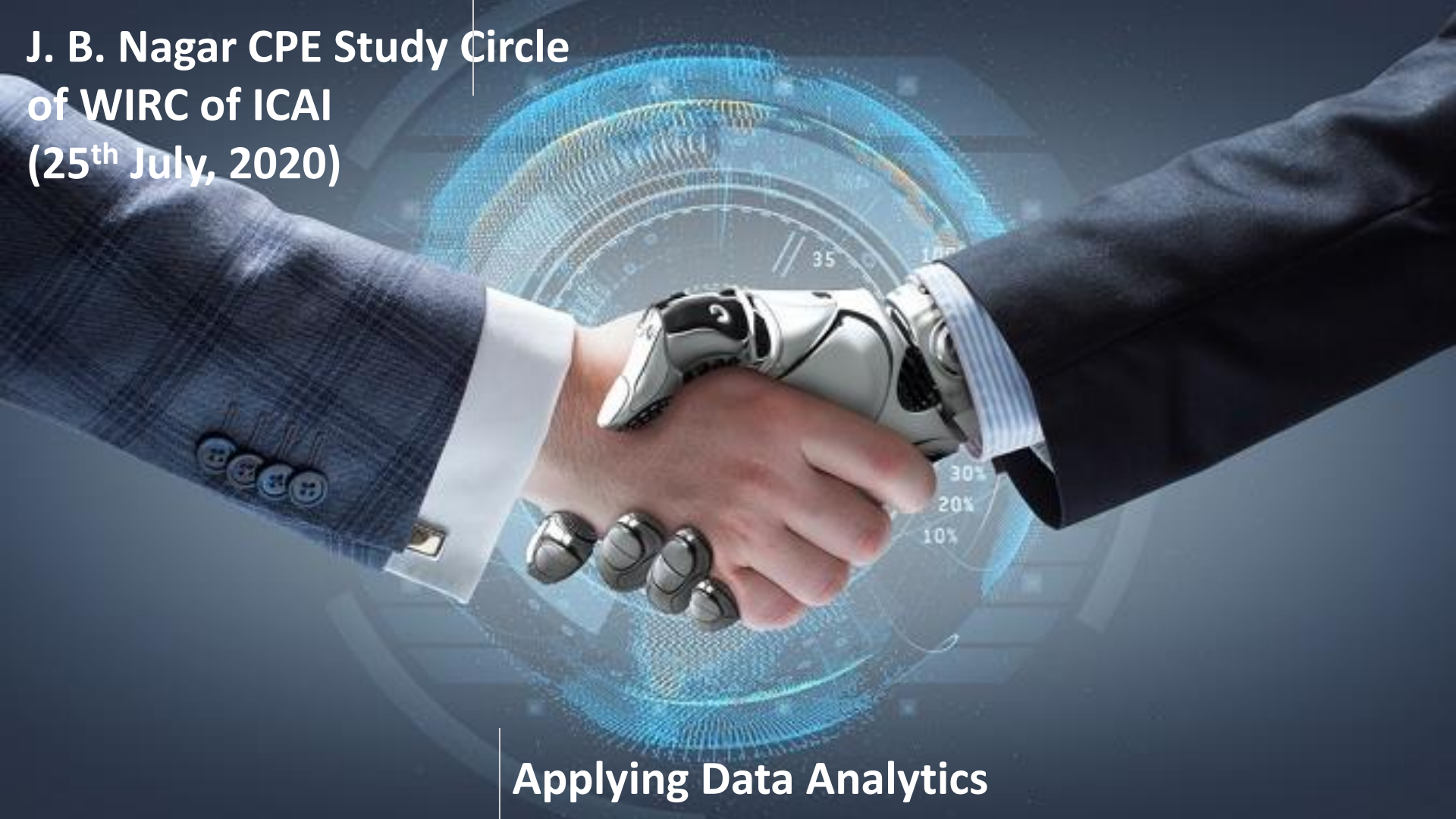
J. B. Nagar CPE Study Circle
of WIRC of ICAI
(25th July, 2020)



Applying Data Analytics

Industry 4.0

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1.

Steam

The first industrial revolution brought in mechanical devices that multiplied human effort and improved speed of transportation

1784

2.

Electricity

Electricity allowed mass production, and faster mode of transportation

1870

3.

Computing

The 3rd revolution brought in controller based automation, faster communication, and advanced tools through computers

1969

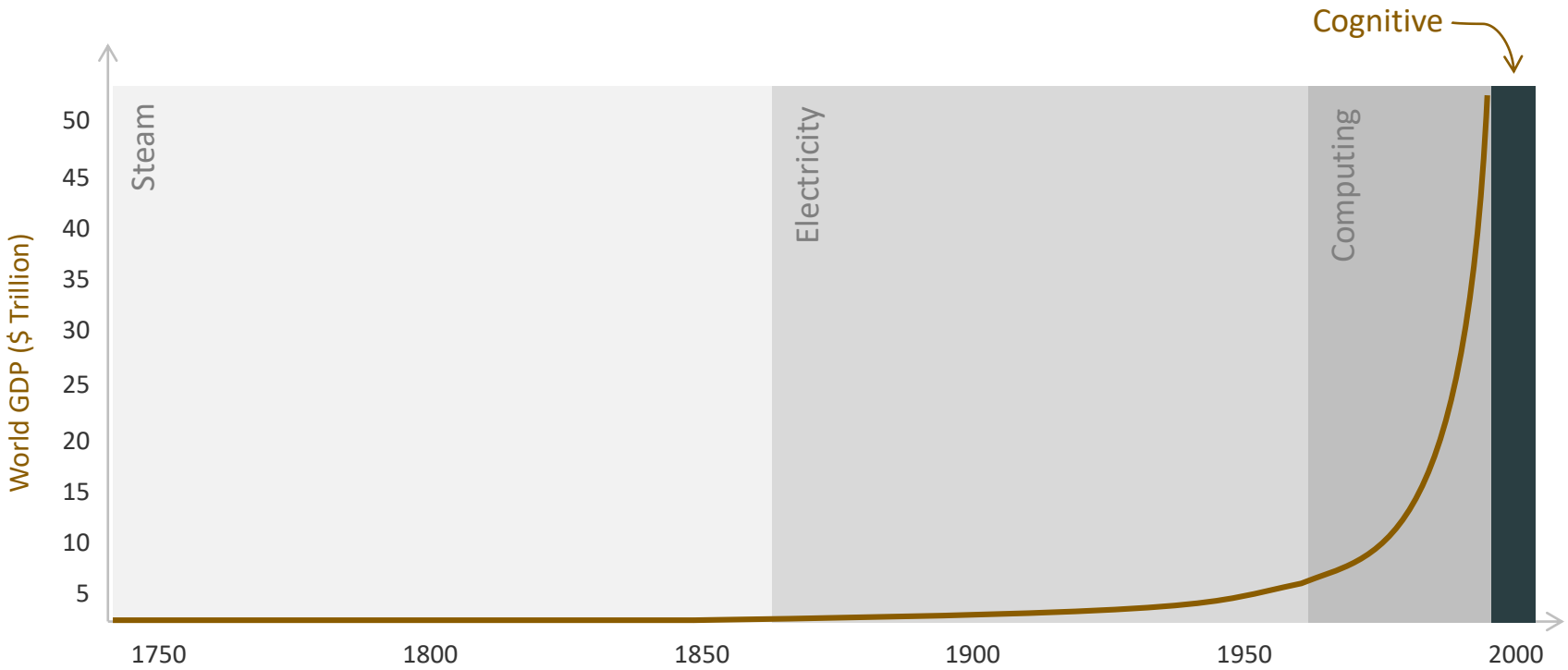
4.

Cognitive

Technologies perception of the physical world is steadily improving due to advanced in machine learning and AI technology

2014

i4.0 – Unprecedented Velocity, Scope and Impact



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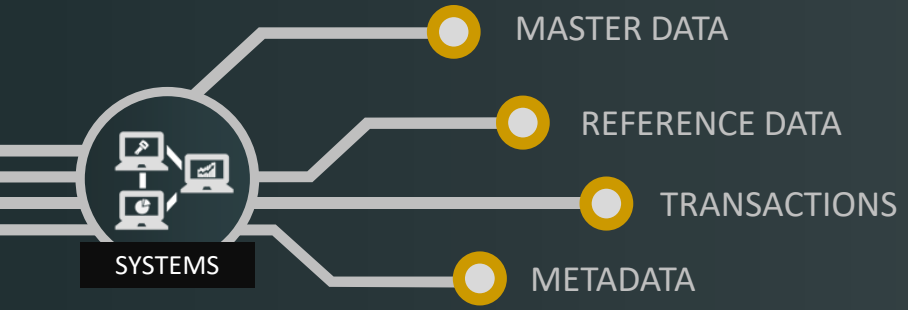
Data is the new Oil



Growth in Computing Power + Distributed Computing + Information Sharing + Integrated Networks + NLP, Machine Learning and AI

INDUSTRY 3.0

INDUSTRY 4.0

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The Data Tsunami

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My Industry and my Business is facing Disruption

"We are drowning in data"

"I don't know who my customers are"

"My systems are not keeping up"

"Apps are disintermediating me"

"I'm too costly to be competitive"

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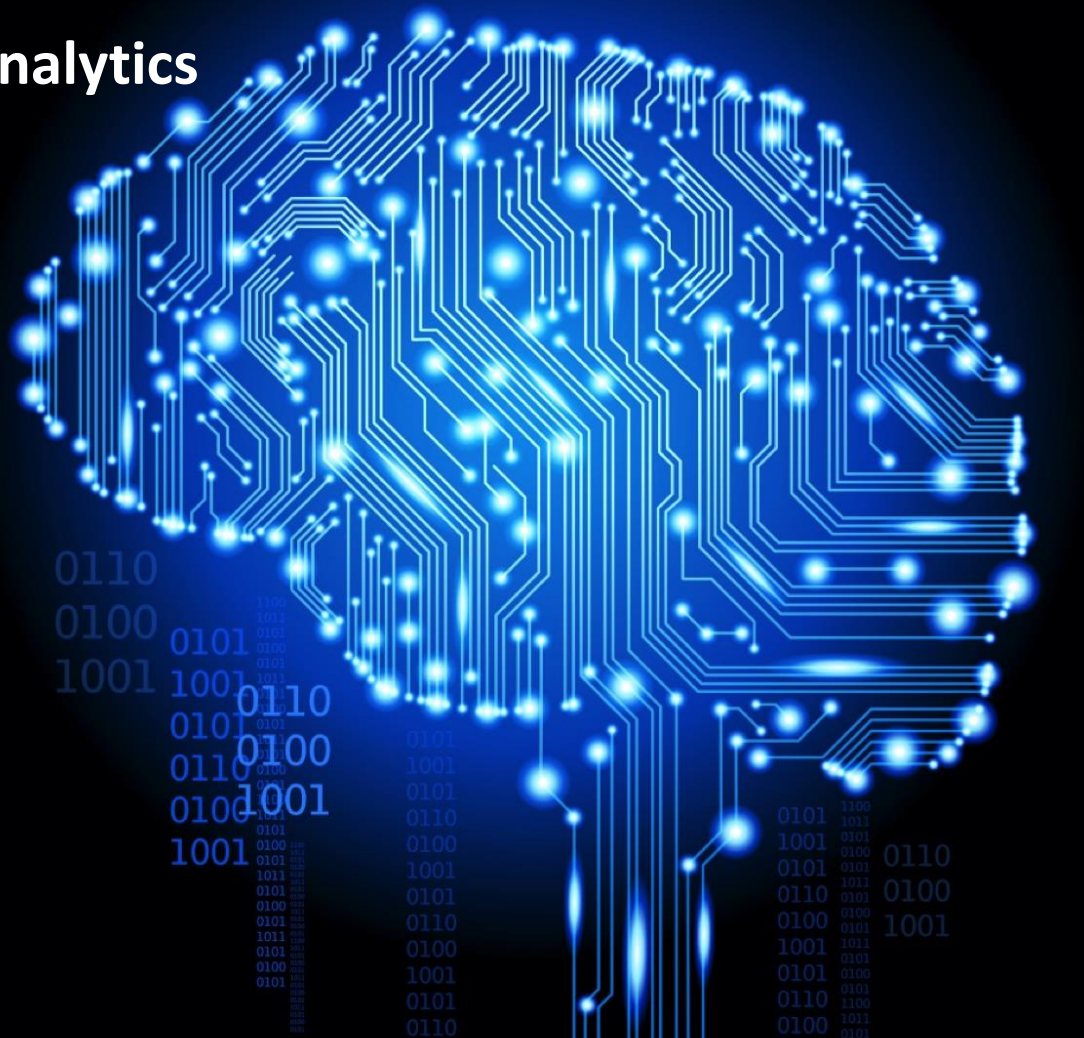
Leveraging Technology and Analytics



TOP RISKS – DISRUPTIVE INNOVATION AND RESISTANCE TO CHANGE

	Rank	Risk Issue	YOY Trend
	1	**Rapid speed of disruptive innovations and new technologies** – Rapid speed of disruptive innovations and/or new technologies within the industry may outpace our organization's ability to compete and/or manage the risk appropriately without making significant changes to our operating model.	
	2	**Resistance to change operations** – Resistance to change may restrict our organization from making necessary adjustments to the business model and core operations.	

Source: Protiviti - Executive Perspectives on Top Risks for 2018

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Audit 4.0

Audit 4.0 will **piggyback on technology** promoted by **Industry 4.0** to collect financial and non-financial information, and analyze, model, and visualize data for the purpose of providing **effective, efficient, and real-time** assurance

1.0
- Manual Audits
- Pencils
- Calculators

2.0
- IT Audit
- Excel
- CAAT

3.0
- Data Analytics Applications

4.0
- Continuous Monitoring
- Audit Automation
- CPS, IIoT, RFID

It is typically an **overlay of Industry 4.0** business management processes and uses a **similar infrastructure**, but **for assurance purposes**

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Journey towards Risk Assurance 4.0

VIRTUAL INSPECTION

SOCIAL INTELLIGENCE | 100% POPULATION TESTING | VOICE ANALYSIS | ANALYTICS AS A SERVICE | NLP BASED REPORT WRITING

RISK QUALIFICATION | OCR BASED SCANNING | DATA DISCOVERY | CONTINUOUS MONITORING | WORKFLOW AUTOMATION

RISK HEATMAPS | STATISTICAL SAMPLING | PROCESS MINING | INTEGRATED ANALYTICS | DYNAMIC DASHBOARDS

Risk Assessment | Planning & Sample Selection | Process Walkthrough | Controls Testing | Reporting & Follow-up

Assurance Activities

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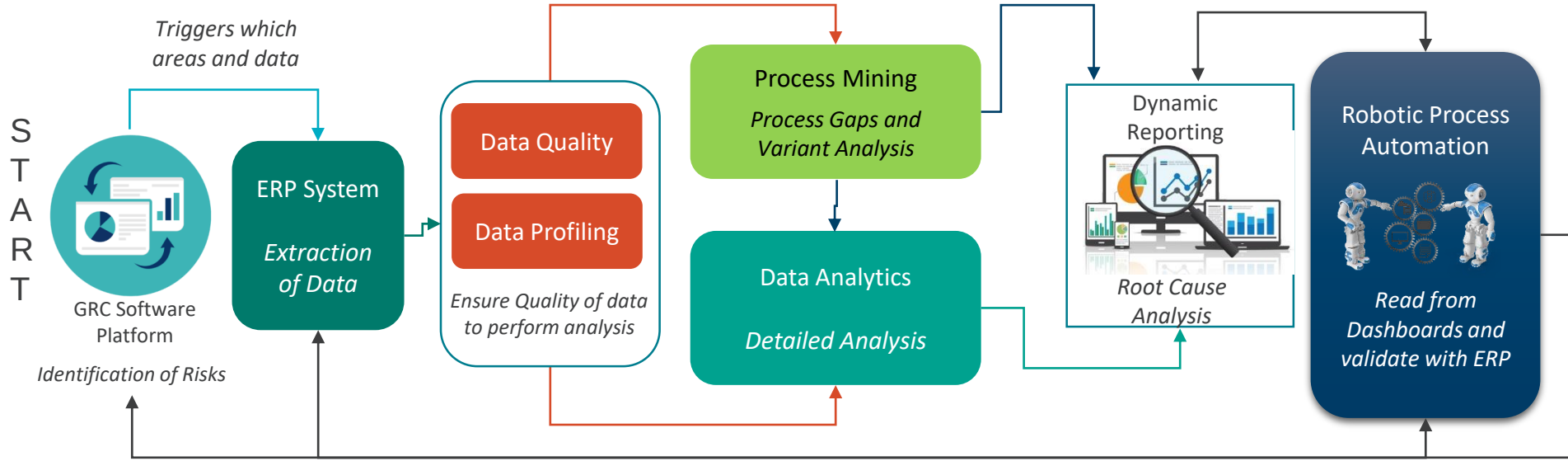
AUDIT TRANSFORMATION USING DATA ANALYTICS

Technological advances and new software solutions are enabling auditors to engage in audit data analytics in a variety of new ways, such as exploration of large sets of audit relevant data from internal and external sources that may produce audit evidence used in risk assessment, analytical procedures, substantive procedures and control testing.



