The Musk Companies

Figures current as of October 2026

Tesla, SpaceX (which now holds Starlink, xAI, X, and Cursor), Neuralink, and the Boring Company: what each does, earns, and is worth, how they depend on each other and on one person, and how they are entangled with governments.

MODULE 1 — Foundations: The Enterprise

Goal: Map the companies, who owns them, and how they are run.

Each company in a table with its business, listing, and Musk's role; a combined value of about $3.7 trillion; the shared playbook of integration, first-principles cost, mission, control, and pace; and the arc from 2008 to the 2026 listing.

MODULE 2 — Tesla: The Car Business

Goal: Assess the core business with the numbers.

Deliveries, revenue, and margins since 2018 in a table, Tesla's share in China, Europe, and the United States, BYD's lead, and why sales fell in 2024-25 and partly recovered in 2026, with both explanations weighed.

MODULE 3 — Tesla: Energy, Robotaxis, Robots, and Chips

Goal: Assess the businesses the valuation rests on.

Energy storage's growth, the robotaxi against Waymo in a table, the camera-only argument with the evidence, a robotaxi's economics worked, Optimus, and the chips and Terafab.

MODULE 4 — Tesla: Valuation and Governance

Goal: Work out what the market pays for and who controls the company.

The $1.5 trillion valuation worked against the businesses, 'funding secured' and the pay fight in a table, the 2025 award, the board and Texas, and the bull and bear cases with the evidence.

MODULE 5 — SpaceX: Launch

Goal: Explain how one company came to launch most of what reaches orbit.

Reusability's milestones, cost per kilogram worked, Starship's flights in a table, the Artemis schedule, the government customers, and the competitors.

MODULE 6 — Starlink

Goal: Explain the business that pays for much of the rest of SpaceX.

Subscribers, revenue, and revenue per user, the segments, the constellation and its licenses, the geopolitics from Ukraine to India, and the rivals in a table.

MODULE 7 — The Mergers and the Listing

Goal: Trace the deals that made SpaceX a public conglomerate.

The timeline from Twitter to Cursor in a table, what the prospectus and the first public quarter disclosed, the share classes, and the valuation worked, with both cases.

MODULE 8 — xAI and Grok

Goal: Assess the AI business and its record.

Colossus and the capacity rented to Anthropic and Google, the AI segment's results in a table, the Grok models and their reach, and the guardrails dispute through two scandals, with both cases.

MODULE 9 — X

Goal: Cover the social network as a business and an instrument.

The $44 billion purchase and its financing, the business before and after in a table, the regulators, and the argument over speech and moderation, with the evidence.

MODULE 10 — Neuralink, Boring, and the Rest

Goal: Profile the smaller companies and the origins.

Neuralink's 21 implants and its rivals, the Boring Company's Loop, the OpenAI suit and its verdict, and PayPal, SolarCity, and the foundation.

MODULE 11 — Musk and the State

Goal: Examine the companies' dependence on government and Musk's role in it.

Government money in a table, the 2024 campaign, DOGE with both cases and the auditors' findings, the feud and the return, and the regulators.

MODULE 12 — The Global Picture

Goal: Cover the companies abroad.

China as factory and risk, Europe's politics and sales, India, the Gulf, and the rest, and the pattern of bans, embraces, and bargains.

MODULE 13 — Interdependence and Risk

Goal: Map how the companies depend on each other and on one person.

The cross-links in a table, related-party dealing, the key-person problem and succession, the fortune's concentration, and the risk map.

MODULE 14 — Where Things Stand, and What to Watch

Goal: Close with the argument, the turning points, and the dates.

The argument in one page, six turning points and one lesson, the contradictions, a dated watch list, and the last word.

Key Numbers, as of October 2026

The Figures This Course Uses, With Their Sources

This table holds the figures the whole course uses: what the companies are worth, what Musk owns of them, and what that makes him worth, and the modules point back to it rather than repeat them. A company's market value, or market capitalization, is its share price times its shares outstanding, and it moves every day the market is open.

Measure	Figure	Source and date
Elon Musk's net worth	About $1.0 trillion, about 2.6 times the next-richest person's (Jeff Bezos's); a record $1.32 trillion at the close on June 16, 2026 (Bloomberg), and below $700 billion in July. The rankings leave out shares that have not vested, so the net worth is below the market value of the stakes in the next row	Forbes real-time list, October 9, 2026; Bloomberg Billionaires Index
Musk's ownership	Tesla: 19.9% of the shares, counting the restricted shares from his restored 2018 options. SpaceX: about 46% of the shares, including restricted shares that vest only if targets are met, and about 82% of the votes	Tesla's Schedule 13G/A filing, June 17, 2026; SpaceX's prospectus, June 2026
Tesla's market value	About $1.51 trillion ($382.70 a share), about 355 times its 2025 earnings per share ($1.08)	Nasdaq close, October 9, 2026; Tesla's 2025 annual report
SpaceX's market value	About $2.14 trillion ($162.57 a share), the world's seventh-largest company, after Nvidia ($5.5 trillion), Apple, Alphabet, Microsoft, Amazon, and Taiwan Semiconductor Manufacturing Company (TSMC)	Nasdaq close, October 9, 2026; companiesmarketcap.com
The enterprise	About $3.7 trillion for Tesla, SpaceX, and the private valuations of Neuralink and the Boring Company (Module 10), more than France's 2025 output of $3.4 trillion	Calculated from the rows above; International Monetary Fund, April 2026

Market values move every trading day; these are the ones the course uses. Each business's results are in its own module.

