



DIGITAL CORE FOR ENTERPRISE - MANUFACTURING



- DIGITAL MANUFACTURING CHALLENGES
- OUR VISION: DIGITAL MANUFACTURING ON SAP
- OUR OFFERINGS
- BRINGING OUR VISION TO LIFE

AGENDA

The background features a series of dynamic, flowing blue lines that create a sense of movement and depth. These lines, in various shades of blue, swirl and curve across the dark navy blue background, resembling liquid or digital data streams. Some lines are thicker and more prominent, while others are thinner and more delicate. The overall effect is one of high-tech, fluidity, and complexity.

DIGITAL MANUFACTURING CHALLENGE



WE SEE THREE BIG DRIVERS OF MANUFACTURING CHANGE

1

END CUSTOMERS

- Have increasingly high expectations and increasingly jump between brands
- Look for hyper-personalized products and even connected services
- All delivered for lower price, higher quality and with shortened lead-times!

2

CONTINUOUS IMPROVEMENT

- Reduce costs by moving to Global Engineering/Local Manufacturing model
- Increasing partner collaboration in design and production
- Providing transparency up and down the Supply Chain (for customers too)

3

ENVIRONMENTAL

- Economic and geo-political drivers push Supply Chain re-alignment
- Increasingly complex external regulatory and compliance requirements
- Hitting Sustainability targets is no longer an option. It's a must.



THESE DRIVERS OF CHANGE PUT THE PRESSURE ON! **YOU HAVE TO DELIVER...**

1

..."DIGITAL TWINS"
EVERYWHERE

"LEAN" YOUR DIGITAL
PROCESS FLOWS IN
SUPPORT OF YOUR LEAN
MANUFACTURING JOURNEY

- Last-minute changes to high-volume products increasing the requirement for insight shop floor operations
- Data leaders see about 22% better-than average profits

2

...NEW REVENUE STREAMS
SELL SERVICES WITH YOUR
PRODUCT FOLLOWING THE
LEAD OF SECTORS SUCH AS
AUTOMOTIVE

- 2026, 80% of Automotive OEMs, will have monetized their connected services
- Elevator Otis, move around 2 billion people a day and look to monetize this data trove

3

...NET ZERO AND BEYOND
TRANSFORM YOUR WAYS OF
WORKING WHILE MEETING
YOUR SUSTAINABILITY
GOALS.

- One in five manufacturers are already working towards carbon-neutrality by the end of the decade
- Yes only 58% of organizations are currently on-track to meet sustainability goals



IF YOU DO NOTHING, THE RISKS ARE...

1

...LOST REVENUE

- Since not delivering to expectation...
- Combined with reduced brand loyalty...
- Will push your customers to other suppliers

2

...HIGHER COSTS

- Not having insight in your data flows whilst trying to service the customers...
- Will lead to taking decisions based on incorrect information...
- Impacting OEE of you and your partners as well as product quality

3

...LIMITED AGILITY AND COMPLIANCE

- Requests agility in IT and OT set-up to produce quality but also be sustainable...
- With a looming danger of non-compliance and reputational damage...
- Further impacting profitability and customer satisfaction

The background features a dark navy blue field with dynamic, flowing lines in various shades of blue. These lines swirl and curve, creating a sense of movement and depth. Some lines are thick and layered, while others are thin and delicate. The overall effect is modern and energetic.

**WHAT'S OUR VISION
FOR HELPING YOU
CHANGE?**

SAP DIGITAL MANUFACTURING IS PART OF...



INTELLIGENT INDUSTRY **POWERED BY DATA**



PIONEERING INDUSTRY REINVENTION

- *Capgemini is pioneering new data centric and collaborative ways of designing, engineering, manufacturing and supporting products, assets and services – leveraging new technologies to create more value.*

...OUR INTELLIGENT INDUSTRY



OUR VISION COVERS SMART FACTORIES AND EXTENDS DIGITAL MANUFACTURING "UPSTREAM" INTO R&D AND "DOWNSTREAM" TO CONNECTED PRODUCTS AND CONSUMERS

