COMPANY PROFILE[TESLA]

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PROJECT SCOPE AND METHODOLOGY

PROJECT SCOPE AND METHODOLOGY

This report provides an overview of Tesla's strategy and initiatives on research from following areas:

- Products and new product launches
- Technical literature
- Patent information
- Business/company news
- Collaborations
- Design and engineering / materials details
- Revenues/financials
- Technology & specific goals
- Materials & Suppliers of Tesla

METHODOLOGY & ASSUMPTIONS:

- Products, new product launches, technical literature and business news were gathered and reviewed for last two years. Company's annual reports, websites and technical journal databases were searched & reviewed.
- Searches for Tesla's patents were conducted and a few recent patents were analyzed and summarized with a focus on materials and applications.

KEY OBSERVATIONS

- 2003 founded company Tesla, unleased products like Cars (Model X, S and 3 etc.) and Energy generation and storage with manufacturing facilities in California, Netherlands, Nevada and New York etc.
- Tesla Model 3 uses four core materials **Aluminium** (Rear end), **Mild Steel** (Outer covering on doors), **High-Strength steel** (Base / Bottom) and **Ultra High-Strength Steel** (Car casing / Frame)
- Recently, Model 3 production **tripled** from last quarter
- Tesla will reveal Model **Y** production plan in late 2018
- In generation segment Tesla **collaborated** with PG&E with massive power pack battery (Upto 1.1 GWh)
- Tesla revenue generation **18.0%** from **Energy** generation and storage and **82.0%** from **Automotive**
- Revenue from facilities 7.0% from Norway, 17.2% from China, **52.9%** from United States and 22.9% from Other
- Tesla is also looking for a **new** Gigafactory in Germany
- One of the main goals of Tesla is to create **seamless integrated battery storage** which will **expand** electric vehicle product line. **Dupont** materials can be used in this kind of **electric vehicle technology** where battery pack cells, thermal management systems, cable insulations etc. can be addressed
- Tesla has majority of patents filed in the area of energy generation

COMPANY PROFILE

SCITECH
PATENT ART

SNAPSHOT OF TESLA

COMPANY OVERVIEW

- **FOUNDED:** In July 1, 2003
- **HEADQUARTERS:** Palo Alto, California, US
- **INDUSTRY SEGMENTS:** Automotive, and Energy generation and storage
- **AUTOMOTIVE SEGMENT:** Design, development, manufacturing, and sales of electric vehicles
- **ENERGY GENERATION AND STORAGE SEGMENT:** Design, manufacture, installation, and sale or lease of stationary energy storage products and solar energy
- **PRODUCE AND SELL:**
  - Model S sedan delivered first in June 2012
  - Model X sport utility vehicle ("SUV") delivered third quarter of 2015
  - Model 3 sedan delivered first quarter of 2016
  - Introduced new version of the Tesla Roadster an all-electric supercar
  - A home powered by tesla combine solar panels and a powerwall battery
- **MANUFACTURING PLANTS/FACTORIES:**
  - Fremont - California
  - Lathrop - California
  - Tilburg - Netherlands
  - Gigafactory 1 near Reno, Nevada
  - Buffalo, New York (Gigafactory 2)
- **NUMBER OF EMPLOYEES:** As of December 31, 2017, Tesla, Inc. had 37,543 full-time employees
- **KEY PEOPLE/MANAGEMENT:**
  - Elon Musk - Chairman, Product Architect and CEO
  - JB Straubel - CTO
  - Deepak Ahuja - CFO

KEY FINANCIAL GROWTH STRATEGIES

- Company reported revenues of US$11,759 million for the fiscal year ended December 2017, an increase of 68% over FY2016
- Company reported assets of US$27,271 million for the fiscal year ended December 2017, an increase of 26% over FY2016
- Company reported revenues of US$3,409 million for the first quarter ended March 2018, an increase of 3.7% over the previous quarter

COMPETETIORS

Waymo is an autonomous car development company

NIO specializes in designing and developing high-performance EV's

Honda is a Japanese public multinational corporation primarily known as a manufacturer of automobiles, motorcycles and power equipment

Toyota Motor Corporation is a multinational automotive manufacturer

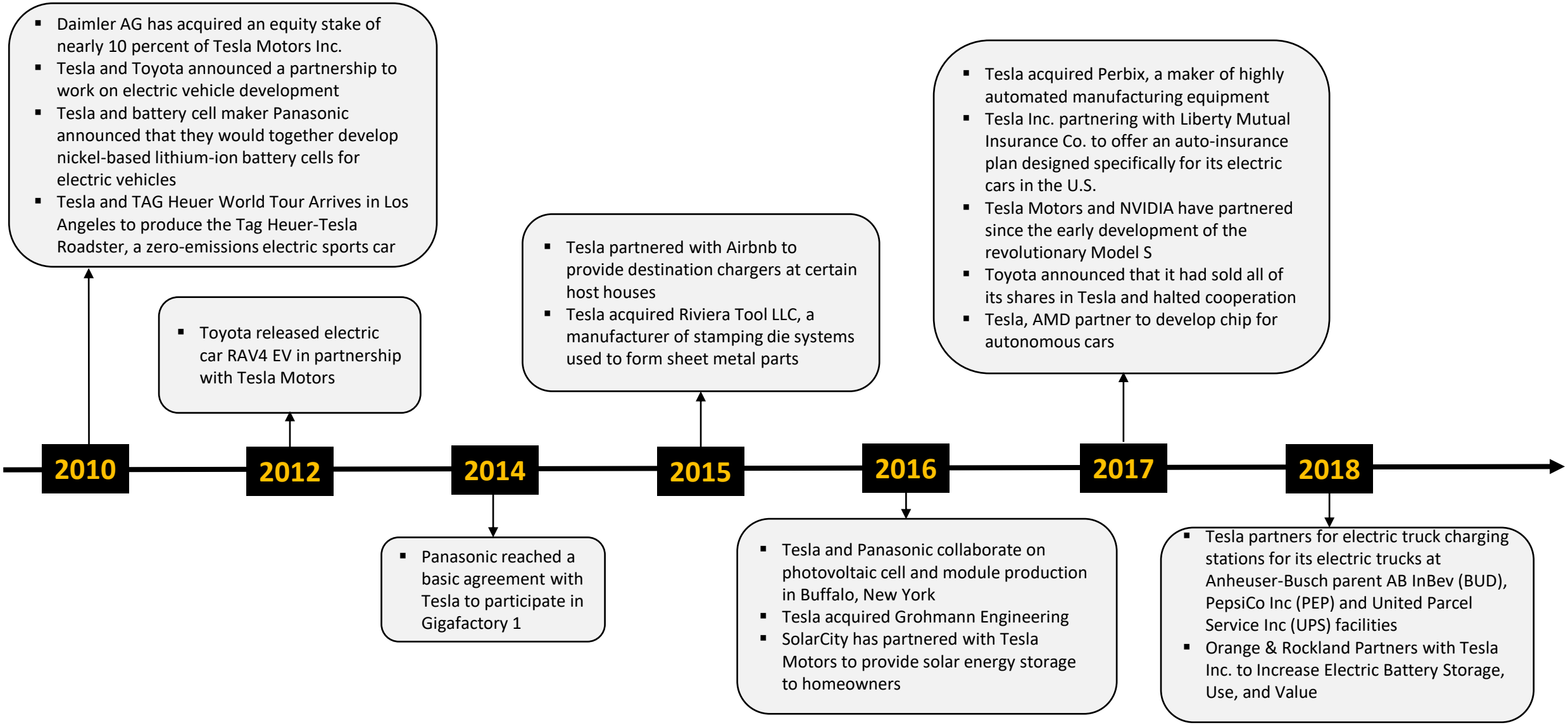
General Motors is an American multinational corporation, that designs, manufactures, markets and distributes vehicles and vehicle parts and sells financial services

Ford Motor Company is a global automotive and mobility company which develops, manufactures, and distributes vehicles, parts, and accessories worldwide

KEY EXECUTIVES

NAME	TITLE	EDUCATION
Elon R. Musk	Chairman, CEO and Product Architect	University of Pennsylvania's Wharton School, B (Economics) University of Pennsylvania, B (Physics)
Deepak Ahuja	CFO	Carnegie Mellon University, MBA Northwestern University, MS (Materials Engineering) Banaras Hindu University, B (Ceramics Engineering)
J. B. Straubel	CTO	BS in Energy Systems Engineering MS in Energy Engineering Emphasis on energy conversion, both from Stanford University
Diarmuid O'Connell	VP, Business Development	University of Virginia, MA (International Relations) Northwestern University, MBA (Management and Strategy)
David Waxman	Strategic Partnerships and Programs	Kenyon College, BA (Political Science)
Drew Baglino	VP, Technology	Stanford University, BS (Electrical Engineering)

COLLABORATIONS/M&A



SWOT ANALYSIS

STRENGTHS

- **Focus on R&D:** Significant engineering, and design activities carried out by the company to support its new products development and other research and development activities
- **Robust Powertrain Technology:** Extensive research and development (R&D) capabilities to launch new and innovative products in powertrain engineering, vehicle engineering, innovative manufacturing, and energy storage. Tesla's powertrain and battery pack inculcate a modular design, which enables next generation electric vehicles to integrate this technology
- **Business Performance: Automotive** - Tesla's Automotive business is the largest contributor to its revenue stream

WEAKNESSES

- **Cost Inefficiency:** Tesla reported a decline in its cost efficiency in FY2017, which could affect the operational efficiency
- **Product Recalls:** Product recalls could have a major impact on the brand image of the company, along with the loss of sales of that product. In March 2018, the company recalled 123,000 Model S vehicles. Production delays, failure to meet customer expectations, product defects and recalls, supply chain disruptions, slow adoption of electric vehicles

OPPORTUNITIES

- **Increasing Demand for Energy:** Increasing global demand for energy may lead to a potential increase in demand for the products and related services to create energy infrastructure, offering significant growth opportunities
- **Business Expansions:** Business expansions would help the company to expand its presence and improve financial performance. In May 2018, the company plans to launch its branch in Turkey
- **Growing China Automotive Industry:** The company generated 18% of its revenue from China in FY2017. Growth of automotive industry in China could benefit the company's operations
- **New Contracts:** Tesla continued to secure new contracts providing new opportunities for growth. In March 2018, the company secured a contract from FedEx Corp., by placing a reservation for 20 Tesla Semi trucks
- **Positive Outlook of the US Automotive Industry:** Positive outlook of the US automotive industry provides opportunities for Tesla across its operating markets, the expected sales of cars, SUVs and light trucks are to be stronger in 2018 than previous years

THREATS

- **Rapidly Changing Technology:** Automobile manufacturing market, in which Tesla participates, is subject to rapid technological changes. In this scenario, to compete effectively, the company has to continuously innovate and introduce new products that gain market acceptance
- **Environmental Regulations:** As an automobile manufacturer, Tesla is subject to environmental, health and safety laws and regulations at numerous levels, including laws relating to the use, handling, storage, disposal and human exposure to hazardous materials, both in the US and international markets
- **Competitive Market:** Tesla operates in automobile, energy storage and solar energy systems market. As a result, the company is subject to stiff competition in different geographic markets. Tesla competes with numerous companies both domestically and internationally based on product range and line.

