Deloitte.

Digital Controllership

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Introductions

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Today's discussion

- Digital Controllership Overview
- Analytics
- Robotics Process Automation (RPA)

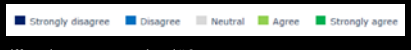
Finance work expectations in three years: North American Q3 2018 CFO survey

63%

of CFOs projected that the time allocation of the finance workforce in three years will likely shift toward analysis, prediction, and decision support.

66%

of CFOs expect that technology will likely enable productivity.



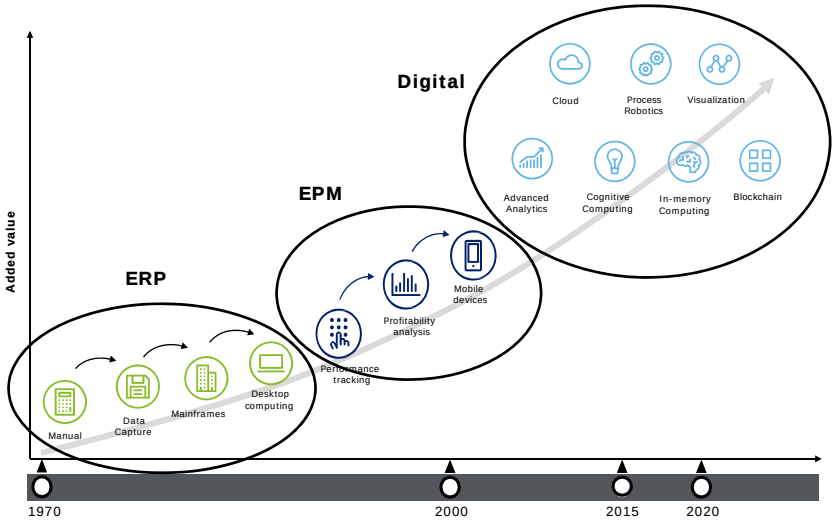
https://www2.deloitte.com/us/en/pages/finance/articles/cfo-signals-fading-optimism-trade-tariffs-talent-concerns.html#2

