Executive summary

Tesla is taking a fundamentally different approach to its business model…

- Tesla products are a 'computer on wheels,' that continuously evolve features and functionality with **over-the-air** updates
- Tesla has **simplified SKUs**, a **vertically integrated** supply chain, and a highly **automated manufacturing** process
- Tesla has driven EV adoption by investing in a **charging network** and best-in-class **battery technology**

…which has created opportunities to reinvent the customer experience…

- Tesla has **showrooms** in high-traffic areas to encourage product exploration
- Tesla has rejected the dealership model for vehicle purchase, selling only **direct-to-consumer**
- Tesla gives customers multiple vehicle **delivery** options, including contactless delivery

…and has also led to challenges along the way

- Tesla has limited **financing** options provided via partnerships with four major banks
- Tesla offers **service** through mobile service and service centers, but has struggled to meet service capacity needs

Tesla's mission is to accelerate the world's transition to sustainable energy by bringing compelling mass market electric cars to market in short order.

Tesla's master plan to accelerate the world's transition to sustainable energy

2003

Tesla founded

2006

Elon Musk shares 'master plan'

- First build all-electric competitive sports car
- Then translate earnings and learnings into lower-cost, mass market car
- Meanwhile develop zero-emission power generation options

Completed

2016

Elon Musk shares 'master plan part 2'

1. Create solar roofs with integrated battery storage
2. Expand electric vehicle product line to address **all major segments**
3. Develop **self-driving capability** 10X safer than manual via massive fleet learning
4. Enable your **car to make money for you** when you aren't using it

Today

- With introduction of Model 3, Model Y and announcements of 'coming-soon' Roadster sports car, Cybertruck, and Semi truck, **Tesla expected to have vehicles in all major vehicle segments by 2022**
- According to Tesla, all new vehicle models today built with hardware capable of fully autonomous self-driving; OTA **Autopilot software expected to reach 'feature complete' soon**
- **Likely to be unveiled** following Autopilot 'feature complete'; dependent on regulatory approval

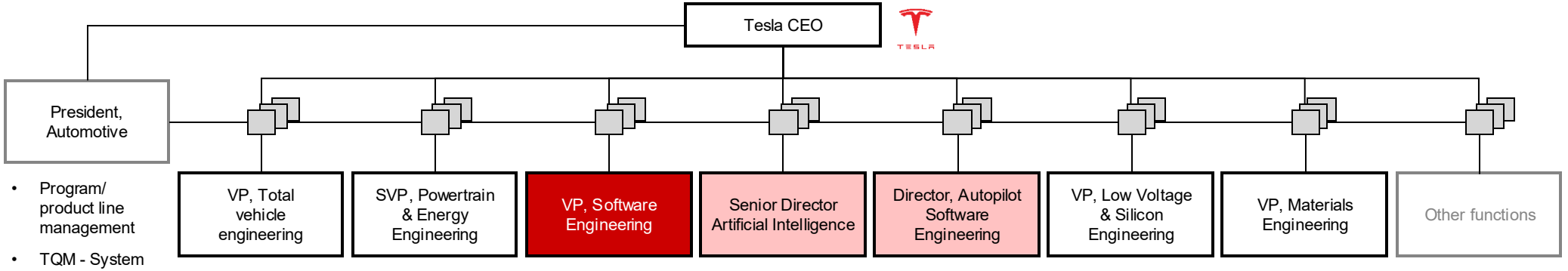
Tesla entering second phase of 'master plan'

Note: OTA = Over-the-air
Source: Elon Musk investor earnings calls & product launch announcements; Tesla company website

At the heart of Tesla's tech spirit is an organizational structure that resembles a tech player – not a traditional auto OEM

Added in March 2021

Tesla's organization



- Program/ product line management
- TQM - System
- Manufacturing & associated planning
- Manufacturing Engineering
- Material Flow Engineering
- Global Supply Chain
- Sales & Service
- Regulatory compliance

- Vehicle hardware design
  - Body exteriors
  - Interiors
  - Chassis
  - Battery structure
  - Thermals
  - Safety
- Test & validation
- Development
- Launch Manuf. & sustainment
- PLM and engineering tools
- EE- Architecture performance load/capacity
- Vehicle Quality Validation
- Integration
  - Powertrain & Energy Engineering
  - EE architecture (software/ hardware)
  - Autopilot
  - Cyber security

- Battery modules
- Motors
- Drive units
- High power electronics
- Charging systems
- Ecosystem Powerwall
- Ecosytem Energy Power
- Quality Mode Program

- Vehicle EE/ EE- Architecture design
  - SW Architecture
  - HW Architecture
  - E- Device Arch.
  - E-Vehicle Fleet Device
- Vehicle software
  - Firmware
  - UI software
  - Embedded Linux platform
  - Nav & routing
  - iOS & Android mobile apps
- Distributed systems
  - Server SW & infrastructure for OTA & diagnostics
  - Data analytics platform
- Manufacturing & Automation
- Product security & Red Team

- Machine Learning
- Computer Vision
- Autopilot Data Analysis
- Customer CRM Journey Center
- Vehicle-Knowledge Center

- Autopilot Embedded Systems
- Cloud software infrastructure
- Simulation
- Perception system
- Control Systems
- Tools & infrastructure
- Maps
  - Black Maps
  - Info- Maps
  - E-Vehicle Device

- Autopilot hardware engineering
- PCB System engineering
- System-on-Chip engineering
- Sub-system micro-architecture
- Data & signal processing
- Design Verification
- Low voltage system arch
- Vehicle body controllers
- PCBA testing

- Materials innovations
  - Armour glass
  - Stainless steel alloy (w/Space X)
  - Inconel alloy
  - Battery chemistry
- Functions/ Substitutes innovations
- Recycling functions/ innovations

- Chief Designer
- Director, Quality
- CFO
- CIO
- VP, Global Supply Mgmt
- VP, People & Places
- General Counsel
- VP. Environment Health & Safety
- Sr. Director, Global Security
- SVP. Energy Operations
- Sr. Director, Global Comms
- Chief of Staff

Key observations

- Tesla organization highly technology driven **with high CEO attention on Software**
- Generally **lean and agile** organization (e.g. software change requests have to be done in a day)
- **Best breed teams** across line organization and continuous performance management
- Dedicated resources/ teams **for E/E software** topics, incl.
  - Powertrain & Energy engineering
  - SW engineering
  - AI
  - Autopilot SW engineering

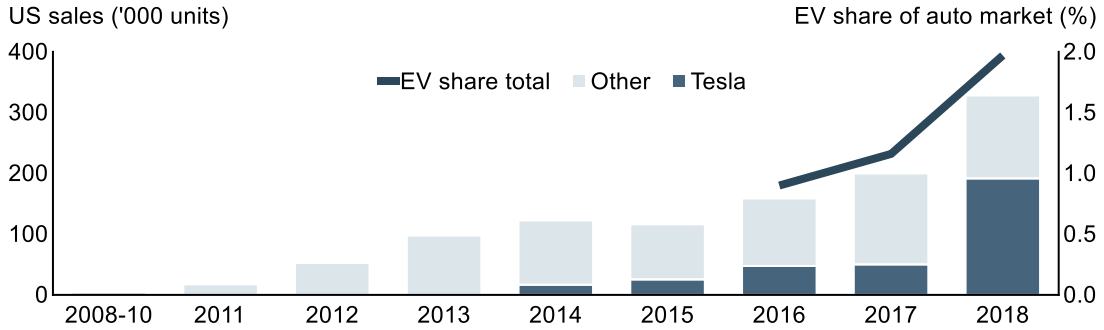
Legend: Key E/E functions; Department with key software responsibility; Department with additional software responsibility; Differnet production series, e.g. Model S, X, etc.; Source: Tesla IR; D&B Hoovers, Literacy search; LinkedIn

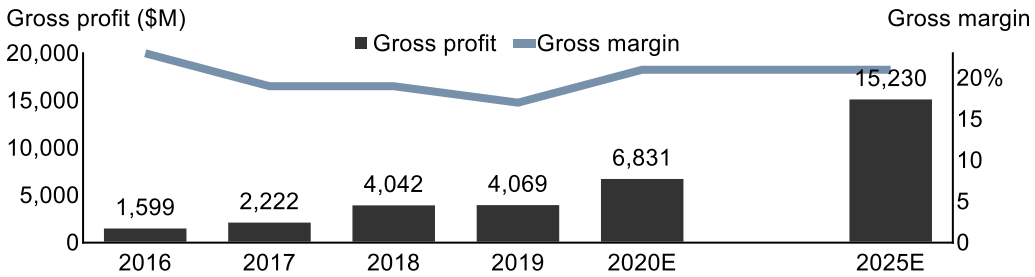
Tesla is competitive and profitable in the luxury car segment

Key numbers

Founding:	2003 Palo Alto, CA
Physical presence:	~ 150 US showrooms ~400 service centers + ~700 mobile service units worldwide
Total Employees:	48,000 FTE
2019 Automotive Revenue:	$20.8B
2019 Gross Profit:	$4.4B
2019 Units Sold:	367,000 worldwide 192,250 US*
% of Vehicles Leased:	~7% (Q1 '20)

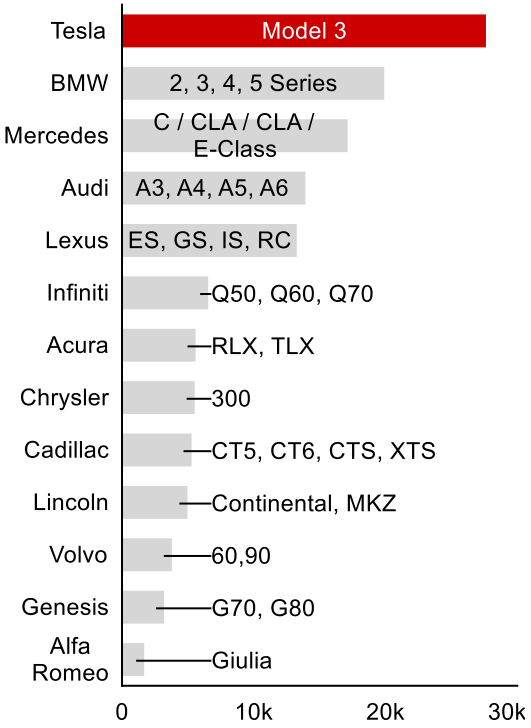
Tesla drives EV market growth and is now turning a profit





	2016	2017	2018	2019	2020E	2025E
SG&A (% of sales)	20%	21%	13%	11%	8%	5%
R&D (% of sales)	12%	12%	7%	6%	5%	5%
Operating income	(646)	(1,632)	(253)	80		5,380

Model 3 leads sales in small / midsize luxury market

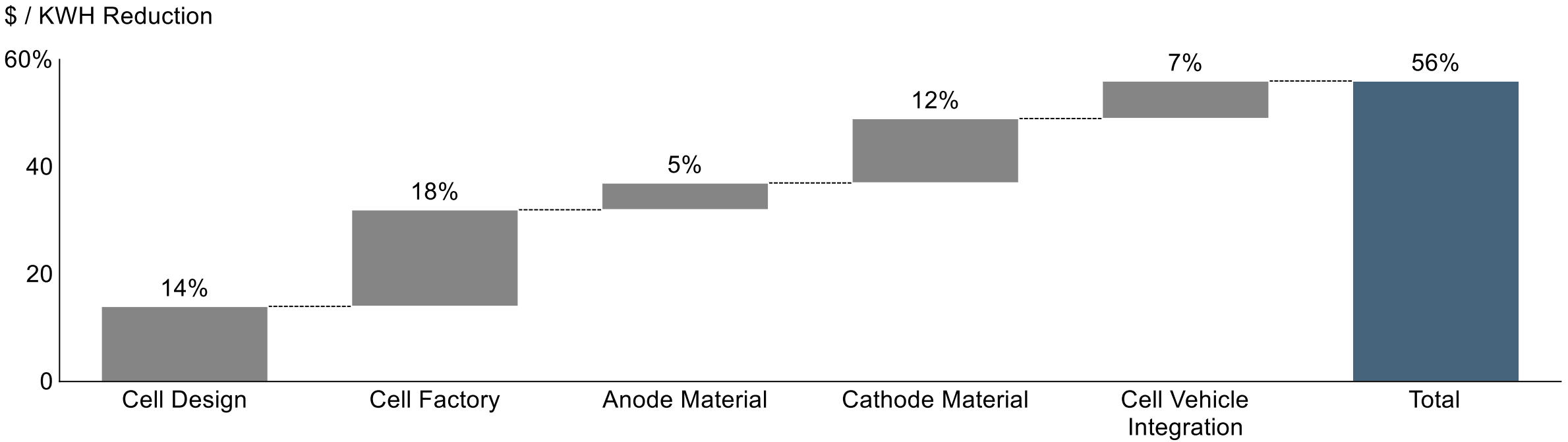


Note: *Flash Report 178,950 units
Source: Elon Musk investor earnings calls & product launch announcements; Tesla company website; Jan 2020 UBS Analysis

Tesla recently announced new battery technology improvements, that if delivered, would be a step change by reducing pack costs by 56% to ~$55/kWh by 2025

Added in March 2021

The benefits of Tesla's vertical integration



Cell Design	Cell Factory	Anode Material	Cathode Material	Cell Vehicle Integration
Larger cell design decreases costs while improving range	Dry electrode production process to reduce footprint and energy consumptions 10x	Switch to less expensive silicon from graphite	Diversified cathodes & process innovation reduces investment and process costs by >2/3	Giga casting and structural batteries reduce mass by 10% & improve range

Source: Tesla's Battery Day Presentation

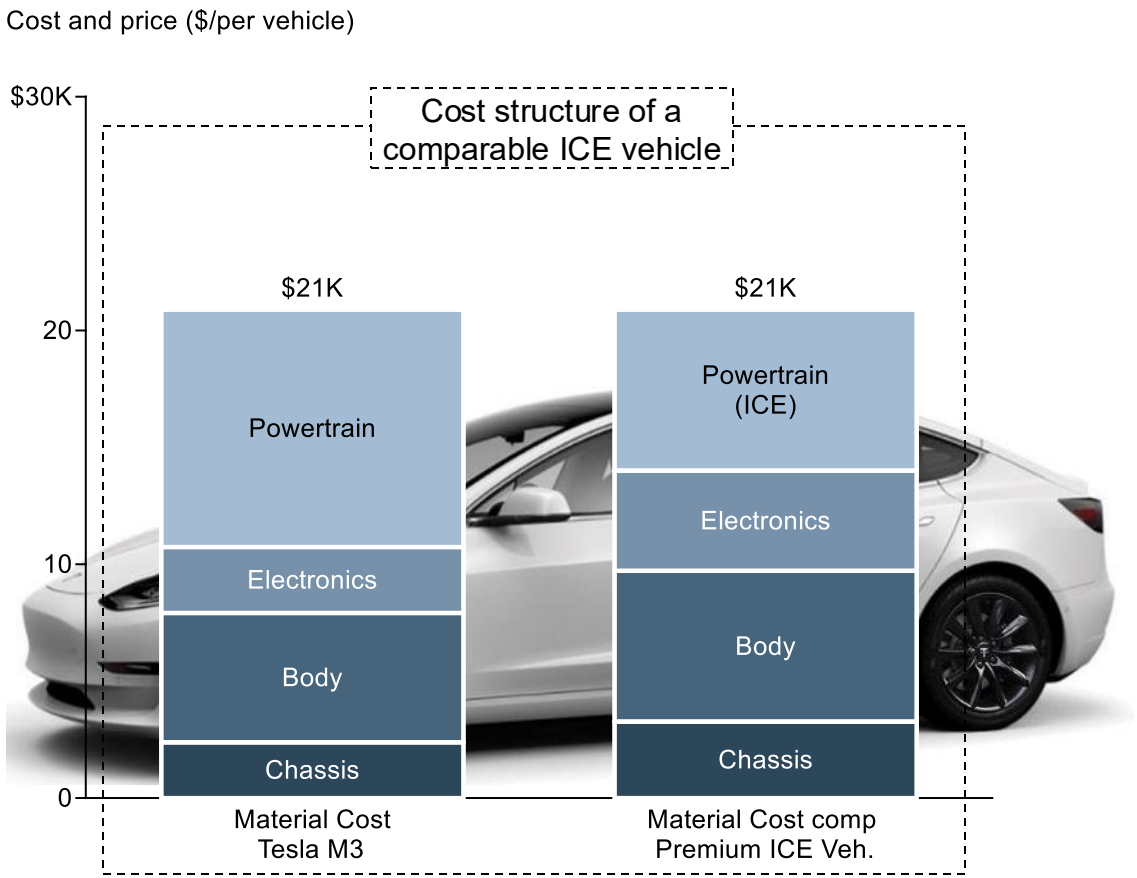
Tesla has optimized the non-battery portion of the vehicle to enable profitability despite current powertrain cost disparity

Added in March 2021

Note: Polarix is no longer Bain Ecosystem Partner

INDICATIVE

Tesla material cost on-par with Premium ICE despite powertrain disadvantage



Tesla advantage due to

Electronics

- **Simplified EE-architecture** (centralization of control units)
- Reduction of **wiring**
- **Reduced control & display** concept – only 1 central display
- Use of **non-automotive electronic parts**

Body

- **Reduced crash requirements**, battery security
- **Reduced longevity/durability** of materials
- Reduced acoustic measures
- Reduced number of parts

Chassis

- Use of **standard products of suppliers**
- Reduced corrosion requirement

Notes: Tesla competitive under operational and organizational best practices comparable to traditional OEMS e.g. excluding re-working, quality, once-off investments, etc.; assumes 75 kWh battery; includes sport rims , premium package and painting; 1.20 $/EUR exchange rate
Source: Bain Analysis; Polarix

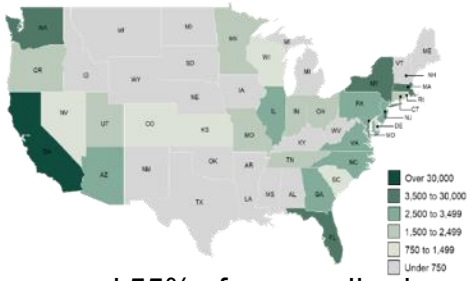
Tesla's Model 3 is currently the most inexpensive model in the lineup, although Tesla announced plans to create a $25K model enabled by new battery cell technology

Updated in June 2021

Model S and Model X customers skew wealthier, older and male… **…and the base is slowly shifting younger with Model 3**

			
	$79,000* Base MSRP	$84,000* Base MSRP	$39,000* Base MSRP
2019* (K)	15.6	13.2	150.1
2020 Jan-April Units (K)	5.3	5.3	52.9
	Model S	**Model X**	**Model 3**
Average household income ($)	153,000	143,000	128,000
Home ownership (%)	88%		56%
Median age	54	52	46
Female / male split	23% / 77%	29% / 71%	16% / 84%

Model 3 ownership is concentrated on the coasts…



…and 55% of owners live in the wealthiest 10% of ZIP codes

*can only order "Long Range Plus" only with $690 – 990 mark up
* And Model Y @$52,990

With lower price points, upcoming vehicle launches have potential to broaden customer base:

- Announced in September 2020 plans to create a $25K electric car enabled by Tesla's new battery cell to hit the market in the next 3 years
- Model Y (launched 2020) is a compact SUV, starts at $39,000* and goes up to $60,000 (sold 200 units J-A)
- Cybertruck (expected launch 2021) starts at $40,000 and goes up to $70,000

Note: *Flash Report December 2019
Source: Tesla company website; Hedges Company Tesla demographics survey, Electrek.com

Tesla strategically challenging OEM norms at select points along customer journey

Visit a showroom

Order online…

Apply online…

Wait at home….