PRODUCT PORTFOLIO

Automotive includes the design, development, manufacturing, and sales of electric vehicles

MODEL S

- Fully electric, four-door, five-adult passenger sedan
- Combination of performance, safety, styling, convenience and energy efficiency
- Model S 100D is the longest range all-electric production sedan in the world
- Includes a 17 inch touch screen driver interface, advanced autopilot hardware, and over-the-air software updates

MODEL X

- The longest range all-electric production sport utility vehicle in the world
- Fully electric, all-wheel drive dual motor system and autopilot system
- Incorporates a unique falcon wing door system for easy access to the second and third seating rows

MODEL 3

- Third generation electric vehicle that began deliveries in July 2017
- Produced at the Tesla Factory in Fremont, California and at Gigafactory 1
- Cells used in Model 3 are the highest energy density cells used in any electric vehicle

ROADSTER

- The quickest car in the world, with record-setting acceleration, range and performance
- As an all-electric supercar, Roadster maximizes the potential of aerodynamic engineering with record-setting performance and efficiency

Energy Generation and Storage

includes stationary energy storage products and solar energy systems

SOLAR PANELS

Panels with a Sleek, Low-Profile Design

- Solar panels blend into roof with integrated front skirts and no visible mounting hardware. The result is a clean, streamlined look.

POWERWALL

Seamless Integration with Powerwall

- Powerwall charges with energy produced by solar panels, making that energy available when needed, day or night.
- Powerwall also enables solar panels to produce energy during grid outages.

SOLAR ROOF

Invisible Solar Cells

- Customize the amount of electricity Solar Roof produces to fit energy needs.

REVENUES/FINANCIALS

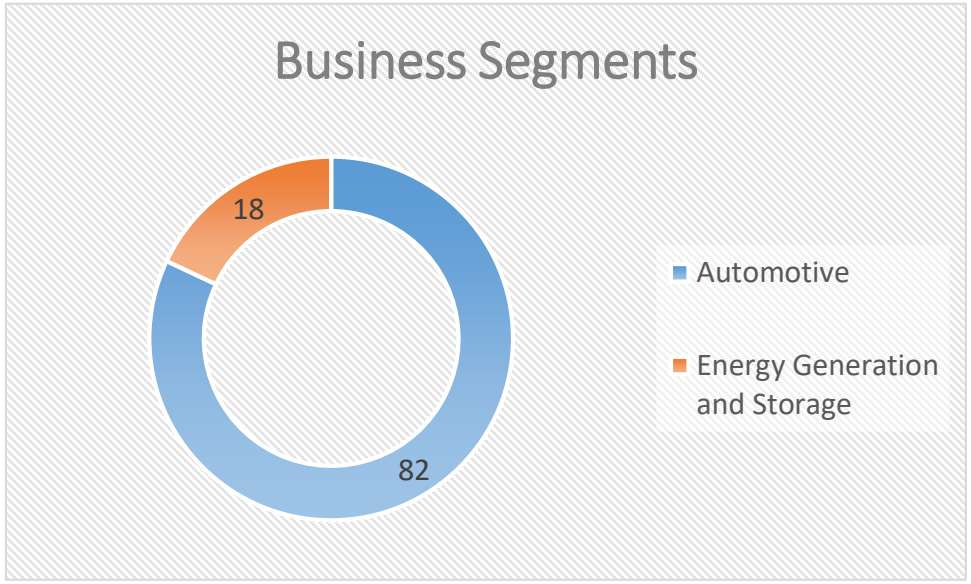
TESLA'S FINANCIAL FIRST QUARTER 2018

Tesla First Quarter 2018 Update:

- Model 3 production hit 2,270/week in April for the 3rd straight week over 2,000
- Q1 Auto GAAP gross margin up sequentially by 80 bp and non-GAAP by 500 bp
- Cash balance of $2.7 billion at the end of Q1
- 2018 Capex projection reduced from>$3.4 billion to <$3 billion
- Expecting positive GAAP net income and positive cash flow in Q3 and Q4 2018

Key Ratios	Company	Industry
Net Profit Margin (TTM) %	-18.77	4.81
Return on Assets (TTM) %	-8.95	2.91
Return on Equity (TTM) %	-49.60	10.87
Current Ratio	0.86	1.04
Quick Ratio	0.51	0.80
Sales 5 Year Growth	95.36	
Debt to Equity	2.43	1.54

Table: Financial Summary As of 31-Mar-2018



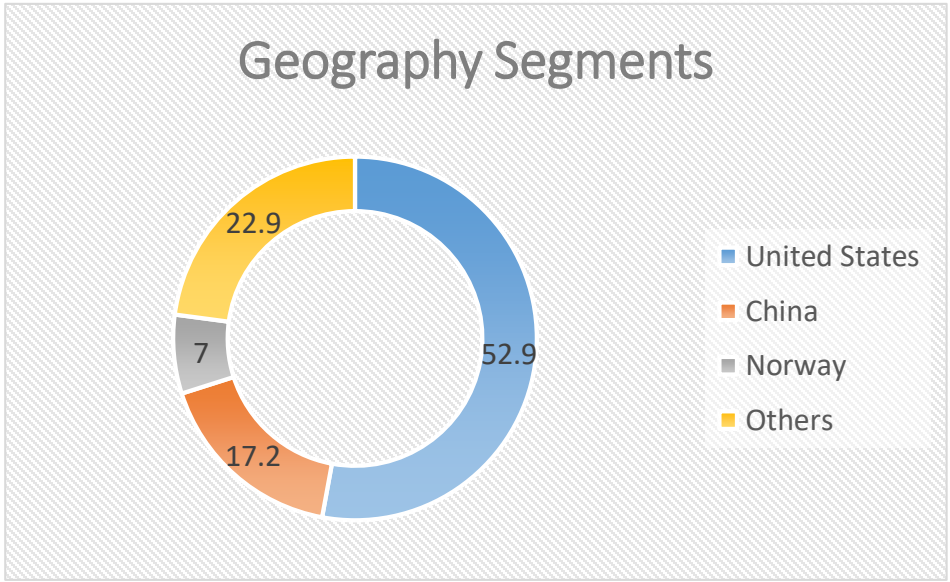
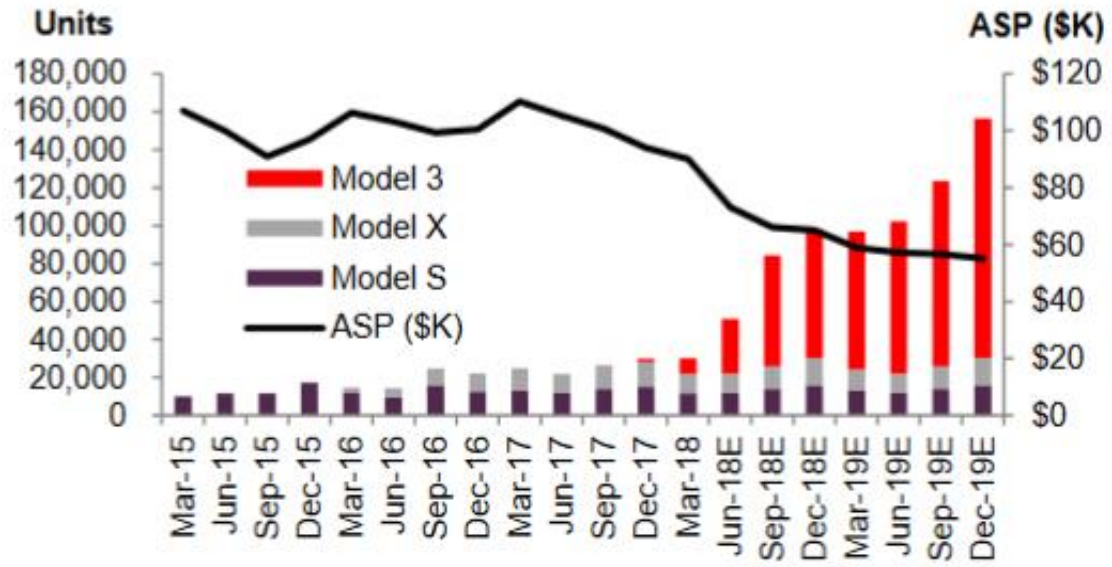
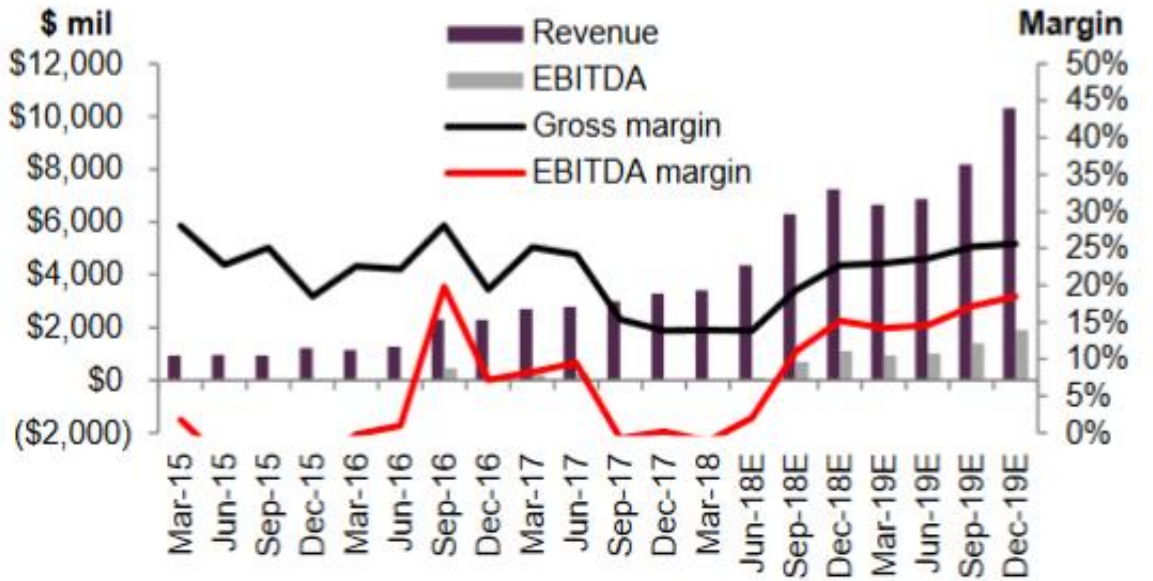