↑ INCREASE PRODUCT RANGE AND MARKET SHARE

↓ COST & INVENTORY REDUCTION THROUGH ITEM, SPEC, MATERIAL HARMONISATION

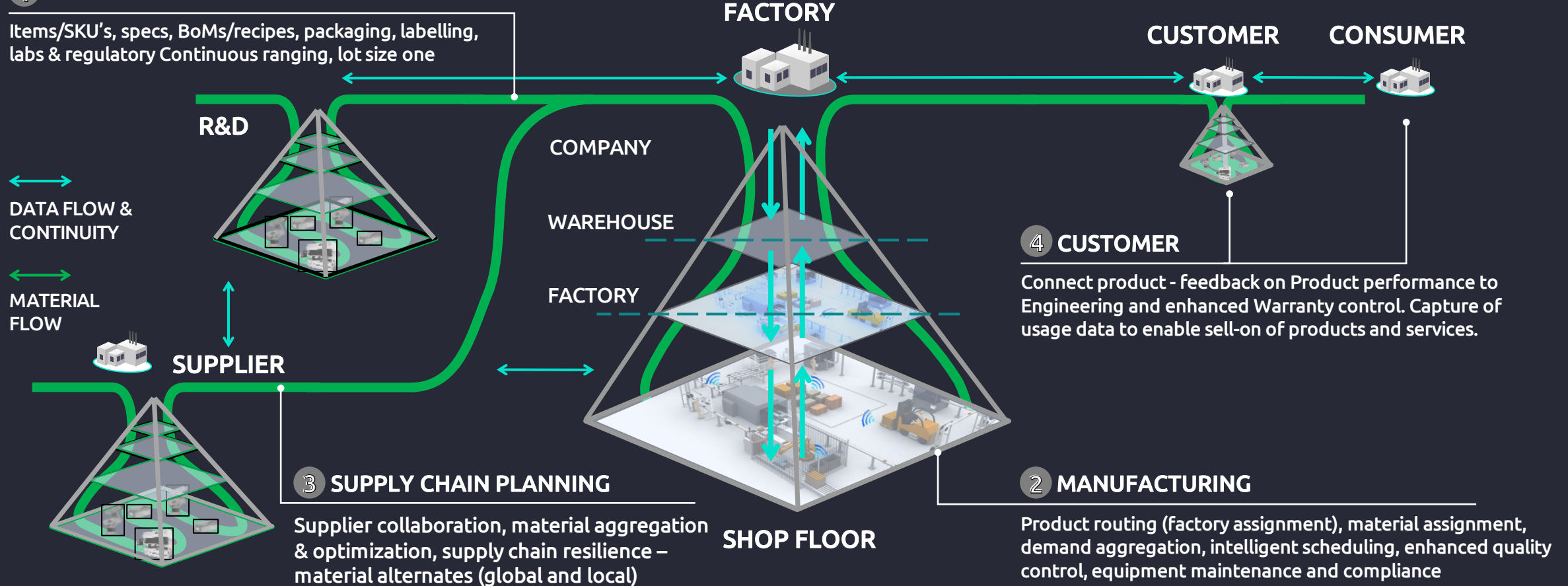
↑ VISIBILITY, OEE & COMPLIANCE

↑ ACCELERATED TIME TO MARKET

↑ ENHANCED CONSUMER EXPERIENCE

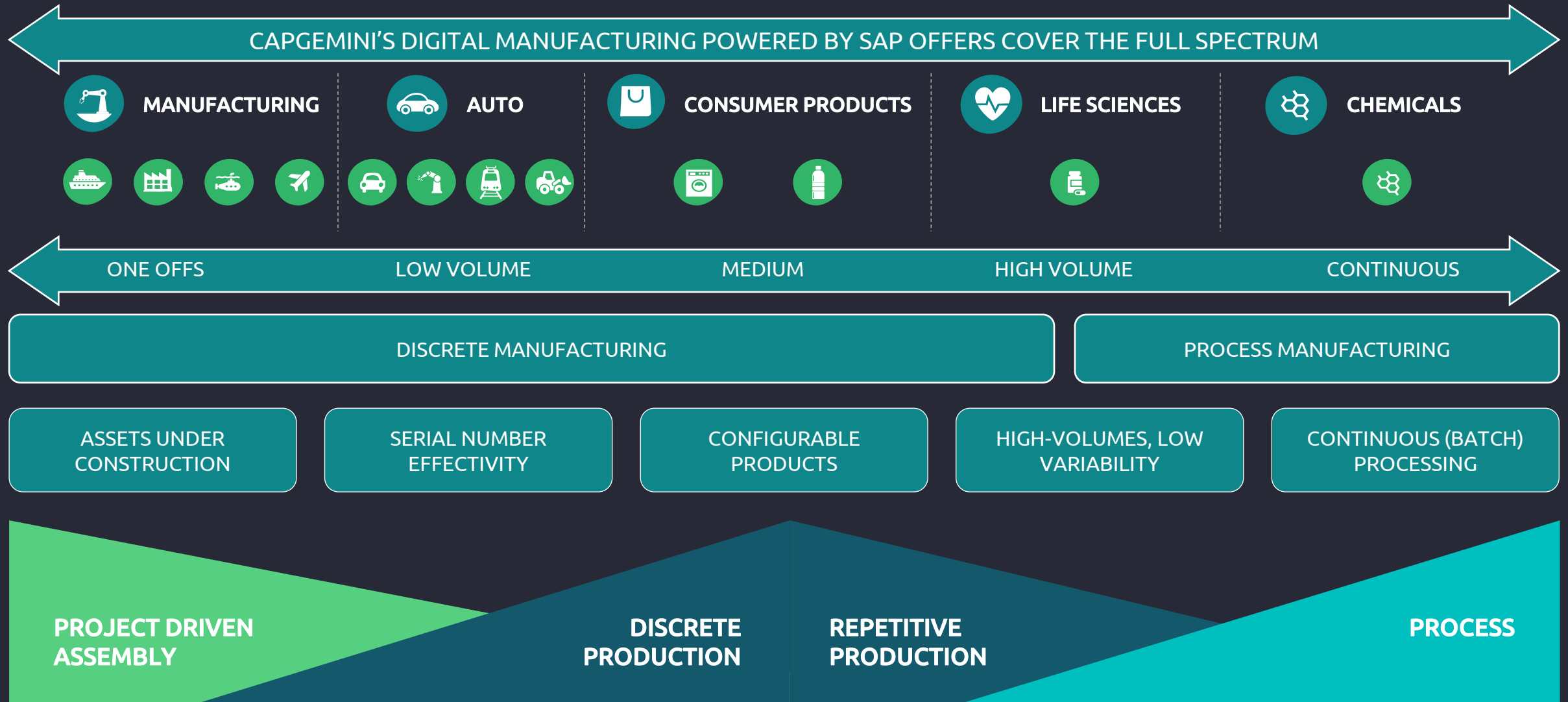
1 PRODUCT LIFECYCLE MANAGEMENT

Items/SKU's, specs, BoMs/recipes, packaging, labelling, labs & regulatory Continuous ranging, lot size one



