



# Service Portfolio Industrialization Support Lean Management & Supplier Management

Ingenics Mexico V05 2026



CONSULTING AND REALIZATION COMBINED

# About Us – Ingenics at a Glance

## Ingenics | Global & Americas

**1979**

founded in Ulm, Germany

**10,000+**

projects worldwide

**2014**

first location in Mexico

**600+**

projects in NAFTA region

**155+**

employees in NAFTA region

**590+**

employees worldwide



## Industry Focus



Automotive and  
e-mobility



Aerospace



Logistics and  
transportation



Mechanical and  
Plant Engineering



Electrical-Technology  
and High-tech



Defense  
and space



Medical  
Technology



Commercial  
Vehicles



Agricultural/Construction  
Machines



Railway



Consumer Goods



Energy



Chemical  
and Pharma



Public Sector,  
Financial and Insurance

# Ingenics Consulting – Industry and Technical Expertise



|                                       |                                                                                                                                                                                                                           |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Management Consulting                 | <ul style="list-style-type: none"><li>▪ Strategy &amp; Performance</li><li>▪ Supply Chain Management</li><li>▪ Quality &amp; Supplier Management</li><li>▪ Operational Excellence</li><li>▪ Operations Strategy</li></ul> |
| Institute                             | <ul style="list-style-type: none"><li>▪ Project Management</li><li>▪ Academy</li><li>▪ Capability Management</li></ul>                                                                                                    |
| Digital Solutions                     | <ul style="list-style-type: none"><li>▪ Digital Solutions</li><li>▪ Business Process Management</li></ul>                                                                                                                 |
| Production Solutions and Optimization | <ul style="list-style-type: none"><li>▪ Production Technology &amp; Automation</li><li>▪ Manufacturing Excellence</li></ul>                                                                                               |
| Factory and Logistics Design          | <ul style="list-style-type: none"><li>▪ Factory Design &amp; Simulation</li><li>▪ Logistics</li></ul>                                                                                                                     |

| <br>Automotive | <br>Aerospace | <br>Industries |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
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|              |             |              |
|              |             |              |

Consulting and Planning

Implementation

Growth

Enhancement

## Supplier Management

Supply chain design and optimization for resilient, cost-efficient production networks

Supplier qualification and development aligned with industry quality standards

Mitigation of supply risks (single sourcing, capacity constraints, logistics disruptions)

Supplier audits and performance management to ensure stable and reliable deliveries

## Engineering Consulting

Design of manufacturing and assembly systems for serial production

Product and process optimization

Capacity planning and scalability to meet volume ramp-up requirements

Reduction of lead times and cost through process standardization and modularization

## Production Systems

Design and optimization of end-to-end production systems

Line balancing, takt time definition, and lean production implementation

Cost and efficiency improvement through waste reduction and process optimization

Continuous improvement to enhance productivity, quality, and operational stability

## Strategic Development

Alignment of product, process, and production strategy across stakeholders

Transition from legacy setups to modern, scalable manufacturing solutions (e.g., automation, digital engineering, modular production concepts)

