



Important Tech Trends for 2023

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- **Director, Strategic Relationships**, K2 Enterprises (k2e.com) (2005-present)
 - Delivered presentations in 48 US states, Canada, and Bermuda.
- **Freelance Writer** for accounting industry media outlets such as AccountingWeb and CPA Practice Advisor (2015-present)
- **Podcast Host**, [The Technology Lab for CPA Practice Advisor](#), 2020-present
- **Author**, 2014-2021 CPA Firm Operations and Technology Survey
- **Director, Strategic Relationships / Instructor**, Yaeger CPA Review (2017-present)
- **Publisher**, CPATechBlog.com (2004-present)
- **Technology Editor**, The CPA Practice Advisor (CPAPracAdvisor.com) (2010-2014)
- Selected nine times as a “Top 25 Thought Leader in Public Accounting Technology” by *The CPA Practice Advisor*.
- 2012 and 2009 Outstanding Discussion Leader Award, *TN Society of CPAs*
- Author of numerous articles and have direct consulting experience with and for numerous organizations such as software vendors and CPA Firms.
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Important Tech Trends for 2023



- Authentication, Passwords, and Passwordless Authentication
- Digital Plumbing/Robotic Process Automation
- Beyond Data Mining - Process Mining
- Business Intelligence – Measuring What Matters
- Between QuickBooks and Mid-Market – PROP Solutions
- Security: Watch the Home Networks
- Computer Hardware: What to Watch – WiFi 6E, PC Specs



AUTHENTICATION, PASSWORDS, AND PASSWORDLESS AUTHENTICATION

Passphrase Vs. Password – Why?



- Human error is a crucial element of a successful cyberattack attempt
- Weak credentials are a prime suspect
- A passphrase is a password composed of a sentence or combination of words
- Passphrases generally tend to be longer and more complex than the average password, which increases overall security
- The biggest factor in the consideration of passphrase vs. password is simply the amount of time it takes to crack a password
- However, password managers remain your best approach

The End of Passwords: Azure AD



- Hybrid Identity management with three techniques
 - Password hash synchronization (PHS)
 - Pass-through authentication (PTA)
 - Federation (AD FS)
- Passwordless Login
 - Windows Hello fingerprint, facial recognition
 - FIDO 2 token-based authentication: mobile app, hardware token
- Identity Lifecycle management
- Conditional Access
- Identity protection

Windows 11 Security



- Microsoft Pluton: Built on the principles of Zero Trust
- Smart App Control prevents users from running malware
- Microsoft Defender SmartScreen for enhanced phishing detection and protection
- Credential Guard by default – advanced white-listing of applications by the operating system
- Local Security Authority (LSA) by default
- New Personal Data Encryption
- Config Lock
- Hypervisor-Protected Code Integrity (HVCI)
- Windows Defender Application Control (WDAC)

Seven Properties Of Highly Secure Devices – Remember For AMD Pluton










Property	Examples and Questions to Prove the Property
 Hardware-based Root of Trust	Unforgeable cryptographic keys generated and protected by hardware. Physical countermeasures resist side-channel attacks. <i>Does the device have a unique, unforgeable identity that is inseparable from the hardware?</i>
 Small Trusted Computing Base	Private keys stored in a hardware-protected vault, inaccessible to software. Division of software into self-protecting layers. <i>Is most of the device's software outside the device's trusted computing base?</i>
 Defense in Depth	Multiple mitigations applied against each threat. Countermeasures mitigate the consequences of a successful attack on any one vector. <i>Is the device still protected if the security of one layer of device software is breached?</i>
 Compartmentalization	Hardware-enforced barriers between software components prevent a breach in one from propagating to others. <i>Does a failure in one component of the device require a reboot of the entire device to return to operation?</i>
 Certificate-based Authentication	Signed certificate, proven by unforgeable cryptographic key, proves the device identity and authenticity. <i>Does the device use certificates instead of passwords for authentication?</i>
 Renewable Security	Renewal brings the device forward to a secure state and revokes compromised assets for known vulnerabilities or security breaches. <i>Is the device's software updated automatically?</i>
 Failure Reporting	A software failure, such as a buffer overrun induced by an attacker probing security, is reported to cloud-based failure analysis system. <i>Does the device report failures to its manufacturer?</i>

Table 1. Required Properties of Highly Secure Devices with Examples.

- Create a secure root of trust
 - Security processor
 - Cryptographic engines
 - Hardware Random Number Generator(RNG)

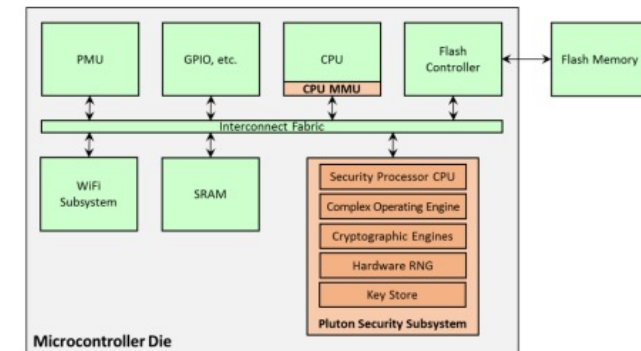


Figure 2. Architecture of the Experimental Sopris Highly Secure WiFi-enabled Microcontroller.



DIGITAL PLUMBING / ROBOTIC PROCESS AUTOMATION

Data Integration & Its Importance



- Integration allows for data/information to be easily shared between systems without human intervention
- It is usually automated and occurs based on an event (e.g., issuing an invoice) or on a schedule (e.g., hourly)

Integration Examples



- Pushing an invoice from the accounting system to the customer management system so the salespeople can see the status
- Pull information from the inventory system to the website so customers can see current inventory levels
- Pushing orders from the website to the operations system for fulfillment
- Working directly with UPS, FedEx, etc. to automatically generate shipping labels when orders are ready to ship
- Automatically send customers notifications about the status of their orders
- Employee onboarding paperwork (e.g., W4, W9, etc.) automatically shared with payroll, human resources, and IT departments

Integration Benefits



- **Cost Savings** - Integration between systems helps reduce cost in the long run as it reduces manual effort
- **Error Reduction** - Integration will automate your data workflow and it will do exactly what you tell it to do every time
- **Scalability & Efficiency** - Data sharing will help your organization scale faster and will automate low-value tasks
- **Standardization** - Integrating the various systems across your organization will encourage you to streamline and standardize your operations/data
- **Security** - Automation is great at keeping information private as humans aren't generally involved

When To Avoid Integration



- **Highly Manual & Complex** transactions, which are highly varied and require substantial human review, can be challenging to integrate and automate
- **Non-Standardized data formats** generally are challenging to integrate
- **Older systems, databases, and platforms** may not possess the necessary characteristics to integrate data
- **Ensure that your project requirements are firmly established;** otherwise, you'll be trying to hit a moving target
- **Budgetary concerns** can sometimes derail a project...ensure you have adequate resources to invest in getting the project done the right way, the first time

Features Of Good Integration



- **Scalability** - can it grow with your organization?
- **Traceability** - can you trace a transaction from cradle to grave?
- **Failure Recovery** - are there safeguards in place to ensure the system can recover and data isn't lost?
- **System Upgrades** - can you change systems inside your organization without causing major disruption?
- **Change in Business Process** - can your integration change as your organization changes? Is it flexible enough to deal with minor changes to the data without requiring major alterations?



Learn more about the features of good integration at <http://bit.ly/2IRxUnB>

What To Look For When Integrating



The 25 things every
business should
automate.

<http://bit.ly/2w7dT9M>

- **Repetitive** - tasks which are done a lot or in high frequency
- **Simple** - tasks that are clearly defined and standardized
- **Timely** - tasks which need to be done on a schedule, where timeliness matters
- **Prone to Error** - tasks that are usually prone to clerical or human errors
- **Security** - tasks that involve sensitive data which would not be good for humans to be involved (e.g., storing a password, charging a credit card, etc.)
- **Stored in a System** - tasks which are already contained inside a system and a database

How To Get Started

Multiple tools and services are available to help you get started, no matter your level of experience, including the following

- **Integration Services**, such as IFTTT, Zapier, and Power Automate
- **Existing Desktop Tools**, such as Excel, Power BI, Access, and more
- **Programming Languages**, such as JavaScript, Python, C#, and more



Web & App-Based Integration Tools



- Web and app-based integration tools allow for data sharing and integration with minimal technical and coding expertise
- Virtually all configuration can be done on a mobile handset, or on a webpage using your favorite browser
- Great option for simple integration projects, just getting started, or just exploring options


zapier




Power Automate

FYI: Comparison Of Integration Tools



	IFTTT	Zapier	Microsoft Power Automate
Primary User Case	Personal	Business	Business
Price	Free	Free to \$599/Month	\$15 to \$500/month
Number of Integrations	Hundreds	Thousands	Hundreds
Ease of Use	Easy	Medium	Medium

Robotic Process Automation

- An emerging business process automation technology notion of software robots or artificial intelligence (AI)
- Brings together programming, screen scraping, replay demonstrated actions in an application, moving data different applications, event triggers, optical character data extraction, and data entry
- First generation tools require significant time investment programming or configuration
- Second generation tools do more unassisted learning less up-front human intervention

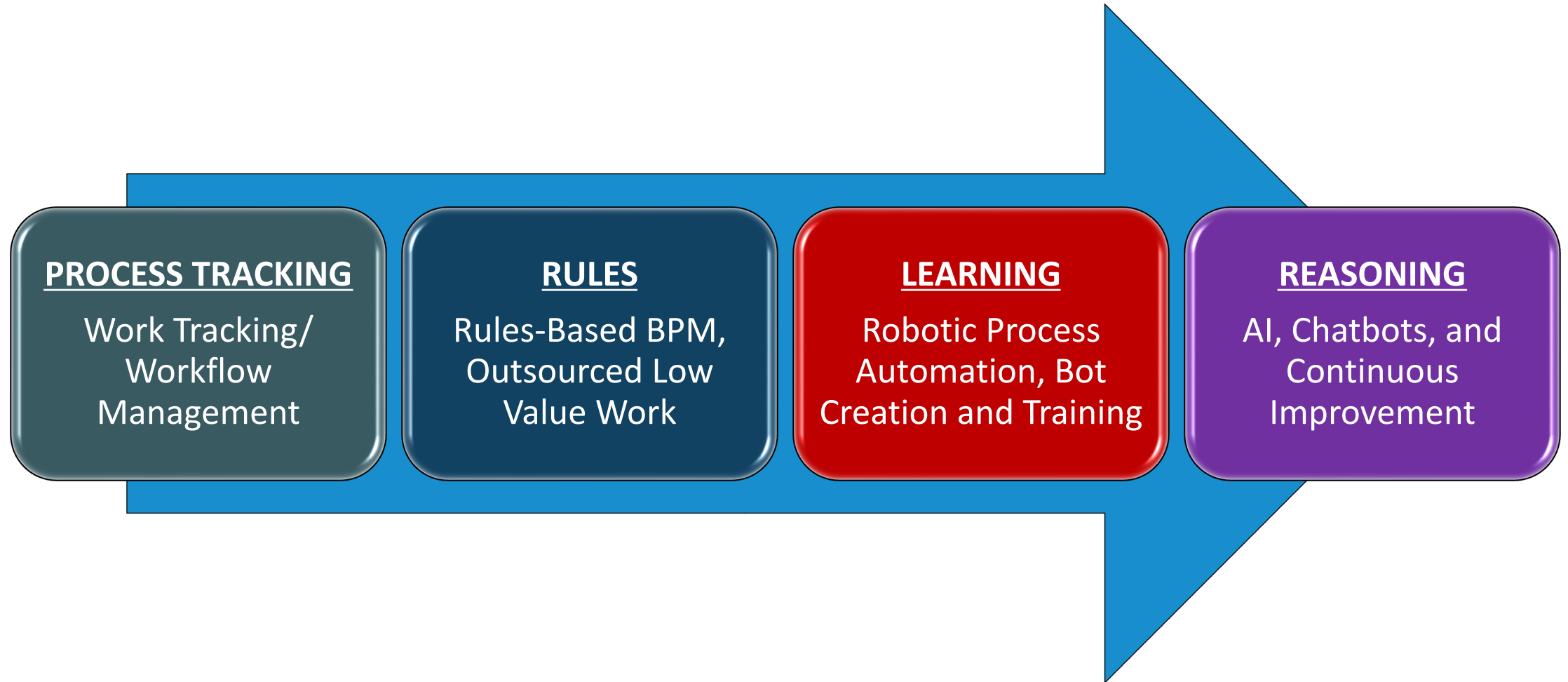


What Does Robotic Process Automation Do?



