

P3 Group - Moving your Business to Scale

Introduction to our approach

PREPARED FOR
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Global Expertise



OUR EXPERTS DELIVER INDIVIDUAL, SUSTAINABLE SOLUTIONS.

Mobilize

- Electric Mobility
- Electric Powertrain
- Mobility Innovations
- Android Automotive
- Autonomous Driving

Digitalize

- Digital Services
- Cyber Security
- Data Analytics & AI
- User Experience

Performance

- Change Management
- Communication Management
- Learning Experience
- Rollout Management
- P3 Academy

Optimize

- Agile Transformation
- Cost Management
- Organizational Development
- Quality Management
- Sustainability
- Systems Engineering

360° solution

- Consulting
- Engineering
- Digital Services

Operations

- Operational Excellence
- Strategic Purchasing
- Factory Planning
- Industrialization
- Supply Chain Management
- Taskforce Management

Energize

- Charging
- Battery Technology

Industries

Automotive

Banking & Insurance

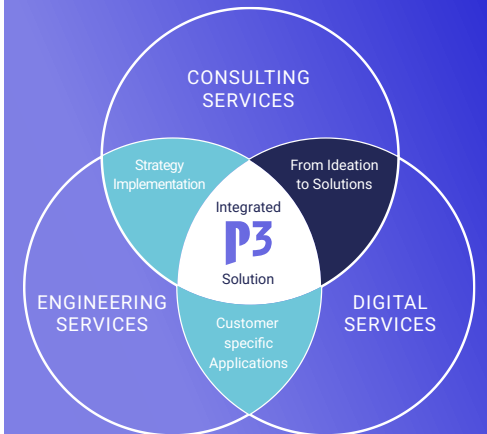
IT & Media

Consumer Goods & Retail

Public Sector

Energy

Rail & Transportation



A Global Network with Local Presence

We are an independent and global operations & management consulting company that was founded in 1996 as a spin-off from Fraunhofer Institute for Production Technology IPT.