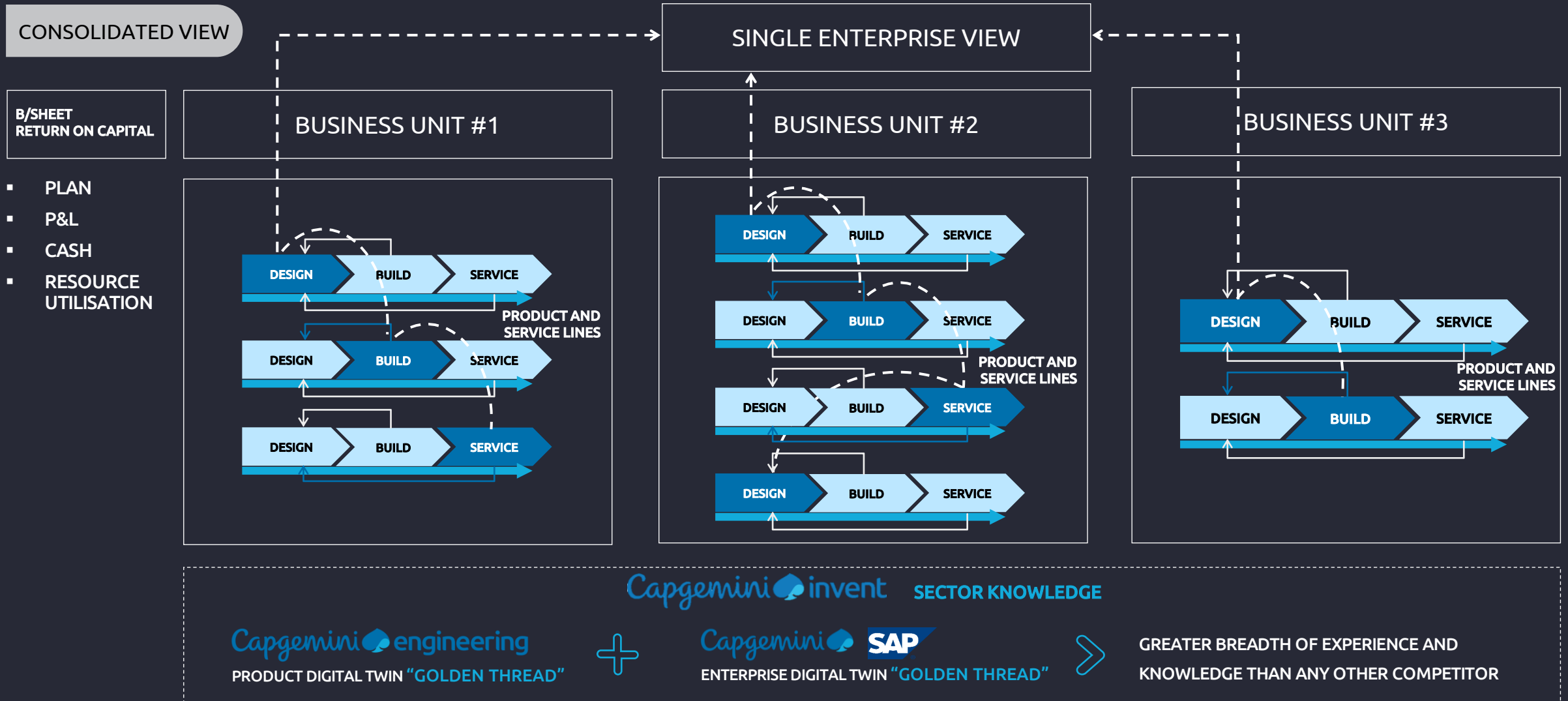


CAPGEMINI'S MANUFACTURING SPECTRUM





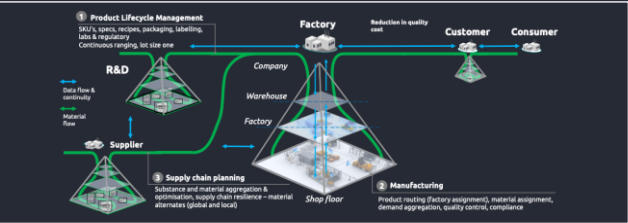
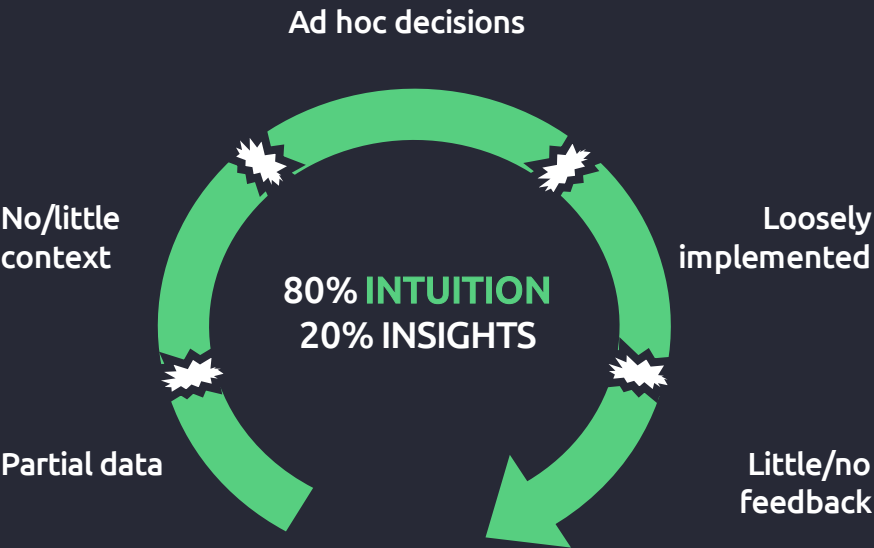
OUR VISION CONNECTS YOUR DIGITAL PRODUCT TWINS TO A DIGITAL TWIN OF YOUR ENTERPRISE





INTELLIGENT INDUSTRY: MOVING FROM BROKEN LOOP TO CLOSED LOOP OPERATIONS AND ENABLE DATA-DRIVEN DECISIONS

TRANSFORM BY TRANSITIONING FROM “BROKEN LOOPS GUIDED BY INTUITION” TO “CLOSED LOOP DRIVEN BY INSIGHTS”

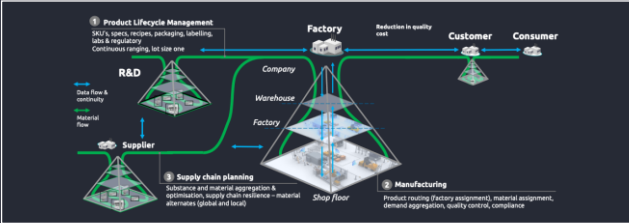
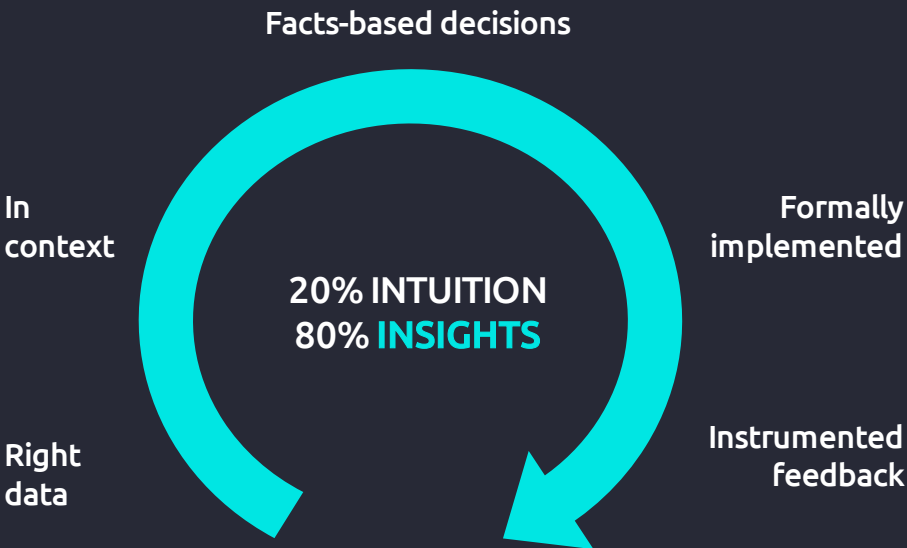
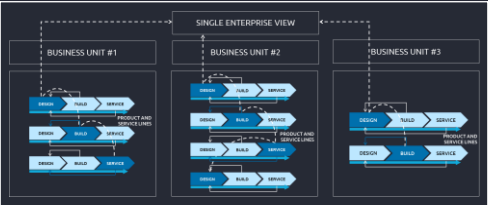


