Changing the Paradigm

WYRD GLOBAL

Diriger

Diriger was founded in 2018 and now has:

70
Resources in the Ecosystem

7
Partners

5
Offices Worldwide

Australia, South Korea, Spain, Vietnam & Chile.
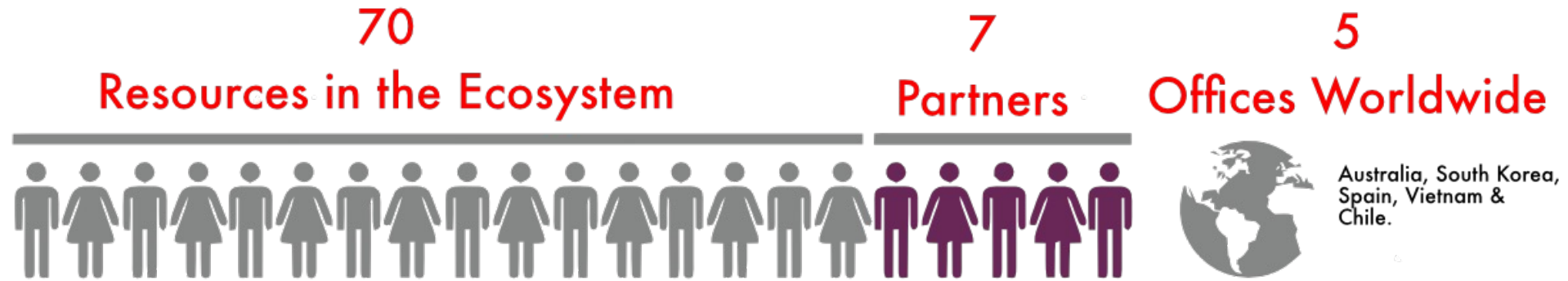
What makes working with Diriger different?

Deep industry experience and subject matter expertise

Small teams of hands-on senior experts who deliver tangible results

Close client collaboration to embed lasting change

Iterative, hypothesis-driven approach to problem solving

Agile teams with a flexible, client-centric working style

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Why Interoperability?

Imagine that you are visiting an international conference with people from across the globe, and that everyone speaks a different language. How do you communicate with everybody? There are three basic options:
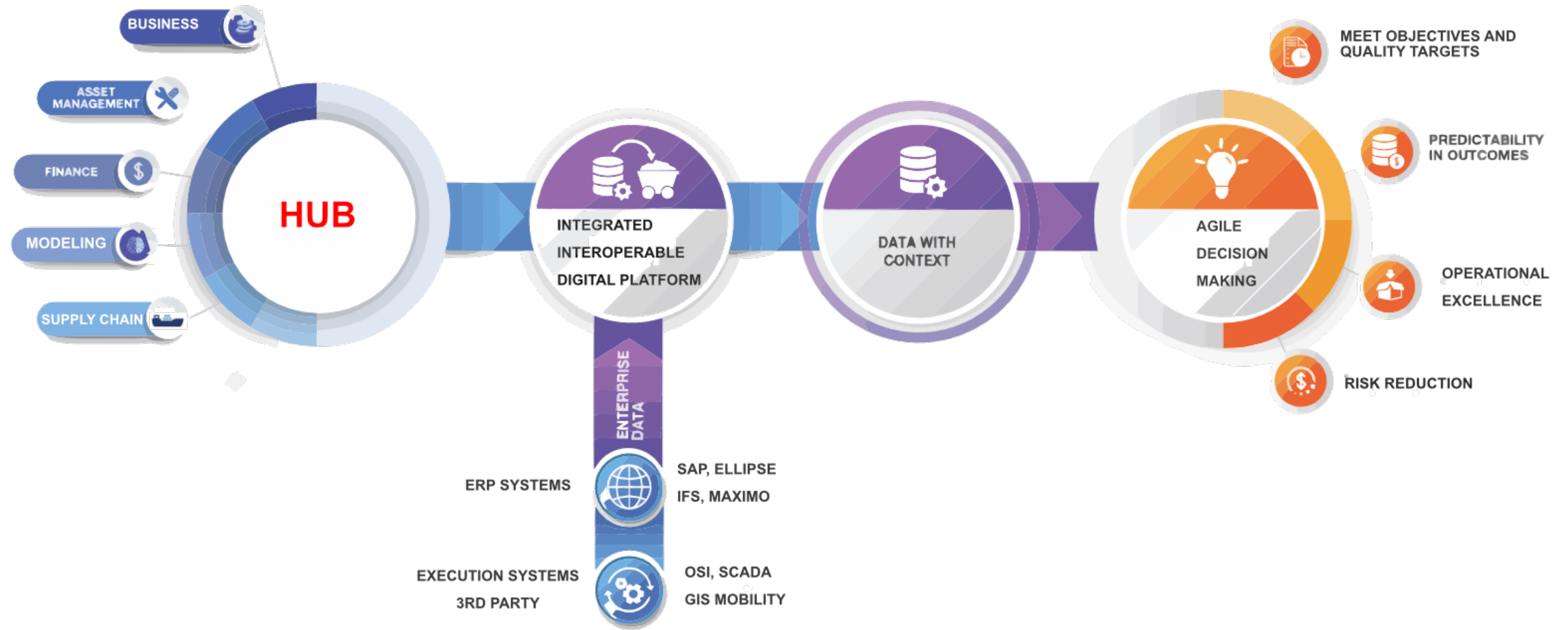
1. Everyone learns every single language spoken at the conference

2. Hire a translator for every language at the conference

3. Everyone learns ONE common language

Options 1 and 2 are "integrations", where 1 is a direct integration (everyone learn everyone else's language) and 2 integrates via "middleware" (i.e., the translator). These options require a custom translation to each participant.