Explore models 1

Purchase vehicle 2

Attain financing 3

Receive vehicle 2

Awareness

Recognize brand and models

Select brand/ model for consideration

Consideration

Define short-list based on in-depth research

Conduct test drive

Configure vehicle options

Purchase & Finance

Provide feedback on sales

Areas to be Shared

Test Autopilot via free trial

Consider Autopilot renewal options

Add vehicle/ service features 4

Download OTA software update

Charge vehicle

Use owners account 5

Visit owner's website

Drive vehicle, lend to family/friends

Conduct regular payments (in case of financing, subscriptions, etc.)

Schedule service appointment

Conduct vehicle diagnostic

Receive mobile or in-store service 6

Receive remote service 6

Provide feedback on aftersales

Consider a repurchase

Return/sell car to OEM

Receive recommendation (e.g., End-of-Term)

Early signals show potentially high vehicle retention rates; however, likely too early / **too few data points to determine Tesla's success with repurchasing**. Likewise, little has been publicly shared on Tesla's repurchase strategy, if any.

Order a mobile service van to your home

Fix an issue with a software patch

Ownership

Service and Repair

Replacement

Critical enablers

Simplified product SKUs 7

Manufacturing process 8

Charger network & battery investments 9

Manufacturing process

Fremont factory

"Supercharger" stations

Fundamental changes to business model

Reinvention of customer experience

Area of ongoing difficulty

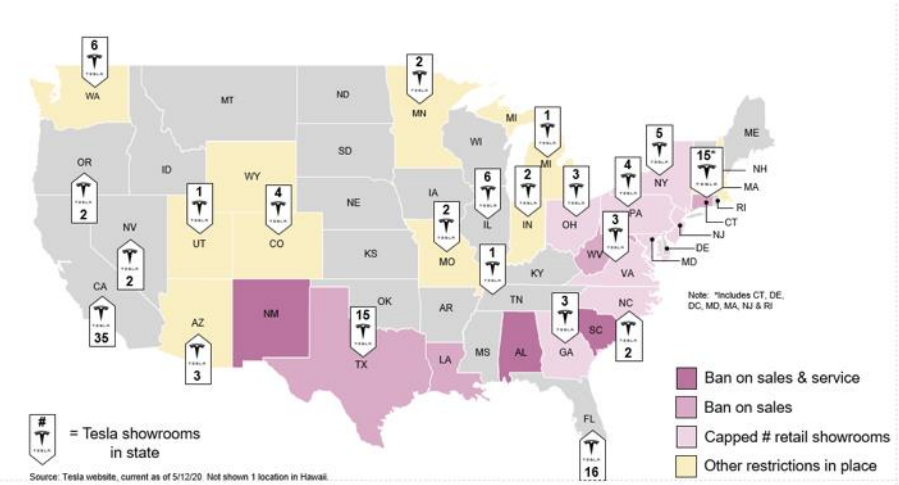
1 Tesla has reinvented consideration phase with showrooms focused on product exploration

Tesla showrooms are positioned in high-traffic retail locations….

- ~150 US retail locations in 30 states
- Locations in low foot traffic areas were closed; Tesla plans to keep open locations only in high-traffic retail locations
- With almost no traditional advertising spend, Tesla stores effectively serve company's marketing function
- 72% of Model 3 owners surveyed visited a showroom prior to purchase

…designed to encourage product exploration….

- Customers **can** explore and compare models, ask questions, schedule a test drive and learn how to purchase (**some locations have computers set up for customers to use to place an order*)
- However, stores are generally **not designed** to support purchasing, servicing, or financing processes



"We're not selling anything. We're delivering information. We're engaging with people and making them feel good."

George Blankenship, Tesla VP Sales & Ownership Experience (Former)

…and staffed with specialists focused on driving product understanding, not sales

- All sales occur online; associates receive no commission *(*over-the-phone orders accepted in some areas)*
- Typically 2-3 models showcased
- Design studio to learn about vehicle options

Tesla's retail strategy has been challenged by costly operations and legal restrictions

- Stores are located in high-rent retail locations and sales cannot be attributed back to individual stores; optimal footprint is continuously evaluated
- Some states ban Tesla showrooms or restrict operating procedures (e.g., discussing vehicle price)

Source: Company website, "Tesla Spends Zero On Ads. Here's Where BMW, Toyota, Ford, and Porsche Spend Digital Ad Dollars" – Forbes; Lit search

2 Tesla has reinvented the purchasing experience with a single-price direct-to-consumer online model

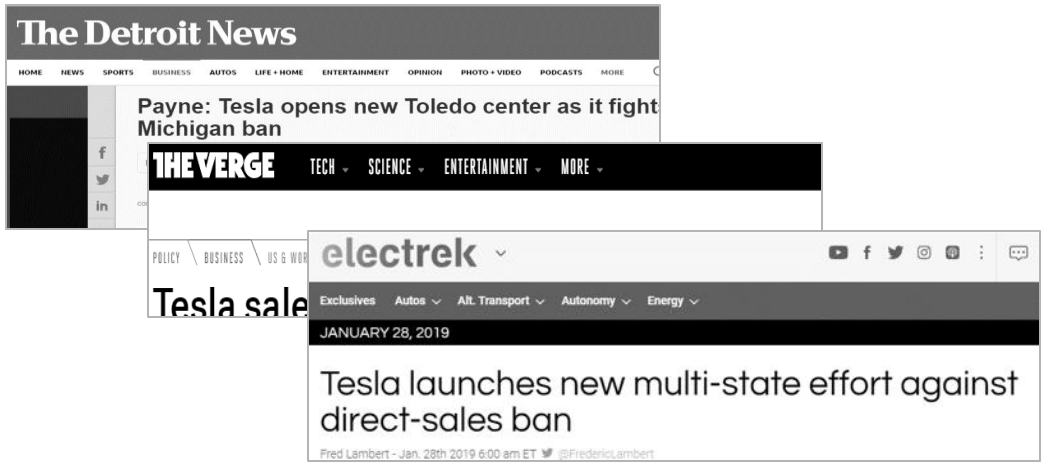
OVERVIEW

Tesla sells directly to consumers…

- Enables end-to-end delivery of consistent customer experience; survey of Model 3 owners suggests 74.8% of customers were 'very satisfied' with sales process
- Estimated ~3.5% increase in gross margin by selling directly

…exclusively online…

- Entire order process, including payment, is handled online *(*over-the-phone orders accepted in some areas)*
- As few as 5 clicks and a credit card to place an order with a $100 nonrefundable 'order fee'
  - Note: Ordering process does not include vehicle payment, delivery selection or F&I – these processes can be completed online in separate transactions



"You're able to already make a payment online… Maybe I don't want to see anybody, maybe I don't want to deal with anybody. I know exactly what I want so that's what I'm going to do."

Customer feedback on Tesla website early 2019

…without any incentives or negotiations

- Study shows negotiation to be greatest frustration among car buyers; single-price sales may alleviate some customer worries
- Ford US following Tesla's lead with single-MSRP Mustang Mach-E (detailed page in Appendix)

Sales have been challenged by legal restrictions in many states

- 10 states have an outright ban on sales
- Tesla has found solutions on a state-by-state basis to allow customers to purchase vehicles
- Tesla is mounting legal fights on a state-by-state basis

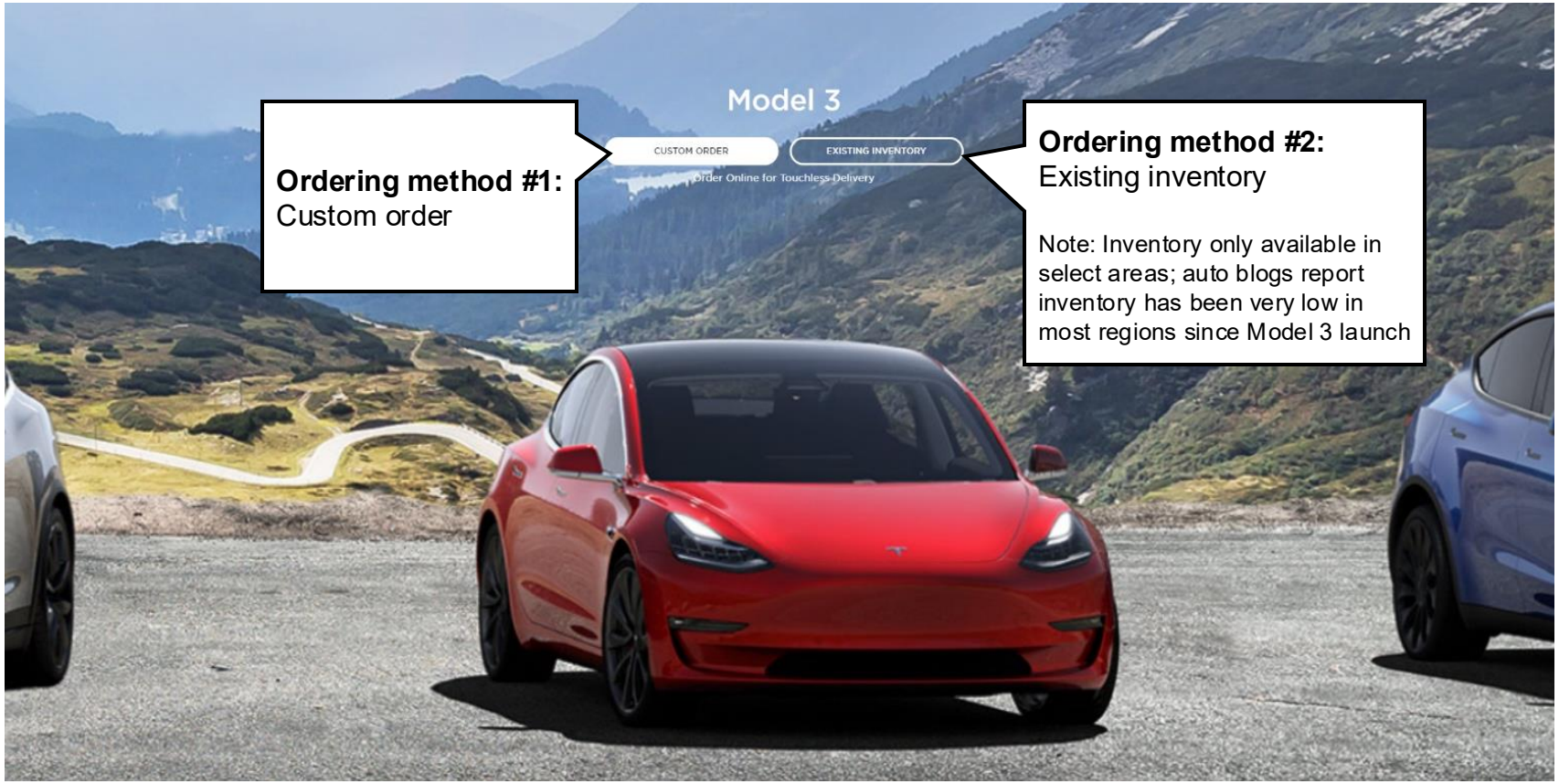
Source: "Tesla: Testing a Business Model at Its Evolutionary Best" - Goldman Sachs analysis; "Tesla Model 3 Survey" – Bloomberg; UBS January 2020 Analysis; AutoTrader 2015 Auto Buyer Influence Study

2

Tesla homepage provides two ordering methods: custom and inventory

TESLA HOMEPAGE

Following pages show 'typical' Tesla purchasing, financing & delivery process flow



