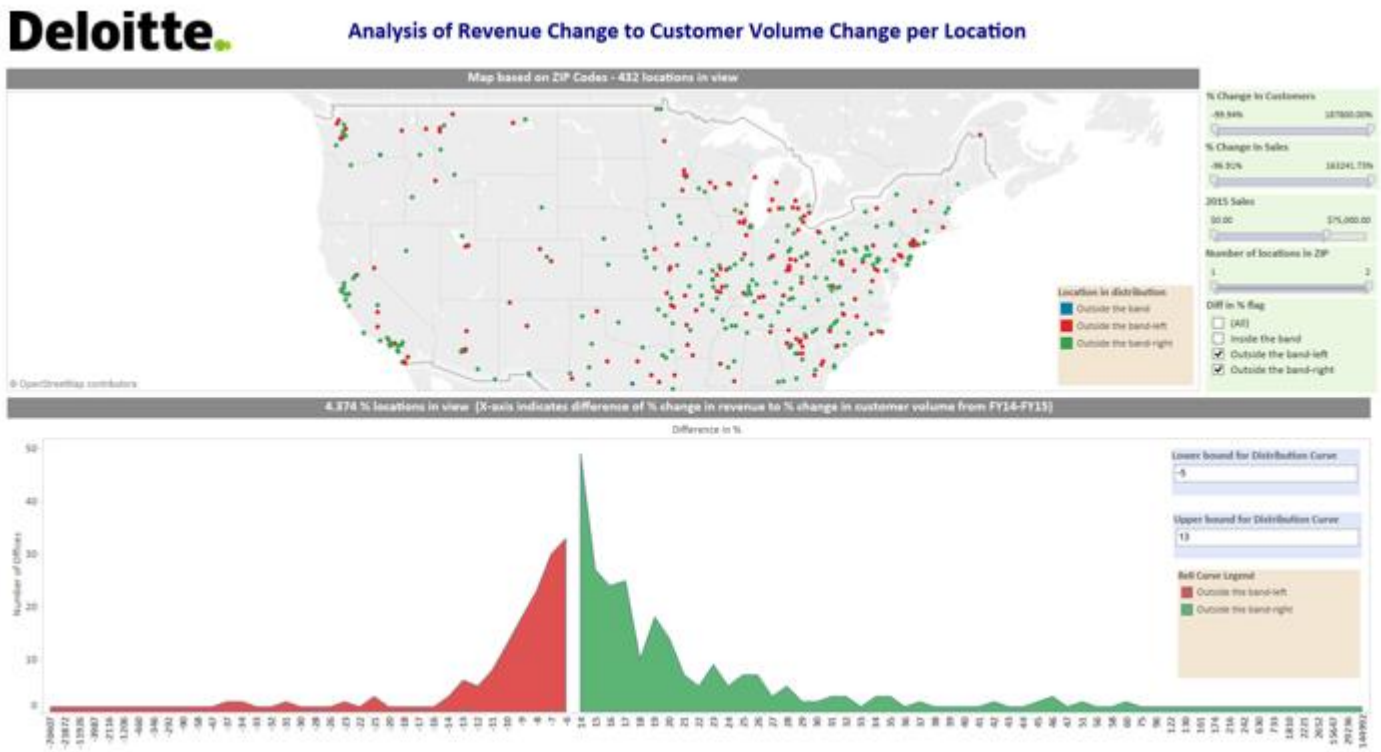
What if we did this? Now, count the fives…

7	6	2	7	6	7	8	4	3
8	6	0	3	7	1	**5**	7	2
8	0	**5**	8	6	3	3	7	9
6	4	6	**5**	9	7	3	8	7
4	6	9	8	2	**5**	9	**5**	6
3	**5**	2	3	3	7	8	1	2
0	3	3	7	9	8	8	2	3
8	0	4	0	4	7	6	**5**	9
5	2	**5**	6	3	2	4	6	2
3	9	7	2	4	1	3	**5**	8
9	**5**	6	8	0	9	1	6	9
8	4	2	4	9	2	8	4	6

Business Goal:

Better understand revenue drivers

Use Case – Retail Store Revenue Analysis



Visualization:

- ✓ Identify outliers – compare expected correlation between the % change in customers and % change in sales to actual store revenues and changes in customer volumes
- ✓ Geographic dispersion map generated to identify clusters of store locations within a certain geographic locations that behaved in a particular manner
- ✓ User defined criteria for expected correlation can be customized
- ✓ Visualization can be further filtered to focus on certain characteristics or individual locations

Value:

- ✓ Allows the user to drill down to better understand fluctuations in retail store revenues and isolate variability in magnitude of variance
- ✓ Ability to explore profitability of specific stores and/or regions/cities based on customer demand

Business Goal:

Identify areas with the greatest opportunity for cost savings

Use Case – Operating Expenses

Dashboard Functionality:

1. Multiple selection options including locations and time periods
2. Ability to breakdown operating expenses ("Opex") spending by key components in order to compare forecasts/budget and actuals while having the ability to drill down to sub Opex categories or spends
3. Dashboard visuals update based on user selection of country or product
4. Provides key KPI metrics and changes compared to prior quarters
5. Provides dynamic headcount movements and variances between actual, budget and forecasted

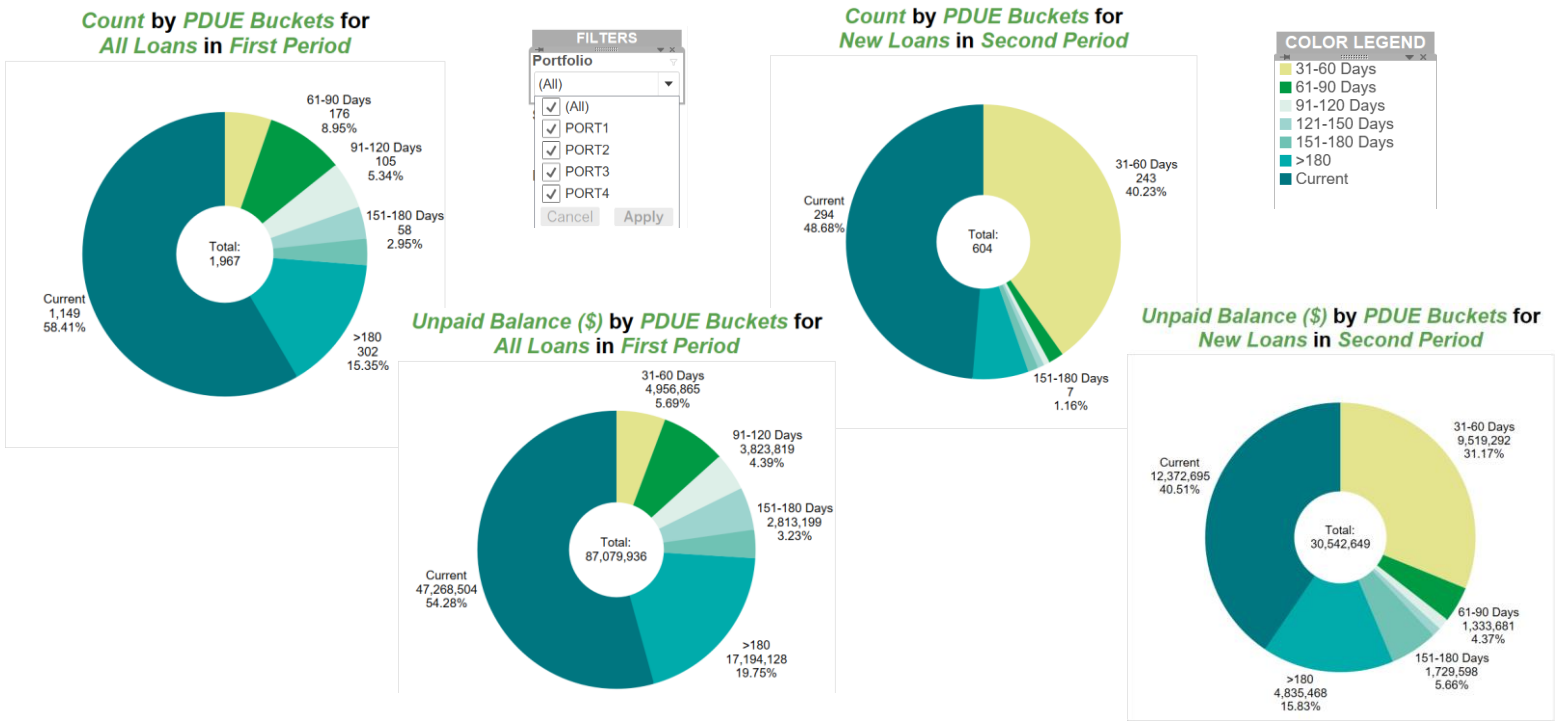
Value:

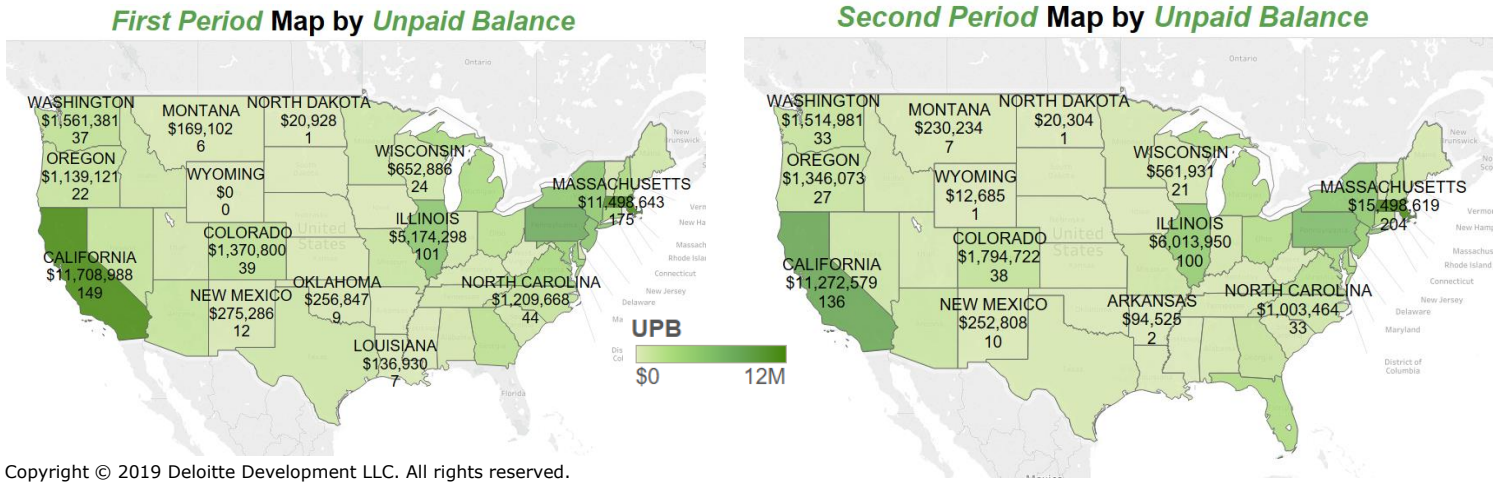
- ✓ Provides insights to answer key business questions
- ✓ Allows the user to drill down to better understand periodic fluctuations and isolate variability in magnitude of variance by operating expense category
- ✓ Ability to explore the impact on profitability across operating expenses categories

Business Goal:

Understand aging of the loan portfolio

Use Case – Loan Analysis





Visualization:

- ✓ The top pie charts provides comparison of the composition of the entire loan portfolio in the first period vs all new loans in the second period by **past due buckets** presented in loan count.
- ✓ The bottom pie charts show a similar breakdown within the **unpaid balance**.
- ✓ The maps show **geographic distribution** and concentration of loan portfolio for the current period and second period.

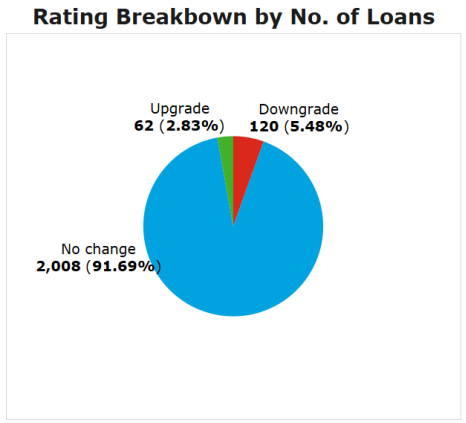
Value:

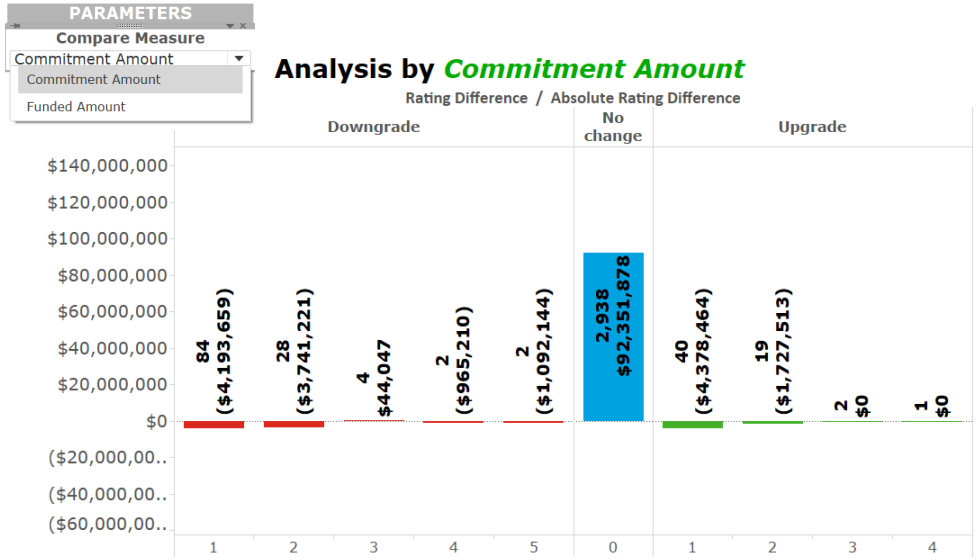
- ✓ Provides insight into **distribution** of loan data by past due buckets.
- ✓ Compares the current composition of loans receivable to prior periods by portfolio to identify **unexpected changes** in the composition of each portfolio.
- ✓ Visualize the changes in the loan portfolios period over period by past due buckets and geographical concentrations, which allows the timely **identification of outliers** and trends that may be inconsistent with management's expectations or underwriting strategies

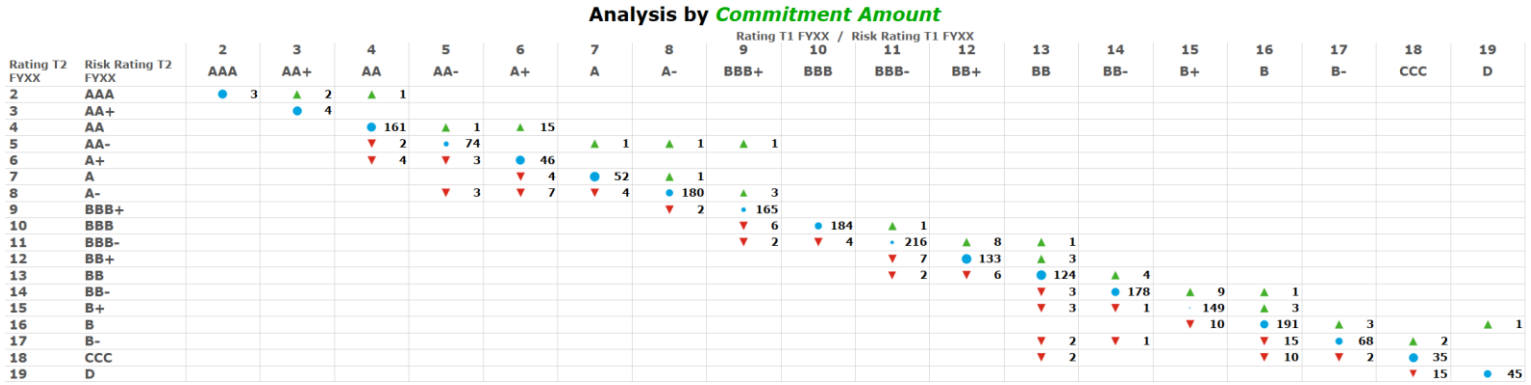
Business Goal:

Understand changes in the risk of the loan portfolio

Use Case – Risk Rating Migration Analysis







Visualization:

- ✓ The pie chart presents the **risk rating breakdown** (upgrade/downgrade/no change) by loan count period over period.
- ✓ The histogram summarizes rating movements by **rating difference** (e.g. downgrade by 2 bucket) by selecting the comparative parameter (including commitment and funded amount)
- ✓ Detailed loan-level analysis with a **credit rating migration matrix** period over period

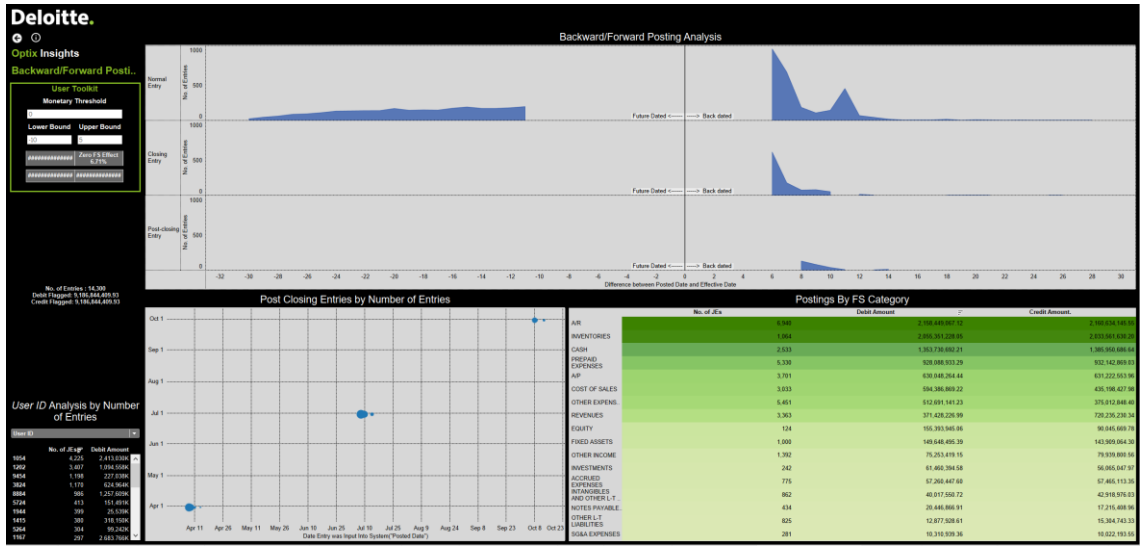
Value:

- ✓ Provides **insights** about the loan data by analyzing changes in loan risk ratings period by period considering various attributes (Commitment Amount, Funded Amount etc.)
- ✓ Shows **unusual changes** or trends in the creditworthiness of the Company's loan portfolios or in specific buckets of loans
- ✓ Allows **drill-down** into the data using various filter/parameter options and provides a view into the detailed loan-level information to client.

