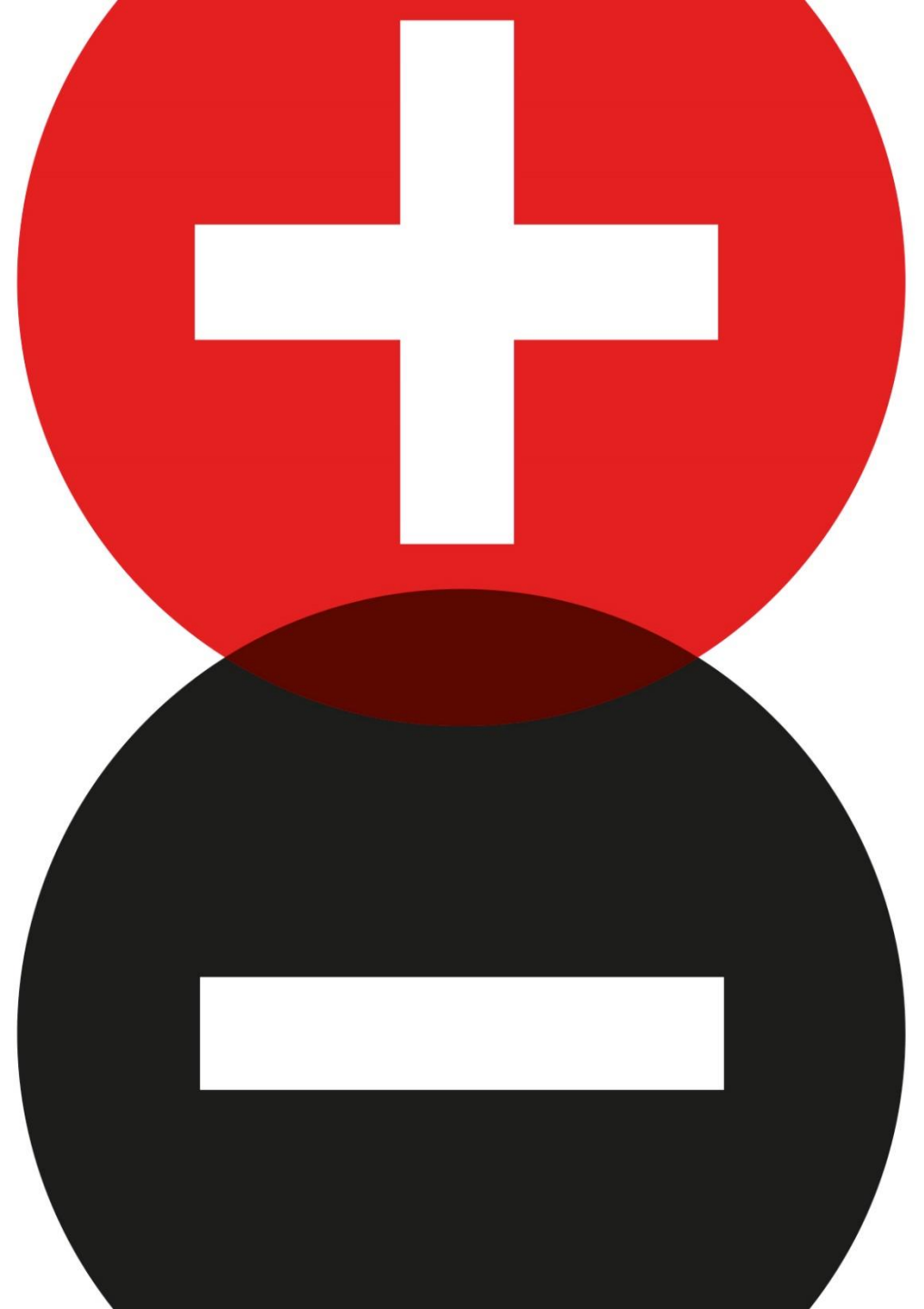


Voltabox electrifies!

Investor/Analyst Presentation

Münchner Kapitalmarktkonferenz | Munich
December 10, 2019

V+LTABOX®



Key Facts from Nine Months 2019

Continued top line growth **+13.2%**

EBIT margin **burdened**, as expected at **-30.0%**

Equity ratio decreases to **74.9%**

Available liquidity at **€ 10.9m**

Main drivers in 9M/19:  and  and 

CAPEX: **€ 12.6m**

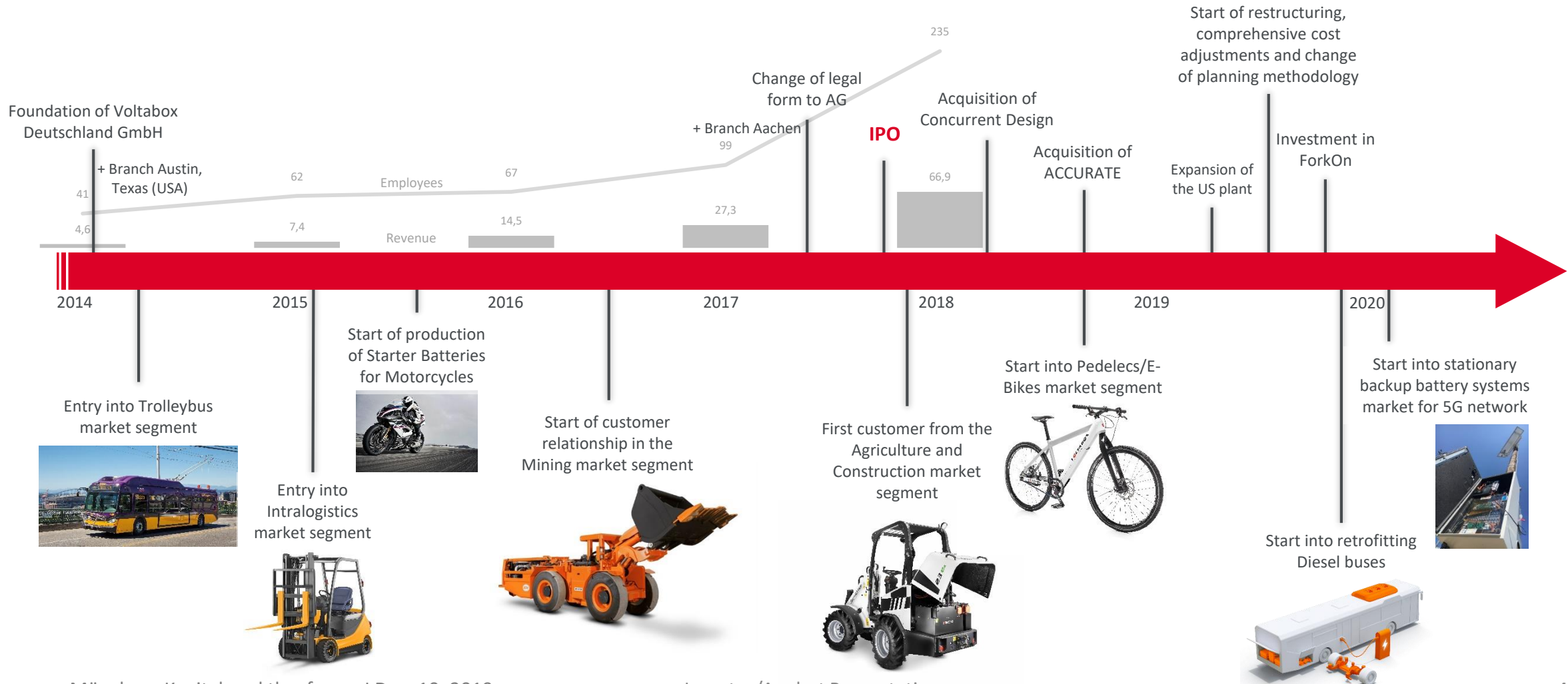


**Q3 results as expected against the background of the revised forecast –
Outlook for 2019 still valid**

Agenda

- Company Presentation
- Current Developments in Operational Business
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Voltabox Corporate Development