Fig: Tesla's revenue breakdown

- 18.0% from Energy generation and storage and 82.0% from Automotive
- 7.0% from Norway, 17.2% from China, 52.9% from United States and 22.9% from Other





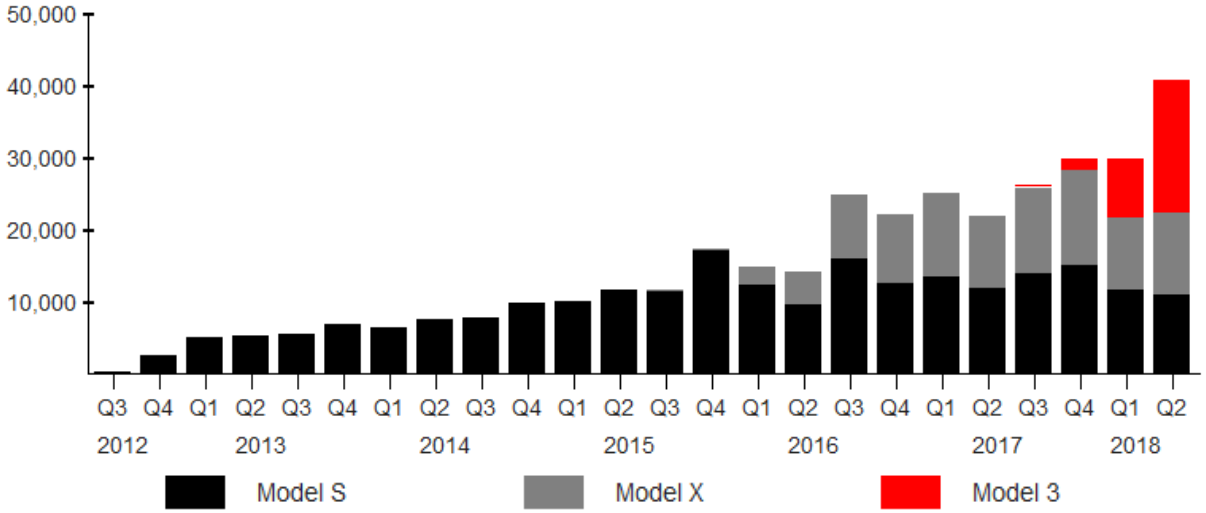
Source: Company reports, Guggenheim Securities, LLC estimates

Fig: Tesla Estimâtes –Quarterly

	Three Months Ended March 31,	
	2018	2017
United States	$ 1,844,447	$ 1,275,208
China	508,703	503,933
Norway	162,319	135,402
Other	893,282	781,727
Total	$ 3,408,751	$ 2,696,270

The above table presents revenues by geographic area based on where products are delivered (in thousands)

PRODUCTION & SALES



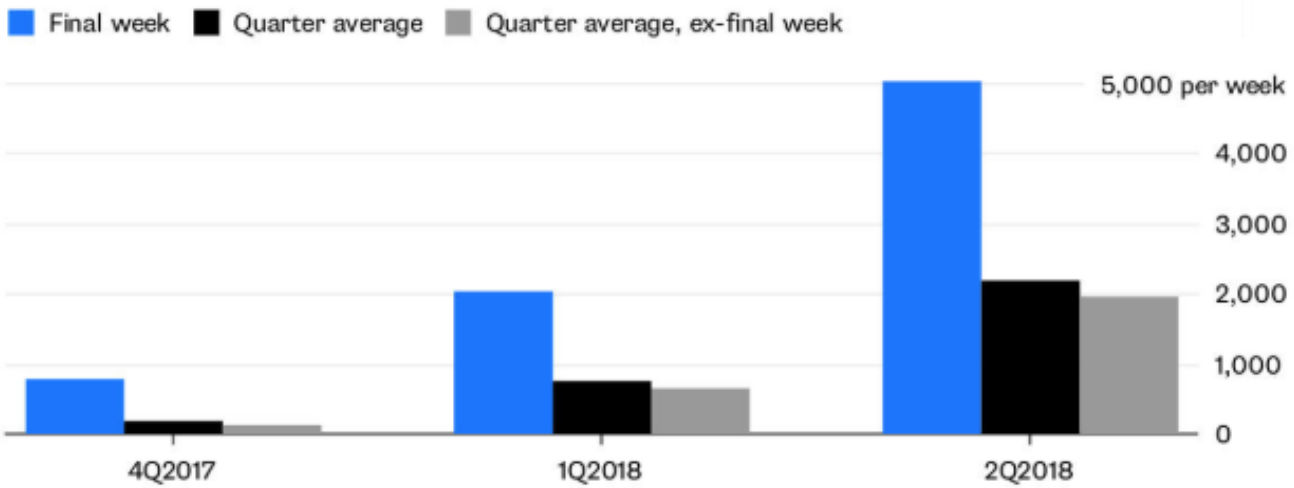


Fig: Tesla's average weekly production of model 3s is much lower than in its final-week bursts