BROKEN LOOPS ACROSS PRODUCT ORDERS ACROSS THE ENTERPRISE

CONNECTED ENGINEERING,
CUSTOMER, MANUFACTURING
AND PRODUCTS



SMART DIGITAL
FACTORIES



CLOSED LOOP FEEDBACK FOR ALL PRODUCTS ACROSS THE ENTERPRISE



DIGITAL MANUFACTURING POWERED BY SAP CAPABILITIES CAN YIELD SIGNIFICANT BUSINESS BENEFITS

ENTERPRISE LEVEL GAINS THAT COULD RESULT FROM TRULY CONNECTED PRODUCT DATA

THROUGH-LIFE COST

Recurring Costs: up to 25% reduction
Non-Recurring Cost: up to 30% reduction

LEADTIME TO DELIVERY

Lead Time:
up to 30% reduction over 7 years

RISK MITIGATION

Availability of Assets in operation:
>95%

INDICATIVE OPERATIONAL GAINS THAT COULD RESULT FROM CONNECTED PRODUCT DATA IN A SMART FACTORY

VIRTUAL OPERATIONS & SCHEDULING

Increased manufacturing output by up to 25%

RELEASE CHANGE & CONFIGURATION MANAGEMENT

Up to 10% reduction in quality cost

PREDICTIVE MAINTENANCE

Machine Utilization: >10% increase

TRACK & TRACE

Increased productivity in logistics operations
by up to 15%

VIRTUAL QA

5-10% reduction in quality cost



LOCALISED GAINS IF COORDINATED ACROSS TEAMS AND DEPARTMENTS

ANALYTICS FOR QUALITY

Supplier quality improvements with up to
50% reduction in recurring deviations

DIGITAL SHOPFLOOR MONITORING

Overall operating cost reductions in region of 5 %

PAPERLESS WORK ORDER MANAGEMENT

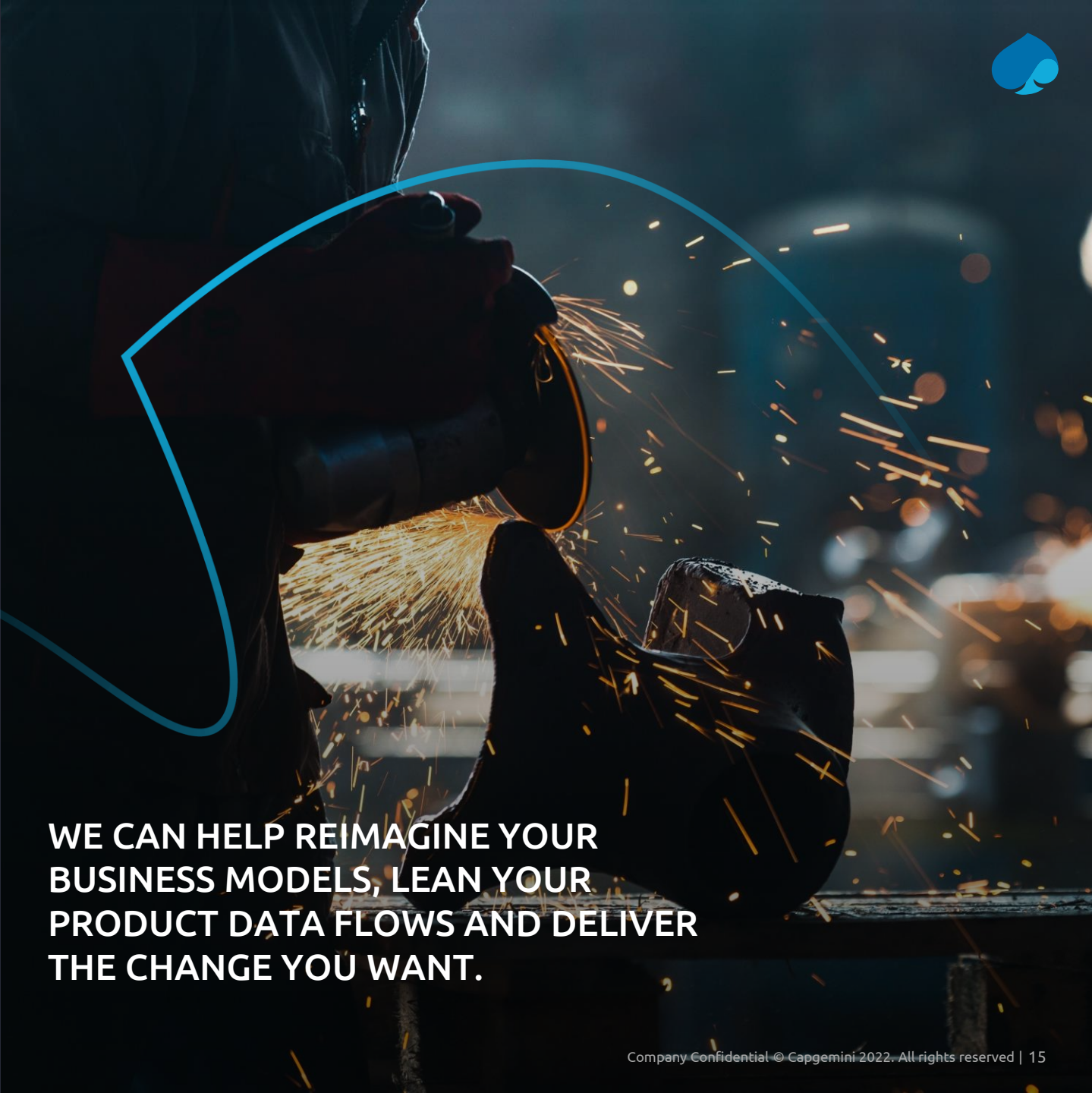
Auto creation for electronic work instructions up
to 80% reduction in time to prepare shop orders



OUR OFFERINGS

SO...WHAT DOES CAPGEMINI OFFER?

- CONNECTED ENGINEERING
- CONNECTED CUSTOMER
- CONNECTED FACTORY
- CONNECTED PRODUCT
- ENHANCED OPERATIONS



WE CAN HELP REIMAGINE YOUR
BUSINESS MODELS, LEAN YOUR
PRODUCT DATA FLOWS AND DELIVER
THE CHANGE YOU WANT.



FOUR MAJOR DIGITAL MANUFACTURING OFFERS “POWERED BY SAP”

1



**CONNECTED
ENGINEERING**

2



**CONNECTED
CUSTOMER**

3



**CONNECTED
SHOPFLOOR**

4



**CONNECTED
PRODUCT**

PLUS A SERIES OF GROUP OFFERS “POWERED BY SAP”

DIGITAL MANUFACTURING “POWERED BY SAP”



CAPGEMINI HAS A FULL SPECTRUM OF SERVICE OFFERINGS AND EXPERIENCES TO ADDRESS THE NEEDS OF THE WHOLE DIGITAL MANUFACTURING SPECTRUM



SAP STRATEGY

- Business Case tools
 - The Golden Thread
- 5 stage approach to address challenging questions

- Business change -Understanding and delivering real business change
- Full change lifecycle - from leadership engagement to post go-live support
- Continuous improvement



Global Leader in Engineering and R&D services*

52,000+ Engineers

100+ Clients



PRODUCT ENGINEERING

- Product Design & Development
- Engineering & Shopfloor Lean 6sigma
- Manufacturing Engineering & Technology
- Mechatronics
- Testing
- Safety & Compliance



PLM CONSULTING

- Diagnose and identify high value E2E digital levers: Assessment, Vendor Selection, Roadmap and Business Case
- Accelerate Digital Journey Digital Twin & Continuity, MBD, MBE, MBSE, Design to Cost...
- De-risk and run the transformation at scale Execution Model, DevSecOps, Cloud...



SAP SYSTEM IMPLEMENTATION

- Solution Design
- Customization/Configuration
- System Integration
- Data Migration
- Testing
- Deployment and Roll-outs
- Program Management
- CASO Organization Change Management
- User Training



SAP ACCELERATORS

- Functional/Code-check tools/cloud migration tools
- Extension Framework (MPSA)
- Industry solutions (PATH)
- Reference model + process in Signavio (Finance, Procurement, Supply Chain...)
- Innovation portal 80+ BTP use cases
- Demonstrator systems
- ESOAR savings/benefits toolkit
- Extension framework (MPSA)

