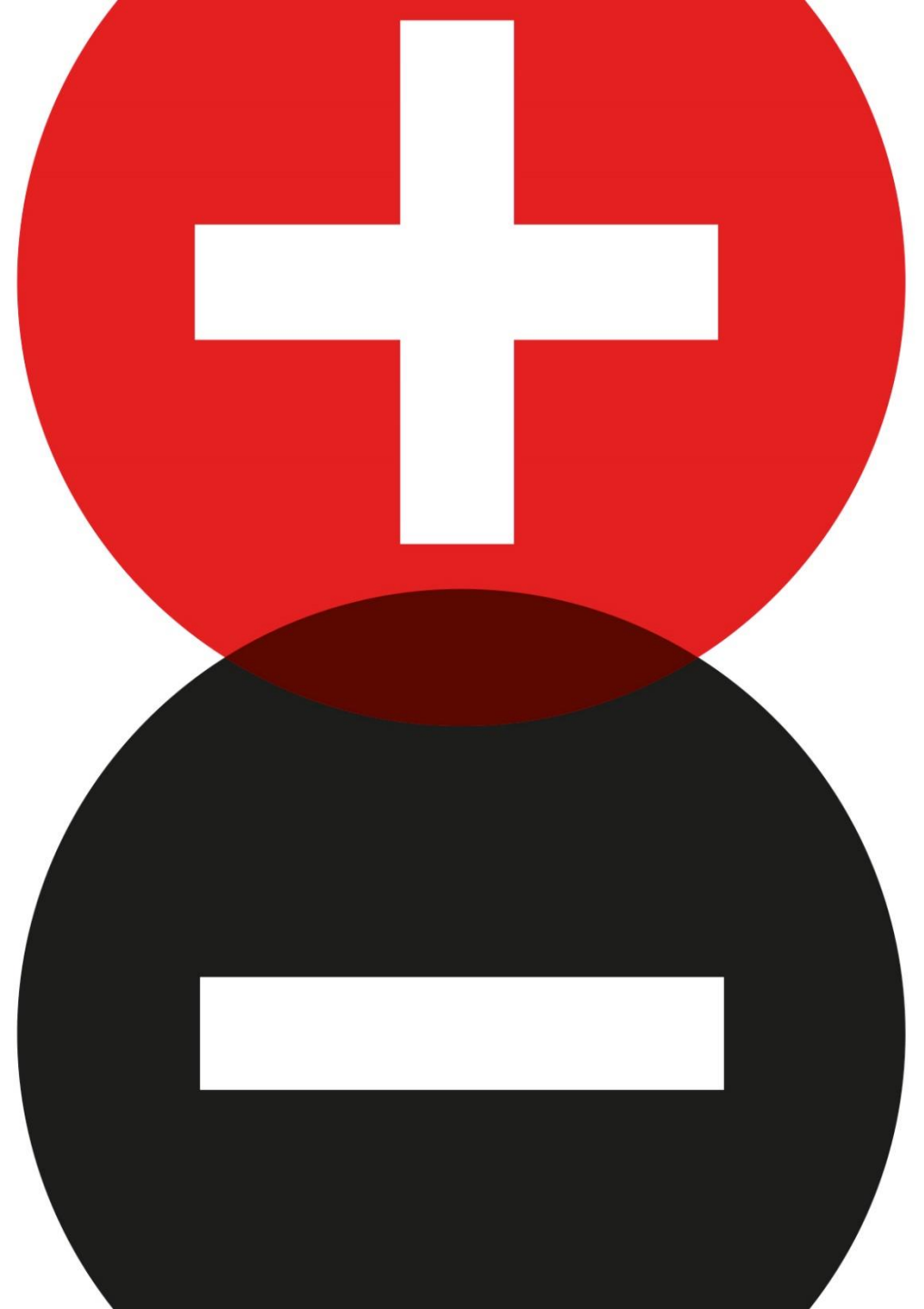


# Voltabox electrifies!

## Analyst / Investor Presentation

Quirin Champions Conference  
June 18, 2020




**V+LTABOX®**



# Responding to the Pandemic

From the middle of March, significant effects on

- current series deliveries (e.g. import stop of battery systems for trolley buses in Italy)
- material procurement due to blocked supply chains
- customer call-offs (e.g. intralogistics)
- R&D projects and planned series starts due to order cancellations

- >>  Voltabox responded by applying for **short-time work** for large parts of the Group
- >>  Almost complete **stoppage of production** at the Delbrück and Austin, Texas, plants (only few service activities in production)
- >>  Significant **impact on forecast revenue** for 2020; **earnings affected** due to underfunding of cost base (but according to conservative planning **no liquidity issues**)

# Status Quo in Operational Business

End of **short-time work** at the end of June

---

Gradual **ramp-up** of **production**

---

Increasing signals from customers to **resume supplies**

---

Coping with the effects of the crisis by **using own resources** –  
no burdening of the balance sheet and liability structure through KfW loans

---

Time used for setting up the organization autonomously

# Preparations Done for the Post-Pandemic Era

**Strengthened competitiveness**  
in terms of  
technology and  
cost structure of  
the product  
portfolio

**Supplier contracts**  
renegotiated

Positive  
development of  
**sales activities**

**Fundamental reorganisation of the Group!**

# Comprehensive Adjustments of Balance Sheet

- **Reason**

Significantly deteriorated business prospects in various markets, due in part to the COVID 19 pandemic; increasingly significant difference between equity and market capitalization



Extensive adjustment of assets

- **Effect**

- Maximum transparency for capital market and potential future (anchor) shareholders
- Maximum reduction of balance sheet risks

Cluster	Value Adjustment	Explanation
US Business	€ 19.0m	▪ Intangible assets from acquired companies, inventories
Deteriorated business prospects	€ 65.0m	▪ Inventories, intangible assets for development work and adjustments of assets from long-term development contracts, intangible assets from rights of use and acquired companies, accrual for impending losses
Reversal of Voltamotion sale	€ 16.6m	▪ Effect from reversal of sale of rights of use due to COVID-19 pandemic
<b>Total</b>	<b>€ 100.6m</b>	

# Postponement of Annual Report

**Cause** paragon publication on March 3, 2020 regarding intention to sell financial interest Voltabox

Emergence of the corona crisis and increasing impact on Voltabox business

**Reason** Effects on consolidated financial statement under intensive examination of the auditor

Corona influence on business development in 2020 according to IDW (Institute of Public Auditors in Germany) to be taken into account in the management report of the 2019 financial statement



e.g. because of extraordinary impairment test

**Postponement of audited consolidated financial statement**

**Effect** Best possible transparency for capital market

# 2019 Preliminary Results

€ **70m** to € **80m**

**-8%** to **-9%**

**Forecast** 2019(e)  
as of August 12, 2019

Reversal of  
Voltamotion sale



€ **56.6m**

One-off adjustments of assets  
according to still unprofitable  
US subsidiary and deteriorated  
business prospects



**-187.8%**

**Preliminary results** fiscal year 2019  
as of May 8, 2020

# Expansion of the Management Board



**Dr. Burkhard Leifhelm (CTO)**

- studied mechanical engineering at RWTH Aachen University and earned his doctorate there
- worked for more than ten years at Hella KGaA, ultimately as head of the unit Operational Excellence
- established REFA specialist



**Patrick Zabel (CFO)**

- holds an Executive Master of Business Administration (MBA) and a Bachelor of Laws (LL.B.) degree from the University of Münster
- former corporate account manager at a large savings bank and project manager at PwC (responsible for auditing large, capital market-oriented companies and advised clients on basic accounting issues in accordance with IFRS and HGB); expert in international accounting