Business Goal:

Streamline and improve the reporting process

Use Case – Journal Entry Insights



Visualization:

- ✓ Number of journal entries (normal, close, and post-close) posted each period
- ✓ Timing of journal entries posted – on weekends or holidays?
- ✓ Dollar amounts of the transactions
- ✓ Number of entries posted by each team member
- ✓ Combination of insights that may lead to changes in policy, e.g. large number of immaterial journal entries posted by one individual post-close every period

Value:

- ✓ Streamline review of the entire population of journal entry data
- ✓ Uncover unusual trends, patterns, or anomalies in a large dataset
- ✓ Identify inefficiencies in the close process
- ✓ Enable continuous monitoring

Business Goal:

Monitor KPIs and trends for improved decision-making and forecasting

Use Case – Executive Dashboard

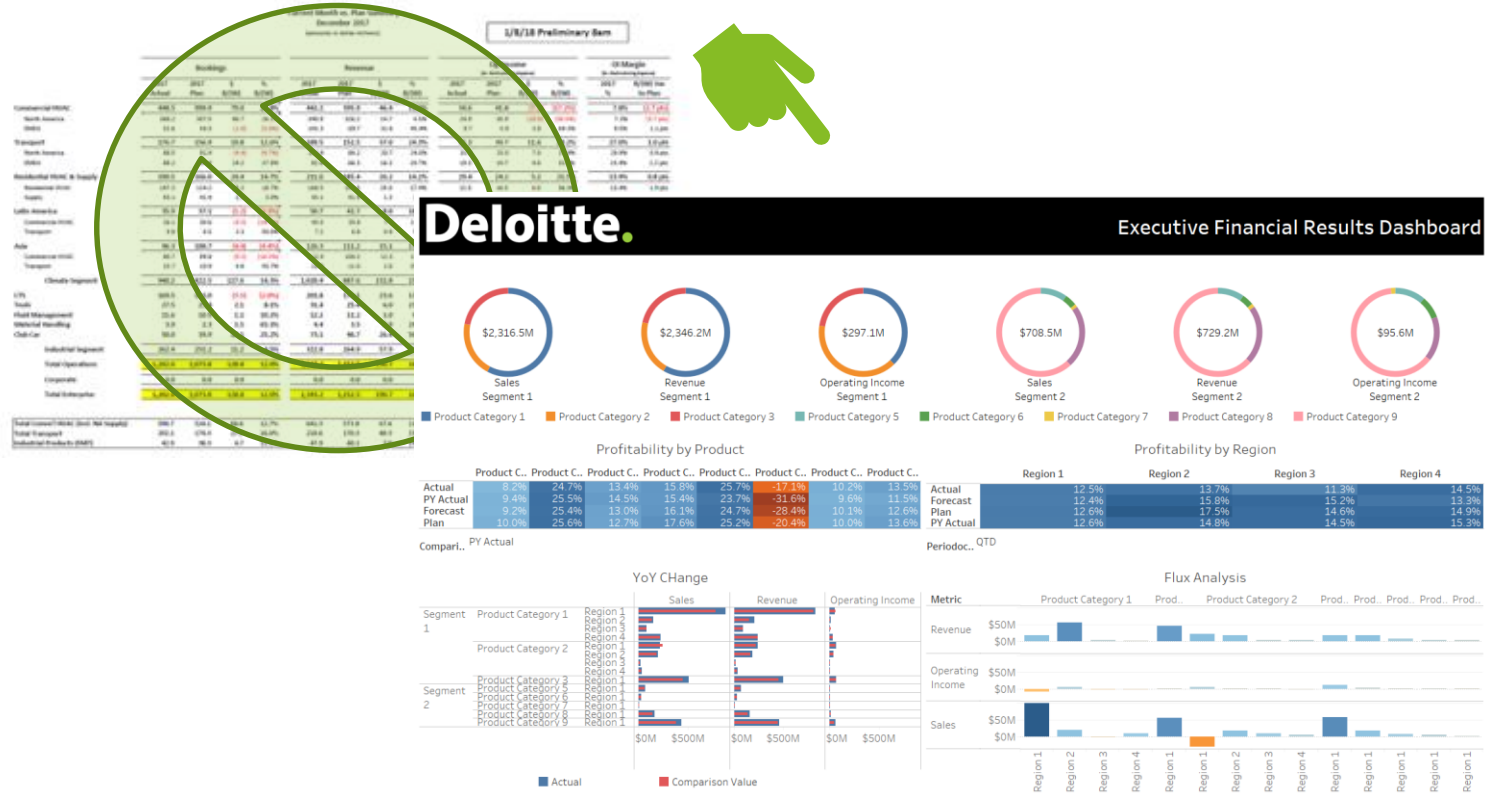
Dashboard Overview:

Provides visual insights into the financial performance of the company:

1. Profitability: visualizes the profitability (revenue, operating income, sales and profit margin) of products and geographies allowing the user to easily identify areas with higher than or lower than typical profitability

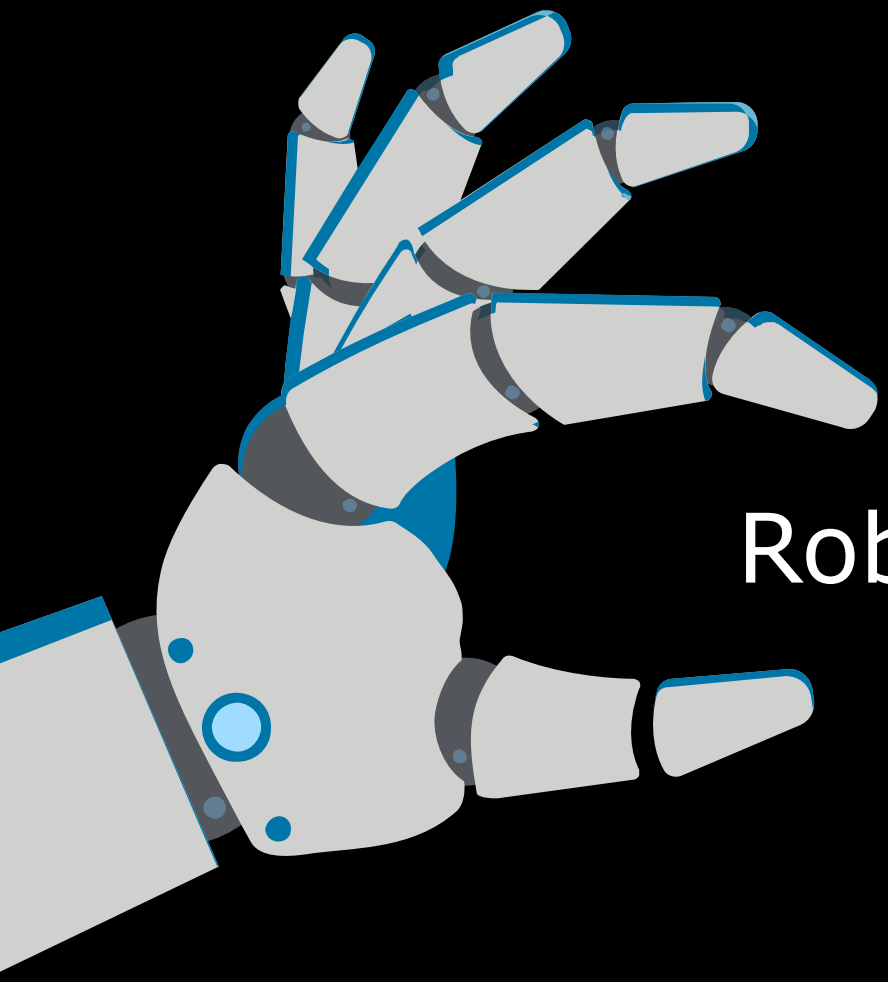
2. Performance against plan: allows user to quickly compare current period actuals against plan, forecast and prior year performance and displays the changes from the comparison value to show how a metric varied

3. Trends: can be customized to include trends over time to help contextualize performance against prior periods and seasonal trends



Value:

- ✓ Provides insights to answer key business questions
- ✓ High level executive view of the overall financial health and profitability of a product and/or geography.



Robotic process automation

What is RPA?