Who's Who

The People, Companies, and Agencies This Course Names

Name	Who or what	Module
Amazon Leo (formerly Project Kuiper)	Amazon's satellite-internet network, Starlink's main Western rival	6
America PAC	The political action committee (PAC), a fund that spends on elections, that Musk founded in 2024	11
Anthropic	AI company and rival lab	8
Blue Origin	Jeff Bezos's rocket company; maker of the New Glenn rocket and a lunar lander	5
BYD	Chinese maker of cars and batteries	2
Cursor (Anysphere)	AI coding company, part of SpaceX	7
Department of Government Efficiency (DOGE)	The cost-cutting unit Musk led inside the federal government in 2025	11
European Commission	The European Union's executive, which enforces its Digital Services Act (DSA)	8, 9
Federal Aviation Administration (FAA)	The US agency that licenses rocket launches	5
Federal Communications Commission (FCC)	The US agency that licenses satellites and radio spectrum	6

Name	Who or what	Module
Government Accountability Office (GAO)	Congress's auditor	11
Gwynne Shotwell	SpaceX's president and chief operating officer	13
Kimbal Musk	Elon Musk's brother and a Tesla director	4
Linda Yaccarino	X's former chief executive	9
National Aeronautics and Space Administration (NASA)	The US space agency, which buys SpaceX's crew, cargo, and lunar-lander services	5
National Highway Traffic Safety Administration (NHTSA)	The US vehicle-safety regulator	3
National Reconnaissance Office (NRO)	The US spy-satellite agency, which buys SpaceX's Starshield satellites	5
Neuralink	Musk's brain-implant company	10
Ofcom	Britain's communications regulator	8
OpenAI	AI company Musk co-founded	10
Robyn Denholm	Chair of Tesla's board	4
Securities and Exchange Commission (SEC)	The US securities regulator	4, 11
SpaceX (Space Exploration Technologies)	Rocket and satellite company that also owns xAI and X; listed on Nasdaq as SPCX	5-8
Starlink; Starshield	SpaceX's satellite-internet network; the version it builds for US military and intelligence agencies	5, 6
Tesla	Maker of electric cars, batteries, and robots; listed on Nasdaq as TSLA	2-4
The Boring Company	Musk's tunneling company	10
US Space Force	The military service that buys the government's national-security launches	5
Waymo	Alphabet's robotaxi company	3
X	The social network formerly called Twitter; part of SpaceX	9
xAI	Musk's AI company, maker of the Grok models; part of SpaceX	8
Xiaomi	Chinese phone maker that entered the car business in 2024	2

Module 1 — Foundations: The Enterprise

The Companies, the Owner, and the Operating Model

Recommended Reading / Reference

Book: Walter Isaacson, *Elon Musk* (2023), the authorized biography, written with two years of access

Reference: Tesla's annual and quarterly reports and SpaceX's June 2026 prospectus and quarterly filings, all at sec.gov

1a. The Companies

Company	Founded or acquired	What it does	Owner and listing	Musk's role	Module
Tesla	Founded 2003; Musk led its first funding round in 2004	Electric cars, energy storage, robotaxis, humanoid robots, AI chips	Public (Nasdaq: TSLA)	Chief executive	2-4
SpaceX	Founded by Musk in 2002	Launch, the Starlink network, and, since 2026, AI and social media	Public since June 12, 2026 (Nasdaq: SPCX)	Chief executive	5-7
Starlink	Service began in 2020	Satellite internet	SpaceX's Connectivity segment	Through SpaceX	6
xAI	Founded by Musk in 2023	The Grok models; renting computing capacity	Part of SpaceX since 2026	Through SpaceX	8
X (formerly Twitter)	Bought by Musk in 2022	Social network	Part of xAI from 2025, and so of SpaceX	Chairman and chief technology officer	9
Cursor (Anysphere)	Bought by SpaceX in 2026	AI coding tools	Part of SpaceX	Through SpaceX	7
Neuralink	Founded 2016	Brain-computer interfaces	Private	Co-founder	10
The Boring Company	Founded 2016	Tunnels; the Las Vegas Loop	Private	Founder	10

Market values and Musk's stakes are in Key Numbers, and each company's results are in its module. Neuralink and the Boring Company publish no financial statements.

Elon Musk's businesses sit in four companies in October 2026, two listed and two private. Tesla is one listed company and SpaceX the other. SpaceX built Starlink itself, and through a series of deals in 2025 and 2026 (Module 7) it took in xAI, X, and Cursor, which makes it an AI and social-media company as well as a rocket company, while Neuralink and the Boring Company remain private.

Key Numbers gives what the companies are worth and what Musk owns of each, stakes that made his the first fortune above a trillion dollars, with SpaceX, not Tesla, now the larger part of it. Its value has swung by hundreds of billions of dollars since June 2026 with the two share prices, which is why the course treats the fortune as a risk as well as a record (Module 13).