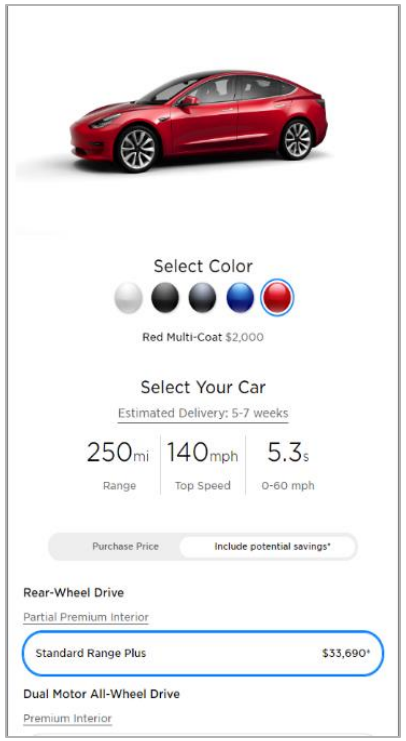
2

A custom order can be completed in as few as five clicks

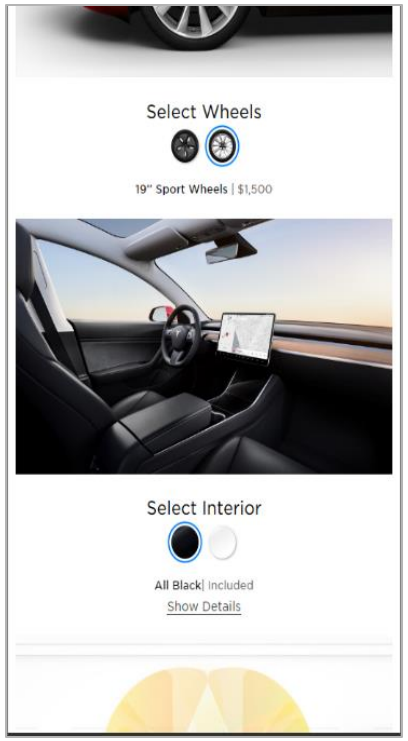
ORDER A VEHICLE

Order method #1 — Custom order

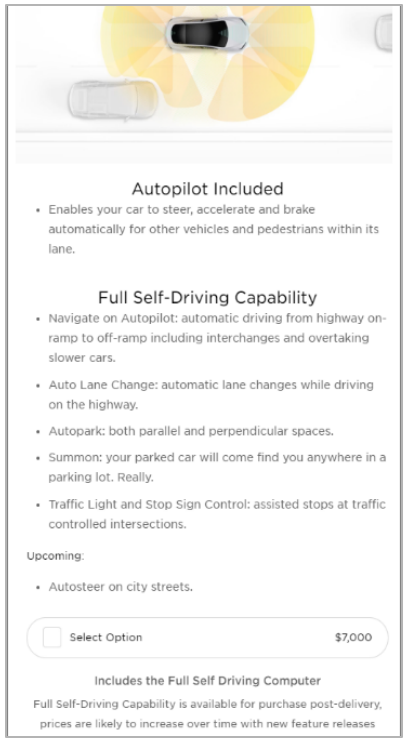
1. Base & color



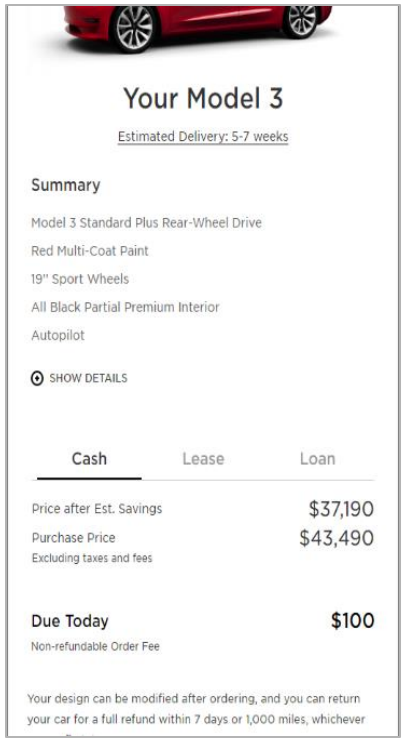
2. Wheels & interior



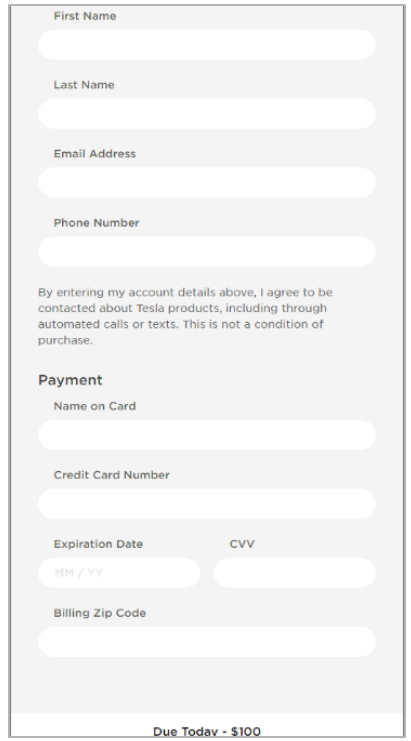
3. Autopilot



4. Final details



5. Payment



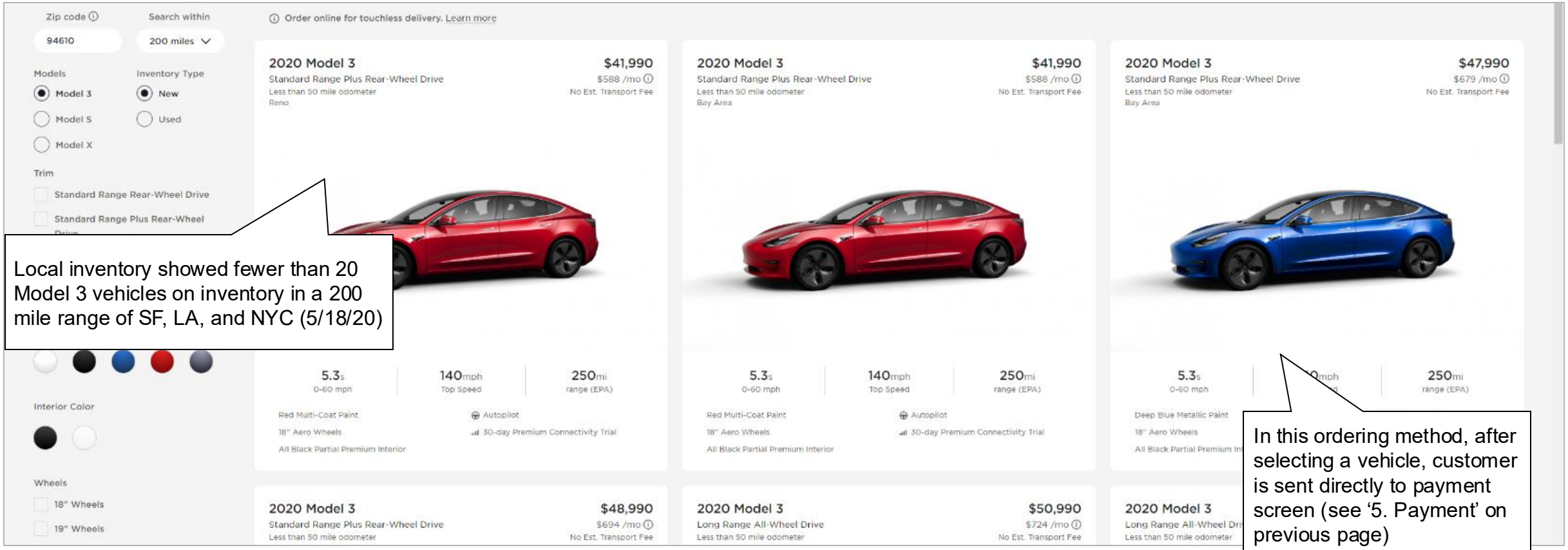
Source: Tesla website

2

Inventory order option shows vehicles available nearby

ORDER A VEHICLE

Order method #2 — Existing inventory

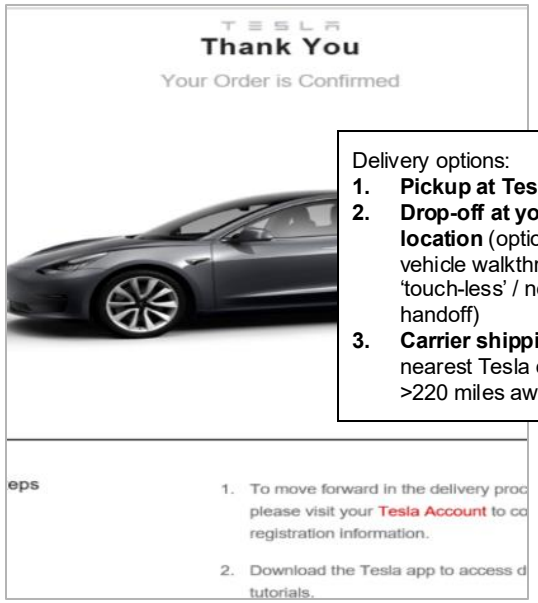


Local inventory showed fewer than 20 Model 3 vehicles on inventory in a 200 mile range of SF, LA, and NYC (5/18/20)

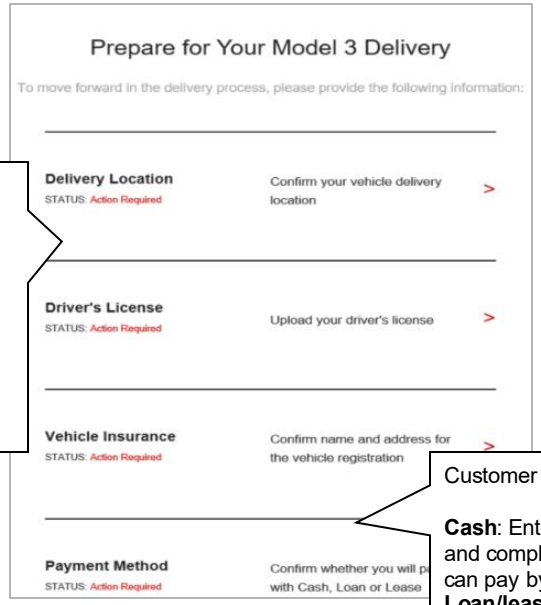
In this ordering method, after selecting a vehicle, customer is sent directly to payment screen (see '5. Payment' on previous page)

2 Customer completes transaction and provides necessary information on Tesla account before delivery

Order confirmation	‘Next steps’ to complete transaction	Financing offer More detail in ‘Vehicle Finance’ deep-dive	Delivery team outreach

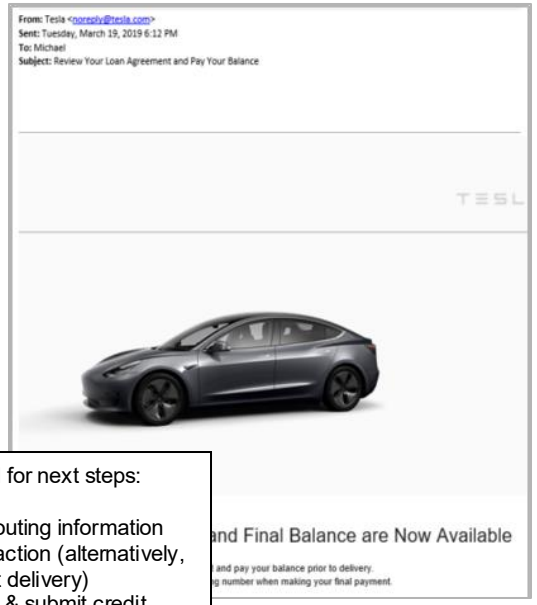


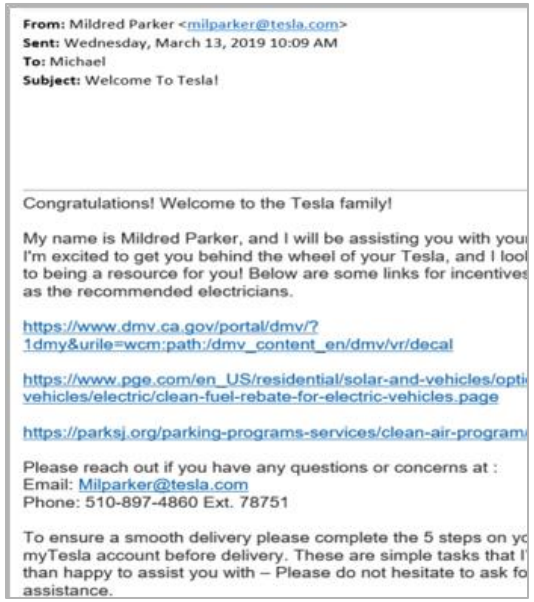
Delivery options:
1. **Pickup at Tesla center**
2. **Drop-off at your location** (option for vehicle walkthrough *or* ‘touch-less’ / no contact handoff)
3. **Carrier shipping** (if nearest Tesla center >220 miles away)



Customer prompted for next steps:

Cash: Enter bank routing information and complete transaction (alternatively, can pay by check at delivery)
Loan/lease: Fill out & submit credit application (not available everywhere)





Following completion of online order process, customer receives confirmation email with prompts to **complete Tesla account setup** and **download the Tesla app**

Shortly after, customer receives ‘next steps’ email with prompts to sign into online account to **select delivery method**, enter **drivers license & insurance info**, choose a **payment method**, and indicate **trade-in** intention

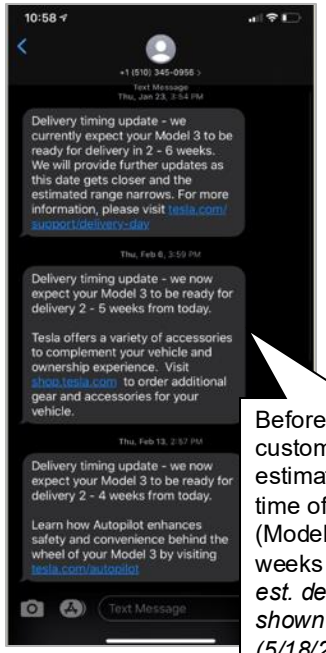
For customers selecting loan or lease **payment method**, application is completed on Tesla account, and financing offer is emailed back within 48 hours.

Concurrently, customer receives introductory communication (email, phone call, and/or text message) from delivery specialist from their **local delivery center**

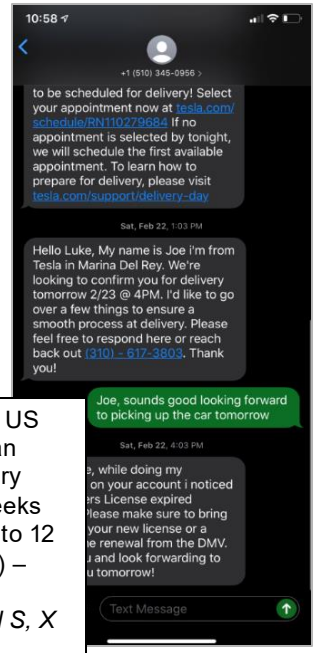
2

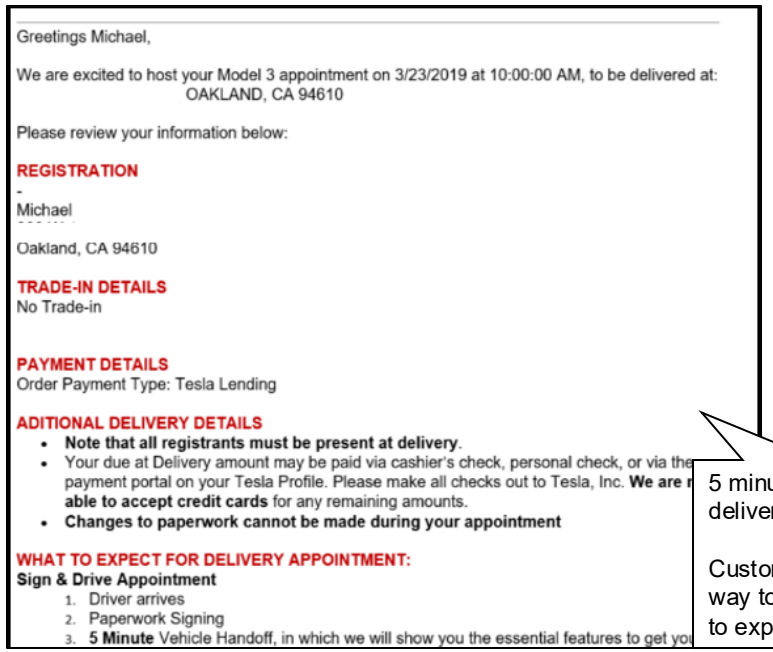
Customer prepares for delivery and receives vehicle

Delivery status | Appointment selection | Appointment confirmation | Vehicle hand-off



Before ordering, US customers see an estimated delivery time of 5 to 7 weeks (Model 3) and 8 to 12 weeks (Model Y) – *est. delivery not shown for Model S, X (5/18/20)*





Greetings Michael,

We are excited to host your Model 3 appointment on 3/23/2019 at 10:00:00 AM, to be delivered at:
OAKLAND, CA 94610

Please review your information below:

REGISTRATION
-
Michael

Oakland, CA 94610

TRADE-IN DETAILS
No Trade-in

PAYMENT DETAILS
Order Payment Type: Tesla Lending

ADITIONAL DELIVERY DETAILS
- **Note that all registrants must be present at delivery.**
- Your due at Delivery amount may be paid via cashier's check, personal check, or via the payment portal on your Tesla Profile. Please make all checks out to Tesla, Inc. **We are able to accept credit cards** for any remaining amounts.
- **Changes to paperwork cannot be made during your appointment**

WHAT TO EXPECT FOR DELIVERY APPOINTMENT:
Sign & Drive Appointment
1. Driver arrives
2. Paperwork Signing
3. **5 Minute** Vehicle Handoff, in which we will show you the essential features to get you

5 minute product delivery.

Customer informed best way to learn about car is to experience

Note: Customers who selected 'no-touch' / contactless delivery must complete remaining paperwork and send back in provided prepaid shipping packet within 24 hours

Customer receives periodic updates informing them of **expected delivery timing**. A precise delivery day is not given. (Does not apply if customer chose 'inventory' when ordering)

When delivery is within ~1 week, customer receives notification prompting them to select a **delivery appointment time**

Customer receives **confirmation indicating delivery time and location**. If customer has outstanding 'next steps' tasks, customer prompted to complete in advance. Customer informed of any materials needed at delivery, if applicable

Customer **receives vehicle**. Customer signs necessary paperwork (title transfer and registration information; varies by state) and pays outstanding balance, if not completed online prior.

Returns are accepted within 7 days or 1,000 miles (whichever comes first).

2 Ford is 'fast follower' of select Tesla reinventions, following Tesla's lead with showrooms, Mach-E purchasing experience

Ford piloting 'Smart Labs' showrooms….

