SAPA

SAPA-REDEFINING THE OPERATIONAL MODEL

DDWORLD OCT 17 FRANKFURT

OCTOBER 2024

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Content

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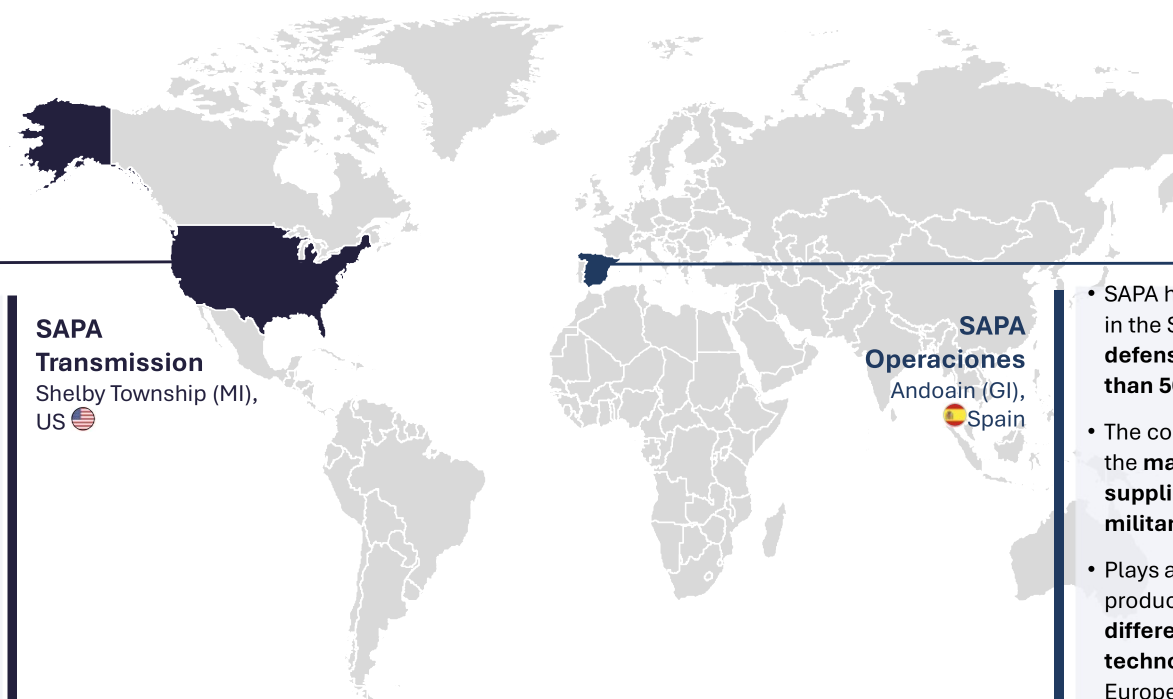
About SAPA

SAPA is present in both European and US markets



- **SAPA has been present in the US Defense industry for +20 years**
- **Currently involved in several programs together** with the US Army and the main OEMs, such us GDLS and BAE Systems
- SAPA is **strongly investing in its Shelby Township** production facility

SAPA Transmission
Shelby Township (MI), US

SAPA Operaciones
Andoain (GI), Spain

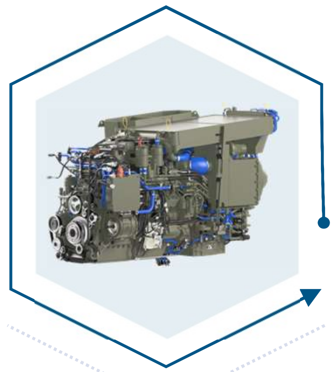
- SAPA has been a relevant player in the Spanish and European **defense sector during more than 500 years**
- The company is consolidated as the **main mobility systems supplier for heavy ground military vehicles in Spain**
- Plays a key role in multiple production programs of new **differential mobility technologies** for Spanish and European defense: VCR 8x8, VAC, FCAS, etc.
- Two main production units in Spain: the **machining plant** and **the assembly lines**