1b. The Operating Model

The companies share a playbook with five parts, of which the first is vertical integration: Tesla designs its own chips, makes some of its battery cells, and builds its own software and charging network, and SpaceX makes its own engines, rockets, satellites, and user terminals, on the view that outside suppliers are slow

and expensive. The second is first-principles cost, which questions every part against the price of its raw materials; it is how SpaceX cut the price of reaching orbit by an order of magnitude (Module 5).

The third part is the mission as a recruiting and financing tool, since Mars, sustainable energy, and 'understanding the universe' attract engineers who work Musk's hours and investors who pay for the story. The fourth is personal control, through his stakes, his titles, and, at SpaceX, shares that carry ten votes each (Module 7). The fifth is a management style of short deadlines, deep layoffs, and public pressure, which has produced fast execution and high turnover alike. Control is the source of the speed and of the key-person risk of Module 13.

1c. The Arc

The arc starts in 2008, the year both companies nearly died and Musk split his remaining money between them. SpaceX's fourth Falcon 1 reached orbit in September after three failures, and in December a $1.6 billion cargo contract from the National Aeronautics and Space Administration (NASA) saved it, while a financing round that closed on Christmas Eve saved Tesla.

Then came the Model S (2012), reusable rockets (Module 5), the Model 3's 'production hell' (2017-18), the 'funding secured' post (2018), Tesla's first $1 trillion valuation (2021), the Twitter purchase (2022), and Musk's months in government (2025). In 2026 the mergers and the listing made SpaceX a public company worth more than Tesla. The question now is whether Tesla's turn from cars to robots, and SpaceX's from rockets to artificial intelligence, will pay as the earlier bets did.

Module 1 Key Points

Foundations: The Enterprise

• Musk's businesses sit in four companies: Tesla and SpaceX, both listed, and Neuralink and the Boring Company, both private.

• Since 2026 SpaceX also holds xAI, X, and Cursor, which makes it an AI and social-media company as well.

• Musk's stakes made his the first fortune above a trillion dollars, and SpaceX is now the larger part of it.

• The shared playbook: vertical integration, first-principles cost, the mission as a recruiting tool, personal control, and relentless deadlines.

• In December 2008 a NASA cargo contract saved SpaceX and a Christmas Eve financing round saved Tesla.

• Control is the source of the companies' speed and of their key-person risk, their dependence on one person.

Module 1 Quiz

Check Your Understanding

1. Which companies held Musk's businesses in October 2026?

A) Tesla, SpaceX, xAI, and X, each listed on its own exchange
B) Tesla, with SpaceX, xAI, and X held as its subsidiaries
C) SpaceX alone, after it absorbed Tesla and Neuralink in 2026
D) Tesla and SpaceX, both listed, plus the private Neuralink and Boring

2. Which of these was not part of SpaceX in October 2026?

A) Neuralink, the implant maker
B) Cursor, the AI coding company
C) xAI, the maker of Grok models
D) Starlink, the satellite network

3. What role does the mission play in the companies' playbook?

A) It decides which products launch first
B) It recruits engineers and draws investors to the story
C) It sets the prices charged to government customers
D) It is a legal duty written into each company's founding charter

4. What is 'first-principles cost' in the companies' playbook?

A) Rebidding every part each year to the lowest supplier
B) Pricing each product at its cost plus the buyer's subsidy
C) Costing each part up from its raw materials
D) Setting prices to match the nearest rival

5. What kept SpaceX and Tesla alive in December 2008?

A) A Pentagon launch contract and a loan from Daimler
B) A NASA cargo contract and a Christmas Eve funding round
C) PayPal's sale to eBay, which funded both at once
D) A federal Energy Department loan to each company

Module 2 — Tesla: The Car Business

The Core Business, With the Numbers

Recommended Reading / Reference

Reference: Tesla's quarterly updates and delivery reports, at ir.tesla.com; the China Passenger Car Association's monthly data, as reported by CnEVPost

2a. The Record

Year	Deliveries	Revenue	Operating margin	Net income	Note
2018	245,240	$21.5 billion	−1.8%	−$1.0 billion	The Model 3's 'production hell'
2020	499,550	$31.5 billion	6.3%	$0.7 billion	The first profitable year
2021	936,000	$53.8 billion	12.1%	$5.5 billion	Shanghai at full scale
2022	1,313,851	$81.5 billion	16.8%	$12.6 billion	Peak margins
2023	1,808,581	$96.8 billion	9.2%	$15.0 billion	Price cuts; net income includes a one-time tax benefit of $5.9 billion
2024	1,789,226	$97.7 billion	7.2%	$7.1 billion	The first fall in annual deliveries
2025	1,636,129	$94.8 billion	4.6%	$3.8 billion	A second fall; regulatory credits $2.0 billion
Second quarter of 2026	480,126	$28.2 billion	1.4%	$1.1 billion	Net income includes a $0.76 billion after-tax gain on Tesla's SpaceX shares
Third quarter of 2026	486,532	—	—	—	Deliveries down 2% on a year earlier; results due after this course's date

Tesla's annual and quarterly reports. Net income is the amount attributable to Tesla's shareholders under US accounting rules, known as generally accepted accounting principles (GAAP).