700+ S/4hana Clients

1,300+ S/4hana Projects

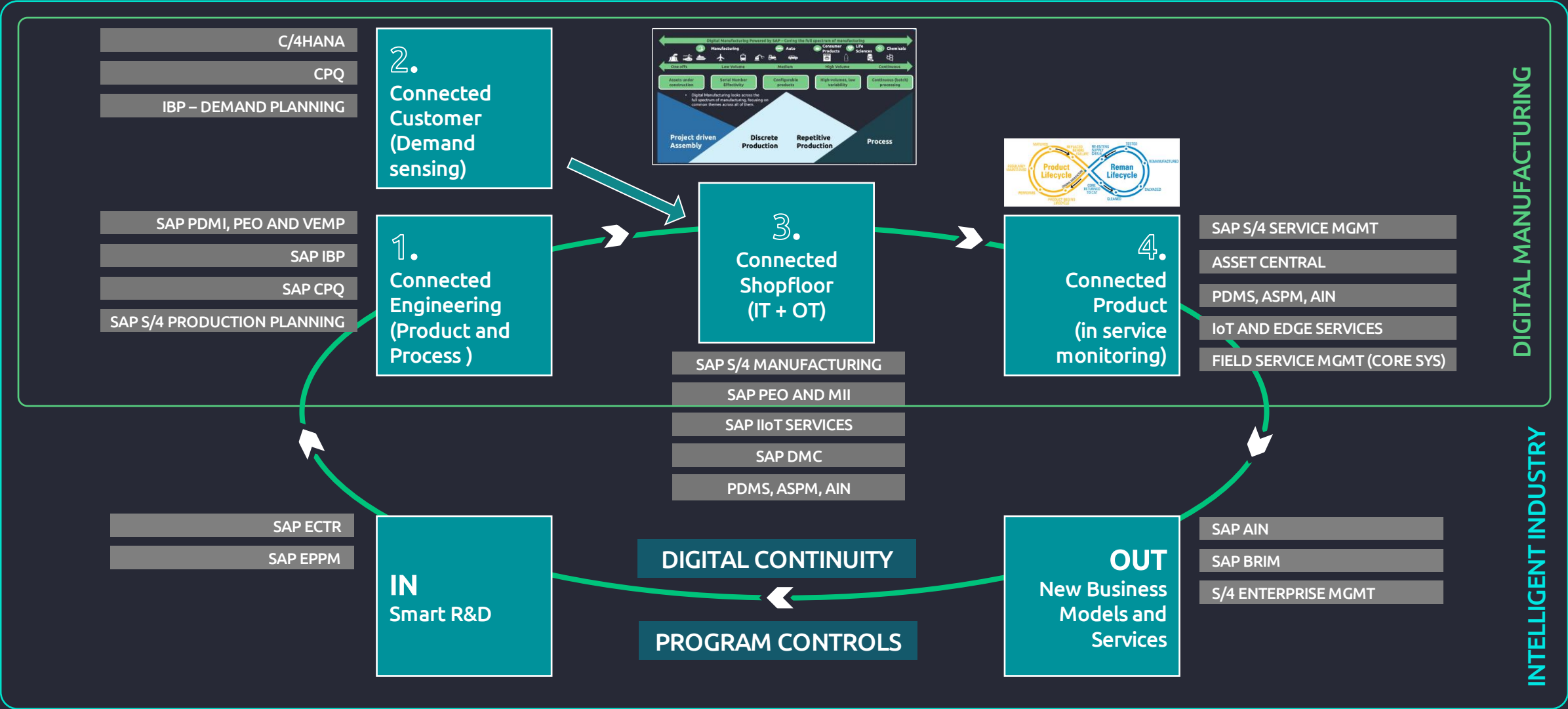
Consistently Recognized as a LEADER by Analysts**



CRITICAL SUCCESS FACTORS:

- Alignment, leaning and re-engineering of the value stream, business processes and their connectivity
- Change management to make new WoW stick
- Platform agile driven approach to system integration – industrialised and evergreen

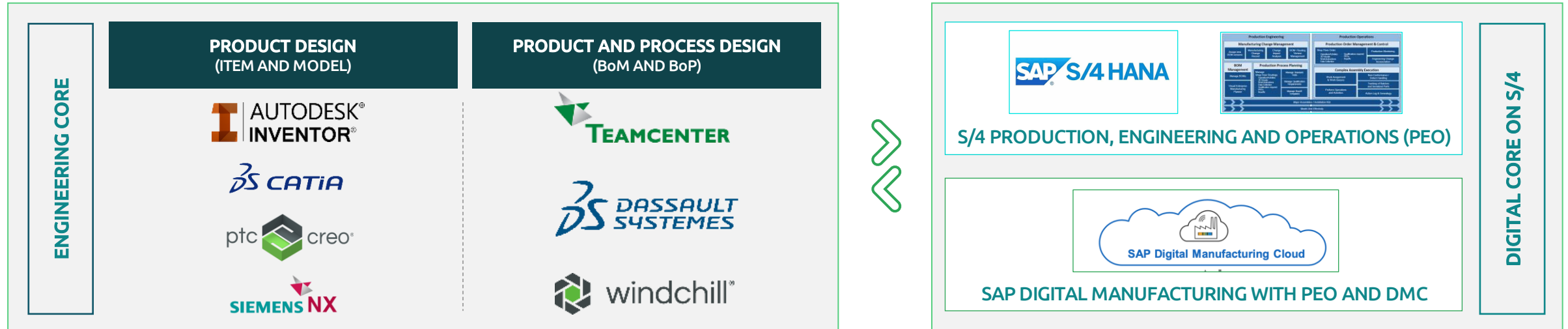
DIGITAL MANUFACTURING IN INTELLIGENT INDUSTRY CONTEXT AND ASSOCIATED SAP COMPONENTS





CONNECTED ENGINEERING

(FOR PRODUCT DEFINITION DATA AS OPPOSED TO AS BUILT)



PROBLEM

- **Speed of Product Innovation** - increasing push to launch products faster (with more features and options) in tightening compliance environment
- **Poor Engineering Change Coordination** - can create financial impact on Manufacturing Operations, Inventory and Supply Chain Planning
- **Product Master Data** replication not federation
- For Discrete Manufacturing specifically
 - "PLM/ERP" integration projects often fail
 - **Product configuration (options) data** difficult to coordinate across Engineering, Customer and Enterprise Management systems
- For Process Manufacturing
 - **Compliant Ingredient, batch and label management**
 - **Complex portfolio/ranging processes**



OUR OFFERS



- 3rd party PLM integration with Manufacturing Engineering in S/4 PEO and DMC
- Project driven Manufacturing and Assembly



- 3rd Party PLM Integration to S/4 Repetitive Manufacturing



- Recipe Content and Label Mgmt in S/4 (without 3rd party)