Definition of industrialization roadmaps and capability building plans

Innovation management to improve manufacturing efficiency and competitiveness

## Site Development

Strategic planning of greenfield and brownfield production sites

Facility layout design for optimal material flow and operational efficiency

Analysis and optimization of existing production infrastructures

End-to-end support from concept development to detailed planning and execution

Coordination between production, suppliers, and key stakeholders

## Digital Development

Implementation of digital manufacturing and Industry 4.0 solutions

Predictive maintenance to increase equipment uptime and reduce downtime

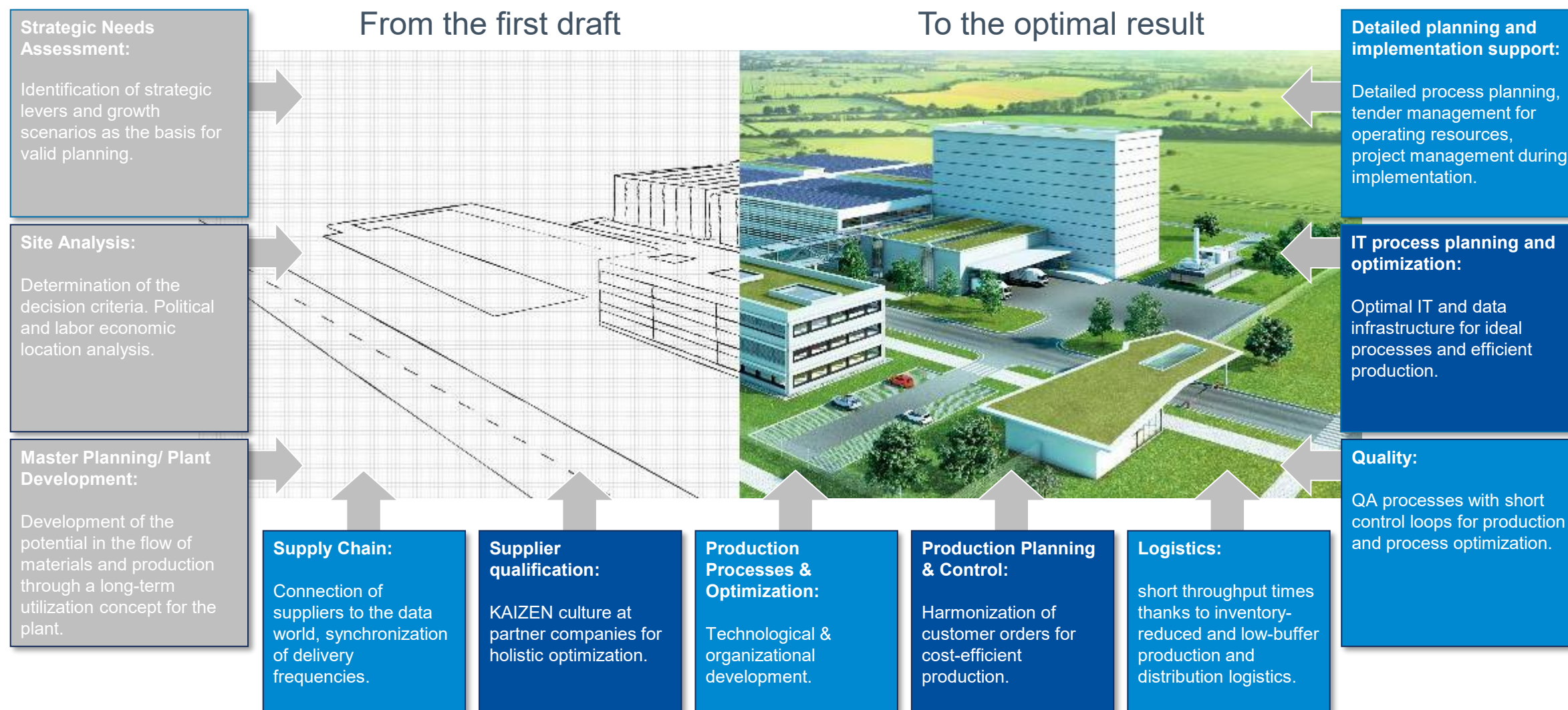
Digital twins for process optimization and production transparency

Secure and scalable data and system architectures

# Industrialization Support| The 4 Main Columns (Cross-Industry)

| Phase 1: Baseline and Setup definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Phase 2: Site Planning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Phase 3: Ramp-Up                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Define strategy, volume, and baseline setup                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Engineer the product for serial production                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Set up the production system and facility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ramp up, control, and ensure reliability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>Align on product strategy, target markets, and production volumes (e.g., annual output, capacity requirements)</li> <li>Transition from prototype or pilot builds to serial (mass) production</li> <li>Conduct structured assessments of current engineering, manufacturing, and operational processes to identify bottlenecks and gaps</li> <li>Establish a cross-functional team across engineering, manufacturing, quality, sourcing, and supply chain early in the process</li> </ul> | <ul style="list-style-type: none"> <li>Translate product design into something that can be manufactured at scale</li> <li>Apply Design for Manufacturing and Assembly principles</li> <li>Standardize components, reduce complexity, and ensure repeatability in:                             <ul style="list-style-type: none"> <li>Assembly processes</li> <li>Testing and validation</li> <li>Quality control</li> </ul> </li> <li>Align design decisions with supplier capabilities, lead times, and cost targets</li> <li>Introduce scalable technologies such as automation and modular design</li> </ul> | <ul style="list-style-type: none"> <li>Design the full production system end-to-end, including Manufacturing processes, Assembly flow, Testing and quality assurance, Internal logistics and material handling</li> <li>Define whether to upgrade an existing facility or build a new one</li> <li>Develop layout planning to ensure:                             <ul style="list-style-type: none"> <li>Efficient material flow</li> <li>Clear process separation</li> <li>Lean operations (minimal waste, optimized movement)</li> </ul> </li> <li>Include supporting functions such as quality and inspection zones</li> <li>Design systems to handle increasing volumes without major redesign</li> </ul> | <ul style="list-style-type: none"> <li>Transition from pilot production to full-scale operations</li> <li>Qualify workforce and implement standard operating procedures</li> <li>Validate processes and equipment performance (capacity, stability, repeatability)</li> <li>Establish strong quality systems, including: In-process quality controls, Final product validation &amp; Continuous monitoring</li> <li>Implement robust change and configuration management for product and process updates</li> <li>Monitor performance and reliability through operational KPIs</li> </ul> |