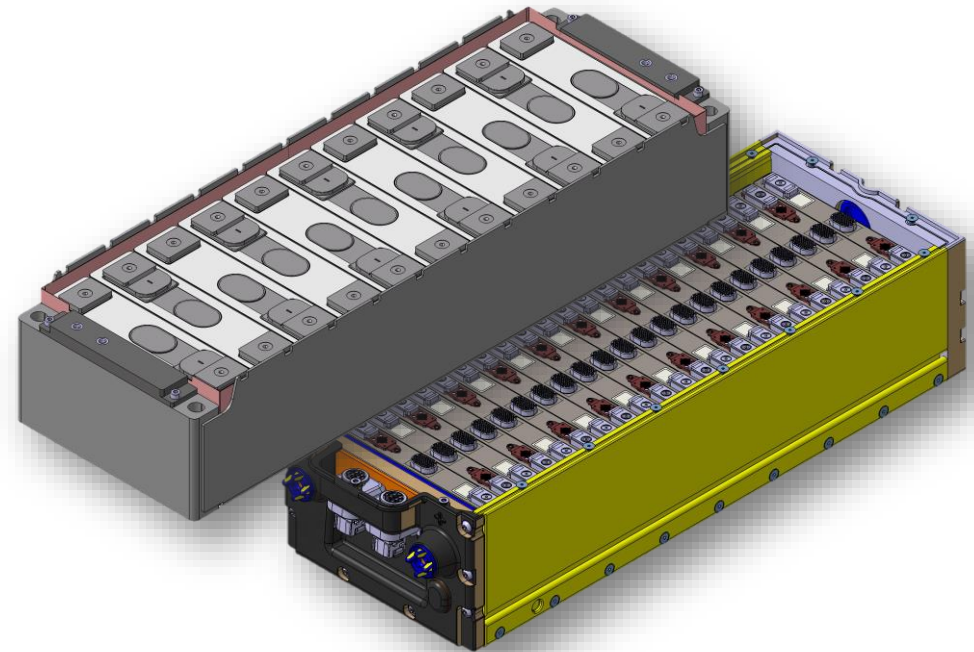
# Preparations Done for the Post-Pandemic Era

NMC 24V standard	NMC 24V air-cooled	NMC 24V water-cooled	NMC 48V standard	NMC 48V air-cooled	NMC 48V water-cooled
<p>&gt;&gt; Revision of the product portfolio in terms of value analysis (especially Modular Kit)</p> <p>&gt;&gt; Standardization selectively enhanced</p>					
NMC 103V water-cooled	NMC 36V standard	NMC 40V standard	NMC 40V water-cooled	LTO 48V standard	LTO 83V standard
<p>&gt;&gt; Further strengthening of expertise in the area of functional safety, which is important for approvals</p> <p>&gt;&gt; Cell-agnostic approach significantly revised through optimization of supplier structure and cell portfolio</p>					
LTO 83V long	LFP 24V standard	NMC 48V Pouch	2x8 LFP round cell module	3x8 LFP round cell module	4x9 LFP round cell module

\* Excerpt from product portfolio.

# Preparations Done for the Post-Pandemic Era

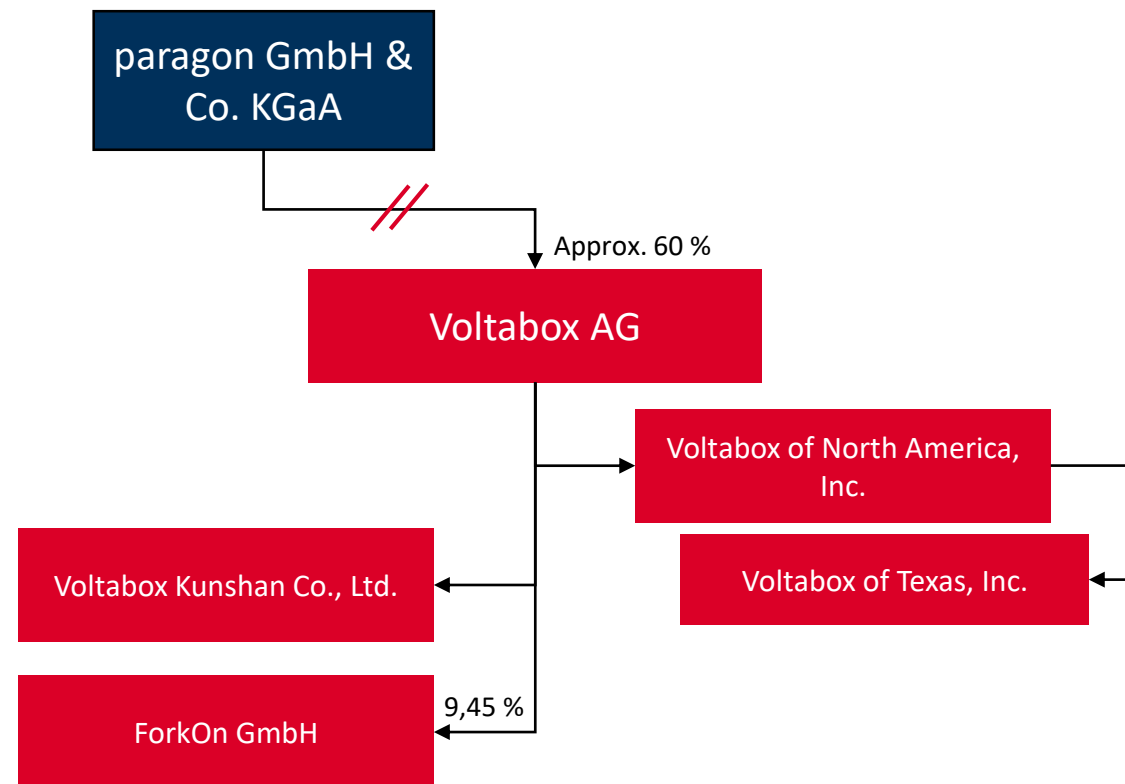
- Improvements through omissions of cost-intensive materials and components - e.g. reduction of screws or of cross sections of aluminium strands
- Optimization of the module concepts according to the requirements of the applications – e.g. cheaper housings
- New housing concepts can still be produced on existing lines > time advantage in assembly due to fewer components
- Standardization, where possible, expanded - e.g. battery management systems
- Adjustment of charging cycles according to application



**Enlargement of the modular kit and expansion of the solution portfolio, more strongly oriented towards customer needs, cost leadership enabled!**

# Sales Process Initiated by the Majority Owner

- Options currently being weighed by the majority shareholder paragon range from a partial sale to the sale of the entire stake
- Ever fewer overlaps between both company's business models
- Preferred buyer: well-capitalized, strategically interested owner(s) that has (have) a strong international footprint (e.g. industrial company) in order to scale the business of Voltabox globally and thus exploit its full growth potential
- Current status: several interested companies, numerous conducted preliminary talks, capital market recovery bolsters the expected achievement of our sales targets



# General Outlook

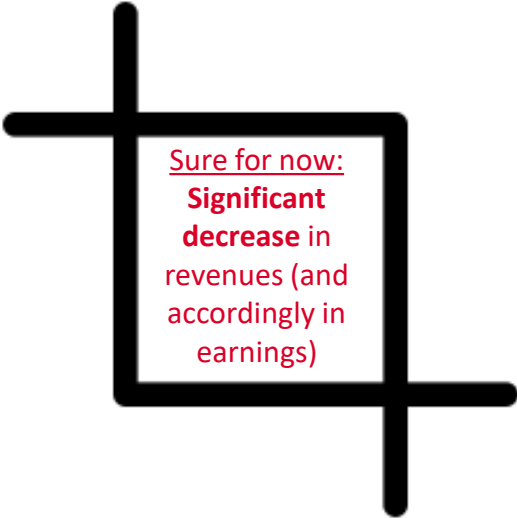
## Original revenue forecast

€ 85m to € 100m

## Original profitability forecast

about 15 % (EBITDA margin)