- Starts with process optimization – because adding automating an existing poorly designed process will never be transformational
- Progresses to rules-based process automation and tools like optical character recognition – traditional process automation tools
- Moves next to feedback-based AI learning and API integrations, which replicate the activities a human would perform in the process
- First generation tools require high transaction volumes in similar processes to justify the investment in software licenses, coding, and time investment to implement RPA

RPA In The Context Of Workflow Evolution- Increasing Levels Of Sophistication



Process Tracking



- UPS-style tracking of tasks through each step of a process
- Usually represents the first time some operational data has been converted to structured format
- Gives users an opportunity to measure and manage activity, without transforming the process
- Facilitates better understanding of the challenges in a process and quantification of individual performance
- Reduces the number of items which fall off of the radar and usually leads to more thoughtful evaluation of business processes

Rules-Based Business Process Management



- More sophisticated workflow management, with some integration into other tools
- Processes are mapped and rationalized
 - Very simple tasks may be automated with scripts or rules
 - Repetitive manual tasks like data entry may be sent offshore
- May incorporate single application macros, scripting, or a rules engine, and use basic technologies like screen scraping and APIs
- May be implemented with low code/no code solutions implemented by “super users”
- Does not require many transactions to be effective, but cost may be prohibitive

Enhanced Process Automation



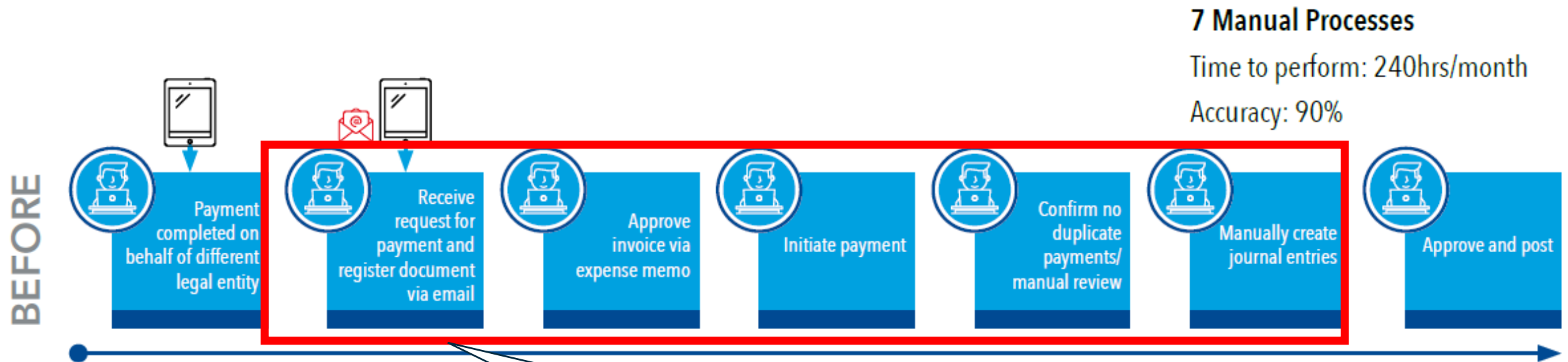
- Processing of unstructured data and base knowledge, works across multiple applications, has learning capabilities
- Pattern recognition and has the ability to better work with unstructured data, assuming transaction volumes are sufficient
- Reading source data manuals
- Will need some knowledge of machine learning and conversion of unstructured data to structured formats
- Requires a moderate amount of data for successful implementation

Cognitive Process Automation



- Artificial intelligence
- Natural language recognition and processing, self optimization/learning
- Digestion of supersized data sets
- Predictive analytics and hypothesis generation, with evidence-based learning
- Will likely require sophisticated coding and the assistance of a data scientist/AI professional
- Requires a very large data set to be implemented effectively

Intercompany Transaction Processing

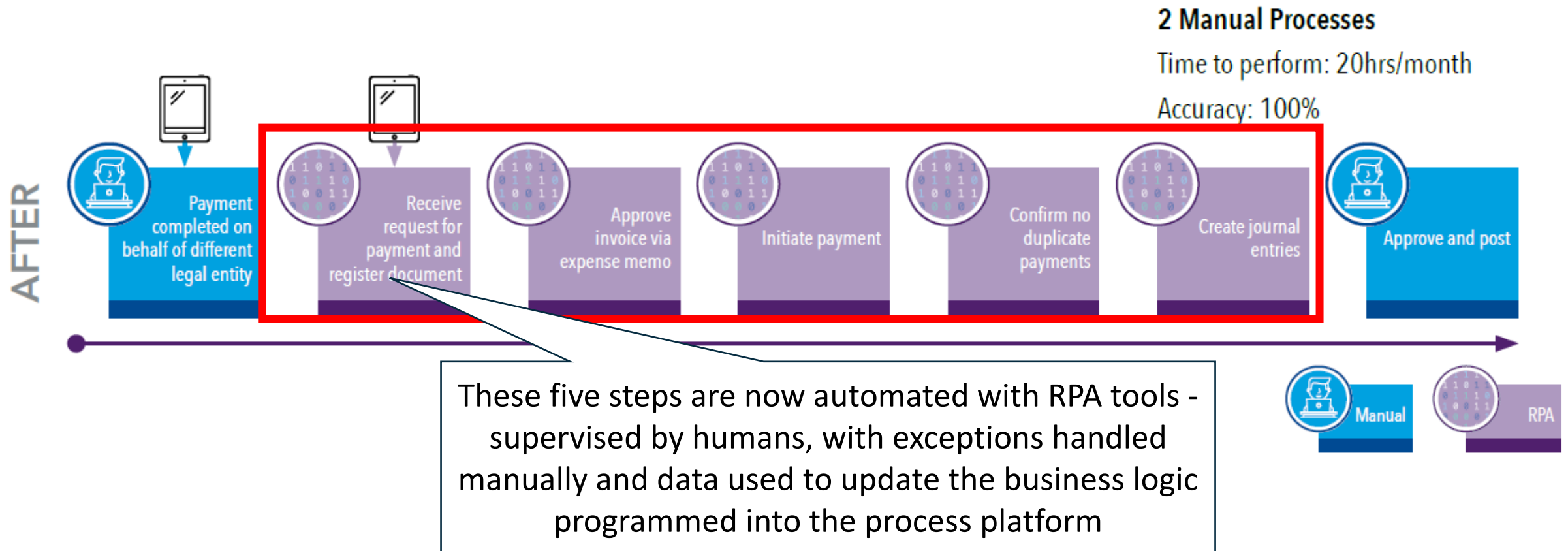


Note the repetitive, manual processes in these five steps in the process – these can be restructured to be performed with robotic process automation, supervised by humans

Source: Embracing Robotic Automation During the Evolution of Finance; ACCA, CAANZ, and KPMG

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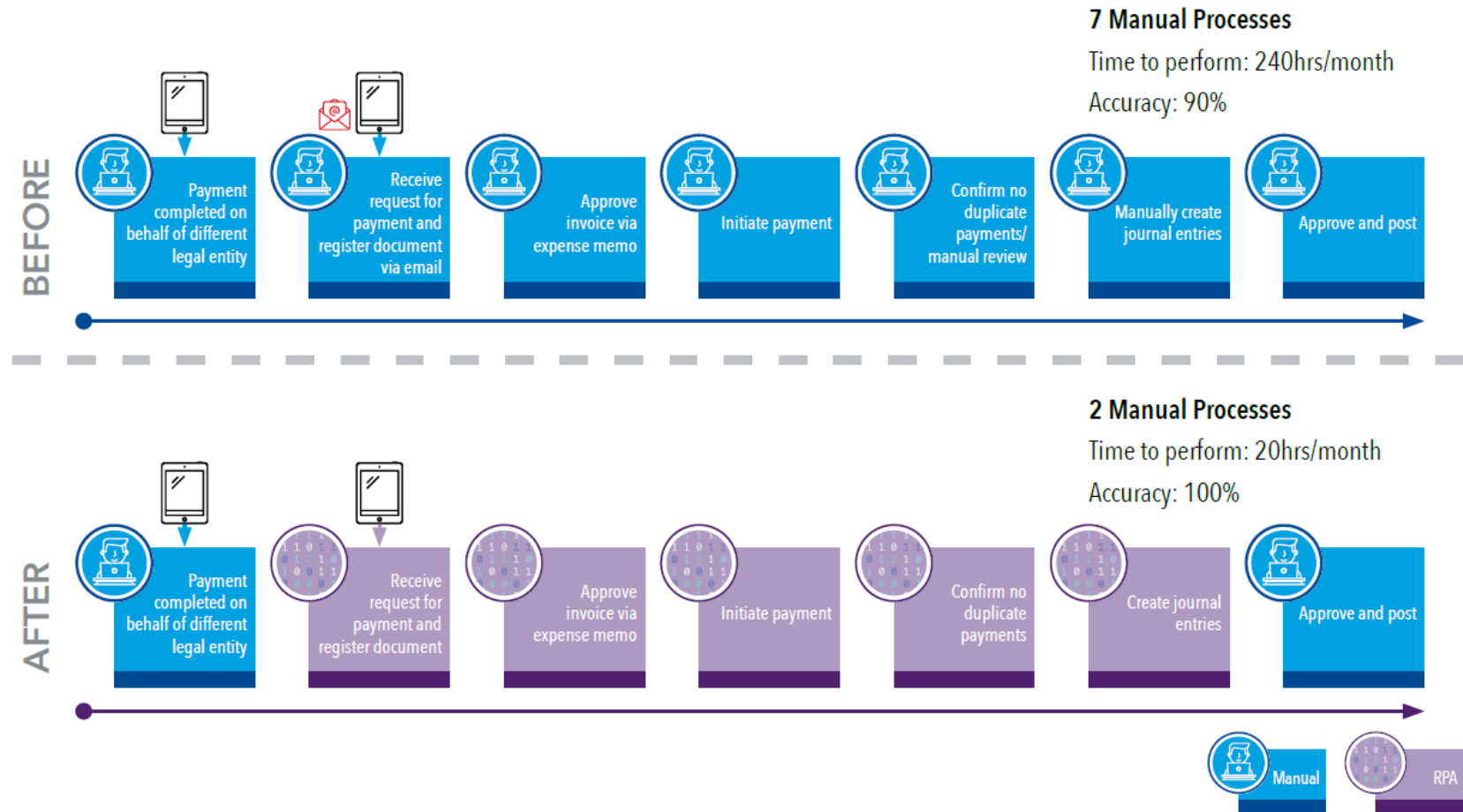
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Intercompany Transaction Processing



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Some Robotic Process Automation Tools






- [Automation Anywhere](#)
- [Blue Prism](#)
- [UiPath](#)
- [Kofax RPA](#)
- [Pegasystems](#)
- [AntWorks](#)
- [Appian](#)
- [Bonitasoft](#)
- [IBM Digital Business Automation](#)





Digital Oracle General Ledger Administrator

Vendor: HighIQ Robotics AAE Version: 11.3 Applications:   Microsoft 

Our Digital Oracle General Ledger Administrator is trained to add or modify values for various segments of the Chart of Accounts. Oracle Chart of Accounts may have up to 30 segments but it is usual for Oracle to have 7 to 10 segments. Our Digital Oracle General Ledger Administrator; Balancing Segment structure values, Natural Account, Cost Center and the Inter Company segments. New values are often required to be added from time to time. This is a very important and controlled activity for the maintenance of Chart of Accounts within the Global Accounting teams. In addition, the Digital Oracle General Ledger Administrator is trained in Key Control account reconciliations. This includes reconciliation of Trade Payables and Trade Receivable accounts.

Value and Benefits

Value to companies:

This prebuilt, highly trained and configurable digital worker helps start the transformation journey within days.
Building in invoice workbench allows for faster training.
Baked in best practices help streamline procure to pay cycles and bring in efficiencies of scale quickly.
Digital Employees work 24/7 and with very little assistance.
Available on annual subscription or perpetual License basis.

Value to workers:

Allows human workers to "Manage by Exception."
Achieve better reporting and better vendor relations goals.
Allow human workers to leverage the digital employees for the mundane and respective work while focusing on innovation, collaboration and learning.

Skills

Chart of Accounts Maintenance
Control Account Reconciliations
GL Period End Reporting

Tasks/Bots

Receive and validate emails
Extract Attachment(s) and read the attachment(s)
Log into Oracle EBS
Perform the required tasks for updating the values within Oracle EBS.
Job Completion (success/failure) notification

Systems and Applications

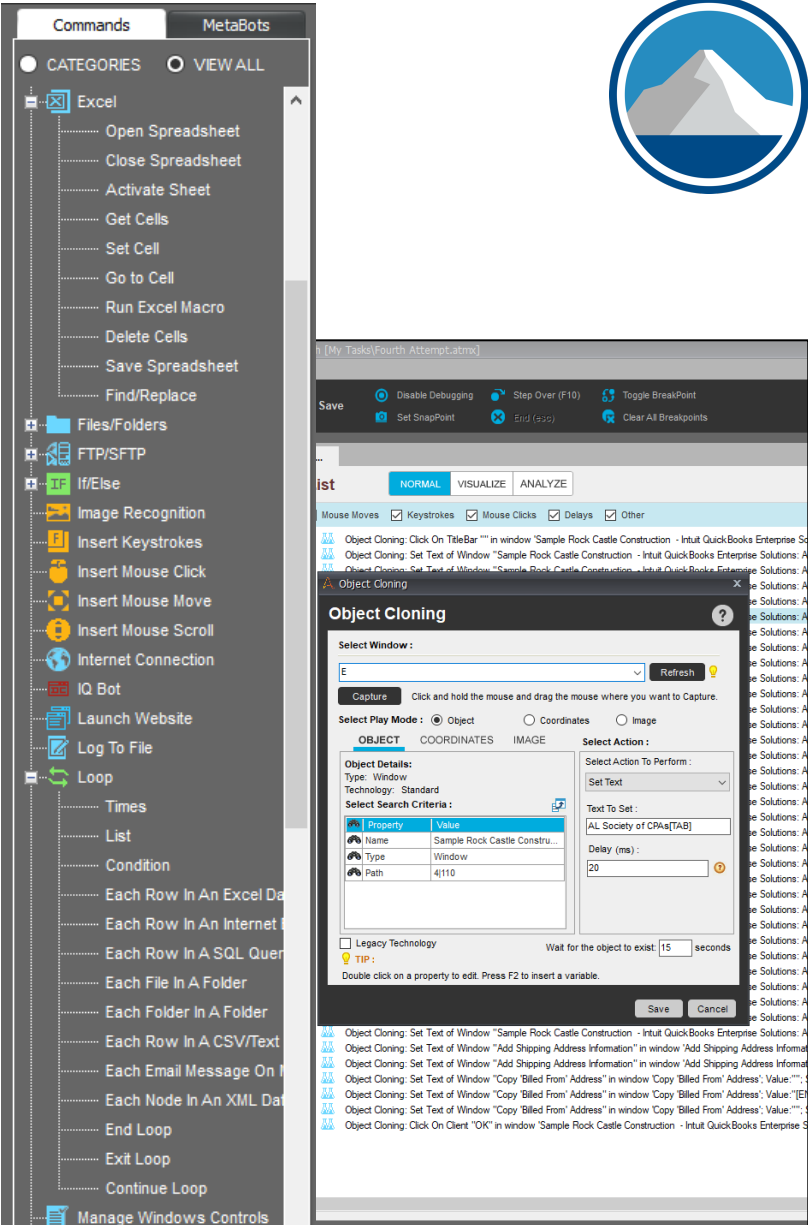
Oracle
Outlook / Gmail

Prerequisites

Performance management data accumulated in an Excel format.

