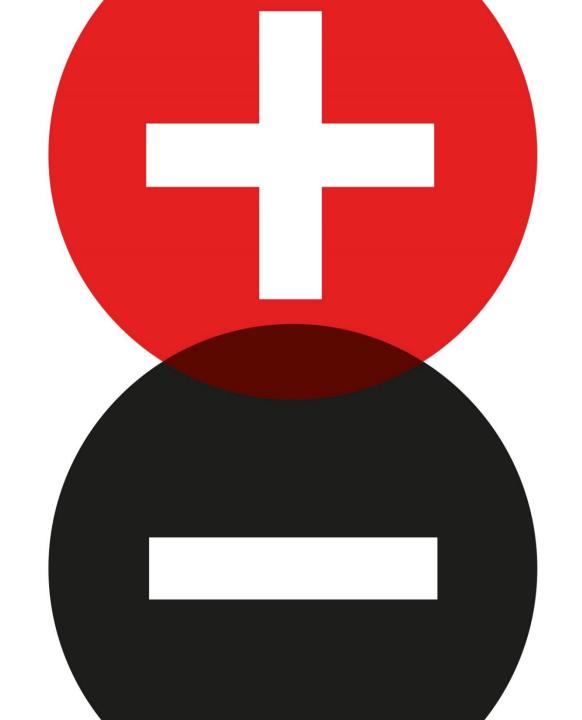
# Voltabox electrifies!

Investor/Analyst Presentation

Bankhaus Lampe German Conference | 4 Apr. 2019





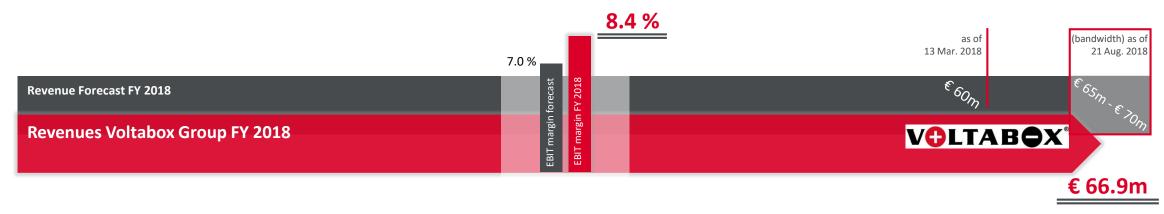


# Agenda

- Highlights
- Technology Overview
- Business Overview
- Financials



# Highlights from FY 2018



Continued top line growth +145%

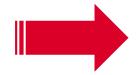
EBIT margin better than expected and including burden

of new Triathlon contract at **8.4% Equity ratio** decreases to **85,3%** 

**Liquid funds** at € 28.2m

Main drivers in FY18: and A

Slightly higher CAPEX: € 13.6m



Forecast for 2019: Revenues of € 105-115m, EBIT margin between 8-9%



# Voltabox Corporate Development

2019 ff.	+ Start Intralogistics in-house development + Entry into Intralogistics US market	+ EV-Buses + stationary energy storages + Rail & Port	+ Gardening & Cleaning + OEMs	→ 2019e: € 105 – 115m Revenue, 8-9 % EBIT margin >~300 FTE
2018	+ Acquisitions of Concurrent Design & ACCURATE (Branch: Korntal-Münchingen) + Start of Intralogistics direct sales		E-Bikes / Pedelecs	→ € 66,9m Revenue, 8,4 % EBIT margin 235 FTE
2017	Change of legal form to AG & IPO + Branch Aachen	Agriculture & Construction  VOLTAPOWER®	—V⊕LTAF⊜RCE°——V⊕LTAMOTI⊜N°-	→ € 27,3m Revenue, -10,3 % EBIT margin 99 FTE
2016		Mining		→ € 14,5m Revenue, -25,4 % EBIT margin 67 FTE
2015		Material Handling (Intralogistics)	Motorcycles	→ € 7,4m Revenue -31,6 % EBIT margin 62 FTE
2014	Foundation Voltabox Deutschland GmbH + Branch Austin (TX, USA)	Trolleybuses		→ € 4,6m Revenue -9,7 % EBIT-Marge 41 FTE
	Strategic Milestones		Market Development	Results

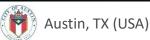


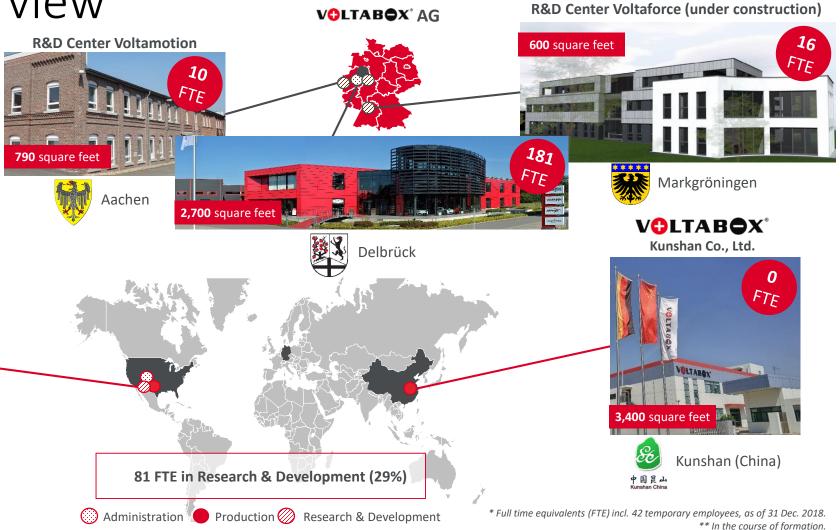
#### **Location Overview**

With 277 FTE\*, technology hubs and state-of-the-art production facilities, Voltabox is well positioned to grow its business on a global scale.