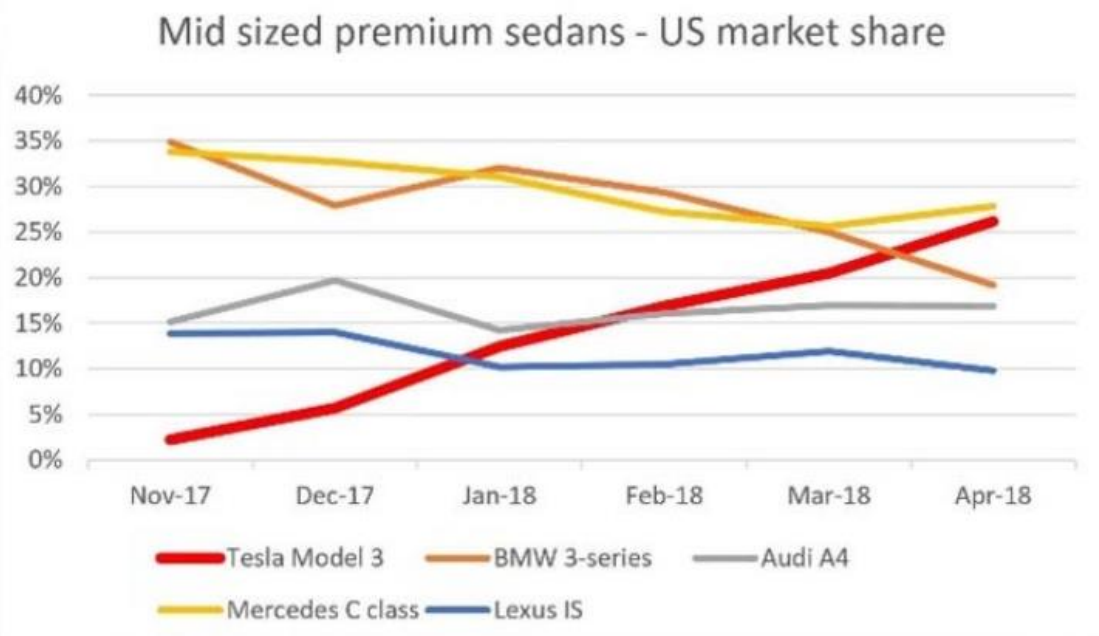


Fig: Model 3 market share Vs. its competitors

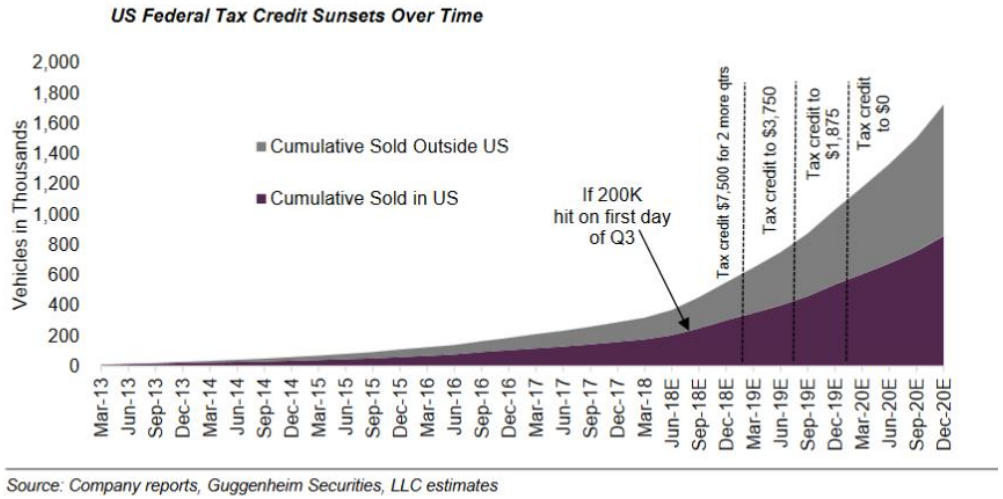
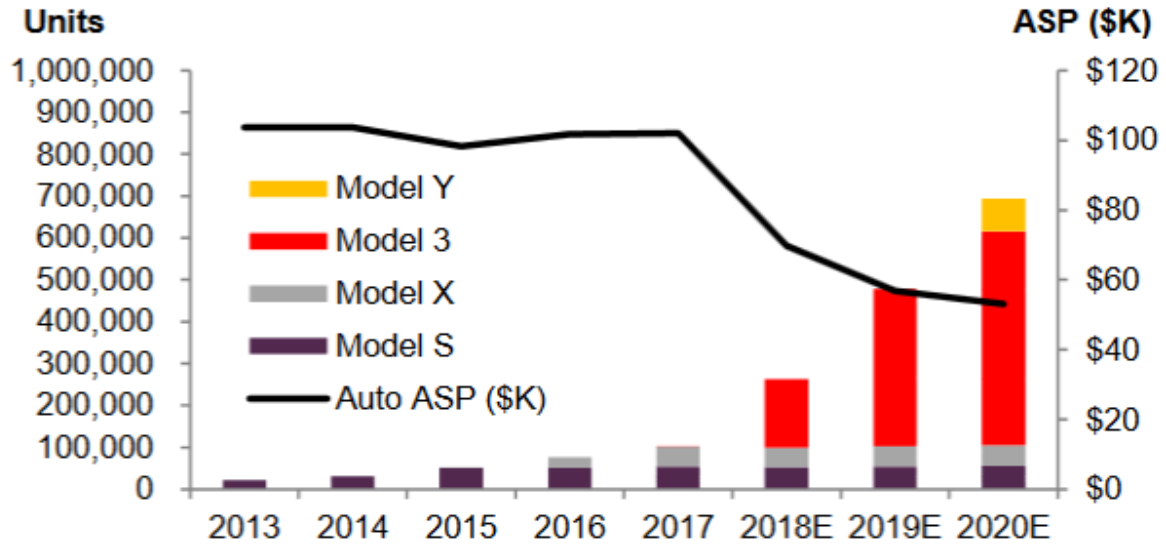
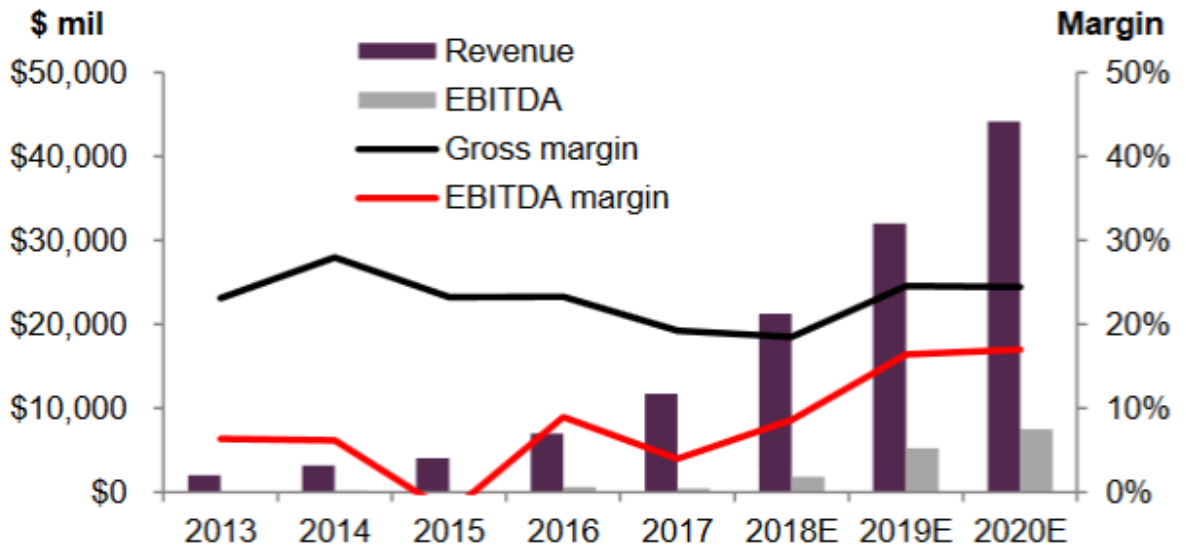


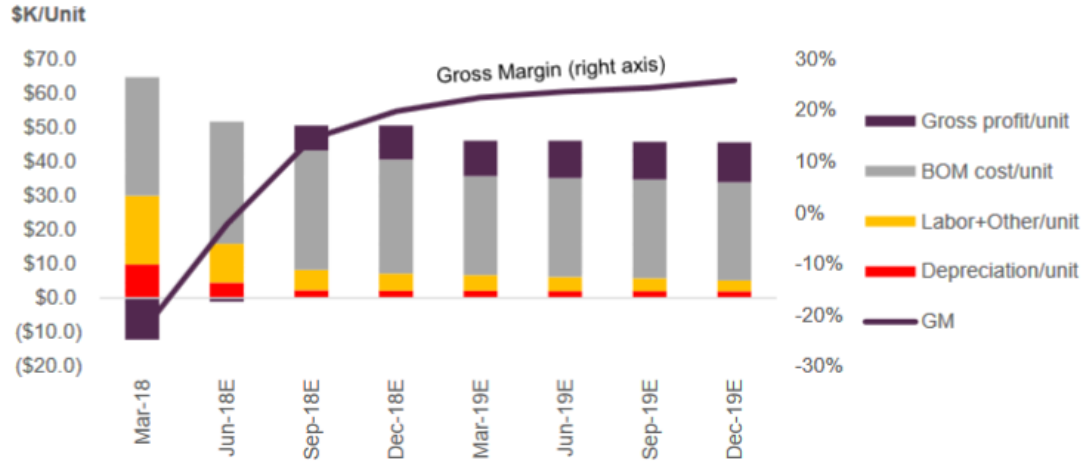
Fig: Tesla's Cumulative Vehicle Sale





Source: Company reports, Guggenheim Securities, LLC estimates

Fig: Tesla Estimates – Annual: Expect Model 3 to drive meaningful upside leverage



Source: Company reports, Guggenheim Securities, LLC estimates

Fig: Model 3 – Estimated COGS and Gross Profit per Unit

TECHNOLOGY OVERVIEW

TESLA'S TECHNOLOGY OVERVIEW

Vehicles:

- Electric powertrain and development of self driving technologies
- Powertrain consists of battery pack, power electronics, motor, gearbox and control software
- Designed to incorporate the latest advances in consumer technologies, such as mobile computing, sensing, displays, and connectivity

Battery Pack:

- Technology includes systems for high density energy storage, cooling, safety, charge balancing, structural durability, and electronics management
- Use lithium-ion cells in the automotive environment
- Designed battery pack to permit flexibility with respect to battery cell chemistry and form factor

Power Electronics:

- Drive inverter converts direct current ("DC") from the battery pack into alternating current ("AC") to drive induction motors and provides "regenerative braking" functionality, which captures energy from the wheels to charge the battery pack designs include the ability to drive large amounts of current in a small physical package

Dual Motor Powertrain:

- Tesla's dual motor powertrain digitally and independently controls torque to the front and rear wheels

Vehicle Control and Infotainment Software:

- Software algorithms control traction, vehicle stability and the sustained acceleration and regenerative braking of the vehicle, and are also used extensively to monitor the charge state of the battery pack and to manage all of its safety systems

Self-Driving Development:

- Vehicle autopilot systems, including auto-steering, traffic aware cruise control, automated lane changing, automated parking, Summon and driver warning systems
- Hardware suite, along with over-the-air firmware updates and field data feedback loops from the onboard camera, radar, ultrasonics, and GPS, enables the system to continually learn and improve its performance

Energy Storage:

- Leveraging energy storage products such as Powerwall and Powerpack, including high density energy storage, cooling, safety, charge balancing, structural durability, and electronics management
- Bi-directional, grid-tied power electronics that enable to interconnect battery systems seamlessly with global electricity grids while providing fast-acting systems for power injection and absorption

Solar Energy Systems:

- Solar Roof is being designed to work seamlessly with Tesla Powerwall 2 and also developed proprietary software to reduce system design and installation timelines and costs