5 % to 7 % (EBIT margin)



Sure for now:  
**Significant  
decrease** in  
revenues (and  
accordingly in  
earnings)

- Still low visibility in the context of the COVID-19 pandemic
- Increased caution in planning on the customer side because of uncertainty about the further development of the pandemic
- High bandwidth due to several possible scenarios of business development in 2020
- Successful sales activities in 2019/2020 to be continued in order to prepare for sustainable growth from 2021 onwards

# Key Achievements Made & Objectives for 2020

## Challenges solved and achievements made in 2019



## Further implementation of **lessons learned** in 2020 and 2021 and **overall objectives**

**Deliver and regain confidence!**

- Returning on growth track and establish basic production
- Establishing diversification of customer base
- Further optimizing margins of products/systems
- Preparing future series production ramp-ups
- Increasing footprint in focused markets via continuation of successful sales activities
- Further reduction of Net Working Capital
- Reaching break-even
- Stabilizing US subsidiary in revenues, earnings and utilization

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## Company Contact

Voltabox AG

Stefan Westemeyer

Investor Relations

Artegastraße 1

D-33129 Delbrück

Phone: +49 (0) 5250 9930-685

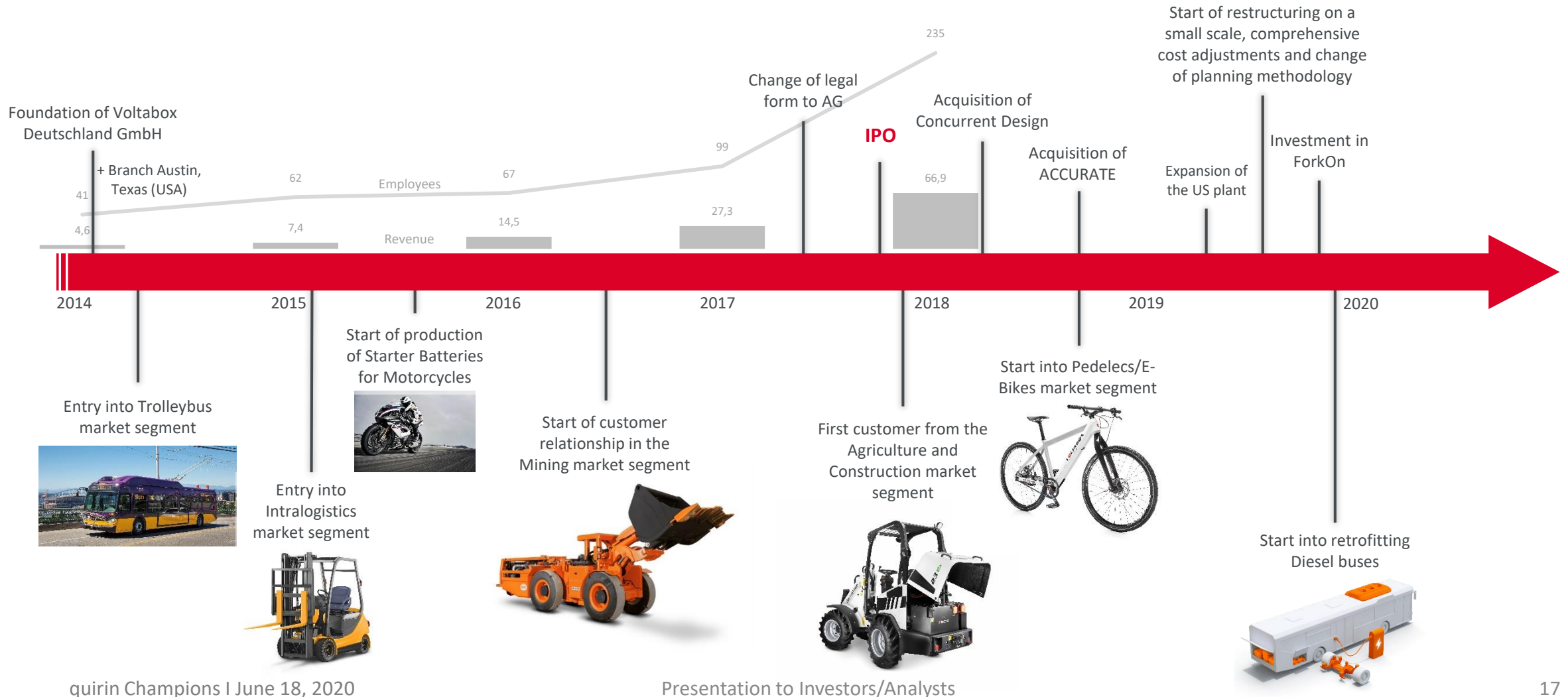
Email: [investor@voltabox.ag](mailto:investor@voltabox.ag)