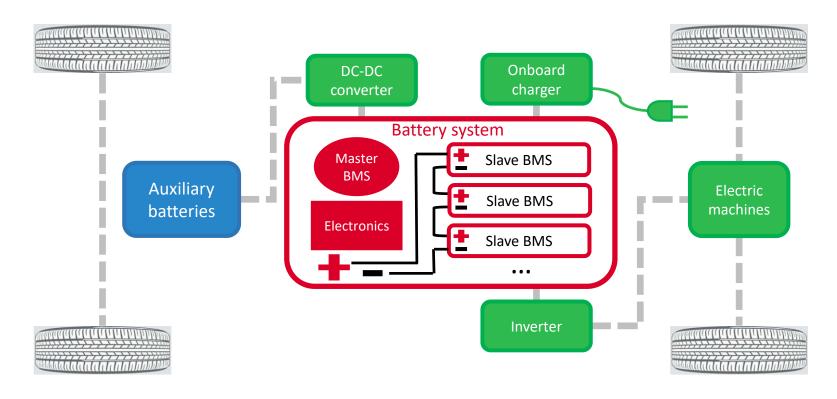






### Product segments

#### **Voltapower – Voltamotion – Voltaforce**



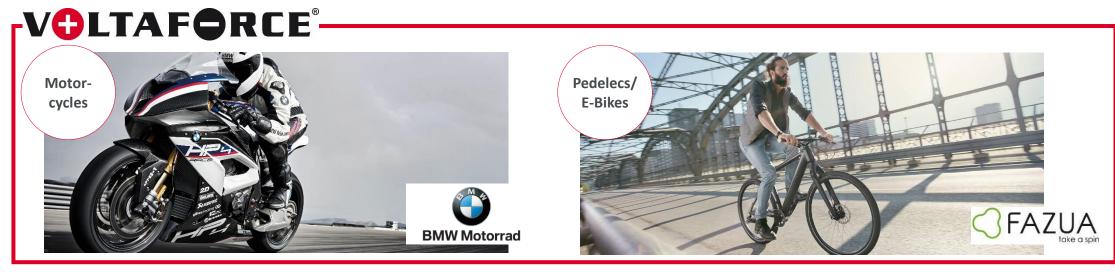


#### Partner for Electrifying High-Performing Applications\*...





#### ...and for Establishing Electromobility in Mass Markets\*





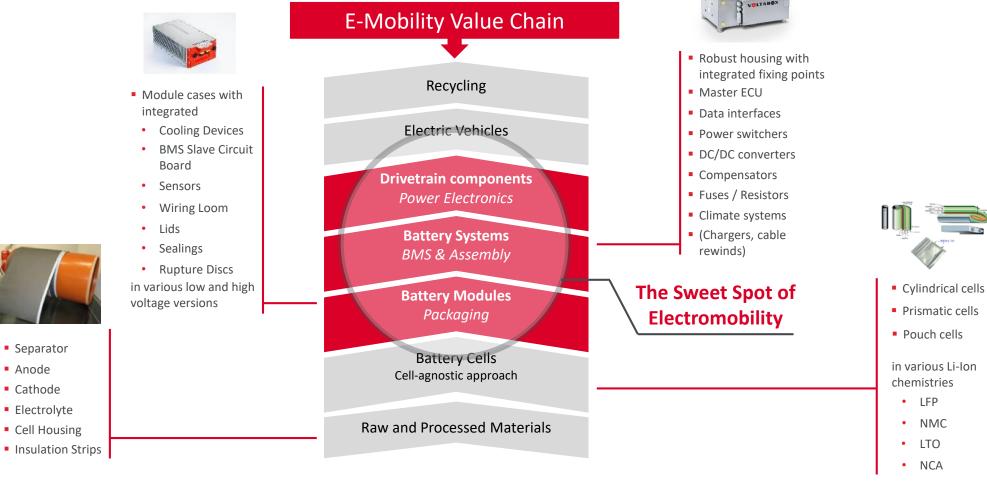


# Agenda

- Highlights
- Technology Overview
- Business Overview
- Financials



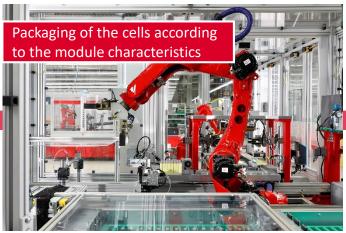
## E-Mobility Pure Play





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









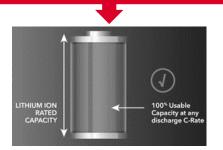






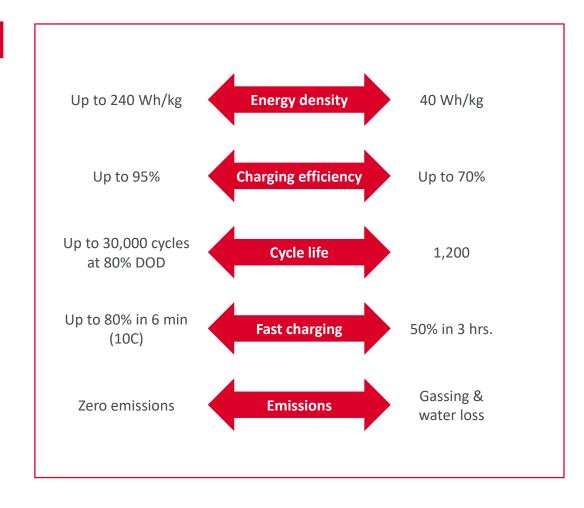
#### TCO-Advantages Driving Substitution of Lead-Acid by Li-Ion