Option 3 is "interoperability" - everybody learns the same ONE common language. The benefits of interoperability in this scenario are clear.
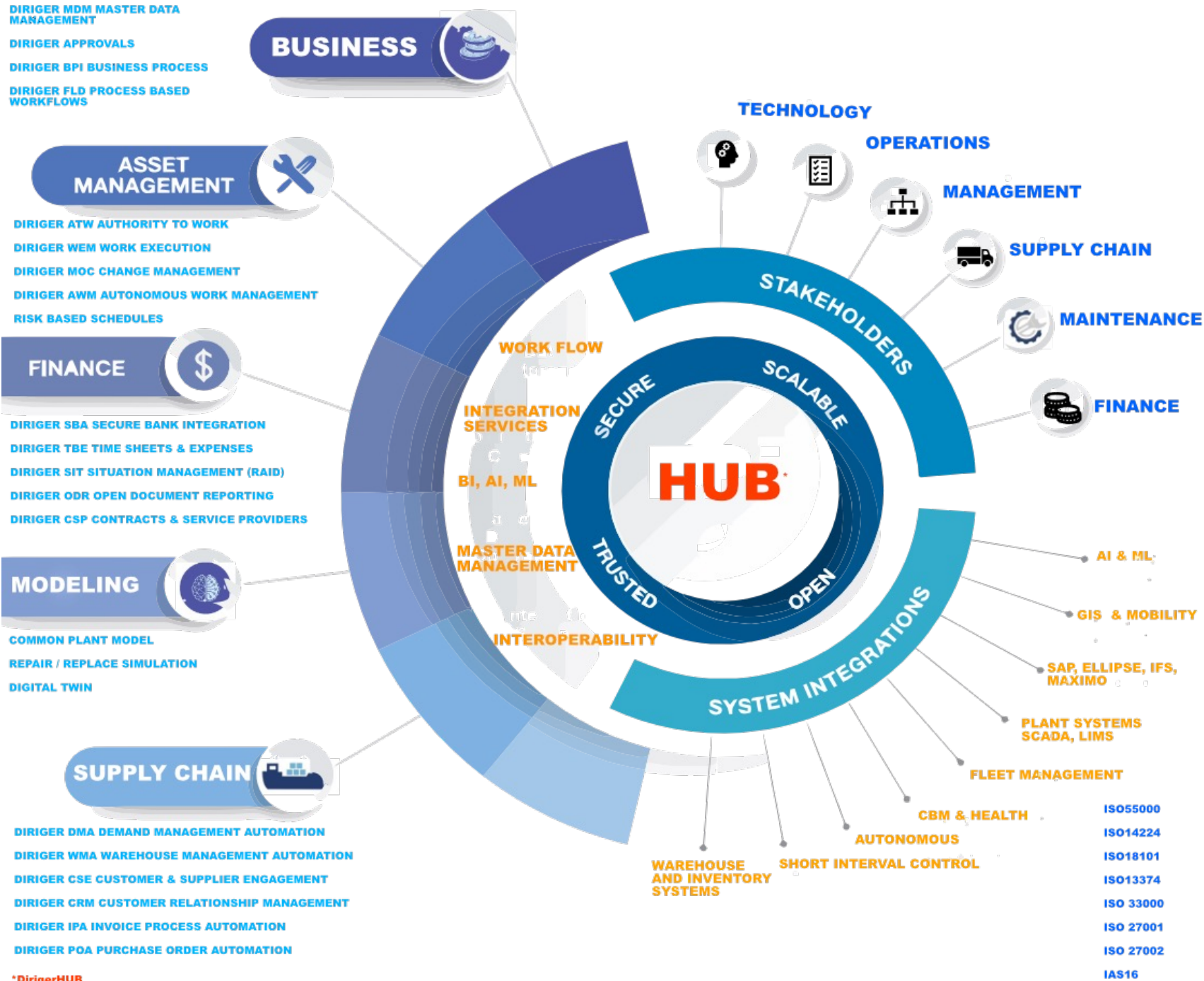
When systems have **interoperability**, they communicate via a common language with no translation required.

Strategy & Outcomes

BUSINESS

ASSET MANAGEMENT

FINANCE

MODELING

SUPPLY CHAIN

HUB

INTEGRATED INTEROPERABLE DIGITAL PLATFORM

DATA WITH CONTEXT

AGILE DECISION MAKING

ENTERPRISE DATA

ERP SYSTEMS — SAP, ELLIPSE IFS, MAXIMO

EXECUTION SYSTEMS 3RD PARTY — OSI, SCADA GIS MOBILITY

MEET OBJECTIVES AND QUALITY TARGETS

PREDICTABILITY IN OUTCOMES

OPERATIONAL EXCELLENCE

RISK REDUCTION

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HUB

THE CLOUD INTEROPERABILITY SERVICE

BUSINESS
- DIRIGER MDM MASTER DATA MANAGEMENT
- DIRIGER APPROVALS
- DIRIGER BPI BUSINESS PROCESS
- DIRIGER FLD PROCESS BASED WORKFLOWS

ASSET MANAGEMENT
- DIRIGER ATW AUTHORITY TO WORK
- DIRIGER WEM WORK EXECUTION
- DIRIGER MOC CHANGE MANAGEMENT
- DIRIGER AWM AUTONOMOUS WORK MANAGEMENT
- RISK BASED SCHEDULES

FINANCE
- DIRIGER SBA SECURE BANK INTEGRATION
- DIRIGER TBE TIME SHEETS & EXPENSES
- DIRIGER SIT SITUATION MANAGEMENT (RAID)
- DIRIGER ODR OPEN DOCUMENT REPORTING
- DIRIGER CSP CONTRACTS & SERVICE PROVIDERS

MODELING
- COMMON PLANT MODEL
- REPAIR / REPLACE SIMULATION
- DIGITAL TWIN

SUPPLY CHAIN
- DIRIGER DMA DEMAND MANAGEMENT AUTOMATION
- DIRIGER WMA WAREHOUSE MANAGEMENT AUTOMATION
- DIRIGER CSE CUSTOMER & SUPPLIER ENGAGEMENT
- DIRIGER CRM CUSTOMER RELATIONSHIP MANAGEMENT
- DIRIGER IPA INVOICE PROCESS AUTOMATION
- DIRIGER POA PURCHASE ORDER AUTOMATION
- *DirigerHUB*

Central diagram labels:

- TECHNOLOGY
- OPERATIONS
- MANAGEMENT
- SUPPLY CHAIN
- MAINTENANCE
- FINANCE

STAKEHOLDERS

- SECURE
- SCALABLE
- TRUSTED
- OPEN

HUB

- WORK FLOW
- INTEGRATION SERVICES
- BI, AI, ML
- MASTER DATA MANAGEMENT
- INTEROPERABILITY

SYSTEM INTEGRATIONS

- AI & ML
- GIS & MOBILITY
- SAP, ELLIPSE, IFS, MAXIMO
- PLANT SYSTEMS SCADA, LIMS
- FLEET MANAGEMENT
- CBM & HEALTH
- AUTONOMOUS
- SHORT INTERVAL CONTROL
- WAREHOUSE AND INVENTORY SYSTEMS

- ISO55000
- ISO14224
- ISO18101
- ISO13374
- ISO 33000
- ISO 27001
- ISO 27002
- IAS16

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BUILT ON DIRIGER HUB INTEROPERABILITY AND COMPOSABLE PLATFORM

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Our DirigerHUB Enabling Platforms make use of the latest technologies, such as:

|								
Artificial Intelligence and Machine Learning	Highly scalable and accessible cloud deployments	Micro Services and Containerisation	PWA (Progressive Web Applications) for mobile and offline capability	Our Integration, Business Rule, and Workflow platform technology	Design Thinking approach to Persona and Process-based low cognitive load UI/UX (Composable User Interface and Experience)	Interoperability aligned with the OIIE and ISO 18101 DirigerHUB has direct connectivity to the Peppol e-Delivery Network for sending and receiving of PEPPOL documents.	Multi-system synthesis in real-time with full audit and error recycle capabilities	Centralised security and User Profile controls (Delegations or Authority) that standardise across all systems-of-systems capability	Composable Customer-specific UI/UX configuration capability so that there are 'No more Gaps' in solution deployment and reduced Customer Technical Debt.

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WHAT IS THE VALUE OF Diriger HUB?

Transparency & Trust

Standardisation & Simplification	Process Based Workflows
Master Data Management	Scalable & Flexible
Agility	Seamless Integration to ERP

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Supply Chain Management

Demand Management Automation	Purchase Order Automation	Contracts and Service Providers	Warehouse Management Automation	Invoice Process Automation
DirigerDMA - Goods, Services, Warehouse Issues, Work Requests, Work Orders, Leave and many more - Persona based UI/UX - Realtime Analytics - Approvals Manager - Attach Documents - Multiple Catalogues	**DirigerPOA** - Auto Purchase - Auto Replenish - Approvals Workflow - Dashboards and Analytics - Auto Expediting - Single UI/UX - Very Low Cognitive Load	**DirigerCSP** - Auto Request or Renewal - Sourcing, Pre-Qual Evaluations - Events and Rules - Contract Repository - Terms, Documents Schedules - Costs, Budgets - Claims, Variance - Issue Management	**DirigerWMA** - Auto Receipting and Handling - Stock Control - Recommended Orders for inventory replenisment - Auto Issue of Demands - Stock in Transit Integration - Auto Repairables	**DirigerIPA** - AI Based Invoice Load - Adaptive payments - Auto Bank Transfer - Bank Reconciliation - Supplier Gateway and access - Automatic Workflows with Customer - Business Rules - Segregation of duties - Approval Workflows

Business Interoperability Platform	**DirigerHUB**	Event Driven, Data Streaming, End to End integration
Workflow Engine	**DirigerFLO**	Work Flows, Business Rules, Process Automation, Machine Learning
Situation Management	**DirigerSIT**	Concerns, Opportunities, Constraints, Decisions, Issues, Risks, Actions
Data Management	**DirigerSEE**	Analytics, Embedded Graphics, Benchmarks, Dashboards, Modelling
Transaction Management	**DirigerFAA**	Financial Transactions, Sub-Ledger Interrogation, Journaling

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Demand Management Automation

DirigerDMA: Total Enterprise Assistant Capabilities

Demand Management Automation

Enterprise Assistant Anywhere – Employee One-Stop Shop

Asset Magt
Work Request
Work Order, Costing
Inspections, Defects
Check/Source Parts

Purchasing
Purchase Request
Direct Purchase
Check Availability
Assignments

R.A.I.D
Risks, Actions, Issues
Incidents, Decisions
Events, Metrics
Notifications

Admin, HS&E
Travel, Expenses
Leave, Safety,
Training
ESG, New Starter

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Capabilities for:
- **Customer configurations**
- **Composable Applications**
- **One-Stop User Interface**
- **Reduced technical debt**

DirigerHUB
Interoperability & Development Platform

Enterprise Delegations
Centralised Approvals
Defined Business Rules
Repeatable Workflows
AI/ML Data Validation
Error Recycle, Audit Trail
Scalable Storage

**80%
Reusable Processes**

BoB – Best of Breed eg. Ariba, Success Factors, etc.

ERP/EAM
Asset Master Data
Financial System of
Record

ERP/EAM/BoB *
HR, Purchasing
Logistics, Costing
ESG, Finance

Data Warehouse
Enterprise Reporting
Governance

DirigerDMA provides

✓ Personalised information that makes it EASY for Users; Graphical User-based filters and tables to provide fast, easy access to the right data (agile deployment)

✓ Provides information on any Demand Request to Users in the field

✓ Procedural foundation processes with extremely low training burden (agile and intuitive usage and adoption)

✓ Attachment of documents to a Request for routing to Approvers, Planners and Purchasing Officers

✓ Supports standard corporate business rules and automation of Approvals

✓ Simplified analytics making data dissemination easier, faster and relevant

✓ Reduces data collection activity; more Relevant and Accurate data

✓ Defaults User costing and access details for *My Requisitions*

✓ Rapidly search data using a *Google-like* User interface

✓ Deliver succinct information to a single screen

✓ Reduced cognitive load through simple and intuitive design

✓ DirigerHUB has direct connectivity to the Peppol eDelivery Network for sending and receiving of PEPPOL documents.