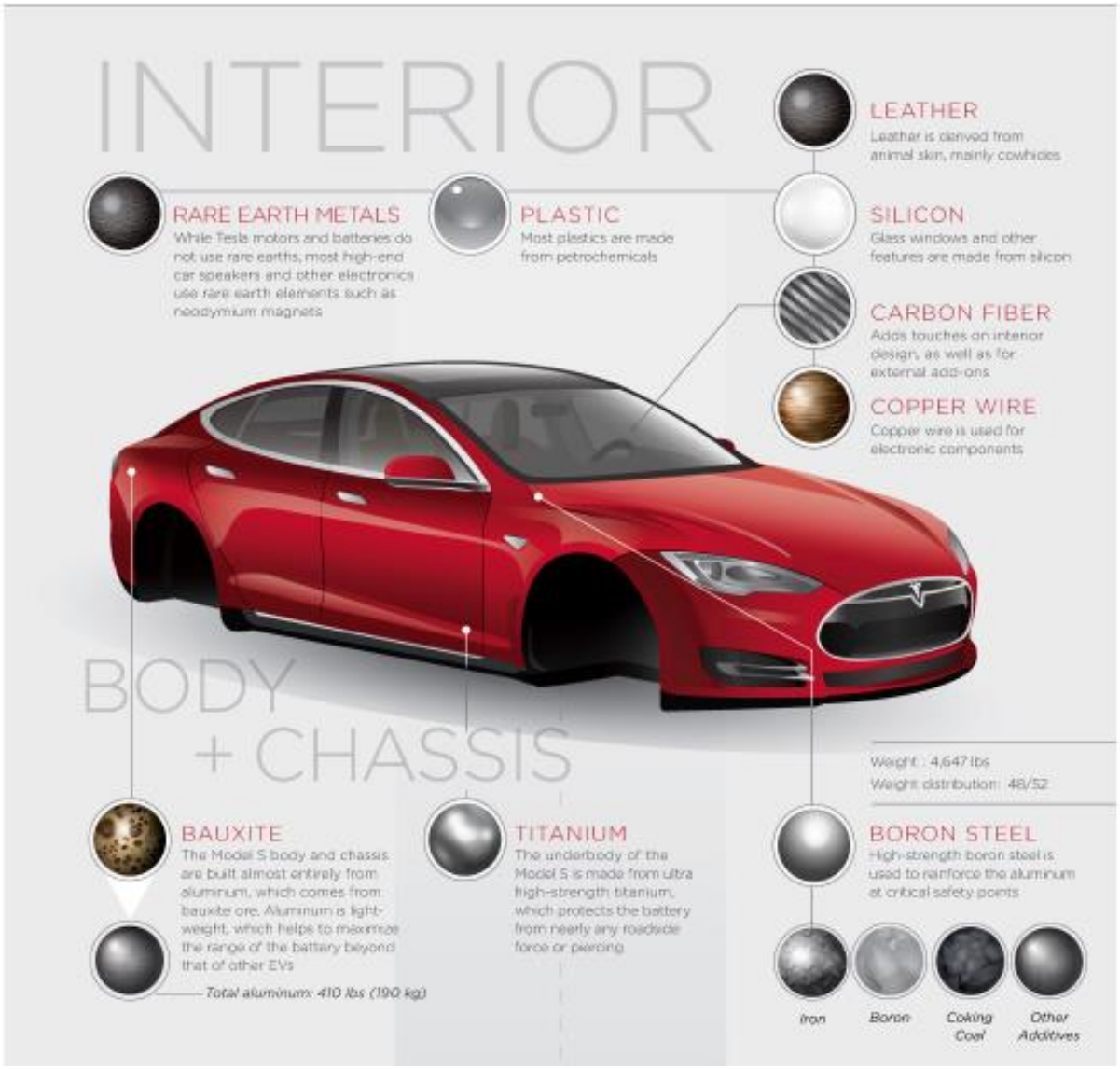
SPECIFIC GOALS AND R&D PLANNING

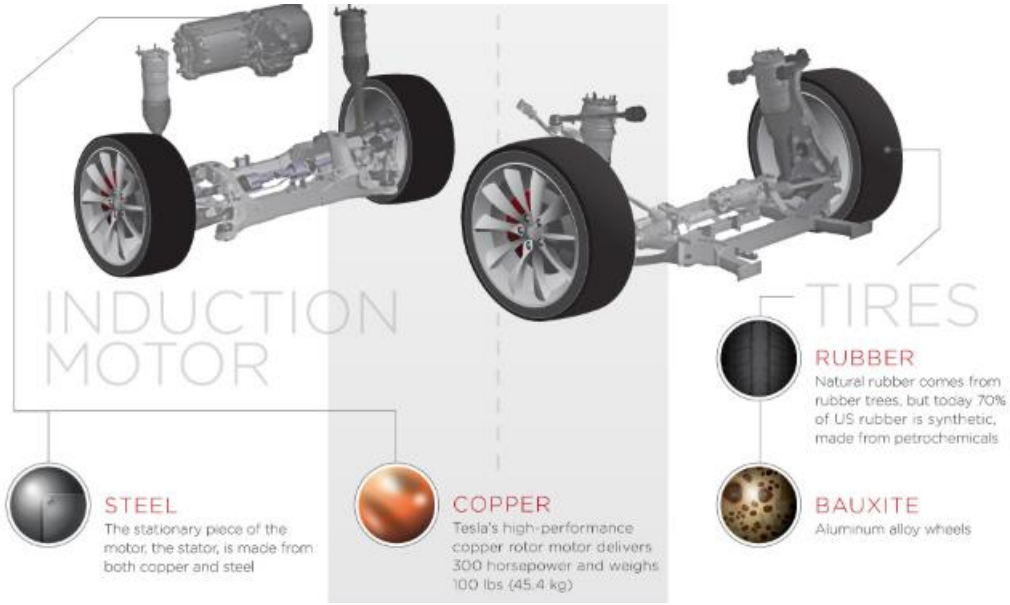
- To create stunning solar roofs with seamlessly integrated battery storage
- To expand the electric vehicle product line to address all major segments
- To develop a self-driving capability that is 10X safer than manual via massive fleet learning
- Using Big Data generated from sensors to plan their next product improvements
- To build a more affordable car with zero-emission electric power generation products
- To expand, and in some cases fully transition to, production of electric or environmentally friendly vehicles, and to also develop self-driving technologies
- Focusing on highly automated manufacturing processes, that will ultimately result in higher volumes at significantly lower costs
- Targeting a production rate of 2,500 Model 3 vehicles per week by the end of the first quarter of 2018 and 5,000 Model 3 vehicles per week by the end of the second quarter
- Enabling to rollout a series of new autopilot features in 2018 and beyond with enhanced machine learning capabilities which refer to as “neural net,” is able to collect and analyze more high-quality data than ever before

Car	Energy Source	CO_2 Content	Efficiency	CO_2 Emissions
Honda CNG	Natural Gas	14.4 g/MJ	0.32 km/MJ	45.0 g/km
Honda FCX	Nat Gas-Fuel Cell	14.4 g/MJ	0.35 km/MJ	41.1 g/km
Toyota Prius	Oil	19.9 g/MJ	0.56 km/MJ	35.8 g/km
Tesla Roadster	Nat Gas-Electric	14.4 g/MJ	1.14 km/MJ	12.6 g/km

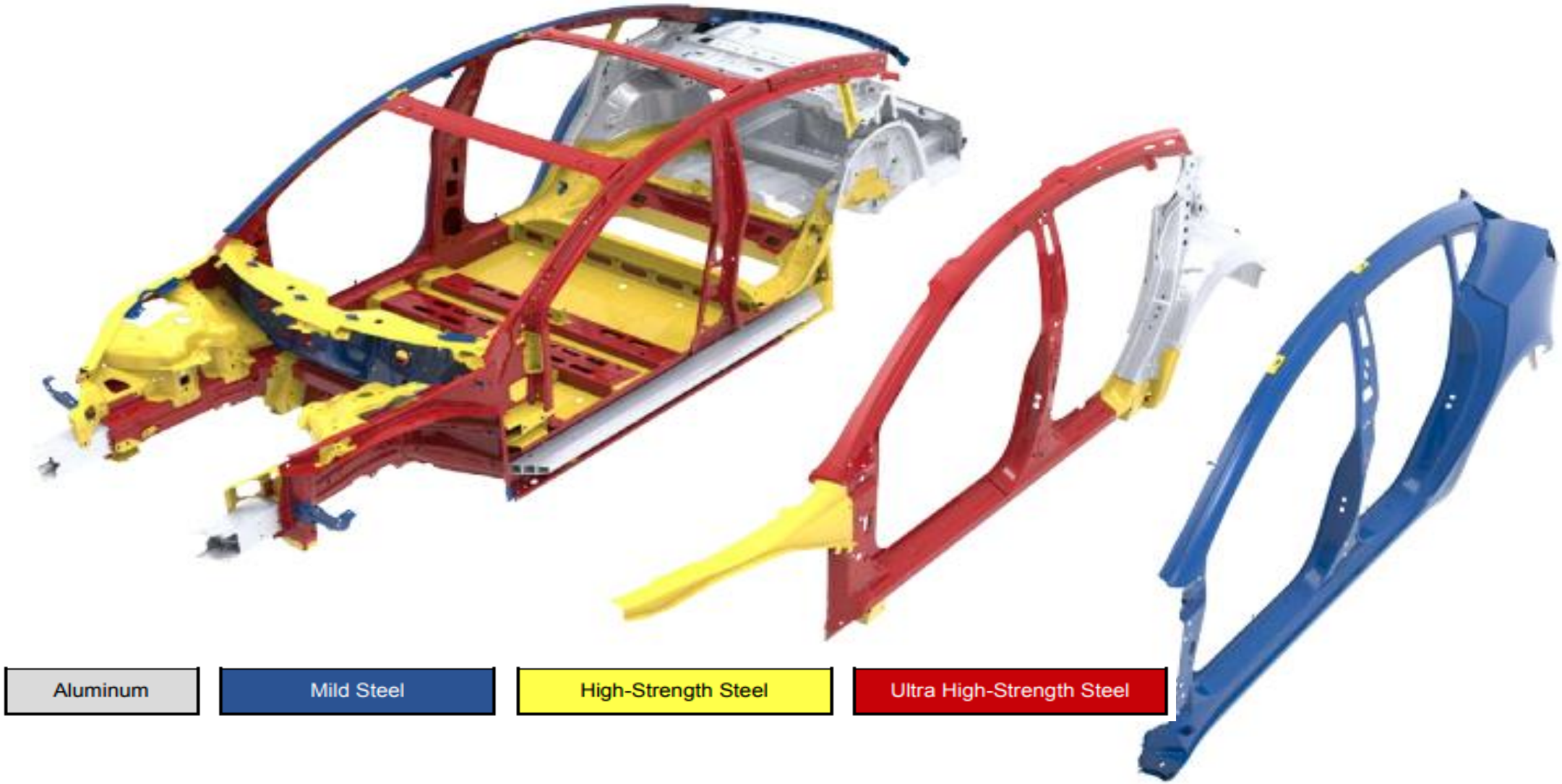
DESIGN AND ENGINEERING / MATERIALS DETAILS