Tesla built the modern electric-car industry: the Model S showed that an electric car could be desirable, the Model 3 and Model Y that one could sell in the millions, and its Supercharger plug became North America's charging standard, which most other carmakers agreed in 2023 to adopt. Tesla's operating margin, its operating profit as a share of revenue, peaked in 2022 and fell for three years as Tesla cut prices, competitors arrived, and its lineup aged.

Deliveries fell in 2024 and again in 2025, and regulatory credits, which other carmakers buy from Tesla to meet emissions rules, supplied $2.0 billion in 2025, more than half of that year's net income; their end in the United States is traced in Module 11. In 2026 the car business steadied: deliveries rose 9% in the first nine months, helped by cheaper 'Standard' versions of the Model Y and Model 3 launched in October 2025 at $39,990 and $36,990, and the automotive gross margin excluding credits was 16.3% in the second quarter.

The company as a whole grew thinner, as credits fell to $146 million in the second quarter of 2026 and free cash flow, the cash left after capital spending, was minus $1.1 billion. Tesla plans to spend about $25 billion on factories and equipment in 2026, much of it, by its account, for AI computing, the robotaxi, and Optimus (Module 3).

2b. Where Tesla Sells, and the Competition

Market	Tesla's position	Trend	Leading rival
China	4.9% of retail sales of new-energy vehicles, China's term for battery-electric and plug-in hybrid cars, in 2025 (fifth); 4.7% in January-August 2026 (sixth)	Domestic sales down 12% in January-September 2026, while exports from Shanghai doubled	BYD
Europe	236,357 battery-electric cars in 2025, behind Volkswagen's 274,278 across 28 markets; the Model Y was still the best-selling model	Registrations down 38% in the EU in 2025; up 57% in January-May 2026 across the EU, Norway, Switzerland, Iceland, and Britain	Volkswagen; Chinese brands
United States	589,000 cars in 2025 (down 7%), nearly half of all electric-car sales; roughly half in the first half of 2026	The market shrank after the federal tax credit for buyers ended in September 2025 (Module 11)	Carmakers with smaller electric lines
World	1.64 million battery-electric cars in 2025	Electric-car sales, counting plug-in hybrids, rose 20% to 20.7 million in 2025	BYD: 4.60 million vehicles, 2.26 million of them battery-electric

China Passenger Car Association, via CnEVPost; the European Automobile Manufacturers' Association; JATO Dynamics for the 28-market comparison; Cox Automotive; Rho Motion; company reports.

The competition is mostly Chinese: BYD, which makes its own batteries and chips, sold about 620,000 more battery-electric cars than Tesla in 2025, and Xiaomi's SU7 and YU7, aimed squarely at the Model 3 and Model Y, lead a dozen Chinese brands that sell at prices Tesla does not match. In Europe, Volkswagen took the lead in battery-electric cars in 2025, and China-made Teslas pay a European Union duty (Module 12).

2c. Why Sales Fell, and Why They Partly Recovered

Two explanations compete for the decline of 2024-25, and the first, made by Tesla's critics and many analysts, is that Musk's politics damaged the brand. His support for Donald Trump, his role in the federal government (Module 11), and his interventions in European politics (Module 12) cost Tesla buyers where electric-car buyers lean left. The second, made by Tesla and its defenders, is that the causes were ordinary: an aging lineup, the Model Y's factory changeover in early 2025, Chinese competition, and the end of the US tax credit.

The evidence supports both, unequally: Tesla's registrations fell 48% in Germany in 2025 while battery-electric sales across the EU rose about 30%, but its sales fell only 9% in Britain and 7% in the United States, which fits a brand effect concentrated where Musk's politics drew the most hostility. Its sales also fell 5% in China, where his politics played little part, and the 2026 recovery came with cheaper models rather than any change in his politics. This course's reading is that the product cycle and Chinese competition explain the global decline, and politics explains why Europe's was so much steeper.

Module 2 Key Points

Tesla: The Car Business

• Deliveries peaked at 1.81 million in 2023, fell in 2024 and 2025 to 1.64 million, and rose 9% in January-September 2026.

• Operating margin fell from 16.8% in 2022 to 4.6% in 2025 and 1.4% in the second quarter of 2026.

• Regulatory credits supplied $2.0 billion in 2025, more than half of net income, and $146 million in 2026's second quarter.

• BYD sold 2.26 million battery-electric cars in 2025 to Tesla's 1.64 million, and Volkswagen took Europe's lead.

• Tesla's sales fell 48% in Germany in 2025, but 7% in the United States and 5% in China.

• Product and competition explain the global decline; politics explains why Europe's was steeper.