"People are no longer shopping, but they're still transacting… the goal is to modify our retail experience. There will always be a role for dealers, but it needs to be transformed. ***We're looking not to end retail but to end bad retail****."*

Robert De Filippo, Ford Global Director of Retail Experience

- As of early 2020, Ford had 7 locations worldwide; the company has said that "the success of the concept thus far has encouraged Ford to continue expanding in 2020 and beyond"
- Located in high-traffic malls, showrooms have 2-5 vehicles with seating areas, info displays, and associates staffed from nearby dealership(s)
- Of those surveyed, 75% of people beginning purchasing process at Smart Labs were new to Ford brand

…and using the Mach-E to launch online retailing with single-MSRP sales

- Ford developed an **online reservation system** for Mustang Mach-E
  - Currently, Ford website enables Mach-E pre-orders with $500 down-payment – ~95% of pre-orders so far have been conducted online*
  - Reservation website indicates that when deliveries begin, customers will use the website to submit payment information, trade-in a vehicle, and add accessories
- Mach-E reservation system **centralized entirely through the OEM website**, with "participating EV-certified dealers"
  - Upon completing reservation process, customer information is shared with the selected dealer

"We are sharing recommended pricing with dealers and customers to ***simplify the purchase experience****. Ultimately, customers and dealers will agree to the final price of the vehicle relative to our recommended price."*

Ford representative

- A Ford dealer bulletin revealed the company's plans to sell the Mach-E at a single price to customers, as part of a new 3-pronged dealer compensation system:
  1. Compensation for every vehicle delivered
  2. Compensation for following "EV-certified" dealership guidelines
  3. Compensation for not advertising or selling Mach-E below MSRP ('e-invoice' = MSRP)
- Mach-E reservation system informs customers of "estimated MSRP", subject to change based on dealer pricing

- Ford Bronco strategy: *Dealer shared Ford has informed dealers of a shift in dealer treatment for Bronco to delivery payment. Unable to find public information to validate.*
  - Ford has set a sales target of 200,000 Bronco and Bronco Sport vehicles in 2021; COVID-19 has delayed production start until Fall 2020
  - Focus is on increasing margins via range of 150+ dealer-installed off-road and on-road accessories

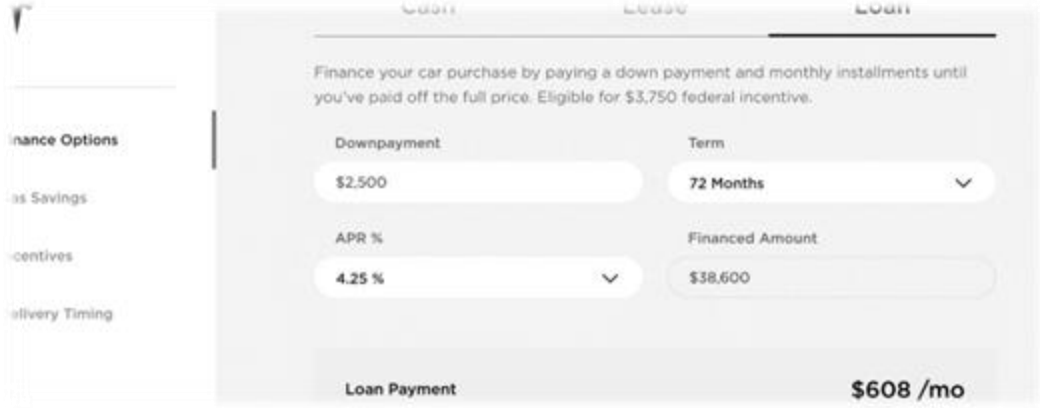
Note: *Based on statistic for Los Angeles region with 1,712 total reservations, 92 conducted at dealerships; **EV OEMs: Rivian, Polestar & Lucid in Appendix
Source: Ford company website; "Ford seeing success worldwide with new Smart Labs" – The News Wheel; Smart Labs in Quebec City, Canada; Shanghai, China; Sydney, Australia; Oslo, Norway; Brussels, Belgium; Saarbrucken, Germany; and Waasland, Belgium. "Ford Mustang Mach-E: Dealers snubbed in favor of online ordering"– Inside EVs; "Ford to open Smart Lab satellite dealership in a US mall this year" – AutoBlog; "Ford plans Bronco reveal in March; dealers learn details" – Automotive News; "How Ford Plans to Sell 200,000 Broncos Next Year Might Surprise You" – MotorBiscuit

3

Many customer reviews indicate frustration with current Tesla finance options

Tesla offers two financing options with an online application process

- Lease: 36 months; 10k, 12k, 15k mileage options
- Loan: 2-4 payback options depending on model
- Finance options cannot be negotiated
- Entire application process can be conducted within the Tesla website; however, financing offers are **not instant and require manual follow-up** from a Tesla Finance representative



Loan terms are regarded as competitive and offered with guaranteed vehicle resale values…

- 10K analysis suggests Tesla does not make money on its loan partnerships
- New loans are backed by a **guaranteed vehicle "buy back" price at end-of-term**

….but financing options are limited and origination can be confusing..

- $100 non-refundable order fee required before finance details are confirmed
- Financing application can only be submitted within 30 days of vehicle delivery date; manual response can take up to 48 hours
- Financing currently only offered in 21 states, with leases and loans backed mostly through partnerships with 4 banks

…and its leasing program has received less-than-stellar reviews

- Leasing program introduced for all models in 2019 with **lease penetration at ~7%** in Q1 '20; some leases are directly backed by Tesla and others by banking partners
- Model 3 cannot be purchased after lease-end – Tesla intends to use vehicles for future RoboTaxi ride-hailing service
- Online reviews suggest Tesla leasing rates are frequently higher than other luxury competitors

Source: Lit search

4 Over-the-Air (OTA): Tesla has reinvented product ownership with OTA-enabled continuous product evolution

Tesla uses 'systems architecture' for its software, enabling continuous product improvement…

- Model 3 has received 100+ OTA updates since mid-2017 release
- E.g., 'Save Dashcam Clips on Honk' update released ~1 month after customer tweet

…and real-time customer interventions

- Service technicians can remotely access vehicle logs and issue software fixes
- Software modifications can be turned on and off for multiple customers at one time
- E.g., during Hurricane Irma in 2017, Tesla temporarily enabled additional battery capacity for select customers to allow travel to their evacuation destinations

Engaged customers requesting "software upgrade" options & Tesla responds

Single "loaded" trim concept…. customers "pay" to turn features on

Tesla uses OTA updates to create additional revenue streams during ownership.

- New vehicle features and functionality can be unlocked for an additional fee
  - > E.g., rear heated seats
- Forbes analysis estimates Tesla sold $1.5B in Autopilot software upgrades in 2019 (~6% of total revenue)

Additionally, OTA updates allow for successive advances in autonomous mobility.

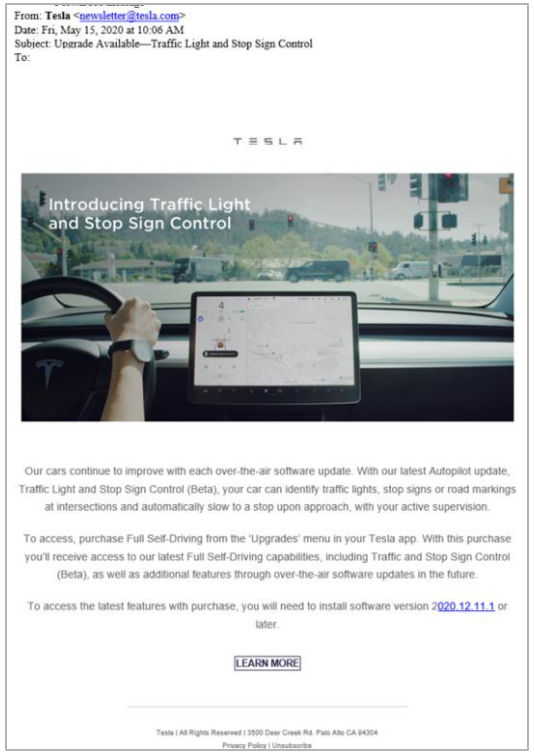
- OTA updates used to incrementally 'unlock' critical autonomous features
- Level 2+ Autopilot system is current industry benchmark

Source: Lit search, UBS January 2020 Analysis; "Tesla Has A Software Business And It's Big!" - Forbes

4

Over-the-Air (OTA): Tesla monetizes Over-the-Air software updates

Tailored emails inform customers of new features available for their vehicle


From: Tesla <newsletter@tesla.com>
Date: Fri, May 15, 2020 at 10:06 AM
Subject: Upgrade Available—Traffic Light and Stop Sign Control
To:

TESLA

Introducing Traffic Light and Stop Sign Control

Our cars continue to improve with each over-the-air software update. With our latest Autopilot update, Traffic Light and Stop Sign Control (Beta), your car can identify traffic lights, stop signs or road markings at intersections and automatically slow to a stop upon approach, with your active supervision.

To access, purchase Full Self-Driving from the 'Upgrades' menu in your Tesla app. With this purchase you'll receive access to our latest Full Self-Driving capabilities, including Traffic and Stop Sign Control (Beta), as well as additional features through over-the-air software updates in the future.

To access the latest features with purchase, you will need to install software version 2020.12.11.1 or later.

LEARN MORE

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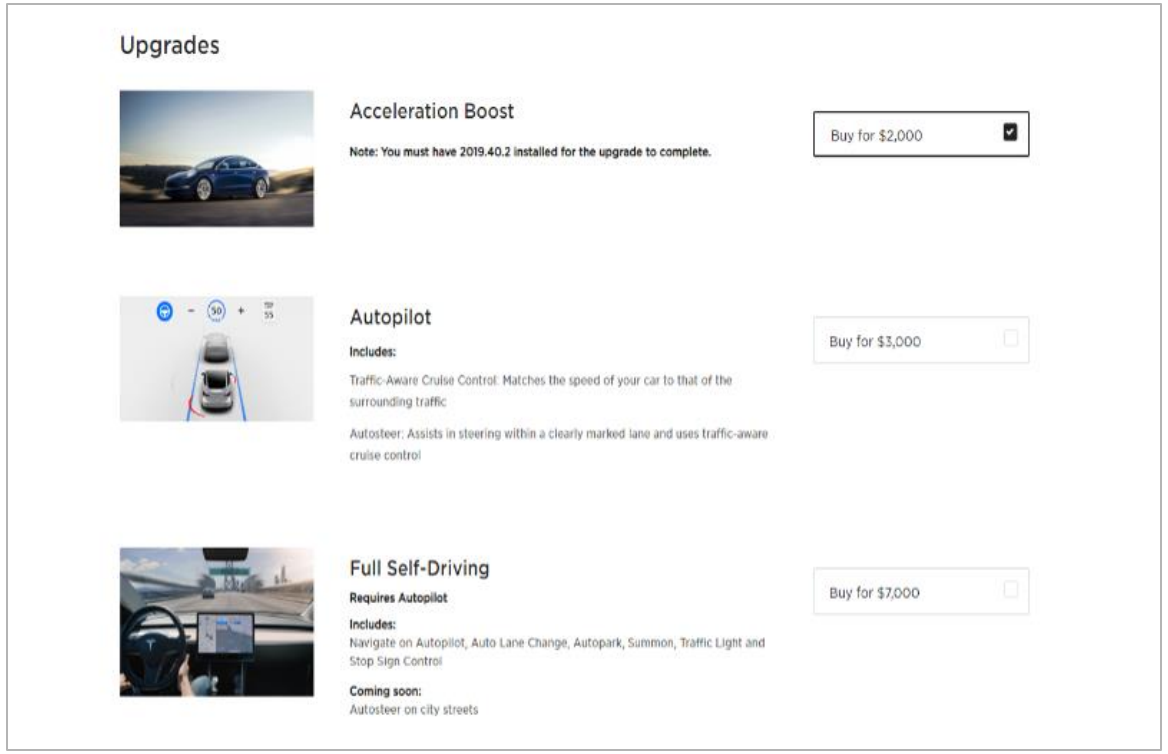
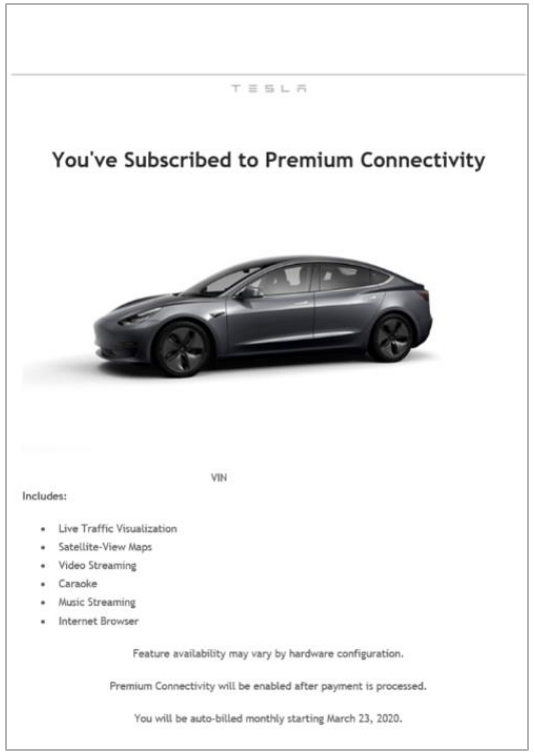
Privacy Policy | Unsubscribe

Customers can purchase additional features from the Tesla app or their online Tesla account (shown below)



Some features are single purchases; others are subscription-based (shown below)



4

Option packages and OTA updates

Are the cars all really produced totally loaded (with rear seat heaters) and customers simply pay to turn them on?

- Tesla has three types of over-the-air (OTA) software updates, all enabled by Tesla's unique 'systems architecture':
  1. **Free 'essential' OTA updates** – Includes both updates critical to vehicle operations and safety, and 'nice to have' updates that improve the user experience -- **e.g., update to better regulate battery performance, update to enable 'dash cam' recording automatically when the driver honks, update to infotainment display screen appearance, etc.**
     > Majority of OTA updates fall into this category
  2. **Free Autopilot OTA update included with Autopilot purchase** – Set of successive updates that gradually expands functionality of the vehicle's self-driving capability – **e.g., ability for car to drive itself on city streets in addition to freeways – only delivered to customers who purchased the Autopilot package**
     > Note: The Autopilot upgrade can be purchased after customer has purchased the vehicle itself (upgrade costs $8,000 after-purchase vs. $7,000 at time-of-purchase), indicating that all cars come equipped the three main technologies Tesla uses for Autopilot: radar, ultrasonic sensors, and forward, side, and rear cameras
  3. **Paid OTA vehicle 'upgrades' for non-Autopilot features**, which enhance features or improve vehicle performance – **e.g., $300 upgrade to activate rear heated seats, $2,000 upgrade to activate 'acceleration boost' which allows vehicle to accelerate faster**
     – Note that the rear heated seats upgrade is available for Model 3 'partial-premium' interior vehicles; rear heated seats are included in 'premium' interior Model 3 vehicles and all Model S and Model X vehicles
- Based on our research, Tesla has only a small handful of paid OTA vehicle upgrades (category #3)
  – There **may** be additional non-Autopilot hardware components in Tesla vehicles that will be activated in the future
  – However, a vehicle teardown of the Model 3, BMW i3, and Chevy Bolt suggest a similar cost profile of interior parts, thus making it **unlikely that Tesla has numerous un-activated hardware components in its vehicles** (with the exception of hardware components relating to self-driving Autopilot capability)

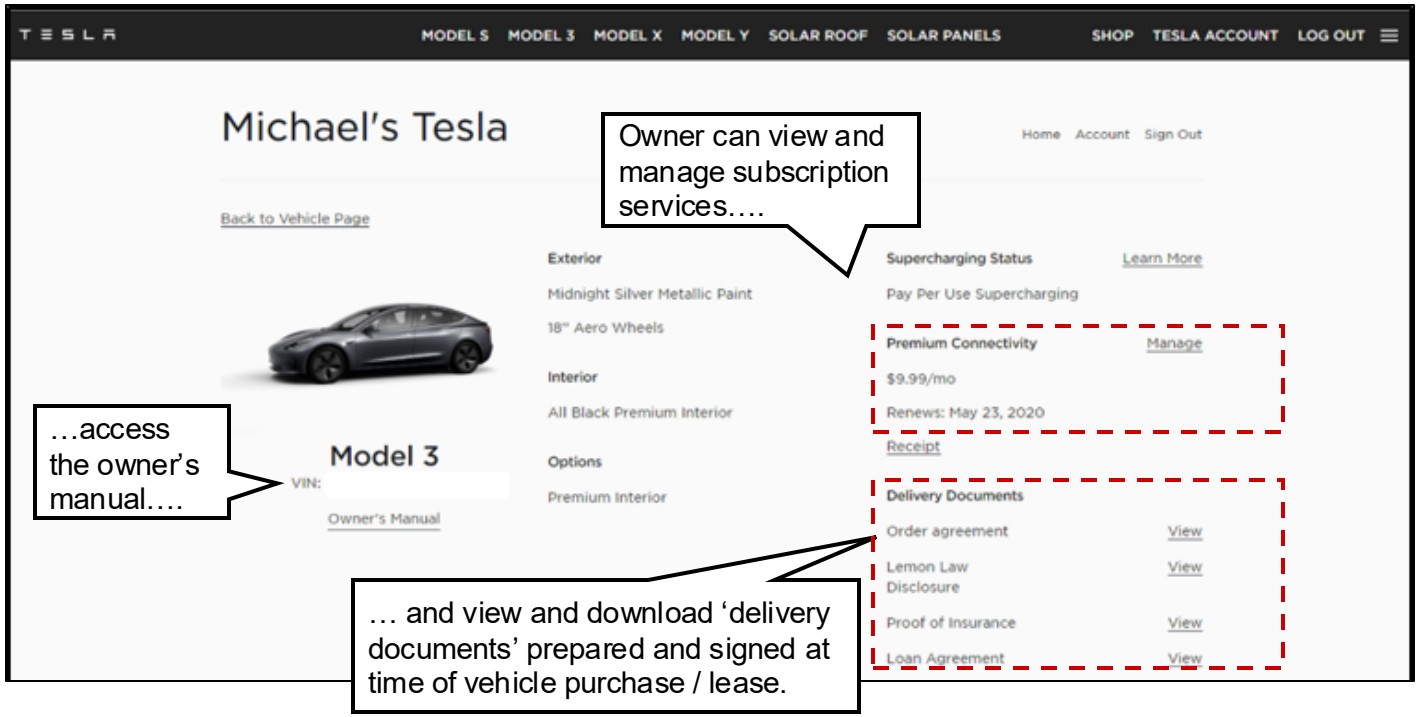
It is unlikely that cars are 'totally loaded' with significant additional non-Autopilot hardware

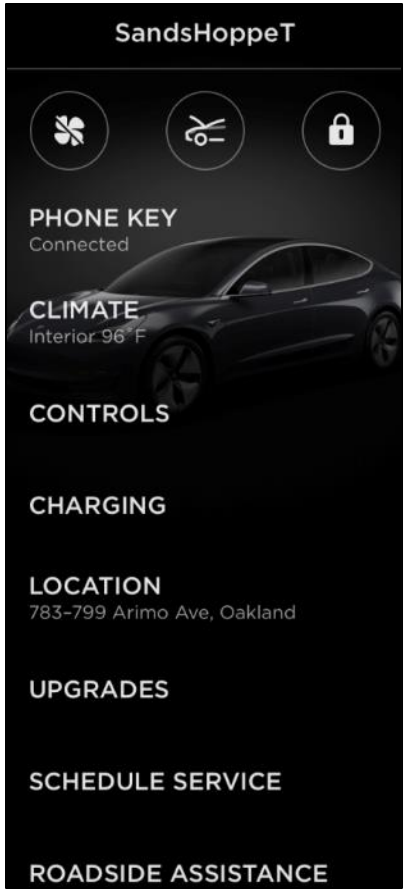
5

Tesla owner's account provides comprehensive product management functionality

Tesla's owner website helps customers learn about their vehicle, buy software updates, and manage their account….