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Purchase Order Automation

Automate High Volume / Low-Risk / Low-Cost Purchases
The 80/20 Rule at Work for Improved Financial Controls & Lower Cost
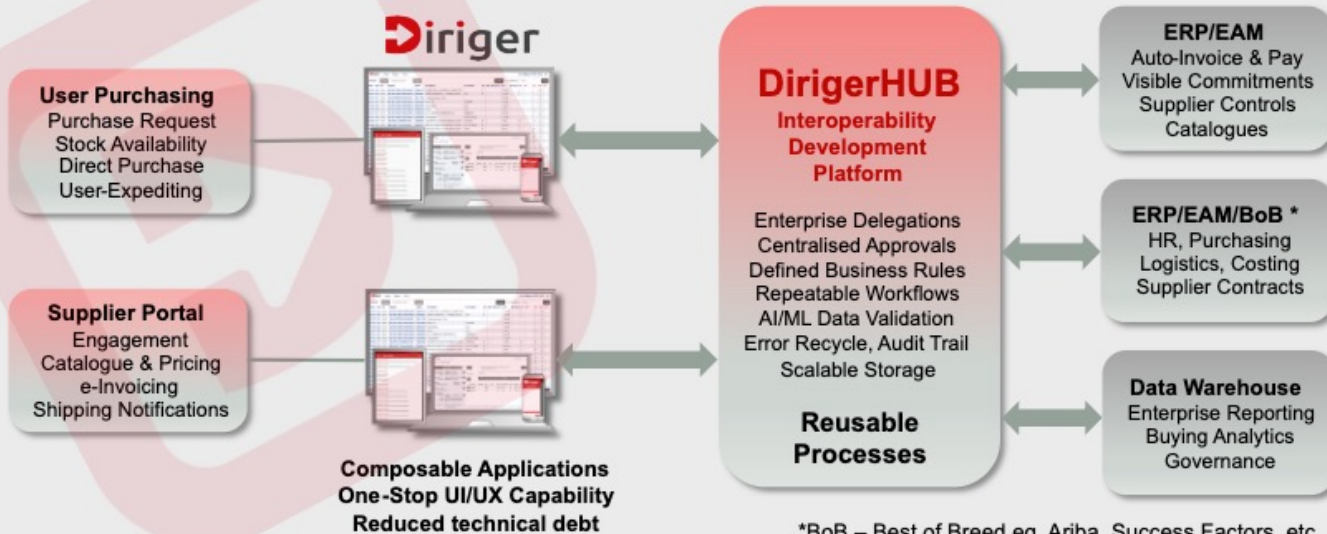
Our **DirigerPOA** solution has been designed to automate the business processes that relate to Purchasing and Stock Replenishment

The benefits and expected ROI of **DirigerPOA** are

Through the use of a configurable Business Rule and Work Flow Engines creates an acceleration of the standard *Feature and Function* capabilities available in most ERP systems by more than 70%

Reduction in expediting; based on improved accuracy in defining lead times and delivery

Visibility of all historical (including cancelled/deleted) purchases to improve material management

Precursor to introducing AI into the procurement function; which is not possible without *clean* data

Fine grained control over thresholds for quoting and contracts

Significant reduction in data entry/clerical type activities

When used with DirigerDMA; it provides an even greater impact

Realtime dynamic business KPI's and Benchmarks

Diriger Purchase Order Automation and its Benefits
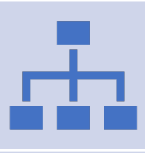
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Through the use of a configurable Business Rule and Work Flow Engines creates an acceleration of the standard ERP systems by more than 70%

Reduction in expediting; based on improved accuracy in defining lead times and delivery

Visibility of all historical (including cancelled/deleted) purchases to improve material management
Fine grained control over thresholds for quoting and contracts
Significant reduction in data entry/clerical type activities
When used with DirigerDMA; it provides an even greater impact
Realtime dynamic business KPI's and Benchmarks

DirigerPOA provides

Personalised information (agile deployment)

Procedure-based interaction (agile adoption)

Simplifies analytics

DIrigerIPA is compatible with OASIS UBL and Peppol Documents (e-Invoicing)

Rapidly search data using a *Google-like* capability
Deliver succinct information to a single screen
Support standard corporate business rules
Procedural based processes (agile adoption)

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Purchase Order Creation

EXAMPLE

Invoice Automation

DirigerIPA provides

A target of greater than 95% invoice process automation

Minimal data entry; documents read and loaded from Supplier email on receipt

Workflows and Business Rules captured and applied automatically through our Workflow Engine

Dashboards to monitor Exceptions, Non Order Invoices, Mismatches, Controls

Capability to read and load invoice data without template configurations

Classifies and manages all related invoice related documents

Governed manual intervention and controls of exceptions

Embedded analytics and visualisation tools

Procedural based processes with extremely low training burden and cognitive load (agile adoption)

Simplify analytics making data dissemination easier, faster and relevant

Reduce data collection activity; more Relevant and Accurate

Rapidly search data using a *Google-like* User interface

Deliver succinct information to a single screen

Diriger Invoice Automation and its Benefits

DirigerIPA Solution has been designed to automate the business processes that relate to Accounts Payable within an organisation. DirigerIPA uses our configurable Workflow Engine to capture business rules and Smart *Persona-based* screens to accelerate capability that is an *Order of Magnitude* superior to any ERP system. The benefits and expected ROI of DirigerIPA are:
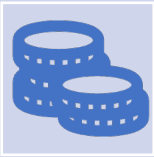
Order-of-Magnitude reduction in invoice processing time

Significantly improves Service Levels and Authorisation efficiencies

Doesn't require Supplier Invoice templates for AI invoice loading

Machine Learning technology

Constant visualisation of all invoice transaction states and recommended actions

Manages and classifies documents that support invoice processes

Locates and notifies of settlement discounts

Out-of-the-Box integration to ERP's and other internal or external systems

Dashboard of real time dynamic business KPI's

Process Overview and Capability

A target of greater than 95% invoice process automation
Minimal data entry; documents read and loaded from Supplier email on receipt or via the Peppoi Framework.
Workflows and Business Rules captured and applied automatically through our Workflow Engine
Dashboards for Exceptions, Non Order Invoices, Mismatches