Automating manual, repetitive, routine processes in an employee's day-to-day job

Increase **efficiency**

12-24 month **payback** period

Cost **savings**

24/7 performance

Boost employee **engagement**

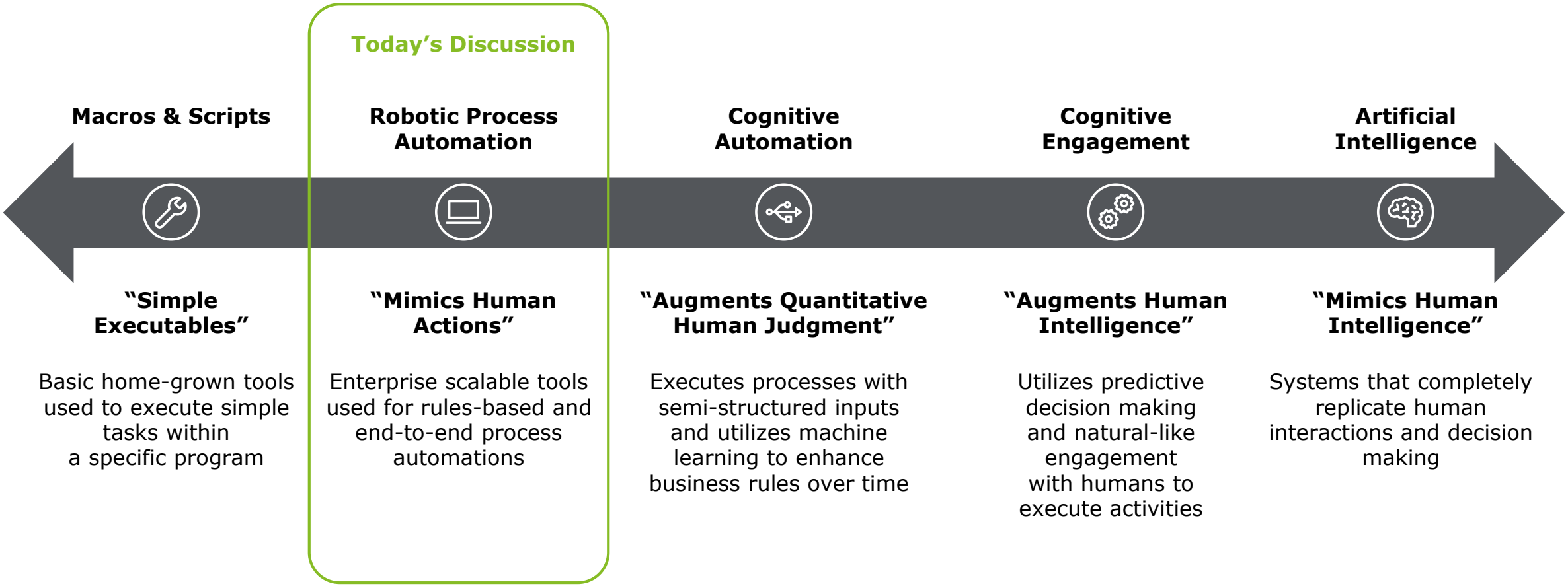
Increase **quality**

Shortens turnaround time

Reduce errors

The Automation Spectrum

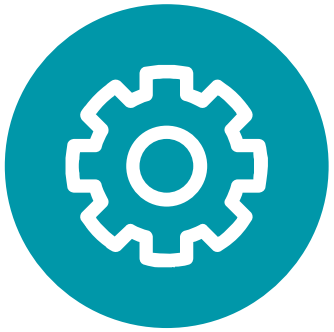
RPA often is the simplest and easiest to implement, while Advanced Artificial Intelligence is the most complex and transformative along the Automation Spectrum



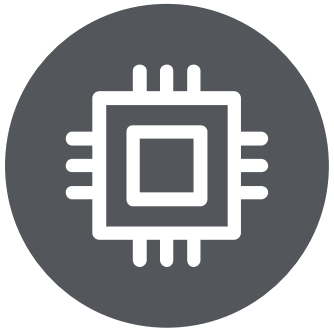
RPA Journey

Data from September 2018 Deloitte Survey of 500 executives representing $3.5 trillion in capital

53% of respondents have already started their RPA journey



57% of IT functions are supportive/highly supportive for RPA implementations, up 26% from the prior year



For organizations who implemented some form of RPA, **95% reported RPA benefits delivered against expectations** either met or exceeded expectations

Over 80% of those who implemented RPA indicated a happier workforce

Yet—only 4% of organizations have scaled their digital workforce

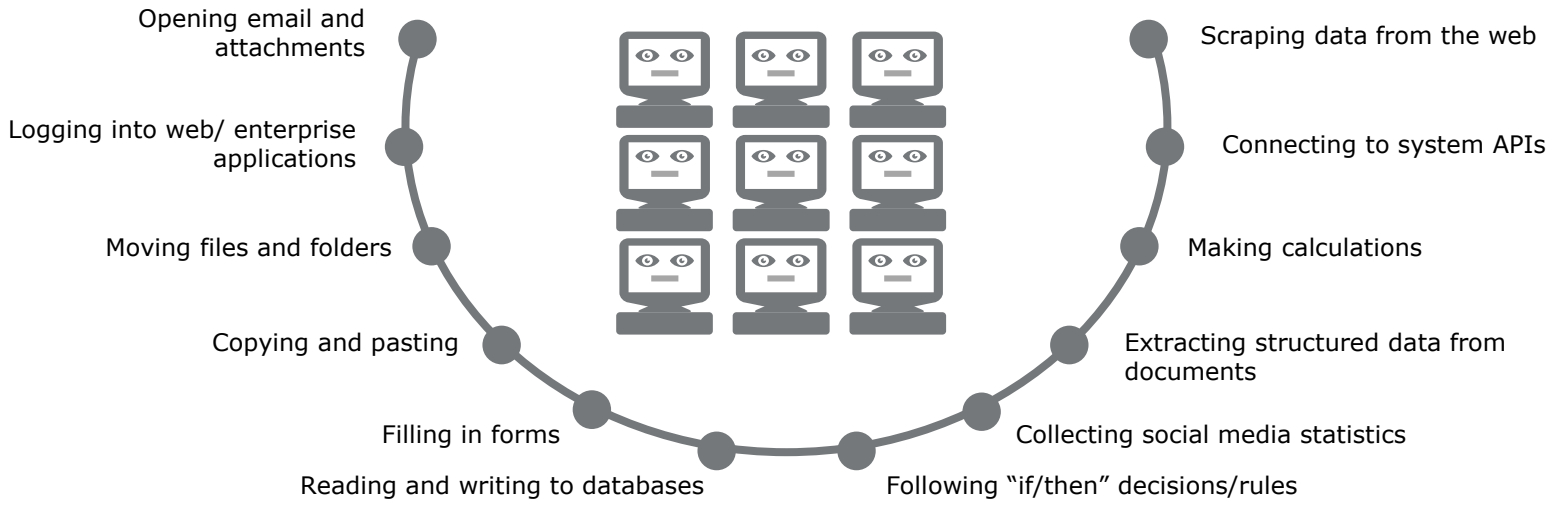
Source: Deloitte report, [The robots are waiting, Are you ready to read the benefits?](#) (2018)

What is Robotic Process Automation (RPA)?

RPA is delivered through software that can be configured to undertake rules-based (deterministic) tasks

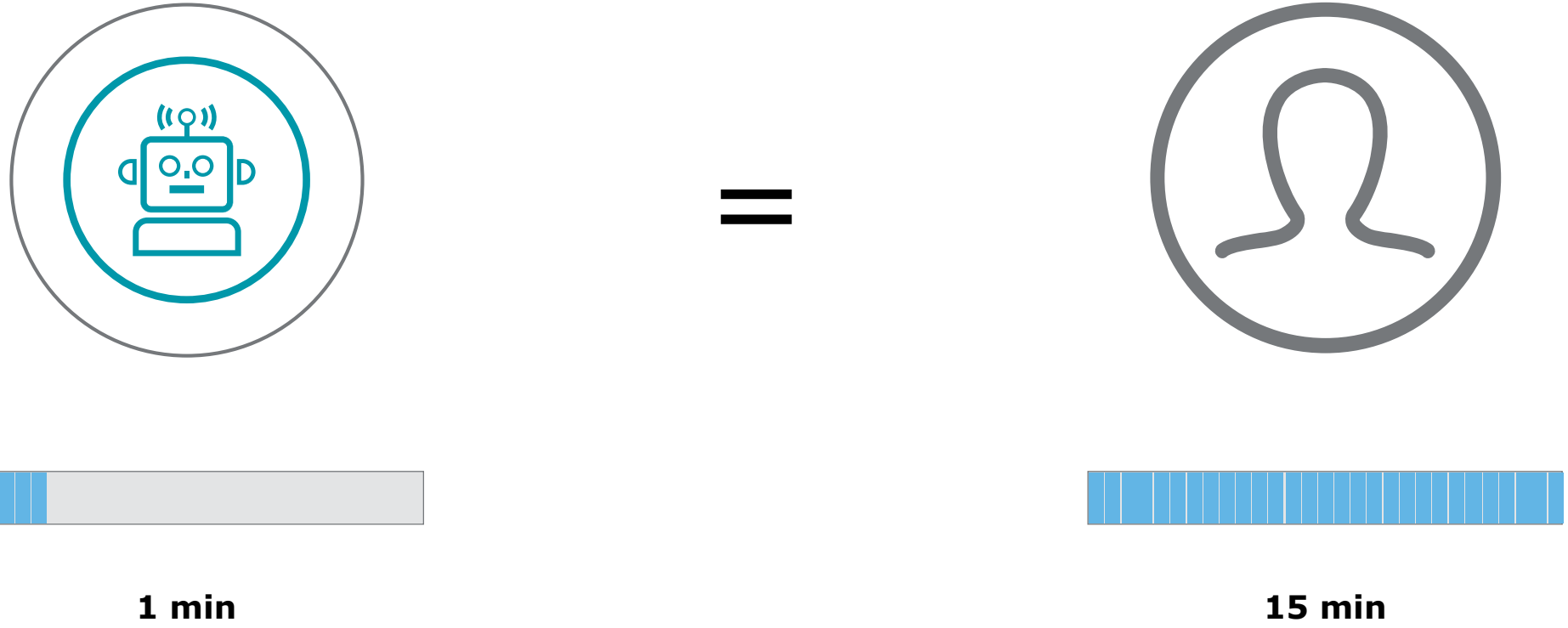
RPA is…	RPA is not…
Computer-coded software	Walking, talking auto-bots
Programs that replace humans performing repetitive rules-based tasks	Physically existing machines processing paper
Cross-functional and cross-application macros	Artificial intelligence or voice recognition and reply software