TESLA'S MODEL S MATERIAL USAGE DETAILS





TESLA'S MODEL 3 MATERIAL USAGE DETAILS



TESLA'S MODEL S & MODEL 3 MATERIALS SUMMARY

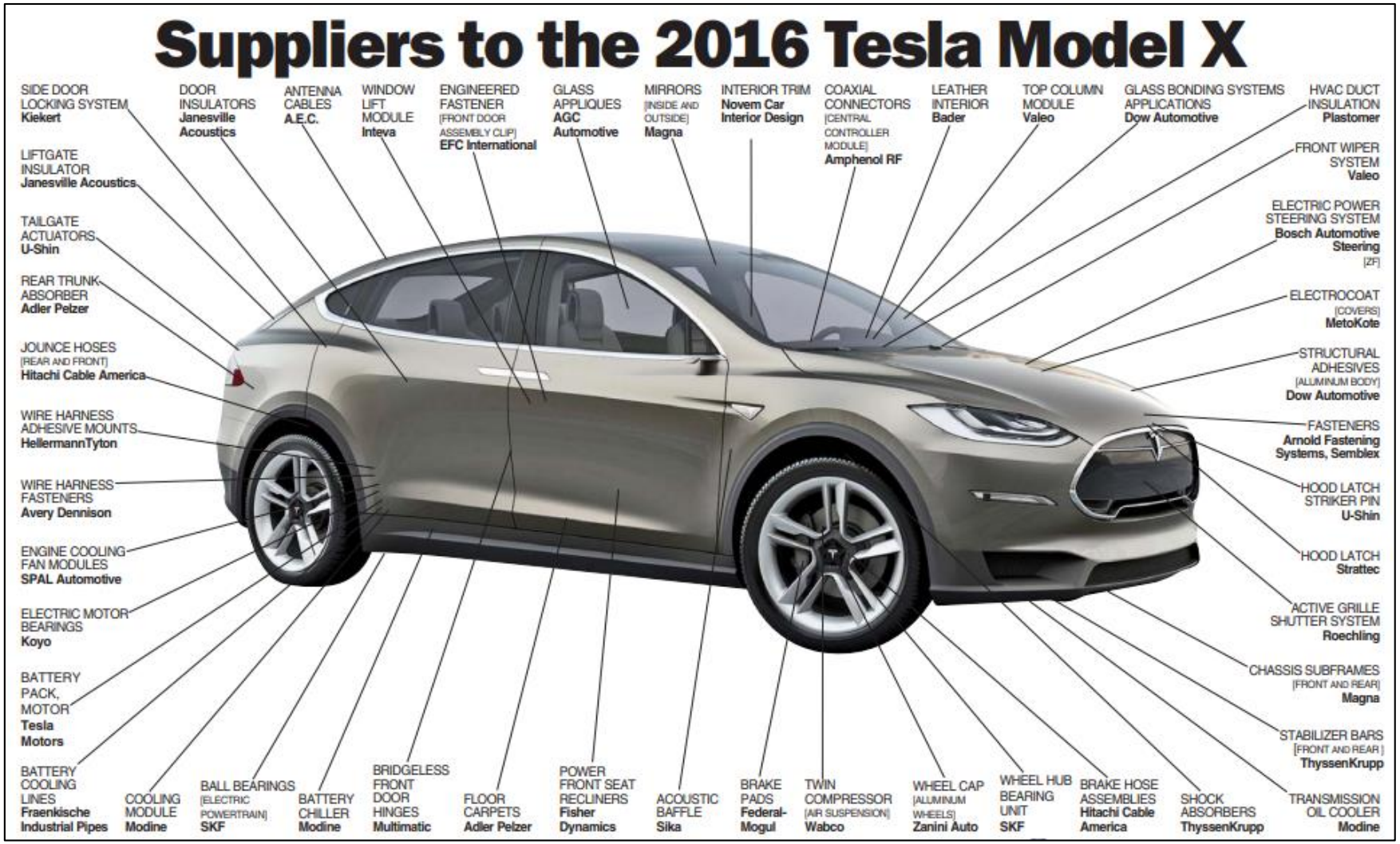
MODEL S

Application	Materials
Interior	Rare earth metals
	Petrochemical-based plastic
	Leather
	Carbon fiber
	Silicon
	Copper wire
Induction Motor	Steel
	Copper
Body + chassis	Bauxite aluminum
	Titanium
	Boron steel
Wheels	Natural rubber
	Bauxite
Battery	Cathode - nickel, cobalt, aluminum, and lithium
	Anode - silicone and synthetic graphite
	Electrolyte - lithium mined

MODEL 3

Application	Materials
Rear end	Aluminium
Outer covering on Doors	Mild Steel
Base/Bottom	High-Strength steel
Car casing/frame	Ultra High-Strength Steel

SUPPLIERS OF TESLA



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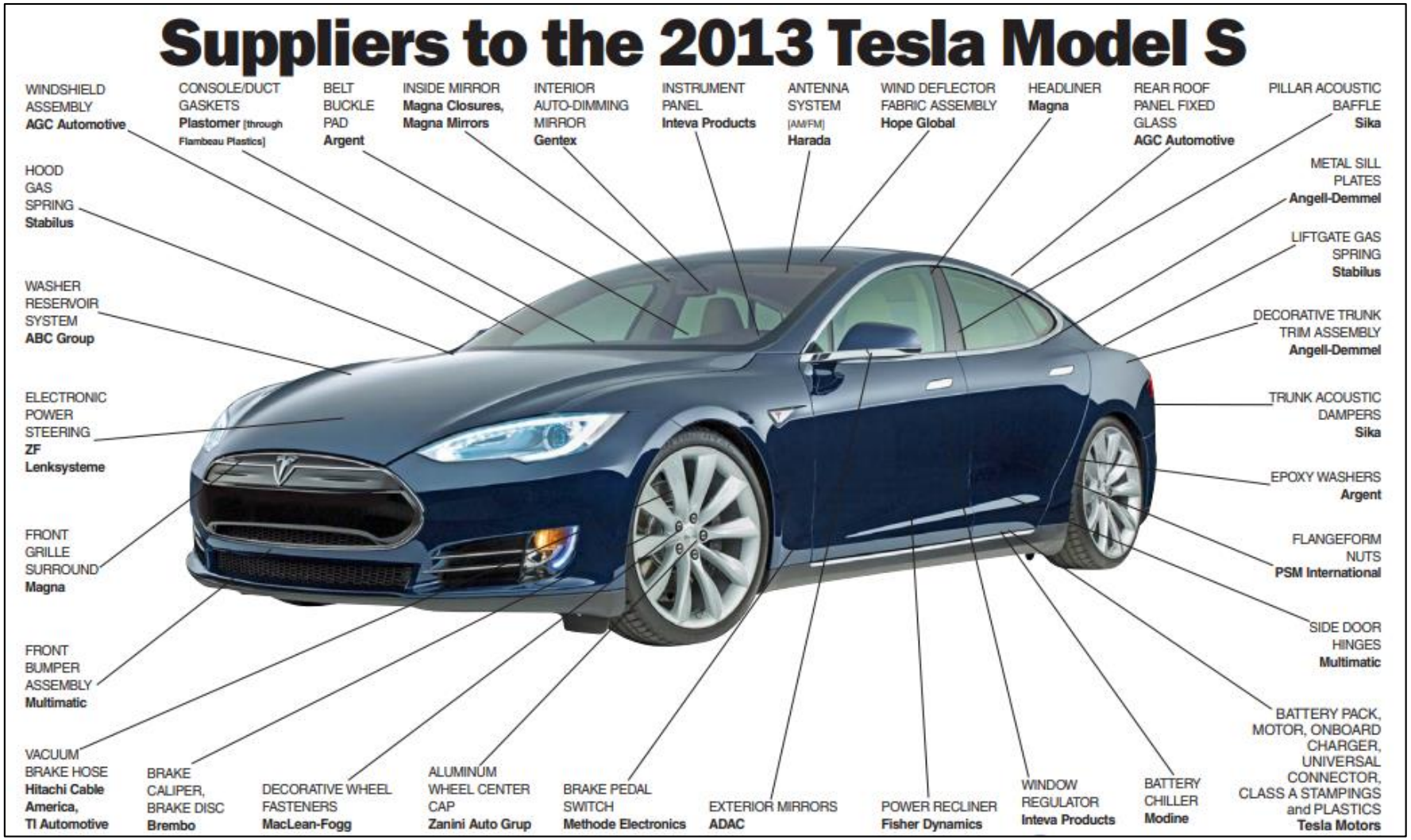