How Are RPA Bots Created?

- By writing code and using API's, the way IT professionals have done interfaces for years
- Using recording tools similar to Excel auto-record macros that watch what you do and replicate it with your data
- Using structured tools like Automation Anywhere's Workbench (shown to the right), which provide a wide range of data connections, many commands, and facilitate bot creation by non-programmers



The image displays the Automation Anywhere Workbench interface. On the left, a 'Commands' pane lists various actions such as 'Excel', 'Files/Folders', 'FTP/SFTP', 'If/Else', 'Image Recognition', 'Insert Keystrokes', 'Insert Mouse Click', 'Insert Mouse Move', 'Insert Mouse Scroll', 'Internet Connection', 'IQ Bot', 'Launch Website', 'Log To File', 'Loop', 'List', 'Condition', 'Each Row In An Excel Data Table', 'Each Row In An Internet Data Table', 'Each Row In A SQL Query', 'Each File In A Folder', 'Each Folder In A Folder', 'Each Row In A CSV/Text File', 'Each Email Message On A Mailbox', 'Each Node In An XML Data Table', 'End Loop', 'Exit Loop', and 'Continue Loop'. On the right, a 'MetaBots' pane shows a list of bot tasks. The main workspace displays a 'Object Cloning' dialog box with the following details:

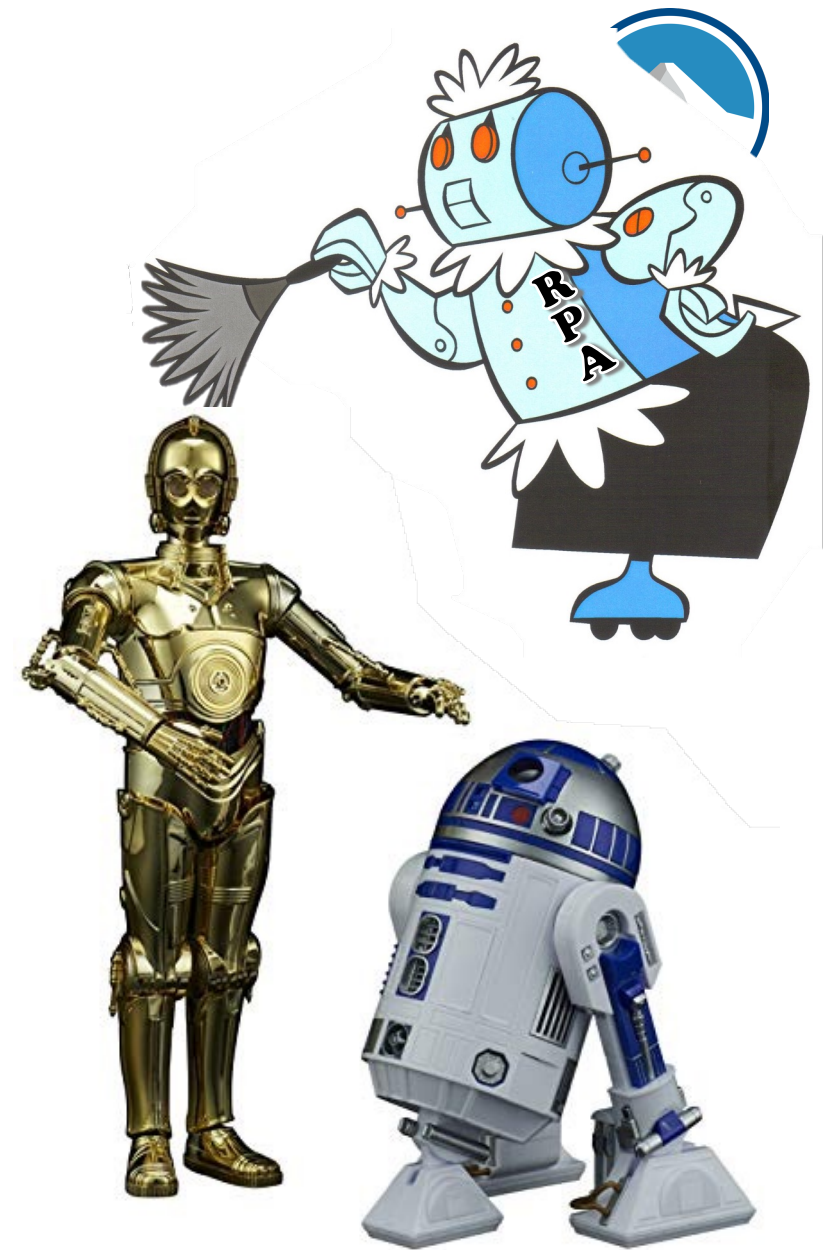
- Select Window:** E
- Capture:** Click and hold the mouse and drag the mouse where you want to Capture.
- Select Play Mode:** Object (selected), Coordinates, Image
- Object Details:**

Property	Value
Name	Sample Rock Castle Constru...
Type	Window
Path	41110
- Select Action To Perform:** Set Text
- Text To Set:** AL Society of CPAs[TAB]
- Delay (ms):** 20
- Legacy Technology:**
- Wait for the object to exist:** 15 seconds
- TIP:** Double click on a property to edit. Press F2 to insert a variable.



What Can RPA Bots Do?

- Pull data from Excel or CSV & enter in a web page or an application on your PC
- Extract structured data from PDF files
- Enter data into Windows applications
- Watch a folder or a data file for additions and kick off a workflow when new items appear
- Route transactions in accordance with business processes and business logic
- Create e-mails with data from inputs





BEYOND DATA MINING - PROCESS MINING

Process Mining



- Analyzing logs from process automation software to identify exceptions or other unusual transactions
- Can unlock process optimization efforts through millions of historical transactions
- Uses data science to discover, validate and improve workflows by combining data mining and process analytics
- Leaders include Celonis and Minit (acquired by Microsoft)
- Celonis acquired Process Analytics Factory GmbH, a company that provides process mining insights in Power Automate
- This is an area which has been critical in the enterprise, and is now moving down into mid-market businesses

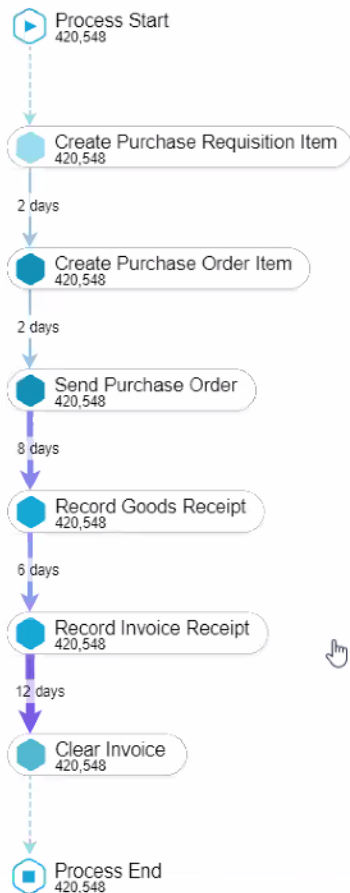
Purchase-to-Pay Analysis

Purchase Order It...

1,116,080

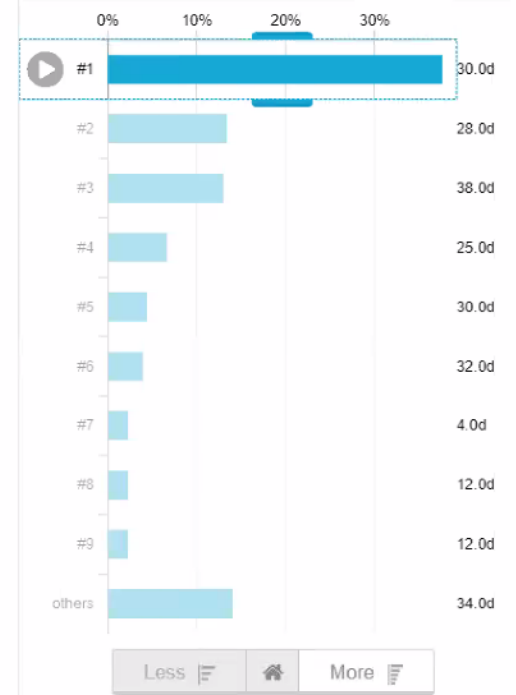
Net Order Value

2.16B €



Zoom +/-

Most common variant Graph



Purchase-to-Pay Analysis

Purchase Ord... Net Order Value Automation throughputTime

1.12M **2.16B €** **48%** **30 Days**



Select company code: 'ABC Company bv'

Select company code: 'IDES Retail INC US'

Select company code: 'IDES Retail INC US'

PO Items 72.0

Net Value 2.28 €

Automation 40%

Throughput Time 31 Days

Purchase Orders 214k

Net Value 13.5M €

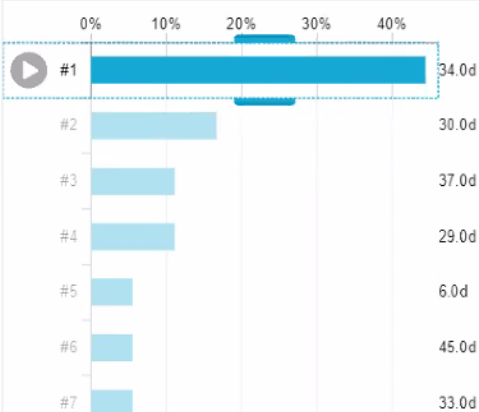
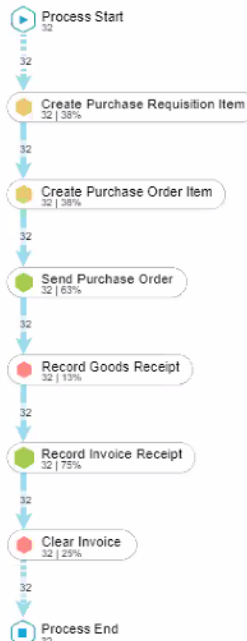
Automation 68%

Throughput Time 26 Days



Zoom controls

Most common variant Graph



Less More

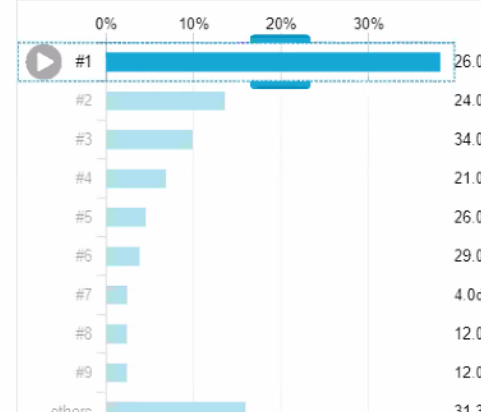
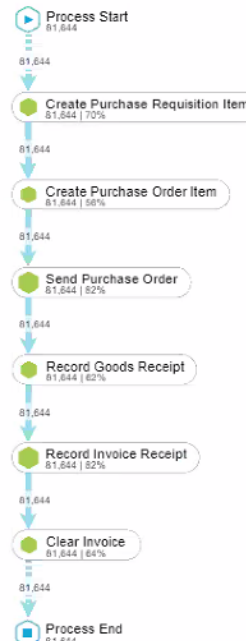
Filter