- Owner can add payment method to be used for purchases via Tesla mobile app or Tesla account
- Owner can manage multiple Tesla products through the same account, and add access for a secondary contact to have the same website access





… while its mobile app supports a much broader range of ownership features

- Users can control or locate their vehicle, initiate charging at a charging station, schedule service, and purchase/install over-the-air vehicle upgrades
- However, **financing account management is not available** through the app or owner's website
- Additionally, Tesla uses the app as a **primary point of contact for ownership communications** via app notifications
  - > *E.g., when new software updates are available*

6 Despite innovative service options, Tesla has failed to meet service center capacity needs

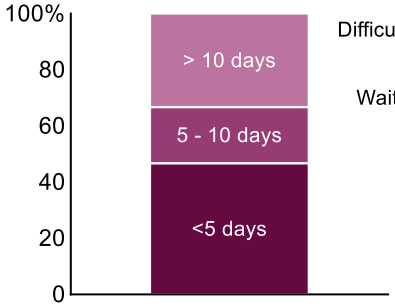
Tesla service is built around virtual maintenance…

- According to Tesla, 90% of vehicle issues are remotely diagnosed; 80% can be fixed remotely
- SmartAlerts proactively diagnose issues and prompt customers to step through a fix or schedule a technician appointment

… with effective and flexible mobile service for some issues…

- According to Tesla, 80% of physical repair needs can be resolved without visiting a service center
- Mobile service infrastructure of ~700 units worldwide enables Tesla to guarantee service support to customers in every state, regardless of legal restrictions

Tesla Model 3 Bloomberg Survey: Average service appointment wait time



UBS Tesla Owner Survey: Key areas of dissatisfaction in aftersales

… and service centers designed to optimize repair flow for others

- According to Tesla, ~400 service centers complete repairs ~4x faster using 1/3 physical space as traditional service shops
- Issues can be diagnosed remotely and parts ordered in advance of scheduled customer appointment

Tesla struggles to meet service capacity needs

- Analysts believe Tesla's service capacity may be insufficient to address growing number of units in operation
- 25% of appointment wait times exceed 10 days, in part due to a backlog of parts and equipment
- 55% of Tesla owners have had to take their car in to a service center for unscheduled service; issues include paint, panel gaps, scratches, dents, and rattles and squeaks (build quality)

Source: Company website; UBS Evidence Lab customer survey; "Tesla Model 3 Survey" – Bloomberg; Q3 2019

7

Tesla's simplified trim options streamline the customer decision making process

Tesla has reduced SKU complexity by providing a limited number of configuration options.

- Model 3 has ~120 total possible vehicle configurations (vs. Toyota Corolla 5M and MBZ A-Class 480M)

Model 3 configuration	# of options
Vehicle	3
Color	5
Wheels	2
Interior options	2
Autopilot/AD	2
	↓
	~120

Bundling of engine, battery and interior line

Low SKU complexity has manufacturing advantages…

- Manufacturing planning can be simplified when OEM must only account for limited set of configurations
- OEM can increase parts purchase volume, thus creating supplier scale and predictability

Single "loaded" trim concept….
customers "pay" to turn features on

…reduces inventory requirements…

- Inventory turnover is higher with fewer model options
- Tesla regional inventory hubs carry a small selection of vehicles on hand
  - > **E.g., on 5/18/20, fewer than twenty Model 3 vehicles were available within 200 miles of SF, LA and NYC**

…and may simplify customer experience

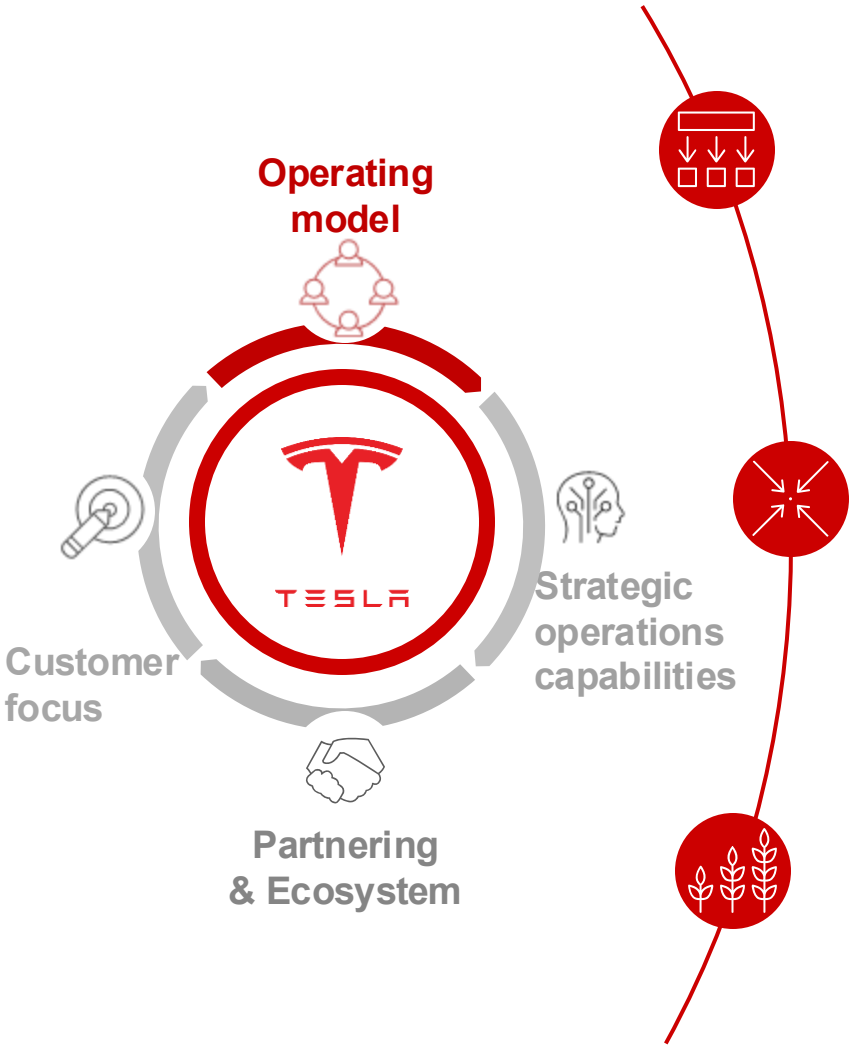
- Customers only make ~ 5 configuration decisions at the time of purchase
- In-person vehicle onboarding can be completed in as few as 5 minutes, with less specificity needed in explanation and training

Source: Lit search, Bain analysis

8

Added in March 2021

Tesla's agile operating model is enabling fast decision making



Structure:

- At the heart of Tesla's tech spirit is an organizational structure that resembles a **tech player** – not a traditional auto OEM
- **Tech-related roles** comprise e.g., SVP Powertrain & Energy, VP Software Engineering, Senior Director Artificial Intelligence, Low Voltage & Silicon Engineering as directs to the company CEO

Centralization:

- The R&D organization of Tesla is driven by a **highly centralized E/E architecture**
- Compared to other OEMs, Tesla **puts strong emphasis on maximum degree of standardization of key activities** – e.g., Digital/physical vehicle testing prototypes, omnipresence vehicle data management, operations vehicle systems management, vehicle production integration

Culture:

- Tesla's success is also cultural driven – clear **"non-industrial DNA"**. The Anti Anti-Handbook summarized the corporate DNA, focusing particularly on fast decision making across the whole company
- Tesla established a **fast-paced corporate culture** which challenges established standards and processes free of legacy…

8 F3 enables Tesla to achieve radical time-to-market supported by three additional key pillars of its operations model

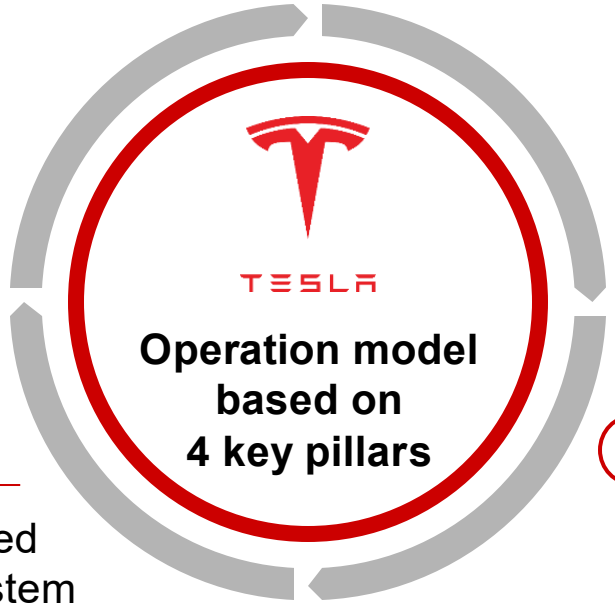
Added in March 2021

1 Fast flexible factory F3

- **High vertical integration –** Maximized control over all process (in-house capabilities e.g. E- drive system)
- **Flexible and connect control stations** – Permitting the tracking of material/ product flow

2 Highly agile module manufacturing kit

- **Machines build machines** – Highly modularized product allows for **automated production** based on machine learning and artificial intelligence
- **E2E modular architecture** – Optimized traction of vehicle, machinery equipment and production line module kits



4 Digital lean production order system

- **Data driven order management** – High speed 5G order system that includes partner ecosystem (e.g. direct sourcing from Tier-2/3 supplier)
- **Automated demand & capacity management** – Continuous reconciliation of demand and capacity data

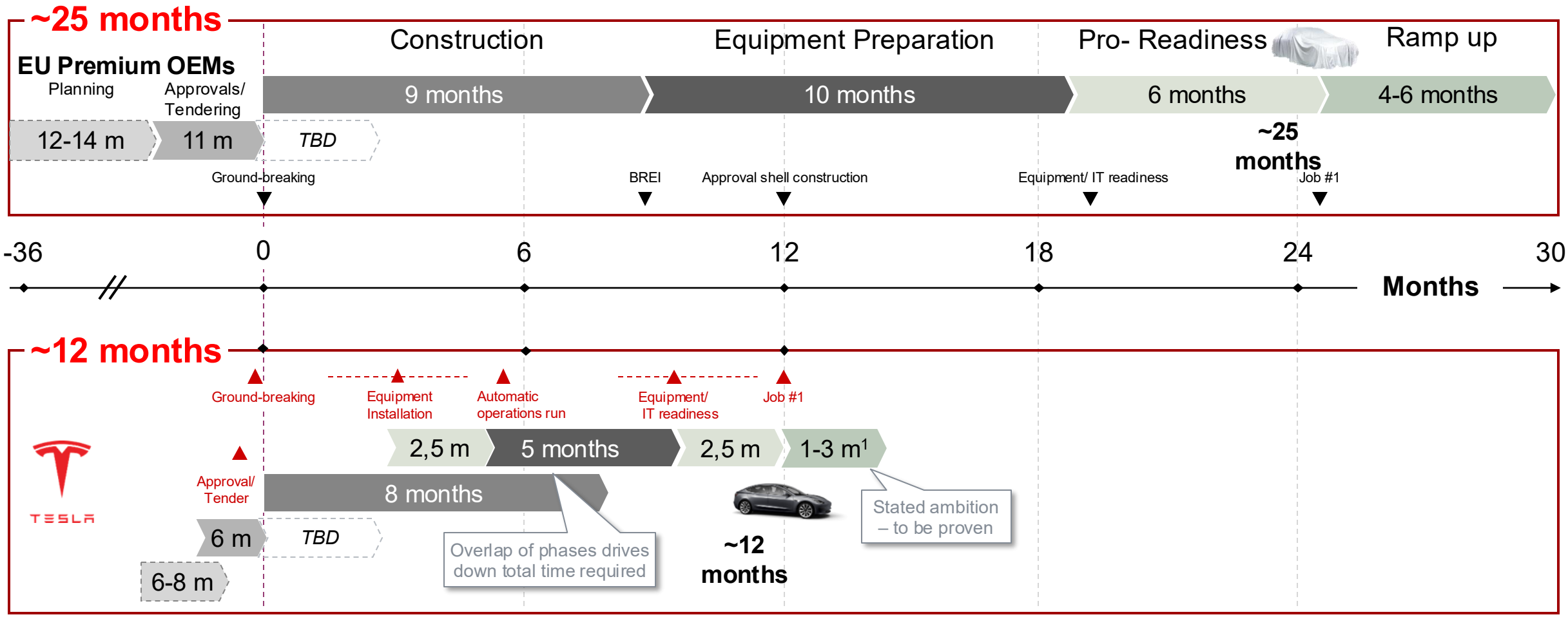
3 Globally connected production network

- **Global operation network –** One mother plant in Fremont and scalable transplant factories across the world
- **Fast and flexible** – transplant approach with 80:20 copies of mother plant

8 Tesla's production cycle is ~12 months from ground breaking to job #1 or half time to premium OEM

Added in March 2021

PRELIMINARY



1 New generation car SOP + 3mths., Derivatives SOP + 2 mths., others SOP + 1mths.
Source: Expert interviews, Tesla and premium OEMs public communication

8

Added in March 2021

Tesla's gigafactories are designed for fast and flexible production processes

	European Premium OEMs	Gigafactory 3	Gigafactory 4
	 Exemplary image		
Plant	Using Transplant Elements Europe	Transplant Shanghai – Phase 1	Transplant Grünheide (Brandenburg)
Timeline [months]	20-30 (one expansion phase)	12 months – SOP 01/2020	~15 months – SOP 03/21 (planned)
Capacity [p.a.]	-	~250.000 (phase 1)	>125.000 (phase 1)
Invest [€bn.]	1,5 -2,0	1,8	~2,0
Size [k sqm.]	350-450	~320 (on 2 floors) (690[2])	~410 (on 2 floors)
Vertical Integration	Press, BIW, paint shop, assembly	Press, BIW, paint shop, assembly, eATS, seats[1], batteries[1]	Press, BIW, paint shop, assembly, foundry, eATS, seats[1], batteries, plastics

Note:1) To be added in later phase; 2) Total construction area, phase 1 area based on images- 2-3 multiple of construction area is pre- build basement
Source: : Expert interviews, Tesla and premium OEMs public communication

8 Tesla manufacturing is vertically-integrated; struggle with high level of automation & build quality

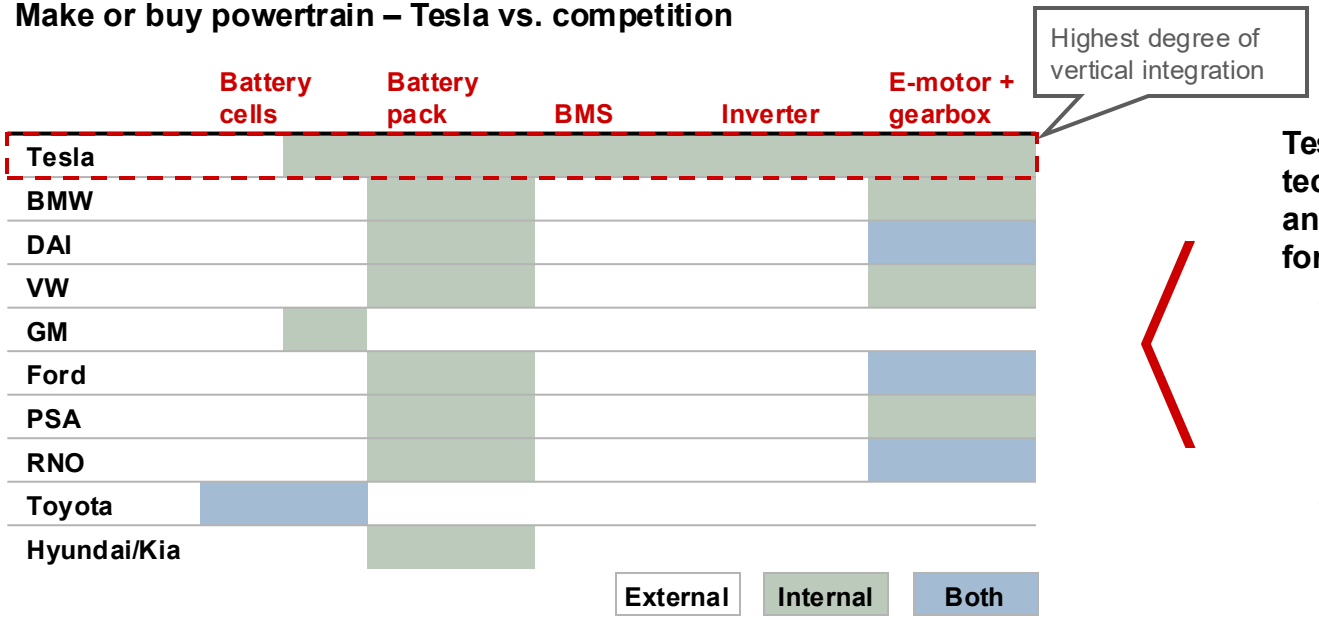
Tesla has a small, highly automated manufacturing footprint…

- 2 vehicle production factories: Fremont, CA and Shanghai; assembly lines are populated with 1000+ robots and other machines
- Custom-built autonomous robots are designed on-site and continuously improved as manufacturing process is refined
  - > **E.g., Engineers reprogrammed robots that weld the steel underbody when they discovered the 5,000 spot welds initially used could actually be reduced by 300**

"We're going to go through six months of manufacturing hell. It's going to be pretty great, but it's going to be quite a challenge to build this car."