P3 Offices around the World

EUROPE

GERMANY
 Stuttgart
 Munich
 Wolfsburg
 Düsseldorf
 Hamburg
 Berlin

FRANCE
 Paris
 Toulouse

AMERICA

USA
 Greenville
 Dallas
 Detroit
 Charleston

MEXICO
 Mexico-City
 Puebla
 Querétaro
 San Luis Potosi

COLOMBIA
 Cali

SERBIA
 Belgrade

ROMANIA
 Cluj-Napoca

GREECE
 Athens

CZECH
 Prague

BULGARIA
 Sofia

DENMARK
 Copenhagen

ASIA

CHINA
 Beijing
 Shanghai
 Shenzhen

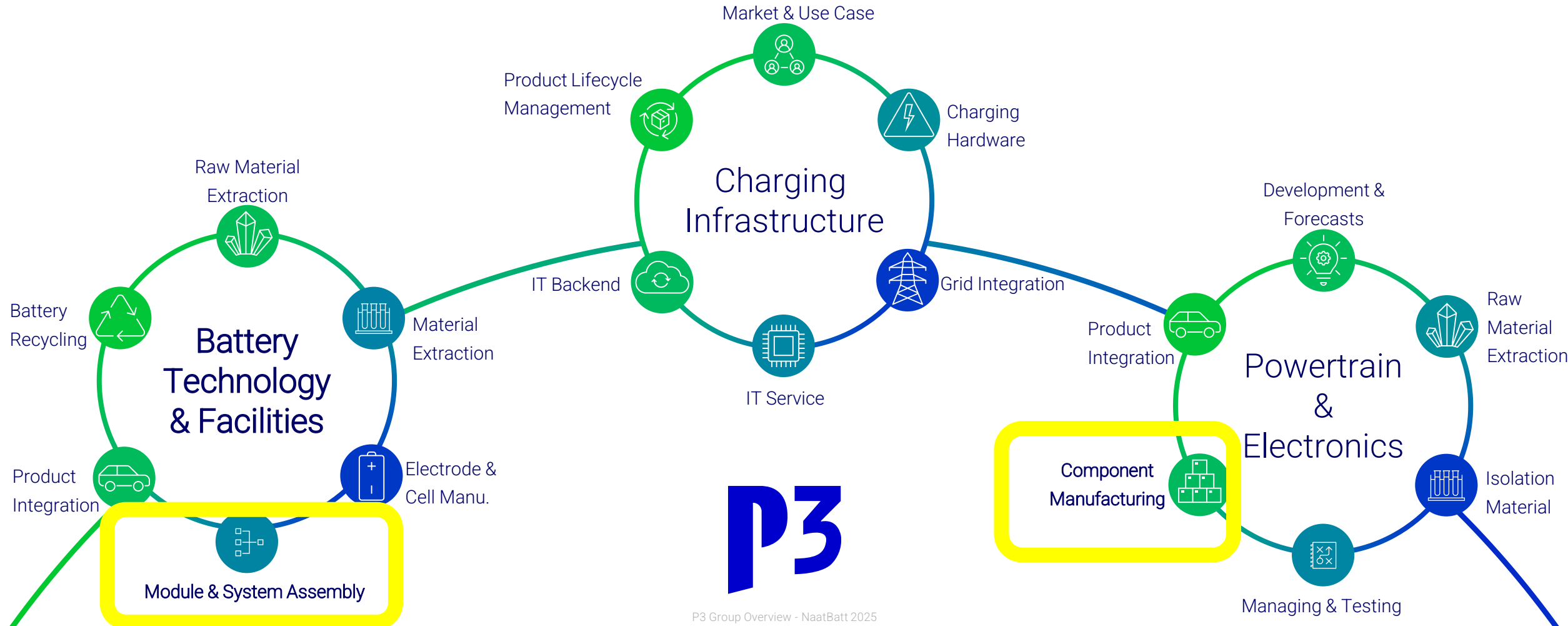
THAILAND
 Bangkok

KOREA
 Seoul

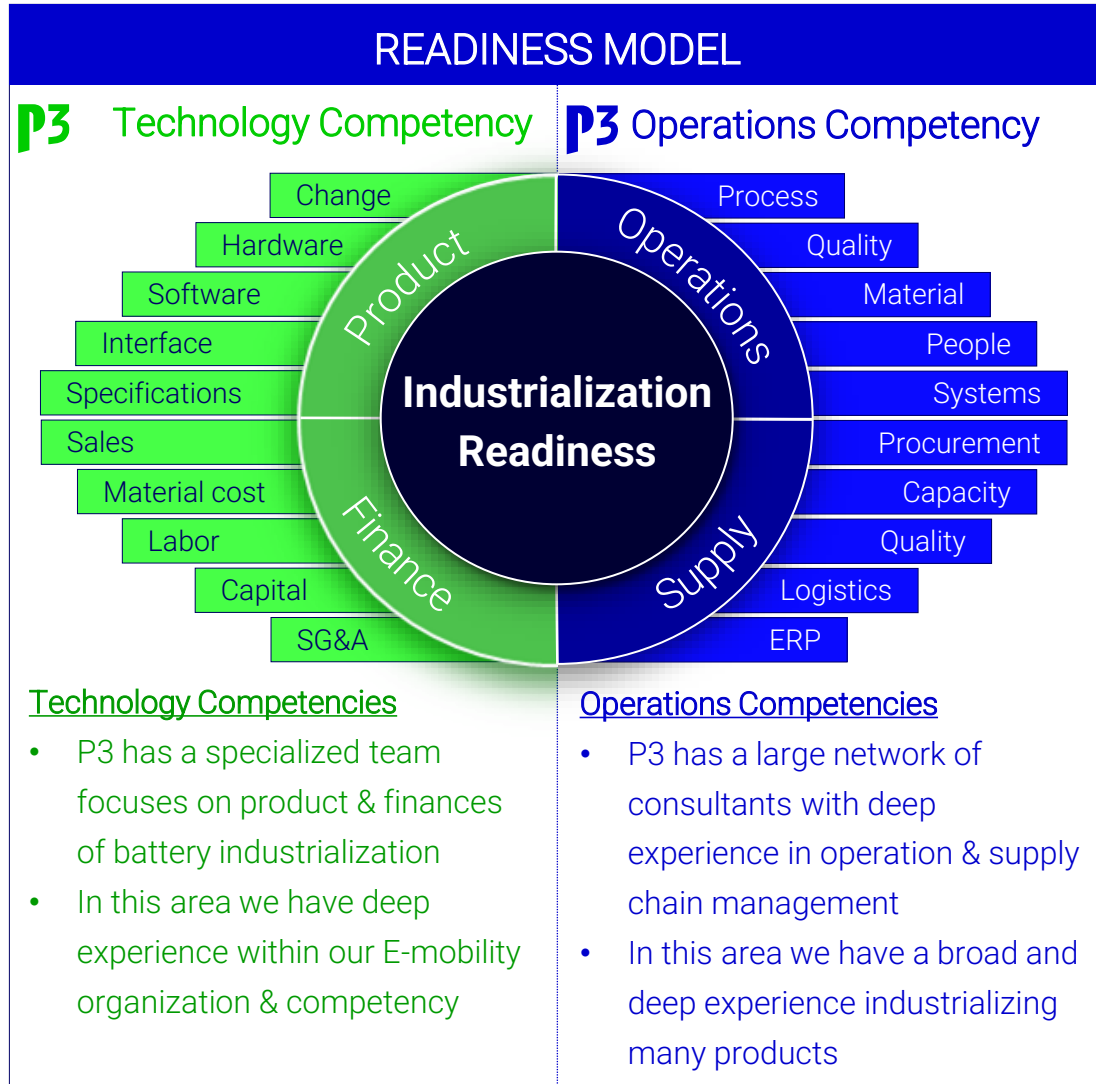


P3 provides deep understanding of market development, technical, Operations and Supply Chain in E-Mobility

P3 consulting in all areas: Market Insights & Predictions Strategy & Project Management Operations and Supply Chain



Must consider all aspects of an organization when moving to scale with a new process/product



- Operational Readiness**

- Objective:** Ensuring internal functions have the people, processes, & planning is in place to support production ramp up
- Focus:** Everything that happens within the 4 walls of your industrialized production location

- Supply Readiness**

- Objective:** Ensuring material suppliers and contractors has the people, processes, & planning to support production ramp up
- Focus:** Everything that happens outside of production including customer, supplier network, and associated providers

- Financial Readiness**

- Objective:** Product costing and capital investments are on track to support the needs of production ramp up with financial improvement road maps
- Focus:** Product costing meets or sets market benchmark

- Product Readiness**

- Objective:** Product is at the maturity required & controlled to meet the desired volume at quality through out production ramp
- Focus:** Robust change management system that controls product from raw material through end customer finished good

Industrialization Failure Points: Key areas not considered until late in production ramp-up

PRODUCTION OPERATING SYSTEM



What Goes Wrong: Without a system, production has unpredictable outcomes that often consume more time, resources, and energy to meet volume.

What Is Needed: Conscious definition, development, training, and assessment of a production system fit for the company's product, process, and people.



SUPPLY NETWORK CONTROLLING



What Goes Wrong: Lack of supply control creates blind spots to different units of capacity and lead times which can starve or restrict production.

What Is Needed: Proactive, detailed, and regular evaluation of material capacity, agreements, process maturity, inventory levels, storage concepts, and mode of transport/distribution.



What Goes Wrong: Reactive versus proactive production industrialization causing internal/external changes to consistently control success.

What Is Needed: Regular reviews of capacity, supply, sales, & financial actuals vs. forecast leading to clear decisions and risk mitigation.