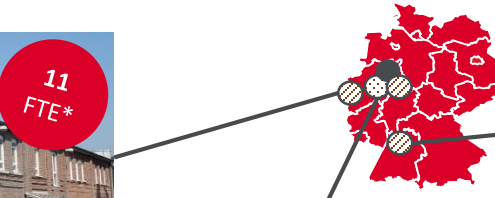
Location Overview

V+LTABOX® AG



800 square meters

R&D Center Voltamotion



600 square meters



R&D Center Voltaforce



8,800 square meters

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

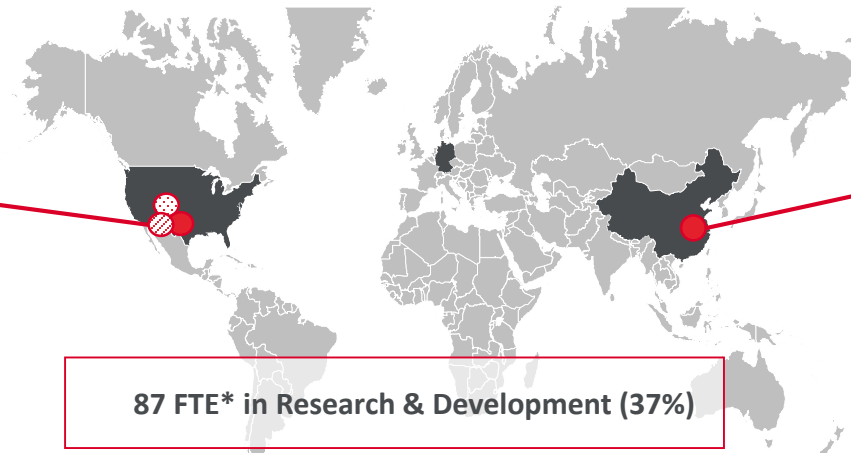


5,300 square meters

V+LTABOX®
Kunshan Co., Ltd.



3,400 square meters



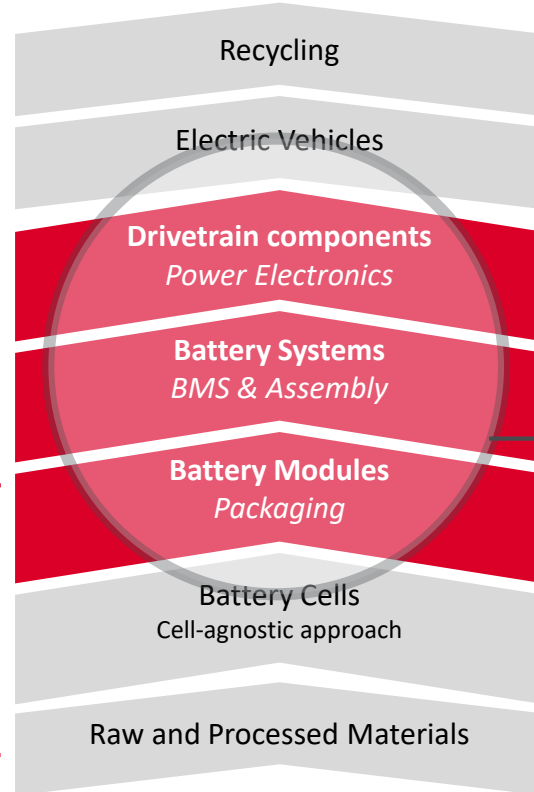
Administration Production Research & Development

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

E-Mobility Pure Play

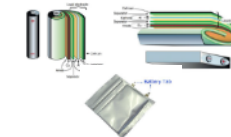


E-Mobility Value Chain



- Module cases with integrated
 - Cooling Devices
 - BMS Slave Circuit Board
 - Sensors
 - Wiring Loom
 - Lids
 - Sealings
 - Rupture Discs
- in various low and high voltage versions

- Robust housing with integrated fixing points
- Master ECU
- Data interfaces
- Power switchers
- DC/DC converters
- Compensators
- Fuses / Resistors
- Climate systems
- (Chargers, cable rewinds)



- Cylindrical cells
- Prismatic cells
- Pouch cells

in various Li-Ion chemistries

- LFP
- NMC
- LTO
- NCA



- Separator
- Anode
- Cathode
- Electrolyte
- Cell Housing
- Insulation Strips

The Sweet Spot of Electromobility

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

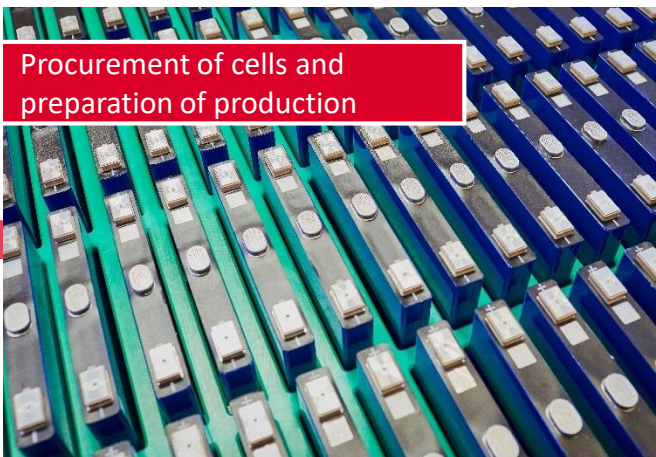


4x9 LFP round cell module

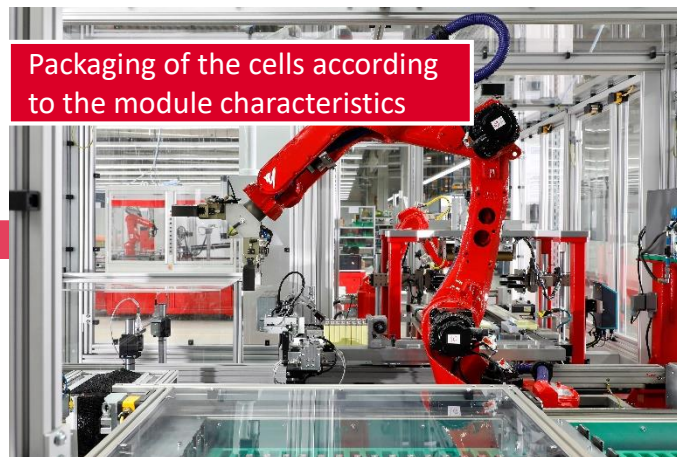
* Excerpt from product portfolio.

Production Steps - From the Cell to the Complete System

Procurement of cells and preparation of production



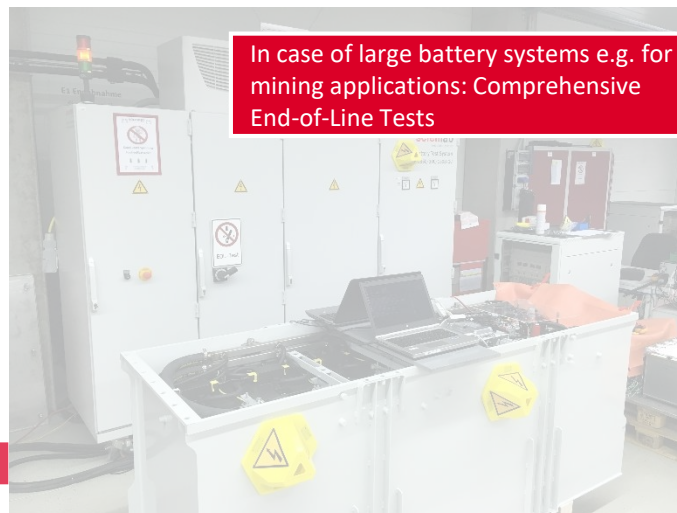
Packaging of the cells according to the module characteristics