Elon Musk

Make or buy powertrain – Tesla vs. competition



Tesla developed key EV technology completely in-house, and collaborates with Space X for engineering expertise

- Electric powertrain (motors, inverter, battery management system, software) is designed and manufactured in-house and has the best power-to-weight ratio of any electric drive unit on the market
- During Model 3 development, Space X supported Tesla with quality issues concerning aluminum casting

Tesla's reinvention of automotive production has come at a cost

- Despite being the second production line at the Fremont plant, the Model 3 line cost Tesla ~$2B
- At the start of production, this fully automated line was error-plagued in several segments; to minimize production delays, Tesla added a temporary assembly line under a tent and hired workers to replace robots

Source: Lit search, UBS January 2020 Analysis; "Tearing Down the Heart of an Electric Car" – UBS; "Tesla Teardown: Model 3 Won the Championship" – UBS

8

Added in March 2021

Tesla has higher vertical integration for key parts compared to premium OEMs

Tesla's production principles

Goal

- Maximal vertical integration for key parts (BIW, body shell, powertrain)
- Supply of high quality and standard components for non key parts

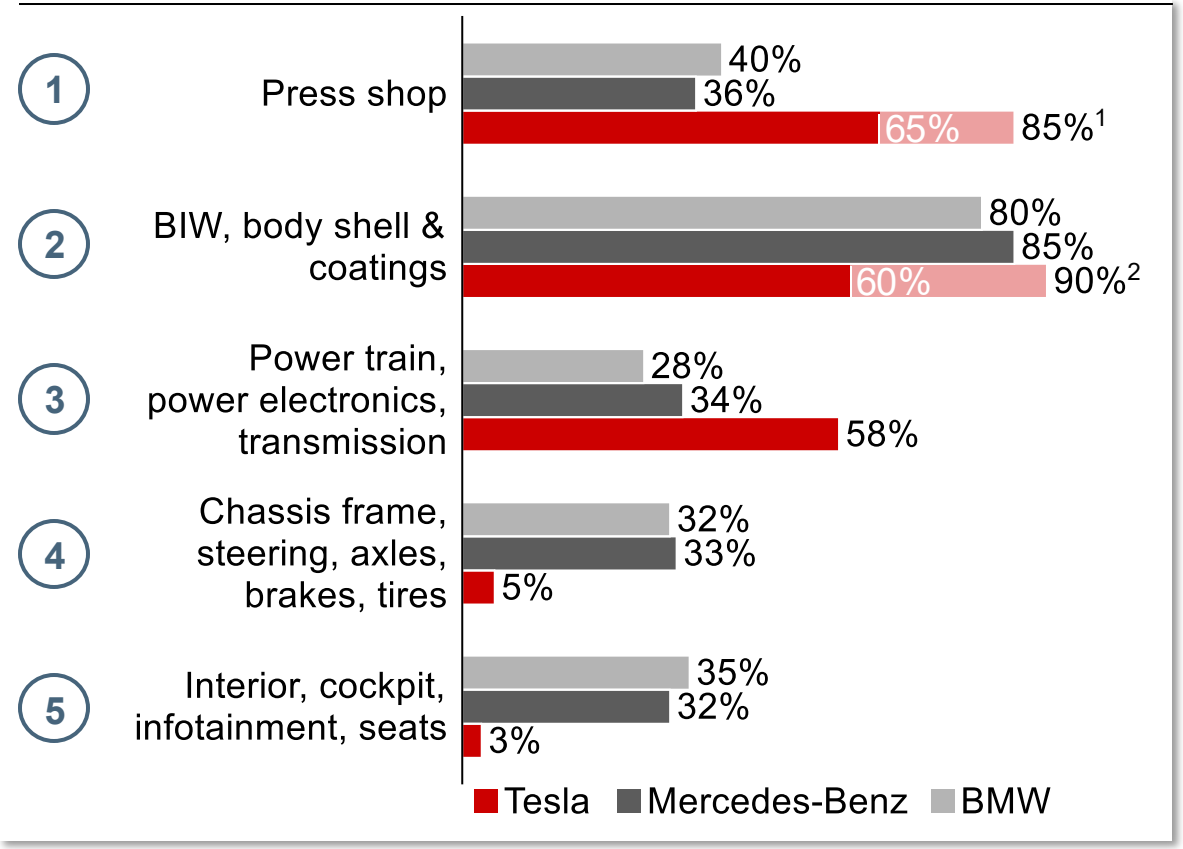
Tesla actions

- Built Gigafactories including production lines for battery, traction engine, gear and PWR/Performance SW
- Installing America's largest forging press for automotive parts

Result

- High vertical integration for key parts/core competences
- Very high production quality

Manufacturing vertical integration TM3 in %*



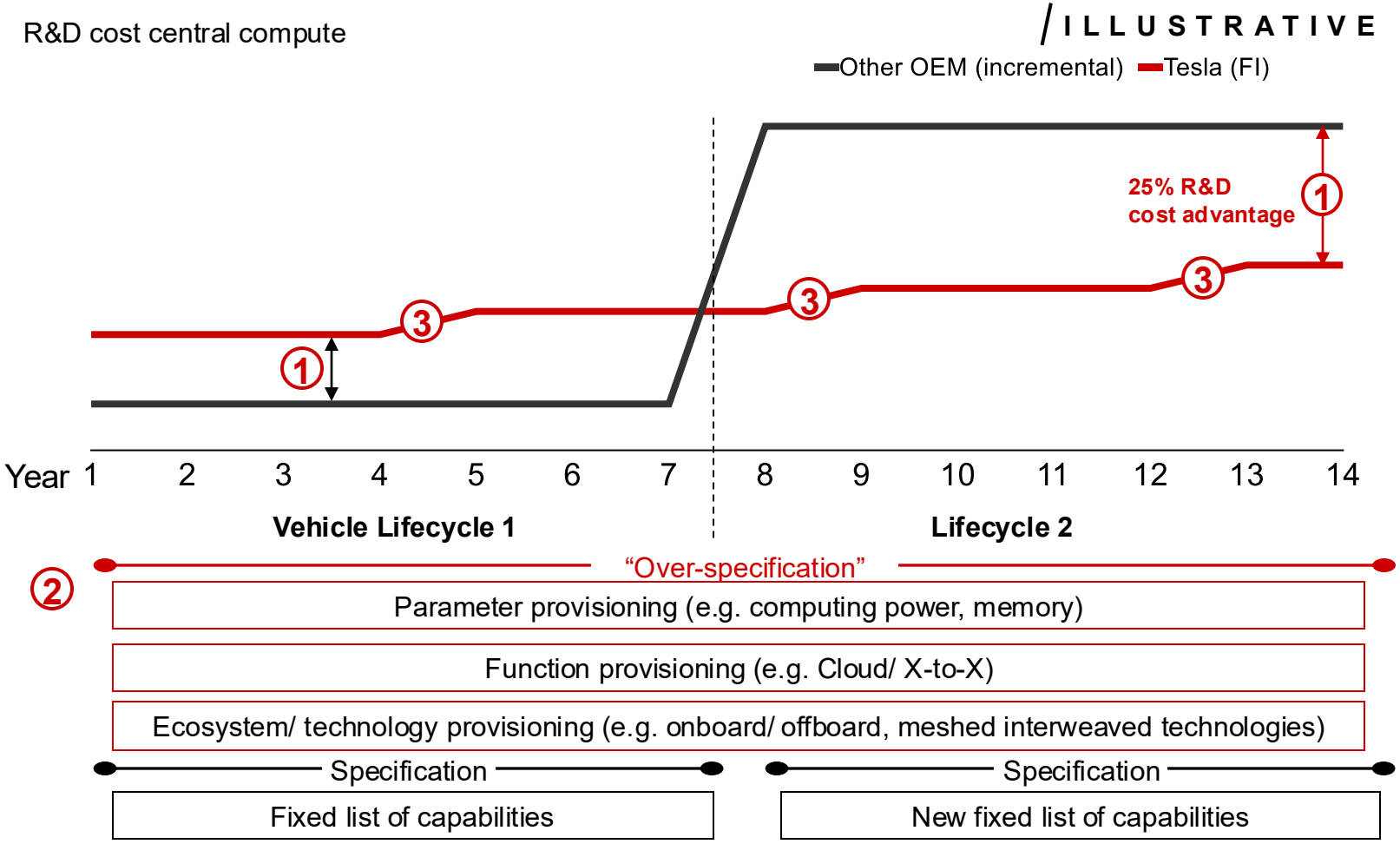
Tesla at ~13 hrs./veh. (9.5 hrs./veh. excl. powertrain), vs. ~15-17 hrs./veh. for traditional OEMs

*Overall costs; 1) 65% vertical integration of press shop for TM3, addition 20% coming from Tesla's production e.g. for Chrysler, GM, etc. 2) 60% own vehicles, 30% commissioned work for Toyota and GM; Source: Bain

8 Over-specification and building in HW flexibility allows Tesla to keep up with speed of change within and between lifecycles

Added in March 2021

Approach to R&D budget definition and specification



Tesla key success factors

1. Overall R&D cost higher in first years, but over time lower R&D expenses from **usage in multiple generations and across vehicles**

2. Creating flexibility through "**Over-specification**" with key advantages
   - Usage in at least 2 generations with ability to extend/ improve
   - Deployment of architecture across **multiple vehicles**

3. **Continuous development** with consideration for incremental hardware upgrades every 4 years

Source: Tesla case study

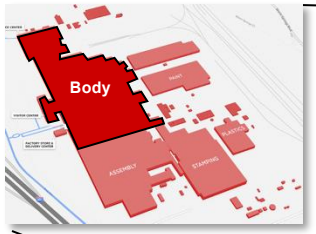
8

Added in March 2021

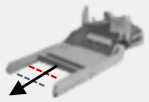
Tesla's production system is based on Toyota's agile production concept

FREMONT PLANT

Machinery plug & play modules including IoT-system across smart space allocation (compact layout: 0.5 M square m)



1 R-floor family



2 Front car family

3 Under panel

4a Sidewall INR right

4b Side INR left

5a Roof

<8m
<6m
<4m

5b Door family right & trunk

5c Door family left and hood

Machine family		Equipment		QIP-evaluation fixtures		Tools		Embedded systems
Geo-stations	⊗	Flex- pallets	⊗	Flex belt	⊗	Tool families	⊗	IT-architecture

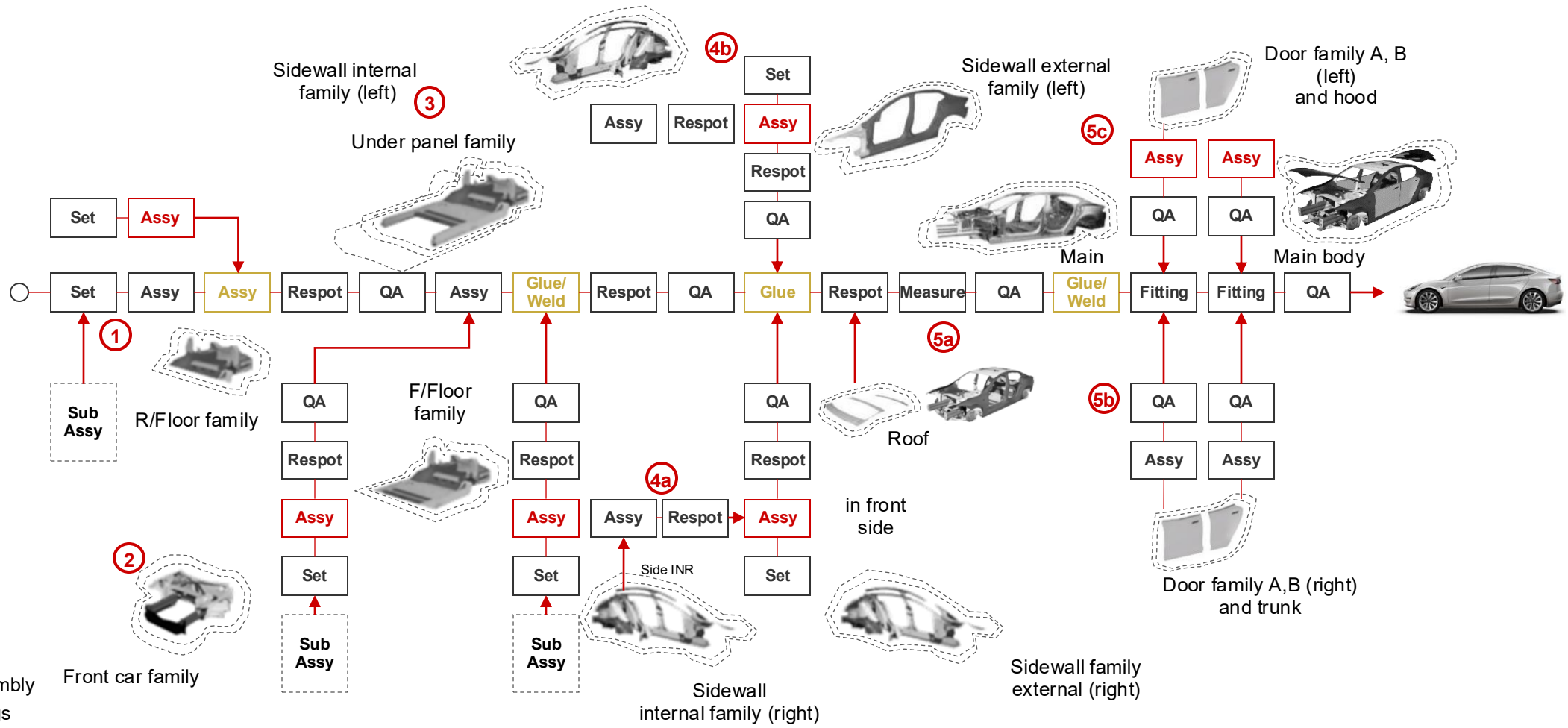
Integrated and connected data stream with IoI- Production steering and planning control platform run by central control board and decentral hub control boards

Source: Bain

8 Modular and production-oriented product design with 3 geo stations for Model 3, Model Y, and Roadster

Added in March 2021

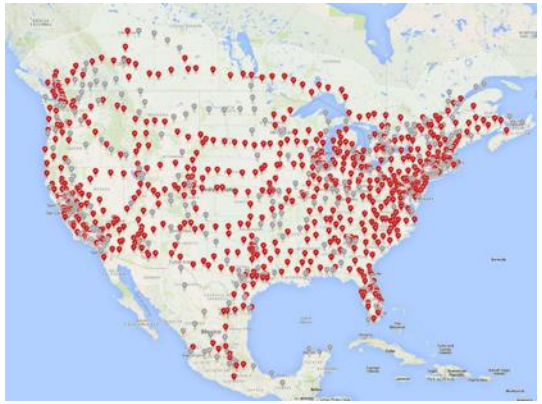
OUTSIDE IN



- X Module Assembly
- X Master line jigs
- X Master fixture/Geometric Station

Source: Bain

9 Investments in charging infrastructure and battery manufacturing: Tesla has accelerated EV mobility by investing heavily in a charger network and battery factory



908 US
98 Canada
15 Mexico

24K
Destination
Chargers

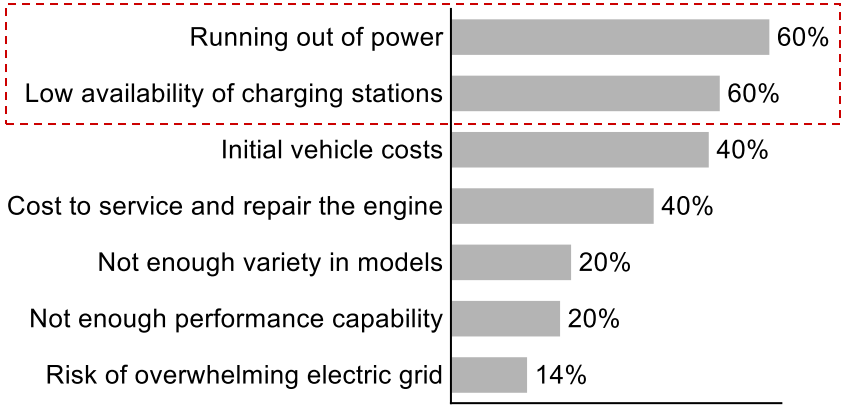
Tesla is rapidly expanding a Supercharger network to accelerate the infrastructure necessary for mass EV adoption…