# Back-up



# Voltabox Corporate Development



# Location Overview

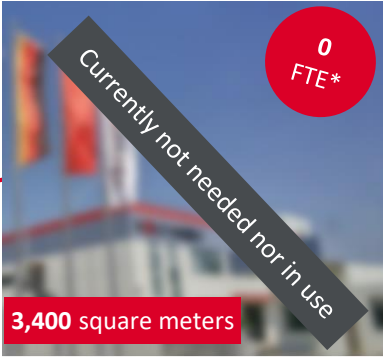
**V+LTABOX® AG** 192 FTE\*



**V+LTABOX® of North America, Inc.** **V+LTABOX® of Texas, Inc.**



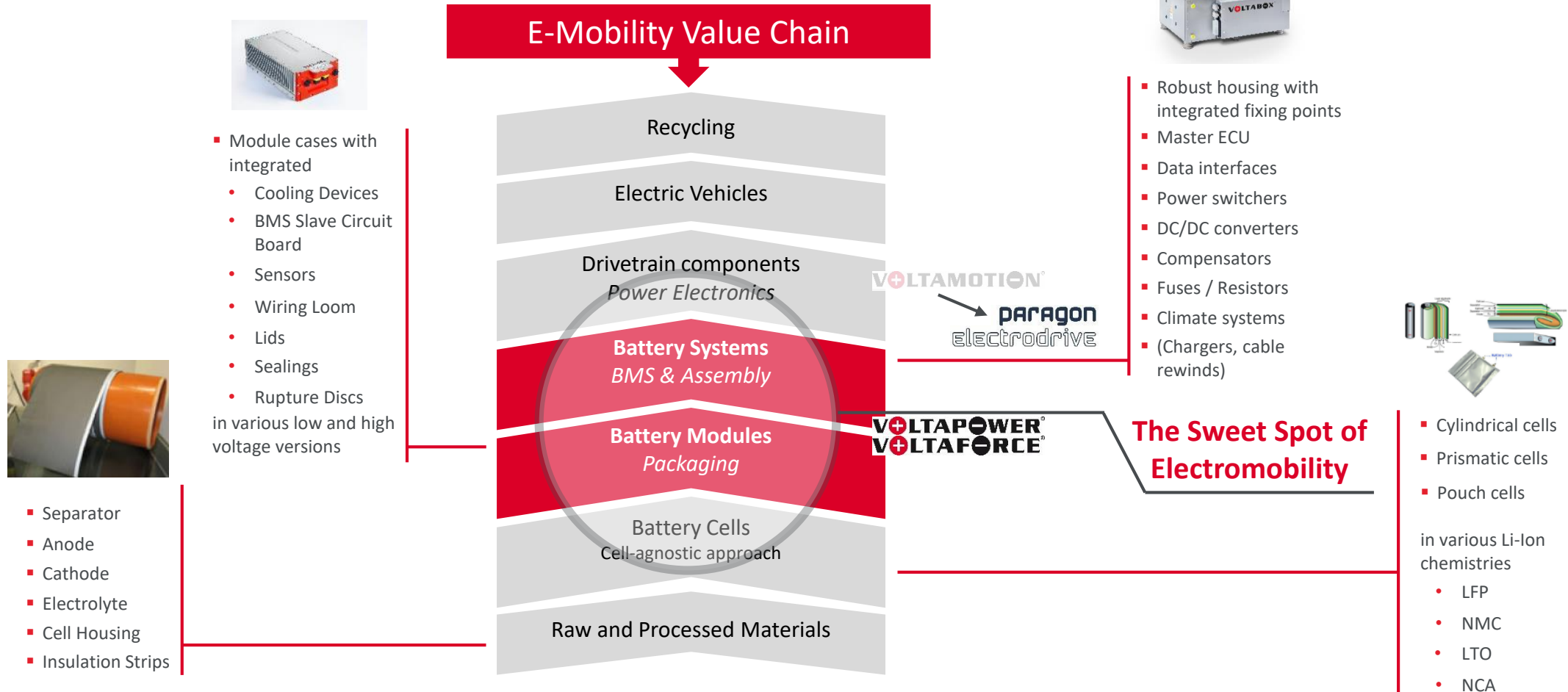
**V+LTABOX® Kunshan Co., Ltd.**



Administration Production Research & Development

\* Full time equivalents (FTE), as of September 30, 2019.

# E-Mobility Pure Play



# Modular Development & Production Approach\*



NMC 24V standard



NMC 24V air-cooled



NMC 24V water-cooled



NMC 48V standard



NMC 48V air-cooled



NMC 48V water-cooled



NMC 103V water-cooled



NMC 36V standard



NMC 40V standard



NMC 40V water-cooled



LTO 48V standard



LTO 83V standard



LTO 83V long



LFP 24V standard



NMC 48V Pouch



2x8 LFP round cell module



3x8 LFP round cell module



4x9 LFP round cell module

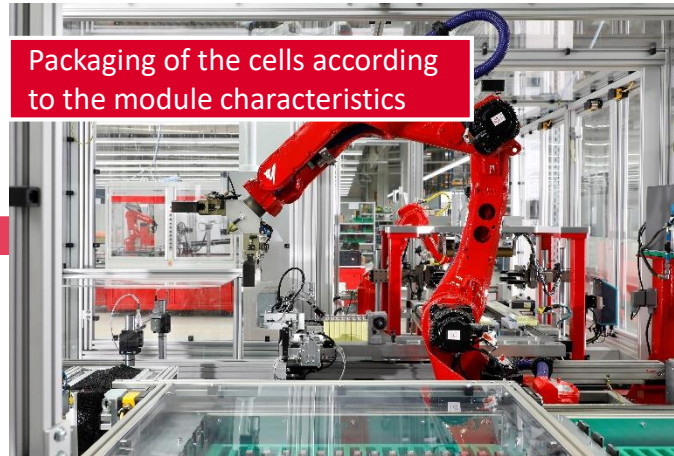
\* Excerpt from product portfolio.

## Production Steps - From the Cell to the Complete System

Procurement of cells and preparation of production



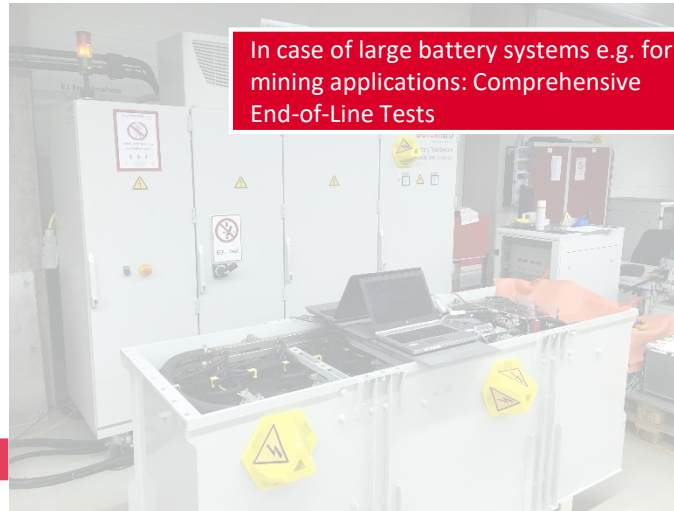
Packaging of the cells according to the module characteristics



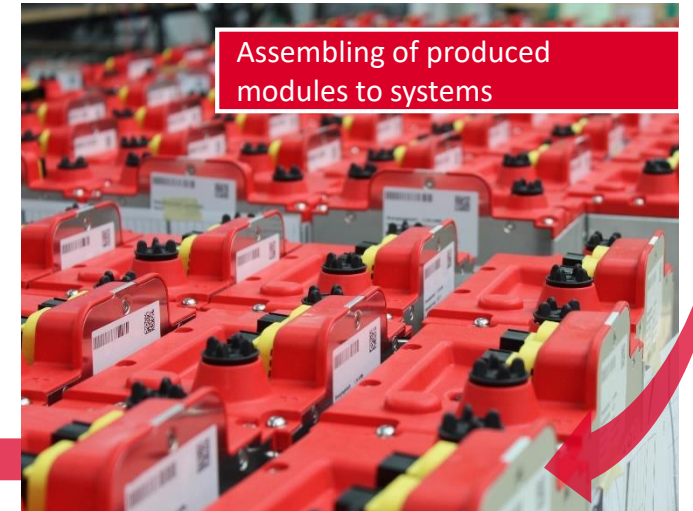
Connecting the cells, adding of BMS and further components



In case of large battery systems e.g. for mining applications: Comprehensive End-of-Line Tests

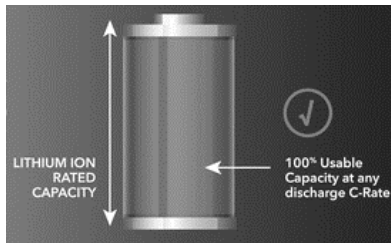


Assembling of produced modules to systems



# TCO-Advantages Driving Substitution of Lead-Acid by Li-Ion

## Li-Ion Technology

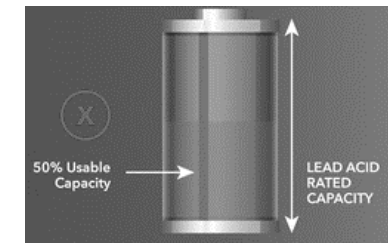


### Additional advantages:

- No memory effect (opportunity charging)
- Very low self-discharge
- No maintenance
- Full functionality at low temperatures
- Optimum control and (remote) monitoring

Up to 240 Wh/kg	<b>Energy density</b>	40 Wh/kg
Up to 95%	<b>Charging efficiency</b>	Up to 70%
Up to 30,000 cycles at 80% DOD	<b>Cycle life</b>	1,200
Up to 80% in 6 min (10C)	<b>Fast charging</b>	50% in 3 hrs.
Zero emissions	<b>Emissions</b>	Gassing & water loss