What it can do



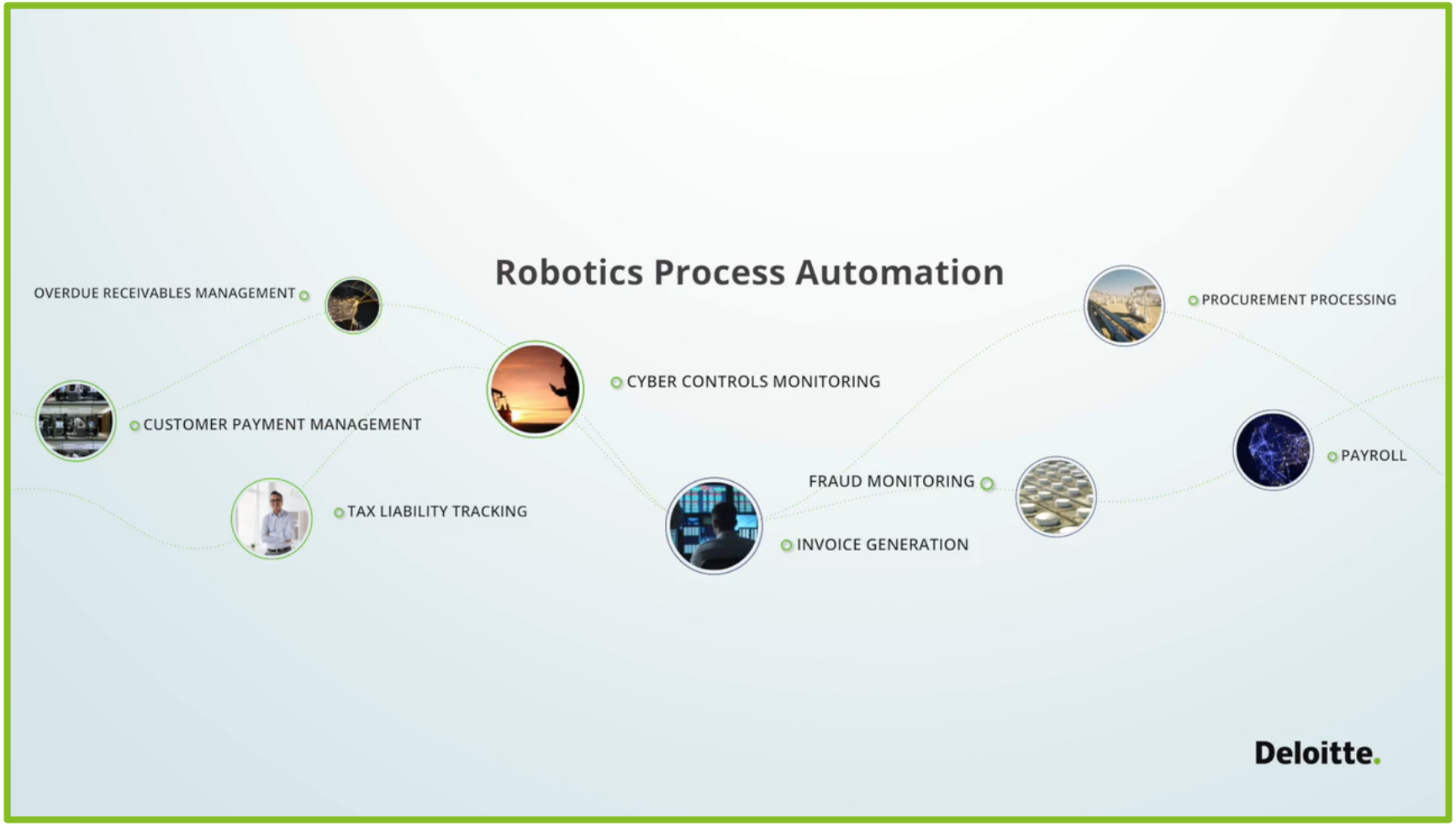
Benefits of RPA implementation

1 minute of work for the robot is equal to approximately 15 minutes of work for a person



Source: Deloitte Robotic Process Automation "Doing More with less"

RPA vs. Manual



Robotic Process Automation

Where do opportunities exist?

Typical process automation opportunities

Criteria	Typical examples and questions	Automation
High number of systems used	Process would typically require employees to access multiple independent systems to complete the process	●
High transaction volume/value transaction	Candidates for robotic automation need not necessarily be limited to high-value transactional processes. Any process that is labor intensive, high throughput time or high-cost impact errors is a good candidate	●
Prone to errors or re-work	Manual activities in the process today result in a substantial number of errors due to human operator mistakes e.g., flexibility of work-force, complexity of work or infrequency of activity	●
High predictability	The process needs to be defined in terms of a set of unambiguous business rules that describe the process. No need for full documentation today, but it certainly helps!	●
Limited exception handling	Simpler processes with little exceptions in delivery are excellent candidates for robotic automation in the beginning. When learning, the organization can expand to processes which are complex or error prone	●
Significant manual work involved	Processes with little automation support today and large chunks of manual work involved benefit more from Robotics, although the process does not need to be completely 'straight through processed'	●

Typical first wave automation opportunities

Opportunities exist across the lifecycle of processes typically housed in centers of excellence or which have already been outsourced

1

Process Automation

- Manual, repetitive, rules-based processes
- Enables transaction automation, dynamic data manipulation and streamlined communication

2

Shared Services Process Automation

- Processes with multiple interactions with different systems
- Opportunity for synergies across processes
- Reduce costs across the spectrum of processes

3

Outsourcing Process Automation

- Efficiencies can be built in outsourcing contracts via use of RPA solutions
- Managed-robots-as-a-service showing rapid growth

Opportunity area examples

- Front Office—sales order management, competitor price monitoring, customer engagement automation
- Middle Office—trend tracking, report generation
- Back Office—data reconciliation, app integration

- HR functions—payroll, onboarding, benefits management, education and training, recruitment process
- IT functions—infrastructure/application monitoring, folder and file management, user/directory and release management

- Reconciliations, claims processing, returns management, inventory processing, desktop support, production support, network monitoring

Source: "The robots are coming"—Deloitte Financial Services White Paper (2015)

Potential RPA opportunities in the Finance Function

Accounting process areas

Record to report

- Perform General Ledger Accounting
- Perform Consolidations
- Complete Monthly/ Quarterly Close
- Perform Project Accounting
- Complete Tax Planning/Accounting
- Calculate Stock Comp.
- Perform Financial Reconciliations
- Coordinate Close Calendar
- Perform Intercompany Accounting
- Maintain SOX Compliance
- Maintain Chart of Accounts Structure
- Calculate and Post Eliminations

Procurement to payment

- Create Requisitions
- Manage Procurement
- Process Payments
- Perform Accounts Payable
- Process T&E
- Administer Procurement Cards
- Maintain Supplier Master Data
- Maintain Vendor Contracts

Order to cash

- Process Orders
- Process Invoices
- Apply Cash
- Manage Collections
- Reconcile Cash
- Reconcile Accounts Receivable
- Maintain Customer Master Data
- Manage Treasury Operations
- Calculate Bad Debt Allowance
- Manage Customer Credit Exposure

External reporting

- Generate Legal Entity Reporting
- Generate Statutory Reporting
- Generate Regulatory Reporting
- Manage Investor Relations

Payroll

- Maintain Employee Master Data
- Manage Payroll
- Authorize and Process Payments

Infrastructure accounting

- Maintain Fixed Asset Master Data
- Analyze Misclassified Entries
- Perform Fixed Asset Accounting
- Perform Inventory Accounting
- Analyze Construction/ Work In Progress
- Perform Intangible Asset Accounting
- Calculate Tax Provisions