#### 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







#### Cell Expertise in the Group



Cell Supplier Base

















11

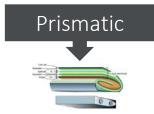
On paper, lithium-ion technology has been convincing right from the start. However, after we have installed numerous Li-lon-based systems in the market over the past few months, the strengths of the cell chemistries we use are also evident in practice. Lithium-ion battery systems impress with their flexibility,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

## Voltabox is Cell Agnostic!

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)



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



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



- 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/I
- Great SoC range useable with the highest performances

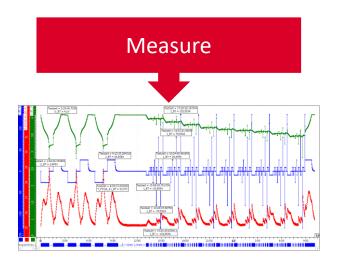
#### Nickel Cobalt Aluminum Oxide (NCA)

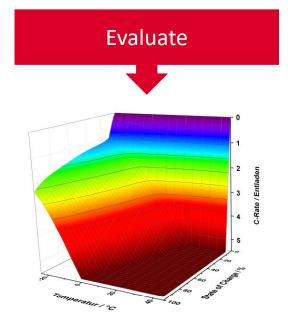
- Nominal cell voltage: 3.6 3.7 V (vs. graphite)
- Very wide operating temperature range of -20 /+75°C
- High cycle stability of up to 1,500 cycles at 80-70% DoD
- High energy density (140 280 Wh/kg and 300 - 590 Wh/L)
- Currently being tested or upscaled by many cell manufacturers

Source: IDTechEx.

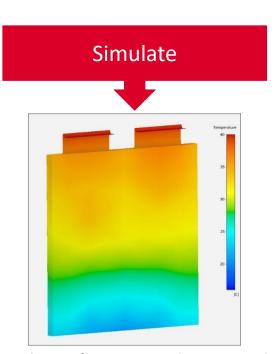


#### User-Oriented Development Work Requires Know-How





- Measuring of the the nominal capacity of a cell and comparison with the manufacturer's specifications
- Determination of the temperature-dependent cell resistance in a wide range from -20 to 50°C
- Benchmarking/evaluation of the various characteristics such as manufacturer, format and cell chemistry
- Derivation of individual performance parameters and parameterizing the on the basis of the cell resistance
- Development of fast-charging strategies



- Simulation of temperature dispersion within the cell under current load
- Development of efficient cooling and operating strategies to avoid cell-damaging hot spots
- >>> Selection of that cell that is best suited for the respective application



# Modular Development & Production Approach\*





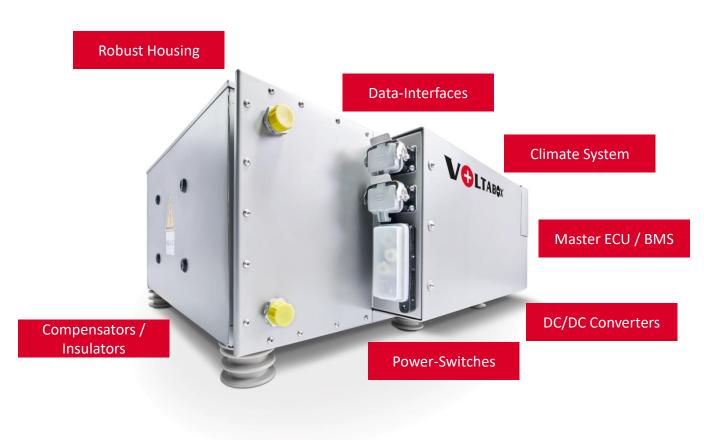
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#### Li-Ion Battery System Supplier for Defying Applications

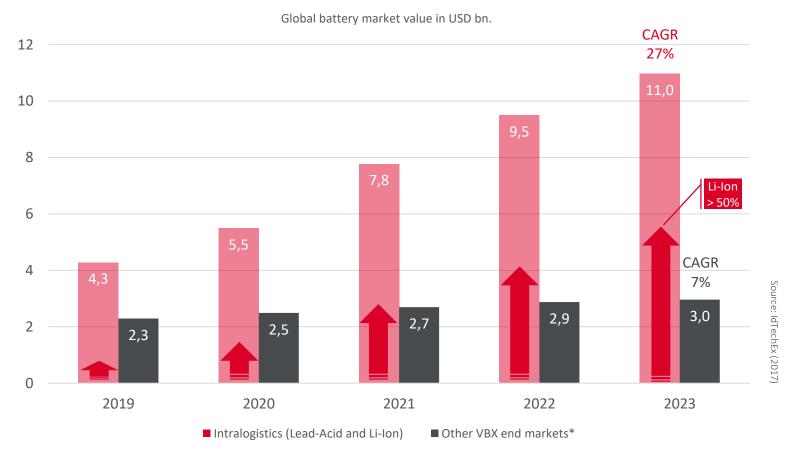
- Voltabox is a pioneer in the electrification of industrial applications.
   In 2018, the Group expanded its solution portfolio in order to open up further mass markets in the future.
  - Mindset focus on applications
     (authentic added value solutions)
  - Exceptional integration power (experience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





### Market Dynamics

- Overall usage of batteries will increase due to E-mobility mega trend
- Ongoing substitution of lead acid batteries resp. diesel generators by lithium-ion batteries in occupied submarkets
- 12% global market growth expected for battery systems in current Voltabox end markets in 2019
- Intralogistics submarket expected to show fastest adoption of Li-Ion technology due to TCO advantages
- Market penetration of Li-Ion expected to exceed 50% of new sales by 2023 in intralogistics



<sup>\*</sup> HEV/PHEV Buses over 5 meters, mining vehicles, agriculture & construction, motorcycles, pedelecs/e-bikes.