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CHALLENGES AND LESSONS LEARNT

Lack of Management Buy-In and Leadership to drive Analytics within IA

General lack of understanding of Analytics and availability of Talent

Data Quality and Availability, cost of data cleansing vs. perceived benefits

The 'Big Bang' Approach – trying to do everything is a recipe for failure

Collaboration with IT, Operations and Senior Leadership

Lack of a well-defined analytics objective and dealing with False Positives

Getting the right Partner – 'If you have to wrestle with an elephant, get help'

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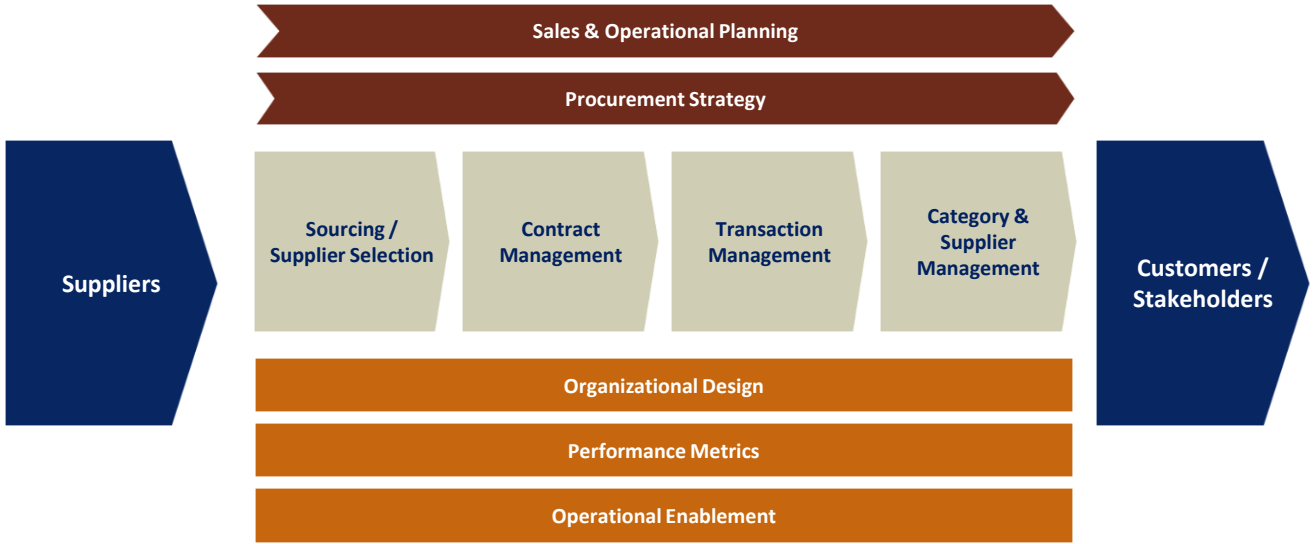
Process

Procure to Pay

Our proven procurement methodology and framework incorporates both functional and structural disciplines to help us understand our client's specific situation and needs to ensure we maximize opportunities and reduce overall time to value.



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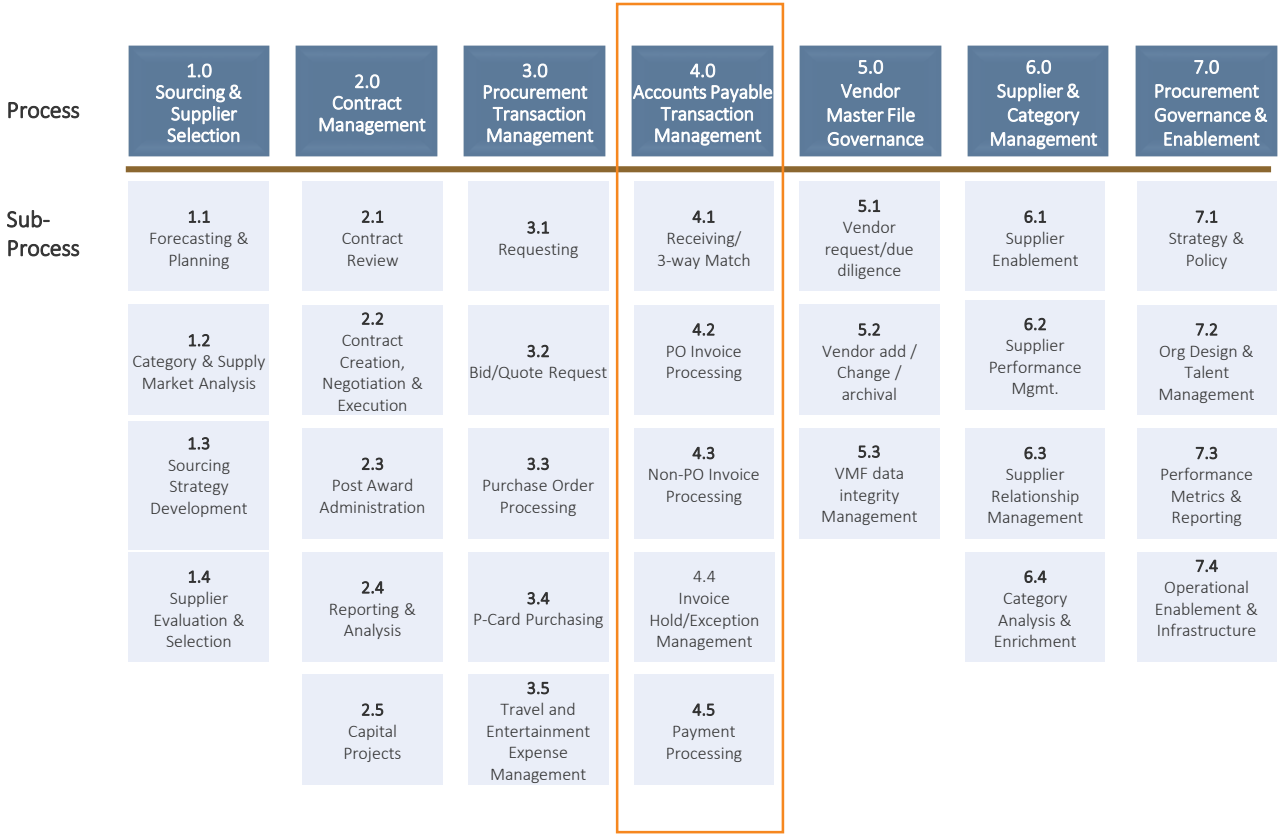
Looking at P2P Process in Details



Process	1.0 Sourcing & Supplier Selection	2.0 Contract Management	3.0 Procurement Transaction Management	4.0 Accounts Payable Transaction Management	5.0 Vendor Master File Governance	6.0 Supplier & Category Management	7.0 Procurement Governance & Enablement
Sub-Process	1.1 Forecasting & Planning	2.1 Contract Review	3.1 Requesting	4.1 Receiving/ 3-way Match	5.1 Vendor request/due diligence	6.1 Supplier Enablement	7.1 Strategy & Policy
	1.2 Category & Supply Market Analysis	2.2 Contract Creation, Negotiation & Execution	3.2 Bid/Quote Request	4.2 PO Invoice Processing	5.2 Vendor add / Change / archival	6.2 Supplier Performance Mgmt.	7.2 Org Design & Talent Management
	1.3 Sourcing Strategy Development	2.3 Post Award Administration	3.3 Purchase Order Processing	4.3 Non-PO Invoice Processing	5.3 VMF data integrity Management	6.3 Supplier Relationship Management	7.3 Performance Metrics & Reporting
	1.4 Supplier Evaluation & Selection	2.4 Reporting & Analysis	3.4 P-Card Purchasing	4.4 Invoice Hold/Exception Management		6.4 Category Analysis & Enrichment	7.4 Operational Enablement & Infrastructure
		2.5 Capital Projects	3.5 Travel and Entertainment Expense Management	4.5 Payment Processing			

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- Determine if key financial and business controls exist and are operating effectively.
- Assess the operating efficiency of the process.
- Compare the company's practices to "best practices," including performance measures.
- Review performance measures used to monitor and improve the process.
- Assess compliance with applicable corporate policies and procedures.
- Identify opportunities for internal control and process improvements.
- Understand areas where standardization across entities can be performed
- Look at the areas where automation is possible`

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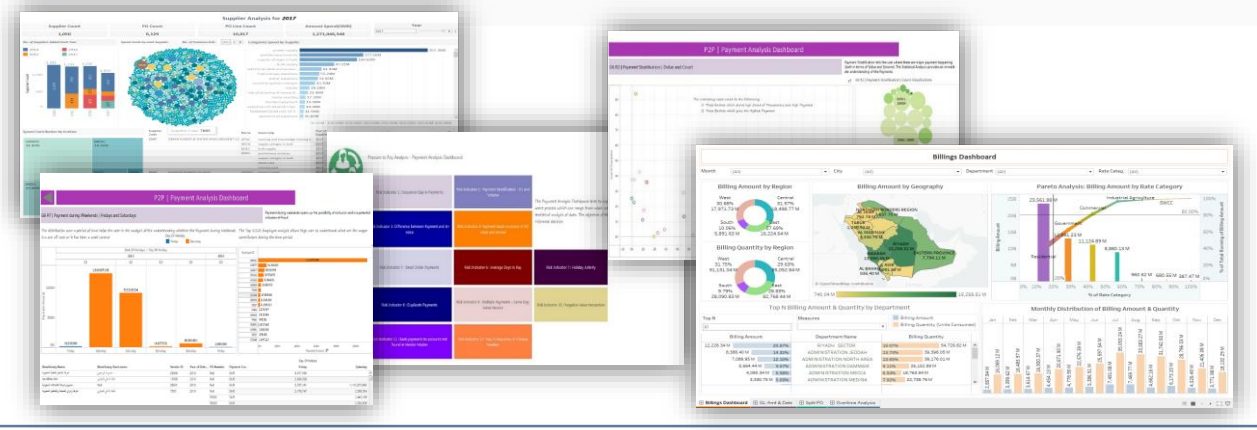
B Sample Deliverable(s) | Controls Automation Tests – P2P

The Procurement to Payment processes are critical for procuring goods / services from vendors based on business requirements and making payments as part of operations in an organization. Process efficiency and Cost optimization benefits can be achieved if monitored properly.

Indicative Analytics

1. *Split invoicing – invoicing and payment patterns suggesting procurement threshold abuse*
2. *Goods received quantity vs. invoice quantity*
3. *Invoice number sequence (in-sequence and out-of-sequence)*
4. *Duplicate vendors (by name, address, bank account number)*
5. *Payments to vendors without contracts*
6. *Stale requisitions and POs*
7. *Overpaid POs*
8. *Cheque number sequences*
9. *Negative value transactions*
10. *Payments and accounting entries made at weekends, holidays or with no date*
14. *Vendor discounts applied*
15. *Quarterly Summary of Suppliers and Large Quarterly Changes*
16. *Unauthorized purchase orders*
17. *Purchase order raised on one time/no regular vendors*
18. *Purchase order placed at higher prices than agreed/past trends*
19. *Bank payments and Invoice differences*
20. *Bank beneficiaries who are not suppliers*
21. *Duplicate Invoices - Supplier, Invoice Number, Invoice Date & Amount*
22. *Duplicate Payments - Beneficiary Name, Account, Value Date & Amount*
23. *One-Off suppliers based on invoices and payments*
24. *Multiple invoices on 1 day*
25. *Multiple Invoice Layouts*
26. *Suppliers with early invoice settlements*
27. *Redundant Suppliers*
28. *Suppliers with missing information*
29. *Suppliers with changing bank accounts and names*
30. *Beneficiary details different to Master File details*
31. *Bank payments to accounts not found in master files*
32. *Duplicate material codes*
33. *Redundant material/item codes*
34. *Unauthorized changes to material codes*



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B Sample Deliverable(s) — Controls Automation Tests – P2P

Fraud Indicators	Financial Misstatements	Policy Compliance	Trend Indicators	Process Inefficiency
Duplicate Payments	Additional Charges : situations where the ratio of supplemental charges on an invoice (e.g. shipping, handling, tax, etc.) exceeds a specified % or CURR threshold	Multiple Vendors Same Bank Account	PO Aging Analysis	Discrepancies between related documents via 3way-match (PO > GRN > Invoice)
Suspicious Payment Date		Payments to Employees	AP Summary Report	Split Purchase Orders
Suspicious Purchase		Date Sequence	Vendor / Employee Correlation Report	Split Invoices
Suspicious Vendors		Payments to Prohibited Vendors	PO / Invoice / Payment Correlation Report	Segregation of duties has been violated

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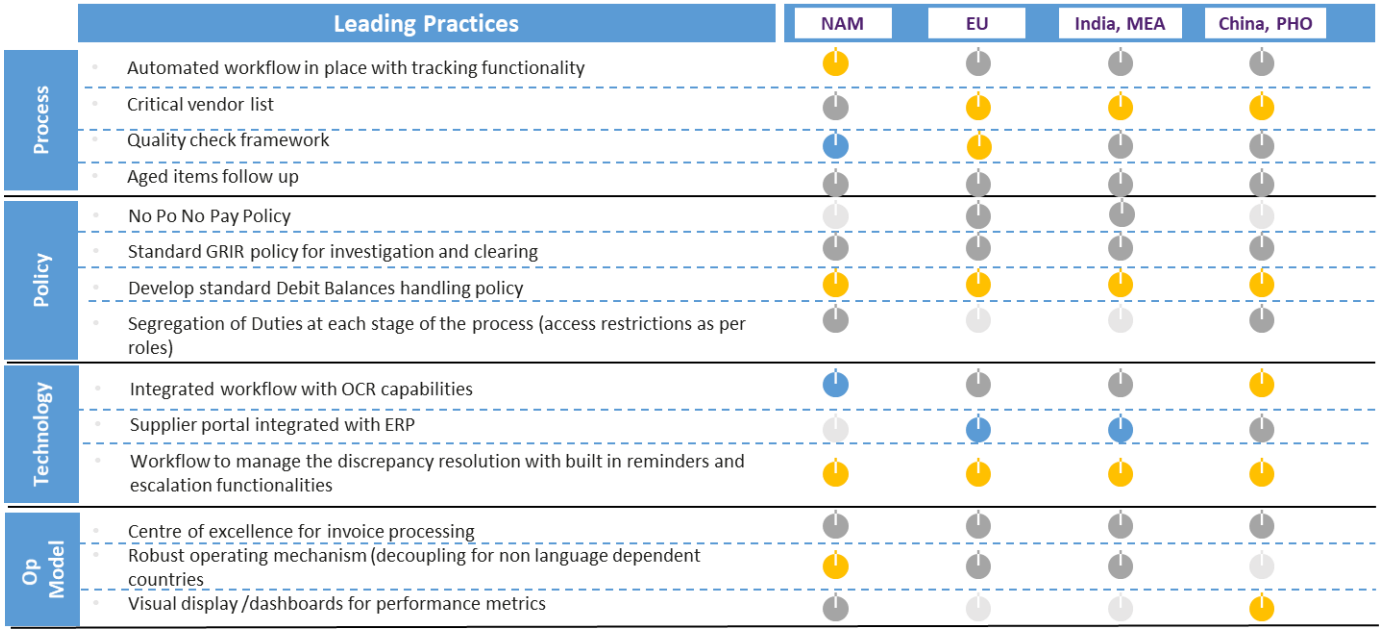
B Sample Deliverable(s) | Benchmarking Charts