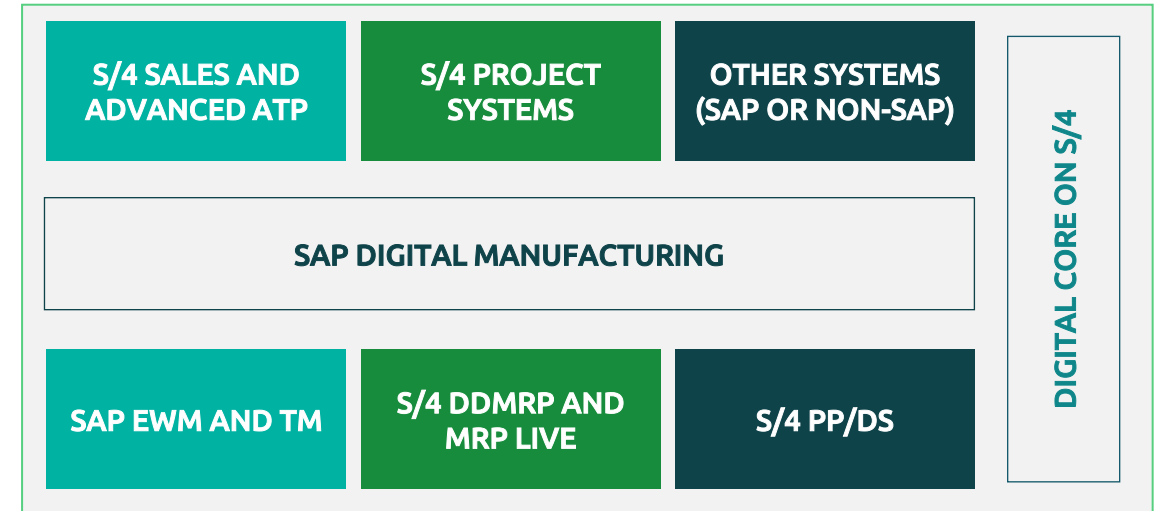
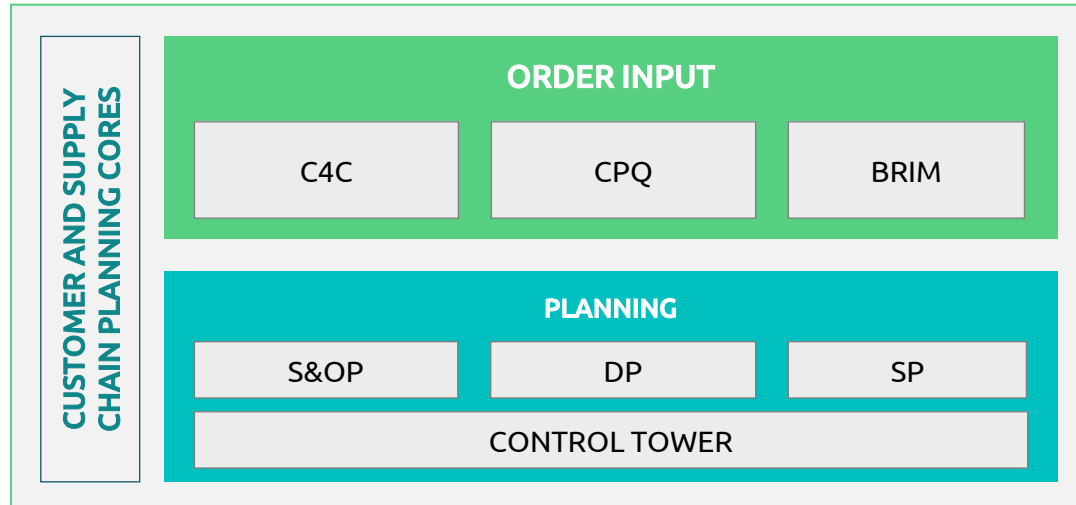
BENEFITS

- **Enable innovation and competitiveness**
 - 50%-70% reduction in project (inquiry to quote) cycle time
- **Launch products faster with improved productivity in product development, process automation and maximum reuse.**
 - 60% reduction in engineering change process time (from 20 days to 8 days)
- **Digitize all product data throughout its lifecycle, maximizing global collaboration**
 - Reuse of engineering data across the Enterprise improved from 2% up-to 59%
 - Reduction in product configuration errors by 75% with 40% increase in orders



CONNECTED CUSTOMER

(DEMAND PLANNING AND PRODUCT PERSONALISATION)



PROBLEM

- **Accurate Customer Order Lead Time commitments** – Customers will go elsewhere if consistently let down on delivery lead times.
- **Sales and Operations Planning** – business needs to optimize the “handshake” between Demand and Supply Planning to maximize Customer Fulfilment while minimizing Inventory
- **Product Customization** - how to offer Customers increasing range of Product (and Service) Features and Options without disrupting Supply Chain
- **Distribution Resource Planning** – how to optimize Warehouse and Transportation Operations in support of Customer Lead Time and Inventory reduction targets



OUR OFFERS

- Smart Forecasting and Integrated Business Planning (IBP) for ETO and Project Manufacturing
- Smart Forecasting and IBP for Discrete, Repetitive and Process Industries
- Configure Price Quote with enhanced ATP
- Touchless and Agile Order to Delivery

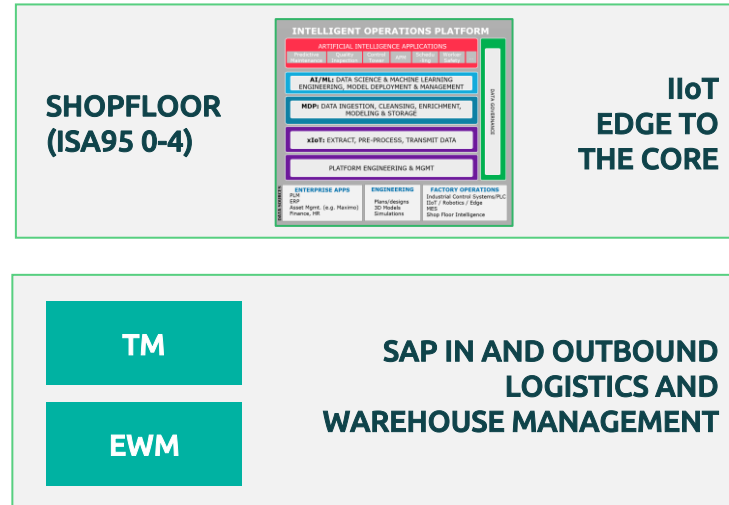
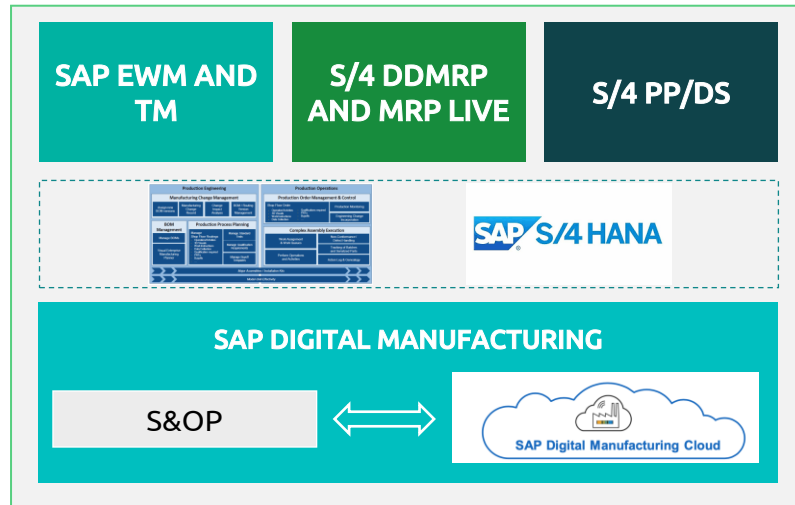


BENEFITS

- **Increased** Customer satisfaction and **increased** brand loyalty
- **Omni-channel** personalized pricing, order management and available to promise (ATP)
- **Reduced** inventory levels and obsolescence
- **Accelerated** Sales and Operations Planning cycles
- **Integrated** program and project controls
- Increasingly **automated** in and outbound Warehouse and Logistics Operations



CONNECTED SHOPFLOOR (IT+OT FOR SMART MANUFACTURING AND LOGISTICS OPERATIONS)



SMART PROCESSING ENGINEERING WITH SAP PRODUCT ENGINEERING & OPERATIONS

- Manufacturing Planning
- Flow of Engineering product data into Manufacturing/Enterprise Operations domain
- Manufacturing Execution
- Service Management



PROBLEM

- **Transparency & Visibility** of shop floor activity and work in progress (WIP), including challenges in recording “as built” in production
- **Transforming to a data driven organization** effective use of data generated inside factories
- **Asset Utilization & Availability** detailed view of production assets including micro stoppages, connectivity challenges, utilizing preventative and predictive maintenance
- **Utilization of technology** application of manufacturing technology at scale, moving out of (PoC's) proof of concepts
- **Agility** Increasing rate of change driven by customers and technology, effectively utilizing data held in PLM and recipe management systems