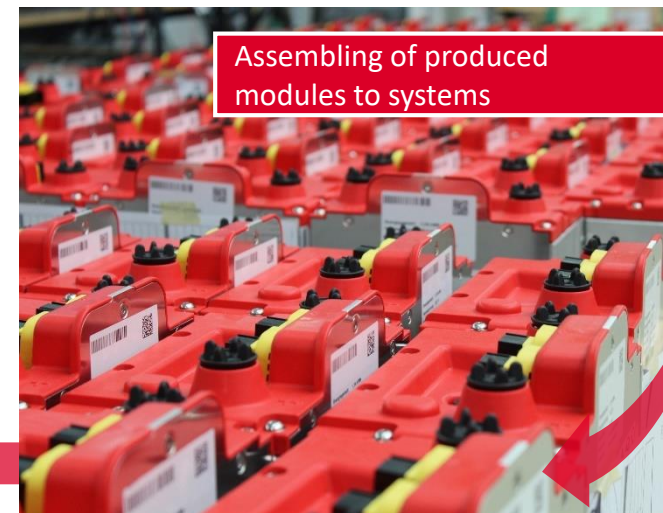
Connecting the cells, adding of BMS and further components



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

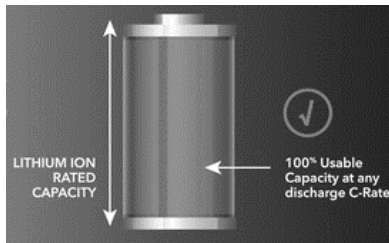


Assembling of produced modules to systems



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

Li-Ion Technology

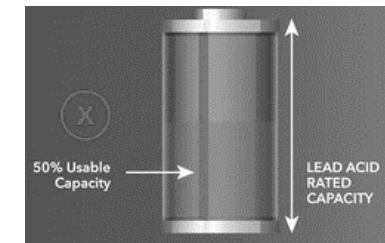


Additional advantages:

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

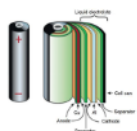
Lead-Acid Technology



Voltabox is Cell Agnostic!

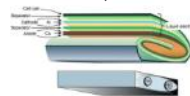
Cell Types

Cylindrical



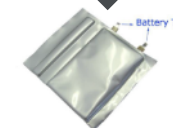
A spirally wound design (jelly-roll). Designated by size, e.g. 26650 cylindrical battery (Diameter: 26mm, length: 65.2 mm; code for cylindrical shape: 0)

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”.

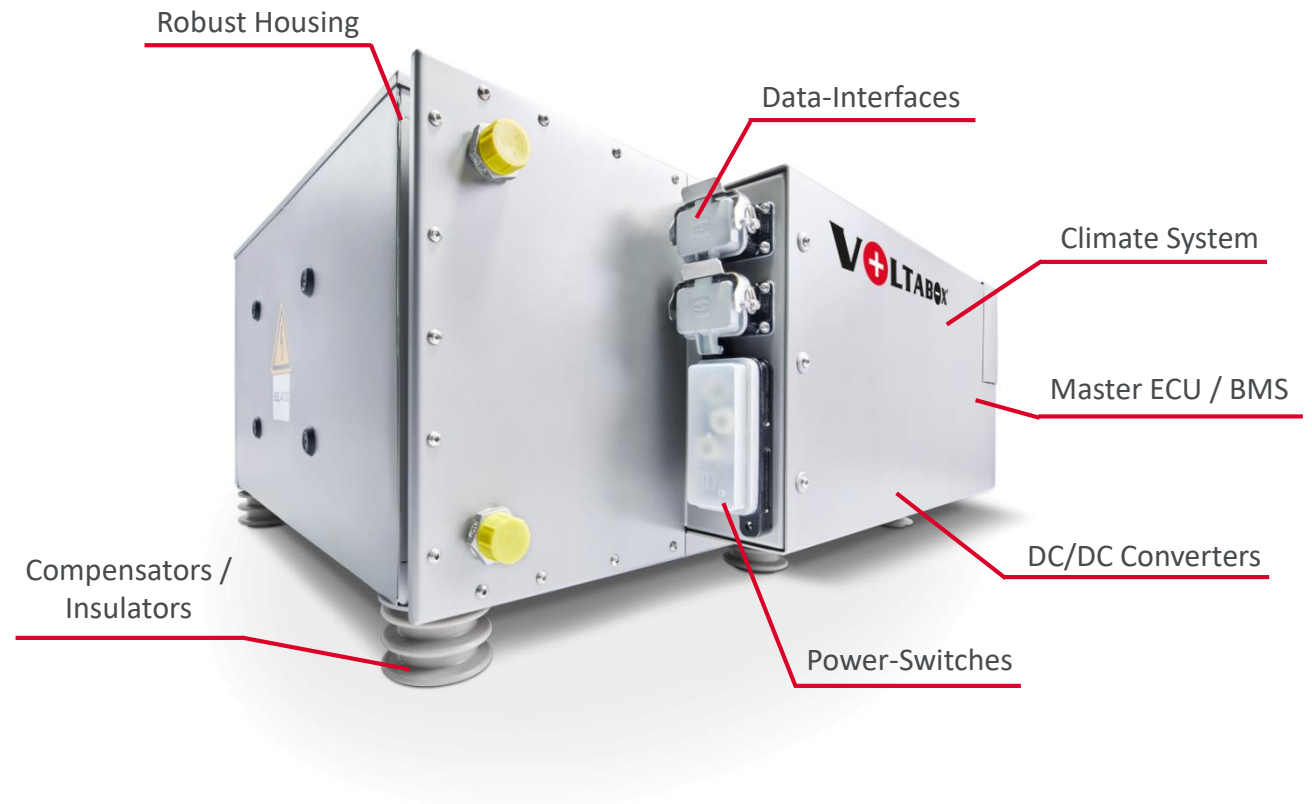
”