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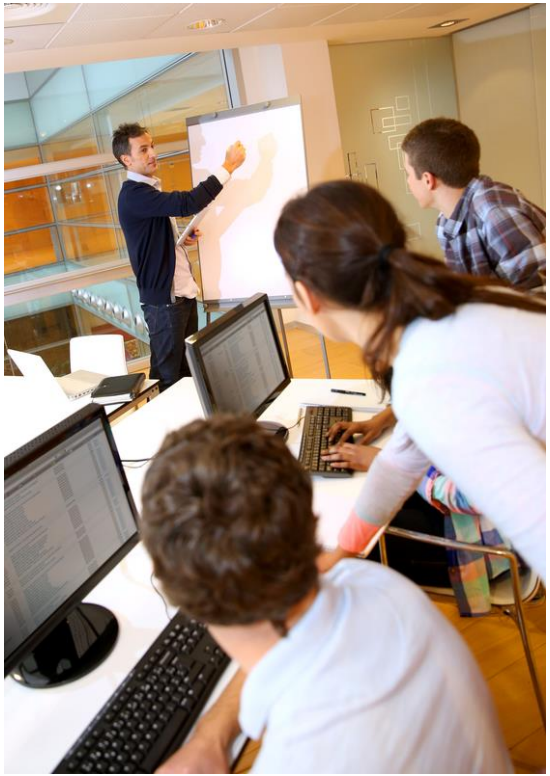
Data Governance

DATA GOVERNANCE

- **Strong organizational Data Governance** will allow development of data as an asset, that can yield benefits
- **Ensure One version of the truth** across the organization. **Cost savings** across Sales (B2B & B2C), Operations, Marketing, IT etc**. due to better data quality and reduction of error handling cases.**
- **Identification of Data Stewards for various processes.** Better interaction and collaboration between various systems .Centralized Dashboards across multiple systems.



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DATA GOVERNANCE

Governance Operating Model and Framework

- *Identify & test additive data sources*
- *Creation of Governance Operating manual*
- *Setting up of Policy Procedures*

Roles & Responsibility Definition

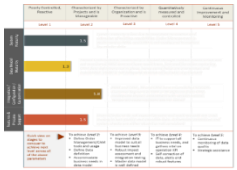
- *Identify information silos and transience factors*
- *Assess maturity across sources & develop Maturity scores*
- *Define Roles and Responsibility*

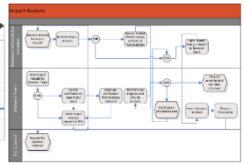
Data Quality Framework

- *Assess existing Data Quality Framework*
- *Creation of DQ Framework*
- *Recommendations to achieve golden copy*

Governance Implementation Strategy

- *Develop understanding of reporting process, and manual effort involved*
- *Develop Maturity scores based on CMM*
- *Implementation Roadmap*





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DRIVERS FOR DATA GOVERNANCE AUDIT

- **Lack of strong data governance policy** on who should own the data, resulting in sub optimal decisions on defining products. **Fragmented approach within key business processes**; instituting a need for centralized oversight and monitoring
- **Regulatory or compliance issues resulting from** data quality, control weaknesses and process gaps
- **Existence of multiple definitions of Master Data** of customers / products leading to disparate / false reporting of revenue numbers. There is no existence of a golden copy of truth which one can refer to
- **Non-integrated data** (such as promotions / credit limit / B2B complex products) residing outside the system leading to miscalculation of revenue resulting in write-offs or applying double discounts.
- **Data quality efforts lack developed measures,** tracking and metrics which hinders quick and effective responses to address root causes
- **Difficulty meeting market demands** for flexible, timely and relevant information and the **inability to efficiently and accurately deploy data for external use.**
- **Manual efforts** from multiple teams to meet their needs from the data and also resulting in disparity / confusion between departments on what they look at the final output from the data.

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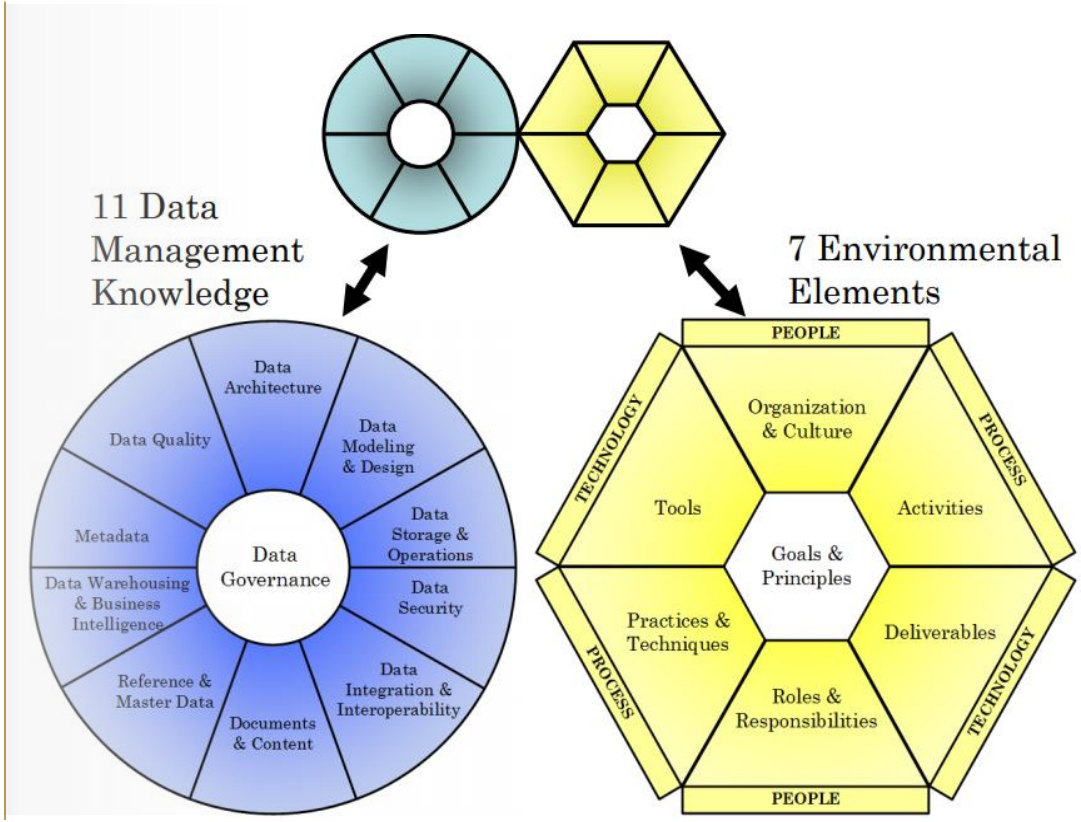
BEST PRACTICES & INTERNATIONAL BODIES

DAMA

11 Data Management Knowledge Areas

1. Data Governance
2. Data Architecture
3. Modeling & Design
4. Storage & Operations
5. Security
6. Integration & Interoperability
7. Documents & Content
8. Reference & Master
9. DWH & BI
10. Metadata
11. Data Quality



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	Data Governance	Data Architecture	Data Modelling & Design	Reference & Master Data	Metadata	Data Quality
Definition	The Exercise of Authority, control and shared decision-making (planning, monitoring, and enforcement) over the management of data assets	Identifying the data needs of the enterprise (regardless of structure), and designing and maintaining the master blueprints to meet those needs. Using master blueprints to guide data integration, control data assets, and align data investments with business strategy	Data modeling is the process of discovering, analyzing, and scoping data requirements, and then representing and communicating these data requirements in a precise form called the data model. This process is iterative and will include a conceptual, logical and physical model	Managing shared data to meet organizational goals, reduce risks associated with data redundancy, ensure higher quality, and reduce the costs of data integration	Planning, Implementation, and control activities to enable access to high quality, integrated metadata	The Planning, implementation and control of activities that apply quality management techniques to data in order to assure it is fit for consumption and meets the needs of data consumers
Activities	(P) Define Data Governance (P) Define Data Governance Strategy (O) Implement Data Governance (C,O) Embed Data Governance	(P) Establish Enterprise Data Architecture (O) Integrate with Enterprise Architecture	(P) Plan for Data Modeling (D) Build the Data Models (C)Review the data models (O) Manage the data Models	(P,C) Identify Drivers and Requirements (P) Evaluate and Access Data Sources (D) Define Architectural Approach (D) Model Data (C)Define Stewardship and Maintenance Processes (C)Establish Governance Policies (D,O) Implement Data Sharing / Integration Services	(P) Define Metadata Strategy (P) Understand Metadata Requirements (D,C) Define Metadata Architecture (O) Create and Maintain Metadata (C,O) Query, Report and Analyze Metadata	(P) Define High Quality Data (P) Define a Data Quality Strategy (P) Define Scope of Initial Assessment (P) Perform Initial Data Quality Assessment (P,D,O) Identify & Prioritize Improvements (D) Develop and Deploy Data Quality Operations
Participants	Steercom + CDO / CIO Data Council Team Business / Executive Data Stewards Compliance Team	Enterprise Data Architects Data Modelers	Business Analyst Data Modelers	Data Analysts Data Modelers Data Stewards Data Integrators Data Architects Data Quality Analysts	Data Stewards Project Managers Data Architects Business Analyst System Analyst	CDO Data Owners Data Analyst / Data Quality Analyst / Data Stewards Database Administrator Data Professional DQ Managers
Metrics	1. Compliance to regulatory and internal data policies 2. DG Program effectiveness 3. Sustainability of Operations	1. Architecture standards compliance rates 2. Trends in Implementation 3. Business value metrics	1. Data Model validation measurement	1. Data Quality and compliance 2. Data Change Activity 3. Data Consumption and Services 4. Data Sharing Availability 5. Data Steward Coverage 6. Data Sharing Volume and Utilization	1. Metadata Coverage Scorecard 2. Metadata Repository Contribution 3. Metadata Usage Reports 4. Metadata Quality Scorecard	1. Governance and Conformance Metrics 2. Data Quality Measurement Results 3. Improvement trends 4. Issue Management Metrics

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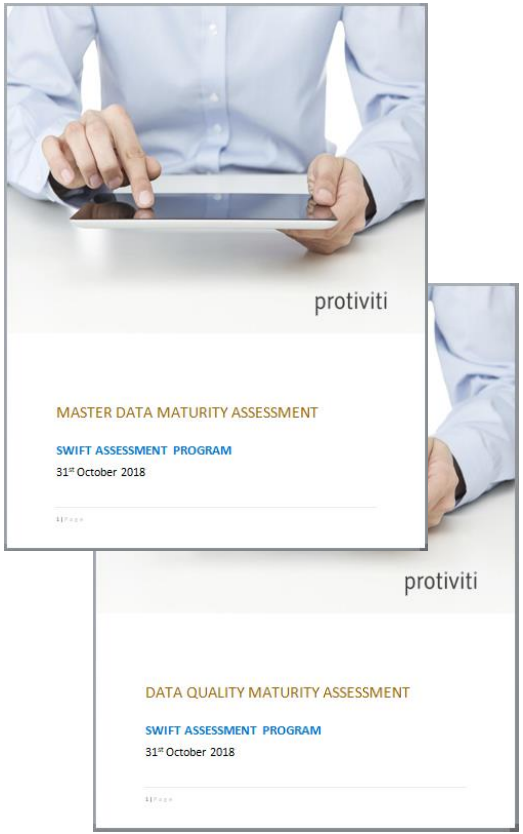
SWIFT ASSESSMENT | Quick Assessment of Data Maturity



DATA PROFILING	DATA CLEANSING	DATA CONSOLIDATION	DATA MAINTENANCE	DATA UTILIZATION

e. Quantitatively managed, integrated with BI, SOA, and used in business process orchestration — OPTIMIZING

d. Enterprise wide closed loop data quality, with improving process automation, with business & IT representation — COMPETENT

c. Tactical and split master data with limited Data stewardship capabilities. — DEVELOPING

b. Characterized by Projects, or Manually maintained in siloes — MANAGED

a. Lowest Level: Poorly controlled, reactive, decentralized management of data — NO CAPABILITY

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Risk Propensity Identification

Harnessing Social Intelligence

‘Professional Judgement’ isn’t ‘Professional’ after all

ANCHORING

Rely or ‘anchor’ on a past reference when making decisions

AVAILABILITY BIAS

Likelihood is judged depending on how easily it is imagined

CONFIRMATION BIAS

Tendency interpret information in a way that confirms one’s preconceptions

ENDOWMENT EFFECT

People demand much more to give up something than they would be willing to pay to acquire it

FRAMING EFFECTS

Selection of inconsistent choices depending on how a question is framed

HINDSIGHT BIAS

Tendency to see past events as being predictable

OVER-OPTIMISM

Overestimating favorable and pleasing outcomes

OVERCONFIDENCE

Excessive confidence in one’s own answers to questions

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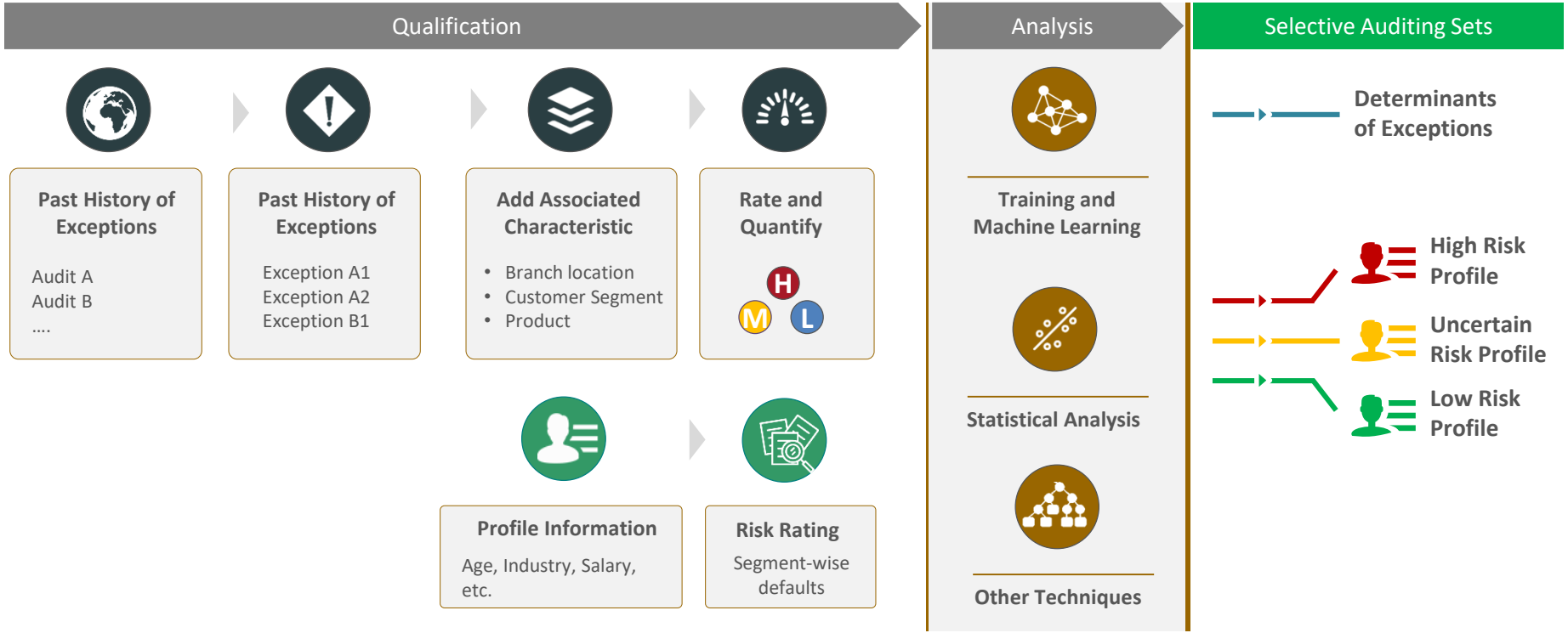
Planning, Risk Assessment and Sample Selection



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Process Mining

Voice Analysis

Contracts Review

"Think this is bad? You should see the inside of my head."