OUR OFFERS



- **Digital Production, Engineering and Operations**, Manufacturing Engineering in S/4 PEO
 - Complex Projects Management (Integration with Project Systems, Complex Assy., Issue Detection, Creation of MBOM, Production Engineering & Planning(Routing, BOMs, Rework), Work Inst.)
 - Shopfloor Control & Manufacturing Operations Management and change management



- **Digital Manufacturing, DMC, MII, ME, PCo, PM, AIM, IOT**
 - Multi-vendor seamless bi-directional
 - Manufacturing Insights & Execution
 - Manufacturing Shop-floor Designer/Machine Modeller
 - Resource Orchestration & Manufacturing Network
 - Visual Inspection using AI



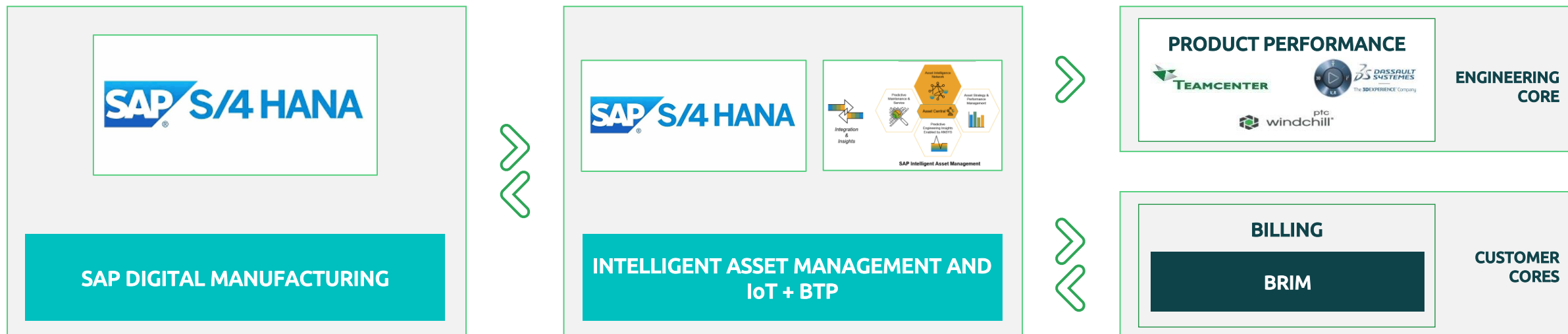
BENEFITS

- **Accelerated** time to market and improved change management control
- **Seamless Integration** between enterprise systems and the shop floor delivering near real time insight
- **Effective** engineering change management
- **Increased** visibility and simulation for complex assembly manufacturing
- **Secure** product traceability and **compliance**
- **Improved (OEE)** operational equipment effectiveness
- Ability to leverage AI and integrated quality processes improving compliance and productivity
- Improved **accuracy** and shop floor execution
- **Flexibility:** Assembly Handling
- **Readymade Genealogy:** Reporting



CONNECTED PRODUCTS

(IT+OT FOR SMART MANUFACTURING AND LOGISTICS OPERATIONS)



PROBLEM

- Major & Minor breakdowns of machines, leads to loss of production, revenue, reputation and economic losses
- Increase in maintenance costs, leading to increase in costs of production
- Drop in OEE, leading to lower throughput
- As-A-Service models are liked by customers for everything they want to consume on the go Revenue leakage – due to lack of data combined with poor after sales service leading to unsatisfied customers
- Customer Retention – Pushing parts as mandatory spares, increases the inventory costs, customers prefer early warnings and spend only then.
- Customer visibility – Tier 1 manufacturer supplies to OEM and loses the connect with the end customer.



OUR OFFERS



- Connected Products with built records in Manufacturing - Digital Core for S/4HANA
- Renewable Enterprise with Multi Pillar S/4HANA Architecture
- Connected Product in Operation (IAM for Holistic asset data & intelligence with Digital Twins, IAM Integration with IBP for MRO, IAM Integration with DMC for Manufacturing, iMaint Analytics, IOT Jumpstart) – Edge to the Core
- SAP Billing & Revenue Innovation Management with convergent charging and invoicing



BENEFITS

- Connect with technology such as IoT to enhance Reliability and Uptime
- Feel and Sense with Monitoring, Asset intelligence using machine learning
- Automate and Optimize asset performance across the entire supply chain
- Collaborate and Engage with Equipment, suppliers, vendors and manufactures beyond your 4 walls
- Perfect Execution and fast reaction to production changes with intelligent driven assets
- New Revenue Streams thereby offering new product capabilities

IN ADDITION TO OUR “POWERED BY SAP” OFFERS, WE OFFER A SERIES OF DIGITAL MANUFACTURING “POWERED WITH SAP” ACROSS THE MANUFACTURING SPECTRUM

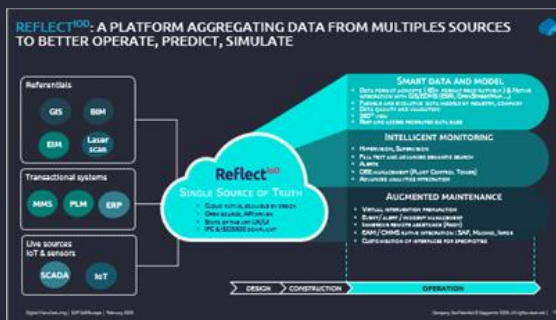


OFFERS RELEVANT ACROSS THE WHOLE MANUFACTURING SPECTRUM

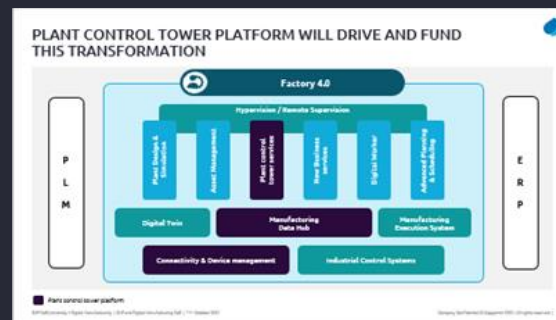
MANUFACTURING PLANT DIGITAL TWINS



REFLECT100 FOR ENHANCED FACILITY MAINTENANCE



PLANT CONTROL TOWER



AUGMENTED WORKERS




- Create a digital twin of your manufacturing facility to enable
 - simulation of future Model-mix production plans
 - Real-time monitoring of shopfloor throughput

- Improve your OEE through Effective real-time monitoring of your Production Facility based on
 - Visual representation of your Building Information Management models and/or laserscan data
 - Asset and Work Order data held in SAP

- Capgemini's Reference Architecture and PoV for collecting and collating PLM, ERP and other Digital Manufacturing datasets to allow the business to build “applications” on top of the “data lake”

- Augmented Working solutions to help shopfloor personnel, e.g., AR/VR guided work instructions
- Andy3D for (re)Manufacturing use cases where remote expert assistance needed.