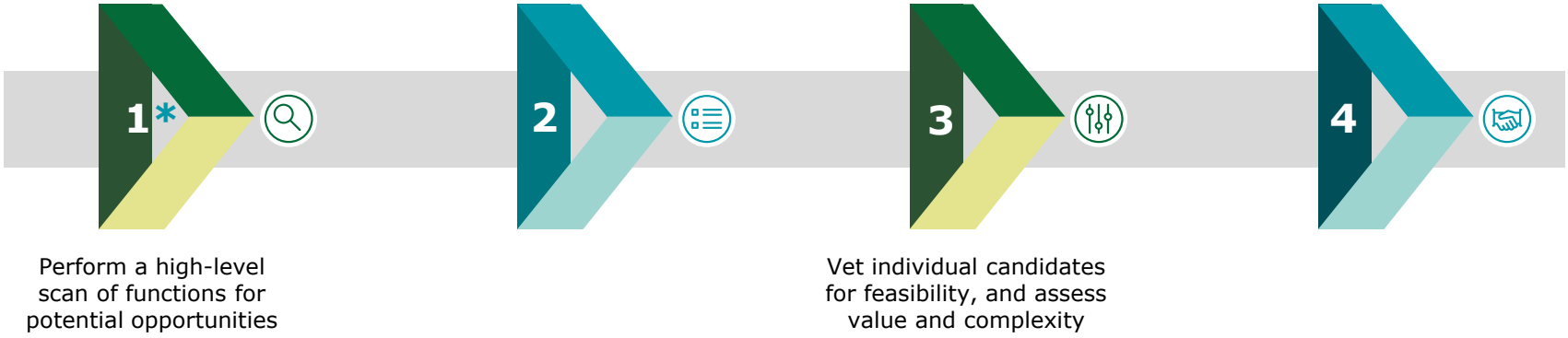
Management reporting

- Calculate Expense/ Revenue Allocations
- Calculate Revenue Stream Profitability
- Calculate Performance Measurements
- Generate User Metrics
- Generate Management Reporting

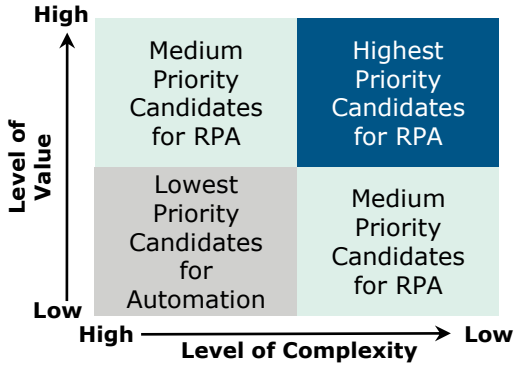
RPA Suitability: Yes | No

An RPA opportunity assessment involves inventorying, prioritizing, and vetting processes for suitability and value, followed by developing a business case

*Note: workshop trainings are often held with process owners to educate them about the technology prior to step 1 shown below.



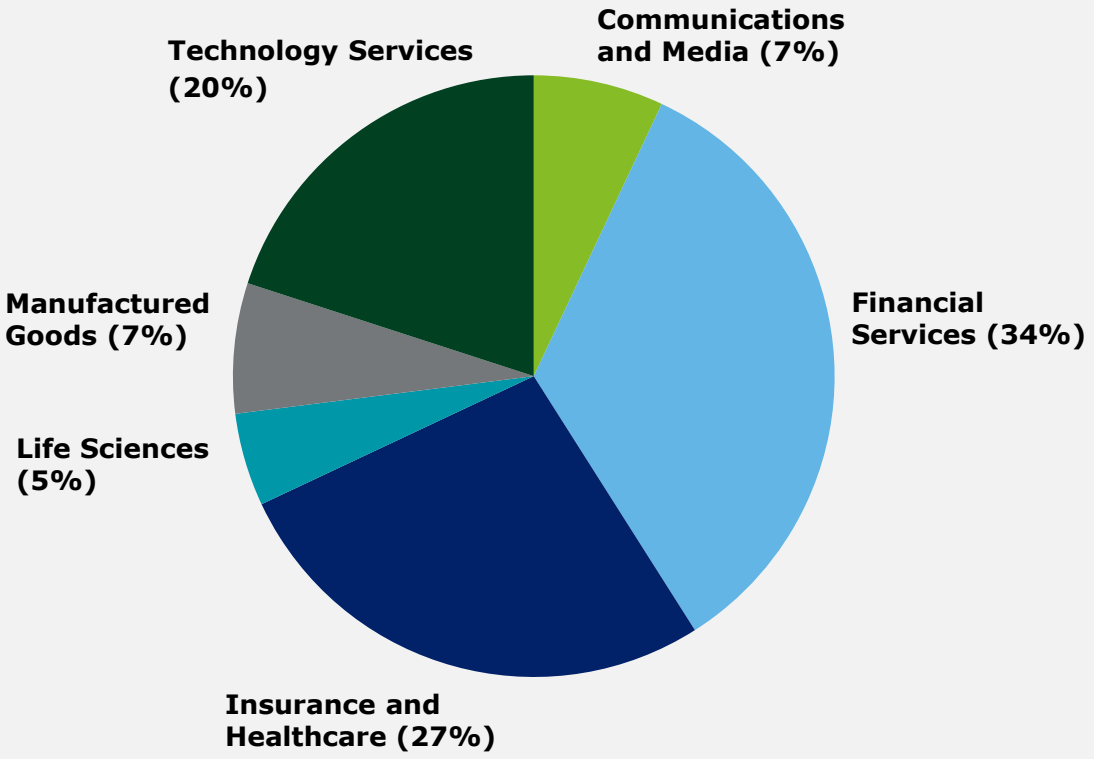
Automation process selection framework



	Potential benefits from RPA	RPA fit	Process complexity
Category & objective	Determine achievable benefits through applying automation (e.g. including cost/capacity/risk)	Determine suitability of RPA for a given process, and identify 'lightweight re-engineering' requirements	Determine level of effort required for implementation (re-design, configuration, testing and deployment)
Questions	• How often is the process run? • How long does the process take to run? • How many people work on the process? Where are they based? • Do you want to increase the frequency of the process?	• What % of the process is based on well-defined, documented rules? • Are there variations to the process? • Is there complex logic that requires human judgment? • Does the process involve human validation or approvals? • Is the process subject to any pending changes?	• How many systems are used? How many screens in each system? • How many steps/actions? • What is the level of exception-handling required? • What types of data inputs are used? • Are there process re-engineering requirements?

Automation adoption across industries

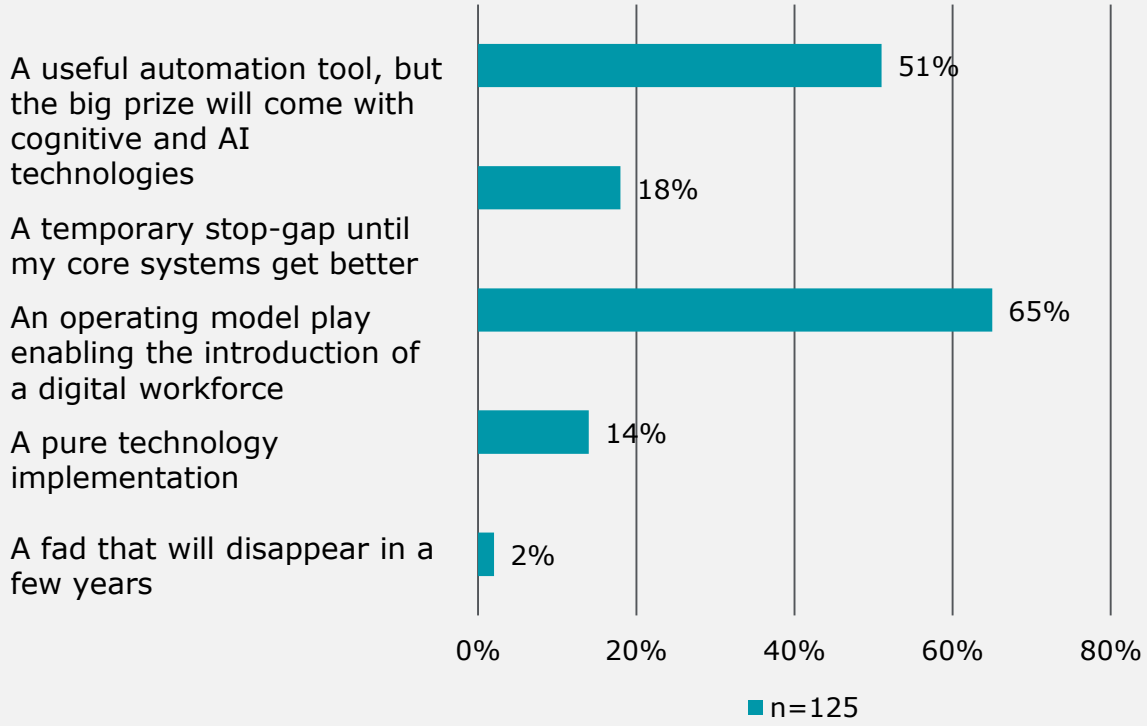
Adoption of automation across industries



Source: Pega Webinar Robotic Automation: Adoption Trends & Insights Across Industries

Executives' view of automation

(More than one answer selected)