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

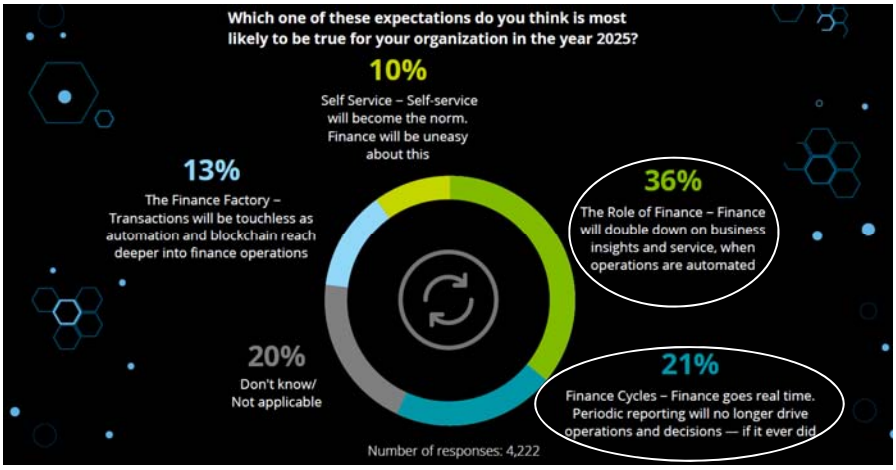
Exponentials — Emerging Quickly

- Advanced Analytics
- Cognitive Computing
- In-Memory Computing
- Blockchain

Analytics
Overview

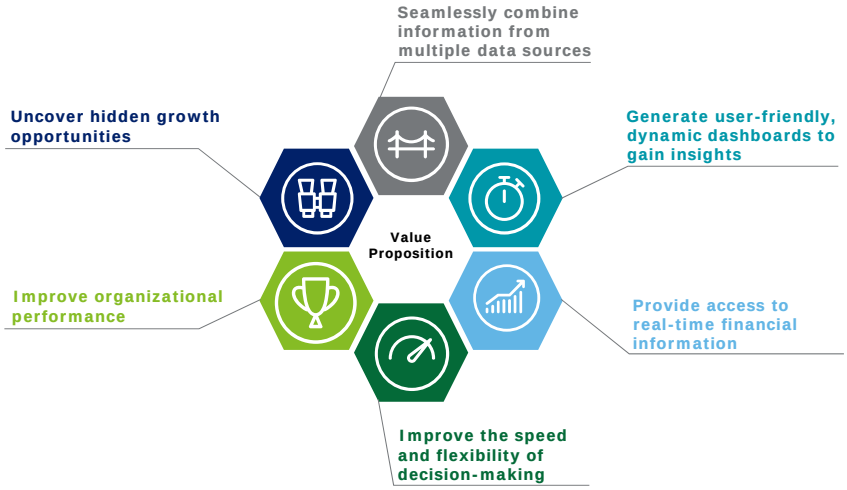
Finance of the Future

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

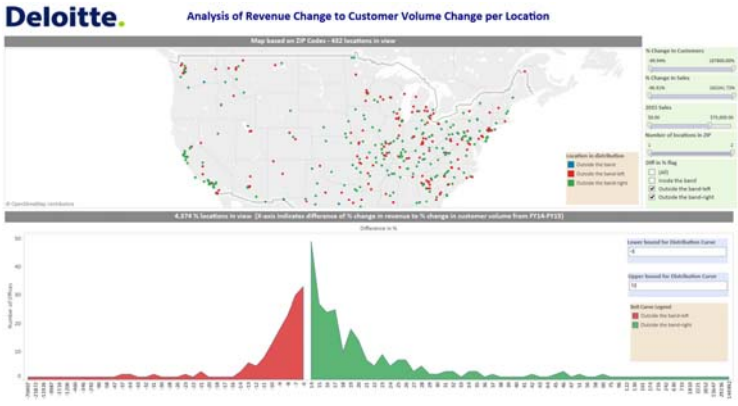
What if we did this? Now, count the fives…

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 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:

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:

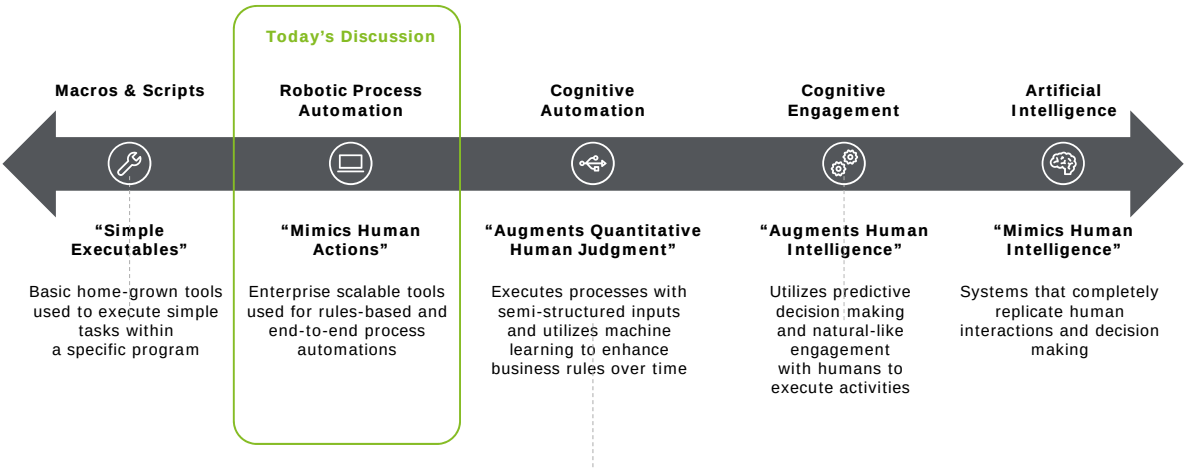
- ✓ Provides insights to answer key business questions
- ✓ High level executive view of the overall financial health and profitability of a product and/or geography.

Robotic Process Automation

RPA overview

The Automation Spectrum

RPA 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 2017 Deloitte Survey of 400 executives representing $2 trillion in capital

53% of respondents have already started their RPA journey

Adoption rate is expected to be 72% within the next two years

For organizations who implemented some form of RPA, payback was reported at <12 months, with an **average 20% of full-time equivalent capacity provided by robots**

78% of those who implemented RPA expect to significantly increase investment in RPA over the next three years

Yet—only 3% of organizations have scaled their digital workforce

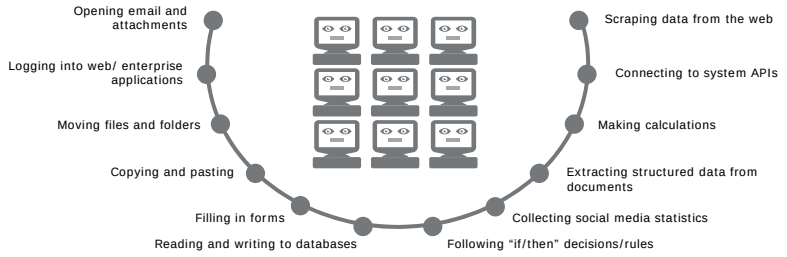
Source: Deloitte report, The robots are ready. Are you? Untapped advantage in your digital workforce (2017)