1 of 7 variants, 44% of cases covered



Zoom controls

Most common variant Graph



Less More

Filter

1 of 337 variants, 38% of cases covered

Purchase-to-Pay Automation

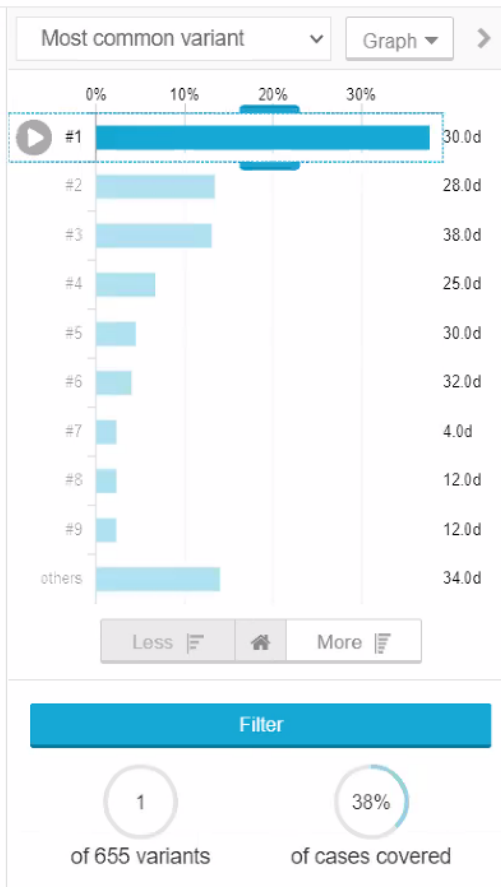
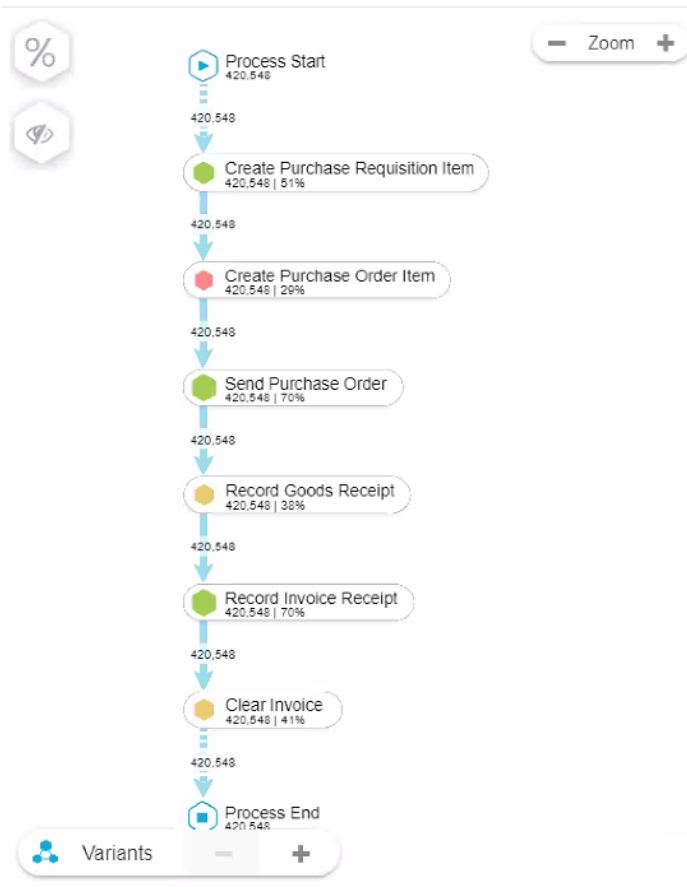
Purchase Order It...
1.12M

Net Order Value
2.16B €

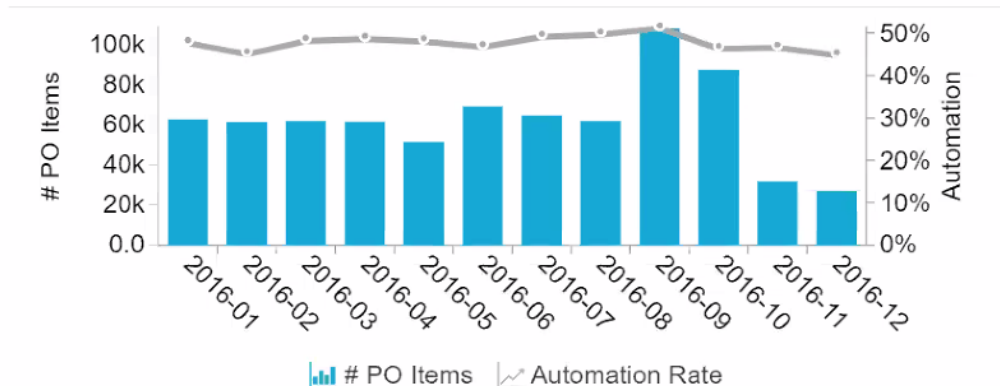
Automation
48%



Process Explorer



Purchase Order Items and Automation Rate by Month

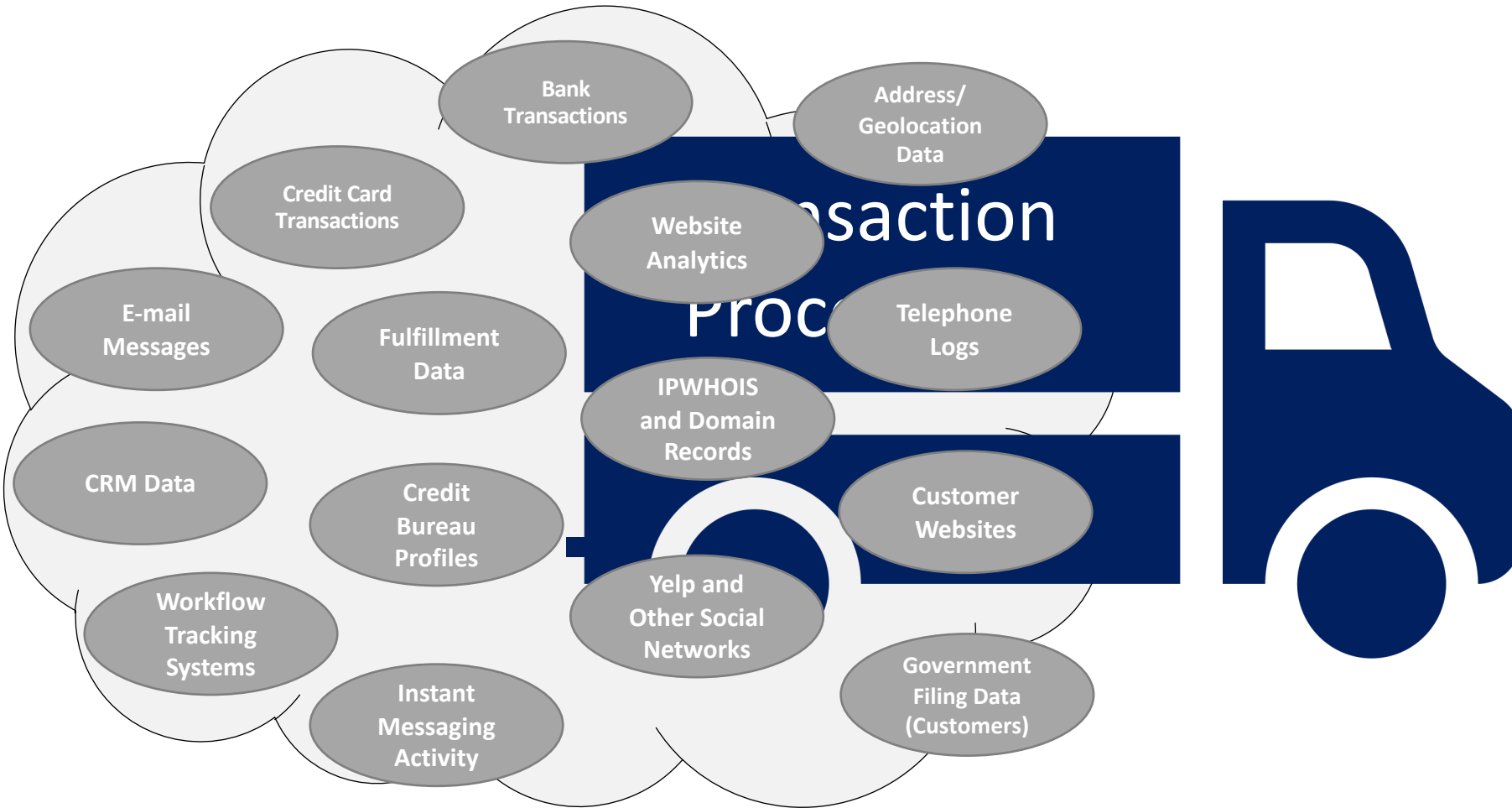


Purchase Order Items by Vendor

Vendor	# Purchase Orde...	Automation
-	699,772	49%
Umbrella Corporation	48,768	37%
SKF Americas	44,320	41%
C.E.B. BARCELONA	41,240	39%
Sapsota Company Limited	37,320	38%
MOBILE Inc.	35,920	60%
Gusswerk US	26,040	46%
Allfresh Inc.	23,480	58%
Wollner AG	17,520	39%
Destec Office Supplies	14,680	60%

[Open Action Engine](#)

Digital Exhaust, Workflow, and API's Can Enable Real Time Alerts, Reporting, and Data Validation

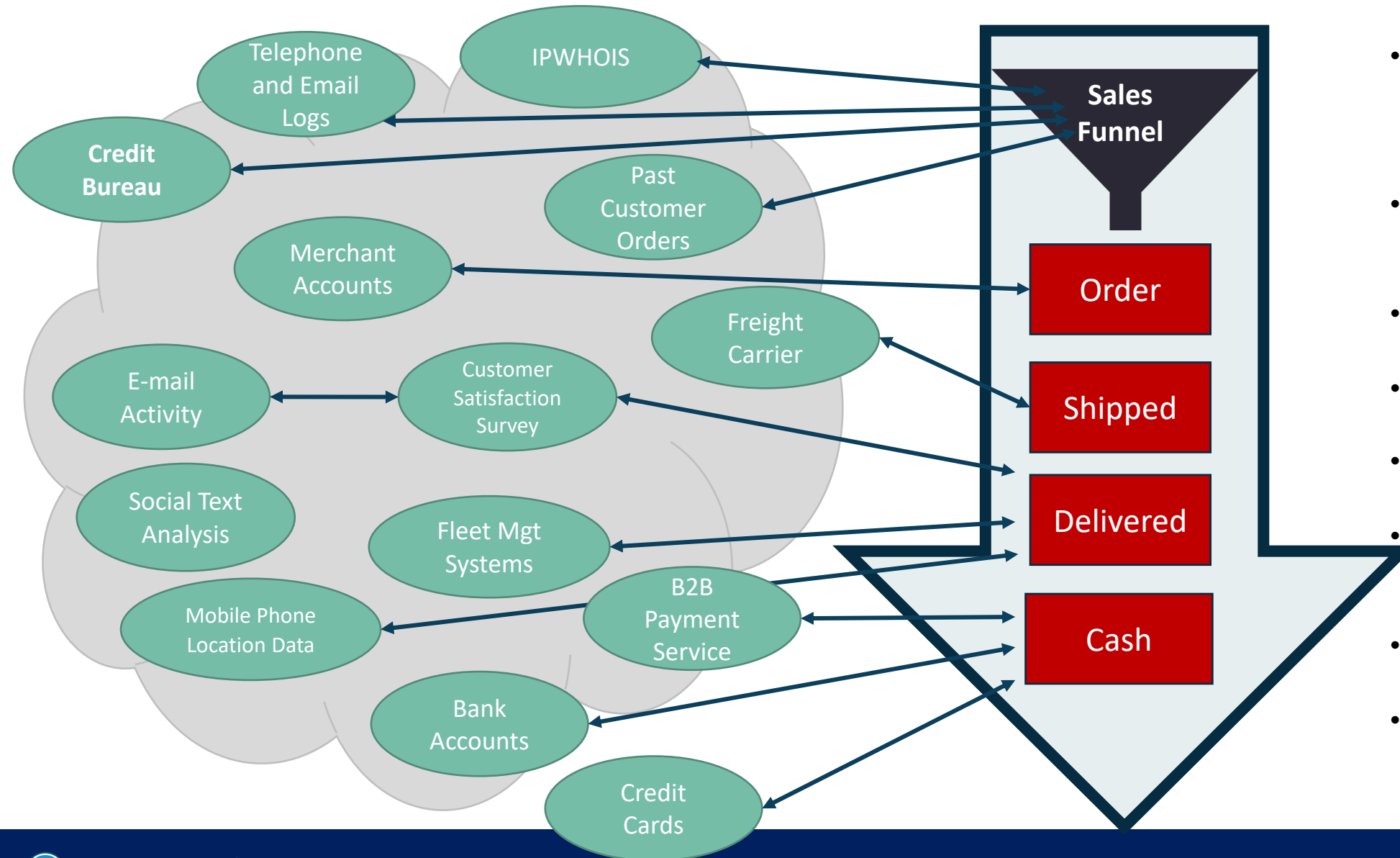


Digital Exhaust

Goal of New Systems: Assess Quality of Current Activity and Signal When Quality Declines