Capability to read and load invoice data without template configurations
Classifies and manages all related invoice related documents
Governed manual intervention and controls of exceptions
Embedded analytics and visualisation tools
Procedural based processes with extremely low training burden and agile adoption

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Customer Supplier Relationship

DirigerCSE provides

A target of greater than 98% Customer and Supplier data validity

Minimal data entry - documents and data updated and validated on-line

Business Rules and Workflow engines to govern interventions and approvals

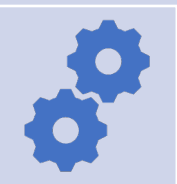Capability to read, load and classify documents without template configurations

Dashboards to monitor and Govern Exceptions and Controls

Embedded analytics and visualisation tools

Our DirigerCSE solution has been designed to optimise collaboration between the business processes that relate to Customer and Supplier. DirigerCSE uses a configurable Business Rules Engine, customisable Work-Flows, and Smart Persona-based screens to make available capability that is an *Order of Magnitude* superior to ERP system processing

Order-of-Magnitude reduction in engagement and work-flow processing time

Significantly improves internal Service Levels and Authorisation efficiencies

Integrates seamlessly across Diriger and ERP Supply Chain processes

Manages and classifies a multitude of documents that support related processes

Locates and notifies of expiry dates and other commercial obligations

Effectively improves Customer and Supplier relationships

Reduces the time-impact of Relationship Engagements

Process Overview and Capability

DirigerCSE provides

A target of greater than 98% Customer and Supplier data validity

Minimal data entry - documents and data updated and validated on-line

Business Rules and Workflow engines to govern interventions and approvals

Capability to read, load and classify documents without template configurations

Dashboards to monitor and Govern Exceptions and Controls

Embedded analytics and visualisation tools
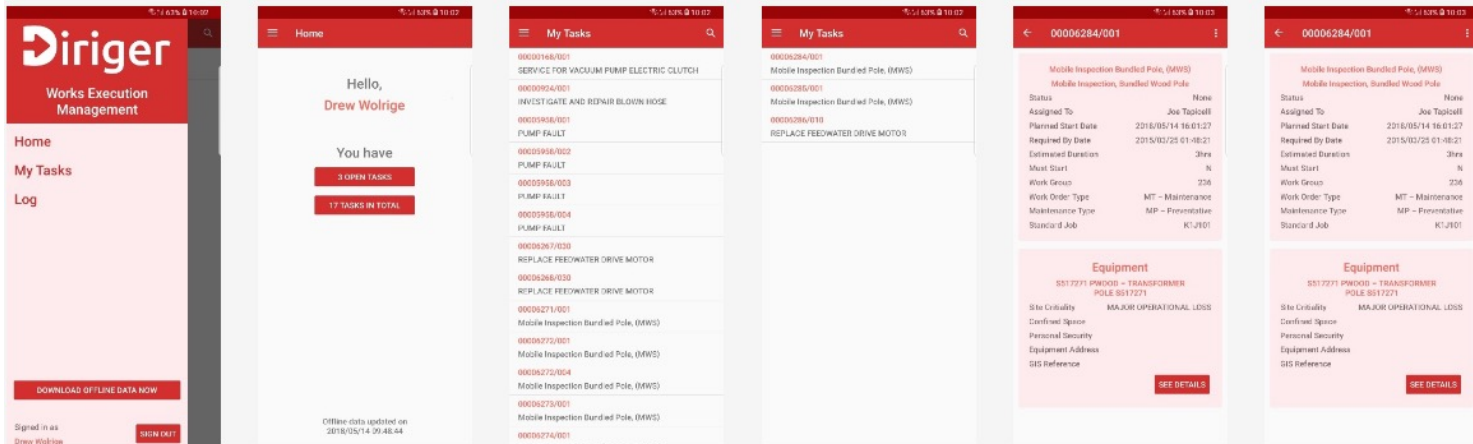
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Asset Management

Asset Performance Management (APM) Capabilities in an Interoperable System of Systems
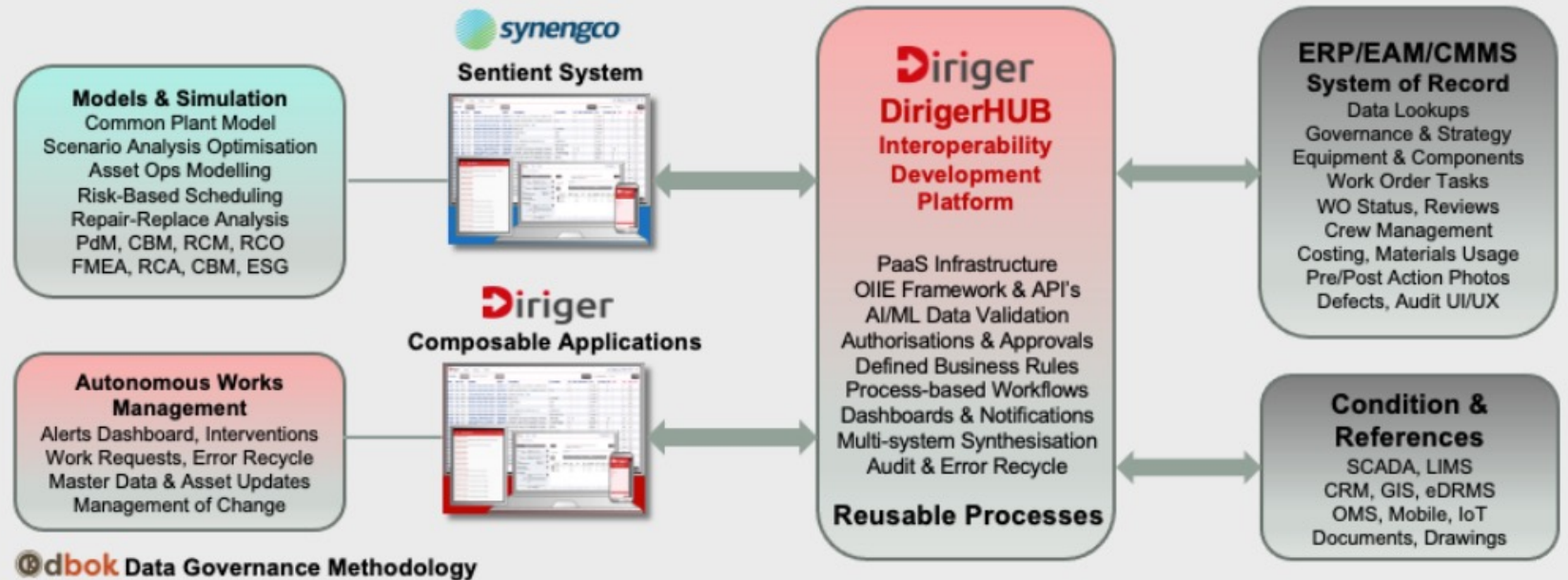
Work Execution with Mobility