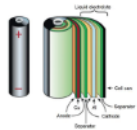
## Lead-Acid Technology



# Voltabox is Cell Agnostic!

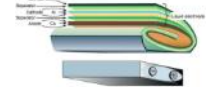
Cell Types

## Cylindrical



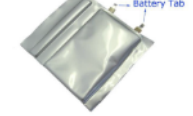
A spirally wound design (jelly-roll). Designated by size, e.g. 26650 cylindrical battery (Diameter: 26mm, length: 65.2 mm; code for cylindrical shape: 0)

## Prismatic



A prismatic design indicate a flat battery design. The stacks can be wound (as shown in the photo) or stacked (with alternating cathode/separator/anode structure). The stacks are usually inserted into rigid casing to form prismatic

## Pouch



Rather than rigid metallic casing, conductive foil-tabs are welded to the electrodes and seal the battery fully. The tacks inside can be wound or stacked. Swelling and gassing could be a concern for pouch cells

Cell Chemistries

### Lithium Iron Phosphate (LFP)

- Nominal cell voltage: 3.2 V to 3.3 V
- No risk of thermal runaway (in case of an accident)
- High cycle stability of up to 4,000 cycles at 80% DoD
- Large operating temperature range -20/+ 55 °C
- High energy density (125 Wh/kg and 292 Wh/l)
- Using only a small portion of rare earths

### Nickel Manganese Cobalt (NMC)

- Nominal cell voltage: 3.6 V to 3.7 V
- High cycle stability of at least 6,000 cycles at 80% DoD
- Great operating temperature range of -30/+ 60 °C
- High energy density (136 - 230 Wh/kg and at least 309 Wh/l)

### Lithium Titanium Oxide (LTO)

- Nominal cell voltage: 2.3 V
- Highest cycle stability of up to 30,000 cycles at 80% DoD
- High level of safety thanks to LTO anode
- Great operating temperature range of -30/+ 55 °C
- Energy density of 96 Wh/kg or 202 Wh/l
- Great SoC range useable with the highest performances

### Nickel Cobalt Aluminum Oxide (NCA)

- Nominal cell voltage: 3.6 - 3.7 V (vs. graphite)
- Very wide operating temperature range of -20 /+75°C
- High cycle stability of up to 1,500 cycles at 80-70% DoD
- High energy density (140 - 280 Wh/kg and 300 - 590 Wh/L)
- Currently being tested or upscaled by many cell manufacturers

Source: IDTechEx.

# Distinguished Cell Expertise in the Group



Dr. Fabian Wohde  
Cell Expert at Voltabox

“

*On paper, lithium-ion technology has been convincing right from the start. However, after we have installed numerous Li-Ion-based systems in the market over the past few months, the strengths of the cell chemistries we use are also evident in practice. Lithium-ion battery systems impress with their flexibility, high charging rates, long service life and massive advantages in terms of total cost of ownership.*

”

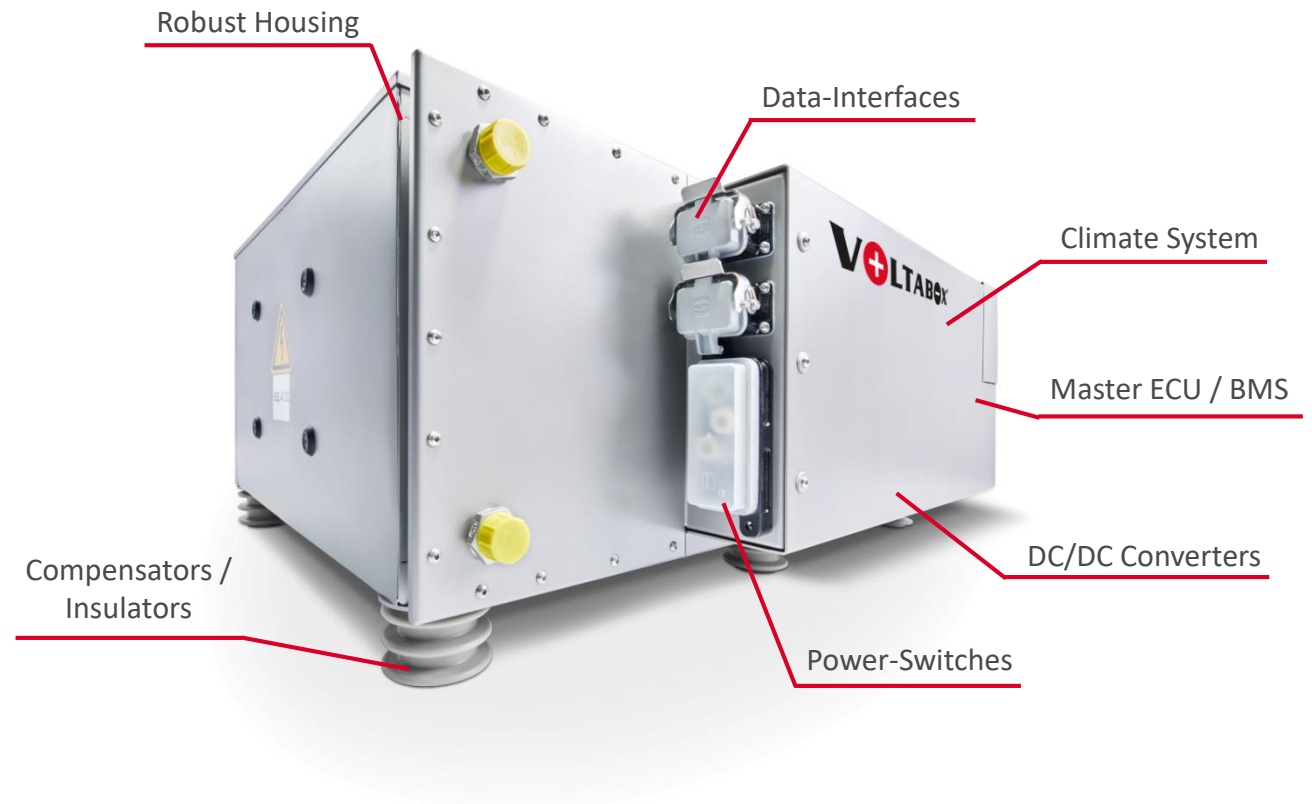
## Cell Supplier Base (Selection)