FORECASTING & IMPACT ANALYSIS



What Goes Wrong: Lack of adherence, review, and optimization of standards causes highly volatile end unit quality and costs to compensate for gaps.

What Is Needed: Methodology, Culture, training, and shop floor leadership that is coached for strict process discipline & always pursuing process improvement.



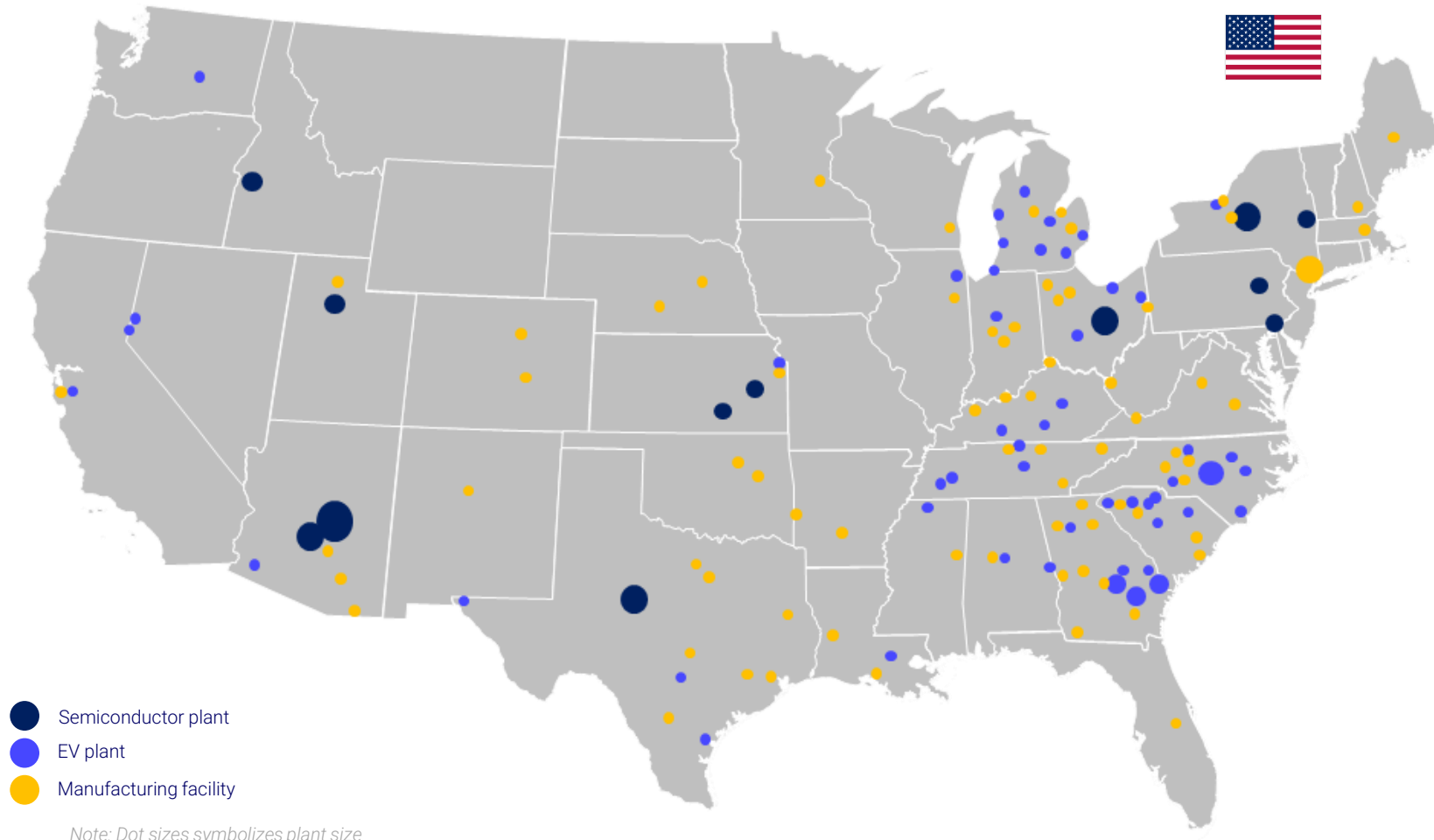
PROCESS DISCIPLINE & FOCUS



Manufacturing Trends in North America:

Investments create increased focus on moving to Scale successfully

Manufacturing constructions since 2021



KEY FINDINGS

- The Government set the **goal for 50%** of overall vehicle **sales** to be **electric** by 2030. OEM's change their production program more and more towards EVs.
- Since 2021 more than **20 US Li-Ion battery gigafactories** have been announced in the Southeast.
- Furthermore, investments are taken along the whole supply chain including e.g. manufacturing & recycling facilities.
- New "Battery Belt" in Southeast expected to be a **hotspot for EV manufacturing** including states such as Georgia, North & South Carolina, Kentucky & Tennessee.
- **> \$70 B in investments** will be conducted & **> 55.000 job** expected to be created only in the Southeast.
- Increasing need for **efficient industrialization** enabling **production quality, capacity, costs and rapid entry to market**.

P3 Industrialization: Core Swim Lanes & Phases Enable Structured Approach

Core Swim Lanes	Indus. Phases	1 Concept Definition	2 Design & Verification	3 Tooling & Validation	4 Production Launch
1- Project Mgmt.		WP1-1.2 Industrialization Management. Project Plan. Resources, milestones, risk management & objectives per workstreams.		WP3-3.4 Launch Management. Swim lanes execution. Product, Process & Facilities releases for serial production.	
2- Product Dev.	Customer led.		WP2-2 Testing & Validation Hard & Software Testing, Change Mgmt	WP2-3.4 Change Management Update Drawings, Cost engineering	
3- Manuf. Process Dev.		WP3-1 Process Definition PFD, PFMEA, Design for Manufacturing.	WP3-2 Process Design Capacity modelling, Equip. Spec & Selec.	WP3-3.4 Process Validation & Ramp-up Equip. Release. Process validation. Problem solving. CT & OEE ramp-up.	
4- Adv. Quality Plan.		WP4-1 Advanced Quality PFMEA support, Control plan dev.	WP4-2 Quality System design Quality & Lab test equip, spec & selec.	WP4-3.4 Quality System Launch. Quality & Lab test validation. PPAP management & release. IATF preparation.	
5- Supply Chain Mgmt.		WP5-1 Supply Chain Definition Strategic supplier plan., Make vs. Buy.	WP5-2 Procurement & SCM Supplier sourcing. WH & Packaging def.	WP5-3.4 Supply Chain Launch Management. Supplier readiness mgmt. WH, Logistics ramp-up. Customer logistics ramp-up.	
6- Factory Plan & Exec.		WP6-1 Site Selection Requirements, evaluation & selection.	WP6-2 Factory Planning Layouts, Design, Vendors sel. & mgmt.	WP6-3.4 Factory Execution & Handover. Construction & Equipment integration. Release & Handover to operations.	
7- Digital Manuf. & IT		WP7-1 IT Requirements IT/OT requirements & architecture.	WP7-2 IT Design IT/OT design, spec & selection.	WP7-3.4 IT ramp-up and release. IT/OT ramp-up and release.	
8- Operations Mgmt.			WP8-2 Operations & People planning. Training content, form & hiring plan.	WP8-3.4 Operations & Workforce Development. Operations & business systems set-up, ramp-up & staff training.	
9- Finances		WP9-1 CapEx/OpEx Objectives From BC objectives to cost objectives.	WP9-2 CapEx/OpEx Modelling Cost modelling vs. Financial objectives.	WP9-3.4 CapEx/OpEx management and optimization CapEx & OpEx tracking against financial objectives. Reduction strategies.	

*WP content is simplified & highlight the respective focus.

Moving your business to Scale

Contact person for this presentation

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