Wide product range for combat vehicle´s mobility and power generation

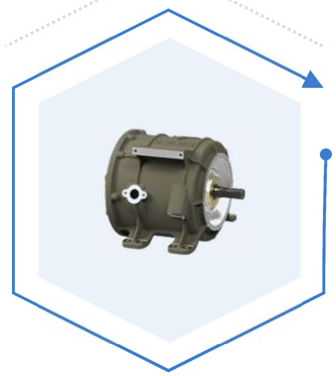
Tracked vehicle transmissions

Wheeled vehicle transmissions

Powerpack integration

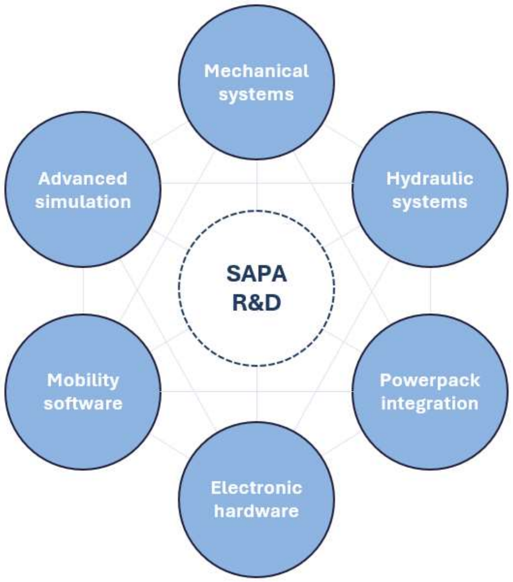


Electric power generation systems



APU

End-to-end technology know-how. Built-in performance and growth capacity



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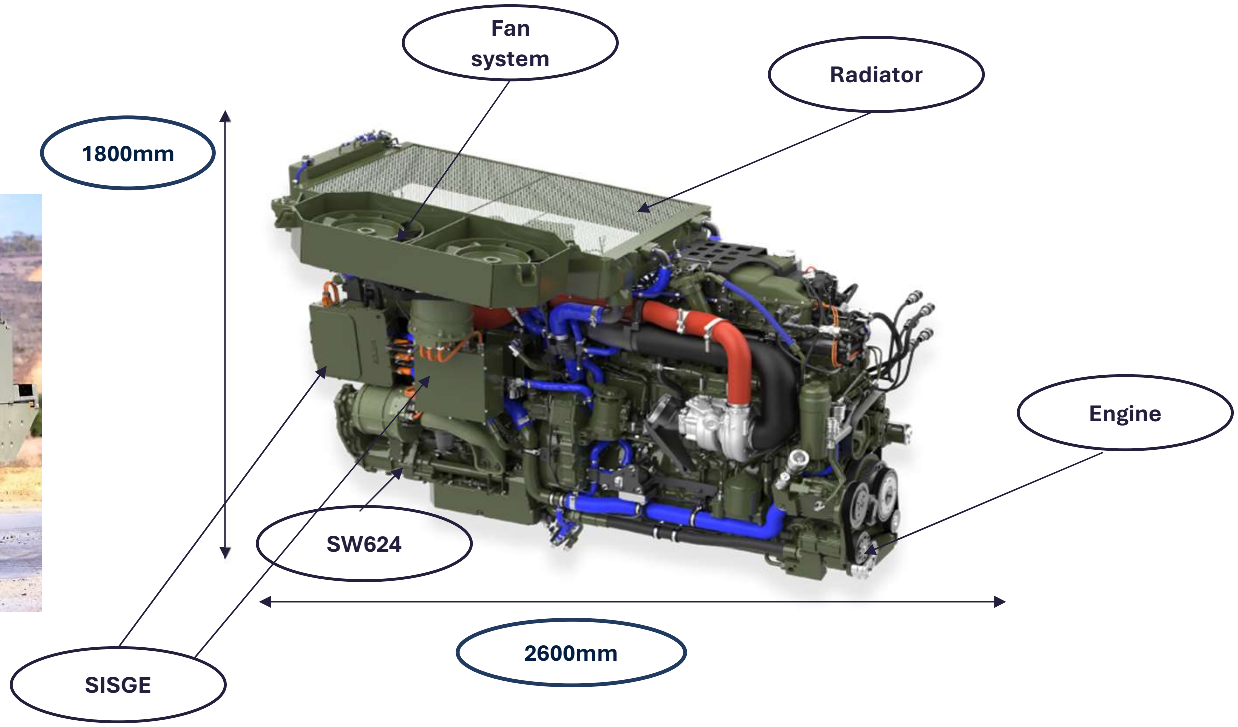
VCR 8X8 PROGRAM