Cell Supplier Base

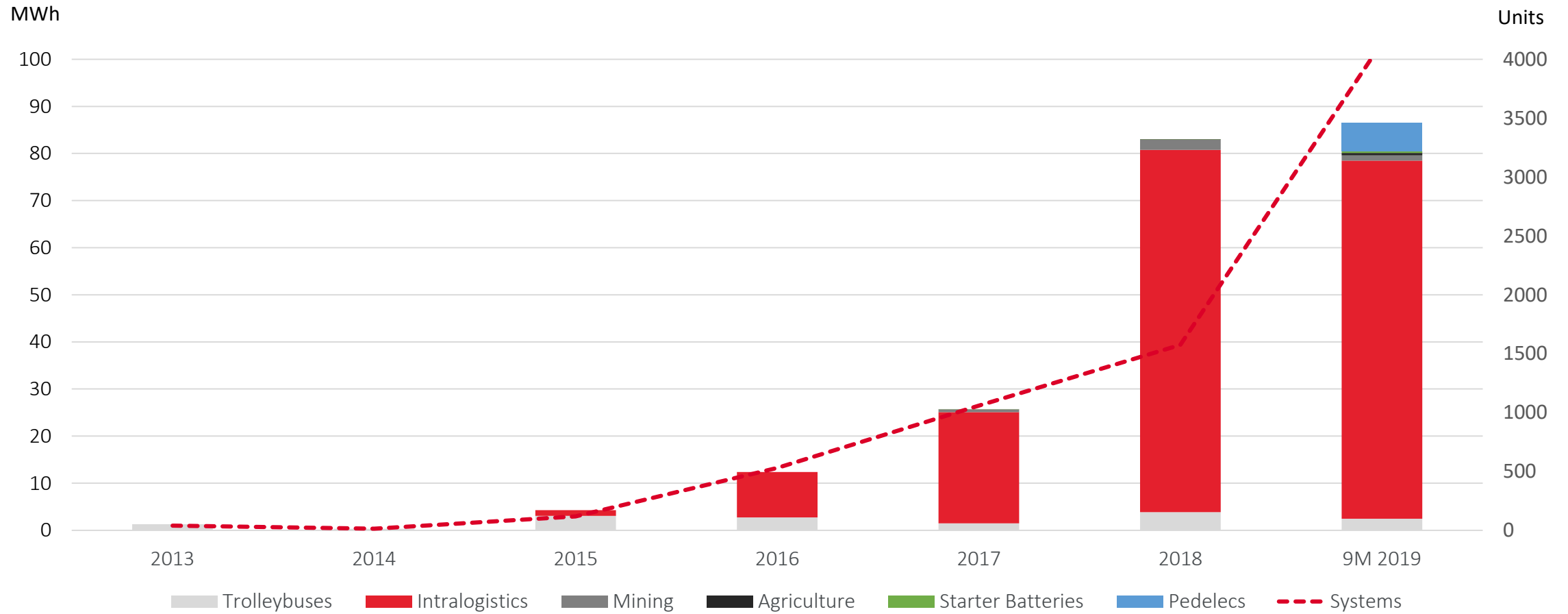


Li-Ion Battery System Supplier for Defying Applications

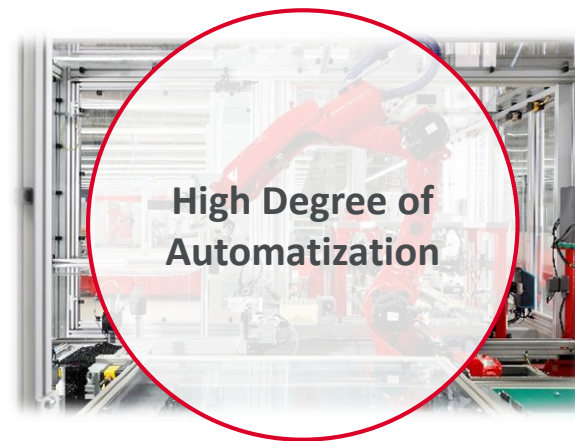
- Voltabox is a **pioneer** in the **electrification of industrial applications**. In 2018, the Group **expanded** its **solution portfolio** in order to open up **further mass markets** in the future.
- **Mindset focus on applications**
(authentic added value solutions)
- **Exceptional integration power**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



Installation of Energy by End Markets



USPs of Voltabox



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Adjusted Forecast 2019

Prior

€ **105**m to € **115**m

+8% to **+9%**

Forecast 2019(e) as of March 7, 2019



Changed demands of new US customer caused project postponement

Unplanned delivery stoppage from cell supplier in the course of technology change caused production postponement



Now

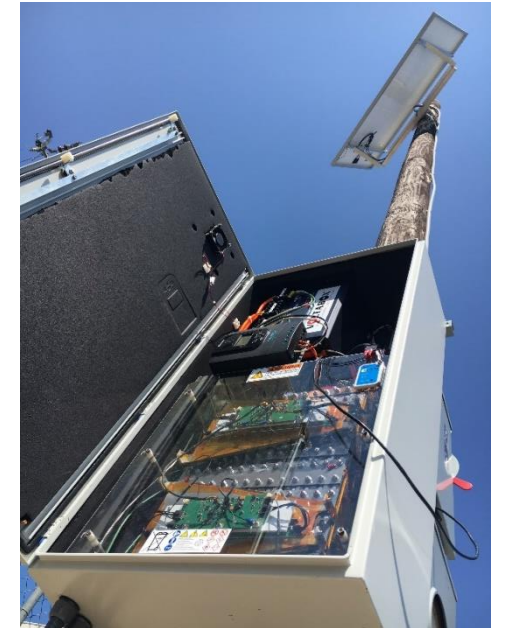
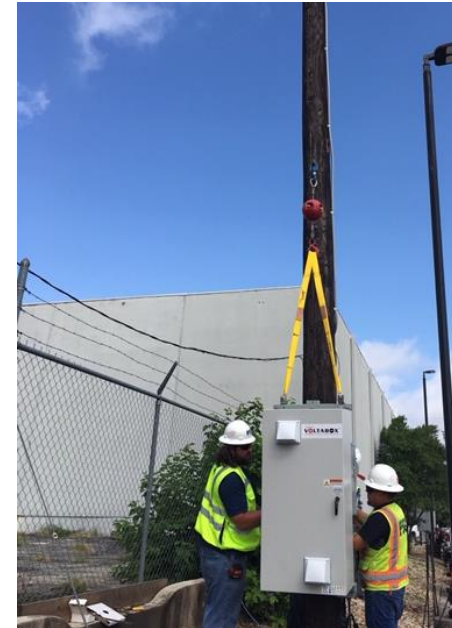
€ **70**m to € **80**m

-8% to **-9%**

Forecast 2019(e) as of August 12, 2019

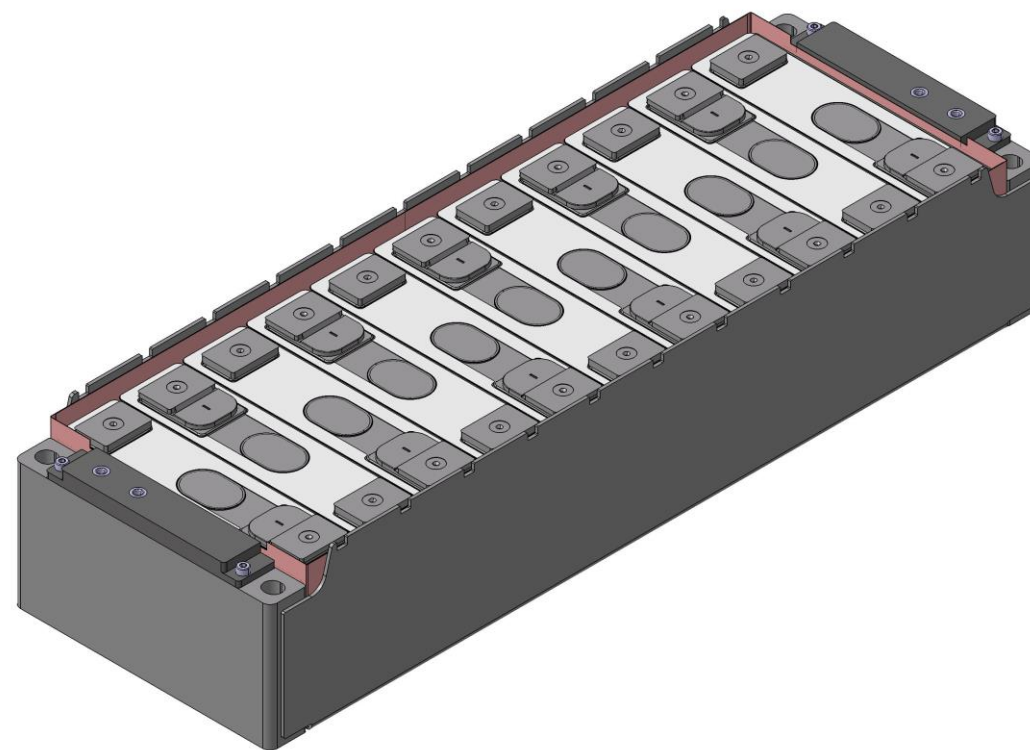
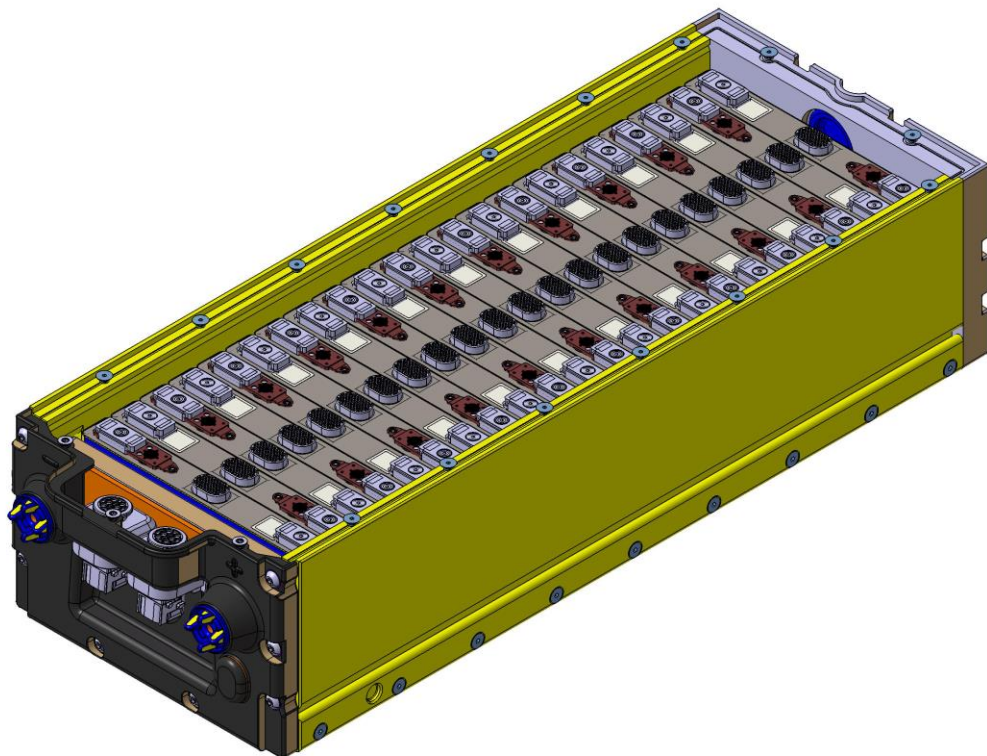
5G Back-up Systems – Large Initial Order Postponed