Underlining indicates hyperlink available to further material on the offer

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BRINGING OUR VISION TO LIFE

**OUR EXPERIENCES AND ARE YOU
INTERESTED IN KNOWING MORE?**



CAPGEMINI'S WIDER DIGITAL MANUFACTURING EXPERIENCES - EVERYTHING FROM CREATING A CLEAR VISION TO SCALING UP EXISTING SOLUTIONS

KEY ELEMENTS OF A DIGITAL MANUFACTURING TRANSFORMATION JOURNEY

VISIONING

- Digital strategy and vision
- Connectivity
- Use case assessment
- Business case
- Roadmap
- Governance and organization

ACCELERATING

- Make or buy strategy
- Solutions benchmark
- Pilots & solution development
- Process & organization design
- Change strategy & training
- Agile methodology
- Design scale-up foundations

SCALING UP

- Large scale deployment
- Portfolio management & benefit tracking
- Data management & governance
- Architecture & platforms
- New capabilities
- Change & workforce transition
- New ways of working



OUR DIGITAL MANUFACTURING POWERED BY SAP REFERENCES

CONNECTED CUSTOMER

Cognex moved to 1909 version for S/4HANA. In 2017, Cognex implemented SAP S/4HANA 1610 with the applications hosted on Azure. Also, the Capgemini Cloud Platform (CCP) provided a single-cloud management system.

[READ COGNEX STORY](#)

CONNECTED CUSTOMER

Partnering with Capgemini, TE Connectivity moved to a managed service model to better incorporate customer feedback, introduce SAP S/4HANA, and adapt to a world in which remote working has become increasingly important.

[READ TE CONNECTIVITY STORY](#)

CONNECTED CUSTOMER

Capgemini will design and globally deploy Ingevity's technology platform of the future on SAP S/4HANA®, providing the organization with the ability to scale its intelligent operations with a long-term growth mindset in the U.S., U.K., and China, covering a total of nine manufacturing locations.

[READ INGEVITY STORY](#)

CONNECTED PRODUCT

SAP S/4HANA® implementation projects, application management and support, and infrastructure/platform services.

[READ VOLVO STORY](#)

CONNECTED SHOPFLOOR

Capgemini helped Navantia implement the SAP MES platform at the Cartagena Diesel Engine Factory, as the first deployment site for the platform.

[READ NAVANTIA STORY](#)

CONNECTED SHOPFLOOR

Works with Capgemini in Brazil to introduce the SAP S/4HANA ERP platform to its manufacturing plants in order to modernize its systems and function more effectively.

[READ TEKSID STORY](#)

ROADMAP

Investigates options for SAP S/4HANA logistics implementation. Working with Capgemini, SEAT reviewed its existing systems and processes to identify the challenges of its impending SAP S/4HANA implementation and create detailed transformation roadmaps.

[READ SEAT STORY](#)

CONNECTED CUSTOMER

Strategic transformation – Brownfield Conversion to SAP S/4HANA. The transformation to SAP S/4HANA is set to increase speed, visibility and reporting in support of Cooper Standard's accelerated growth.

[READ COOPERSTANDARD STORY](#)



IN JUST 12 WEEKS, WE CAN HELP YOU BUILD A CASE FOR CHANGE AND THE FUTURE YOU WANT

KEY AREAS OF FOCUS

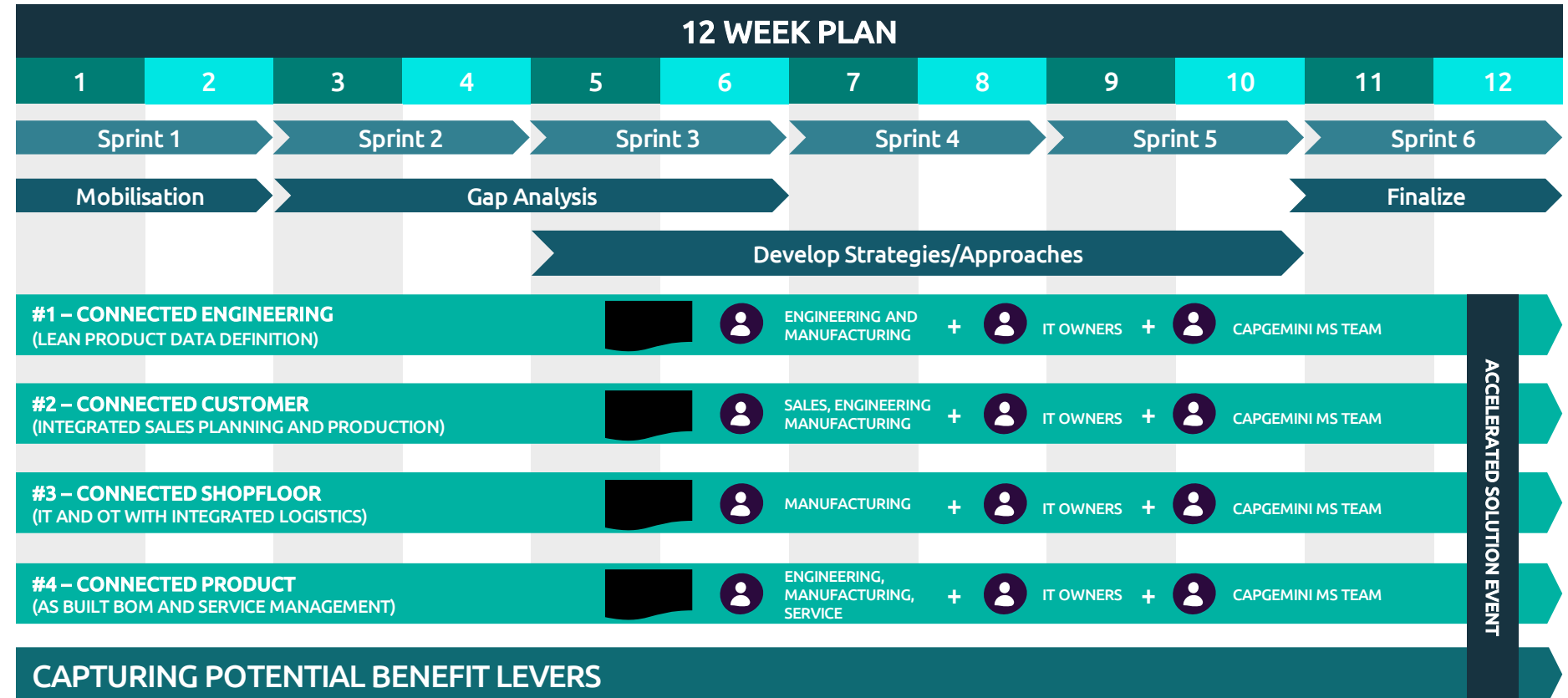
ENTERPRISE APPLICATIONS

IOT AND IIOT

TECHNICAL ARCHITECTURE

BUSINESS ARCHITECTURE

BENEFITS



- Sponsor engagement
- Direction setting
- Collate artefacts
- Stakeholder identification
- Schedule events

- Capture future state requirements
- Assess current state
- Produce gap assessment reports
- Develop vision and guiding principles
- Articulate goals

- Develop strategy to achieve goals
- Develop next steps/approach
- Develop medium/long term roadmaps
- Identify short term implementation targets
- Socialize and refine with stakeholders
- Start building stakeholder buy-in

- Prepare and deliver Accelerated Solution Event
- Build consensus & commitment
- Finalize priorities
- Roadmap proposed



GET THE DIGITAL MANUFACTURING FUTURE YOU WANT!





About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 340,000 team members in more than 50 countries. With its strong 55-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fuelled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2021 global revenues of €18 billion.

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