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

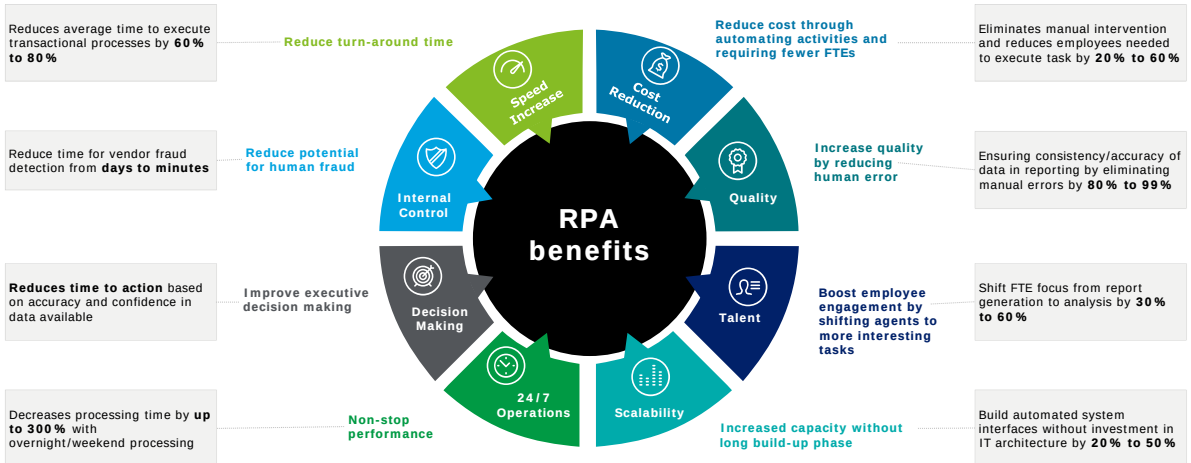
What it can do



RPA: Demonstration video

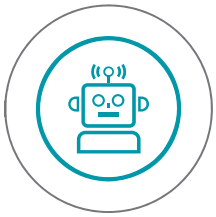
Key benefits of RPA

Benefits from automation vary greatly depending on the process and its complexity; regardless, the benefits are likely significant



Benefits of RPA implementation

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



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1 min

15 min

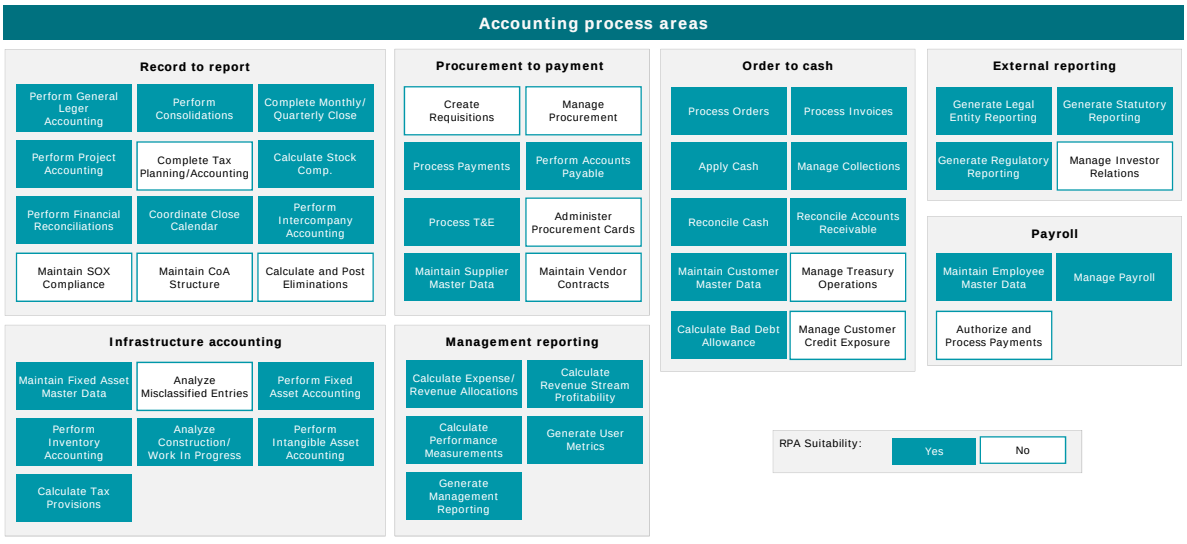
Robotic Process Automation

Where do opportunities exist?

