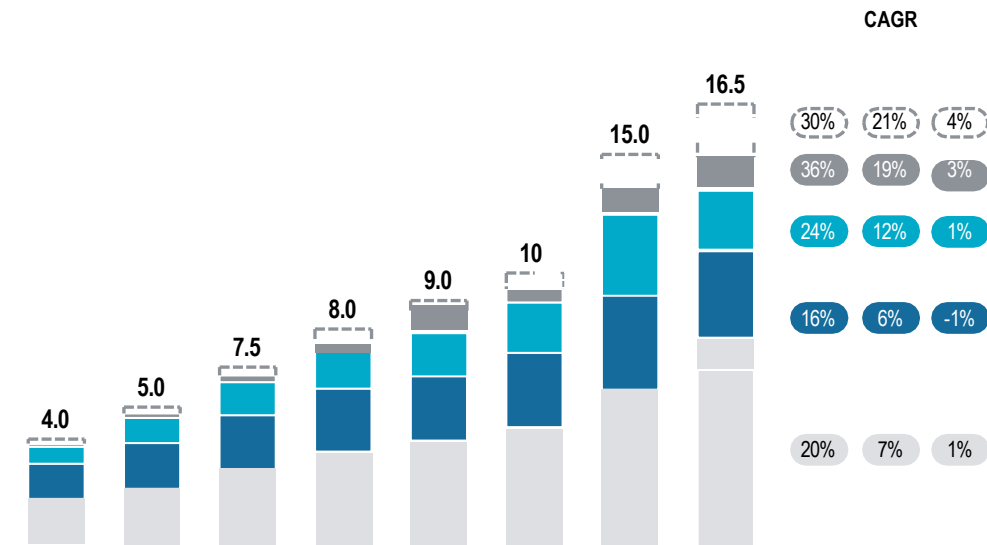


1 EV charging market expected to grow rapidly until 2030

EV charging market size by region



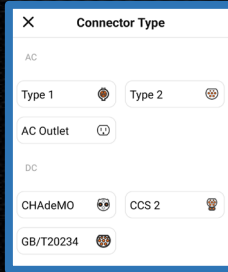
Market Trends

- **Overall market** expected to grow rapidly until 2030 mainly driven by Asia due to large overall EV fleet
- **North America** EV fleet penetration expected to lag **Europe's** development
- Market growth differs heavily by **use case** (depot, residential, public etc.)
- **Hardware** is dominant but **services & software** grow faster
- **DC** chargers with large market size due to higher average prices than **AC** chargers
- **Prices** for chargers expected to decline
- **Vehicle per charger ratio** increases for all types of vehicles (light, truck, bus etc.)

2 Product roadmap for EV fleet management startup

Phase 1: EV Planning

- App captures operations and EV transition goals
- Collects data from current telematics, driver app or vehicle hardware



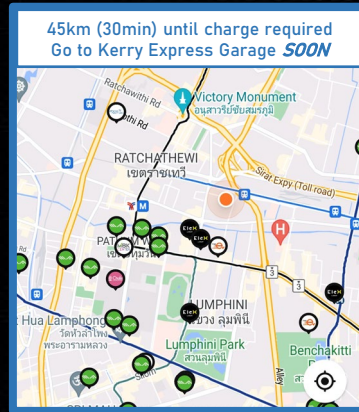
- Presents viable EV model & charger options and expected charging schedules
- Produces one-click transition plan including business case with payback period and expected cost savings



- Scheduler embedded in app with demos of features and one month free trial

Phase 2: EV Charging

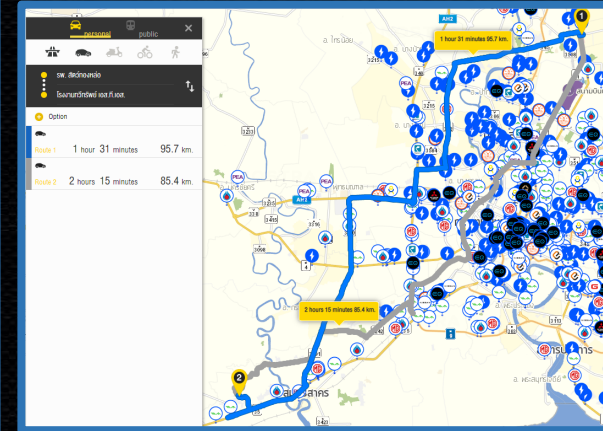
- Drivers have real-time app indicating where/when to charge
- Fleet managers have live view of charging operations to use alongside fleet management software
- Scheduling minimizes costs and downtime while charging at cheapest source & time



- Subscription fee per vehicle & user of centralized planning app
- Upfront set-up fee can be waived with subscription volume