Biggest challenge ever the 8x8 VCR program.

1,000 vehicles in 7 years

4 years ramp up from 1 Powerpack to 8 per month



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8X8 POWERPACK STRUCTURE

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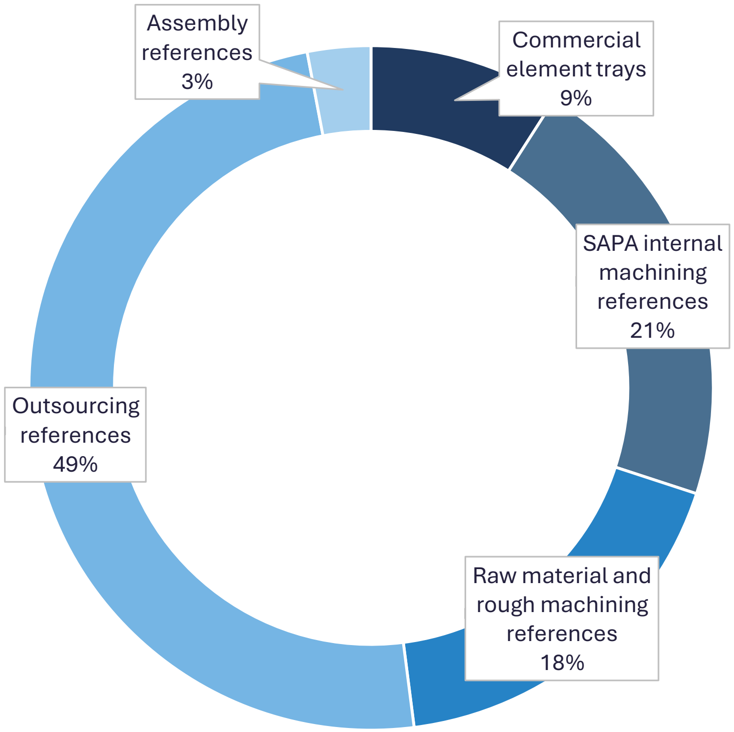
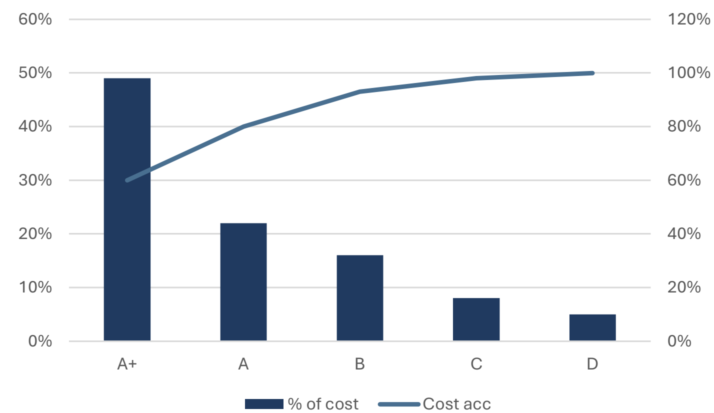
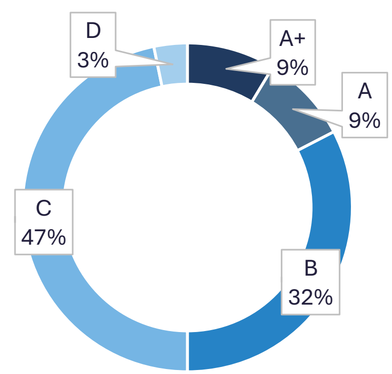
8x8 Powerpack product structure