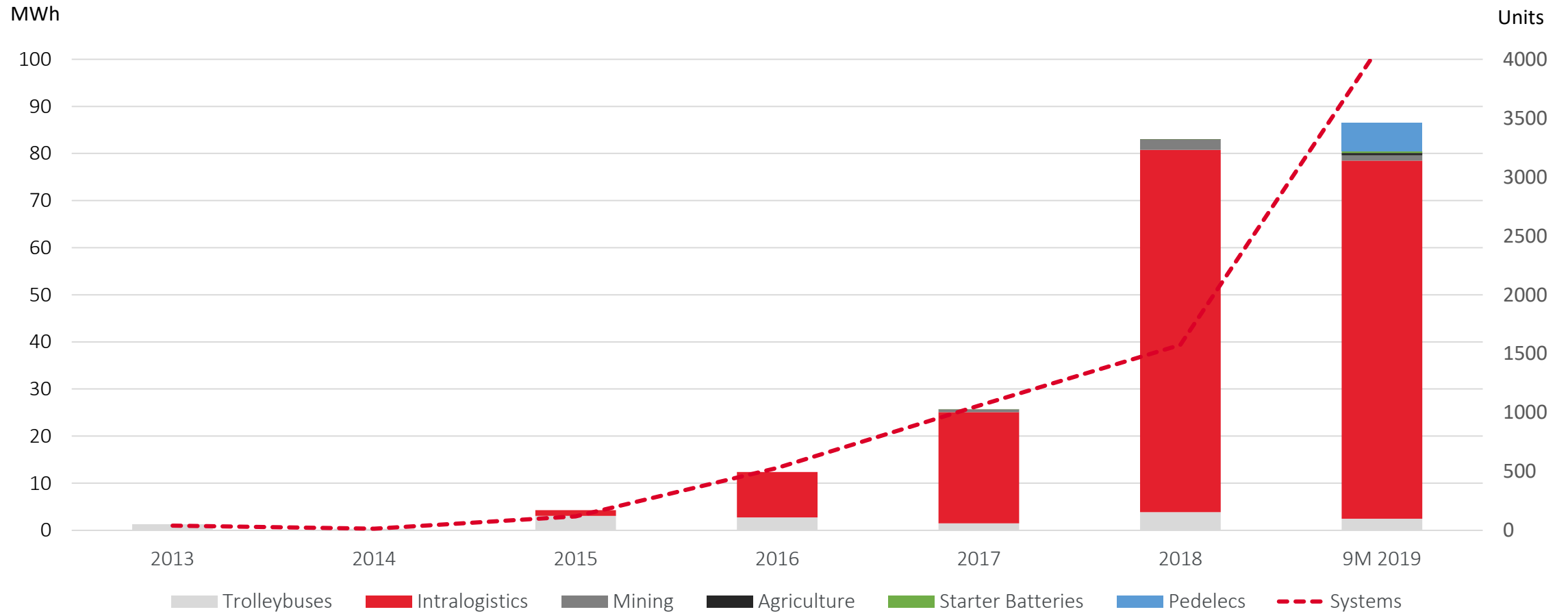


# Li-Ion Battery System Supplier for Defying Applications

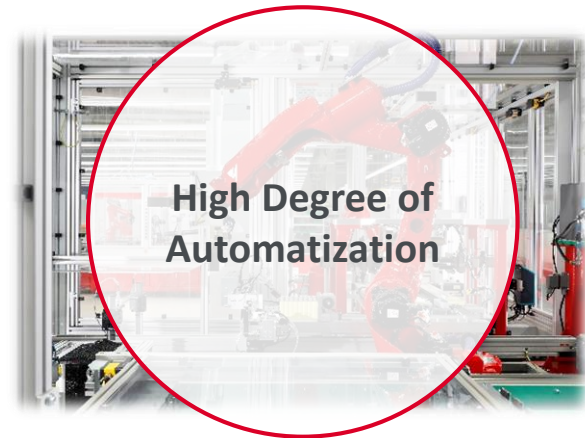
- Voltabox is a **pioneer** in the **electrification of industrial applications**. In 2018, the Group **expanded** its **solution portfolio** in order to open up **further mass markets** in the future.
- **Mindset focus on applications**  
*(authentic added value solutions)*
- **Exceptional integration power**  
*(experience in automotive interfaces)*
- **Superior realization processes**  
*(short time-to-market with modular kit)*



# Installation of Energy by End Markets



# USPs of Voltabox



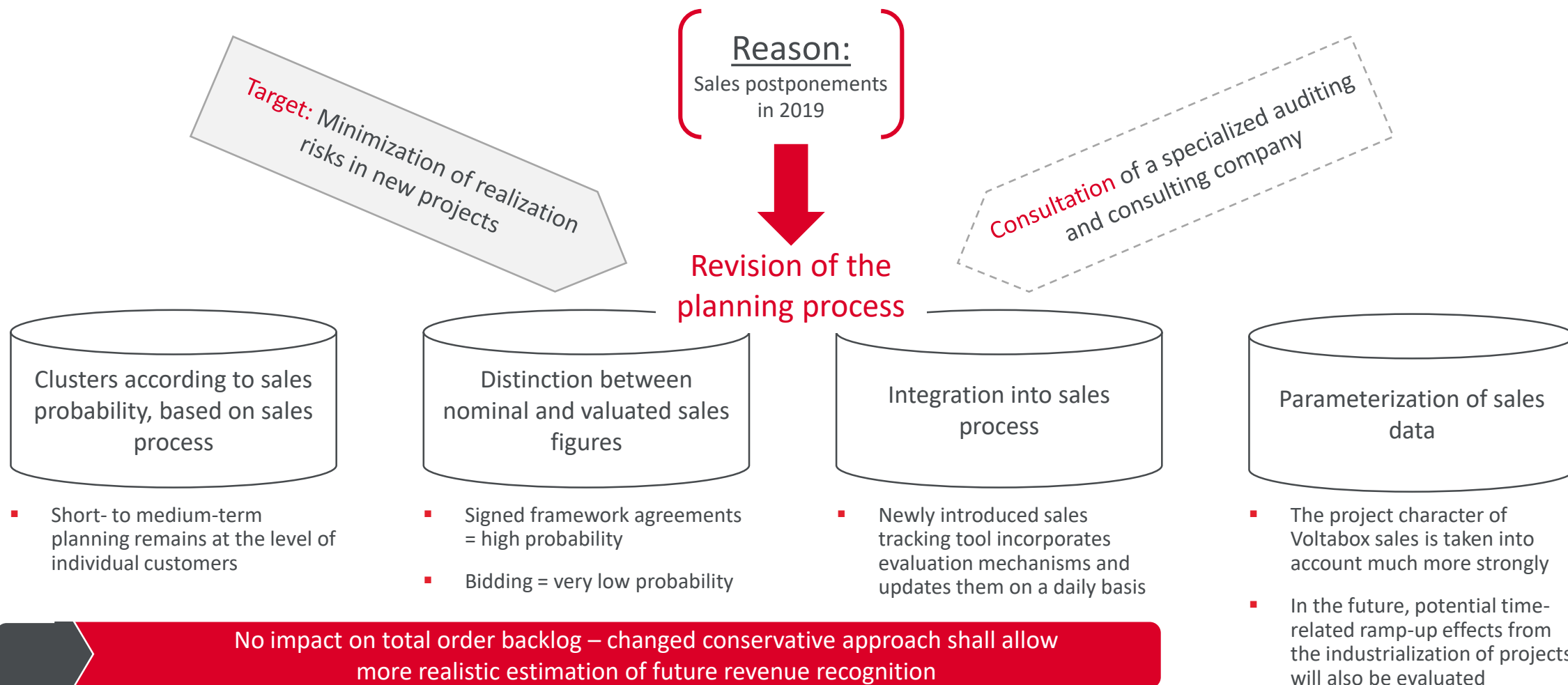
# Countermeasures for Optimizing the Cost Structure

<b>1</b>	Personnel cost adjustments (Delbrück)	Large reduction of annual personnel costs and reduction of temporary workers - mainly effective from 01.01.2020	✓
<b>2</b>	Personnel cost adjustments (Austin)	Reduction of personnel costs in 2019 already effective today	✓
<b>3</b>	Sharpening of development focus	Focus on 38 projects (including 23 projects with higher priority) with stringent controlling	✓