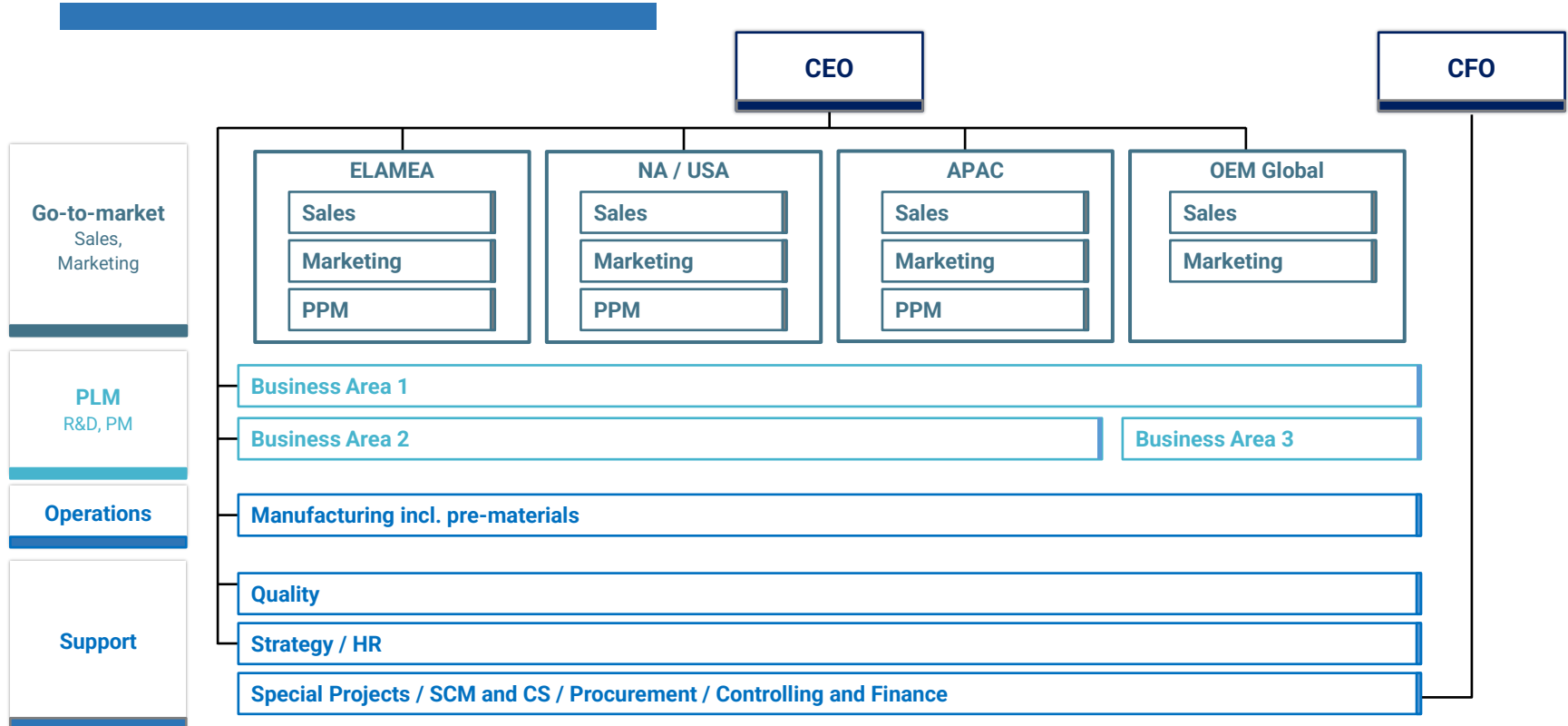
Vision: EV Fleet Management

- Live route optimization
- Preventive maintenance
- Performance summary reporting
- Driver behavior reporting
- Scenario planning for business operations



- Subscription fee increases with features
- Additional revenue streams from OEMs, service providers & governments for
 - API integrations
 - customer access
 - insights from position as intermediary