- New US client
 - Alpha Prototype: June 18, 2019 (1 piece)
 - Beta Prototype: July 2019 (5 pieces)
 - Remarkable First Order Volume
- New customer requirements in 08/2019:
 - Longer runtime
 - Reduction of cycles
- Technically not challenging – Adjustments already done
- Impact on battery size and management
- New validation caused time delay



Images: Prototype installations of the Voltabox systems in Austin/TX

Change of Technology: Single Size vs. Double Size



Two alternative cells approved in the meantime – significantly increased security against delivery stops



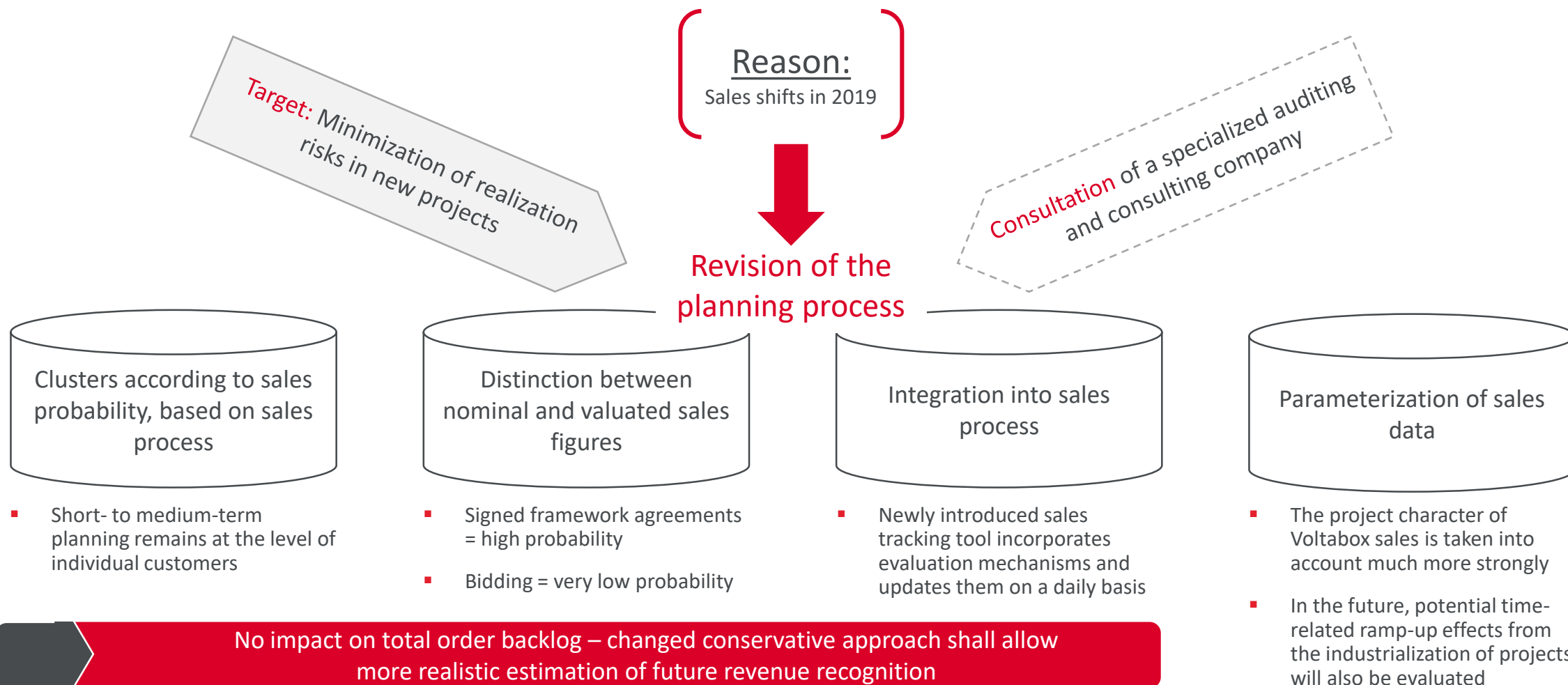
Countermeasures for Optimizing the Cost Structure

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



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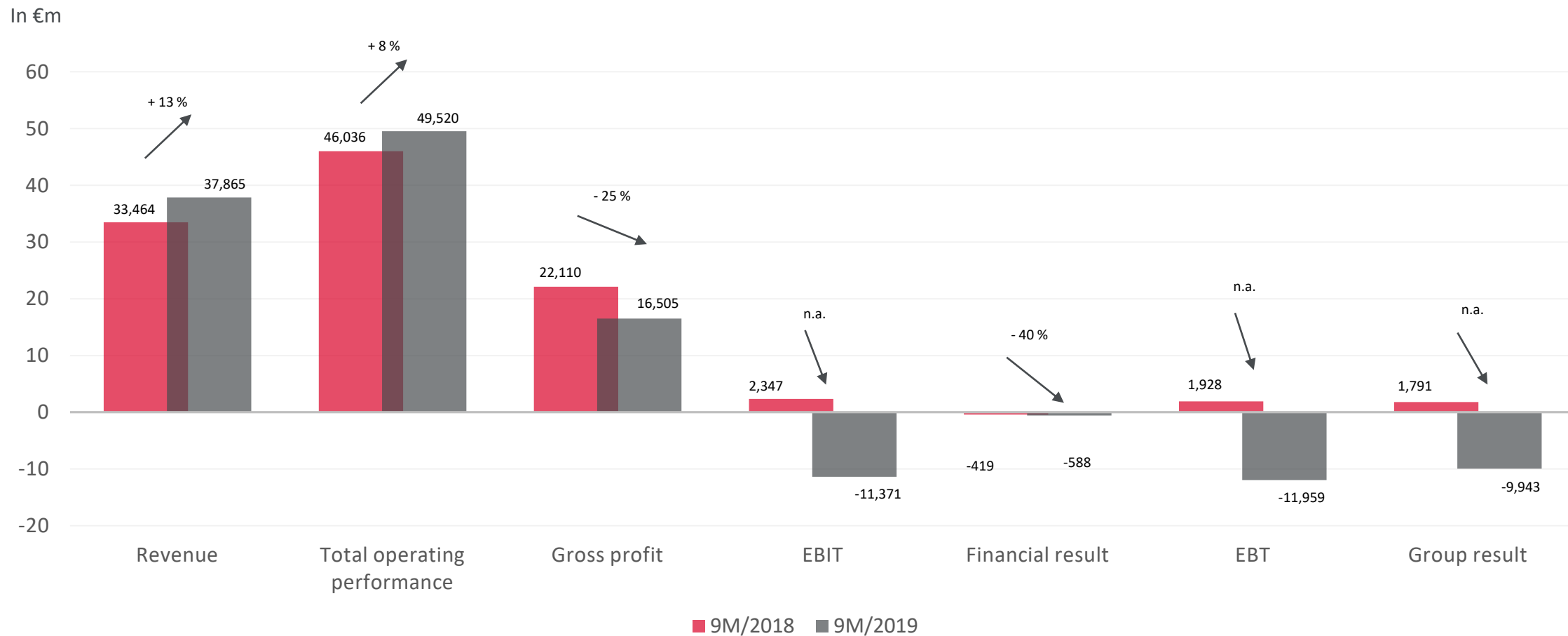
New Planning Process