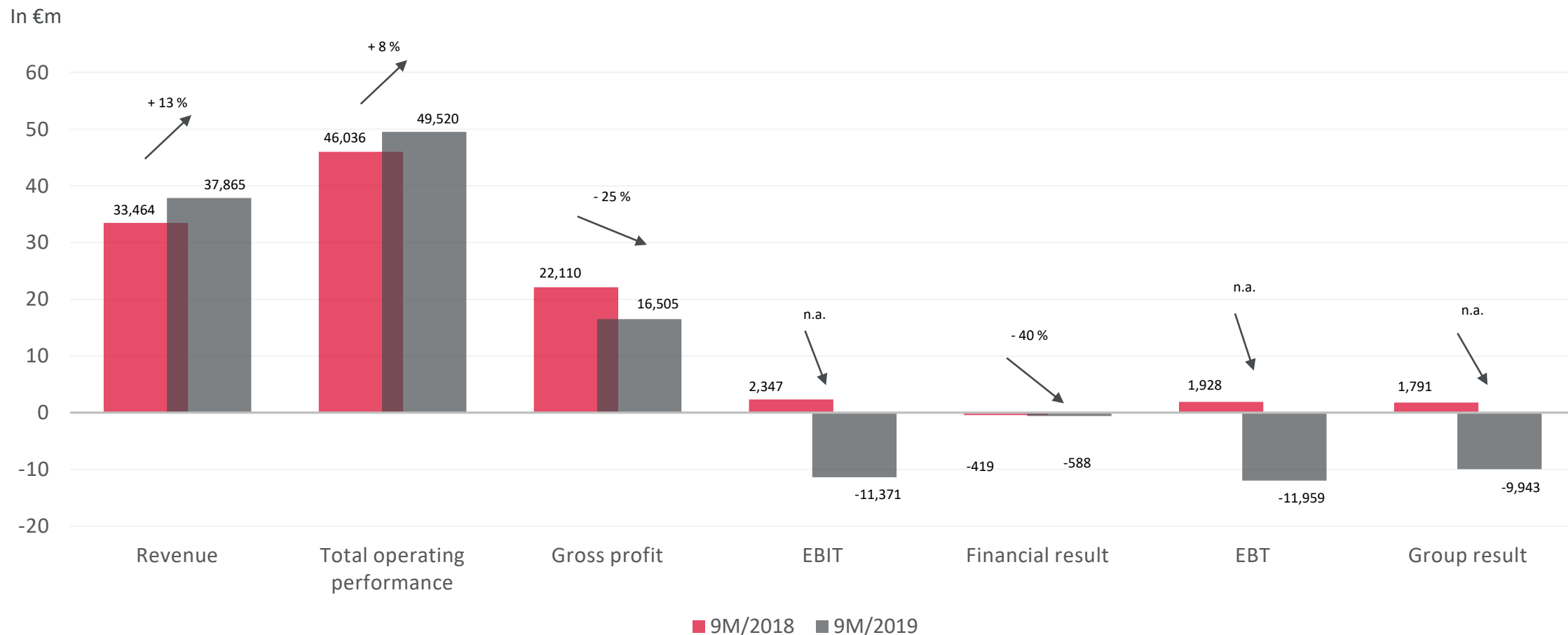


<b>4</b>	Material savings through double size technology	Especially cost optimization of battery module for new cells of several manufacturers	✓
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# New Planning Process

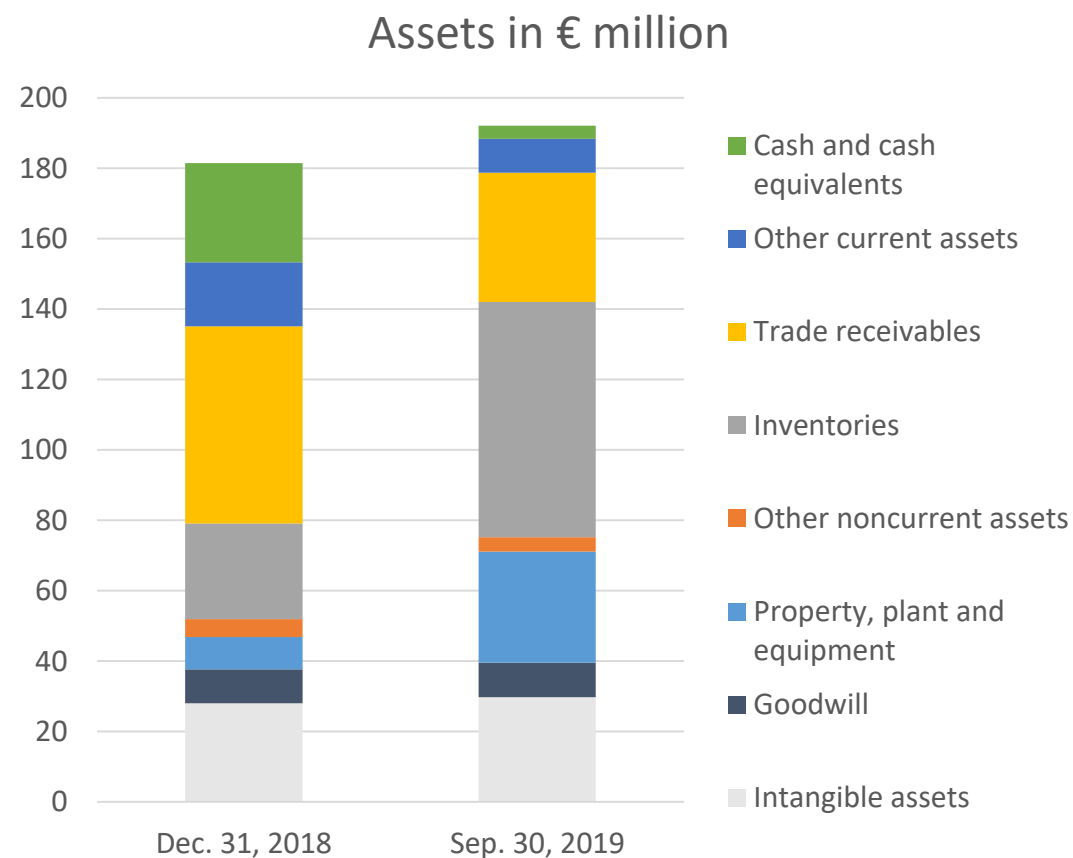


# Ongoing Top-Line Growth at a Negative Profitability



# Key Developments of Assets

- Increase of noncurrent assets by € 23.3m
  - Property, plant equipment € +22.3m – IFRS16 (Leasing) effect
  - Other assets € -3.1m – Reclassification of noncurrent rental prepayments in property, plant and equipment due to IFRS16 & recognition of contractual assets
  - Deferred tax assets € +2.1m – Recognition of loss carryforwards
  
- Decrease of current assets by € 12.8m
  - Inventories € +39.6m – supply of production material, which will be used primarily in 2020 for planned projects
  - Trade receivables € -19.3m – repayments from important customer
  - Liquid funds € -24.9m – expansion of operational business activities, prefinancing of production and spatial expansion of US site
  - Receivables from related parties € -11.3m – Repayment from parent company



# Key Developments of Equity and Liabilities

- Increase of noncurrent provisions and liabilities by € 14.1m
  - Noncurrent loans € +0.8m
  - Noncurrent liabilities from Finance Lease € +13.1m
- Increase of current provisions and liabilities by € 7.2m
  - Trade payables € +7.6m
  - Liabilities to related parties € 1.4m
  - Other current liabilities € -3.8m
- Decrease of equity by € 10.7m
  - Equity ratio at 74.9 % (Dec. 31, 2018: 85.3 %)