Process Mining Basics

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Process Mining Example: P2P

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Process Mining Example: O2C

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PROCESS MINING

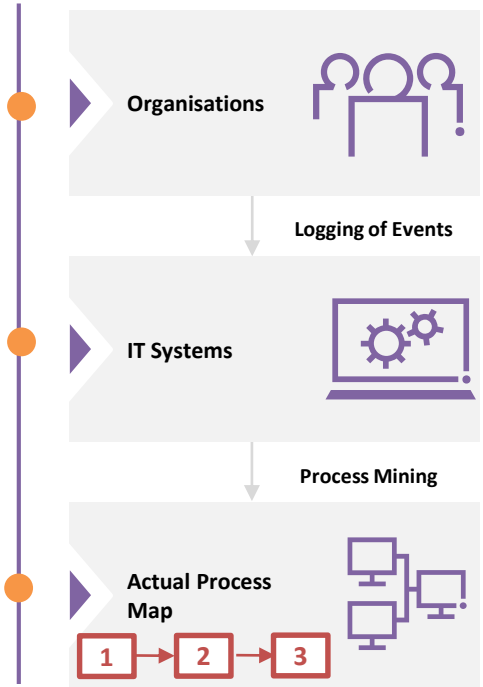
Process mining is a process management technique that supports the analysis of business processes.

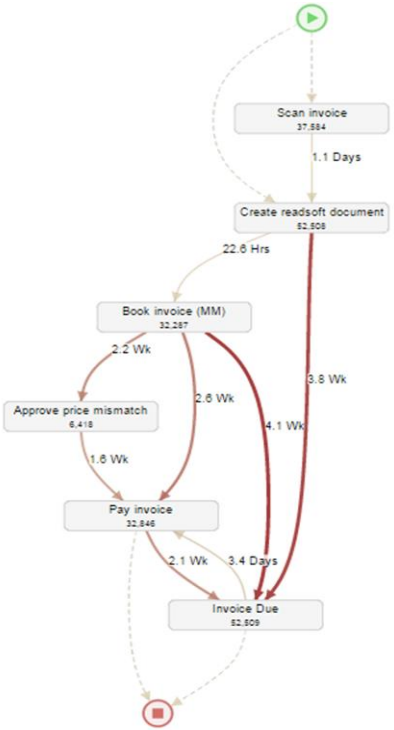
Process mining can analyze your process in an **upside-down fashion.**

You do not need to have a process map to analyze the process flow – **Process Mining uses historical data from your IT systems.**

Your IT system currently records all steps of your process in execution. With process mining, you get a process map based on that data.

This way, **your real process** and actual business rules can be discovered automatically.





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PROCESS MINING

Reduce cost and variation, become more lean

Find more effective ways to reduce enterprise wide costs without compromising internal controls.

Reduce processing time

Reduce the amount of time spent on routine transaction processing, focusing more on value add business analysis.

Improve quality and stability

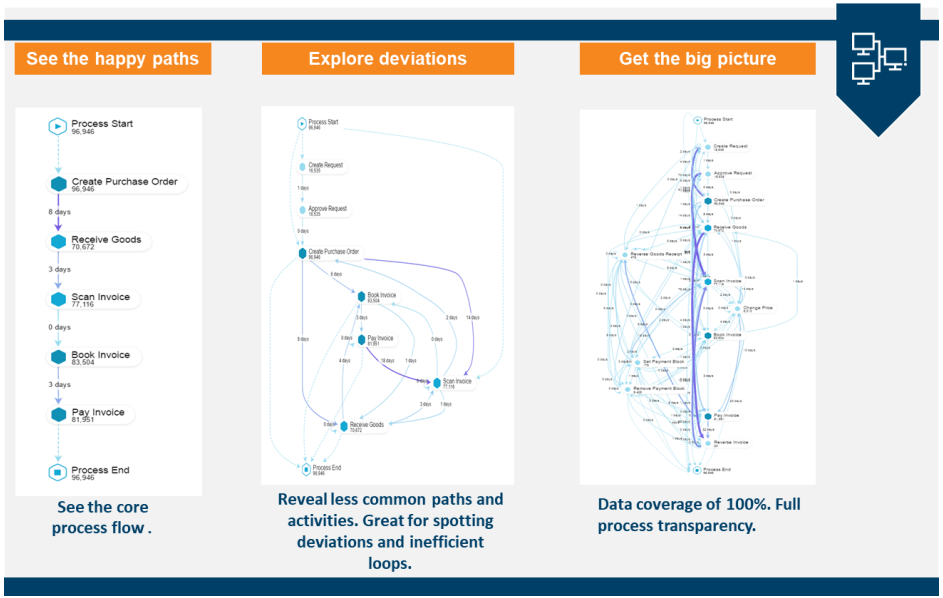
By comparing processes beyond KPIs and maintain stability when non-routine situations arise.

Be in control and know what is going on

Give ongoing assurance that the organization is in full compliance with complex regulatory requirements.

Deeper and faster insights

Provide more insightful, timely information for decision-making in an environment where the volume of data is vast and ever changing.



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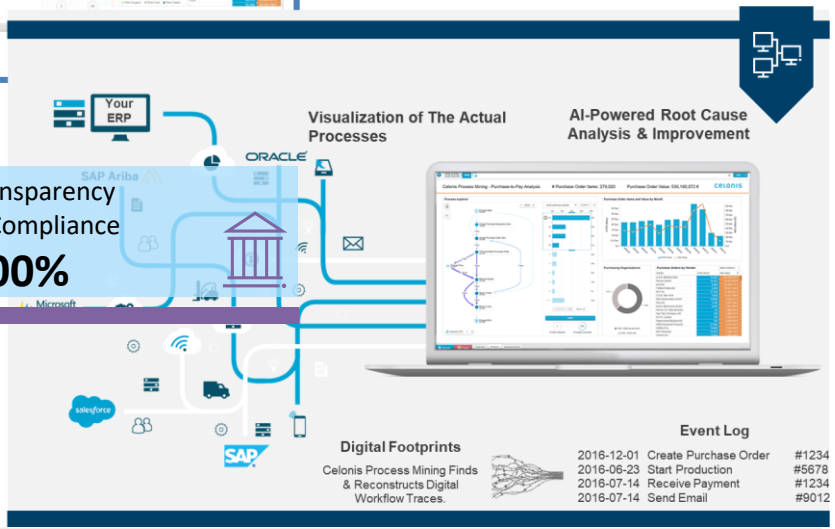
PROCESS MINING

Celonis Process Mining maps and visualizes processes as they actually occur. From beginning to end, in real time, based on your data, thus ensuring maximum transparency and oversight over your value chain. Celonis offers the most powerful and widely-used Process Mining platform for enterprises. Built with years of experience, partners and hundreds of customers from over 15 industries, it's also the most user-friendly and flexible solution, with cutting edge innovations added with every release.

Get full **transparency** and **efficiency** across all your operations - **In real time.**

Process Cost	Throughput Times	Transparency & Compliance
- 25%	**- 37%**	**100%**



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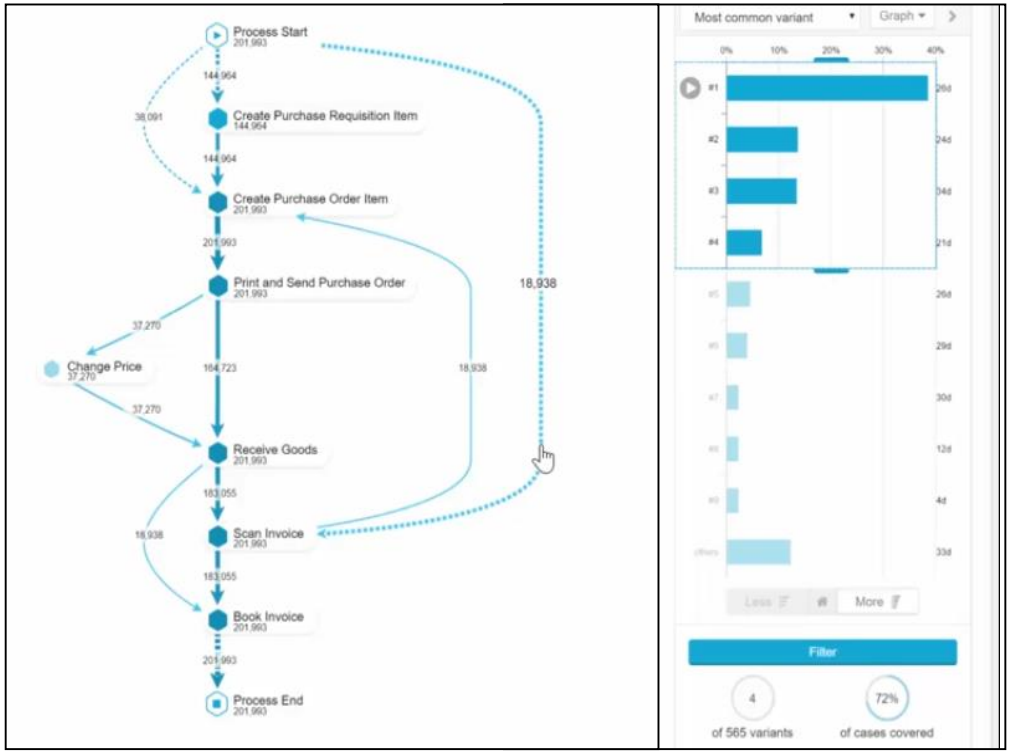
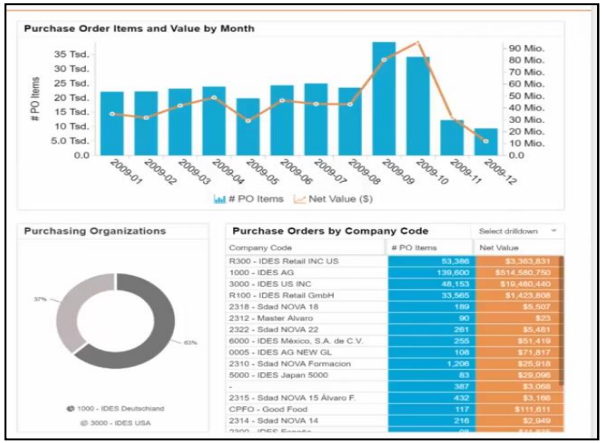
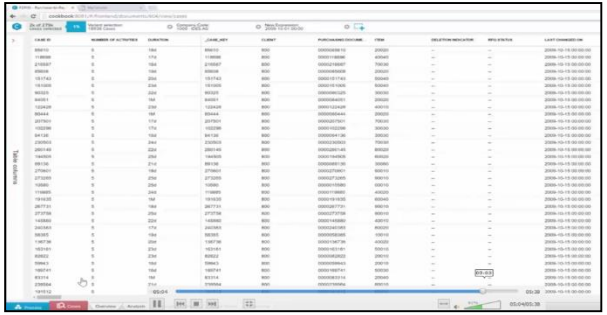
Process Mining – Delivery Snapshot(s)







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Process Mining - Benefits

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Process Mining - Overview

The central process of incoming and outgoing calls is a high volume digital process, which runs through many different IT systems. With root causes to operational inefficiencies

Tool Offerings

Visualization of *'As-Is'* processes through process flows

Extensive filtering and selection options to zoom in on specific cases or process components

Drill-down from a process overview to the lowest level of underlying data

Extensive analysis capabilities with flexible customization of dashboards

Providing data anonymity, applying authorizations different roles and specific data

Questions Answered

- Uncover inefficiencies, form the start of the customer call coming in to the resolution provided?
- Why did stops and manual rework occur?
- What are the effects on storage and personnel costs?
- Why are there bottlenecks?
- Why is the average handling time going up?