Agenda

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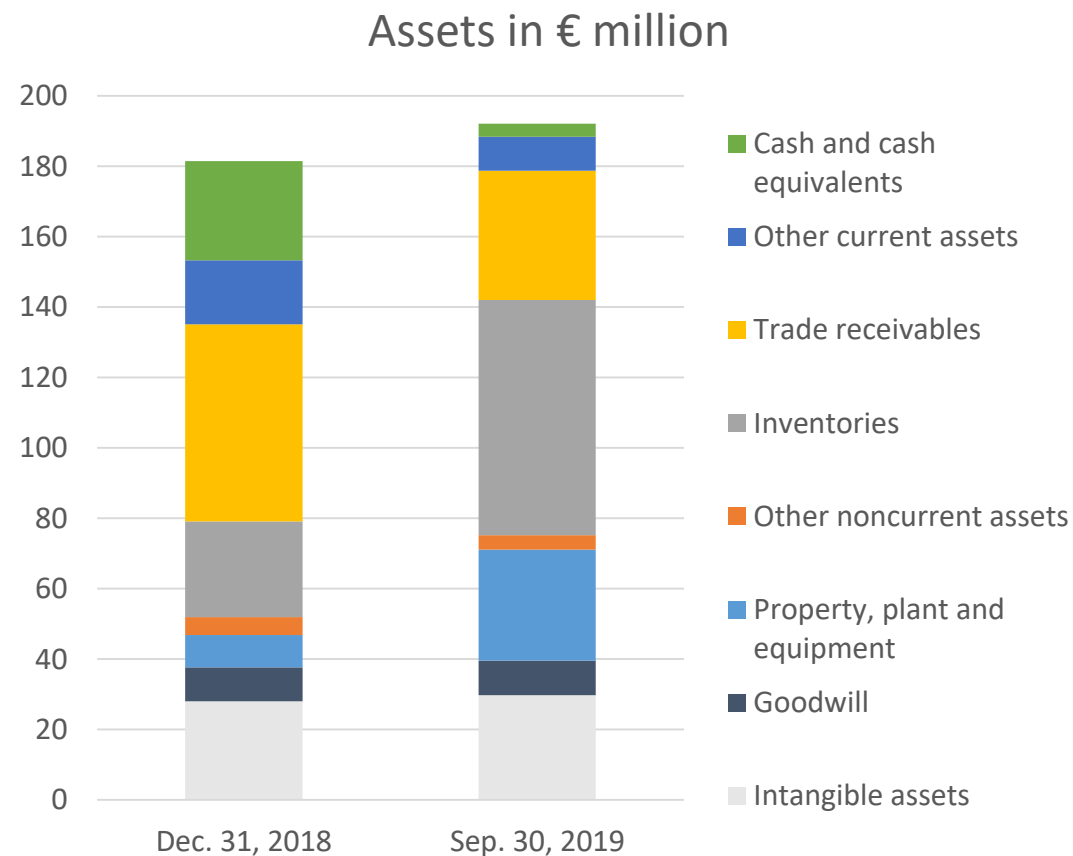
Ongoing Top-Line Growth at a Negative Profitability



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

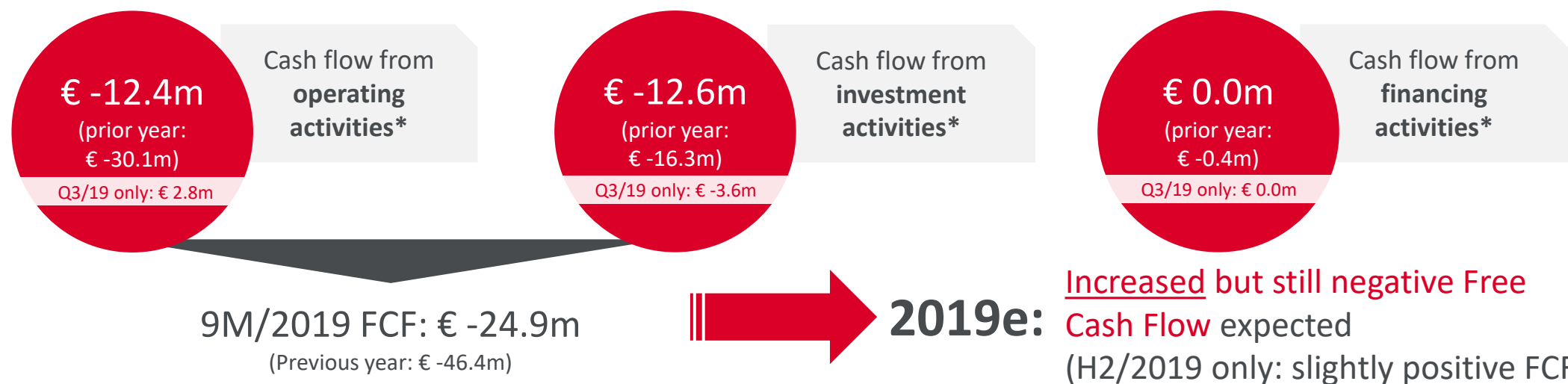
- Increase of noncurrent provisions and liabilities by € 14.1m
 - Noncurrent loans € +0.8m
 - Noncurrent liabilities from Finance Lease € +13.1m
- Increase of current provisions and liabilities by € 7.2m
 - Trade payables € +7.6m
 - Liabilities to related parties € 1.4m
 - Other current liabilities €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

	Sep. 30, 2019	Dec. 31, 2018
Equity	143,779	154,484
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
Noncurrent provisions and liabilities	21,868	7,808
Noncurrent finance lease liabilities	13,147	17
Noncurrent loans	958	141
Deferred tax liabilities	7,763	7,650
Current provisions and liabilities	26,389	19,224
Current loans	3,535	3,539
Trade payables	16,881	9,257
Liabilities to related parties	1,910	557
	194,308	181,516