Module 2 Quiz

Check Your Understanding

1. What was Tesla's operating margin in the second quarter of 2026?

A) 16.8%
B) 12.1%
C) 1.4%
D) 16.3%

2. Who sold the most battery-electric cars in 2025?

A) BYD, with 2.26 million
B) Tesla, 1.64 million
C) Volkswagen Group
D) Xiaomi, with its SU7 and YU7

3. How much did regulatory credits contribute to Tesla's 2025 results?

A) $7.5 billion, more than all its net income
B) About $146 million, a small share
C) About $11.4 billion, most of its profit
D) $2.0 billion, over half of net income

4. By how much did Tesla's registrations in Germany fall in 2025?

A) About a tenth
B) About a third
C) About two-fifths
D) Nearly half

5. Which explanation of Tesla's 2024-25 decline does the module's reading favor?

A) Musk's politics, in every market alike
B) Product and competition globally; politics in Europe
C) Tariffs on Tesla's imported parts and cells
D) An aging lineup, with politics playing no measurable part

Module 3 — Tesla: Energy, Robotaxis, Robots, and Chips

The Businesses the Valuation Rests On

Recommended Reading / Reference

Reference: Waymo's Safety Impact data (waymo.com/safety/impact) and the National Highway Traffic Safety Administration's (NHTSA's) investigation files on Tesla (nhtsa.gov)

3a. Energy: The Business That Grew

Tesla's energy business sells Megapack batteries to utilities and power developers, Powerwall batteries to homes, and solar panels, having stopped supplying its Solar Roof in August 2026. It deployed 46.7 gigawatt-hours (GWh) of storage in 2025, up 49%, and earned $12.8 billion of revenue at a gross margin of about 30%, well above the cars' (Module 2). Growth slowed in 2026, to 36.0 GWh in the first nine months, up 11%, and the segment's gross margin fell to 20.4% in the second quarter from 30.3% a year earlier.

The factories are growing: the Lathrop plant in California can make 40 GWh of Megapacks a year and the Shanghai plant 20 GWh, and a plant at Brookshire, near Houston, began making the Megapack 3, unveiled in September 2025, in August 2026, with room for 50 GWh a year. Tesla's own line in Nevada for lithium iron phosphate (LFP) cells, the chemistry Megapacks use, began its ramp in 2026 at 7 GWh a year, reducing its dependence on Chinese cells that US tariffs have made dearer.

3b. Robotaxis

	Tesla	Waymo (Alphabet)
Service began	Austin, June 2025, with a safety monitor in the passenger seat; rides without one from January 22, 2026	Phoenix, 2020, with no one in the driver's seat
Where, October 2026	Driverless in Austin, Dallas, Houston, Miami, Orlando, and Tampa; with a safety driver in the San Francisco Bay Area; approved in Nevada for up to 5,000 cars, not yet in service	15 US metro areas, Las Vegas the fifteenth, in September 2026
Fleet	About 1,000 cars, about 300 of them without a monitor (a crowdsourced count, September 2026; Tesla gives none); 546 registered in Texas on September 26, 126 of them the new Cybercab	Thousands of vehicles; no current count published
Use	More than a million miles without a monitor (September 2026); Tesla reports miles, not rides	More than 20 million paid rides in all; more than 400,000 a week in February 2026
Sensors	Cameras only	Lidar, which maps surroundings with lasers, plus radar, cameras, and detailed maps
Safety record	No comparable public data	82% fewer injury crashes than human drivers over 271 million driverless miles through June 2026, by Waymo's data
Permits	No driverless permit in California	Driverless permits in California and other states

Company statements and filings; RobotaxiTracker and the Texas vehicle registry for Tesla's fleet; Waymo's Safety Impact data.

Tesla's robotaxi service began in Austin in June 2025 and by October 2026 ran without a monitor in six Texas and Florida metro areas. The Cybercab, a two-seater with no steering wheel or pedals, entered pilot

production at Gigafactory Texas in April 2026, with planned capacity above 125,000 a year, and began carrying the public in Austin on September 4; the service is real, but still a small fraction of Waymo's.

Tesla's customers drive with Full Self-Driving (FSD), driver-assistance software that requires an attentive driver. It had 1.48 million active subscriptions at the end of June 2026, up 56% in a year, and the Netherlands approved it for Dutch roads on April 10, 2026, the first approval in Europe, and seven more European Union countries followed by late September. NHTSA, the US vehicle-safety regulator, had at least five open inquiries in October 2026: into FSD running red lights, into crashes in poor visibility, into Tesla's late crash reports, into suspension failures on about 1.2 million older Model 3s and Model Ys, and into whether the Cybercab meets federal safety standards.

The technical argument is over Tesla's cameras-only design, and its advocates, Musk first among them, argue that people drive with eyes alone, that a car without lidar costs a fraction as much to build, and that millions of customer cars supply training video no rival can match. Waymo's answer is that lidar and radar see what cameras miss, in darkness, glare, and fog, and that its redundant sensors are why its record exists. The evidence in 2026 cannot settle it, because Tesla's driverless miles are too few to measure a serious-crash rate against the human benchmark, and Tesla publishes no record comparable to Waymo's. This course's reading is that the camera-only approach is unproven rather than disproven, and that its proven advantage is cost.

Worked example — What a robotaxi earns

Take a Cybercab bought for $30,000, the price Musk has targeted, and suppose it lasts 500,000 miles. Run it 16 hours a day at 60% paid utilization, about 250 paid miles a day, at $1.00 a mile, a price chosen to undercut ride-hailing with a driver. Revenue is $250 a day, about $91,000 a year, and costs are about $10 a day for electricity, $15 for cleaning and maintenance, $10 for insurance and remote supervision, and $16 of depreciation, about $51 a day or $18,600 a year. That leaves about $72,000 of operating profit a year on a $30,000 asset, a return no carmaker earns on a car it sells, which is why Tesla's bulls value the business in trillions. Each assumption is contestable, and at 40% utilization and $0.70 a mile, revenue falls to about $43,000 and, with less electricity used, profit to about $25,000. A million such cars would earn $25-72 billion a year, many times Tesla's whole net income in 2025 (Module 2).