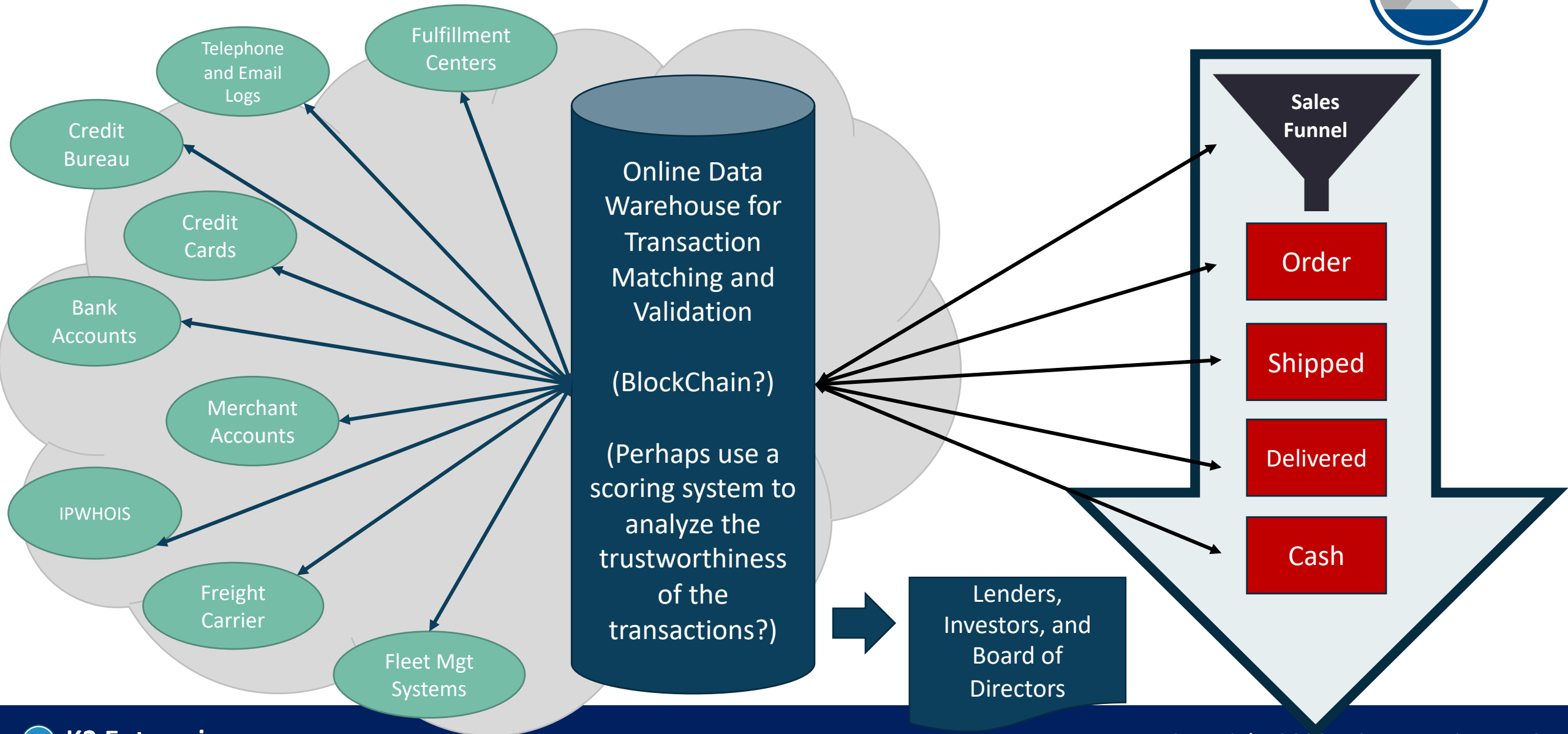


Real Time Transaction Validation Model



- Is this customer real?
 - Credit card
 - Credit evaluation
 - MOSAIC profile
- Is this order consistent with our history with this customer?
- Can the customer pay for this order?
- Is the address for the order legitimate?
- Was the item actually shipped and delivered?
- What is the customer's third party customer satisfaction rating for the company?
- How many chargebacks in the last year? Mo.? Wk.?
- Did company trucks and mobile phones visit customer site?

Future Real Time Transaction Validation Model



Consider That Within 5 Years Most Data Will Be Created At The Edge



Impact of Data

- Who does the data analytics?
- What is meaningful data?
- When is the data useful?
- Where do we store the data?
- Why is this shift happening?
- How do we handle the volume?

Accounting Considerations

- Who handles the data?
- What controls need applied?
- When is accounting involved?
- Where is the value?
- Why must standards change?
- How do we perform financial reporting?

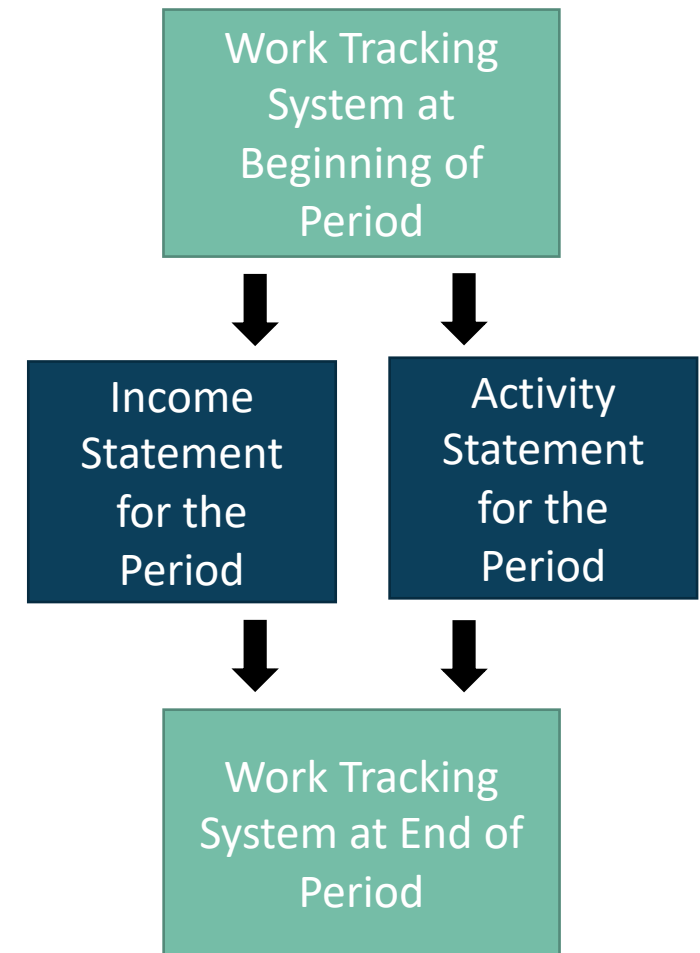


BUSINESS INTELLIGENCE – MEASURING WHAT MATTERS

Real Time Reporting Model



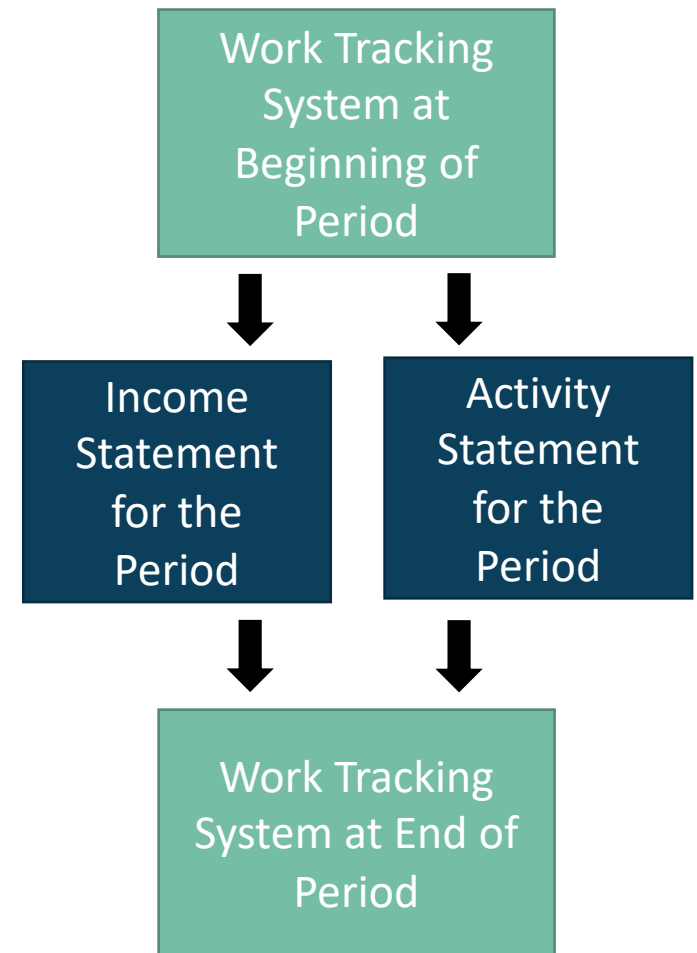
- Reporting can be instant (or near-instant), and always up to date
- Processes are standardized and are first tracked, then mined for historical performance analytics, and with sufficient history, can be used to predict future activity/performance timeline
- Integrations with third party applications (e.g. UPS, FedEx, Amazon, eBay, merchant accounts, bank accounts) give real time insight into the quality of the activity in the systems
 - Tracking numbers and activity for shipments can be verified online by third parties
 - GPS and mapping data from third parties like Google Street View can be used to validate businesses at an address



Real Time Reporting Model



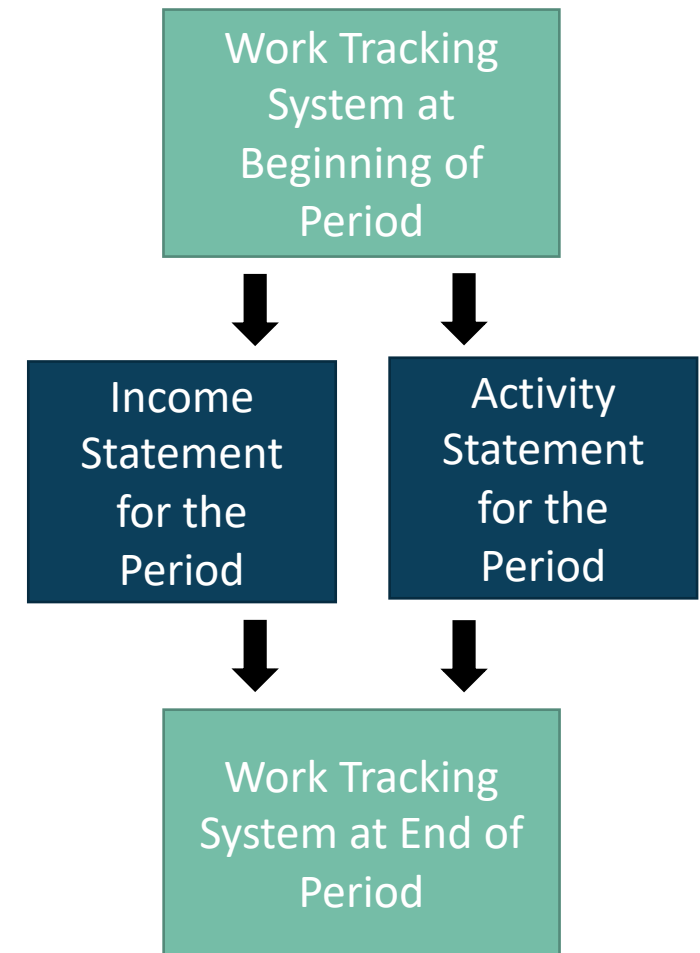
- Third parties have little to no assurance from outsiders that transactions and assets/liabilities are valid without attest work – which can be automated
 - Orders can be tracked back to IP address, validated against IPWHOIS databases (is the IP registered to a business with a fixed IP address, a public VPN services, or a residence)
 - Customer credit cards used to pay for services can be validated against credit bureau information and compared to data sources like
 - Merchant account history can be scanned for chargebacks/credits as a percentage of charges as an assessment of validity
- Work tracking system tells you what work is in the sales process, what has been ordered, and what is currently being processed
- Third party customer satisfaction surveys can be used to assess the health of the customer relationships



Real Time Reporting Model



- Third party customer satisfaction survey services can be used to assess the health of the customer relationships
- Income statement and activity statement are simply two different bases of accounting for the activity between the two balance sheets
- In this model, data can be both timely and reliable, but the basis of reporting will necessarily be industry/company specific – so it will require more focus on a smaller number of industries and integration into industry best practices
- **Financial institutions can get assurance on history which gives them a basis for lending based on forward-looking information like orders (retail/wholesale), patient appointments (medical), and automatic renewing subscriptions.**





Types of Performance Indicators

- ***Quantitative indicators*** which can be presented with a number.
- ***Qualitative indicators*** which can't be presented as a number.
- ***Leading indicators*** which can predict the future outcome of a process
- ***Lagging indicators*** which present the success or failure post hoc
- ***Input indicators*** which measure the amount of resources consumed during the generation of the outcome
- ***Process indicators*** which represent the efficiency or the productivity of the process
- ***Output indicators*** which reflect the outcome or results of the process activities



Types of Performance Indicators

- ***Practical indicators*** that interface with existing company processes.
- ***Directional indicators*** specifying whether an organization is getting better or not.
- ***Actionable indicators*** are sufficiently in an organization's control to affect change
- ***Financial indicators*** used in performance measurement and when looking at an operating index

Cooking vs. Business Intelligence



Cooking

- Decide on a menu
- **EXTRACT** ingredients from the grocery
- Chop, cook, season and **TRANSFORM** the food
- **LOAD** the food into serving dishes
- Serve the food with an attractive garnish (**REPORT**)
- Enjoy the meal