Cash Flow Statement 9M/2019

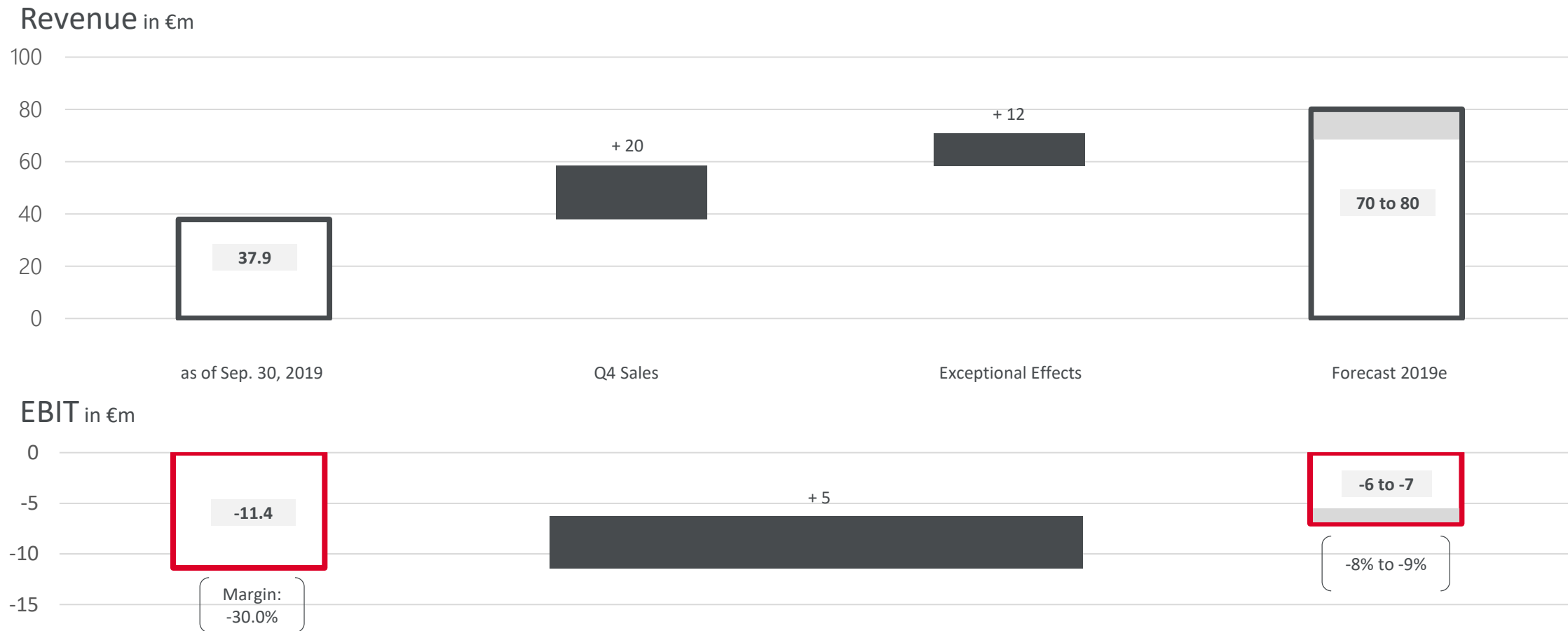
Operating Cash Flow increased by € 17.7m compared to prior year and characterized by countervailing effects

- **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.

Q4 incl. Exceptional Effects Through Divestments



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Market Entry in 2020 - Conversion of Diesel Buses

o|l|o deutscher
mobilitätspreis



- 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)



Voltabox Li-Ion Batteries for 5G Network



- New requirements of the US customer already implemented
- Start of series production in 2020 at US plant
- Significant sales contribution expected in 2020

- Studies show **demand for 750,000 to 1.2 million 5G mobile masts in Germany**
- Compared to conventional lead-acid batteries, **Voltabox lithium-ion batteries are lighter, smaller, more durable and maintenance-free**



Energy Thought Flexible – Voltabox Mobile Power Units

4 Core Markets

Construction

Disaster Relief

Border Patrol

Event

Emergency response

National Parks

Toll Stations

Oil Field

Welding
(Construction)

Mobile Broadcasting
(TV crew)

Medical Support

Underground
Applications

AAA Automotive
Support

Field Hospital

Pumping Stations

Agriculture



Furter potential application areas

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
- **Calendar week 46: Construction of prototypes**
Calendar week 49: Start of pilot project in Austin

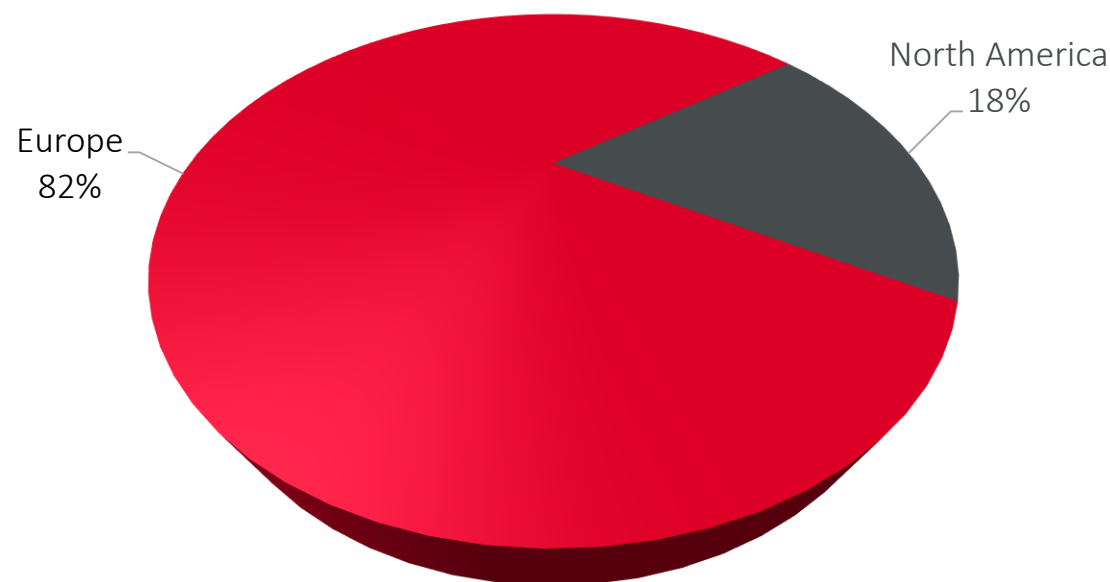


Characteristics

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

60-Months Cumulative Order Book*

60-months cumulative order book* with
100% weighting as of June 30, 2019

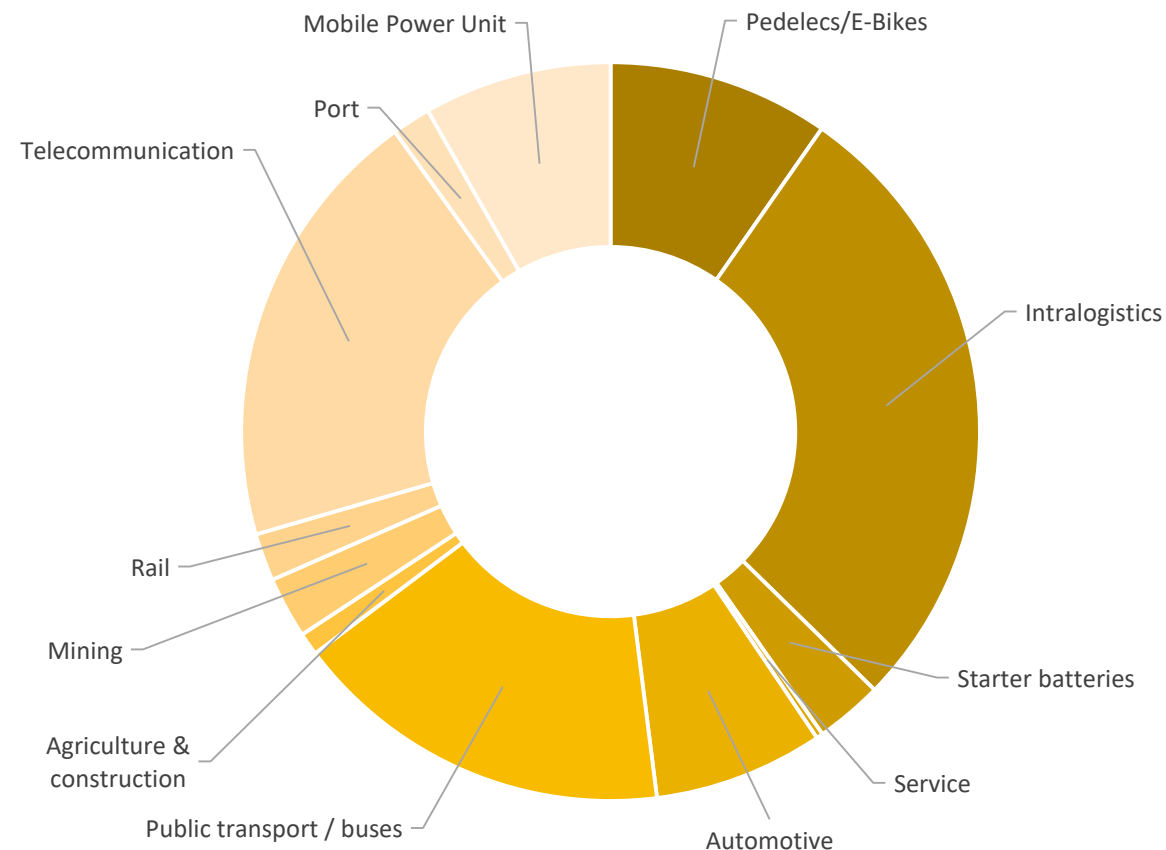


- Total 60-months order book* amounts to around € 1.1bn.
- Thereof approx. 64% signed orders and framework agreements (weighted with 100%)
 - Estimated order backlog is weighted according to the expected lifetime and the probability of occurrence
 - Serves as base for planning
 - Evaluation system in place since inception in 2011