3c. Optimus

Optimus, the humanoid robot Tesla unveiled as a person in a robot suit in 2021 and as a working prototype in 2022, is the bet Musk says will be most of Tesla's long-term value. Its third version had not been shown by October 2026, after Musk delayed the unveiling planned for the first quarter, citing copycats. Tesla says the production line at Fremont, on the lines that made the Model S and X, is designed for a million robots a year, with the first units going to an internal 'Optimus Academy' to gather training data.

Musk has said production will be 'extremely slow at first', he told investors in January 2026 that no Optimus was yet doing useful work, and he has set late 2027 for the first sales to the public. Chinese makers such as Unitree and AgiBot already sell humanoids, at lower prices.

3d. Chips and Terafab

Tesla designs its own chips, which TSMC and Samsung make: its AI5 chip, for cars and robots, finished design in April 2026 for production in 2027, and Samsung will make the next one, AI6, at its Texas plant under a $16.5 billion contract signed in July 2025 that Musk called the 'bare minimum'. Tesla disbanded the team behind Dojo, its training supercomputer, in August 2025, then restarted it in January 2026 as 'Dojo3', which Musk says will compute in space.

The largest bet is Terafab, a chip-making complex that Tesla and SpaceX announced in Austin on March 21, 2026. It begins with a research fab at Gigafactory Texas, added Intel as a partner in April, and plans a full-scale plant in Grimes County, Texas, whose first phase the two companies will fund with $16.8 billion; SpaceX's tax-abatement filing there allows spending of up to $119 billion over all phases. Musk's case is that the supply of AI chips will limit robotaxis, Optimus, and SpaceX's AI business alike. Skeptics answer that a leading-edge plant takes years to build and years more to reach good yields, and that no newcomer has yet succeeded at the leading edge.

Module 3 Key Points

Tesla: Energy, Robotaxis, Robots, and Chips

• Tesla deployed 46.7 GWh of storage in 2025, up 49%, at about a 30% gross margin; 2026 growth slowed to 11%.

• The robotaxi runs driverless in six Texas and Florida metros with about 300 unmonitored cars, a fraction of Waymo's service.

• Tesla's camera-only approach is unproven rather than disproven; Waymo reports 82% fewer injury crashes than human drivers.

• A robotaxi, worked: about $72,000 a year per car at bull assumptions and about $25,000 at bear ones.

• Optimus's third version was unshown in October 2026; Musk targets the first public sales in late 2027.

• Terafab, a Tesla-SpaceX chip complex in Texas, starts with $16.8 billion; a tax filing allows up to $119 billion.

Module 3 Quiz

Check Your Understanding

1. How much energy storage did Tesla deploy in 2025?

A) 36 GWh, up 11%
B) About 50 GWh, up 60%
C) 46.7 GWh, up 49%
D) About 20 GWh, down a fifth

2. What does the module conclude about Tesla's camera-only approach?

A) It is unproven rather than disproven, given too few driverless miles
B) It is proven safer than Waymo's, on Tesla's own crash data
C) It has failed, since Tesla now adds radar to the Cybercab
D) It is disproven by NHTSA's findings in its open inquiries

3. When did Tesla begin robotaxi rides without a safety monitor?

A) June 2025, when the Austin service launched
B) September 4, 2026, with the first Cybercab
C) January 22, 2026, on a limited basis
D) Not yet; each ride still carries a monitor

4. In the worked example, about how much operating profit does one robotaxi earn a year under the bear assumptions?

A) About $9,000
B) About $25,000
C) About $4,000
D) About $43,000

5. What is Terafab?

A) A chip complex Tesla and SpaceX plan in Texas
B) Tesla's battery-cell plant in Nevada
C) Samsung's chip plant in Taylor, Texas
D) A robotaxi depot and test track in Austin

Module 4 — Tesla: Valuation and Governance

What the Market Pays For, and Who Controls the Company

Recommended Reading / Reference

Book: Tim Higgins, *Power Play: Tesla, Elon Musk, and the Bet of the Century* (2021)

Reference: The Delaware Supreme Court's opinion in *Tornetta v. Musk* (December 19, 2025) and Tesla's 2025 proxy statement

4a. The Valuation, Worked

Worked example — What $1.5 trillion implies

Start from Tesla's market value and earnings multiple in Key Numbers, and value the parts. Cars: about $70 billion of automotive revenue at a 3% operating margin is about $2 billion of profit, worth $20 billion at the ten times earnings typical of carmakers and $40 billion at a generous 20 times. Energy: its 2025 revenue (Module 3) at a 15% operating margin is about $1.9 billion of profit, worth about $60 billion at 30 times for its growth. Services, from used cars to charging and insurance, add perhaps $20 billion. The existing businesses justify roughly $100-120 billion, less than a tenth of the market value. The other $1.4 trillion is paid for robotaxis, Optimus, and chips. To earn it at 20 times earnings, Tesla needs about $70 billion a year of profit in the early 2030s, which the robotaxi example of Module 3 reaches with about a million cars at the bull case or nearly three million at the bear. Put another way, the price is what a one-in-three chance of a $4 trillion outcome would be worth.