MyWork Mobile

DirigerWEM and **MyWork** provides

Planners work-bench to speed Work Order management (schedule, action, complete, close)

Google like search for Planner's and Manager's workbench by Work Order, Location, Asset, Crew, Activity, Maintenance Type, Standard Job

Multi-Technician execution of geographically dispersed tasks in sequential order e.g. Speeds up isolations and the like

Embedded link with DirigerHSE for real-time safety and hazard controls (SLAMs, Permits etc.)

On-the-fly Asset and attribute updates (update nameplates and other relevant information in the field)

Real-time mobility; running a paperless operation; faster, better quality

UI requires less cognitive load and lower training burden

Real-time resolution of On-Hold or Suspend status

Automated business rules for Work Order close

Full off-line mode with MyWork

Mobile apps & desk top UI are developed using PWA (progressive web app) technology that is transportable to any device platform (Apple, Google, Windows) = Single point of development, maintenance & support.

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Work Order Creation

EXAMPLE

Sentient System

Sentient System is a decision support and real-time optimisation platform for asset-intensive operations. It uses a self-learning digital twin of a process to provide for model-based decisions. The key to the technology is to automatically maintain alignment between the physical plant and the digital representation of the plant. The system monitors the fundamental changes in performance and asset consumption, continuously calibrates the digital twin by sophisticated machine learning and uses this self-calibrated digital simulation to provide:

➢ Detailed asset health and performance at a component level
➢ Precise and quantified system impact from changes to asset health and performance
➢ Predict future behaviour based on historical behaviour changes
➢ Early warning when the expected behaviour does not align with the predicted behaviour
➢ Real-time optimisation by simulation and manipulating the digital representation of the plant to improve operation from a production and/or asset consumption perspective.
➢ Once optimised in the digital world, execute the changes to the real-plant and ensure the actual change aligns with the expected improvement.

Sentient System platform is primarily a whole-of-system and whole-of-life optimisation of asset-intensive operations.

➢ Library of Assets with self-learning algorithms and failure modes
➢ Advanced pattern recognition
➢ Comprehensive fundamental modelling capabilities in mass, energy and value transfer and flow, asset consumption, and asset damage.
➢ Comprehensive empirical modelling and machine learning capabilities.
➢ Comprehensive predictive maintenance capabilities
➢ Interpretive analysis of condition monitoring data
➢ Data structures to support explainable AI
➢ Extensible data analysis capabilities
➢ Extensible data visualisation capabilities

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SENTIENT SYSTEM

Condition Monitoring

Data Collection & Validation for Asset Condition Monitoring

Interoperable System of Systems in a Secure Data Fabric

Works Management
Work Orders, Inspections
Crewing, Interventions
Associated Documents
Asset Updates, Error Recycle

Data Sources & Validation
SCADA & Alerts
Inspections, Work Orders
Bulk Loads

DirigerHUB
Interoperability
Development
Platform
PaaS Infrastructure
Multi-system Synthesisation
Industry Standard API's
AI/ML Data Validation
Authorisations & Approvals
Defined Business Rules
Process-based Workflows
Dashboards & Notifications
Error Recycle
Reusable Processes

ERP/EAM/CMMS System of Record
Data Lookups
Alerts & Work Requests
New Equipment
Work Order Tasks
WO Updates, Reviews
Crew Allocations
Costing, Materials
Pre/Post Action Photos
Defects, Audit UI/UX

Composable Applications
One-Stop UI/UX Capability
Reduced technical debt

Predictive analytics:

The industry is developing capability in using this data to analyse patterns, identify value drivers, and predict failure to greater degrees of certainty than before. This can lead to decreased maintenance costs; reduced business-halting failures in critical equipment; and greater asset lifespan.

Objective data analysis:

To achieve true predictive analytics, we must objectively understand the actual lead indicators of failure. This often requires a 'step-back' to understand equipment and processes, rather than relying on experience and gut-feel.