#### Intralogistics: New Sales Strategy for the booming market

11

The intralogistics market is **preparing** itself for the future right **now**. This led us to the conclusion, that Voltabox has to act proactively in order to take on a pioneering role in terms of electrifying the intralogistics market. In 2019, our strategy for worldwide sales in this market will be implemented clearly visible.







New Voltabox Replacement System for intralogistics applications, introduced at LogiMAT 2019



## Intralogistics: Notes on the business with Triathlon



Deutsche Bundesbank on 21 Nov. 2018: Granting of "Investment Grade" for Triathlon



Extension of payment terms in H2/2018 has ended at 31 Dec. 2018



Current payment terms: mainly **30 days net** 



Triathlon pays on time (Q4/18: € 5.7m paid prematurely due to forward-looking cash planning)



Triathlon's share of Voltabox' sales in 2018 remained on previous year's level



In 2019e: share reduction by 2/3!

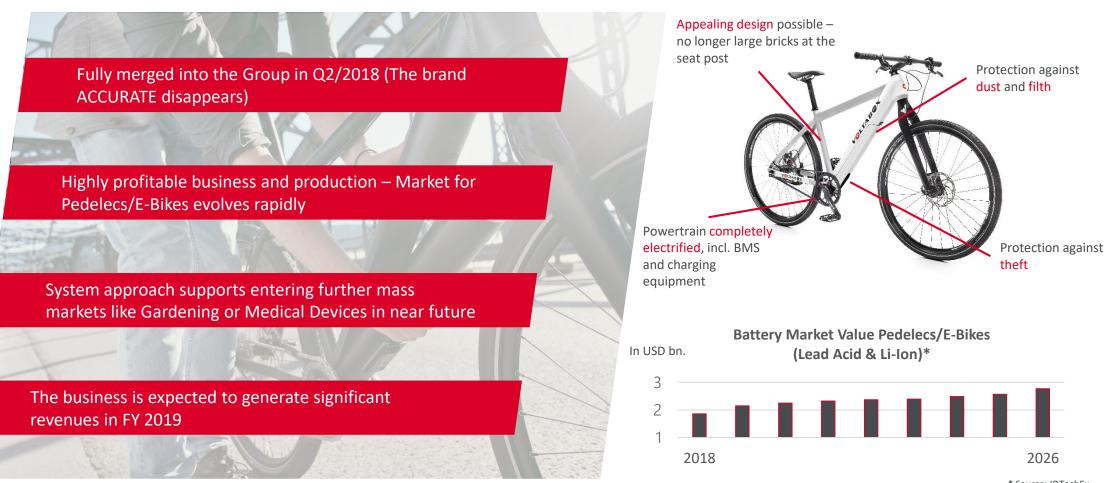


# Voltabox of Texas: It's all about Seizing Opportunities





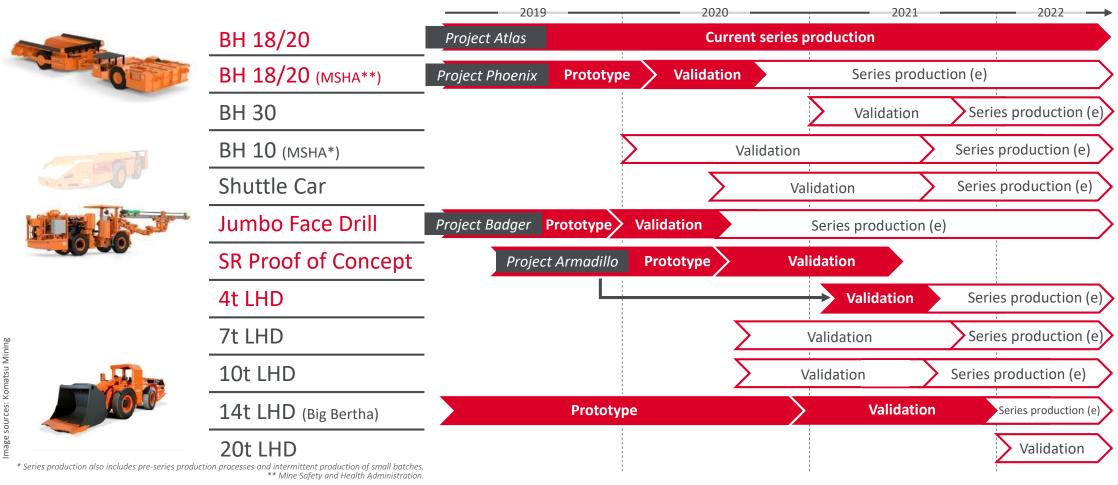
#### Mass Markets: ACCURATE as a key



\* Source: IDTechEx.