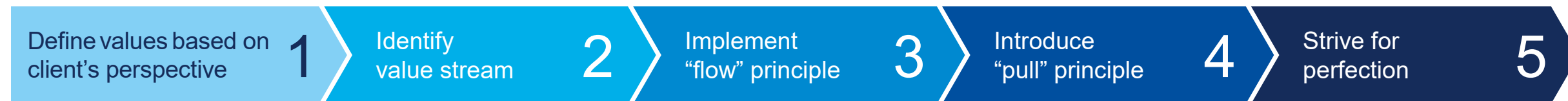
# Factory Planning | Holistic Approach



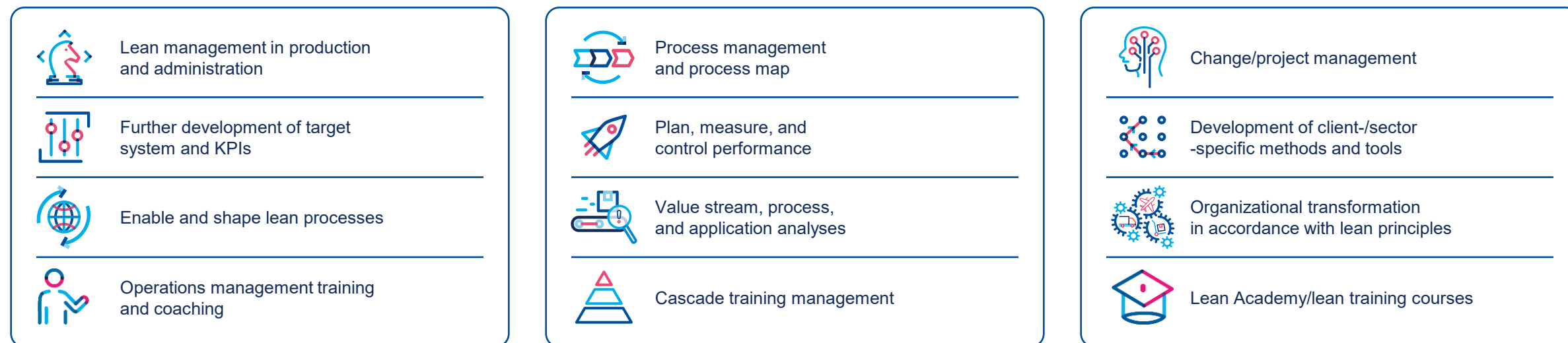
# Lean Management

## Our Services for Excellent and Flexible Production Systems

### Principles of lean management



### Lean-related services



Envision, empower, and implement – that's the lean management principle we strive for to create excellent and flexible production systems.

# Quality Supplier Management



 Ingenics supports with technology and methods expertise to ensure supply assurance, quality and maximum customer benefit.

# References



# Collaborations and Partnerships

## System, Consulting, and Planning Partners



- End-to-end planning for our clients thanks to strategic and operational collaborations with planning partners, architectural firms, and IT system providers
- Always independent, tailored to suit needs, and in the interest of maximizing client benefits



## Academia and Universities



Promotion of and active participation in research projects and tertiary education



## Network Partners



Involvement as a network partner and driving force in wide variety of industries, regions, and areas of expertise



# Projects and References – Ingenics Mexico



Audi México  
Puebla



Volvo  
Mexico City



FAMAQ  
Guanajuato



Plastic Omnium  
Aguascalientes



Superior Industries  
Chihuahua



Visteon  
Chihuahua



BMW SLP  
San Luis Potosí



Carcoustics  
Guanajuato



GLM Group  
Puebla



Preh  
Monterrey



ThyssenKrupp  
Gto / San Miguel de Allende



AGCO  
Querétaro

DAIMLER

Daimler  
Saltillo



Clarios  
Celaya / Torreón



Grupo Sesé  
Puebla



Quin Decor  
San Luis Potosí



TRW  
Chihuahua



Autoliv (MX)  
Matamoros / Toluca



Italika  
Toluca



Joyson  
Chihuahua



Cummins  
Tamaulipas



MIMSA  
Nuevo León



FUTAMURA  
Nuevo León



Mankiewicz  
Querétaro



Autoneum  
San Luis Potosí



Eaton  
Querétaro



Brano Group  
Czech Republic



# Audi AG – Planning assembly and logistics Q5, Mexico

## Planning the assembly for the Q5 in Mexico:

- Q5 successor to be built at new plant in Mexico
- Assembly is completely planned by Ingenics