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Data Management

TYPICAL MINING SOLUTIONS LANDSCAPE
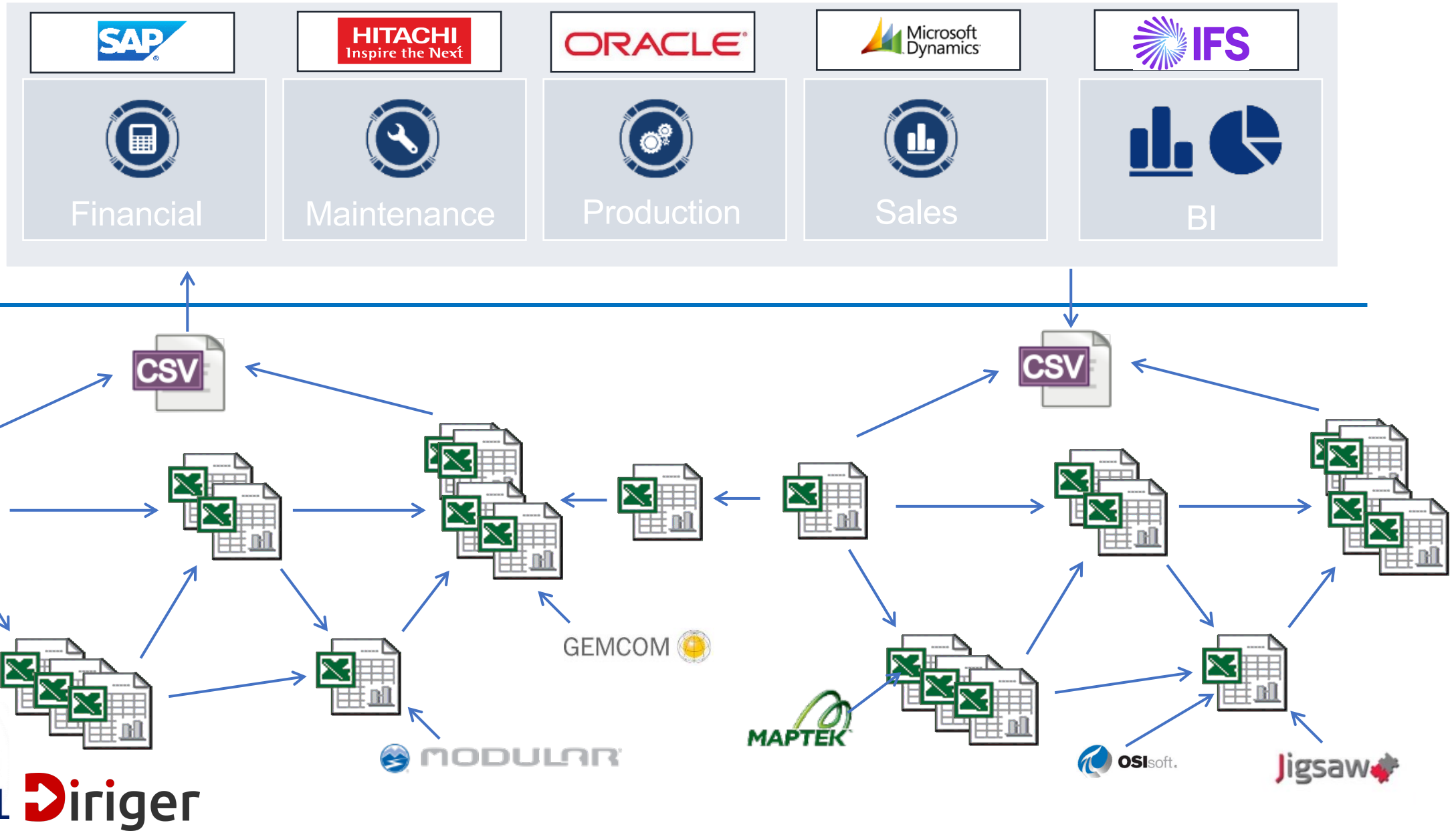
HUB Capabilities

User Interface and User Experience
Monitoring & Control Dashboard, Analytics, Business Application Services
Development & Collaboration Services, Configurable UI/UX

Diriger

Security and Authentication
Authorisation Access, Data Security, Accountability, Cryptography, Auditing, Network Controls & Segregation
ISMS Controls & Protocols (ISO 27001)

Workflow and Business Rules Engines
AI & ML Driven Data & Process Orchestration Services, Scalable Cloud Data Storage & Virtual Master Data Management
Monitoring & Control Services: Error Recycle, Notifications, Alerts, Administration, Management of Change & Approvals

Cloud Integration
Multi-System API Management & Master Data Synthesisation, Industry Standard Adaptors, Messaging
Infrastructure Optimisation, Transitions & Transformations, API connectivity anywhere / Other ESB

- Workflow of any business process (Including Management of Change)
- Deployment to On-premise or Cloud infrastructure
- Single or multi-threaded, serial, parallel or distributed deployments
- Business data from multiple systems in Real-Time and ensures it is VALID; especially data we need for collaboration
- A better foundation for our Data Insights Value Chain - which is core to our business imperatives
- *Real-time* automation applications and data visibility or synthesisation models work across multiple platforms, applications, and structures
- Connection to multiple systems e.g., multiple ERP's, specific Best-of-Breed applications; allowing a single UI/UX and subsequent low cognitive load for both applications and Master Data Management
- Middleware that knows about business data requirements across multiple API's that are simple to implement (Utilises OIIE standard adaptors)
- Assurance that transactions are completed in accordance with prescribed security, workflow and business rules whilst building data accuracy