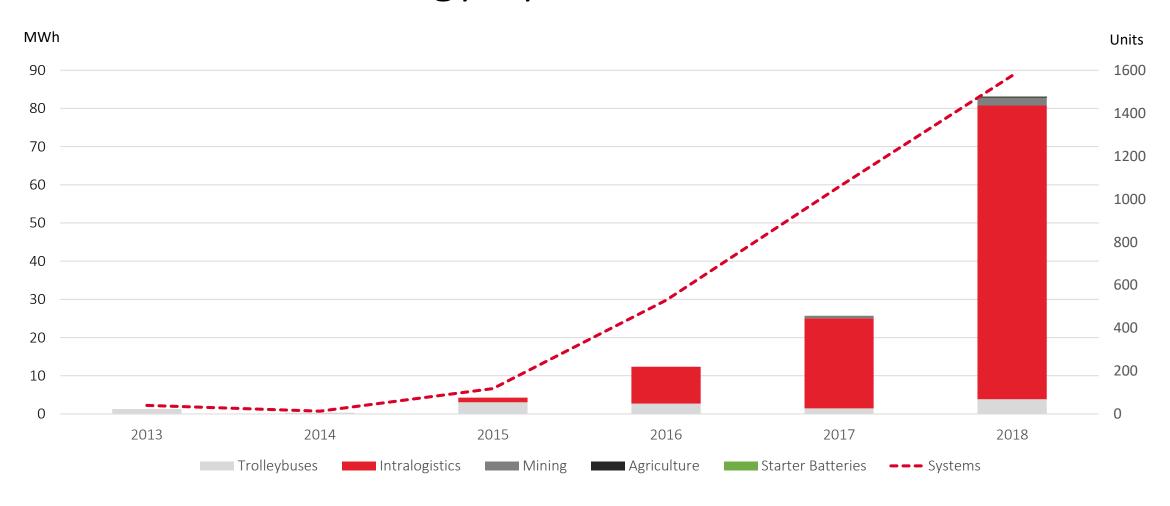


#### Mining: Updated Roadmap\* for the Komatsu projects



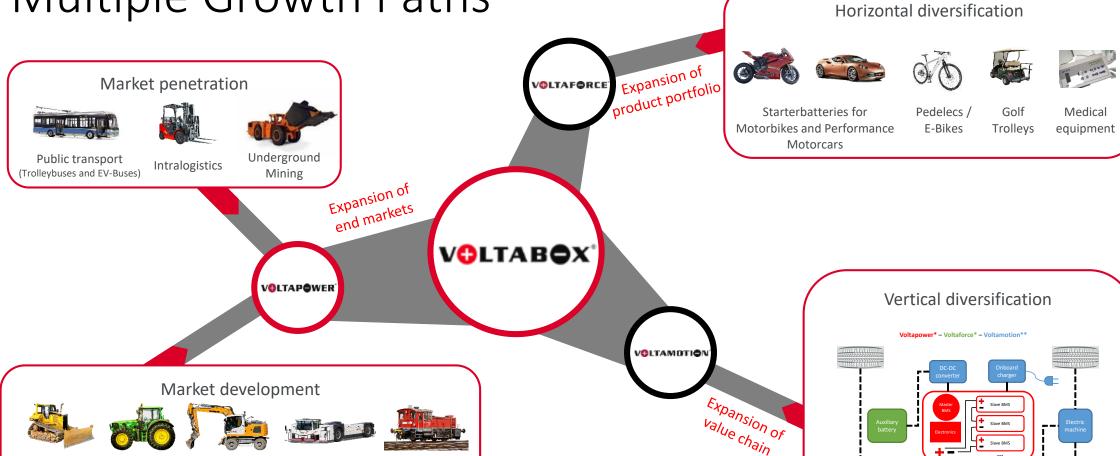


# Installation of Energy by End Markets





Multiple Growth Paths



Agricultural

Vehicles

Surface Mining

Construction

Vehicles

**Ground support** 

equipment

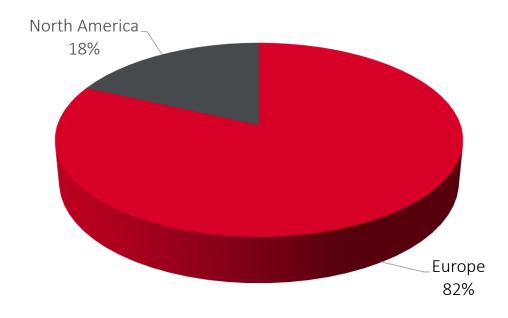
Rail



#### 60-Months Cumulative Order Book\*

- 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

60-months cumulative order book\* with 100% weighting as of 31 Dec. 2018



<sup>\*</sup> As defined by the company.



## Keyfacts for Revenues 2019e

#### **Megatrend Electrification: ₽** Agriculture / Construction **Intralogistics** Direct sales **75** Mining Triathlon share Port / Rail **Bus industry** Mass markets **Electric Vehicles** (Starter batteries, Pedelecs, ...)



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### Financial Highlights 2018

**7** € 66.9 million

7 235 employees\*

Revenues (previous year: € 27.3 m)

(31 December 2017: 99)

Delivered as expected with a pleasingly strong result – prepared for another growth jump

**7** € 9.6 million

**7** € 5.6 million

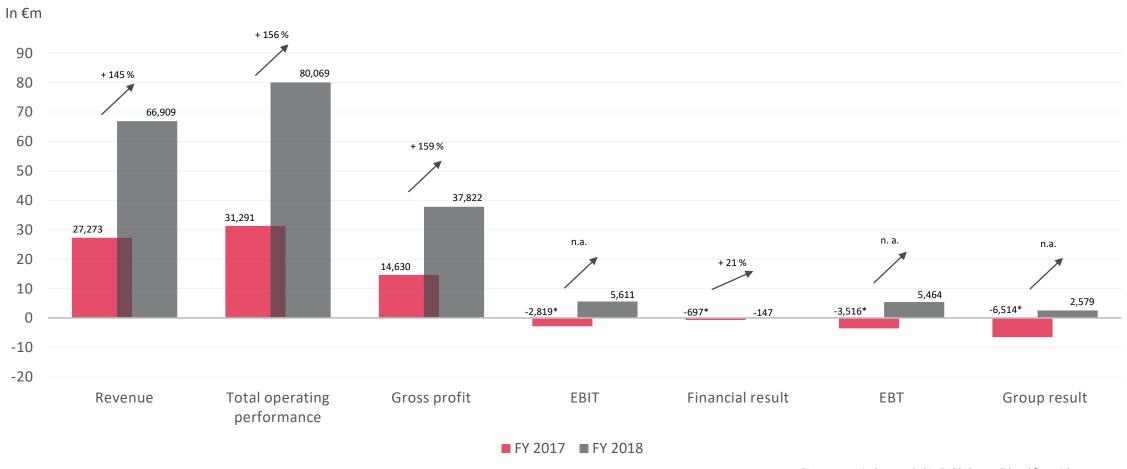
EBITDA (previous year: € -0.4 m)\*\*

EBIT (previous year: € -2.8 m)\*\*

\* Excluding 42 temporary employees, as of 31 December 2018.
\*\*As retrospectively amended in FY 2018 consolidated financials statements.