- 1,870 Supercharger Stations with 16,585 Superchargers
- V3 chargers allow Model 3 to add ~100 miles of battery charge in seven minutes
- A full battery charge costs $10 – 20 depending on charge speed; Tesla reinvests profits from charging fees into continued development of the charger network

…and investing in massive battery production factories to increase range and reduce price

- Gigafactory 1 production is 35GWh per year, with goal to reach 54GWh per year, equivalent to ~300,000 additional vehicles per year
- Tesla's Panasonic battery cells cost $111/kWh – more than 20% lower than those of 2nd place competitor (LG Chem) – ~$3K cost benefit
  - > Analysts believe this is attributable to the scale advantage of Tesla's Gigafactory, the simplicity of the manufacturing process, and the lower cost of raw materials in NCA cells compared with other battery cells

Top barriers to purchasing an electric vehicle

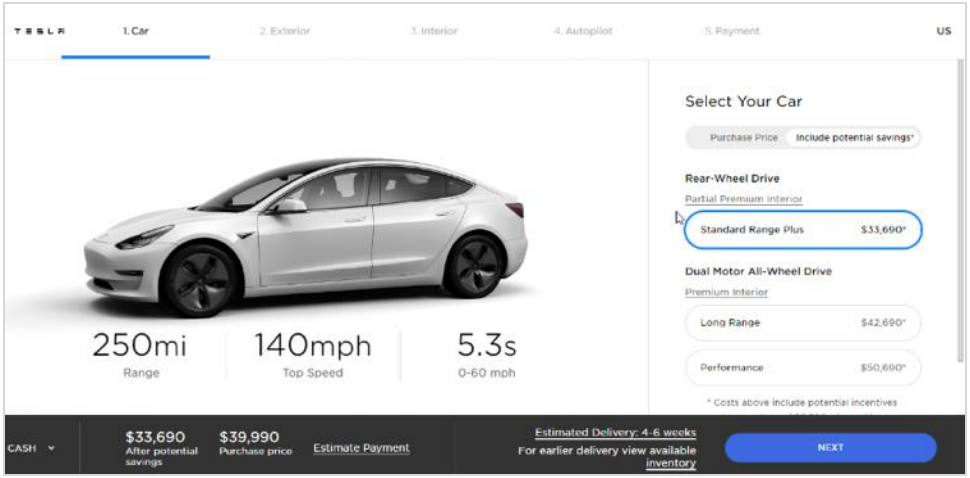


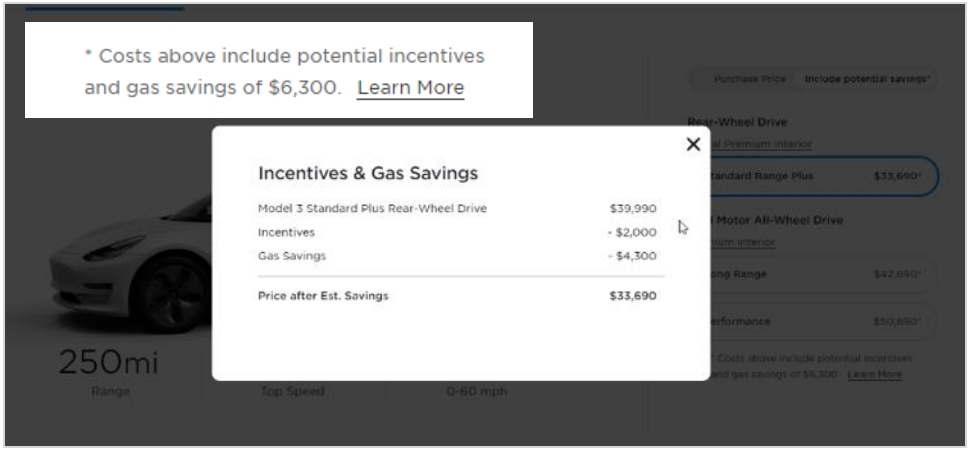
Customer range anxiety is still a barrier and home charging infrastructure poses a challenge

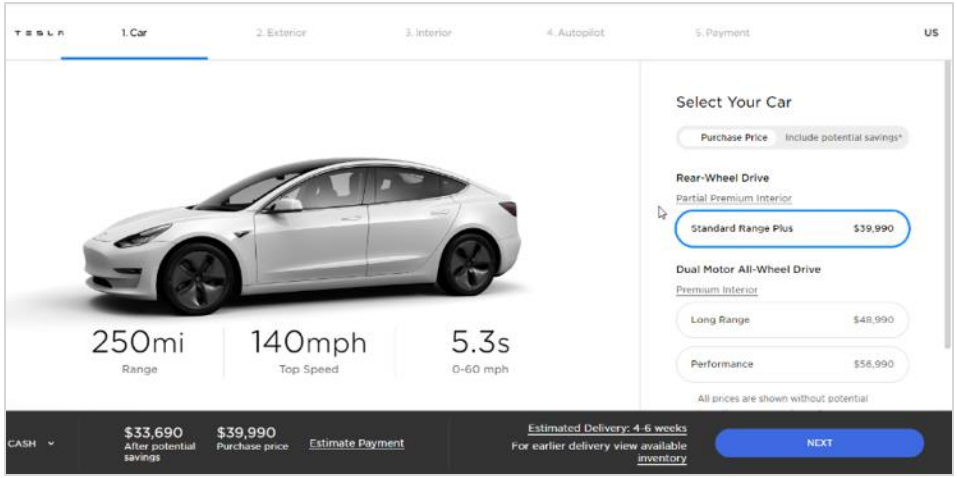
- Though increasing, supercharger network still limited (and sometimes results in long lines)
- Tesla home charger is not included with vehicle (~$500 additional cost), and most chargers required an electrician to install
  - > **In 2019 Tesla released a new charger that can be plugged directly into high-voltage outlets common in many households**

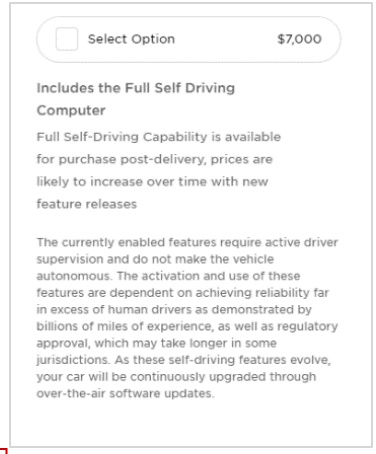
Note: NCA = Lithium Nickel Cobalt Aluminium Oxide
Source: Company website, UBS 'Tearing down the heart of an electric car: Can batteries provide an edge, and who wins?' November 2018, "When Will EVs "Cross the Chasm" into the Mainstream in the US?"– EVAdoption.com; Lit search

Incentive program: Details on Incentive, Savings & Auto Pilot









Auto Pilot

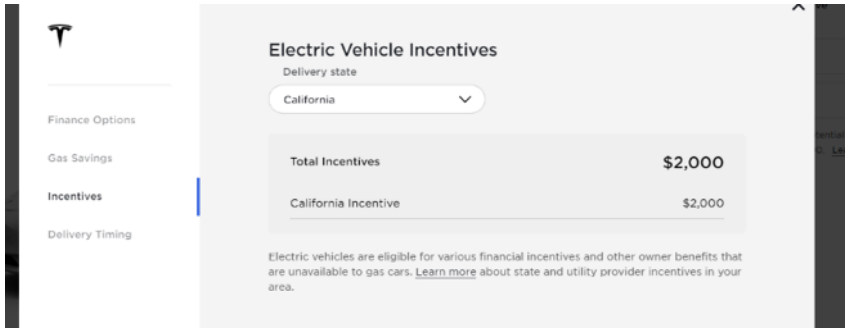
- Post purchase ability
- Automated enhancements

Includes potential incentives and gas savings

Incentive program: Tesla does not offer its own vehicle incentives, but many customers can receive state EV incentives

The $2000 incentive….what's it for and does everyone get it all the time?

- During the Tesla online ordering process, the price shown will include any EV incentives offered in the delivery state the customer selects
  - California currently offers a **$2,000 incentive for CA residents to purchase Tesla Model 3 and Model Y**. Many other states offer similar incentives for battery electric vehicles (BEVs), which apply to consumers who purchase and register the vehicle in that state
  - A list of incentives offered by state to Tesla buyers is included on the next slide
- In addition, the **federal government previously offered Tesla customers a tax credit** of up to $7,500; this credit still exists for other OEMs selling EVs, but was phased out for Tesla on 12/31/19 as the company had reached the volume limit of 200,000 cumulative vehicles (**GM is nearing phase-out of the federal EV consumer tax credit; no other automakers have reached phase-out)**
- **Tesla does not offer any of its own vehicle incentives**; when ordering a new vehicle on the Tesla website, the "after savings" estimated price factors in state incentives as well as estimated savings on gas



State incentives: Incentives vary by state; different vehicles qualify for different incentives

State incentives for Tesla vehicles

State	Incentive
Arizona	Reduced Vehicle License Tax and Carpool lane access
California	$2,000 rebate for Model 3 and Model Y At the end of 2019, California stopped offering rebates for BEVs or PHEVs that cost more than $60,000 (for Tesla, this includes Model S and Model X)
Colorado	$4,000 tax credit for purchase of a new vehicle
	$2,000 tax credit for lease of a new vehicle
Connecticut	$1,500 rebate for new vehicles with a base price under $42,000
	Exemption from state emissions testing
	Reduced vehicle registration fee
Delaware	$2,500 rebate for new vehicles with a base price under $60,000
	$500 rebate available for home charging installation
Florida	Funding may be available for home charging installation assistance
Hawaii	Carpool lane access and reduced rates for electric vehicle charging
Idaho	State exemption from vehicle inspection & maintenance program
Illinois	EV exemption from state emissions testing; reduced registration fees
Louisiana	$2,500 income tax credit
Maine	$2,000 rebate for new vehicles with a base price under $50,000
Maryland	$3,000 Excise Tax Credit for new vehicles with a total price under $60,000
	$700 rebate on wall connectors and installation
	Qualified vehicles are exempt from emissions testing
Massachusetts	$2,500 rebate for new vehicles with a purchase price under $50,000

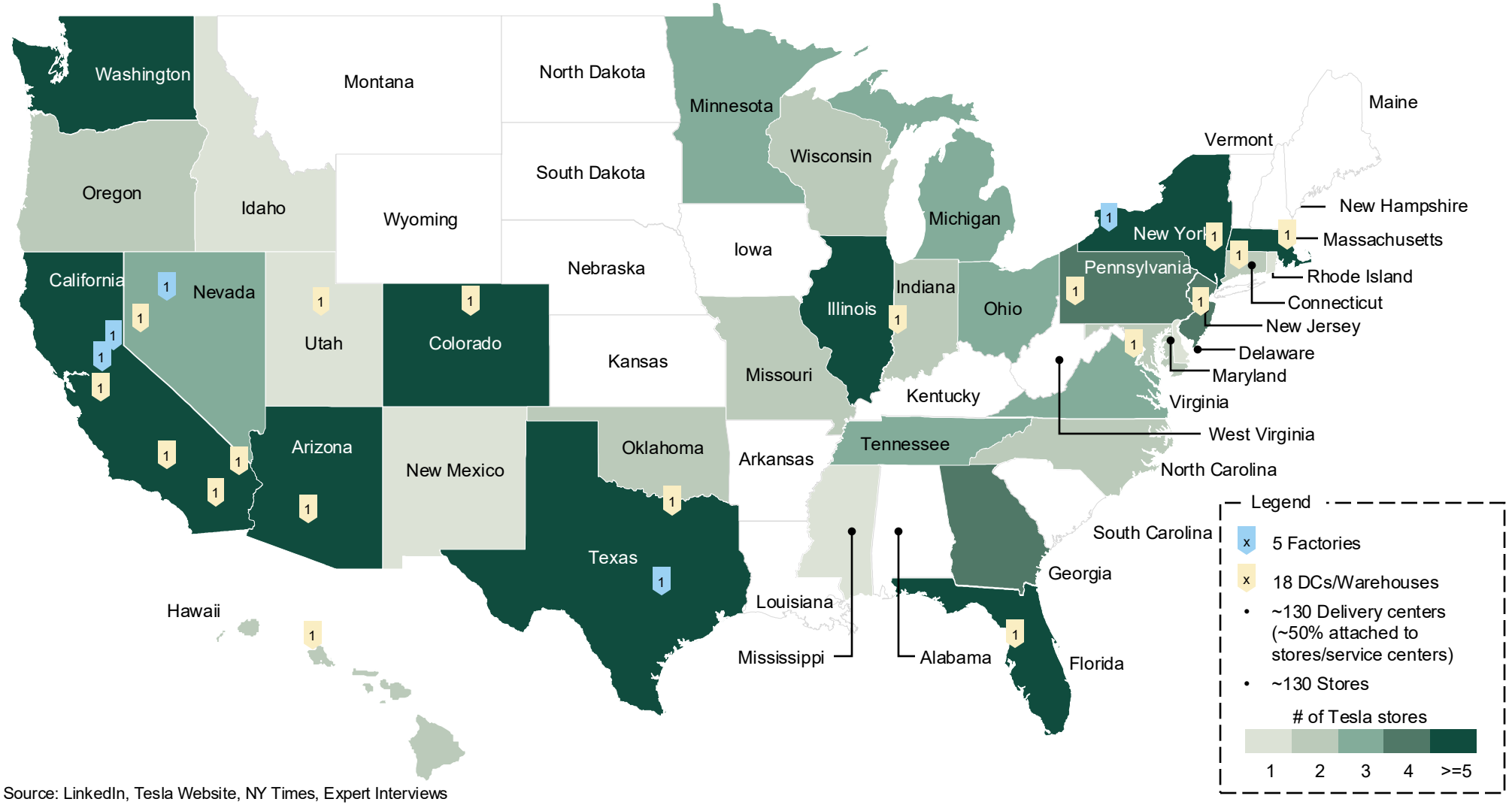
State	Incentive
Nevada	Reduced rates for electric vehicle charging
	AFV Parking Fee & state emissions testing exemptions
New Jersey	$5,000 rebate for purchase or lease of a new vehicle with a base price under $55,000
	Sales tax exemption
	10% discount on off-peak toll prices on NJT & GSP through EZ-Pass
New York	$500 rebate for new vehicles with a base price over $60,000
	$2,000 rebate for new vehicles with a base price under $60,000
	State emissions testing exception
North Carolina	State emissions testing exemption & HOV lane access
Oregon	Standard Rebate of $2,500 for purchase or lease of a new Tesla
	Charge Ahead rebate of $2,500 for purchase or lease of new or used Tesla for eligible customers
Rhode Island	State emissions testing exemption
Vermont	Depending on income level, up to $5,000 rebate for purchase or lease of a new vehicle with a base price under $40,000
Washington	A retail sales tax reduction is available on the purchase or lease of a new vehicle.
Washington DC	Excise tax exempt
	Reduced vehicle registration fees
	Tax credit for 50% of costs of home charging installation, up to $1,000

Many cities and municipalities also offer their own incentives for Tesla buyers/owners (often provided by local electric utilities). A full list can be found on Tesla's website here.

Note: All of the above incentives are available when purchasing a Tesla vehicle with cash or a loan. Only California, Colorado, Massachusetts, New York and Tennessee incentives are available when leasing a Tesla vehicle.
Source: Tesla website

Tesla's 'Factory to consumer' network is heavily concentrated on the coasts

DIRECTIONAL



*"The benefit of having regional distribution centers is that we **can quickly ship cars to customers**. It takes about a week if the car is already made. 60% of those cars are going directly to people's houses."*

Director Supply Chain Management at Tesla

*"We used to have distribution lots to hold inventory close to stores, but since **~60% of our cars are pre-ordered now and people are willing to wait**, we don't have to hold as much stock that nearby."*

Director Supply Chain Management at Tesla

Source: LinkedIn, Tesla Website, NY Times, Expert Interviews

Note: States that have more than 5 Tesla stores include Arizona (6), California (53), Colorado (6), Florida (17), Illinois (10), Massachusetts (5), New York (9), Texas (19) and Washington (8)

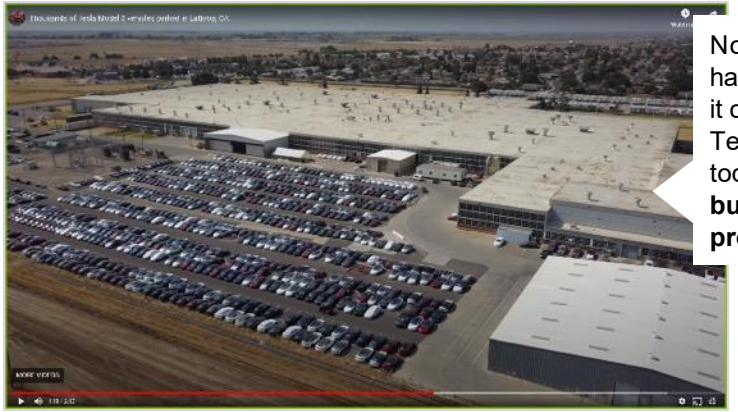
Inventory Management: Tesla inventory is maintained in retail pickup lots and 'logistics transit hubs'

Where is the inventory (even the very small numbers) held?