1.300 SKU, 10.000 parts







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OPERATIONAL TRANSFORMATION

Old operational & business model

Traditional mrp system	Manual logistic system	Outdated ERP	Lack of PLM-ERP Integration	Outdated manufacturing routes and machinery	No KPI System
• Used for production planning and supply chain • Lack of flexibilty for adapting to changes	• Manual supply of material to manufacturing orders. • Inefficient and error prone	• ERP from 2005. • Not prepared for high volumen production phases.	• Data transfer between ERP and PLM not automatic • Delays and risk of errors.	• Old machinery and processes • Reduced efficiency and high maintenance needs	• Not data driven decision making • Not early problema detection

New strategy, new operational model: SAPA PRODUCTION SYSTEM

Old operational model

New operational model: SPS

2002 — **New strategy**: own product development and PID creation

2003 — 1st Operational **model**

2006 — **First** transmission **prototype**

2013 — **First program** producing SAPA Product

2020 — **8x8** program launching. **Prototype production** **1 Powerpack per month**

2020 — 2nd Operational **model**

2023 — **New digital system** go-live

2024 — **New physical system** go-live

September 2024 — **First 8 Powerpack production month**

Old Strategy & Business model

New Strategy & business model

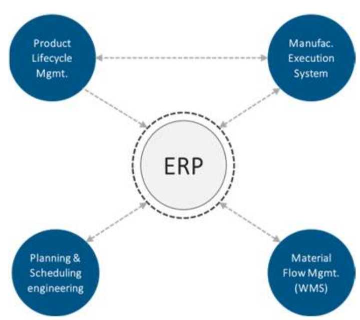
SAPA Industrial Operational Model context | 2020-2024 Operational Transformation

3 main areas of transformation: Physical resources, Digitalization and Organization

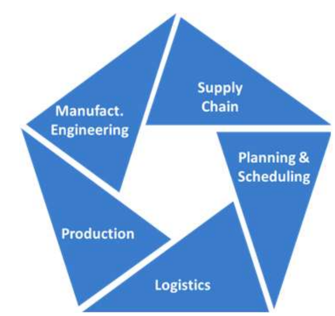
Physical Production System

- Multiple machining cells for core components
- Assembly lines for each product with decoupled inventory
- Testing benches for development and production