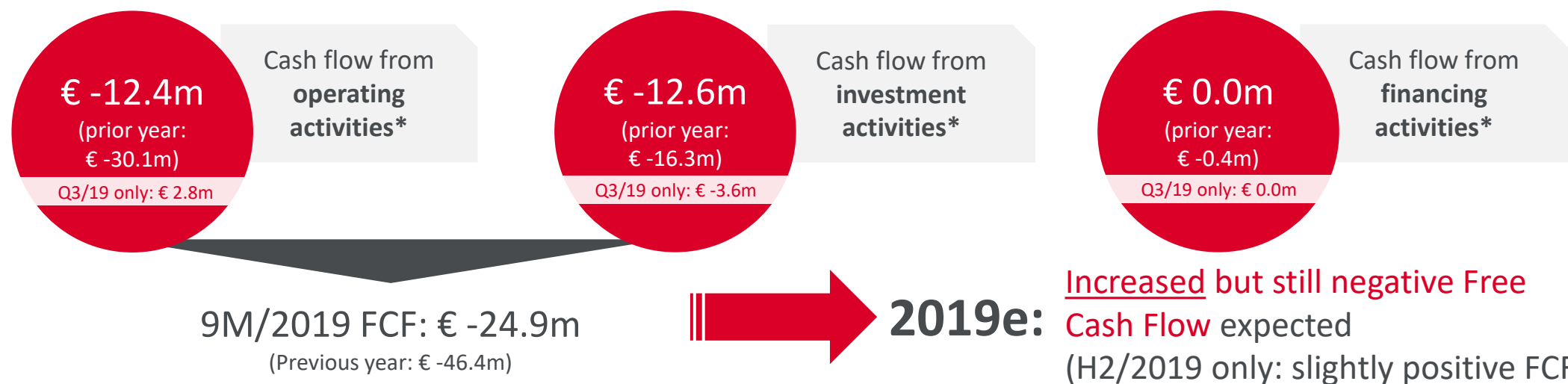
	Sep. 30, 2019	Dec. 31, 2018
<b>Equity</b>	<b>143,779</b>	<b>154,484</b>
Subscribed capital	15,825	15,825
Capital reserve	127,992	127,992
Profit/loss carried forward	9,718	7,614
Consolidated net income	-9,943	2,579
Currency translation differences	187	474
<b>Noncurrent provisions and liabilities</b>	<b>21,868</b>	<b>7,808</b>
Noncurrent finance lease liabilities	13,147	17
Noncurrent loans	958	141
Deferred tax liabilities	7,763	7,650
<b>Current provisions and liabilities</b>	<b>26,389</b>	<b>19,224</b>
Current loans	3,535	3,539
Trade payables	16,881	9,257
Liabilities to related parties	1,910	557
	<b>194,308</b>	<b>181,516</b>



# Cash Flow Statement 9M/2019

**Operating Cash Flow** increased by € 17.7m compared to prior year and characterized by countervailing effects

- **Inventories** increased again in the light of sourcing cells which will be used in the coming year in projects underway
- **Trade receivables** decreased significantly according to plan and will be further reduced until the end of the year



\* Jan. 1, 2019 – Sep. 30, 2019.

# Market Entry in 2020 - Conversion of Diesel Buses

**o|l|o** deutscher  
mobilitätspreis

**V+LTABOX®****e-trofit**

- Sales expectation in higher single-digit million range in 2020 - strong increase in sales figures from 2021 according to e-troFit
- Newly validated cells at Voltabox are ideal for application (cost and functional benefits) - Voltabox as sole battery system supplier
- e-troFit battery module can also be used for intralogistics (less dependence on previous main cell supplier)



# Energy Thought Flexible – Voltabox Mobile Power Units

- **Voltafox are the new mobile energy storage devices from Voltabox** - Portable lithium-ion battery system for a wide range of applications
- Voltabox uses its ready-developed and powerful forklift battery system for this purpose
- >> Optimum use for stock of prismatic NMC cells/modules (1. Generation)
- Various scalable designs and performance features possible

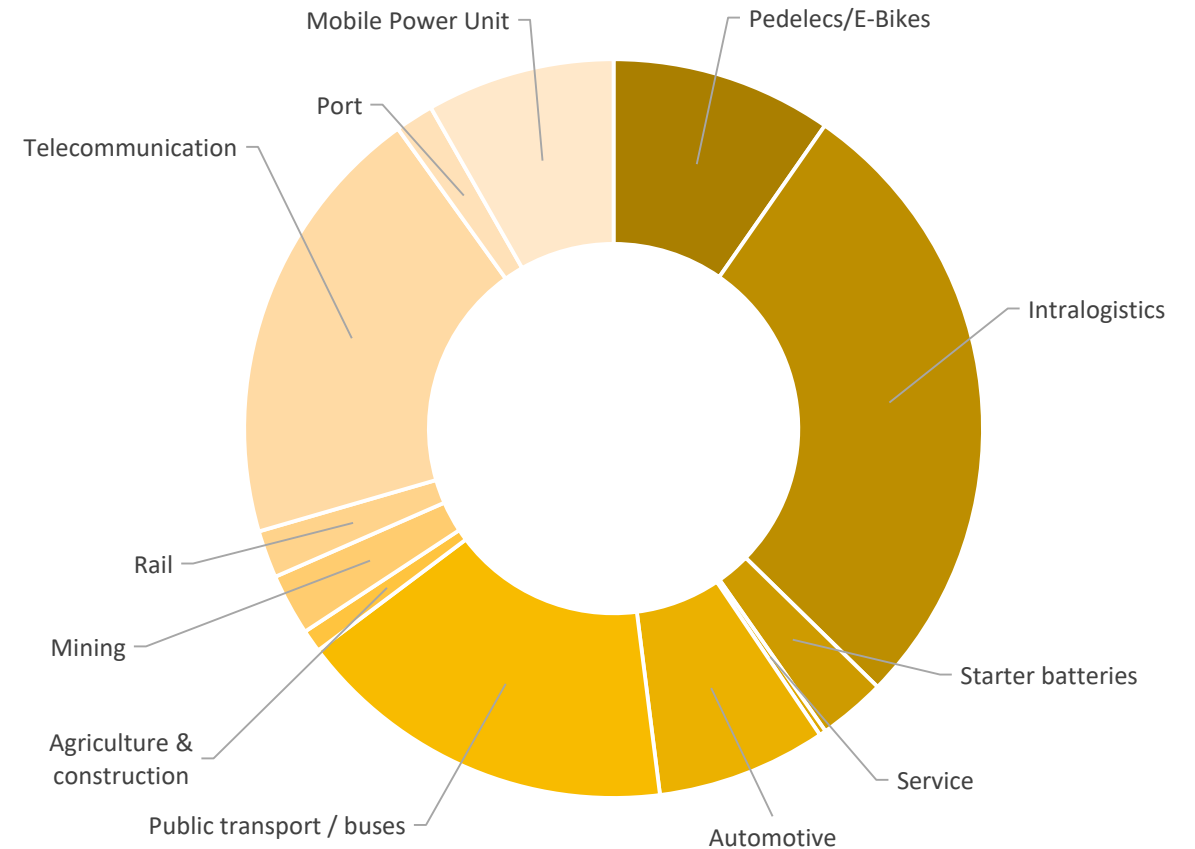


## Characteristics

- LTE/3G/4G/GPS connectivity
- Remote control via Web-APP
  - Proactive recommendations for exchange by providers
  - Location determination, anti-theft protection

# Sales by Markets in 2020 (Original Planning)

- Continuation of the significant reduction in bulk risk with regard to major customers in the intralogistics sector
- Focusing within the occupied markets and further development of standardized solutions allows more efficient development and shorter time-to-market
- New (sub-)sales markets planned in the following areas
  - Public transport / buses (conversion of diesel buses)
  - 5G network
  - Mobile Power Unit (mobile battery storage for flexible use)
  - Port and rail applications



# Original Forecast for Fiscal Year 2020

## Sales

Revenue  
€ 85m  
to  
€ 100m

## Profitability

EBITDA margin  
about  
**15%**  
EBIT margin  
**5%** to  
**7%**

## Cashflow

FCF  
single-  
digit  
positive

## CAPEX

Investments  
about  
**€ 12.5m**  
thereof about  
**70%**  
capitalized  
development  
costs

# Performance of Voltabox Share (VBX) since IPO