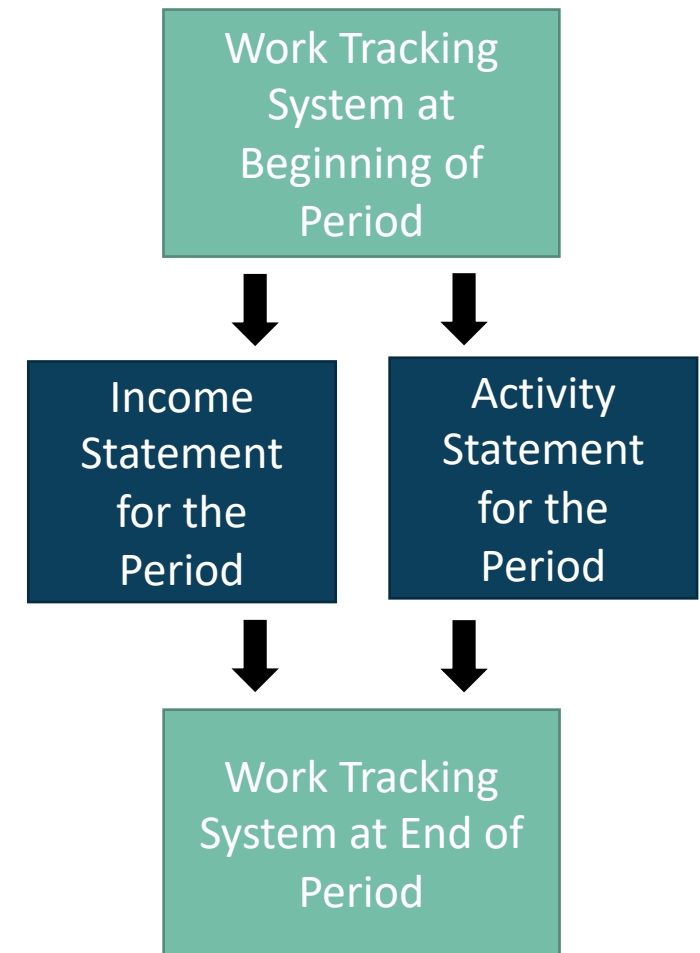


Like cooking, there are steps to creating analysis for real-time use of data analytics

Real Time Reporting Model



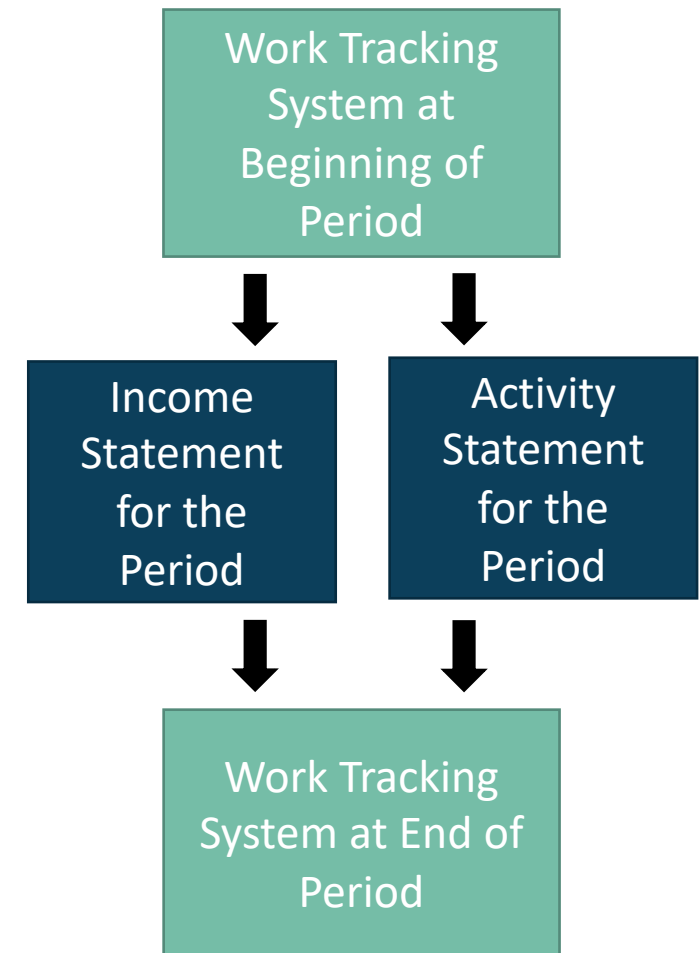
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Real Time Reporting Model



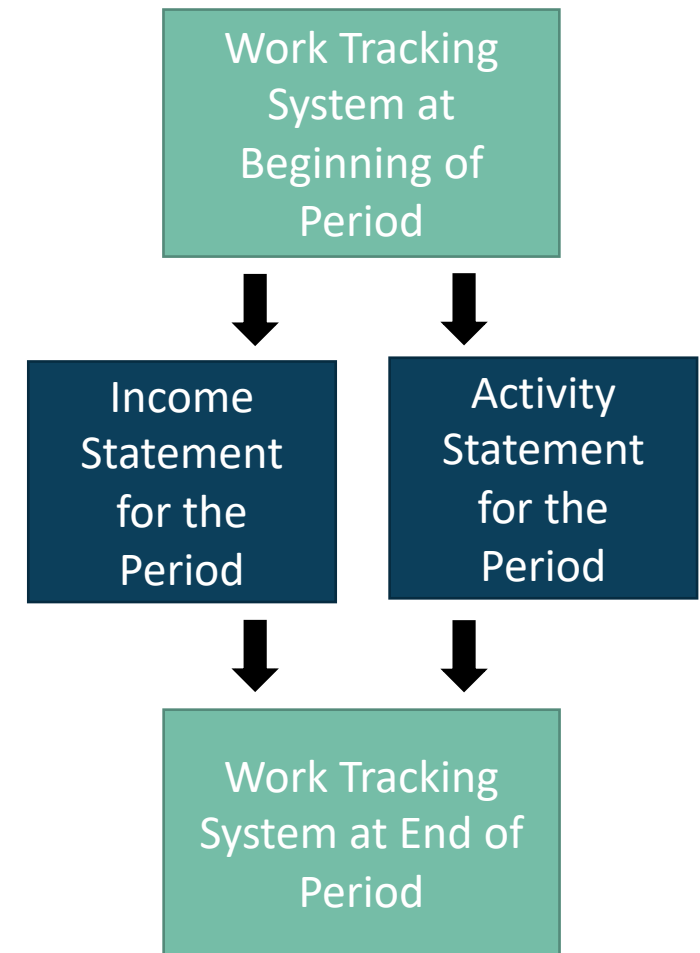
- Third parties have little to no assurance from outsiders that transactions and assets/liabilities are valid without attest work – which can be automated
 - Orders can be tracked back to IP address, validated against IPWHOIS databases (is the IP registered to a business with a fixed IP address, a public VPN services, or a residence)
 - Customer credit cards used to pay for services can be validated against credit bureau information and compared to data sources like
 - Merchant account history can be scanned for chargebacks/credits as a percentage of charges as an assessment of validity
- Work tracking system tells you what work is in the sales process, what has been ordered, and what is currently being processed
- Third party customer satisfaction surveys can be used to assess the health of the customer relationships



Real Time Reporting Model



- Third party customer satisfaction survey services can be used to assess the health of the customer relationships
- Income statement and activity statement are simply two different bases of accounting for the activity between the two balance sheets
- In this model, data can be both timely and reliable, but the basis of reporting will necessarily be industry/company specific – so it will require more focus on a smaller number of industries and integration into industry best practices
- **Financial institutions can get assurance on history which gives them a basis for lending based on forward-looking information like orders (retail/wholesale), patient appointments (medical), and automatic renewing subscriptions.**





Types of Performance Indicators

- ***Quantitative indicators*** which can be presented with a number.
- ***Qualitative indicators*** which can't be presented as a number.
- ***Leading indicators*** which can predict the future outcome of a process
- ***Lagging indicators*** which present the success or failure post hoc
- ***Input indicators*** which measure the amount of resources consumed during the generation of the outcome
- ***Process indicators*** which represent the efficiency or the productivity of the process
- ***Output indicators*** which reflect the outcome or results of the process activities



Types of Performance Indicators

- ***Practical indicators*** that interface with existing company processes.
- ***Directional indicators*** specifying whether an organization is getting better or not.
- ***Actionable indicators*** are sufficiently in an organization's control to affect change
- ***Financial indicators*** used in performance measurement and when looking at an operating index

Cooking vs. Business Intelligence



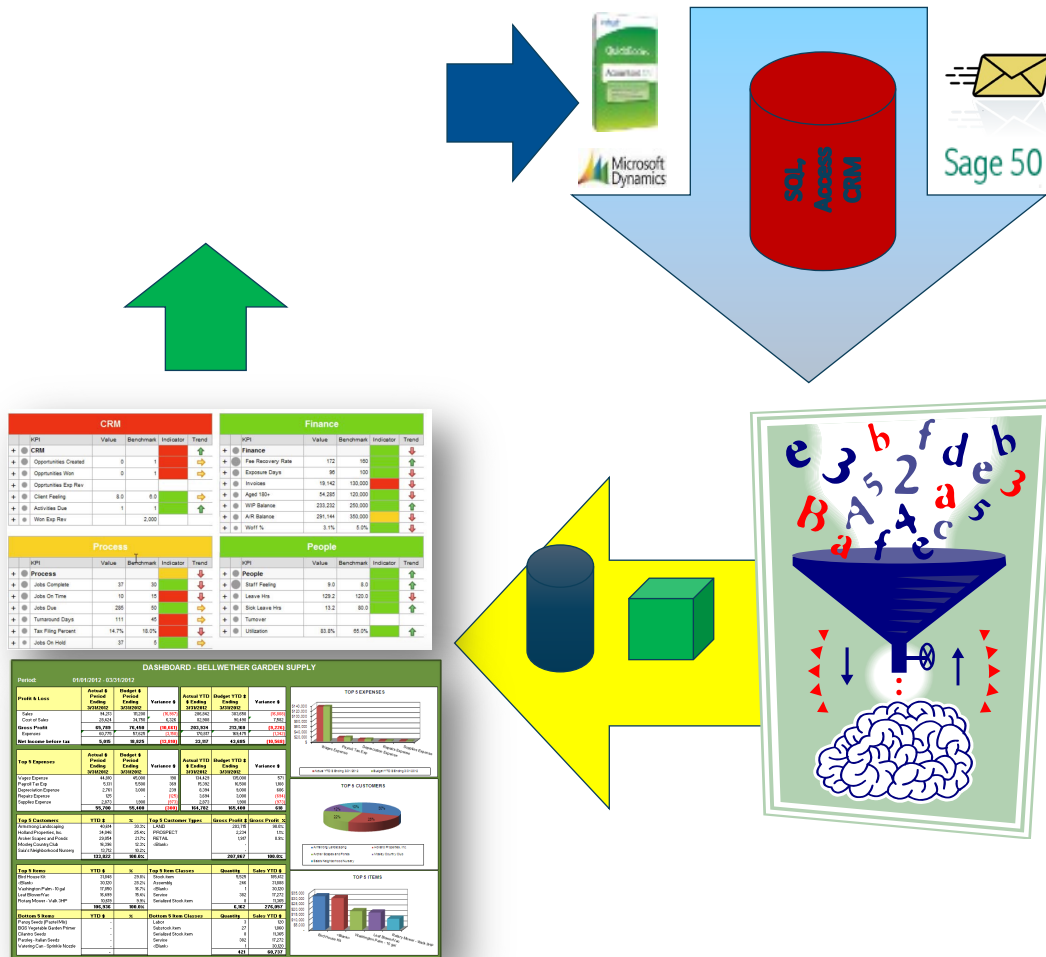
Cooking

- Decide on a menu
- **EXTRACT** ingredients from the grocery
- Chop, cook, season and **TRANSFORM** the food
- **LOAD** the food into serving dishes
- Serve the food with an attractive garnish (**REPORT**)
- Enjoy the meal



Like cooking, there are steps to creating analysis for real-time use of data analytics

Cooking vs. Business Intelligence



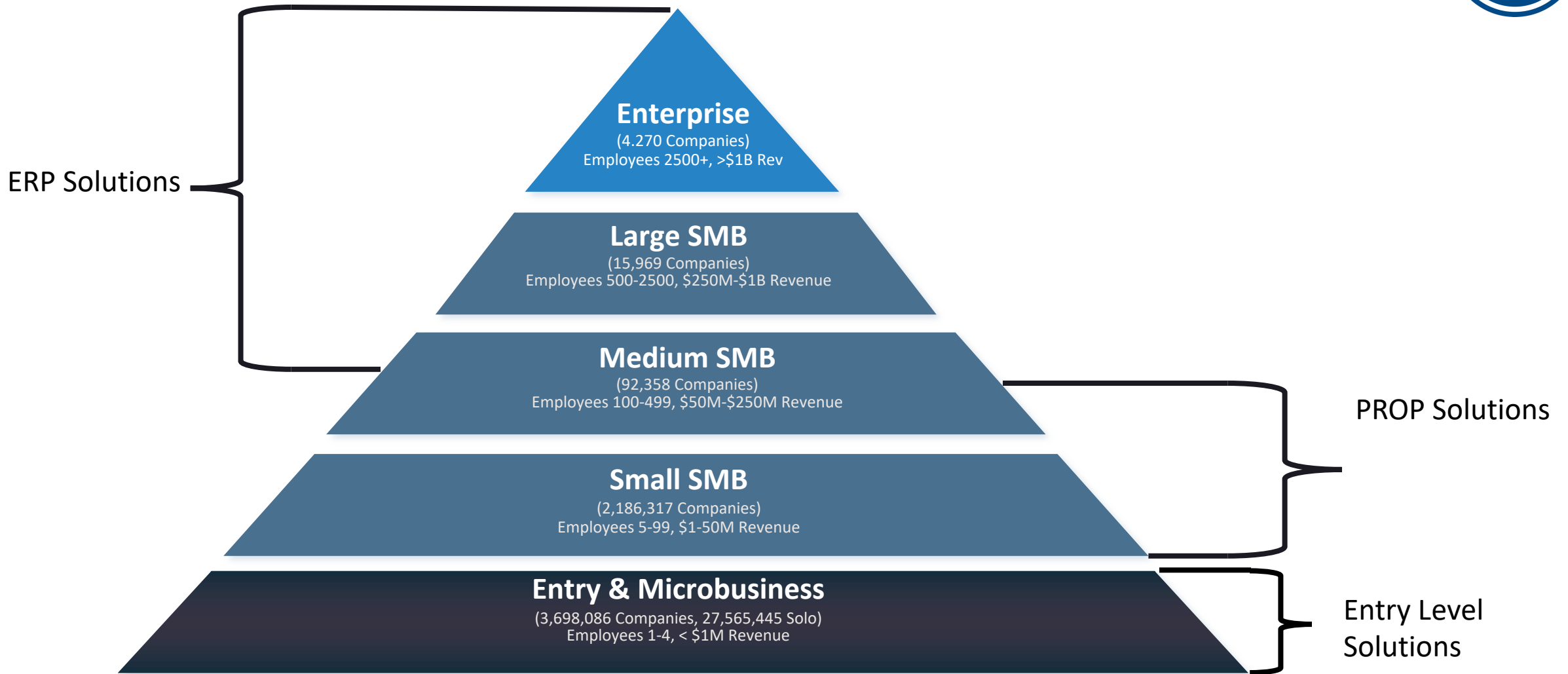
Business Intelligence

- Decide what you should measure and why it should be measured
- Look for real time tracking data in your existing systems
- Gather, and summarize data (EXTRACT)
- Reformat and reorganize data (TRANSFORM)
- Put the data into a database or OLAP cubes (LOAD)
- Serve up the data in a variety of formats (web, paper, mobile, etc.) (REPORT)



BETWEEN QUICKBOOKS AND MID-MARKET – PROP SOLUTIONS

Competitive Landscape And Segmentation



What Is A PROP Solution?