Digitalization and IT systems



Organization: People and Processes



Physical production transformation

SAPA Industrial Operational Model context | 2020-2024 Operational Transformation

Digitalization and integration

B2Wise

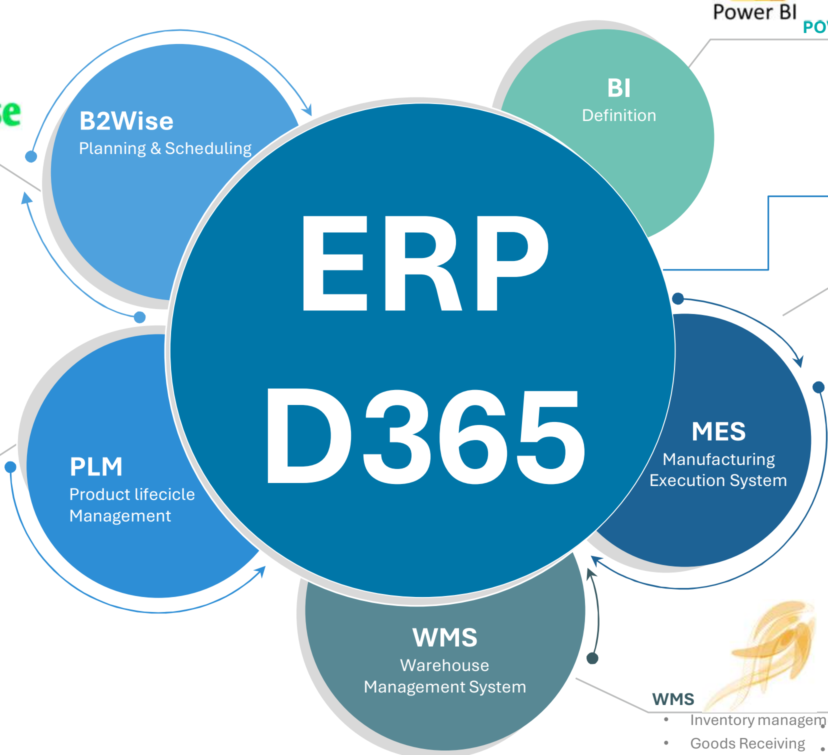
- Planning & Demand
- Scheduling demand
  - Internal capacity management CPS

Siemens PLM Software

SIEMENS

PLM

- Bill of materials:
  - EBOM, MBOM, LBOM
- B.O Process
- Change management



Power BI

POWER BI

MES SIEMENS

Manufacturing Execution System

WMS

- Inventory management
- Goods Receiving
- Storage
- Packing & Shipping
- Picking
- Deconsolidation & Put away

Dynamics 365

ERP

- **Procurement & Sourcing**
  - ✓ Master Planning
  - ✓ Configure all needs for DDMRP planning
  - ✓ Production Control
- **Quality & Inspection**
  - ✓ Quality assignments
  - ✓ Quality requests
  - ✓ Non-conformity and incidence management
- **Service Management**
- **Sales & Marketing**
- **Project Management & Accounting**
- **Warehouse Management**
- **Financial Data**
  - ✓ Accounts payable
  - ✓ Accounts Receivable
  - ✓ Fixed Assets
  - ✓ Tax
  - ✓ Cash & Bank Management
  - ✓ General Ledger

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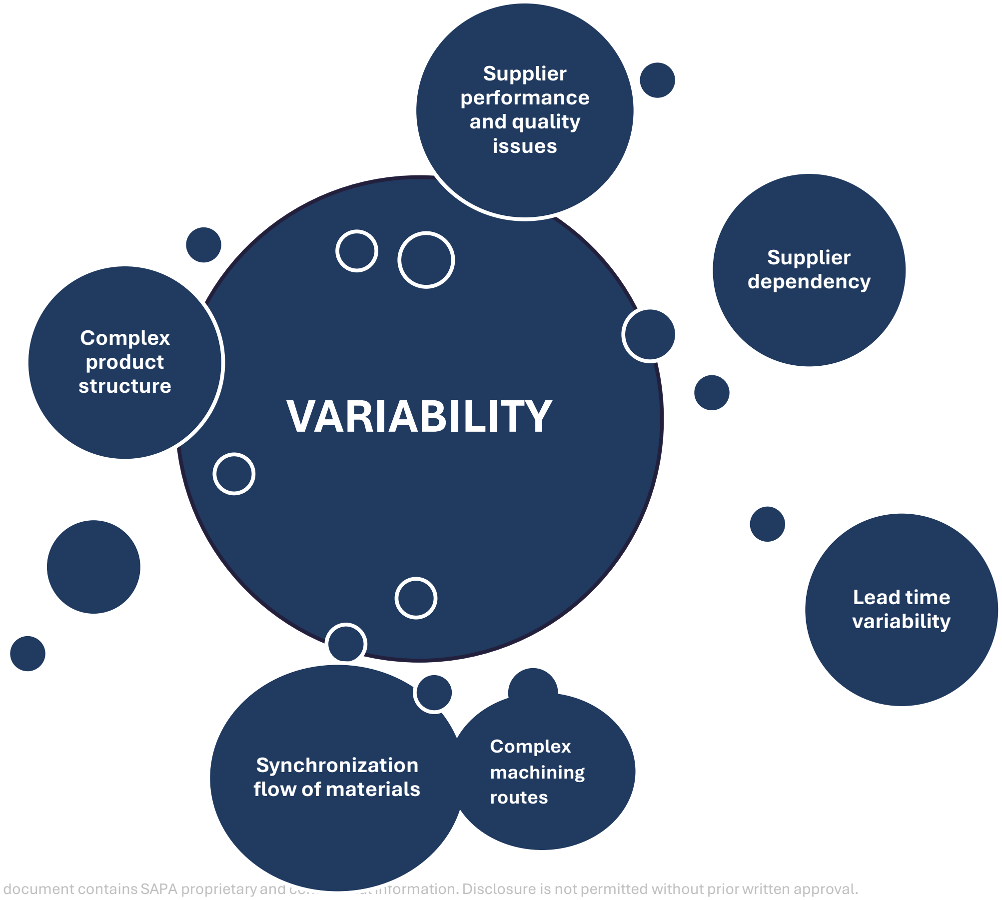
DDMRP IMPLEMENTATION IN PLANNING MODEL