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SUPPLIERS OF TESLA – SUMMARY OF MATERIALS AND APPLICATIONS

SUPPLIER	APPLICATION	MATERIALS	URL
BASF	• Automotive coating (Primer, Clear coat, E-coat)	• **R-M ONYX-HD waterborne paint** • Cathoguard 800® e-coat	• http://www.rmpaint.com/int/r-m-gains-approval-tesla • http://www.basf-coatings.com/global/ecweb/en/content/press/coatings-partner-magazine/archive/automotive-oem-coatings/eine-starke-partnerschaft
Plastomer Corporation	• HVAC Duct insulation	• Lok Cel®, an ether-based **urethane foam**	• http://www.plastomer.com/wp-content/uploads/2016/06/LokCel_Plastomer.pdf
Valeo	• Front wiper system & Top column module	• AquaBlade® **glass fibers impregnated with resin**	• https://www.valeo.com/en/aquablade/ https://www.valeo.com/wp-content/uploads/2017/09/20170904_Press-Kit-IAA-2017_ENG_FINAL-2.pdf
Dow Automotive	• Structural adhesives • Glass bonding system	• BETAMATE™ one- and two component **epoxy structural adhesives** • BETASEAL™ **urethane adhesives**	• http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_096d/0901b8038096d475.pdf?filepath=automotive/pdfs/noreg/299-51904.pdf&fromPage=GetDoc • http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_094a/0901b8038094a043.pdf?filepath=automotive/pdfs/noreg/299-52331.pdf&fromPage=GetDoc
Metokote Corporation (PPG Industries)	• Electrocoat [covers]	• Cathodic **epoxy** electrocoat	• http://www.ppgautocoatings.com/Products/Electrocoat.aspx
Magna international	• Chassis subframes [front and rear]	• **Aluminum**, **Steel** • **Carbon fiber reinforced vinyl ester resin composite** system	• https://www.magna.com/products/body-exteriors-structures/product/chassis-subframes

SUPPLIERS OF TESLA – SUMMARY OF MATERIALS AND APPLICATIONS (cont'd)

SUPPLIER	APPLICATION	MATERIALS	URL
Zanini Auto	• Wheel cap [aluminum wheels]	• **Acrylic** clear coat	• https://zanini.com/en/technologies/aluminium-overlays/
Novem Car Interior Design GmbH	• Interior Trim	• **Wood, Aluminium, Carbon, Premium Synthetics, Leather**	• http://www.novem.de/en/products/materials#1
Bader GmbH & Co. KG	• Leather interior	• **Leather**	• http://bader-leather.com/en/competencies/automotive-leather
Semblex	• Fasteners	• **Carbon Steel, Alloy Steel, Stainless Steel, Copper, Brass, Bronze, Aluminum**	• https://www.semblex.com/products/miniature-fasteners/ • https://www.semblex.com/default/assets/file/fastener-assemblies.pdf
Thyssenkrupp	• Stabilizer bars [front and rear]	• 34MnB5 steel-**Alloy steel with low carbon content**	• http://www.imim.pl/files/archiwum/Vol4_2015/04.pdf
Strattec	• Hood latch	• **High-grade zinc, brass, magnesium, aluminum, steel and plastic resins**	• https://strattec.gcs-web.com/static-files/44e1b311-d7dd-44a1-a10a-b10850c55050
SKF	• Ball bearings [electric powertrain] • Wheel hub bearing unit	• **Steel** • NitroMax steel (**high-nitrogen stainless steel**) • **Ceramics**	• http://www.skf.com/in/products/bearings-units-housings/super-precision-bearings/principles/bearing-specifics/materials/materials-for-bearing-rings-and-rolling-elements/index.html
Koyo	• Electric motor bearings	• **Steel** • **Ceramics**	• https://koyo.jtekt.co.jp/en/assets/file/pdf/catb2001e_d.pdf
Kiekert	• Side door locking system	• **Advanced High Strength Steel (AHSS)**	• US20170152684A1

SUPPLIERS OF TESLA – SUMMARY OF MATERIALS AND APPLICATIONS (cont'd)

SUPPLIER	APPLICATION	MATERIALS	URL
Hellermann Tyton	• Wire harness adhesive mounts	• **Polyetheretherketone (PEEK), Polyamide 4.6 (PA46), Ethylene/Tetrafluoroethylene (E/TFE)**	• http://www.hellermanntyton.co.in/competences/cable-management-high-temperature-solutions
Inteva	• Window lift module	• Advanced plastics	• http://www.intevaproducts.com/capabilities/closure-systems/door-systems
AGC Automotive	• Glass appliques	• NA	• http://www.agc-automotive.com/en/our-products/glazing-systems/glass-applique/

PATENT PORTFOLIO

PATENT PORTFOLIO

SEARCH METHODOLOGY

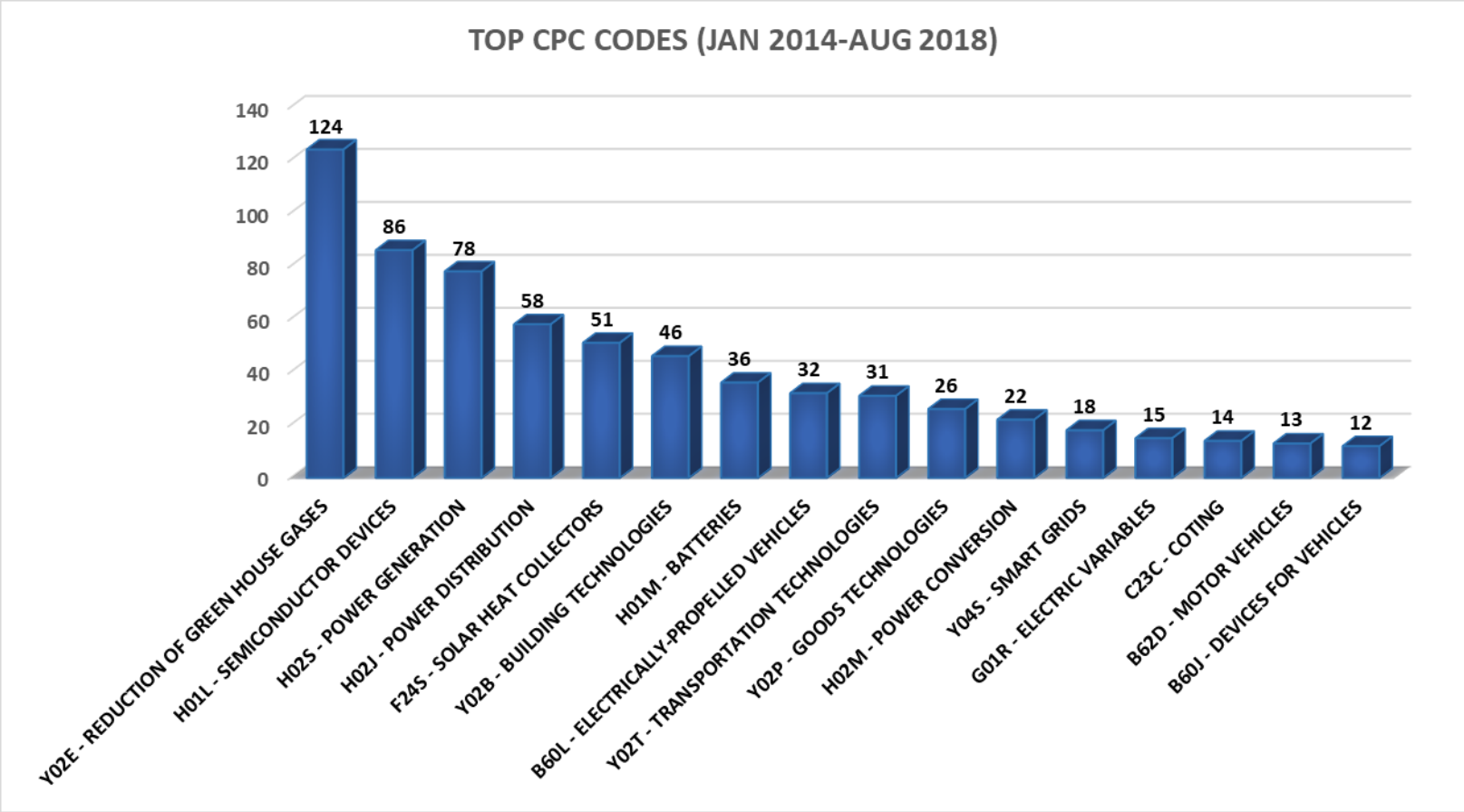
- Search for patents of Tesla and its subsidiaries was conducted using Derwent Innovation database.
- Patents published **from January 2014 through August 2018** were considered for the study.

SUMMARY OF FINDINGS

- Tesla has **387 patents** (one per family) published between Jan 2014 and Aug 2018 out of which 225 are granted patents and 162 are applications.
- Tesla has majority filing in the United States followed by filing activity through PCT route. It has also sought protection in China, EPO, Japan, Hong Kong, Germany and some other countries.
- In terms of technology, Tesla has majority of patents filed in the are of energy generation.
- Majority of its patent portfolio are classified under the classification codes Y02E – Reduction of green house gas emissions; H01L - Semiconductor devices; H02S – Power generation; H02J – Power distribution; and F24S – Solar heat collections.
- Tesla's patenting trends by technologies and geographies are shown in the following slides.