Tool Benefits

Transparency in process

Continuous process improvement

Fraud Preventions and Compliance support

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VOICE ANALYTICS

Voice Analytics

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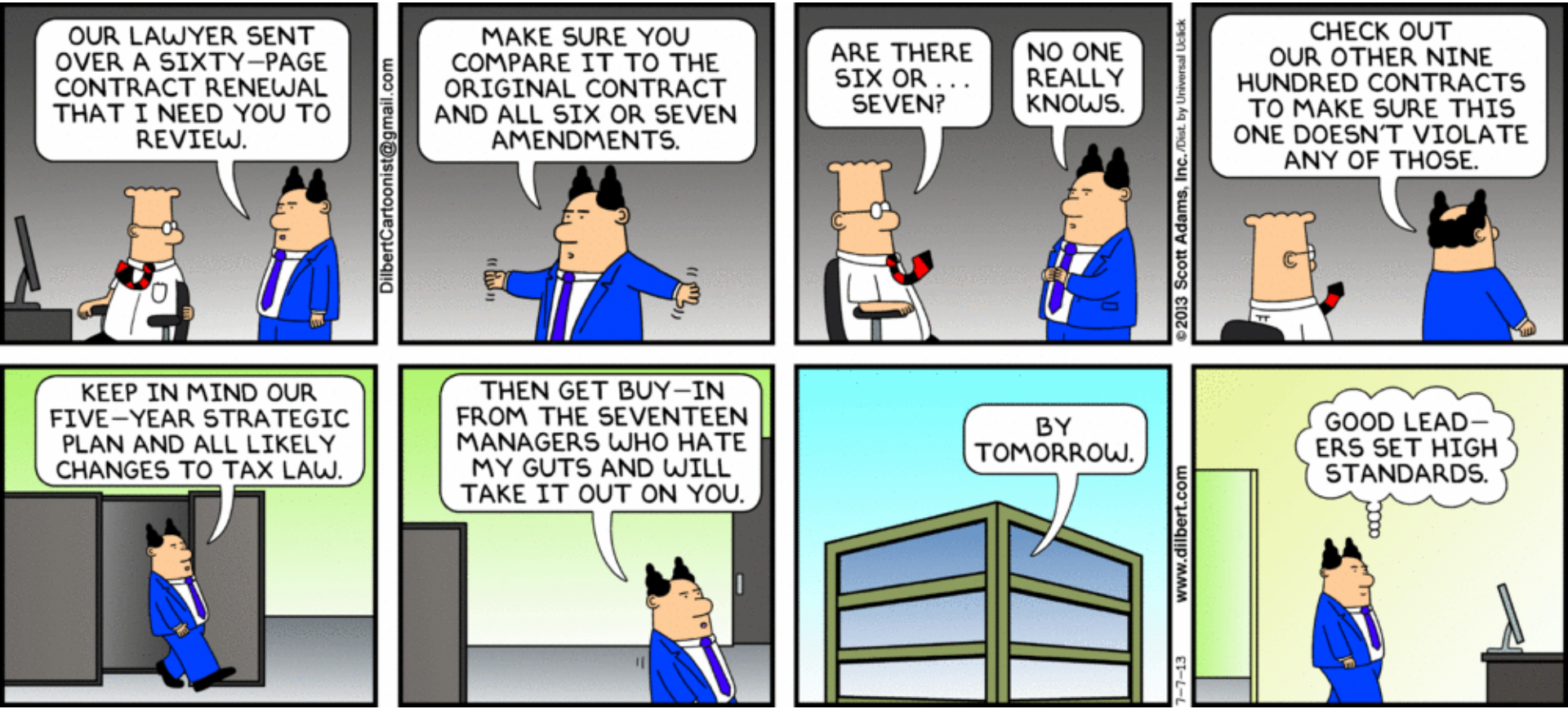
OUR LAWYER SENT OVER A SIXTY-PAGE CONTRACT RENEWAL THAT I NEED YOU TO REVIEW.
DilbertCartoonist@gmail.com
MAKE SURE YOU COMPARE IT TO THE ORIGINAL CONTRACT AND ALL SIX OR SEVEN AMENDMENTS.
ARE THERE SIX OR . . . SEVEN?
NO ONE REALLY KNOWS.
© 2013 Scott Adams, Inc. /Dist. by Universal Uclick
CHECK OUT OUR OTHER NINE HUNDRED CONTRACTS TO MAKE SURE THIS ONE DOESN'T VIOLATE ANY OF THOSE.
KEEP IN MIND OUR FIVE-YEAR STRATEGIC PLAN AND ALL LIKELY CHANGES TO TAX LAW.
THEN GET BUY-IN FROM THE SEVENTEEN MANAGERS WHO HATE MY GUTS AND WILL TAKE IT OUT ON YOU.
BY TOMORROW.
www.dilbert.com
7-7-13
GOOD LEAD-ERS SET HIGH STANDARDS.

Contracts Review Example

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Analytics

Continuous Monitoring

Audit Analytics – Assurance to Value Creation

Increase Efficiency and Effectiveness

Increase Breadth and Depth of Coverage

Continuous Monitoring, Real-time Response

Discover Unknown Unknowns

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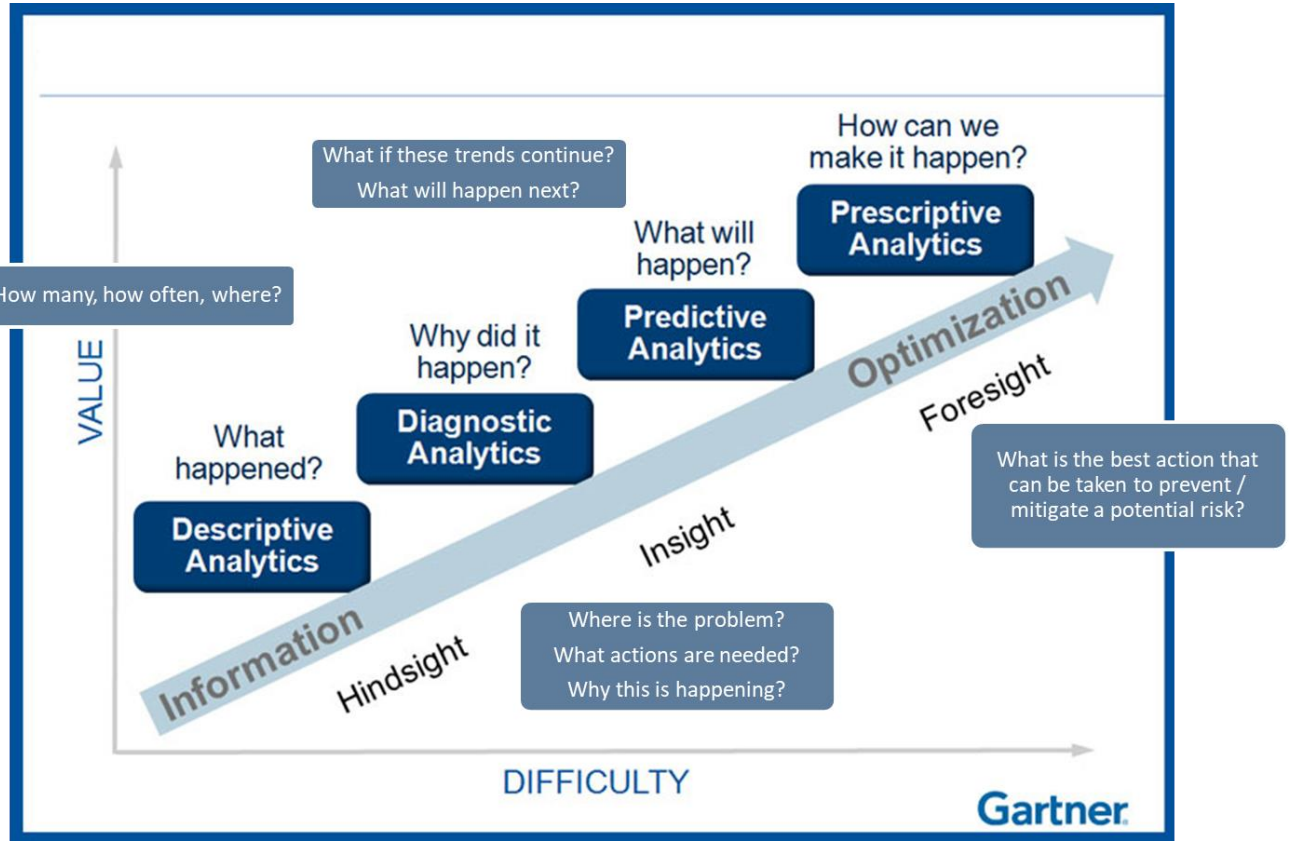
The Analytics Value Escalator



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Building Blocks of Continuous Controls Monitoring

Utility Programs / Productivity Software:

E.g. Spreadsheet, Word Processing, Text Editing, Data Browsing

Risk and Audit Management Software:

E.g. TeamMate, Protiviti Governance Portal

Data Management Tools:

E.g. Pentaho, ETL Platforms

Analytics Tools:

E.g. ACL, IDEA, TeamMate Analytics, ISS CG Solutions, ESG Analytics, Main Data Group

Advanced Analytics and Statistical Tools:

E.g. R, SPSS, Statistical Sampling & Data Modeling Tools

Reporting and Dashboard Applications:

E.g. Tableau, Qlikview, Crystal Reports

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ANALYTICS IN AUDIT – ENGAGEMENT MODES

Developing a Sustainable Continuous Monitoring Program

In order to reach the envisioned end state Protiviti proposes our unique 6 step approach

Continuous Improvement and Upkeep

CM Platform

Readiness and Maturity Assessment: Analyze the readiness of different areas pertaining to Data, People, Process, Technology and Strategy

Information Analysis and Design: Solution Blueprint, System Understanding and choose from the different Audit Analytic Applications across the range of Descriptive, Diagnostic, Predictive and Prescriptive

Implementation and Configuration: Setting up of foundational platform and Implementation and Configuration of Audit Analytics integrating various data sources

Create a Data Visualization Layer: Dashboards and Reporting Modules which captures the risks and exceptions to be published to management

Training and Handover: Training based on TNA and Maturity Assessment, Handover and Operationalization to JWG

People, Policy and Procedures: CCM Policy and Procedures pertaining to recommendations on Standard Operating procedures, Team Setup and Exception Management

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Managed Analytics

In order to reach the envisioned end state Protiviti proposes the following steps

Continuous Improvement and Upkeep

CM Platform

Information Analysis and Design: Solution Blueprint, System Understanding and choose from the different Audit Analytic Applications across the range of Descriptive, Diagnostic, Predictive and Prescriptive

Training and Handover: Training based on TNA and Maturity Assessment, Handover and Operationalization to JWG

Implementation and Configuration: Setting up of foundational platform and Implementation and Configuration of Audit Analytics integrating various data sources

People, Policy and Procedures: CCM Policy and Procedures pertaining to recommendations on Standard Operating procedures, Team Setup and Exception Management

Create a Data Visualization Layer: Dashboards and Reporting Modules which captures the risks and exceptions to be published to management

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Analytics Driven Audit

In order to reach the envisioned end state Protiviti proposes the following steps

Audit Analytics

Information Analysis and Design: Solution Blueprint, System Understanding and choose from the different Audit Analytic Applications across the range of Descriptive, Diagnostic, Predictive and Prescriptive

Training and Handover: Training based on TNA and Maturity Assessment, Handover and Operationalization to JWG

Implementation and Configuration: Setting up of foundational platform and Implementation and Configuration of Audit Analytics integrating various data sources

Create a Data Visualization Layer: Dashboards and Reporting Modules which captures the risks and exceptions to be published to managemer

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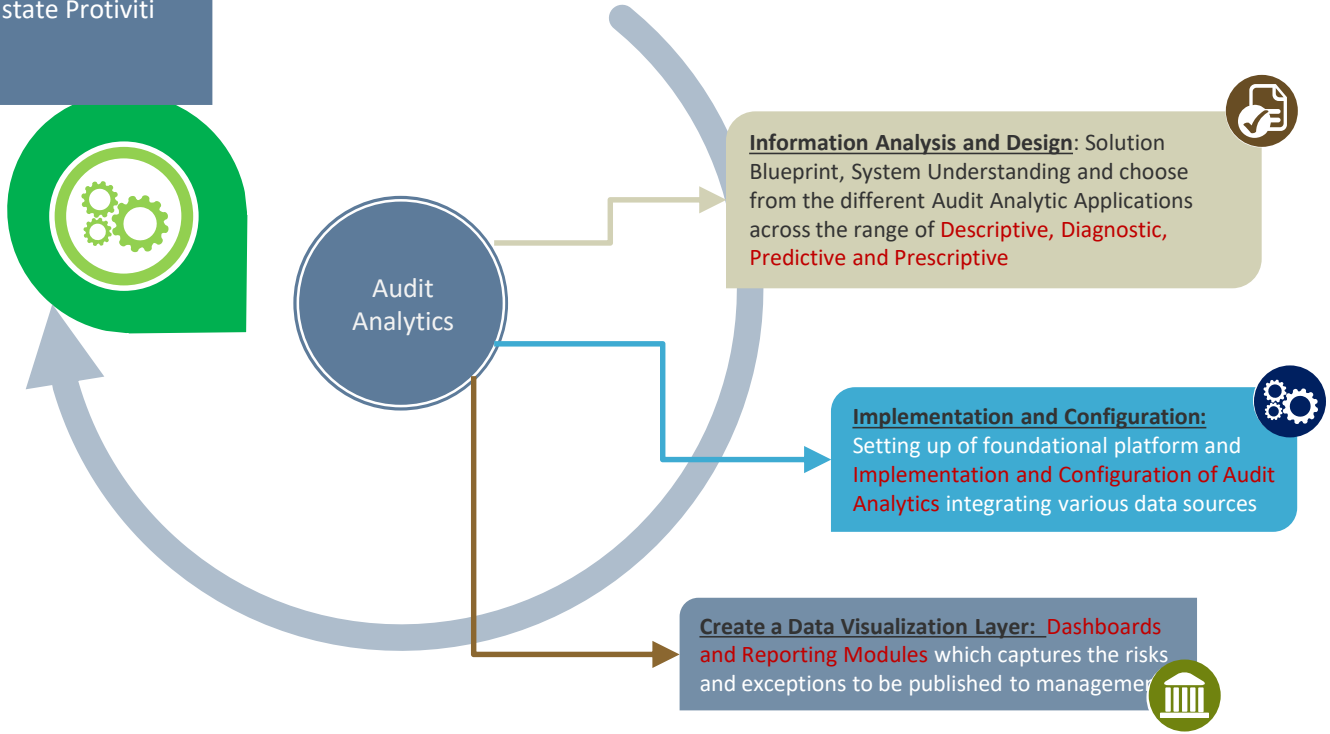
Integrated Audit

In order to reach the envisioned end state Protiviti proposes the following steps



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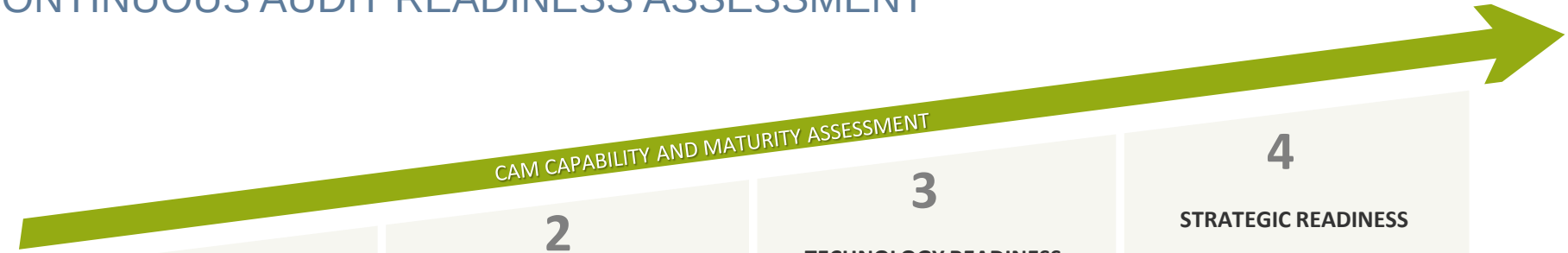
CONTINUOUS AUDIT READINESS ASSESSMENT



1

DATA READINESS

The phase is interested in assessing the gap in data required to deliver the desired CAM capabilities and actual data gathering and management practices.

This is primarily conducted through data structure and model studies, data cleansing studies, and process mapping.

2

PEOPLE AND PROCESS READINESS

Protiviti Cultural Assessment framework provides a series of questionnaires and interviews to understand the cultural and process impediments in adopting new framework.

This phase helps in:

1) Designing better change management phase
2) Adapt Cam processes to organizational and geographic setting

3

TECHNOLOGY READINESS

Our technology assessment team will support Standard Chartered in developing a gap study of technology currently implemented and technology requirements required to successfully implement CAM.

This study helps in

1) Planning for scalability of CAM processes
2) Define the extent to which CAM processes could perform efficiently

4

STRATEGIC READINESS

A study of Continuous Audit requirements, their appropriate alert setting and suggested course of action is based on strategic requirements of global heads.

This phase allows:

1) Best fit design of CAM processes to organizational needs.
2) Tailoring CAM capabilities to better suit the need.
3) Factor in competitive needs.
4) Factor in response curves to various events monitored.