DDMRP implementation in planning model

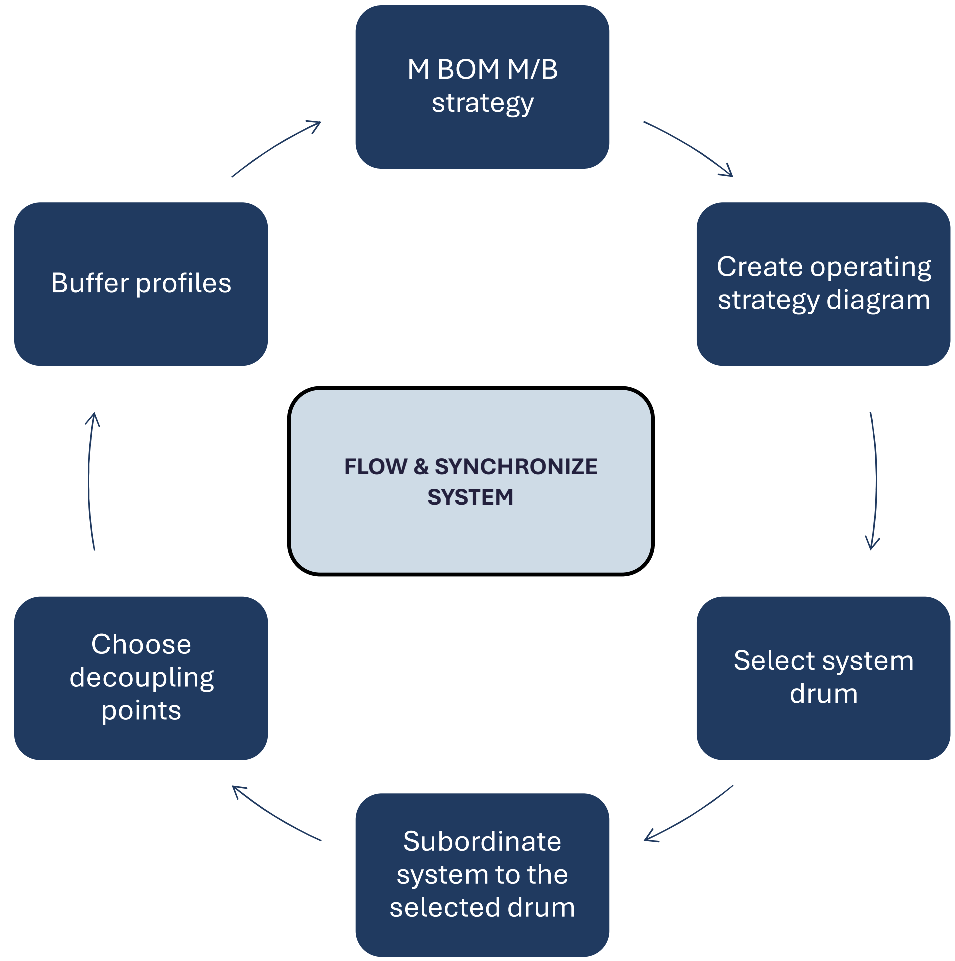
Why SAPA use DDMRP for planning and scheduling?