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System of Systems
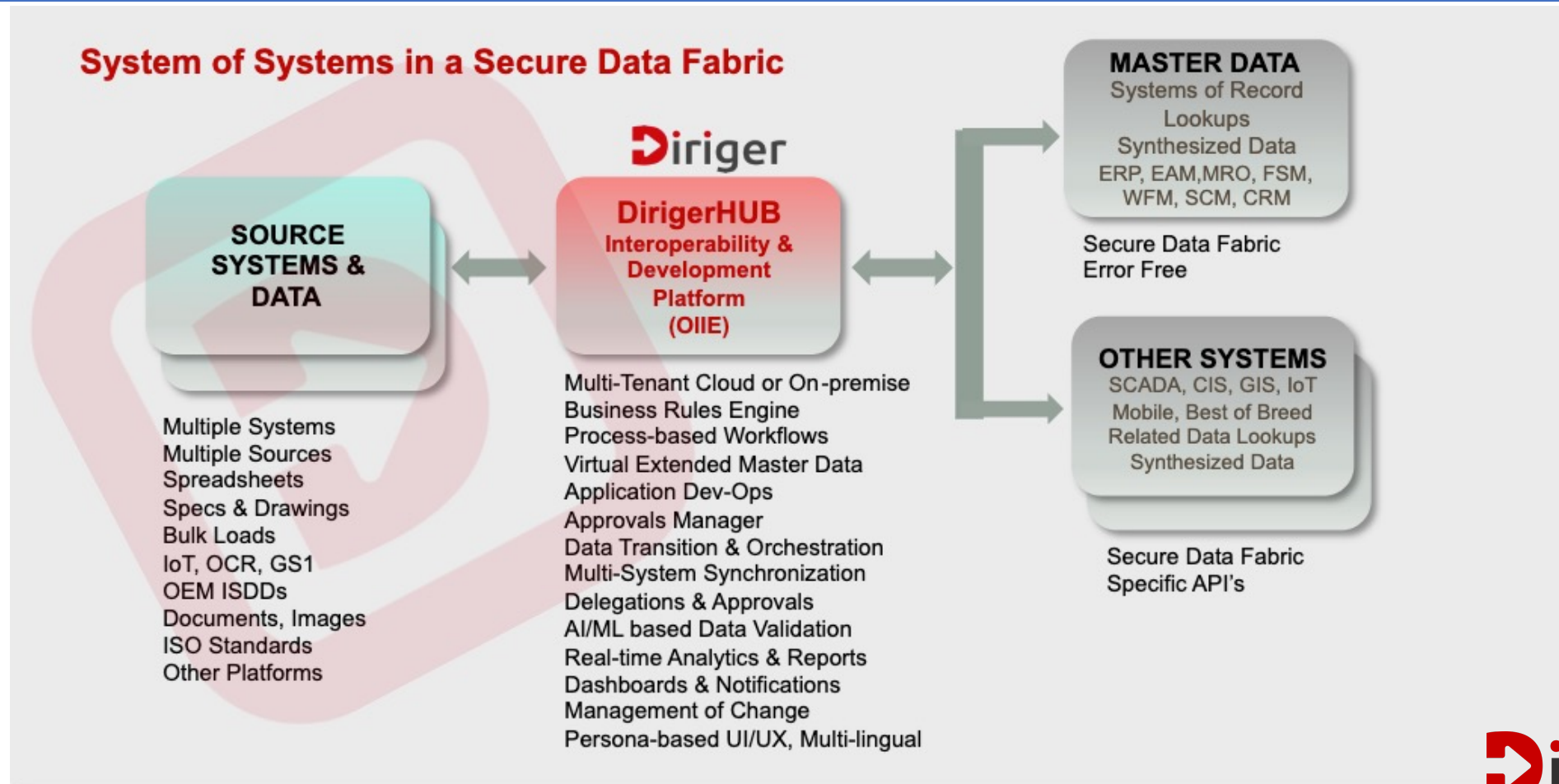
Application Of AI & ML

Broad use of Artificial Intelligence and Machine Learning

Image Recognition
- Most image and document inputs; Templates and Scripts are NOT required

Conversational Language
- Understanding Human Intent through Design Thinking
- User Interface and User Experience (UI/UX) and Interpretative Natural Language Interface e.g. Google-like

Goal Driven Systems
- Business Rules and Reinforcement Learning
- Workflow and Process Optimisation
- Interactive problem solving with Validation and Intervention

Predictive Analytics and Path Dependence
- Statistical Inference from data history; Maximum confidence
- Decision Support and process-based Judgment Heuristics

Patterns and Outliers
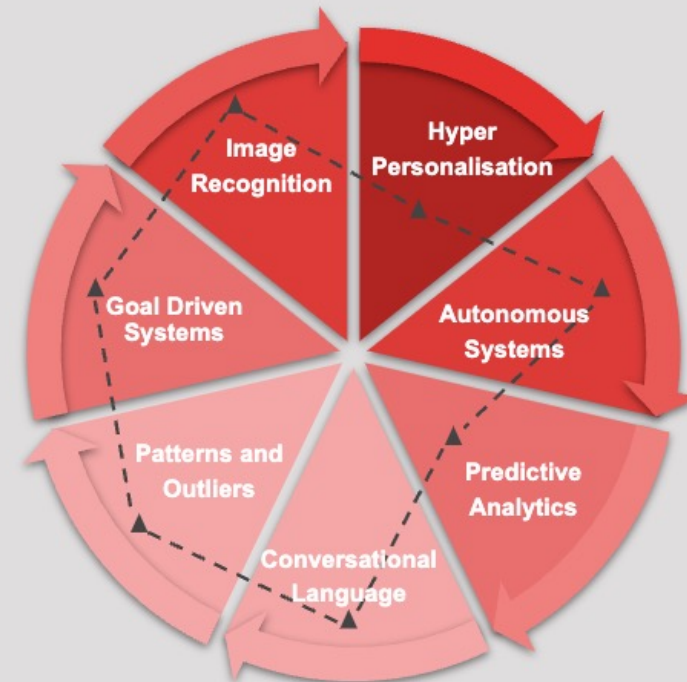- Cognitive pattern learning or potential outliers; Data validation
- Risk detection and minimisation of mistakes
- Predictive text and alignment to expected data

Autonomous Systems
- Reducing the need for manual labour and repetition (prescribed practice)

Hyper Personalisation
- Treats people as individuals; User History and Trending

▲ Example - DirigerIPA (Invoice Process Automation)

Summary

HUB

BUSINESS · ASSET MANAGEMENT · FINANCE · MODELING · SUPPLY CHAIN

INTEGRATED INTEROPERABLE DIGITAL PLATFORM

ENTERPRISE DATA

ERP SYSTEMS — SAP, ELLIPSE IFS, MAXIMO

EXECUTION SYSTEMS 3RD PARTY — OSI, SCADA GIS MOBILITY

DATA WITH CONTEXT

AGILE DECISION MAKING

MEET OBJECTIVES AND QUALITY TARGETS · PREDICTABILITY IN OUTCOMES · OPERATIONAL EXCELLENCE · RISK REDUCTION

Business Process Improvement
- Supply Chain
- Asset Management
- People Management
- Financial Management
- Work Force Mobility
- Data Driven Decision Making
- Machine Learning Capabilities
- Predictive Statistics
- Data Validation and Visualisation
- Process Optimisation via automation & artificial intelligence

Technology and Innovation with
- ✓ Problem solving capability
- ✓ Reliable outcomes
- ✓ Customer collaboration
- ✓ Effective and Ethical approaches
- ✓ Integration platforms
- ✓ Work Flow interoperability

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