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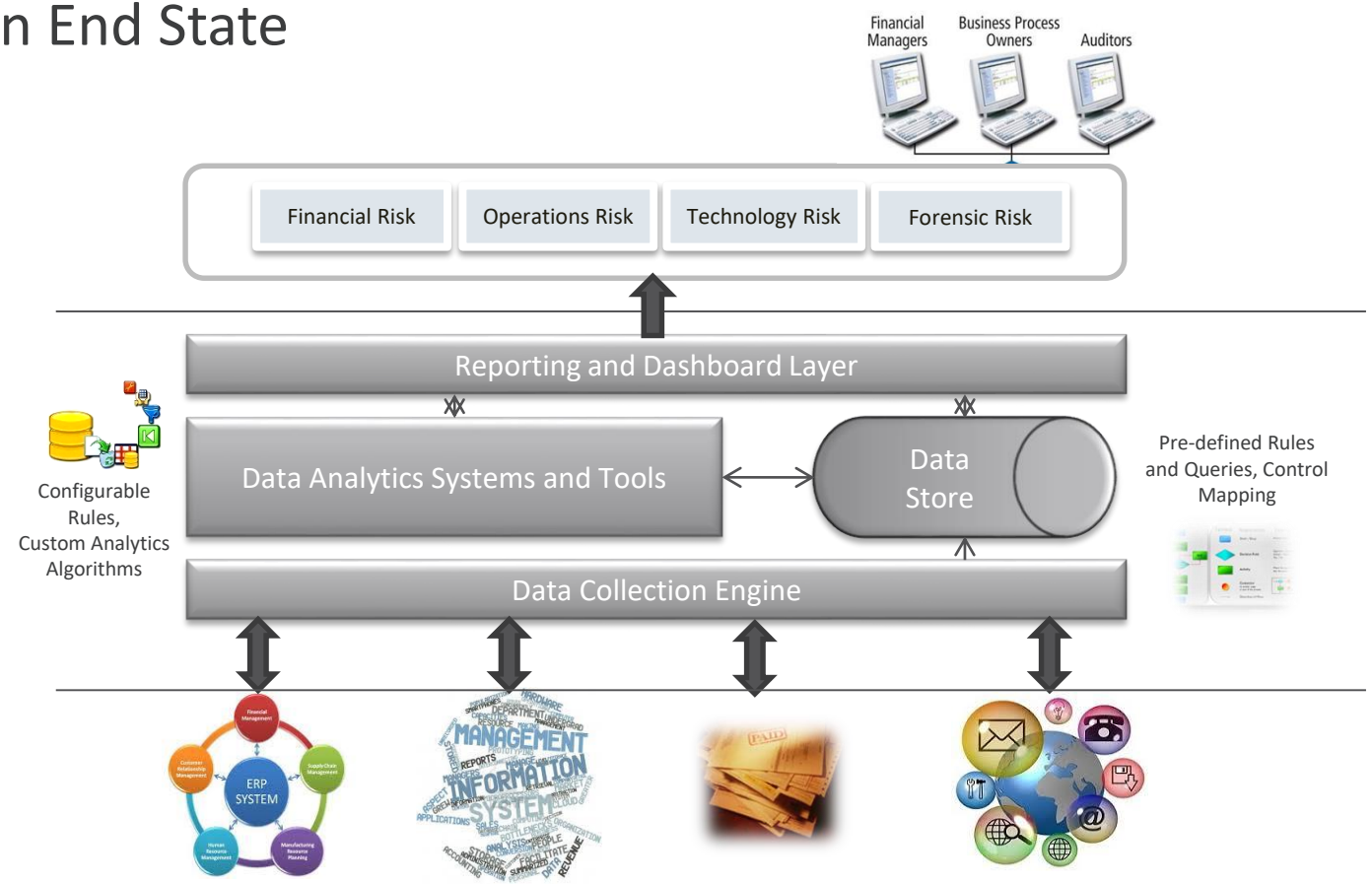
Solution End State



Business Applications, IT Systems viz. (ERP, Data Warehouse, BI, Financial Systems, Sales Channels, Web, Social Media, etc.)

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Analytics Library: Industry Agnostic Processes

Continuous Audit Analytics Library

Industry Agnostic (Support Processes)

- P2P
- Inventory
- General Accounting
- Fixed Assets
- Revenue Accounting
- Accounts Receivable
- Capex
- HR & Payroll
- WebCash
- Travel & Logistics
- Trade Promotions
- Helpdesk

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Procure to Pay Analysis - Payment Analysis Dashboard

Risk Indicator 1 : Sequence Gap in Payments

Risk Indicator 2 : Payment Stratification - $'s and Volume

Risk Indicator 3: Difference between Payment and Invoice

Risk Indicator 4: Payment made in excess of PO value and invoice

Risk Indicator 5 : Small Dollar Payments

Risk Indicator 6 : Average Days to Pay

Risk Indicator 7 : Holiday Activity

Risk Indicator 8 : Duplicate Payments

Risk Indicator 9 : Multiple Payments – Same Day, Same Vendor

Risk Indicator 10 : Negative value transaction

Risk Indicator 11 : Bank payments to accounts not found in Vendor Master

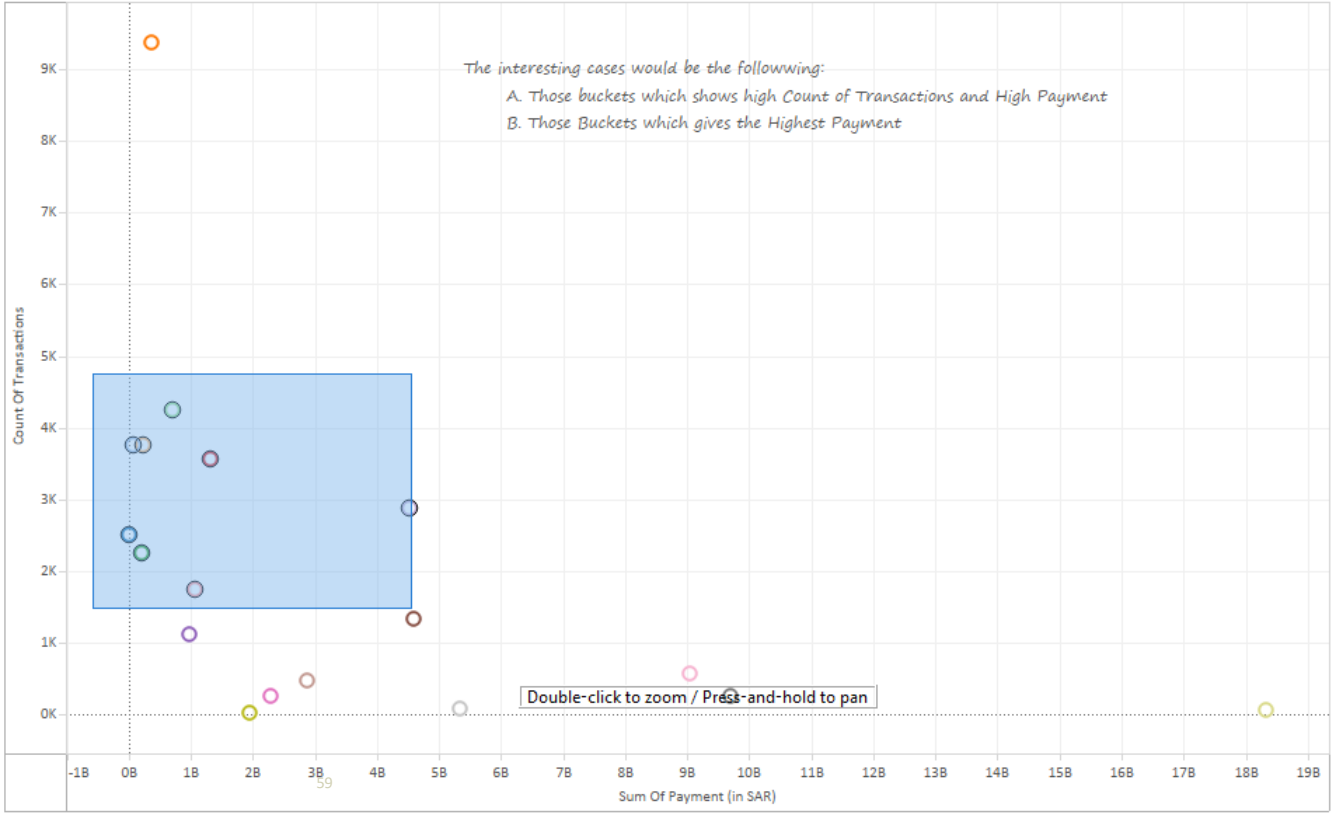
Risk Indicator 12 : Gap in Sequence of Cheque Number

The Payment Analysis Dashboard tries to capture the inefficiencies that exist in the Payment process which can range from weak controls to indication of Fraud or in some cases statistical analysis of data. The objective of the dashboard is to allow the user to take an informed decision

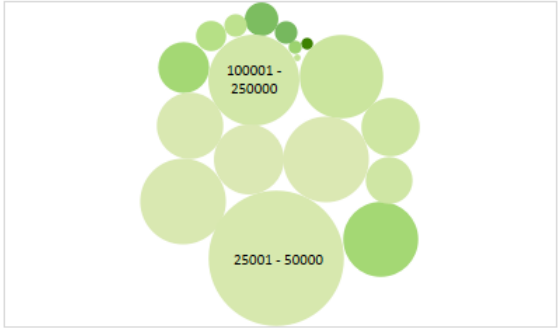
P2P | Payment Analysis Dashboard

G6 R2 | Payment Stratification | Dollar and Count

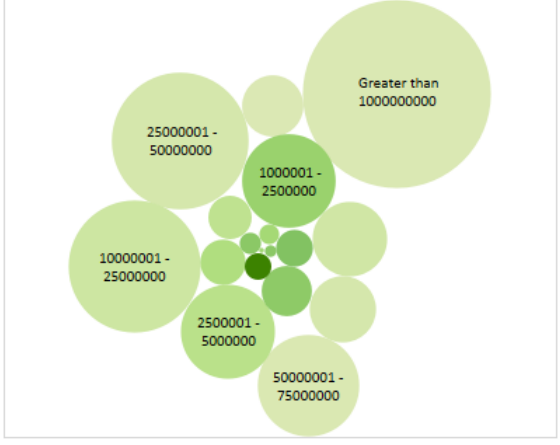
Payment Stratification tells the user where there are major payment happening (both in terms of Value and Volume). The Statistical Analysis provides an immediate understanding of the Payments



G6 R2 | Payment Stratification | Count Classifcations



G6 R2 | Payment Stratification | Dollar Classifcations



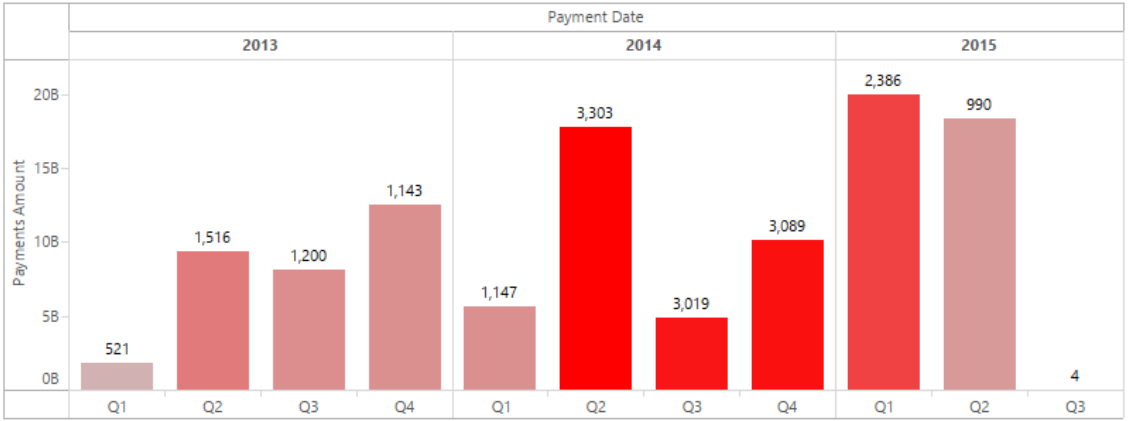
P2P | Payment Analysis Dashboard

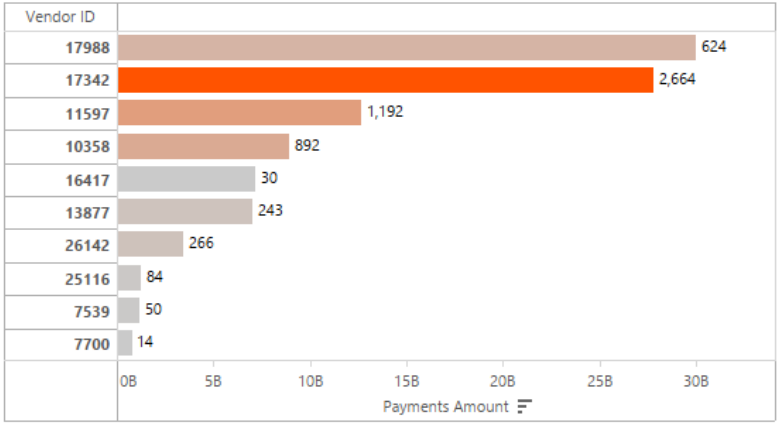
G6 R8 | Duplicate Payments

Multiple payments which are made to the Same Vendor ID against the same Invoice ID is considered as a Duplicate Payment

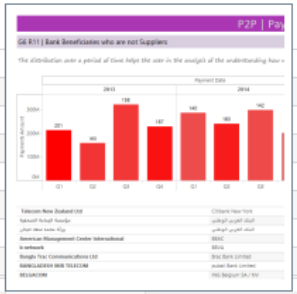
The distribution over a period of time helps the user in the analysis of the understanding how much exposure the company has encountered recently and on a ongoing basis

The Top N(10) Vendor analysis allows the user to understand who are the major contributors during the time period





Invoice ID	Vendor ID	Beneficiary Ban..	Beneficiary Name	Payment Status	Bank Transaction Numb..	Payments Amount
2191010	13877	البنك السعودي البريطاني	شركه هواوي تك انفسمنت العربيه السعوديه المحدوده	FORMATTED	572728	39,568,224
2191009	13877	البنك السعودي البريطاني	شركه هواوي تك انفسمنت العربيه السعوديه المحدوده	FORMATTED	572728	39,568,224
2191006	13877	البنك السعودي البريطاني	شركه هواوي تك انفسمنت العربيه السعوديه المحدوده	FORMATTED	572728	39,568,224
2191004	13877	البنك السعودي البريطاني	شركه هواوي تك انفسمنت العربيه السعوديه المحدوده	FORMATTED	572728	39,568,224
2190976	7772	البنك الأهلي التجاري	الشركه التعاونية لأنظمة الاتصالات	FORMATTED	572515	1,375,496
2190967	17342	البنك السعودي البريطاني	فرع شركة اريكسون ايه بي	FORMATTED	572726	26,311,761
2190964	17342	البنك السعودي البريطاني	فرع شركة اريكسون ايه بي	FORMATTED	572726	26,311,761
2190961	17342	البنك السعودي البريطاني	فرع شركة اريكسون ايه بي	FORMATTED	572726	26,311,761



Procure to Pay Analysis - Vendor Analysis Dashboard

Risk Indicator 1 : Vendors with High Payment Volumes

Risk Indicator 2 : Vendor Analysis – Payments

Risk Indicator 3: Vendor Analysis – Invoices

Risk Indicator 4: Vendor Analysis – PO's

Risk Indicator 5 : Unusual Vendor Names

Risk Indicator 6 : Multiple Vendors same Bank Account

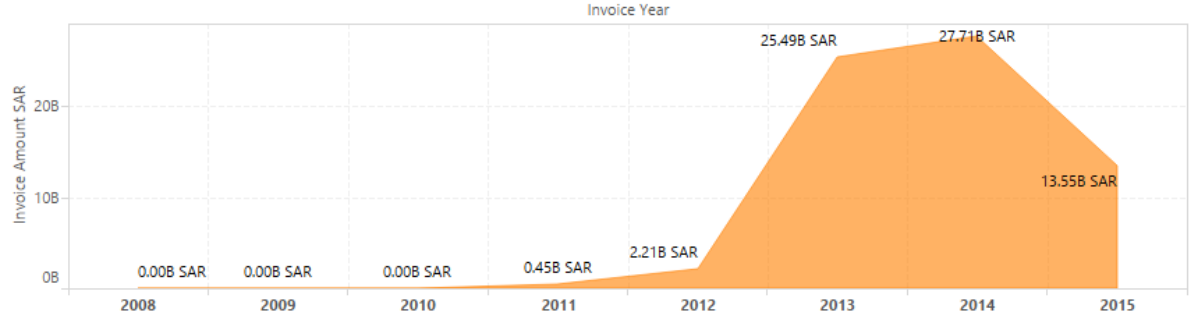
The Vendor Analysis Dashboard tries to provide the user with the understanding about the Vendor. It allows the user to see by Vendor what are the POs & Invoices raised and what Payments were made. It also allows the user to see any other inefficiencies that may exist in the system which indicate potential fraud situations.