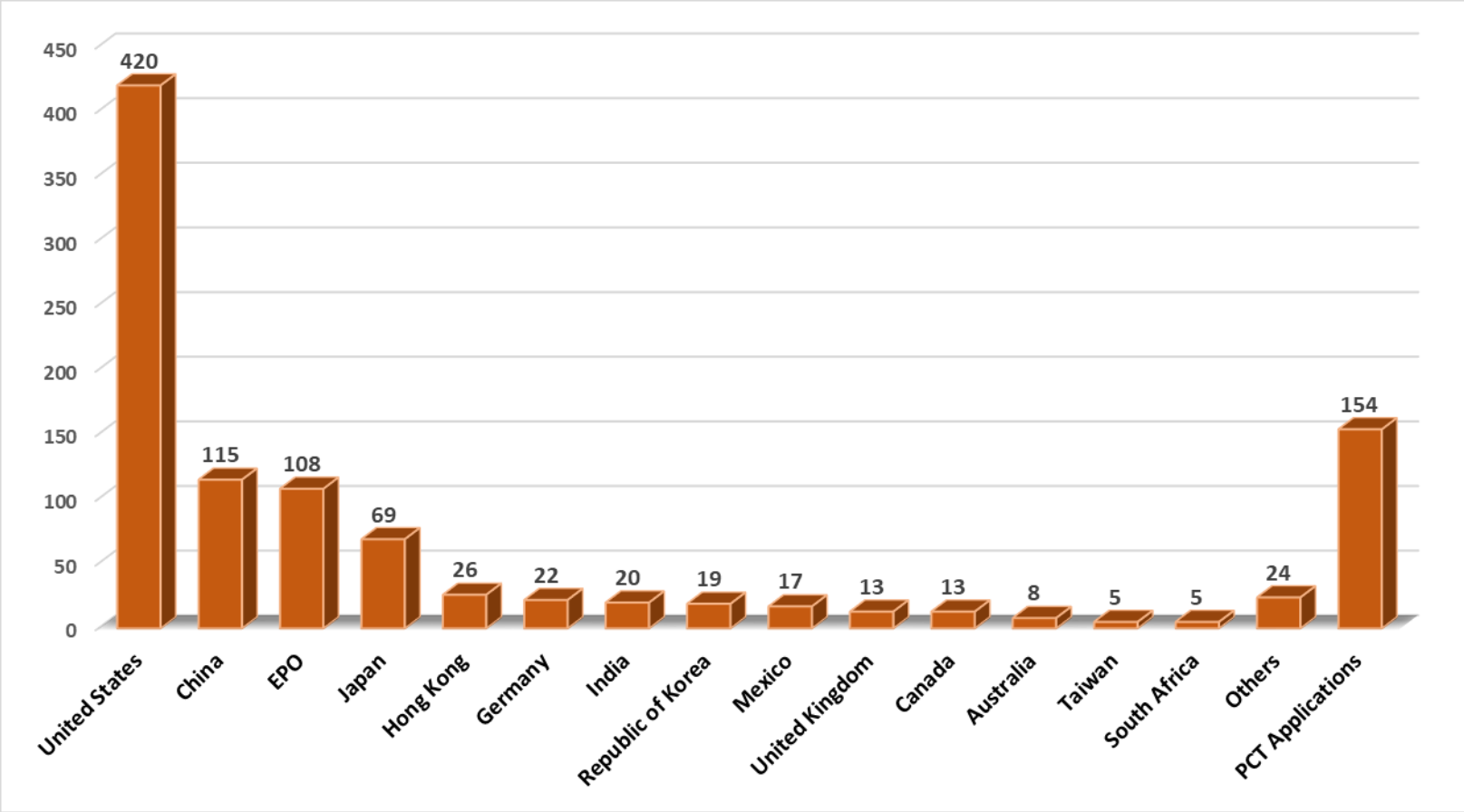
PATENTING TREND BY TECHNOLOGIES

(Published between Jan 2014 and Aug 2018)



PATENTING TREND BY GEOGRAPHIES

(Published between Jan 2014 and Aug 2018)



Other geographies:
Spain (4), Austria (4), Israel (3), Brazil (3), Denmark (2), Chile (2), Slovenia, Singapore, Serbia, San Marino, Russia, Republic of Moldova, Portugal, Poland, Philippines, Peru, Montenegro, Lithuania, Hungary, EAPO, Cyprus, Croatia, Costa Rica, and ARIPO (1 each)

PATENT ANALYSIS

- Patent search results were screened and the relevant patents were analysed focusing on materials and applications.
- As majority of patents were filed in similar technology areas in multiple countries, out of the total relevant results, only a few recent patents (7) have been selected and summarized on the following basis:
    - Selected one patent from each technology area, for example, battery, sensor, automotive parts, etc. that are relevant to the scope of the project.
    - Patents that disclosed materials and their application areas that might be of interest to the client.
- Summary of these relevant patents with respect to the disclosed materials and application has been given in the following slides.

MATERIALS FROM TESLA PATENTS

PUBLICATION NUMBER & DATE	TITLE	FOCUS OF PATENT	MATERIALS USED	APPLICATION
US10023038B2 July 17, 2018	System for absorbing and distributing side impact energy utilizing an integrated battery pack	The present invention provides an energy absorbing and distributing side impact system for a vehicle that provides superior vehicle occupant safety, particularly from side impact collisions, using a battery enclosure that has a design that improves aerodynamic performance of the vehicle.	• **Aluminum / Aluminum alloy** • **Steel**	• Battery pack components
US10011157B2 July 3, 2018	Visor for continuously extended windshield	The patent describes systems relating to visors that can be used in vehicles where the front window continually extends upward over the driver's head so as to form part of the vehicle's roof. This provides the front-seat occupant a greatly improved field of view.	• **Polycarbonate**	• Light guide
US20180151766A1 May 31, 2018	Anti-corrosion protection in photovoltaic structures	The present invention provides a low-cost and environmentally friendly solution for preventing corrosion of metallic contacts on photovoltaic structures within a solar panel by using encapsulant materials with low moisture vapor transmission rate (MVTR).	• **Polyolefin** • **Ionomer** • **Silicone**	• Anti-corrosion protection for solar panels
US20180130921A1 May 10, 2018	System and methods for achieving a micro louver effect in a photovoltaic cell	The present invention describes bbuilding integrated photovoltaic (BIPV) systems for providing micro louvers in solar roof to cause the internal solar cells to be obscured or concealed at certain angles while remaining visible to incident overhead sunlight.	• **Ethylene tetrafluoroethylene (ETFE), glass, acrylic, polycarbonate** • **Ethylene-vinyl acetate (EVA), thermoplastic olefins (TPO), polyvinyl butyral (PVB), silicones**	• Transparent layer • Encapsulant layer

MATERIALS FROM TESLA PATENTS (Cont'd)

PUBLICATION NUMBER & DATE	TITLE	FOCUS OF PATENT	MATERIALS USED	APPLICATION
US20170059697A1 March 2, 2017	Hidden ultrasonic sensor assembly	The patent describes systems and techniques for mounting an ultrasonic sensor assembly on the inside of exterior vehicle surfaces where it is not visible from the outside such that the sensor can range through the material and detect objects near the vehicle.	• **Polycarbonate** • **Mixture of polycarbonate and acrylonitrile butadiene styrene**	• Cover panel
US9187131B2 November 17, 2015	Localized energy dissipation structures for vehicles	The present invention relates to localized energy dissipation structures for vehicles that dissipate energy associated with an impact with a blunt-object barrier at discrete locations along a portion of the vehicle.	• **Alloys of aluminum or steel**	• Energy dissipation structures • Mechanical fasteners
US8832998B2 September 16, 2014	Sealing mechanism of automobile door	The present disclosure relates to sealing mechanism of automobile doors by providing a longitudinally extending slit in a hollow seal part of a glass run, the glass run can be stably held by a retainer, and the sealing ability is ensured, without using a pad.	• **Thermoplastic elastomer (TPE)**	• Glass run

RECENT NEWS

- **Tesla engineering leader Doug Field has left the company** - *July 2, 2018*
  Tesla's senior vice president of engineering, Doug Field, is leaving the company for good after previously stepping away for what the company had characterized as a leave of absence. (Source)

- **Tesla says Model 3 production nearly tripled last quarter, but it still disappointed** - *July 2, 2018*
  Tesla said it produced 28,578 Model 3 vehicles in the second quarter — almost three times as many as it made the previous quarter — and delivered 18,440 Model 3s (Source)

- **Panasonic is open to increasing its investment in Tesla Gigafactory 1** - *July 2, 2018*
  With Model 3 production steadily increasing, Gigafactory 1 in Nevada, where Tesla and Panasonic produce the batteries for the vehicle, is going to need to keep up with the production of the critical EV component (Source)

- **New bill to remove limit for $7.5k electric vehicle federal tax credit introduced as Tesla hits threshold** - *July 2, 2018*
  Tesla is likely going to be the first automaker to hit the 200,000th electric car delivery threshold in the US this quarter, which will initiate a one-year-long phase-out period to eventually remove access to the $7,500 federal tax credit for Tesla buyers. But a new bill to remove the controversial 200,000 delivery threshold has now been introduced in Congress (Source)

- **Tesla hits Model 3 manufacturing milestone, hours after deadline** - *July 1, 2018*
  Tesla Inc. nearly produced 5,000 Model 3 electric sedans in the last week of its second quarter, several hours after the midnight goal set by Chief Executive Elon Musk (Source)

- **Tesla and PG&E are working on a massive 'up to 1.1 GWh' Powerpack battery system** - *June 29, 2018*
  Tesla is working with Pacific Gas and Electric Company (PG&E) on a massive battery system with a capacity of "up to 1.1 GWh" in California (Source)

- **Tesla's Chief Information Officer leaves the automaker as part of reorganization** - *June 29, 2018*
  Unlike most corporations of its size, Tesla only has a handful of c-suite executives and now it has lost a second one this year as Electrek learns that Tesla let go Gary Clark, its Chief Information Officer. (Source)

- **Tesla layoffs hit 20 percent of Solar City installation locations** - *June 22, 2018*
  Tesla announced lay off of 9 percent of its workforce in an effort to keep its doors open as it tries to ramp up production of its critical Model 3 electric car. 13 or 14 of Solar City's installation centers will be shuttered as part of the layoffs. About 60 centers will stay open. (Source)

- **Tesla is enhancing security at Gigafactory, says they got a call that ex-employee was threatening violence** - *June 21, 2018*
  Tesla got a call from a friend of alleged saboteur Martin Tripp claiming he was threatening to shoot up the Gigafactory. An investigation into the threat's origin is ongoing. (Source)

- **Tesla is looking at Germany for a new Gigafactory** - *June 20, 2018*
  Tesla CEO Elon Musk says that Germany is the "leading choice" for a Gigafactory in Europe. (Source)

- **Tesla to reveal Model Y production plans in late 2018, says Elon Musk** - *February 7, 2018*
  Tesla CEO Elon Musk confirmed that the company will begin making capital investments on the Model Y compact SUV sometime in the second half of 2018. (Source)