** As defined by the company.*

Sales by Markets in 2020

- 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 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



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

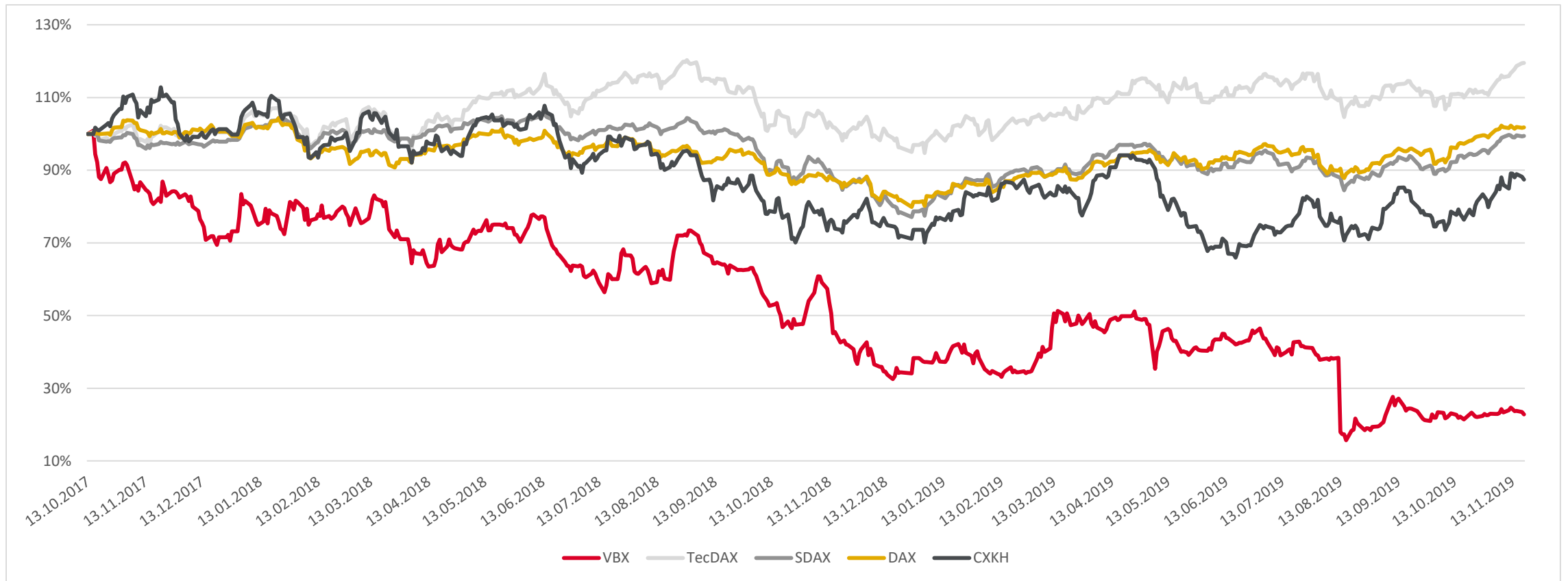
Investments
about

€ 12.5m

thereof about

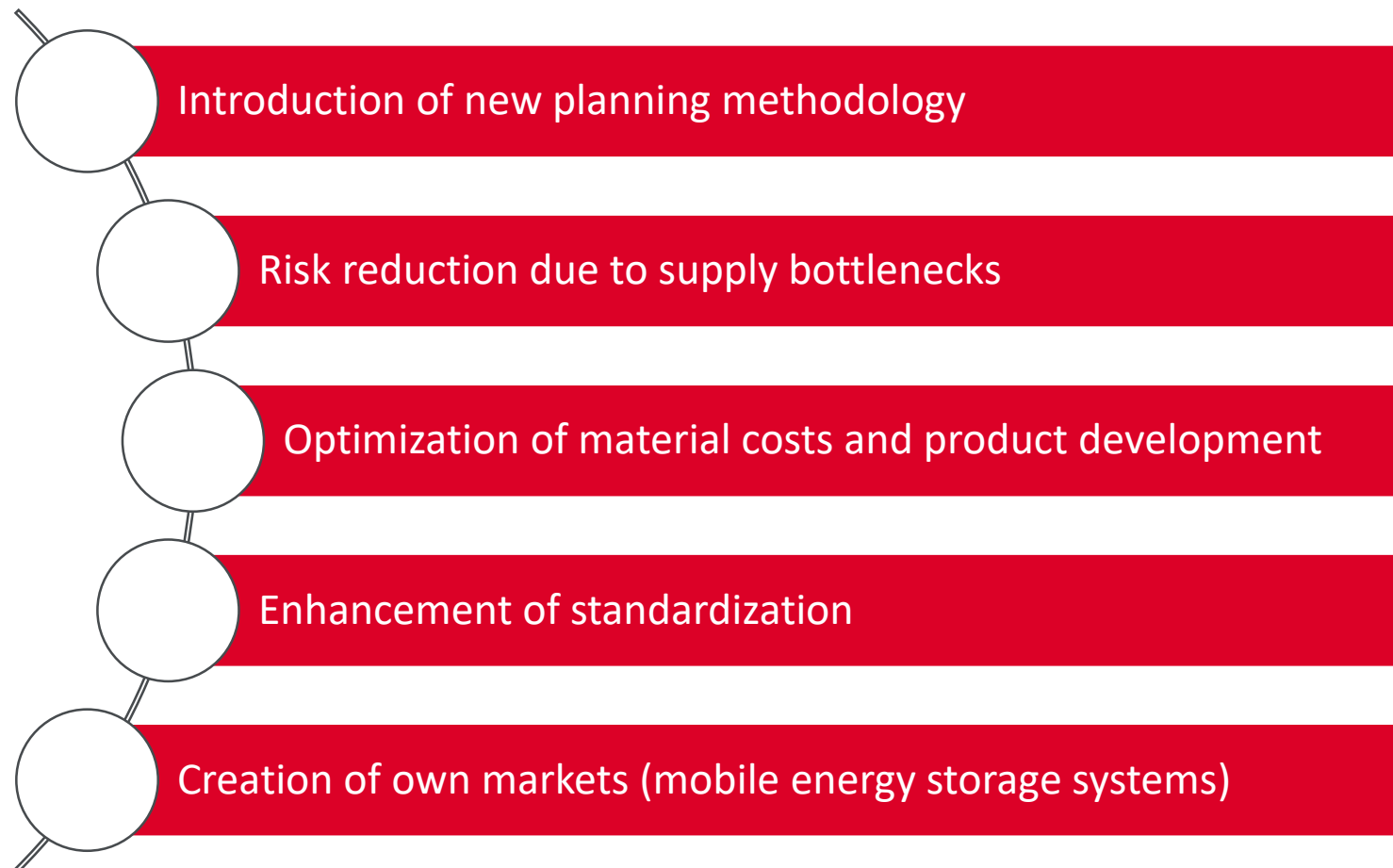
70%
capitalized
development
costs

Performance of Voltabox Share (VBX) since IPO



Voltabox 2020ff. – Lessons Learned

- Shifts in sales have increased sensitivity to external, uncontrollable variables; large risk discounts on time scale of future projects
- Approval of further suppliers of prismatic NMC cells (CALB, SVolt) to reduce dependencies on existing suppliers
- Focusing and optimizing product portfolio in development and sales
- In-house developed solution with great market chances for value-conserving use of inventories



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