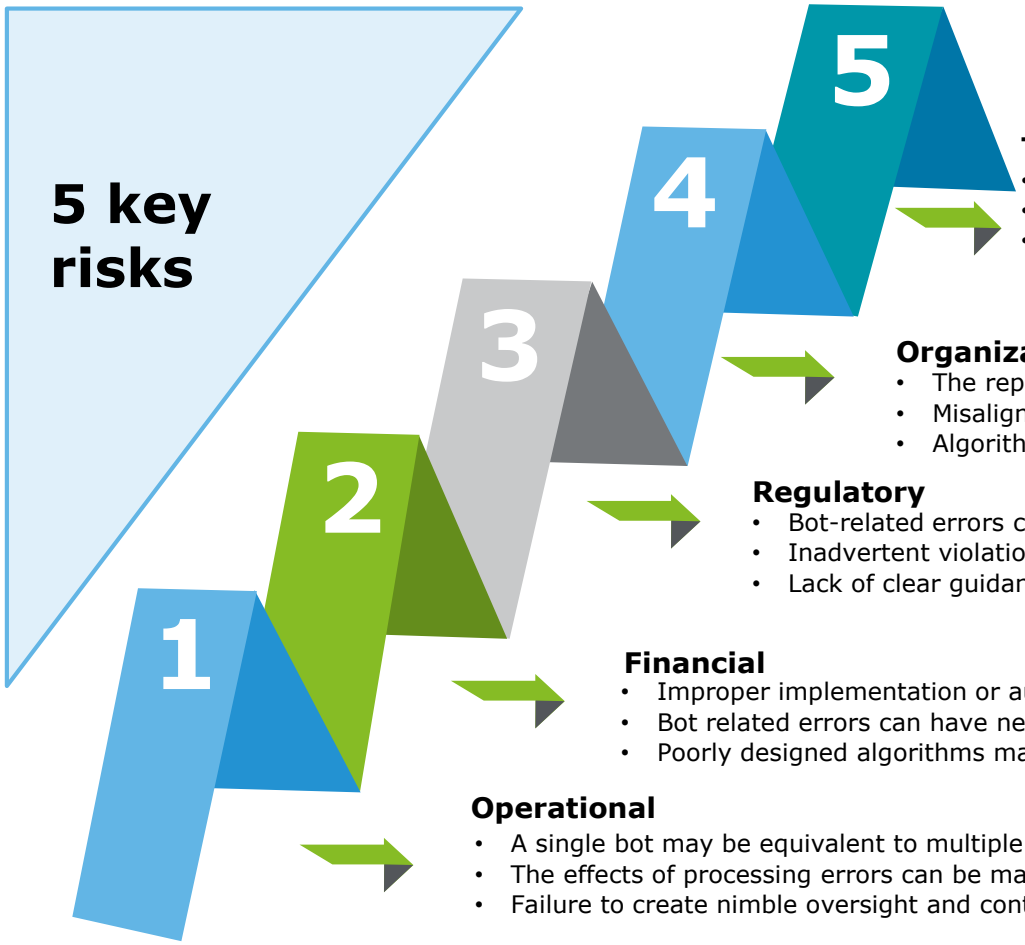


Source: Deloitte Report, The robots are here, Meet your digital workforce

Robotic Process Automation

Risks, leading practices and governance structure

Automation and cognitive solutions introduce new risks that have to be managed effectively in order to realize the benefits



Technology
- Changes to the IT platform will now impact a new, critical element of the workforce
- Anomalous bot activity may severely impact the functions of existing IT systems
- Powerful algorithms can negatively impact other critical IT infrastructure

Organizational
- The replacement or repurposing of FTEs may negatively impact employee morale
- Misalignment across groups may lead to gaps in roles and accountability
- Algorithms without proper controls may induce significant reputational risk

Regulatory
- Bot-related errors can impact validity and accuracy of regulatory reporting processes
- Inadvertent violation of laws by bots and algorithms
- Lack of clear guidance from regulatory bodies regarding best standards for automation and algorithm design

Financial
- Improper implementation or automation of processes can result in financial losses to the company
- Bot related errors can have negative impact to the integrity of internal and external financial reports
- Poorly designed algorithms may make costly mistakes (i.e. trading errors) or incur other financial costs

Operational
- A single bot may be equivalent to multiple FTEs, resulting in concentration of operational risk
- The effects of processing errors can be magnified by high-paced bots and algorithms
- Failure to create nimble oversight and control mechanisms may lead to operational inefficiency when bots or algorithms require changes

A leading practice for addressing these risks is through extending the existing approaches to enterprise risk management

A set of leading practices should be considered when evaluating the roll-out of RPA across the enterprise

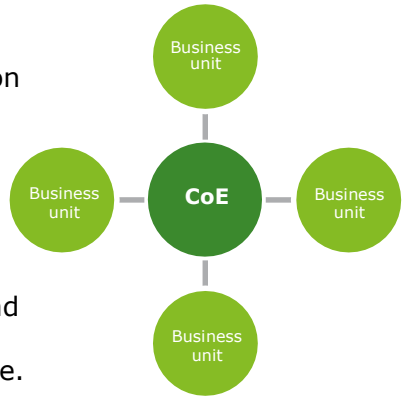
	Leading practice	Description
	**Review and enhance existing controls**	• Business should review the adequacy of existing controls • Leverage existing controls in the robotics environment • New controls may need to be developed to secure the RPA environment
	**Policies and standards**	• Establish consistent policies and standards • Define where robotics can and cannot be applied within the organization (e.g., avoid client-facing processes—and evolve over time)
	**Access management**	• RPA solution may often have elevated access to control provisioning for target systems • Identify proper controls to ensure that access is limited to this system and hostile actors cannot maliciously use the tool
	**Change management**	• Extend existing change management models to account for the existence of bots • Track the impacts of internal or external changes which could affect the bot environment
	**Cyber strategy & governance**	• Define ownership and responsibility around running and maintaining bots should be defined • Establish cross-functional working groups to meet regularly to evaluate bot effectiveness, review and resolve issues • RPA must fit into the organization's existing cyber strategy and governance program
	**Monitoring and response**	• Configure the bots to detect and report errors, and raise exceptions to individuals who can take appropriate remediation activities within an acceptable time frame • Equip the three lines of defense with tools and transparency to oversee and control operational risks through bots' production of audit-trail records

Robotics operating models

At a high-level, there are three different models for operating a CoE to consider.

Centralized

RPA owned by a central team, who controls RPA strategy, vendor selection and governance. Opportunities are driven, identified, assessed and prioritized by the central team. The central team also controls development and manages deployment, support and maintenance.

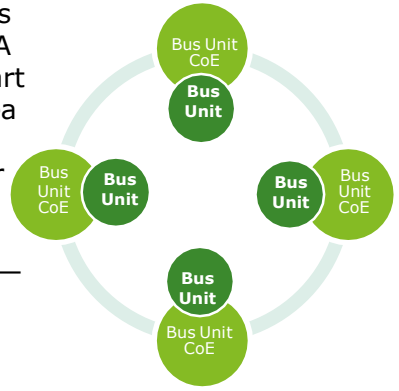


Advantages
Clear strategy for whole enterprise, able to prioritize for the whole organization, improve efficiency, reduce duplication. Effective utilization and cost management is enabled as resources are deployed across business units as required

Disadvantages:
Lack of ownership from the business, lack of input from SMEs, limited ability to provide customized services for a particular business unit, issues with sustainability of the solution.

Decentralized

Each business unit has its own RPA capabilities. RPA not owned by any one part of the business. Each area can see their potential, They can select whatever solutions they wish, how to implement and how to support/maintain—with third parties or by building capability themselves.

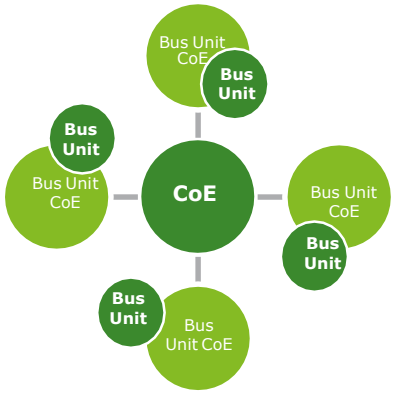


Advantages
Strong ownership in the business, solutions are optimal for the business area and aligned to needs.

Disadvantages:
Lack of consistency, lack of progress in some areas, may be overlaps in capability and/or capacity, lessons learned may not be shared, lower return opportunities may be delivered first.

Federated

Devolved activities:
RPA identification, assessment and prioritization; capability decisions are made locally. Some organizations have the concept of "RPA Factory" which exists locally to identify, design, build and deploy robots.



Advantages
Balances local ownership, prioritization and drive with central strategic decisions and economies of scale.