- Process and Resource Operation Planning (PROP) solutions are for growing SMBs that need more than the Entry level solutions, but cannot afford or do not need a full ERP solution yet
- PROP solutions are the middle of the road option
- Lower price than ERP but with more functionality than entry-level systems



PROP Market Changes 2020-2022



- Zoho
 - Enhanced export to Excel, new integration with SurePayroll, and stronger than ever integration with the rest of the Zoho platform, including Zoho Expense, Zoho CRM, Zoho Subscriptions, and Zoho Inventory
 - Added sales tax returns, automated payments, and multi-currency invoicing
 - Continues to improve pro-code and low code/no code workflow management tools like Zoho Orchestly, Zoho Apps, and Zoho Creator
- Spire Systems
 - Robust system with more features than QuickBooks expands in U.S. market
 - Search across entire system for any item
 - Partner opportunities are available from Partner Ambassador Katie Griffin
 - Phone: 1.844.556.6789 x3520
 - Email: kgriffin@spiresystems.com
 - Web: <https://www.spiresystems.com/become-a-spire-partner/>

PROP Market Changes 2020-2022



- AccountingSuite
 - Inventory, Sales Management, eCommerce
 - Write-up Solutions including cash basis accounting
 - Consolidation across multiple entities plus customizations
- Sage 50cloud
 - Continues to implement Sage Business Cloud to "cloudify" legacy applications with a common set of available services
 - Sage 50cloud Quantum Accounting supports up to 40 users with role-based user permissions, faster order processing, and workflow
 - 30-day test drive available



SECURITY: WATCH THE HOME NETWORKS

Additional Risks With WFA?



Does working from home have a higher risk?

- Working from home might have additional risks than working at your office.
- Working from a public space (e.g., coffee shop, hotel, etc.) will undoubtedly have a higher risk than working from your office.
- However, both risks are entirely manageable if you take the time to set up proper and adequate security in your corporate network and on your devices.
- Don't let a slightly increased risk prevent you from working wherever you want. Just be smart.

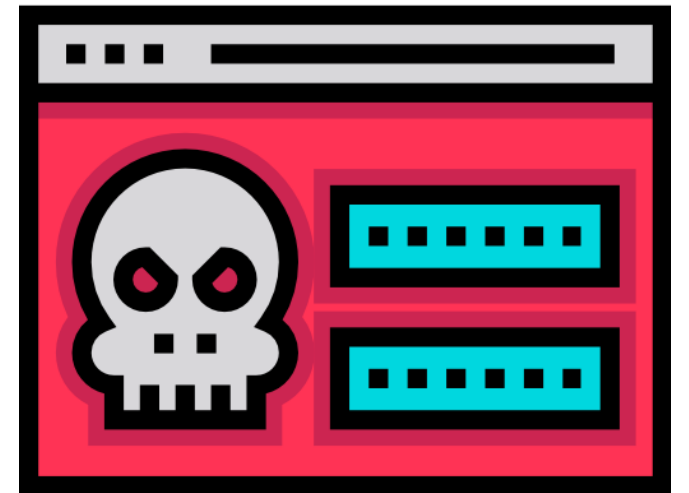


Top Security Concerns With Remote Work



Pretty much the same risks as in the office

- Maintaining compliance
- Phishing emails
- Weak passwords
- Unsecured home devices
- Unencrypted file sharing
- Open WiFi networks
- Learn more at <https://bit.ly/3LbeNma>



Why Could The Office Be More Secure Than WFA?



- Generally, your office will be the most secure work environment. Consider the following:
 - Corporate IT governance, including firewalls, enforced antimalware software, and more.
 - The IT staff will oversee the networks, servers, and workstations.
 - The building, all the devices will be physically secure.
 - The Internet connection, the network, and all devices can be secured.
 - You will have co-workers present to ask questions or check on things (e.g., culture).
 - Centralized backup of company resources.



Why WFA Has Inherent Risks?



- While WFA risks can be mitigated, it is essential to acknowledge some of the intrinsic dangers, including:
 - Staff connects to privileged resources using insecure methods (e.g., WiFi with no password) or if other family member devices on the network are infected with malware.
 - Staff using company resources and not locking their workstation when away from the keyboard.
 - Staff not backing up their devices.
 - Staff not able to ask their colleagues questions about potential security issues easily. For example, asking if a colleague sent an email or if it was spoofed.



Recommendations To Promoted Better Cybersecurity With WFA



Recommendations from Touro College Illinois on how to keep WFA secure:

- Keep on Top of Your Company's Security Guidelines
- Keep Work Devices and Personal Devices Separate
- Make Sure Your Wi-Fi is Secure
- Watch Out for Phishing Emails
- Keep Your Devices Locked and Tracked
- Learn more at <https://bit.ly/3wrx9tS>



Recommendations To Promoted Better Cybersecurity With WFA



- Recommendations from Touro College Illinois on how to keep WFA secure:
- Keep Your Confidential Files Secure
- Create Strong Passwords for All Logins and Devices
- Use an Authenticator App / Two-Factor Authentication
- Make Sure Your Video Conferences Are Secure
- Stay on Top of Software Updates & Your Operating System
- Learn more at <https://bit.ly/3wrx9tS>



SOHO Router Security Issues



- [Netgear BR200 and BR500 VPN routers](#) have UNFIXABLE security vulnerabilities
 - Netgear offering discounts on replacements (see article)
- Zyxel business firewall/VPN devices need [critical May patch](#)

Affected model	Affected firmware version	Patch availability
USG FLEX 100(W), 200, 500, 700	ZLD V5.00 through ZLD V5.21 Patch 1	ZLD V5.30
USG FLEX 50(W) / USG20(W)-VPN	ZLD V5.10 through ZLD V5.21 Patch 1	ZLD V5.30
ATP series	ZLD V5.10 through ZLD V5.21 Patch 1	ZLD V5.30
VPN series	ZLD V4.60 through ZLD V5.21 Patch 1	ZLD V5.30

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VPN series	ZLD V4.60 through ZLD V5.21 Patch 1	ZLD V5.30

SOHO Router Security Issues



- Zyxel - [Another set of vulnerabilities](#) in Zyxel devices were patched in late May
 - Affected models include USG/ZyWALL, USG FLEX, ATP, VPN, NSG firewalls, NXC2500 and NXC5500 AP controllers, and a range of Access Point products, including models of the NAP, NWA, WAC, and WAX series.
- [RouterSecurity.org](#) – Bug lists and security checklists for home environments – may be useful for your users

Short Home Router Configuration Checklist from RouterSecurity.org



1. Change the password used to access the router. Anything but the default *should* be OK, but don't use a word in the dictionary. [More...](#)
2. If your Wi-Fi network(s) is using the default password, change it, even if it appears to be random. A Wi-Fi password should be at least 16 characters long. [More...](#)
3. If you are using a default WiFi network name (SSID) change it. When choosing network names, don't identify yourself. [More...](#)

Short Home Router Configuration Checklist from RouterSecurity.org



4. Wi-Fi encryption should be WPA2 with AES or WPA3 or both. [More...](#)
5. Turn off WPS [More...](#)
6. Turn off UPnP
7. Use a password protected Guest Network whenever possible, not just for guests but for IoT devices too.
8. If the router has a web interface, Remote Administration is probably off, but since this is so very dangerous, take the time to verify that it is disabled.

Short Home Router Configuration Checklist from RouterSecurity.org



9. Port forwarding is an opened door (technically an open TCP/IP port). Poke around the router configuration to make sure there is no port forwarding going on. There is a small chance that something on your network needs a port to be forwarded, but every forwarded port is a potential security risk.
10. For years, turning off IPv6 (IP version 6) was on the long list below, but as of August 2021, I think it belongs here on the short list too. Very very few people need it and it was recently disclosed that there is a [possible security issue](#) with it.
11. Periodically check for new firmware and check to see that your router is still supported by the manufacturer. You **MUST** replace your router when it is no longer supported by the manufacturer. ([Firmware Updates Page](#))



It's A Big Year For Hardware Innovations

COMPUTER HARDWARE: WHAT TO WATCH

– WIFI 6E, PC SPECS

Low-Earth Orbit Satellites



- SpaceX Starlink
 - New Premium service
 - \$500/mo. \$2,500 for antenna
 - 150-500mbps, 20-40ms latency vs. 100-200 for \$110
- Amazon Project Kuiper
- OneWeb
- Viasat
- Inmarsat-UK
- Telesat-Canada

Wi-Fi 6E

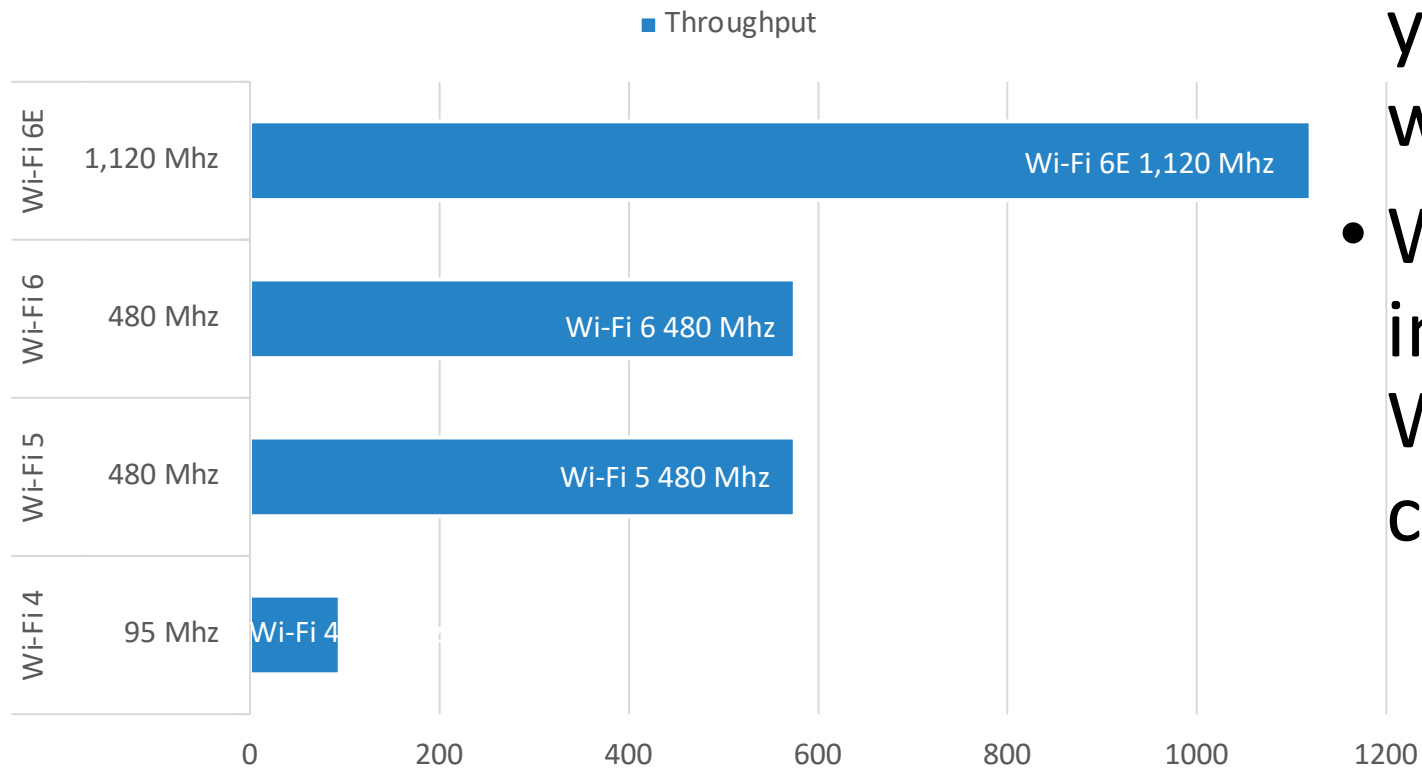


- Speed - with additional dedicated high-speed channels and no legacy Wi-Fi interference, Intel® Wi-Fi 6E (Gig+) enables speeds up to 6x faster than Intel® Wi-Fi 5 on managed networks and nearly 3x faster than Wi-Fi 5 for home and consumer use
- Latency - low latency is key to seamless experiences in real-time applications like videoconferencing and gaming. With Intel® Wi-Fi 6E (Gig+) products using the unshared 6E spectrum, latency is up to 75 percent lower than with Wi-Fi 5, for the convenience of wireless internet without the excessive lag
- Interference - Wi-Fi 6E devices use a new, exclusive spectrum that is much larger and has many more channels than the spectrum used by other generations of Wi-Fi devices. This results in greater reliability and efficiency, as this spectrum can only be used by Wi-Fi 6E devices and is not impacted by legacy device traffic