P2P | Vendor Analysis Dashboard

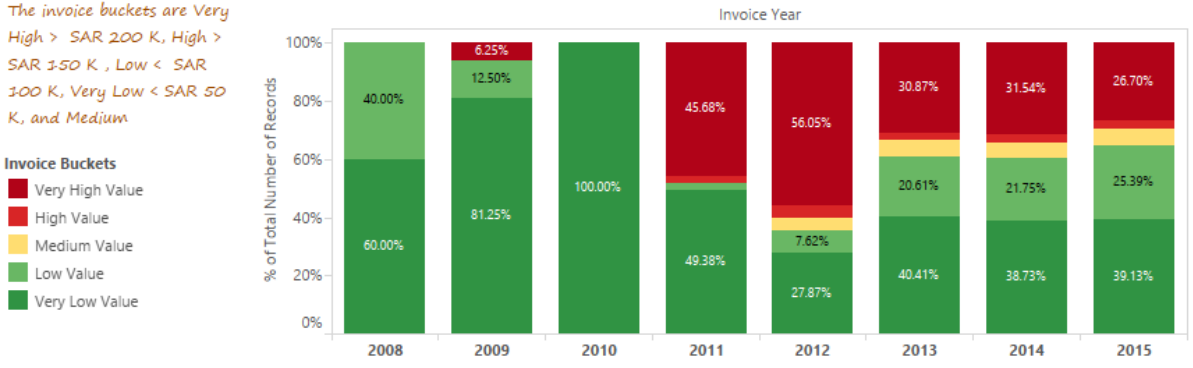
G1 R3 | Vendor Invoice Analysis

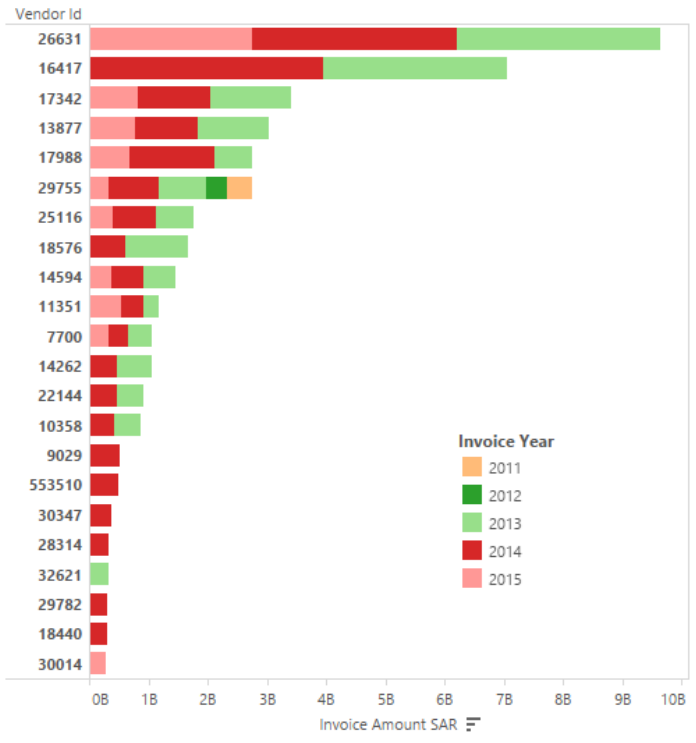
The below graphs capture the payment of the vendors from 2008 till 2015. It also captures data entry errors which shows invoice raised at NULL or 3004. Distribution of the Invoiced amount into different buckets are also shown here

Vendors Over a period of last 5 years is looked at and the vendors with cumulative invoiced amount > SAR 200 Million is arranged in a descending order to provide the user with an analysis of the high claim amounts from the vendor. STC should esatablish a practice for monitoring these vendors.



The invoice buckets are Very High > SAR 200 K, High > SAR 150 K , Low < SAR 100 K, Very Low < SAR 50 K, and Medium

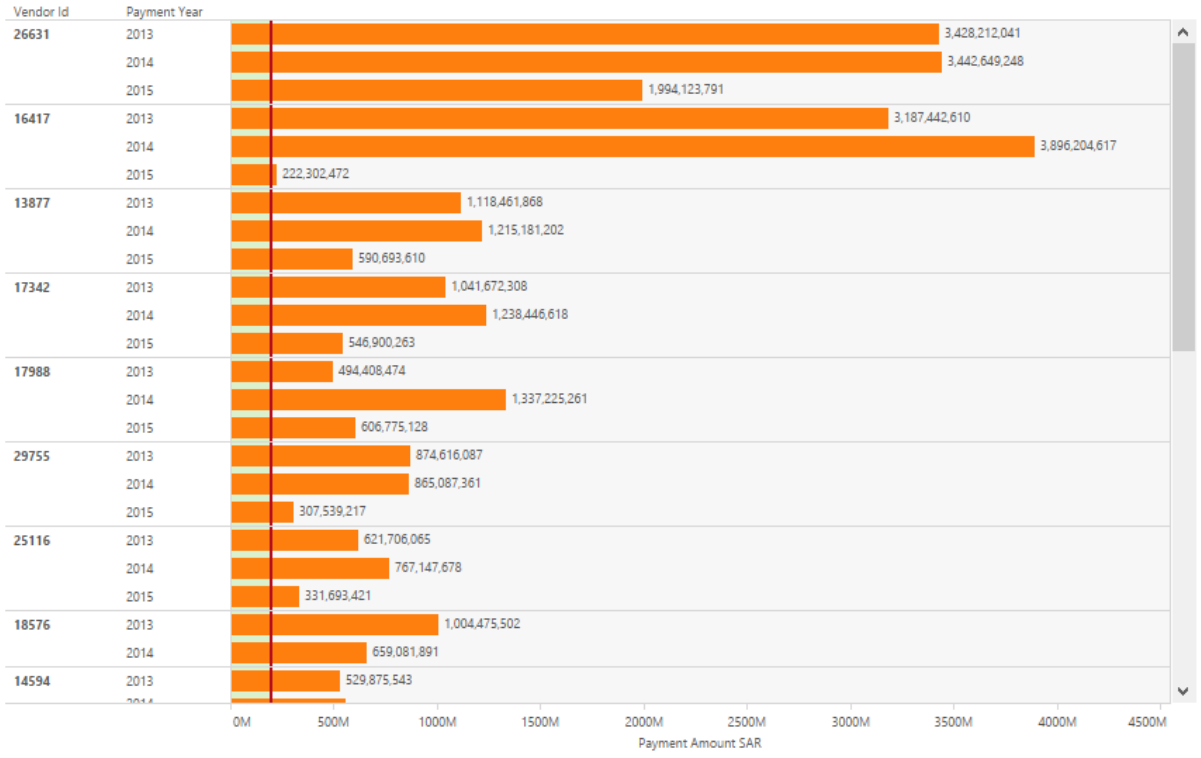




P2P | Vendor Analysis Dashboard

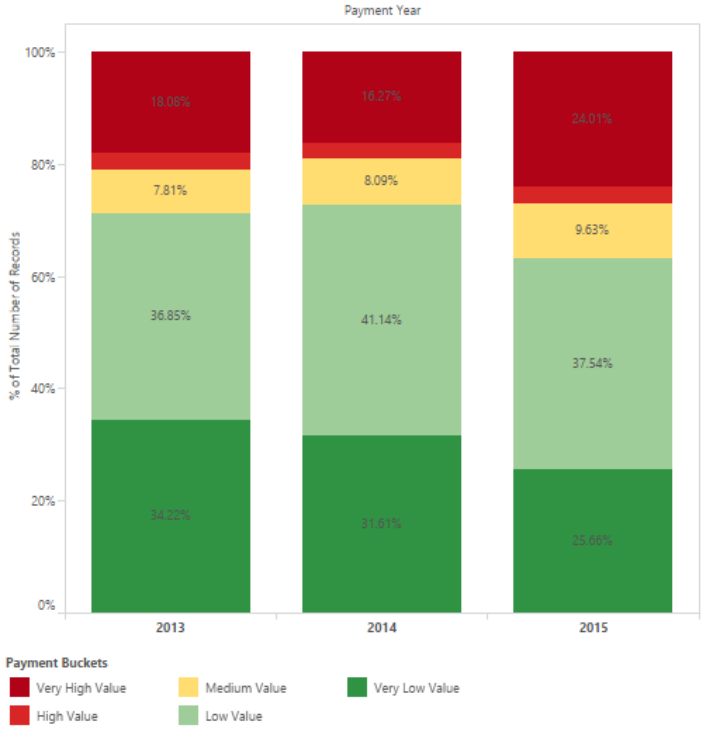
G1 R1 | Vendors with High Payment Volumes

The below graph captures all those vendors for which the Cumulative Payment for a period of 3 year is greater than 200 Million SAR



G1 R2 | Vendor Payment Analysis

Analysis of Vendor Payments over a period of time helps in understanding if there is any bias to particular vendors. For cumulative vendor payments which are high additional checks can be put for analyzing those vendors



Dynamic Reporting

Data Visualization

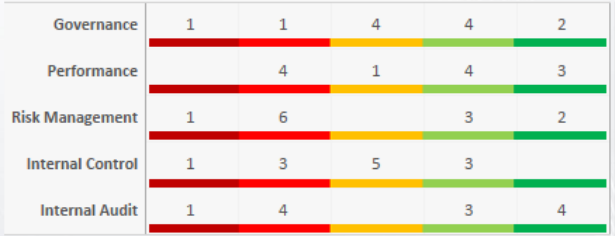
Executive Control Panel

Summary	Real Estate	Aviation	Industry and Power	Ports and Free Zones	Banking and Finance	Commercial	Government
Count of Entities	3	2	1	3	1	1	1
Overall Entity Score (%)	74%	49%	87%	44%	40%	43%	73%
Macro Score (%)	33%	56%	75%	30%	10%	55%	84%
Residual Risk (%)	33%	55%	73%	36%	64%	78%	51%
Open Findings	11 11 16	3 6 8	3 1 9	7 6 6	5 5 7	17 17 17	26 16 15

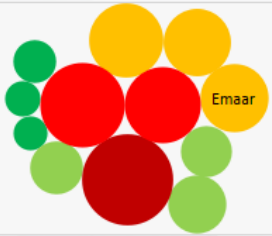
Macro Assessment

Macro Score / Level for All

Maturity Levels by Entities in All

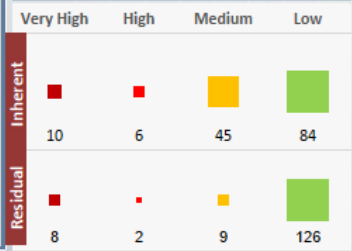


Entity Score Overview

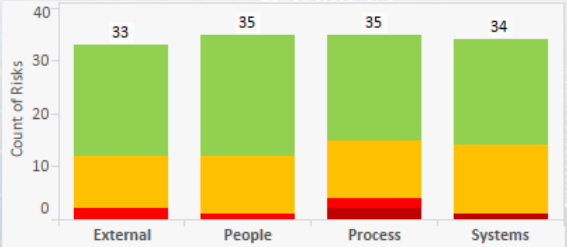


Micro Assessment

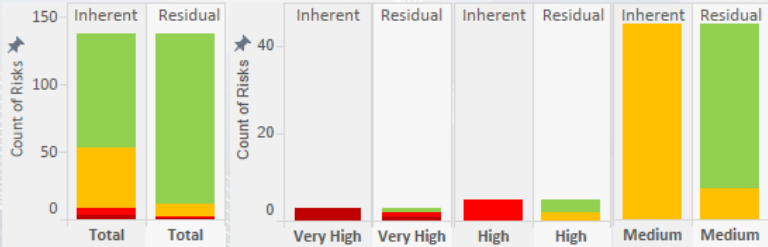
Risk Rating



Risk Root Cause Segments



Inherent to Residual Risk Distribution



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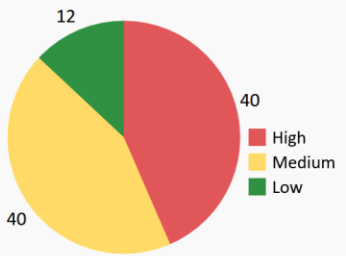
Summary Dashboard | Macro Dashboard | Micro Dashboard

Quarterly IA Activities

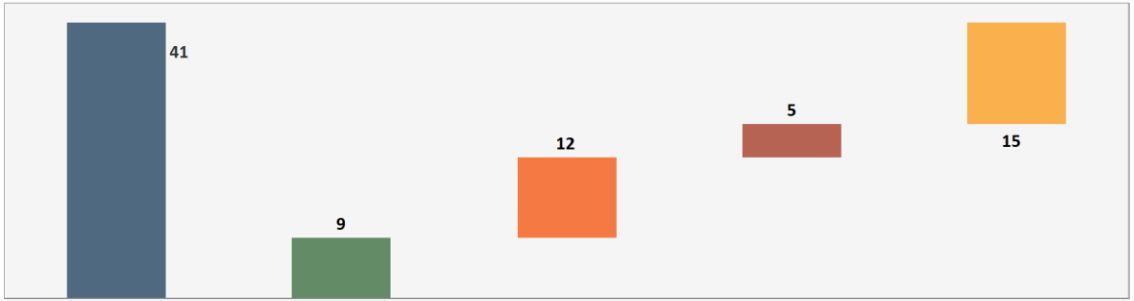
Home

Bahrain | Iraq | Jordan | Kuwait | Lebanon | Saudi Arabia | South Sudan | Sudan | Group