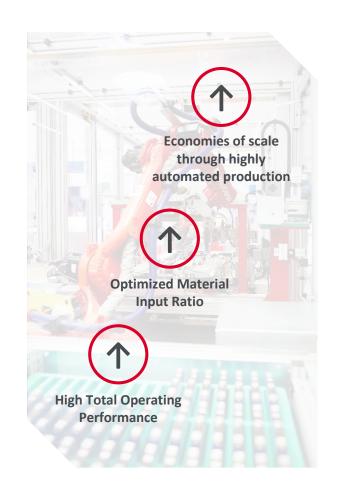
#### Continuous Dynamic Top Line Growth





## Key Factors for Profitability Development

-10,3 **O** 







# Key Developments of Assets

- Increase of noncurrent assets by € 23.7m
  - Intangible assets € +11.5m capitalized development expenses and extended scope of consolidation
  - Goodwill € +6.5m Acquisitions of Concurrent Design and ACCURATE
  - Other assets € +5.0m predominantly attributable to longterm accrued expenses and contractual assets
- Decrease of current assets by € -10.0m
  - Inventories € +23.0m expansion of the operating business and in this context entry into the intralogistics direct business
  - Trade receivables € +34.0m temporary extended payment terms to the customer Triathlon
  - Liquid funds € -74.4m short-term capital commitment in operating activities due to the Group's business expansion
  - Other current assets € +6.2m prepaid expenses and recognition of contractual assets

#### Assets in € million 200 Cash and cash 180 equivalents 160 Other current assets 140 Trade receivables 120 Inventories 100 80 Other noncurrent assets 60 ■ Property, plant and equipment 40 ■ Goodwill 20 ■ Intangible assets 0 Dec. 31, 2017\* Dec. 31, 2018

 $<sup>^{</sup>st}$  As retrospectively amended in FY 2018 consolidated financials statements.



# Key Developments of Equity and Liabilities

- Decrease of noncurrent provisions and liabilities by € -0.5m
  - Noncurrent loans € -3.4m
  - Deferred tax liabilities € +2.9m
- Increase of current provisions and liabilities by € 11.8m
  - Current loans € +3.0m
  - Trade payables € +5.7m
  - Liabilities to related parties € -1.3m
  - Other current liabilities € +3.5m
- Increase of equity by € +2.4m
  - Equity ratio at 85.3 % (Dec. 31, 2017: 90.7 %) as expected resulting from the rise in total assets

	Dec. 31, 2018	Dec. 31., 2017*
Equity	154,484	152,111
Subscribed capital	15,825	15,825
Capital reserve	127,992	127,992
Profit/loss carried forward	7,614	14,038
Consolidated net income	2,579	-6,514
Currency translation differences	474	770
Noncurrent provisions and liabilities	7,808	8,287
Noncurrent finance lease liabilities	17	16
Noncurrent loans	141	3,532
Deferred tax liabilities	7,650	4,739
Current provisions and liabilities	19,224	7,375
Trade payables	9,257	3,591
Liabilities to related parties	557	1,813
Other current liabilities	5,871	1,439
	181,516	167,773

<sup>\*</sup> As retrospectively amended in FY 2018 consolidated financials statements.



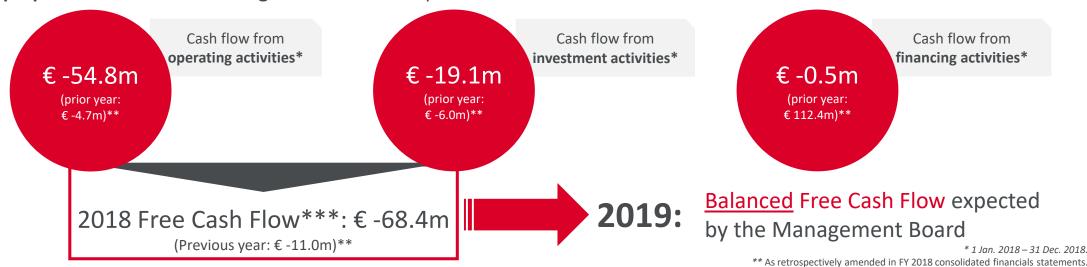
#### Cash Flow Statement

Significant increase in net working capital due to increase in trade receivables resulting from

- very good business development and
- sales financing support for main Voltabox partner (limited to H2/2018, ended at Dec. 31)

as well as due to higher inventories resulting from

- ensuring delivery capability in the context of entering the direct intralogistics business and
- preparation for revenue recognition in the first quarter of 2019