Fixed and stable demand.

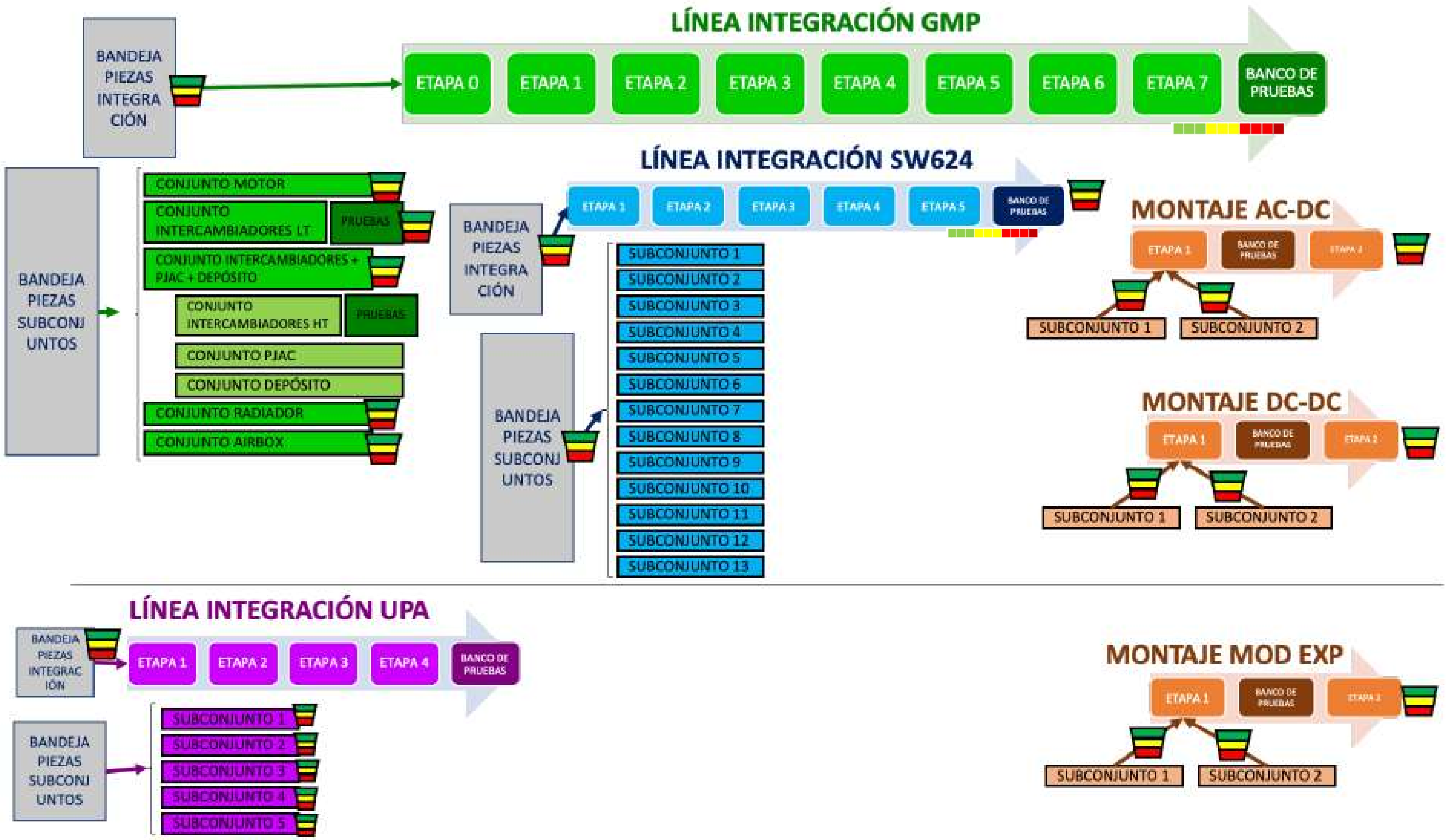
Mitigate supply and process variability



Operational diagram definition



Decoupling strategy diagram



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MACHINING PLAN OPERATIONAL MODEL

Invest and renovate the machining workshop to maintain internal production

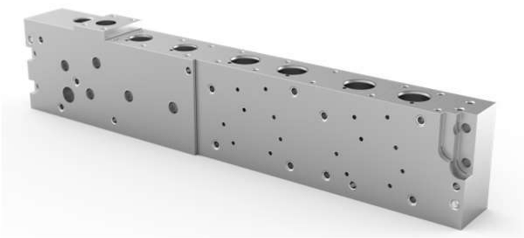
Strategic Importance of Selected References

Improving Production Efficiency

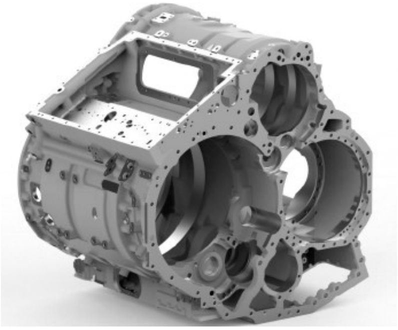
O-RING GEARS

EXTERNAL TEETH GEARS

HYDRAULIC VALVE BLOCKS



HOUSING

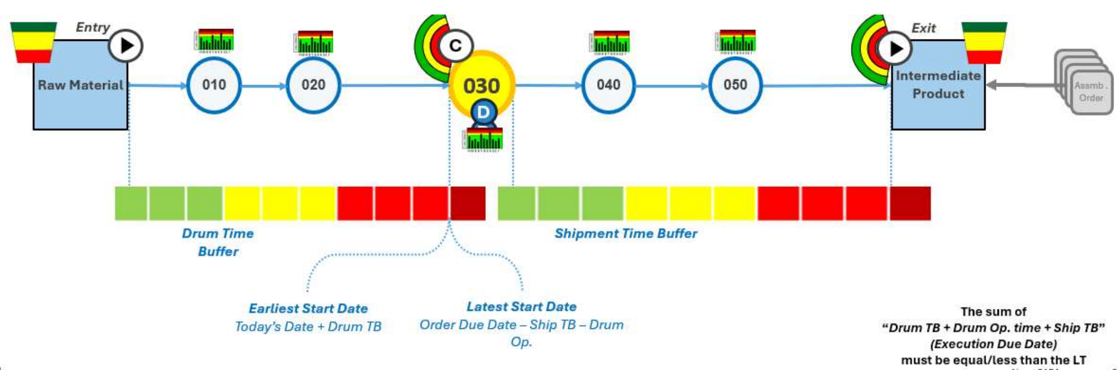


In collaboration with B2Wise, the company has introduced a machining plant capacity management system

Division of Manufacturing Routes

This system focuses on scheduling the capacity of bottleneck resources

- **Capacity Scheduling**
- **Subordination of Work**



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OPERATIVE RESULTS

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Operative results

Main operative results

20% reduction inventory

40% lead time reduction

40% planning time

40% reduction stockouts

SAPA TRANSMISSION

The main objective is to replicate the operating model and become suppliers to the U.S. Army for the production of future transmissions.

SAPA Placencia

THANK YOU