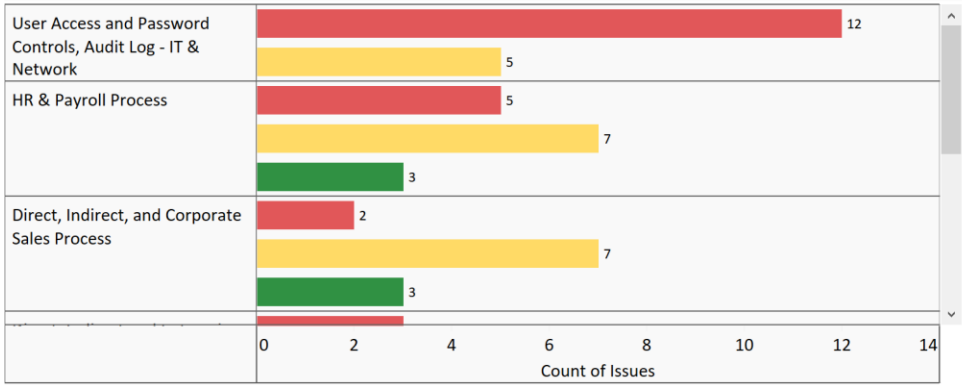
Distribution of Issues



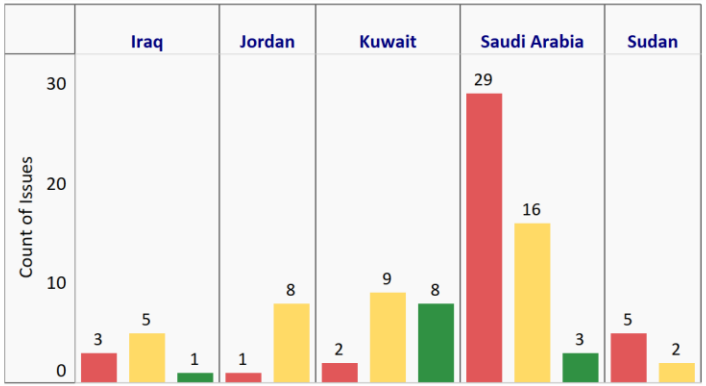
Audit Status



Number of Issues by Report



Distribution of Issues - OpCos

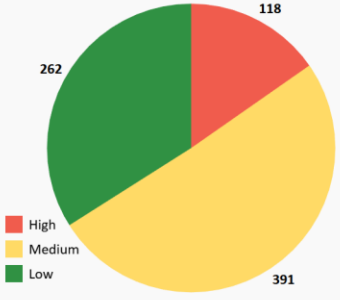


Quarterly Follow up Update

Home

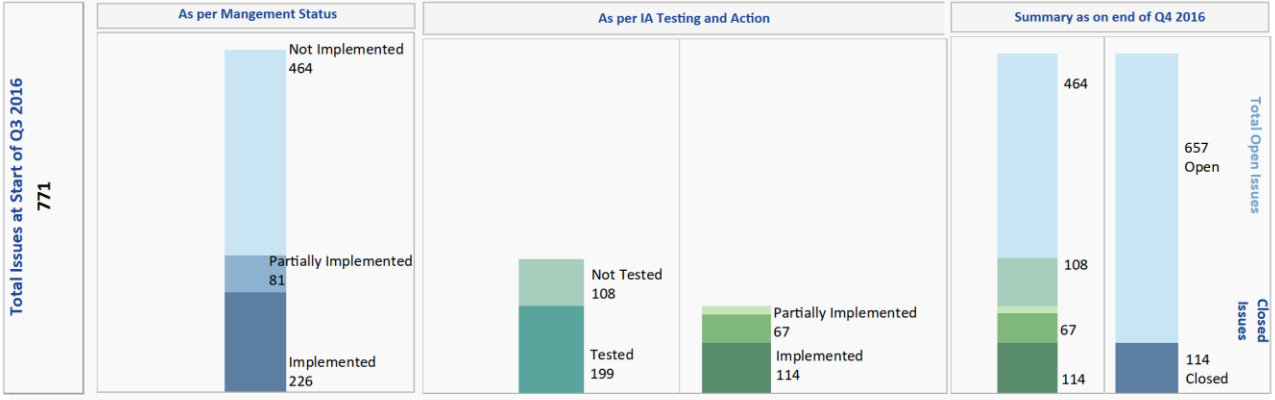
Bahrain | Iraq | Jordan | Kuwait | Lebanon | Saudi Arabia | Sudan | South Sudan | Group

Issue Rating



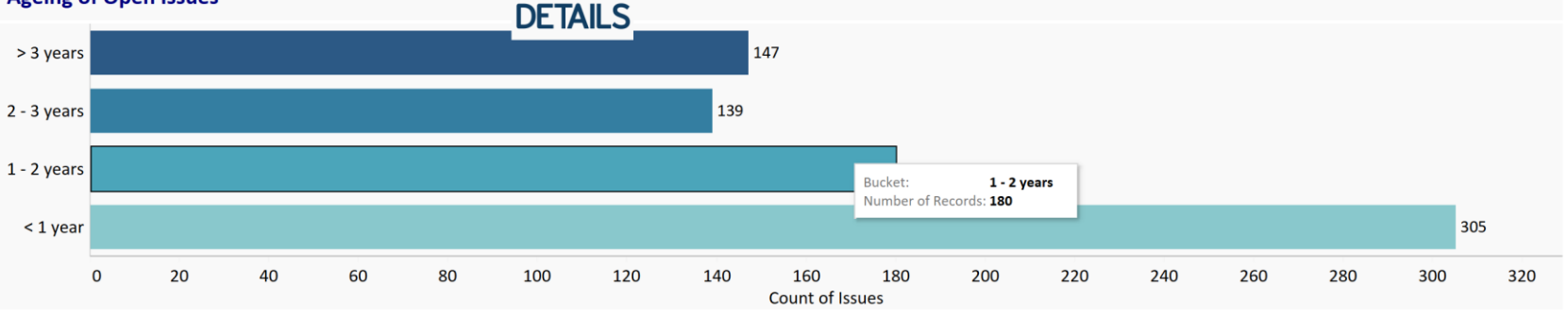
Summary of Open Issues

DETAILS



Ageing of Open Issues

DETAILS



Quarterly Follow up Update (Details)

Home

Bahrain

Iraq

Jordan

Kuwait

Lebanon

Saudi Arabia

Sudan

South Sudan

Group

Snapshot of IA Testing		High	Medium	Low
Issues due for Implementation in Q4		118	391	262
Implemented/Partially Implemented as per Management Feedback		51	158	98
Implemented/Partially Implemented, Pending IA Testing		18	54	36
Tested By Internal Audit		33	104	62
Internal Audit Testing Update	Implemented /removed	12	55	43
	Partially Implemented	12	42	13
	Not Implemented	9	5	4
Total Open Issues due but not Implemented/Tested as of 31 Dec 2016		106	336	219

Revised Risk Grading(30Sep16): Low
Issues Due for implementation in Q4-values: 4

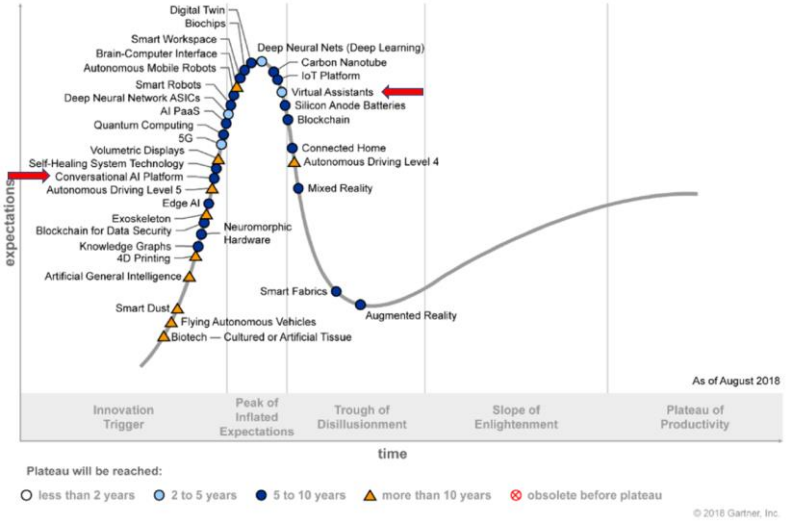
Ageing of High Risk Issues

Ageing of Issues	1 Jan 2017	Q1 2016	Q2 2016	Q3 2016	Q4 2016
Carried Forward	92	70	63	59	56
Issues due in Q1 2016		26	18	13	11
Issues due in Q2 2016			9	6	6
Issues due in Q3 2016				10	9
Issues due in Q4 2016					29
Grand Total	**92**	**96**	**90**	**88**	**111**

Ageing of Medium Risk Issues

Ageing of Issues	1 Jan 2017	Q1 2016	Q2 2016	Q3 2016	Q4 2016
Carried Forward	329	305	248	231	212
Issues due in Q1 2016		61	60	50	40
Issues due in Q2 2016			37	31	28
				43	37
Issues due in Q4 2016					34
Grand Total	**329**	**366**	**345**	**355**	**351**

Conversational AI – Overview



Intelligence - understand not just the language but also the meaning of what the user is saying.

Concentrate on Natural language processing (NLP) and Natural Language Understanding (NLU).

Mobility - Embedded into smartphones, smart speakers, cars, fridges, wrist watches, television; it has an increasingly larger scale.

Variety - Wider scope and can perform a wide range of tasks, decision making and e-commerce. It can perform activities like sharing jokes, playing music, stock market updates, check facts, do calculations, translate a, locate a parked car, get a ride, unearth what one is looking for from massive numbers of files and even controlling the electronic gadgets in the room.

Unlike chatbots, AI assistants mature with use and is currently seeing a massive expansion in deployment aided by major technology giants (Google, Apple, Amazon, IBM).

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Conversational AI – Overview

Conversational AI solutions can be designed and developed to interact with SAP, Microsoft, Salesforce, Webpages, etc.

By 2020, we expect every business especially Financial services, telecom, retail, healthcare, consumer goods sectors & Government agencies will be running their community services, marketing, self care & customer care on chat BOTs & voice assistants. Conversational AI applications will become a commodity in every business, home and transportation.

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Tools and Technology Alliances (Existing and Potential)

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Robotic Process Automation

WHAT IS ROBOTIC AUTOMATION?

Robotic Automation is the use of software tools that function as a virtual workforce, managed by business operations teams. Logic-driven robots execute pre-determined, rules-based tasks, mimicking human interaction with existing applications to automate a variety of business processes.

Robots are able to capture and interpret information from existing user interfaces to process data, communicate with systems, and executing tasks all without transforming the current IT landscape.

HOW IT WORKS

- Easy-to-program software tools that can automate a range of business processes; works from an end user's PC (or alternatively on a virtual machine)
- Can operate without the need for IT support for configuration.
- 'Robots' are deployed to perform routine business processes, simulating human interaction with applications through several user interfaces, following pre-programmed rules to make decisions.
- The software's actions can designed and configured by regular business users once trained on a robotic automation platform. These actions are managed by a robot controller, hosted on a central server.

THE GOAL

To save time and money while building efficiencies in performance and cost management for the long term.

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Robotic Process Automation: Why Automate

Higher Quality	Human **error reduction** to a minimum	Complete **audit trail** and aligned with **compliance**
Productivity Increase	**Faster** processes and **availability** around the hour	Employees can focus on **value-adding activities**
Cost Reduction	Lower **process costs** and easily **scalable**	**Rapid return** on investment
Ease of Implementation	Initial results possible within **60 working days**	No significant **IT-support required**

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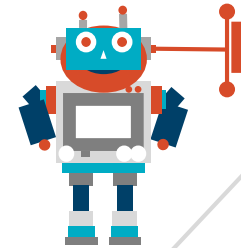
Automation with RPA



Robots

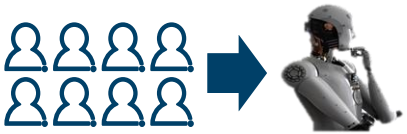
- **Read and download relevant emails** for processing
- **Centrally store documents** in a central repository
- **Interact with multiple applications**, i.e. Email, Shared Drive, ERP, Excel
- Securely logged on to ERP, **validate** and performed **data entry**
- Complete task and logged out of ERP, 1 min equals to 15 min of work for a person
- Generate task (invoice) summary report and email to process owner

Assuming 7,000 invoices are to be processed monthly and each invoice requires 15 minutes processing time

1750
HOURS
via Manual Processing

116
HOURS
via robotic

93%
reduction in processing time



Over **200** man-day saved

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Robotic Process Automation

NPO Invoices

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AUDITING EMERGING TECHNOLOGIES

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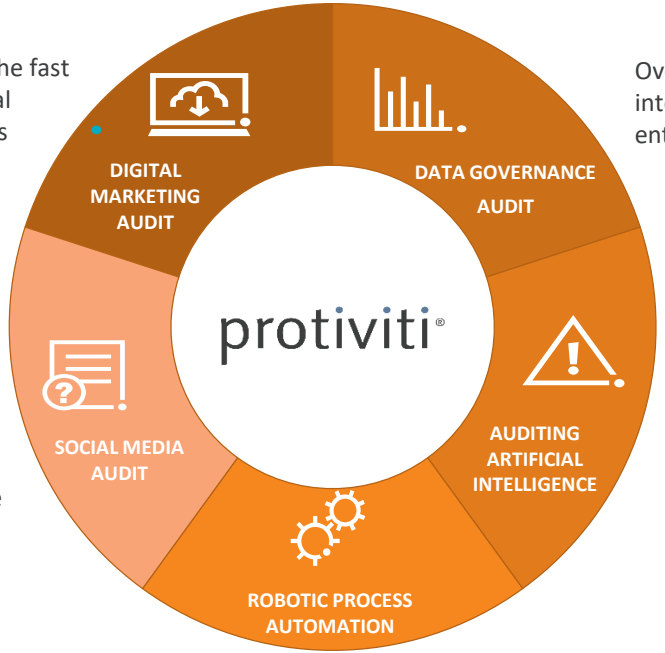
Face the Future with Confidence

Audit Areas of Focus

A digital marketing audit provides the fast track to understand how your digital investments are working and what's needed to accelerate ROI



Overall management of the availability, usability, integrity and security of data used in an enterprise

How prepared are organizations in ensuring that their social data strategy and the investments they are making are meeting their revenue, customer connect, security and regulatory requirements?

As AI systems evolve, it is conceivable that—at some point—they could provide autonomous knowledge. However, algorithms designed to achieve optimal efficiencies could inadvertently result in negative or unforeseen consequence

Robotic process automation is an emerging form of business process automation technology based on the notion of software robots or artificial intelligence worker.

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AUDITING ROBOTICS PROCESS AUTOMATION

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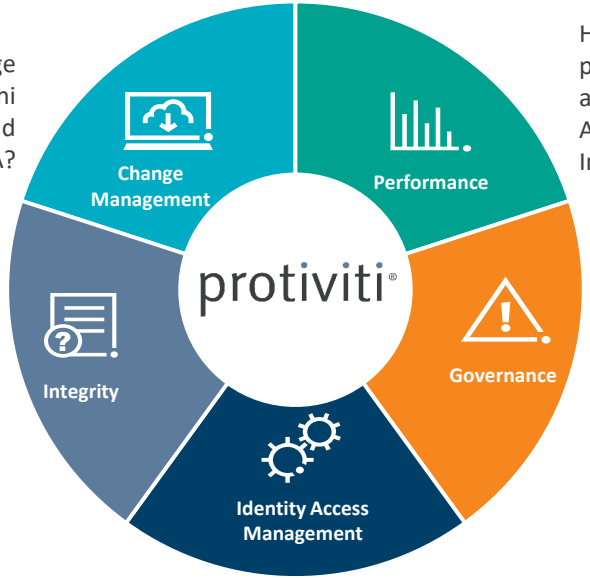
Why Audit RPA?

1. While robotics afford improved efficiency and effectiveness, if something goes wrong the negative implications can be rapid and widespread.
2. Confirm appropriate controls have been put in place as processes are automated, and that appropriate governance and ownership is established.
3. Access required to operate RPA is significant and must be monitored and tested.
4. The change management process may pose a serious challenge to maintaining the efficiency and effectiveness levels that robots can achieve.
5. Processes are often re-engineered prior to and during the adoption of robots and can result in the loss of controls and introduction of risk.

Audit Areas of Focus

Does the change management process inhi bit the efficiency and effectiveness of RPA?

How is the RPA performance monitored and measured?
Are Key Performance Indicators (KPI) defined?



Are RPA rules routinely reviewed for accuracy?

Are there policies and procedures in place defining governance of robotics?

Are appropriate security and access controls in place over RPA?

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