4b. Pay, Control, and the Courts

Date	Event	Outcome
March 2018	Shareholders approve a ten-year award of options in 12 tranches, each vesting only as Tesla's value and operations reach set milestones, up to $650 billion of market value	Eleven tranches had vested by April 2022, and the last milestone was met by early 2023
August 2018	Musk posts that he has 'funding secured' to take Tesla private at $420 a share; no financing was in place	The Securities and Exchange Commission (SEC) sued for fraud. Musk and Tesla each paid $20 million, Musk gave up the chairmanship for three years, and his material posts needed a lawyer's approval. A 2023 jury cleared him of investors' damages, and appeals courts upheld the settlement
January 2024	Delaware's Court of Chancery voids the 2018 award in *Tornetta v. Musk*	The board was not independent of Musk, and shareholders were not fully informed
June 13, 2024	Shareholders re-approve the award and vote to move Tesla's incorporation to Texas	Tesla becomes a Texas company
December 2024	Chancery refuses to restore the award and grants the plaintiffs' lawyers $345 million	Appealed
August 2025	The board grants Musk an interim award of 96 million shares	Forfeited in April 2026, once the 2018 award was restored

Date	Event	Outcome
November 6, 2025	About 77% of votes cast approve the 2025 award: 423.7 million shares in 12 tranches, tied to market values from $2 trillion to $8.5 trillion and to operating targets	Reported as worth up to about $1 trillion; the last two tranches also require a plan for Musk's succession
December 19, 2025	Delaware's Supreme Court reverses the remedy and reinstates the 2018 award in full, with $1 of damages	The lawyers' fee is cut to about $54 million; the lower court's findings about the board stand
Second quarter of 2026	Musk exercises the restored options, about 304 million	Tesla withholds about 17.5 million shares to cover the exercise price; the new shares vest on January 19, 2028

Court opinions; Tesla's filings; the SEC's 2018 complaint and settlement.

Governance at Tesla is a story of control, and Musk has said he wants about 25% of the votes to be comfortable leading Tesla into AI and robotics, and the 2025 award would take him there if every tranche vests. Its operating targets are 20 million vehicles delivered in all, 10 million active FSD subscriptions, a million robots delivered, a million robotaxis in commercial service, and adjusted earnings before interest, taxes, depreciation, and amortization (EBITDA) rising in steps to $400 billion. None had been earned by June 30, 2026, and Tesla's value was still below the first milestone of $2 trillion.

The board, chaired by Robyn Denholm since 2018, includes Musk's brother Kimbal and directors who have served beside him for years. Under a 2025 Texas law, which Tesla adopted, shareholders must own 3% of the stock before they can sue the directors on the company's behalf.

4c. The Bull Case, the Bear Case, and the Pay

	Bull case	Bear case
Robotaxis	Camera-only cars scale to millions at Musk's target price	The safety record and regulators confine Tesla to a small service while Waymo scales
Optimus	A general-purpose robot sold in millions, larger than the car business	Chinese humanoids undercut it, and useful work keeps slipping
Cars	Cheaper models and new markets restore growth	BYD and Xiaomi keep taking share, and margins stay thin
Energy	Demand from grids and data centers keeps storage growing	Chinese cells and rivals squeeze margins, as in 2026
Chips	Terafab frees Tesla and SpaceX from the AI-chip shortage	A plant that takes years and tens of billions fails to reach good yields
Governance	Musk, at 25% of the votes, stays and executes	A board that does not say no, and a chief executive spread across companies and politics
Valuation	$8.5 trillion, the award's top milestone, by the mid-2030s	The existing businesses justify about a tenth of the price

The pay plan divides investors the same way. The case for it, as the board and Musk's supporters make it, is that it pays nothing unless shareholders gain trillions, that the 2018 award's milestones, mocked as impossible, were all met, and that keeping Musk is worth the dilution; shareholders backed both awards by wide margins (table above). The case against is made by the proxy advisers Institutional Shareholder Services (ISS) and Glass Lewis and by investors including Norway's sovereign wealth fund, which voted against. They argue that the award dilutes other holders by about a tenth, that a board the courts found too close to Musk negotiated it, and that the largest shareholder should not need more pay to do his job.

The evidence so far is mixed: the 2018 award paid for results that arrived, but in October 2026 the robotaxi fleet has a few hundred unmonitored cars, no Optimus does useful work, and the car business earns less than it did in 2022. This course's reading is that Tesla's price is a bet on autonomy and robots with real but early evidence behind it, and that the pay plan ties Musk's reward to the same bet: a strength for shareholders who share it, and a risk for those who do not.

Module 4 Key Points

Tesla: Valuation and Governance

• At about 355 times earnings, Tesla's price is mostly a bet; its existing businesses justify about $100-120 billion.

• Justifying the rest needs about $70 billion of yearly profit early next decade, roughly a million robotaxis at the bull case.