3 Go-to-market organization for automotive supplier



4 Market analysis & strategy for battery manufacturer

Five-step approach

22 market segments as baseline

Reduced to 12 segments via exclusion criteria¹⁾

Identification of 190 potential applications within 12 segments

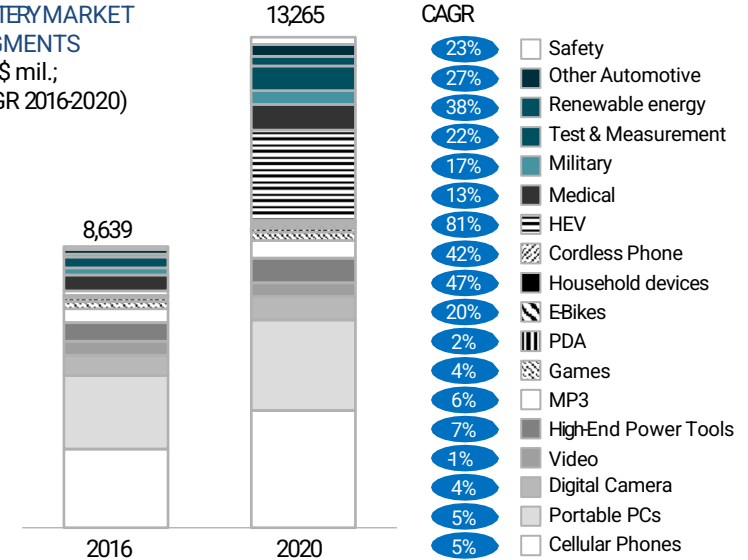
Reduced to 33 applications within 8 segments via exclusion criteria applied using:

- a) Expert interviews
- b) Customer interviews
- c) Non-customer interviews
- d) Benchmark companies

Scoring of remaining segments and applications

Product market segments (by application)

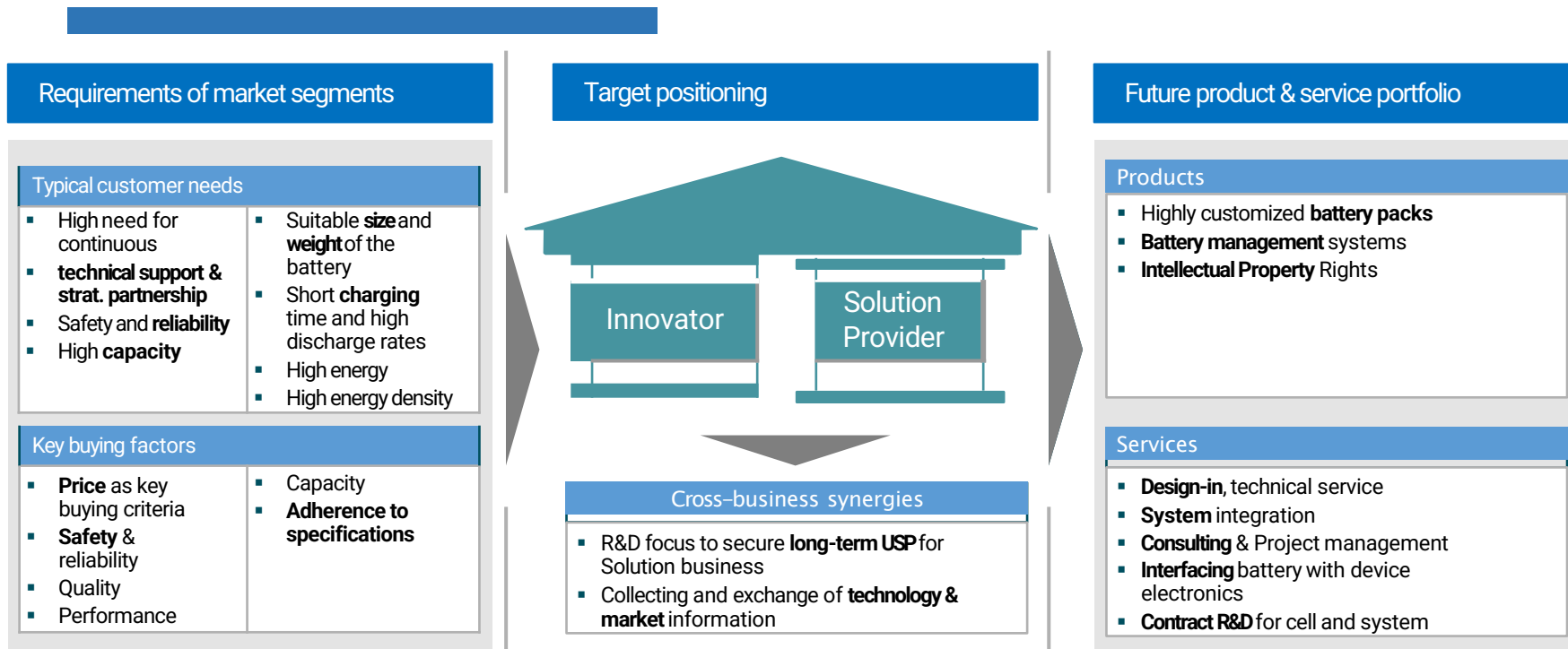
BATTERY MARKET SEGMENTS
(US\$ mil.; CAGR 2016-2020)



¹⁾ Exclusion criteria such as project size, degree of captivity, etc.