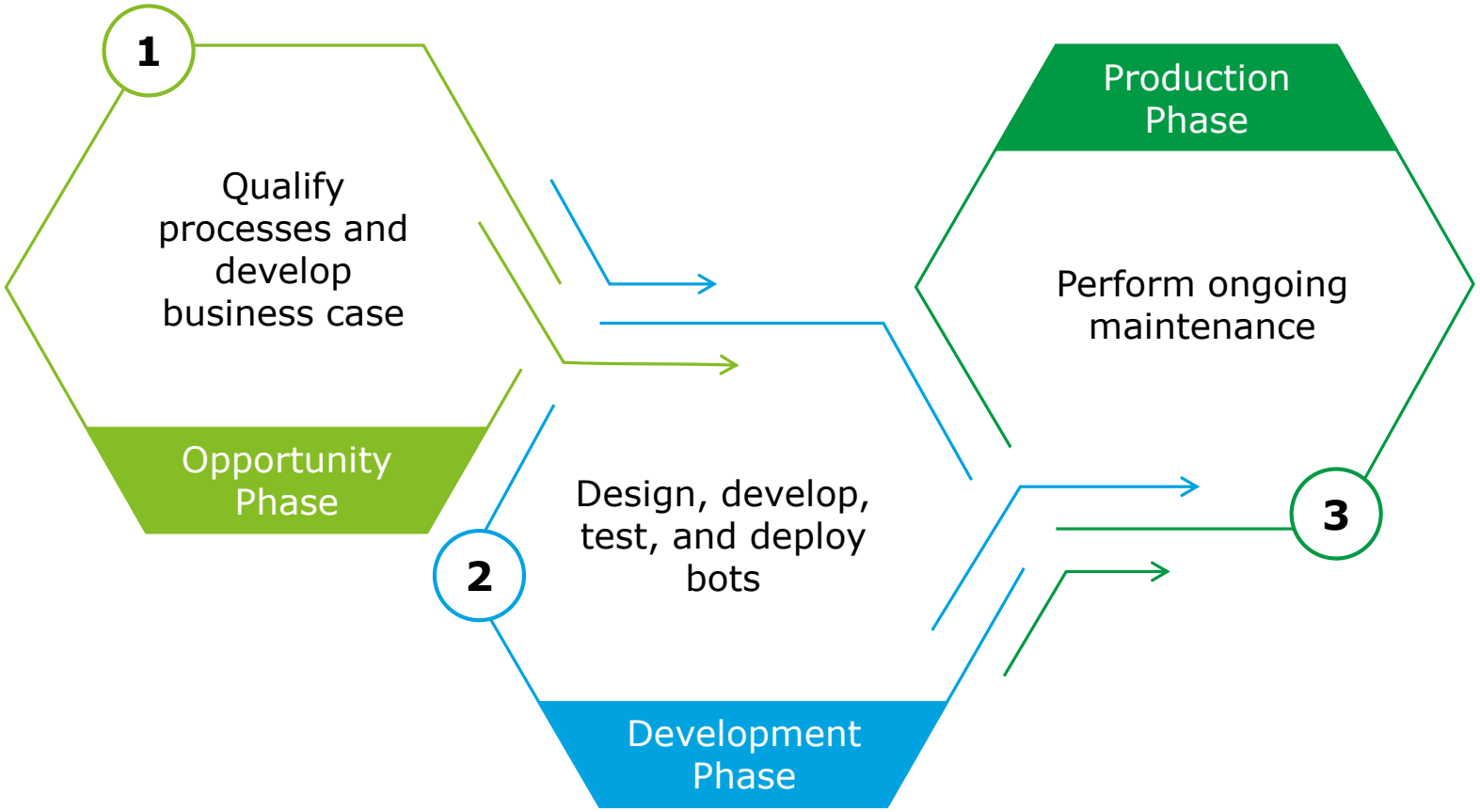
Disadvantages:
Neither the ownership level of decentralized model or the enterprise wide prioritization of the central model. Service quality may suffer if there is not close coordination with the central CoE.

Robotic Process Automation

The journey

RPA lifecycle

The robotics journey is spread across three key phases:



The governance and execution responsibilities will vary depending on the phase of the journey.

Biggest Barriers to scaling RPA

While evidence suggests the conditions for automating at scale are in place, it is equally clear that organizations are struggling to scale in the way we might have anticipated only a year ago. Only four percent of respondents to our survey are operating more than 50 robots. Twenty-seven per cent are either piloting RPA with under 10 robots or have moved into full implementation with between 10 and 50 robots.

This shows little year-on-year growth from our 2017 findings where only three per cent of respondents had achieved substantial scale.

In the same way that executives are clear on the benefits of automation, and have secured senior stakeholder support to invest, it is also apparent they understand what prevents them from reaching substantial scale.

Figure 5. Maturity of RPA implementation, percentage of respondents

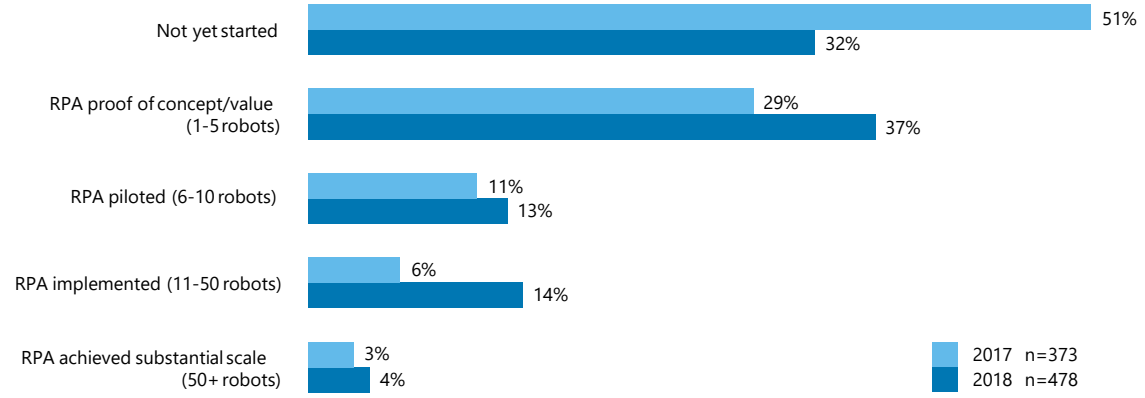
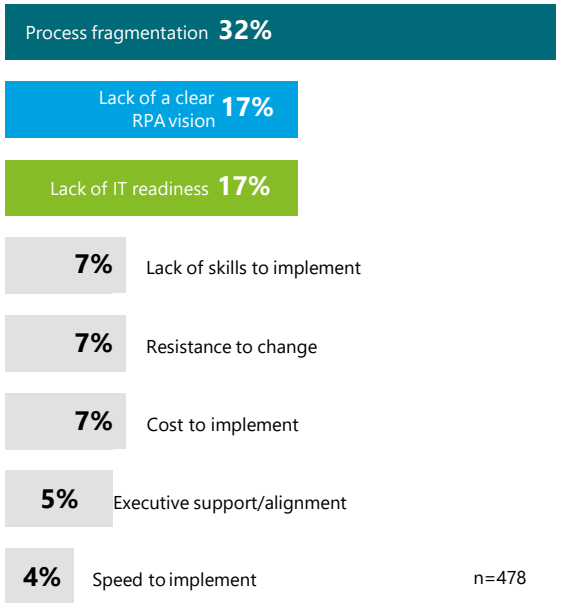


Figure 6. Biggest barriers to scaling RPA, percentage of respondents



Respondents to our survey cite process fragmentation, lack of IT readiness and lack of a clear vision as their main barriers to achieving scale.

Source: Deloitte report, The robots are waiting, Are you ready to read the benefits? (2018)

Biggest Barriers to scaling RPA

Process fragmentation
One of the most obvious and challenging barrier is cited as process fragmentation, typically caused by multiple process and system variations and resulting in increased complexity and reduced leverage from individual automations. Most obviously, this is identified during discovery activities and results in automation opportunity pipelines including a very high number of very low value opportunities. A mean opportunity value of $50,000 per task automation is quite common, setting a low bar for implementation costs.

Lack of a clear RPA vision
We are frequently surprised at how many organizations have yet to define a vision and ambition for automation. Without this, it is not clear how automation teams will secure the funding to build the skills, capability and capacity required to automate at scale. At its simplest, being able to articulate how many bots will be implemented over the next year, and where and why these will be deployed, is surely essential to securing investment from senior management.

Lack of IT readiness
In our experience many IT teams are only just beginning to fully appreciate how different the deployment of automation technologies is to traditional IT systems, how profound the changes they will introduce are, and the potential impact on the role of IT teams. We have seen medium complexity robot implementation schedules ranging from 4 weeks up to 24 weeks. Needless to say, at the upper end of that range automation becomes non-viable economically. As IT teams learn and adapt to the changes required to implement automation technologies successfully, the pace of robot deployment accelerates rapidly.

Our lessons learned from RPA deployments

The following summarizes lessons learned based on prior challenges & risks companies will likely need to consider during its RPA efforts

1 Select the right processes or activities
- Ensure the process is well defined
- Must also ensure that the part of the process which is chosen can be executed by a robot just like it is by a person

2 Conduct Agile design, development, and testing
- Rapid iterations require process owners to be engaged throughout
- Design automations in components and showcase functionality rapidly to confirm that requirements are met and iterate

3 Do not automate broken processes
- Processes should be amended and made as efficient as possible before implementing robotics

4 Monitor the quality of the outputs; invest heavily in exceptions management
- Continuous monitoring and a robust exception management program can identify issues early

5 Agree up-front on benefits measurement and tracking
- Ensure benefits of robotics are realized, tracked, understood, and socialized; agreeing upfront on the measurement approach limits interpretation at late stages

6 Educate and promote user adoption
- Socialize the business need and benefits of robotics
- Empower the organization to identify areas for future deployments

7 Have a strong infrastructure and compliance checklist
- Ensure that the correct infrastructure is in place and compliance requirements are satisfied
- Standards support controlled and consistent implementation

8 Invest in stakeholder management and governance
- Engage stakeholders from the program's outset to support effective buy-in, collaboration and adoption of changes
- Define governance upfront and redesign roles to align

9 Ensure vendor and business vision alignment
- The chosen IT vendor should meet the long term process automation requirements of the business
- Find balance between "ease of use" and "robust security"

10 Consider wider strategic technology initiatives
- Automation of selected process should align with the broader technological investments driven by the overall IT strategy

Q&A

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