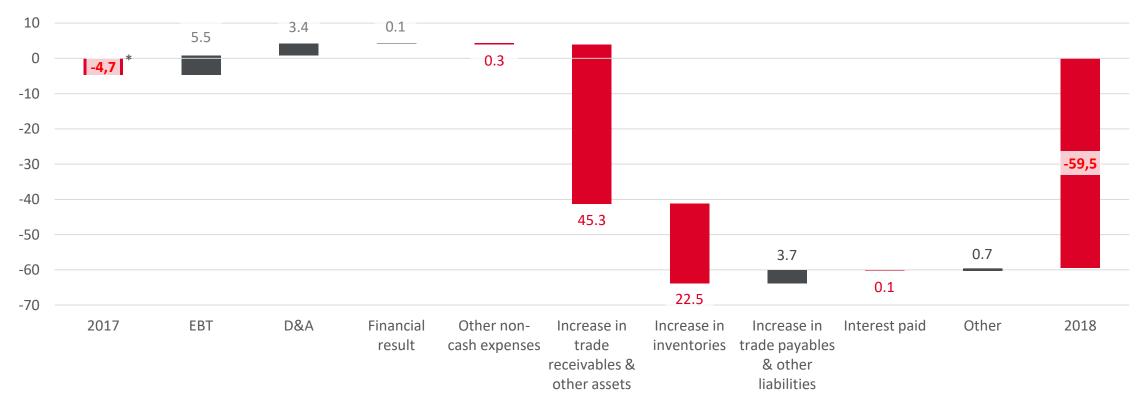


\*\*\* Adjusted for transactions.



# Operating Cash Flow Bridge (y-o-y)



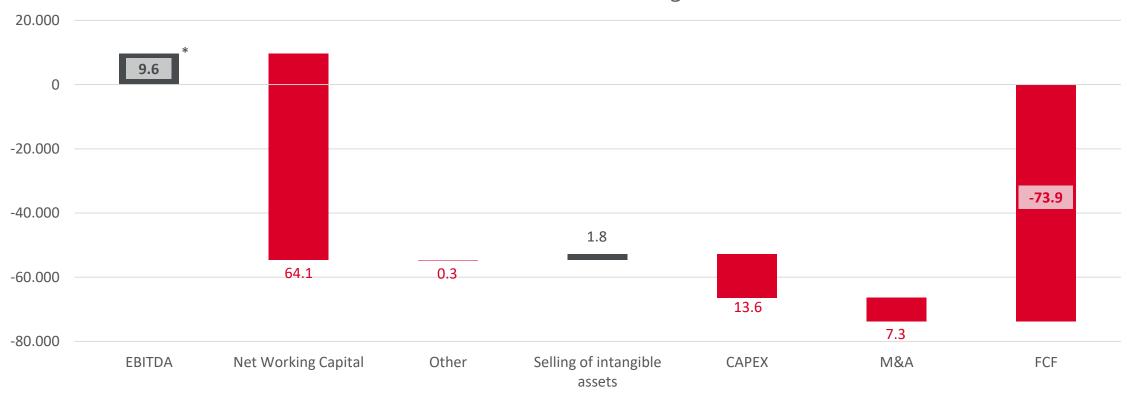


<sup>\*</sup> As retrospectively amended in FY 2018 consolidated financials statements.



# Key Cash Flow Developments in 2018





<sup>\*</sup> As retrospectively amended in FY 2018 consolidated financials statements.



#### Corrections to the Consolidated Financial Statements 2017

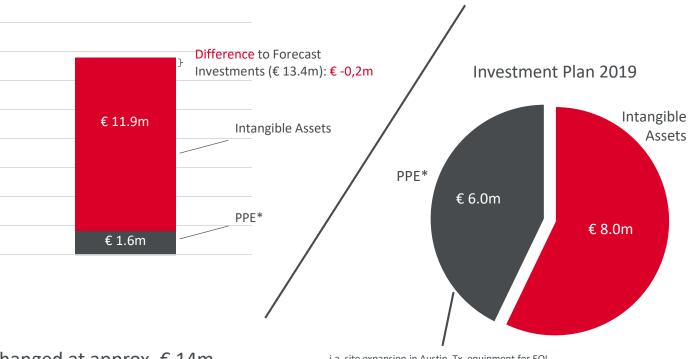
- Voltabox AG made adjustments from the previous year in the 2018 consolidated financial statements, which mainly relate to the profit and loss transfer agreement with the parent company paragon GmbH & Co. KGaA which was formerly reported as income within the statement of comprehensive income. The presentation is adjusted in such a way that the income is not a part of the statement of comprehensive income but rather is transferred directly to equity.
- Furthermore, the one-off costs of the IPO are recorded under other operating expenses, which were
  previously offset against the capital reserve, and currency translation effects from the loan of paragon GmbH
   & Co. KGaA to the Voltabox of Texas are treated affecting net income retroactively until the date of
  acquisition by Voltabox AG.
- The resulting corrections for fiscal year 2017 are explained in the notes to the consolidated financial statements for fiscal year 2018.



#### **CAPEX Investments**

- FY 2018 CAPEX Investments:
   € 10.0 million in GER and € 3.6 million in the US
- Own work capitalized mainly for following projects
  - Development of battery system for Komatsu BH18/20 vehicle (as well as for 14t LHD)
  - Development of standard container for Trolleyand EV-Buses
  - Further developments of Battery Systems for Schäffer Front Wheel Loader and KUKA AGV
- In 2018, capitalized development costs fell significantly due to direct revenue recognition in the context of long-term, combined development and series supply contracts







FY 2019 CAPEX Investments: Virtually unchanged at approx. € 14m

Capitalized development costs amount to about 57 % of the investment total

i.a. site expansion in Austin, Tx, equipment for EOL battery production, shaker and climatic chamber

\*Property, Plant and Equipment.