### Automotive



### Approach

- Establishment of project management incl. schedule tracking and reporting of accompanying trades (e.g., conveyor technology)
- Plant design of all plant scopes: conceptual design, preparation of specifications, support of tendering process and construction, pre-acceptance, installation and commissioning (KANBAN)
- Screw technology planning: conception, procurement, installation
- Coordination of taking team and material hiring incl. VTG planning, resource planning and execution of PFMEA
- Structural planning, HLS and CAD layout planning incl. collision check
- Interface construction planning VW PMF and construction progress control and REO planning.
- Construction site organization and coordination

### Results:

- In Peak 25 employees in the planning team in Ingolstadt and Mexico
- Approx. 100,000 m<sup>2</sup> assembly hall incl. plant technology planned
- Plant technology available according to milestone plan

### Plant technology available according to milestone plan



# Italika MX – Conceptual Layout & Warehouse planning

## Plant Layout & Equipment planning Greenfield, Italika Toluca:

- SOP target of February 2023; Start Implementation Q1/2021
- Complete plant layout to be planned; including 45,000m<sup>2</sup> logistics area; 30,000m<sup>2</sup> manufacturing area; 15,000m<sup>2</sup> administration area

## Motorcycle

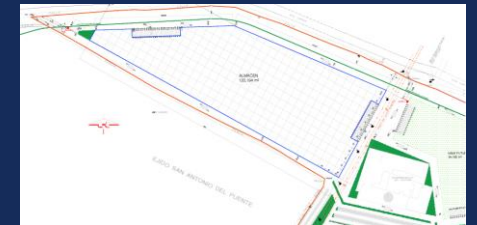


## Approach

- Determination of customer requirements
- Development of target value stream
- Determination of space requirements
- Development of Block Layout Variants and comparison flow principles
- Decision Making on Layout Variants based on cost-benefit analysis
- Development of detailed layout; including design of administration areas

## Results:

- Detailed Flow and Equipment Concept developed
- Material Flow and Parts presentation defined
- Layout variants created, evaluated and path forward defined
- Space demand kept within building limitations of Italika
- Detailed plant layout created for over 100,000m<sup>2</sup>



# Daimler Trucks – Factory Planning and Warehouse Planning, Toluca, MX

## Brownfield layout optimization – improve warehouse capacity and material flow:

- Current facility planned for 200 Units / day
- Extension of production lines and logistics to produce 250 Units / day
- Target: Improve material flow and warehouse capacity by re-arranging of logistics supply: Warehouse, docks; kitting area

## Automotive / Trucks



## Approach

- Input logistics Data (PFEP)
- Value Stream Workshop
- Create Sankey Diagrams
- Identify potentials
  - Improve throughput (trailer)
  - Improve efficiency (new logistics technologies e.g. RFID)
  - Reduce distances
  - Save floor space for logistics area
- Development target block layout (3 variants)

## Results:

- Identified potentials based on analysis
- Increase warehouse capacity by 15,000m<sup>3</sup>
- Savings logistics floor space in production area by 2000 m<sup>2</sup>
- Transport distances reduced by 30%

**Material related  
downtime  
reduced by 60%**



# AGCO – Factory Planning Assembly and Warehouse, Queretaro, MX

## Analyze Existing Plant Structure and Development of Plant Layout:

- Relocation of 3 product families requires an extension of the existing production facility
- Assessment of needs resulting in a masterplan for the entire Queretaro production facility

## Agricultural Technology



## Approach

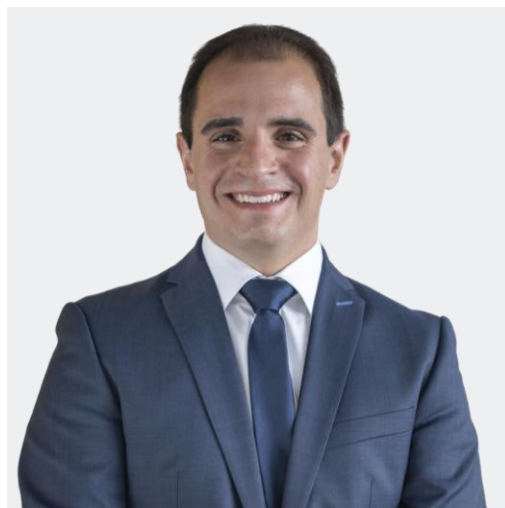
- On-site process observations of existing production requirements
- Review of local restrictions (e.g., height differences)
- Creation of layouts and material flow diagrams
- Provide recommendation of new extended plant layout
- Provide recommendation for required production and warehouse space

## Results:

- Provided recommendation of mid-term strategy
  - Split between welding/paint and assembly areas
  - Plant layout to be set-up on 3 platforms
  - Adjustment of material storage between warehouse and yard storage
  - Adjustment of material flow concept
- Provided 18-month high level realization timeline including cost estimation.



# Your Contact Persons



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