Source: Industry studies, own analysis

4 Market analysis & strategy for battery manufacturer



5

Global OEMs entering emerging markets usually have to ensure reliable supply for their new plants

Situation

Global Automotive OEM

- **Production** in multiple factories in developed, emerging and low cost countries
- **Sales** presence in several continents covering most countries on continent(s)
- **Employees** > 10,000
- **Revenues** > € 10 bil.
- Multiple **brands**
- Multiple **divisions/SBUs**

- OEMs enter emerging markets (e.g. ASEAN) expecting strong **market growth**
- Local production usually favorable:
 - Significant **transportation cost** to meet local demand
 - Instable **customs situation** (depending on FTAs) with relatively high taxes on imported finished goods
 - Hardly predictable **currency** fluctuations cause uncertain cost situation
- Establishment of reliable and qualified supply base as key challenge

5 Supply base constraints require a specific supply approach

Supply base constraints/issues

Limited local supplier qualification <ul style="list-style-type: none">Quality and tolerances below usual standardsLimited innovation focusSpecial care + supplier development skills required	Lack of experience of incumbent suppliers <ul style="list-style-type: none">No/limited local presenceInvestment need and risk relatively highNo/limited project management resources
Tight ramp up plan <ul style="list-style-type: none">Quick production ramp-up due to market pressureFast supplier selection and quality release required	Specific local business mindset <ul style="list-style-type: none">Often difficult change management approachLack of transparency and corruption challengesMostly short term and profit driven

Overriding questions for specific supply approach

- How can appropriate **local supply** be achieved?
- What is the **appropriate approach** to address the supply market?
- How can the **tight timeline for SOP** be met?

5 Five options to mitigate supply base constraints

Options to mitigate supply base constraints

A More **in-house** production

- Realize **higher vertical integration**, e.g. in-house production of **selected (strategic) components**

B Cooperation/development with **local suppliers**

- Develop local suppliers on required **performance level**, especially **regarding quality and innovation capabilities**

C Leveraging of developed **suppliers from other industries**

- Identify capable and willing suppliers from **other industries** and leverage them

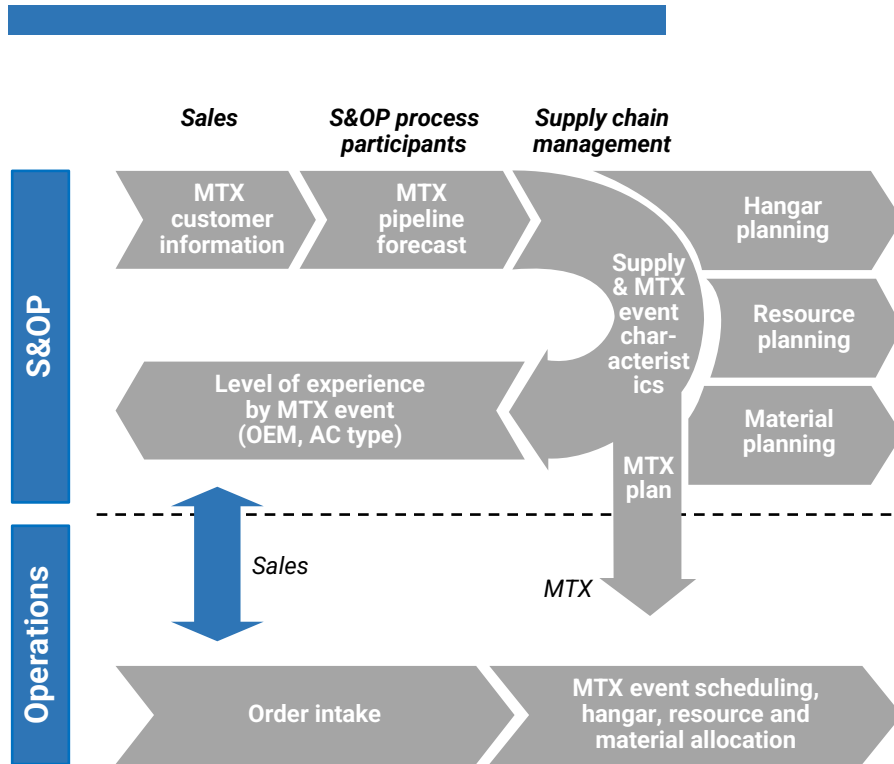
D **Localization** of strategic incumbent **suppliers** (including JV)

- Form **supplier team** of strategic suppliers covering several material groups and support them in **ramping up a local supplier park**

E **Delivery of parts** from strategic incumbent suppliers from other **LCC**

- Exploit existing **production lines, tools and infrastructure** of incumbent suppliers in LCC (Low cost countries) and import components

6 Sales & operations planning for aviation service company



Key S&OP rules

- Cross-functional commitment
- Profitability based planning
- Level of experience for certain OEM/types
- Event characteristics-based planning
- Stabilized operations
- Core KPIs: MTX event profitability, resource availability and capability, optimized material availability

Maximize profit by high agility