- Select Tesla **showrooms and service centers have conjoined vehicle pickup lots**. Customers opting for in-person vehicle pickup retrieve their vehicles from these lots
  - Tesla states that these locations carry a "small number of cars in inventory for customers who wish to drive away with a Tesla immediately." The majority of vehicles held on inventory at these locations have already been purchased and are awaiting pickup or delivery by a Tesla delivery associate, a Tesla sales representative confirmed.

Inside view of the Tesla Center in Marina Del Rey, CA. Many Tesla customers in the Los Angeles region pickup their new vehicles here once they've arrived

- Additionally, Tesla holds vehicles in "**logistics transit hubs**" across the country. These are purely distribution centers and are not open to the public; **most vehicles on these lots have already been ordered by customers**
  - Few details have been shared publicly on how many of these lots Tesla maintains or how many vehicles they hold, though in late 2018 videos and photos of several of the lots were posted online by a handful of internet bloggers and several lots were reported to have thousands of vehicles on hand
  - Vehicles have been seen moving in and out of these lots individually on a daily basis; a call to a Tesla retail pickup center in California confirmed that some inventory listed for purchase online may be stored in a nearby logistics hub, not at the retail pickup center



Note that given demand for Teslas has exceeded supply since inception, it cannot be determined whether Tesla's near-zero inventory approach today is reflective of a **strategic business model or simply the production ramp-up period**

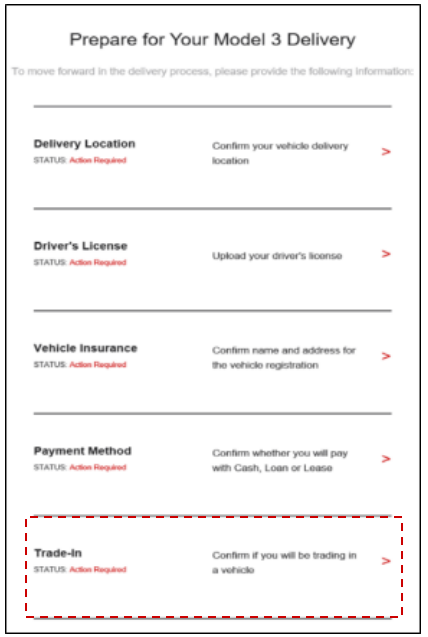
Drone footage showing "thousands" of Teslas parked at a logistics transit hub in Lathrop, CA

Tesla handles trade-in at the time of vehicle delivery; trade-ins likely sold at wholesale auction

How does the Trade-in process work?...who picks the car up, where does it go?

1 Vehicle trade-ins when purchasing a Tesla

- Before beginning the vehicle order / purchase process, a prospective customer may request a trade-in **estimate** using a calculator on the Tesla website
  - Customer submits VIN, vehicle year, make, model, trim, mileage, and zip code
  - Tesla follows-up to provide an **estimate** within 24 – 48 hours
  - Tesla's estimate for non-Tesla vehicles is based on the range specified by Kelley Blue Book 'Good' values
  - Tesla's estimate for Tesla vehicles is based on vehicle valuations from an internal Tesla remarketing team
- After an order has been placed, a customer may complete a trade-in self-inspection (including vehicle pictures) and submit a trade-in request via their Tesla account
  - Once a self-inspection is submitted, Tesla provides an **official** trade-in offer in as little as 24 – 48 hours; some customers report having to wait up to a week
  - If a customer obtains a trade-in offer from third-party used vehicle resellers (e.g,. CarMax) that is higher, Tesla will match the offer; otherwise, **Tesla offers are non-negotiable**
  - Customer uses their Tesla account to accept or reject the Tesla trade-in offer
  - A customer's positive equity is applied to the Tesla purchase; negative equity must be paid at delivery or rolled into the new vehicle purchase agreement, pending the customer's credit score
- Trade-in vehicles are **dropped-off / handed over at the time of a customer's scheduled delivery** appointment; for customers using the 'carrier delivery' option, Tesla arranges for the trade-in to be picked-up at the customers home
- In November 2018, CNBC reported that Tesla formed partnerships with Manheim and Adesa auction services to **dispose of trade-in vehicles (Tesla and non-Tesla) at wholesale auction**



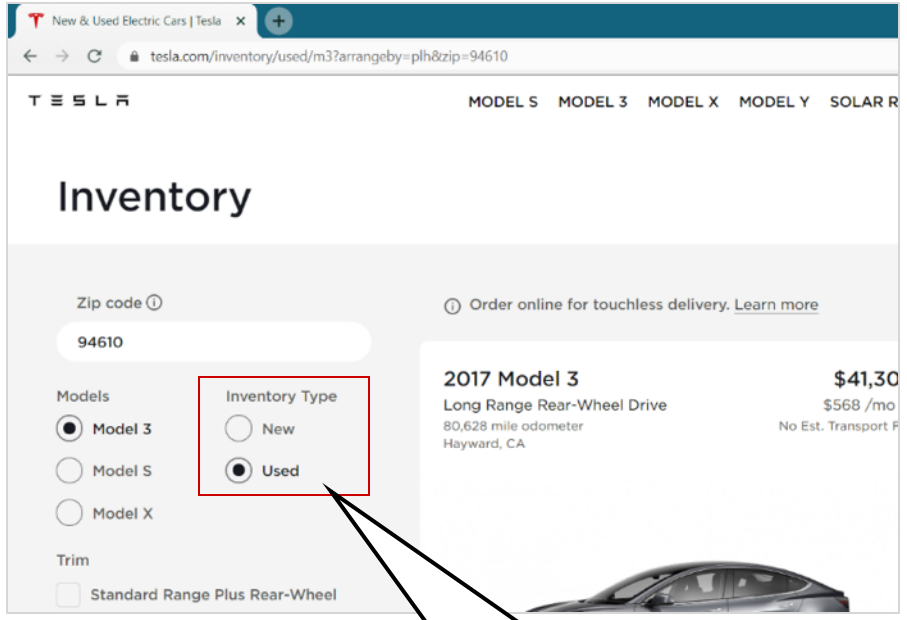
Note: Because Tesla continuously makes improvements to its vehicles, the company communicates the vehicle build / production year rather than 'model years' used by other OEMs; trade-in valuations are based on production years rather than model years

Tesla lease volume to date is small with limited returns

How does the Trade-in process work?...who picks the car up, where does it go?

② Tesla lease returns

- Leases comprise a small number of Tesla's sales – 7% of sales in Q1 '20
  - Model 3 lease program began in 2019; initial lease-end returns not expected until mid-2022
- When returning leases, customers have three options: upgrade, return, and purchase
  - Upgrade: Trade current Tesla lease for new Tesla lease
  - Return: Return current Tesla lease during scheduled lease return appointment; a final inspection must be completed 30 – 60 days prior to lease maturity date
  - Purchase: For eligible Model S and Model X leases, customers can purchase the leased vehicle from Tesla based on residual values determined at the time of original lease agreement; Model 3 is ineligible for this option
    - > Note: There is no public information available on what happens with Tesla vehicles after they are returned after lease
- Based on Tesla website, the lease return process appears highly manual, and customers must contact Tesla Lease Returns and / or Tesla Finance
  - According to CNBC, a Tesla employee reported that ~50% of Tesla lease returns are in retail-ready condition and can be certified pre-owned vehicles or used as loaners and employee cars right away
  - Manheim and Adesa auction services sell the other vehicles via physical and online wholesale auctions



Tesla has a small number of used vehicles listed on its inventory website for immediate purchase

New Tesla hardware upgrade option allows older vehicles to get a refresh

How does the Trade-in process work?...who picks the car up, where does it go?

3 Tesla upgrades available for older vehicles

- As of March 2020, Tesla began offering an 'Infotainment Upgrade' to owners of Model S and Model X vehicles built in March 2018 or earlier
- This hardware upgrade costs $2,500 (plus tax) and replaces the vehicle's computer to enable improved features and performance

Category	Improvements
Performance	• More responsive and smoother touchscreen • Faster browser with video playback and 3D rendering support*
Audio & Music	• Displays Bluetooth® media album art • Removes AM, FM and Sirius XM radio Your car will still have access to internet radio and music streaming*
Gaming	• Includes graphics-intense Tesla Arcade games like Beach Buggy Racing 2, Cuphead and Stardew Valley • Enables gamepad compatibility
Entertainment	• Enables video streaming and access to YouTube, Netflix, Hulu, and Twitch through the Tesla Theater* • Adds Caraoke* and TRAX
Driver Assistance	• Enhanced Driving Visualization for owners with Full Self-Driving Capability Computer
Security	• Records from all cameras for DashCam and Sentry Mode for cars with the Full Self-Driving Computer
Wi-Fi	• Supports 5GHz Wi-Fi networks

Sales tax: Customers pay sales tax in the state of vehicle registration

How does the state sales tax thing work in Texas. If a Texas guy buys a car on-line and it is shipped from California, what tax does he pay and what happens when he takes the car to a TX DMV?

- Customers **must pay the sales tax of the state in which they are registering their vehicle**. When ordering a new Tesla online to be shipped to Texas, Tesla assumes the customer plans to register the vehicle in Texas and by default charges Texas sales tax on the transaction
  - If a Texas customer were to have the vehicle shipped to a different state, he/she would need to pay the Texas sales tax upon registering the vehicle in Texas
  - Even though Tesla still faces legal restrictions on sales in Texas, the company has improved its sales process to minimize 'hiccups' as a result of legal restrictions so that today, customers need not handle the registration process all by themselves. Tesla prepares the paperwork for customers to complete and send in to the DMV. (Previously, customers had to go in person to a DMV to have their vehicle inspected and complete the registration process)

Ford Mustang Mach-E (news story covering new dealer policy)

CarsDirect first to cover Ford's new Mach-E sales strategy; no further information released yet

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Ford Won't Let Dealers Advertise Mach-E Under MSRP

By Alex Bernstein, Senior Pricing Analyst - December 3, 2019

0 Comments Email

Although the first deliveries of the 2021 Mustang Mach-E are still about a year away, Ford is taking an unusual approach with how it will require dealers to advertise its first all-electric SUV. Unlike every other Ford model, a bulletin sent to dealers reveals the brand doesn't want them advertising the Mach-E below MSRP.

According to Ford, the move is meant to "be competitive in the battery electric vehicle space by transacting in the way customers want to transact." For reference, Tesla advertises its vehicles at MSRP, although the brand has often employed questionable practices in order to showcase artificially low prices.

Mach-E prices start at $44,995 including destination for least-expensive Select configuration. The upcoming Tesla Model Y is currently listed on Tesla's website with a starting price of $49,200. The first Mach-Es are due in late 2020 but the Select won't arrive until early 2021, the same time as the Model Y.

On paper, "transacting in the way customers want to transact" seems to make a lot of sense. However, the new rules involve advertised prices, not selling prices. Once you reach out to a dealer and start negotiating, the door opens to potentially buy the Mach-E at a lower price. That's not the case with Tesla.

While the concept of a minimum allowable advertised price (or MAAP) is nothing new, the Mach-E has a unique policy in place that will reward dealers for playing by the rules. Ford says the policy will protect the Mach-E's brand image as well as dealer margins.

To achieve that, the brand has instituted a new concept called an "e-Invoice" that will actually result in the Mach-E's invoice and MSRP prices being identical. Behind the scenes, Ford plans to compensate its dealers using 3 different types of allowances.

The first one involves an allowance for every vehicle delivered. The second rewards the dealer for remaining compliant with the model's advertising rules. The last one is meant to ensure the dealer remains properly certified to handle electric vehicles.

So what does this all mean for consumers?

On the surface, showing one price for a Mach-E on TV and online may make the model more approachable. However, knowing that dealers can sell the vehicle at, below, or even above MSRP could create confusion once we learn more about what (if any) sort of premium the Mach-E manages to command.

For now, the importance of the Mach-E appears to not be lost on those in Ford's marketing department. Leveraging the Mustang name and boasting specs like a 0-60 time as fast as the mid-3 seconds and a range of up to 300 miles, the Mach-E promises to deliver an exciting new choice for consumers.

But will the buying experience really be any different from any other vehicle? That remains to be seen.

Learn More About The Mustang Mach-E »

Rivian EVs: Rivian takes a similar approach to Tesla to sell its EV trucks and SUVs

- With two 'adventure vehicles' unveiled, and at least 3 more models forthcoming, Rivian is expected to grow to 250,000 vehicles per year by 2025
  - R1S – 7 seater electric SUV with ~$72.5K base price
  - R1T – electric pickup truck with $69K base price
  - Largest battery pack available can go 400+ miles on a single charge
  - Production will ramp slowly: 20,000 units in 2021 and 40,000 in 2022
- ~$2.85B in funding; notable investments include:
  - Amazon (and others) invested $700 million in February 2019; Amazon has ordered 100,000 vans from Rivian to add to its logistics fleet over the next 4 years
  - Ford invested $500 million in April 2019; EV collaboration with Lincoln canceled in wake of COVID-19
  - Cox Automotive invested $350 million in September 2019; expected partnership to service and maintain Rivian vehicles once sales begin

- Direct-to-consumer sales strategy:
  - Accepting preorders with a refundable $1,000 'preorder fee' that will be applied to final sales agreement balance; deliveries begin in late 2020
  - Obtained an automotive dealer license in Arizona
  - Seeking licenses in Massachusetts, California, Florida and Illinois
  - Recent legal amendment in Colorado exempts EV-only OEMs from dealer franchise laws
  - Where state laws are overly restrictive, Rivian plans to sell vehicles through orders placed at stores in neighboring states, by phone or online; this would require customers to pick up their vehicle out-of-state or have it shipped to them through a third-party shipping company
- Inventory approach: Given limited production capacity, Rivian says vehicles will be built to each customer's specifications

"We believe that our customers are best served and have the most seamless experience by running that [sales and service] process. We are not going to a franchised dealer system—period."

James Chen, Rivian Vice President of Public Policy

Source: Rivian company website; "Why Rivian Won't Sell Its Electric Trucks Through a Dealership" – The Drive; "Elon Musk's New Nemesis: Rivian Founder R.J. Scaringe Has A $3 Billion War Chest And Tesla In His Headlights"– Forbes; "Rivian wins big as Colorado passes electric vehicle direct sales law" - Electrek

Other EV OEMs: Showroom concept and direct-to-consumer approach utilized by newer automotive entrants

polestar

Owned by Volvo and Volvo parent company Geely; two planned models – Polestar 1 and Polestar 2

"The spirit of normal actually wasn't that good…frustration has accumulated."
Thomas Ingenlath, CEO of the Polestar Group

- Partnering with several automotive groups – Manhattan Motorcars, Galpin Motors and Price-Simms Automotive Group for initial Polestar Space showrooms in New York City, Los Angeles and San Francisco
- Customers will explore vehicles at Polestar Spaces with non-commissioned product specialists and then order online
- Customers can opt for a vehicle subscription that includes usage, insurance, and maintenance in one flat monthly fee

LUCID

- 'Studio' at headquarters in Newark, CA provides product / brand exposure by utilizing real vehicles, interior components, and virtual reality; more studios planned for New York City, Miami, West Palm Beach, Beverly Hills, Santa Clara, Los Angeles, Orange County
- Accepting $1,000 refundable deposits on company website now
- Product built for advanced over-the-air capability and remote diagnostics; a few service centers and a fleet of mobile service vans will provide vehicle maintenance

Source: "Why the Polestar 2 is unlike any vehicle you've ever seen—or driven" – FastCompany; "Polestar Set to Open First U.S. Dealerships" – the Detroit Bureau; "Lucid Unveils Sales & Service Model, With First Location To Open in 2020" – CleanTechnica; Lucid company website

Regulatory developments giving Tesla the right to sell directly to customers; Tesla has fought and won legal battle in multiple states

/ILLUSTRATIVE

- New Hampshire, 2013 – Allows OEMs without existing dealer base to sell directly to customers
- Minnesota, 2013 – Reinterpretation of original dealer law allows OEMs to act as dealers
- Washington, 2014 – Outlawed direct OEM sales, but grandfathered-in Tesla
- Massachusetts, 2014 – Court ruling set precedent for Tesla to begin selling directly
- Missouri, 2017 – Appeals Court ruled that Dealer Association did not have standing to sue Tesla
- Wyoming, 2017 – Allows OEMs without existing dealer base to sell directly to customers
- Arizona, 2017 – Allows OEMs without existing dealer base to sell directly to customers
- Indiana, 2017 – Tesla grandfathered-in for direct sales to customers
- Rhode Island, 2017 – Allows OEMs without existing dealer base to sell directly to customers
- Utah, 2018 – Tesla granted direct sale manufacturer's license
- Michigan, 2020 – Tesla gained the right to sell and service vehicles in the state via legal loopholes
- Colorado, 2020 – EV-only manufacturers can sell direct to customers

Sales and service restrictions still exist and legal battles persist in other states