Wi-Fi 6E



Throughput By Technology



- Waiting for 6E technology will reward you with greater wireless throughput
- While Wi-Fi 5/6 vastly improved speeds over Wi-Fi 4, 6E speed is critical

Note These Things Happening



- Graphics processors everywhere (GPUs)
- Artificial Intelligence/Machine Learning hardware emerging
- Performance and efficiency cores for better price performance
- Battery life extending with energy conservation tricks
- Display technologies are changing again
- Hardware acceleration is happening almost everywhere
- Communications speeds are improving, but not 100% coverage



So, Chip Designs Commonly Have

- Two types of CPUs - Performance and efficiency
- GPUs for graphical smoothness
- Neural processors and TensorFlow in smartphones
- Display interfaces are more universal
 - Brighter
 - New format – 15x10 (or 3x2) instead of 16x9
 - 8K
- Innovations from Intel, AMD, Qualcomm, TSMC, ARM, Apple in the M1/Bionic chips, Google with System on a Chip (SOC)

For Me



Observations

- Intel has fallen behind and is trying to catch up in CPU/GPU
- Standards are evolving quickly
- Hardware speeds for everything are increasing – CPU, GPU, RAM, I/O

Decisions

- Buying
 - Desktop
 - AMD Ryzen 9 – worth the money
 - Radeon – GPUs needed
 - 32 GB RAM minimum
 - Laptop – EVO in Dragonfly, Z16
 - Thunderbolt 4
 - 5G

And What To Make Of All This?



PC Buyer

- Windows 11, Microsoft 365
- Intel Core i5-i9, AMD Ryzen 5-9
- Dedicated GPU (ARC, Radeon)
- 16-32GB of RAM, DDR5
- PCIe Gen 4 128GB-1TB of NVM Express Solid-State drive (NVMe)
- Thunderbolt 4, delivers HDMI/USB

Mac Buyer

- MacOS, Microsoft 365
- M1/M2 PRO/MAX ARM
- Dedicated ProRes graphics
- 8-64GB of RAM (only DDR4 now)
- PCIe Gen 4 128GB-2TB of NVM Express Solid-State drive (NVMe)
- Thunderbolt 4, delivers HDMI/USB



Thank You!

Visit www.k2e.com for more info



APPENDIX: INTEGRATION TOOLS

Integration Tools



FYI: Comparison Of Integration Tools



	IFTTT	Zapier	Microsoft Power Automate
Primary User Case	Personal	Business	Business
Price	Free	Free to \$599/Month	\$15 to \$500/month
Number of Integrations	Hundreds	Thousands	Hundreds
Ease of Use	Easy	Medium	Medium

Web & App-Based Integration Tools



- Web and app-based integration tools allow for data sharing and integration with minimal technical and coding expertise
- Virtually all configuration can be done on a mobile handset, or on a webpage using your favorite browser
- Great option for simple integration projects, just getting started, or just exploring options


zapier




Power Automate

Zapier



- **Start workflows from any app**
picking a Trigger that sets your Zap into motion
- **Finish routine tasks automatically because** Zaps complete Actions while you solve more critical problems
- **Simple, fill-in-the-blank setup** – just point, click, automate
 - You can go from idea to workflow in minutes
- Works with over **3,000 web services**

Features And Highlights Of The Solution



Zapier's Pricing Components



- There are three main drivers for determining Zapier's monthly pricing
- The total number of ZAPs you have
- How many times your workflows can run each month
- How often a specific Zap will run an associated workflow

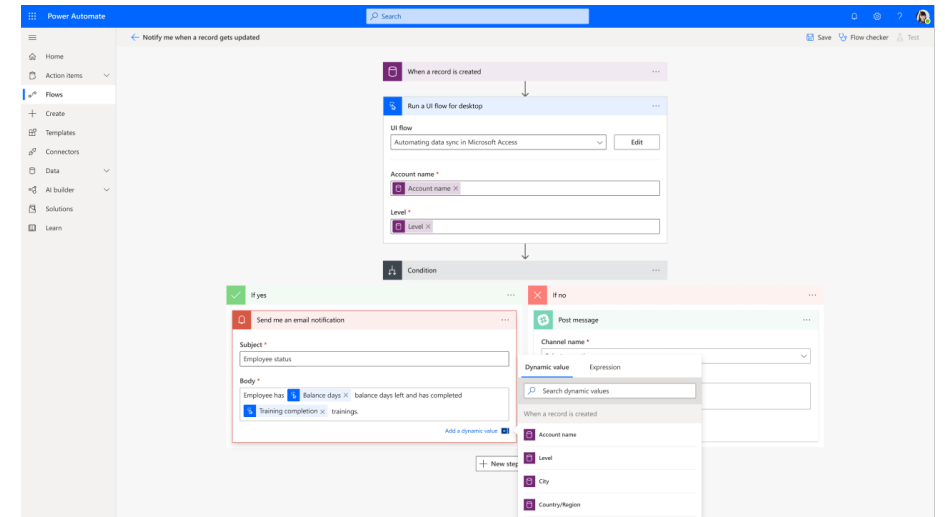


Read more at
<https://zapier.com/pricing>

Microsoft Power Automate



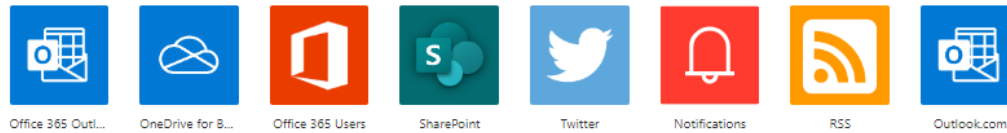
- **Boost productivity**
Build time-saving workflows into everything from individual tasks to large-scale systems with seamless integration using hundreds of prebuilt connectors
- **Quickly and securely automate at scale**
Enable everyone to build secure workflows with a no-code guided experience and cloud-based data loss prevention, identity, and access management services
- **Put intelligent workflows to work**
Automate time-consuming manual tasks with built-in AI capabilities, giving you more time to focus on strategic, high-value opportunities



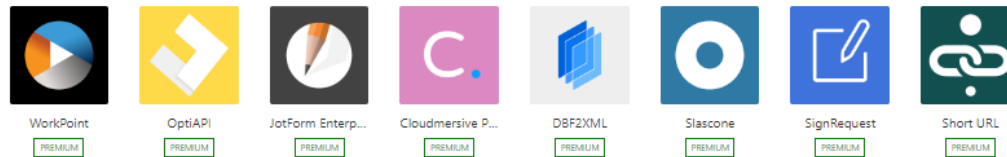
Power Automate Connectors



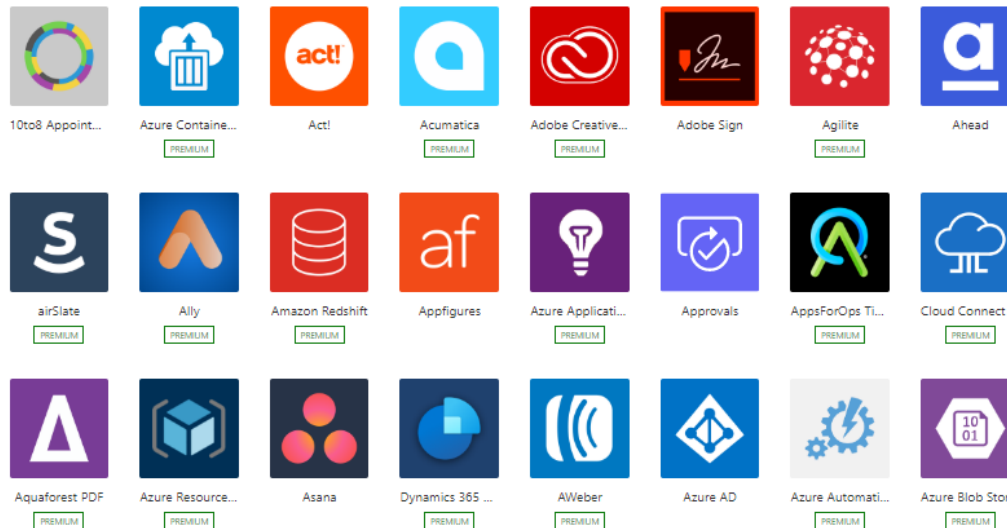
Popular connectors



Recently added connectors



All connectors

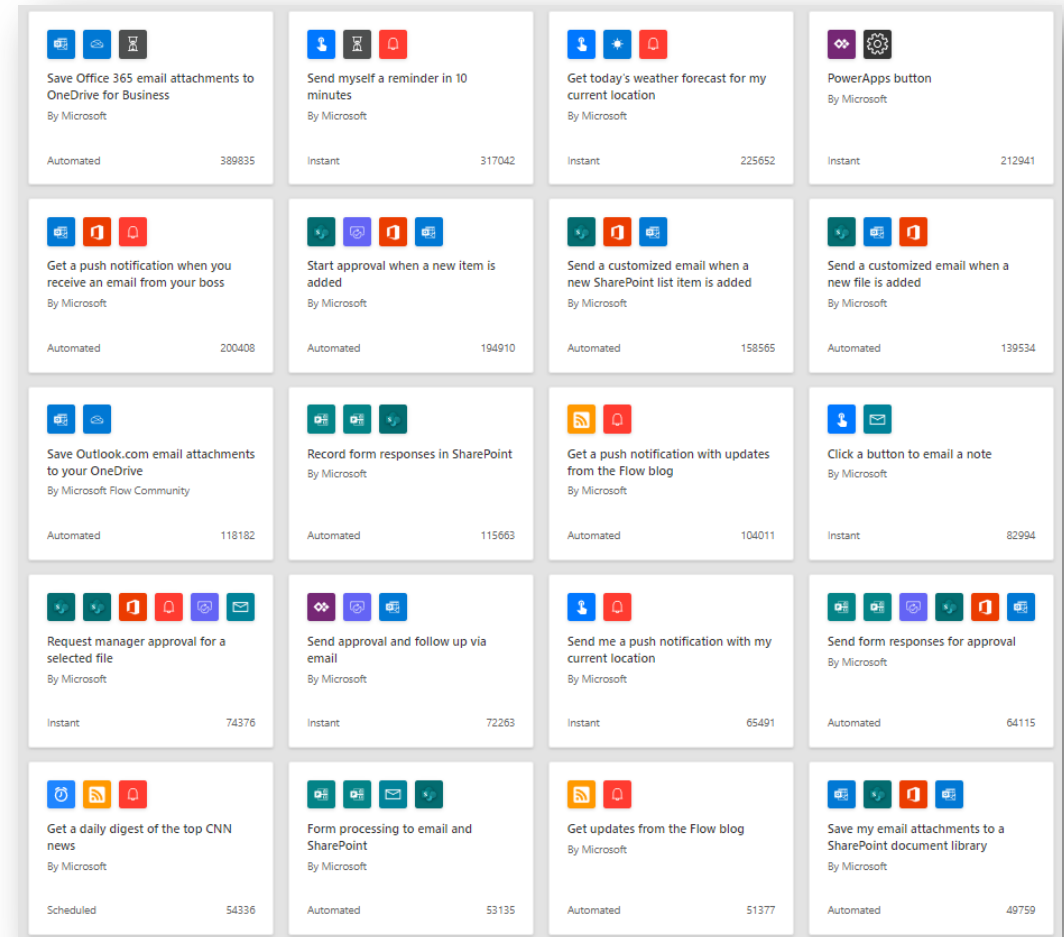


- Power Automate works with hundreds of different popular web applications from Microsoft 365 to Mailchimp
- Especially powerful for integrations from, to, and between Microsoft services
- Allows connectivity to both cloud and on-premise technologies

Power Automate Templates



- Power Automate offers thousands of pre-built templates for integrations to hundreds of different services
- You can find templates for everything from syncing social media to collecting data from your staff
- The templates only require you to provide access to the accounts you're already utilizing



Power Automate & Data Gateways



- Working With On-Premise Data? Not A Problem!
- The on-premises data gateway acts as a bridge to provide quick and secure data transfer between on-premises data (data that isn't in the cloud) and several other Microsoft cloud services
- By using a gateway, organizations can keep databases and other data sources on their on-premises networks and simultaneously securely use that on-premises data in cloud services
- **On-premises data gateway** allows multiple users to connect to various on-premises data sources
- **On-premises data gateway (personal mode)** allows one user to connect to sources and can't be shared with others