#### 2018: Expectations Met – 2019: Ambitious Business Goals



Further expansion of direct sales activities in Europe - Upcoming (additional) orders in Germany and further European countries expected for 2019

UL Certification of battery system for US intralogistics market – First Voltabox of Texas sales with intralogistics systems expected for H2/2019

Acceleration of projects with Komatsu - transfer of validation projects to series production

Start of parts of Voltaforce production in Kunshan plant, China – Expansion of production facilities at Austin branch

**Opening up new mass market segments** 



#### Forecast 2019

7 € 105-115 m

Revenues 2019 (e)

7 ca. 8-9 %

**EBIT Margin 2019 (e)\*** 

\*Considering € 1.5m add. expenses from rearrangement of intralogistics partner agreement



# Forecast and Analyst Consensus

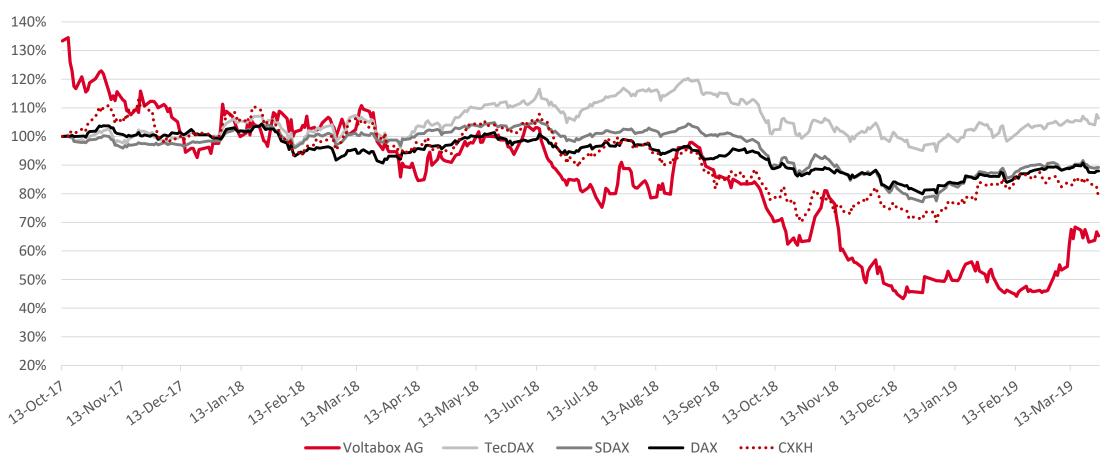
Financial performance indicators of Voltabox AG	2018		2019	
[in € million / as indicated]	Latest Forecast	Results	Forecast	
Group revenue	65 – 70	66.9	Approx. 105 – 115	
EBIT margin	7 %*	8.4 %	Approx. 8 − 9 %**	
Investments	13.4	13.6	Approx. 14	
thereof: IAS 38	5.8	3.0	Approx. 8	
Analyst estimates	201	18	2019	
Group revenue	65.5		112.1	
EBIT margin	6.8 %		9.5 %	

<sup>\*</sup> Considering € 2m add. expenses from rearrangement of intralogistics partner agreement.

\*\* Considering € 1.5m add. expenses from rearrangement of intralogistics partner agreement.

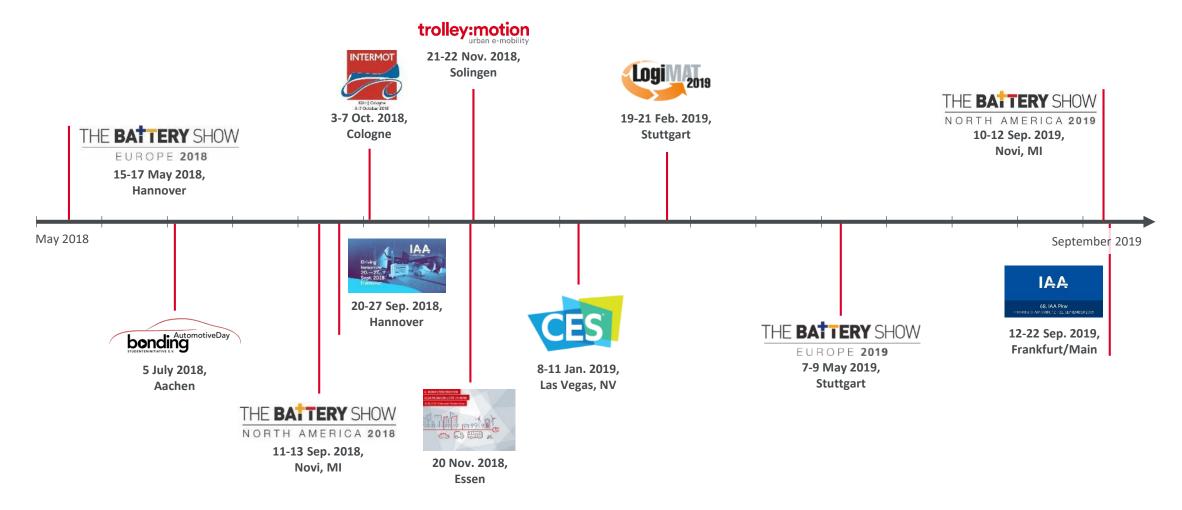


# Performance of Voltabox Share (VBX) since IPO





#### Voltabox on the Road – Trade Fairs and Exhibitions





#### Financial Calendar 2019

January 10-11	ODDO BHF FORUM, Lyon
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January 31
 Bankhaus Lampe German Corporate Conference, London

February 19-20
 ODDO BHF German Conference, Frankfurt am Main

April 1 Annual Report – Consolidated Financial Statements 2018

April 3-5
 Bankhaus Lampe German Conference, Baden-Baden

April 11 Solventis Aktienforum, Frankfurt am Main

May 13
 Group Interim Report as of March 31, 2019 – First quarter

May 16
 Annual General Meeting, Delbrück

August 21
 Group Interim Report as of June 30, 2019 – Half year

September 2-3
 Equity Forum Fall Conference, Frankfurt am Main

November 13
 Group Interim Report as of September 30, 2019 – 9 months



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