Typical process automation opportunities

Criteria	Typical examples and questions	Automation
High number of systems used	Process should 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 labour 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 organisation 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'	●

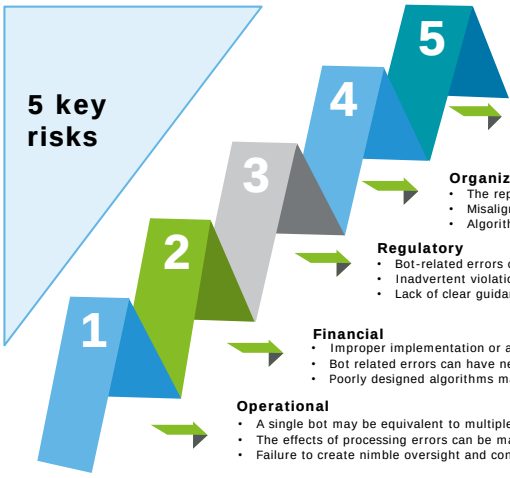
Potential RPA opportunities in the Finance Function



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 firm
- 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

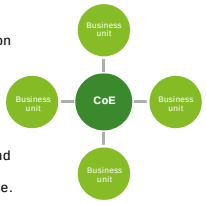
Leading practice	Description
Review and enhance existing controls	• Business should review the adequacy of existing controls • Leverage existing controls in the robotics environment • New controls may need to be developed to secure the RPA environment
Policies and standards	• Establish consistent policies 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.

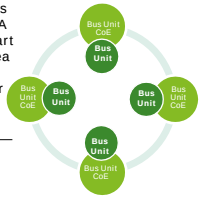


Advantages
Clear strategy for whole enterprise, able to prioritise for the whole organisation, maximise efficiency, minimize duplication. Effective utilisation and cost management is enabled as resources are deployed across business units as required

Disadvantages:
Lack of ownership from the business, lack of input from SMEs, limited ability to provide customised 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.

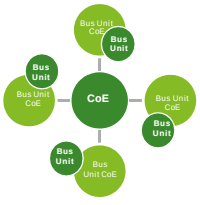


Advantages
Strong ownership in the business, solutions are optimal for the business area and aligned to needs.

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.

Q&A

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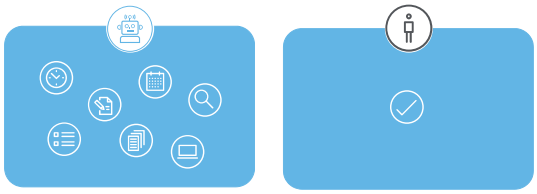
RPA Use Cases

Use case: Asset master data

By robotizing a series of previously manual tasks in the Asset Master Data Classification process, the organization was able to reduce human dependency on 4 key tasks to realize cost savings and process efficiencies.

Task distribution with RPA



Realized benefits

Improved Accuracy	**0 %** Error Rate
Shifted Capacity	**2 FTEs** repurposed Enabled FTEs to reallocate effort to value add activities
Saved Money	**$125,000** in annual savings

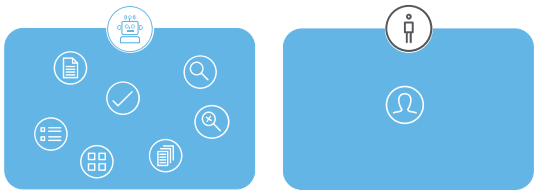
Asset master data process flow

1. Bot is Triggered by a Timed Schedule to Begin Before the Workday
2. Bot Logs into the ERP System
3. Bot Scans Accounting Entries to Identify Misclassified Assets
4. Bot Validates Accounting Based on Rule-based Asset Criteria
5. Bot Updates Asset Data Listing
6. Bot Updates the Accounting Period for Each Asset
7. Each Week, a User Reviews the Bot's Performance

Use case: Contract and invoice reconciliation

RPA was able to replicate human actions to perform contract and invoice reconciliations with greater speed and accuracy than a human operator.

Task distribution with RPA



Realized benefits

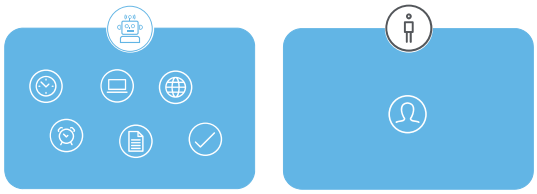
Greater Accuracy	**96%** accuracy
Shifted Capacity	**99%** automated Processing can now take place around the clock
Saved Money	Identified **4%** revenue leakage

Contract and invoice reconciliation

Use case: Close task coordination

Automation of an organization's month-end close activities through RPA enabled synchronized close activities, shortened the close cycle, and improved work life balance for users.

Task distribution with RPA



Realized benefits

Consolidated Activities	**Synchronized** Tasks A single bot performed tasks previously requiring FTEs in various time zones
Accelerated Analysis	**+1** Day for Close Tasks Weekend processing allows users to arrive on Day 1 with a completed settlement
Improved Work-life Balance	**Less Weekend Hours** Bot processing frees user capacity during time intensive close

Month-end close process flow