• Delaware's Supreme Court reinstated Musk's 2018 award in December 2025, and his Tesla stake rose to 19.9%.

• The 2025 award adds 423.7 million shares for milestones from $2 trillion to $8.5 trillion; none earned by June 2026.

• 'Funding secured' cost Musk and Tesla $20 million each, and cost Musk the chairmanship for three years.

• The pay plan ties Musk's reward to the autonomy bet: a strength for believers, a risk for everyone else.

Module 4 Quiz

Check Your Understanding

1. In the worked valuation, roughly how much of Tesla's $1.51 trillion do its existing businesses justify?

A) About $1 trillion
B) About a third, or $500 billion
C) About a fifth, or $300 billion
D) Roughly $100-120 billion

2. What did Delaware's Supreme Court decide in December 2025?

A) It upheld the voiding of the 2018 award
B) It ordered shareholders to vote again
C) It sent the case to Texas's new business court
D) It reinstated the 2018 award, with $1 of damages

3. What did the 'funding secured' settlement require?

A) A ban on Musk posting about Tesla
B) $20 million each, and the chairmanship
C) Musk's exit as chief executive for two years
D) A $1 billion fine and an independent monitor

4. Why was Musk's 2025 interim award of 96 million shares forfeited?

A) The 2018 award was restored
B) Shareholders voted it down in November
C) A Texas court voided it as excessive
D) He missed its delivery milestones

5. Besides value and operating targets, what must happen before the 2025 award's last two tranches can vest?

A) Approval by a Texas court
B) A separate shareholder vote
C) A plan for Musk's succession
D) Musk's exit from politics and DOGE

Module 5 — SpaceX: Launch

How One Company Came to Launch Most of What Reaches Orbit

Recommended Reading / Reference

Book: Eric Berger, *Liftoff* (2021) and *Reentry* (2024), on SpaceX's first two decades

Reference: Jonathan McDowell's launch logs and statistics, at planet4589.org

5a. Reusability

Date	Milestone	Why it mattered
June 2010	Falcon 9's first flight	The rocket that now flies most of the world's launches
December 2015	A Falcon 9 booster lands after an orbital launch, the first time any orbital booster had	The step that made reuse possible
March 2017	A landed booster flies again	Reuse moves from demonstration to business
2018	Block 5, the version built for reuse, and the first Falcon Heavy	The design behind boosters that fly dozens of times
May 2020	Crew Dragon carries astronauts to the International Space Station	The first crewed orbital launch from US soil since 2011
October 2024	A Starship booster is caught by the launch tower's arms	Reuse of the largest rocket ever flown becomes plausible
2025	170 launches, 165 of them Falcon 9s, against 159 by the rest of the world	Most carry SpaceX's own Starlink satellites
August 2026	One booster, B1067, flies for the 37th time	The reuse record

Company announcements; Jonathan McDowell's launch logs.

Reusability is SpaceX's advantage: before 2015 no orbital rocket's booster had flown back to land, and apart from the Space Shuttle, whose refurbishment proved costly, every orbital rocket was thrown away after one flight. SpaceX's landing boosters, refurbished between flights, cut the cost of each launch to a fraction of the price and gave the company a pace no rival matches. In 2025 it launched about 85% of all the spacecraft that reached orbit, and the United States, nearly all of it on SpaceX rockets, sent about 85% of the payload mass. In 2026, through October 10, SpaceX launched 117 times, about half of the world's roughly 241, a slightly lower share than in 2025.

Worked example — Cost per kilogram

The Space Shuttle cost about $54,500 for each kilogram it carried to low Earth orbit over its life, in 2021 dollars. A Falcon 9 lists at $74 million and, with its booster recovered, carries about 17.5 tonnes to low orbit, about $4,200 a kilogram; that payload is an outside estimate, since SpaceX publishes only the 22.8 tonnes it can carry when the rocket is thrown away. Estimates of SpaceX's own cost for a flight on a reused booster run from $15 million to $30 million, under $2,000 a kilogram for its own Starlink launches. Starship is designed to carry 100-150 tonnes with both stages reused, and Musk's goal is a cost of $10-20 million a flight, which would be about $70-200 a kilogram, 20 to 60 times below Falcon 9's list price and hundreds of times below the Shuttle's. That arithmetic is why Starlink is affordable, why rivals cannot match SpaceX's prices, and why so much of SpaceX's value depends on Starship working.

5b. Starship

Flight	Date	Version	Result
1	April 2023	First	Exploded about four minutes in; damaged the launch pad
2	November 2023	First	The stages separated; both were lost
3	March 2024	First	Reached space; the ship was lost on reentry
4	June 2024	First	Both stages survived to controlled splashdowns
5	October 2024	First	The booster was caught by the launch tower
6	November 2024	First	The catch was called off; both stages splashed down
7 and 8	January and March 2025	Second	Both boosters caught; both ships lost minutes after launch, scattering debris over the Caribbean
9	May 2025	Second	The first reflown booster was lost in a landing test; the ship broke up on reentry
10 and 11	August and October 2025	Second	Both stages splashed down as planned; the ships deployed dummy satellites
12	May 22, 2026	Third	First flight from a new Texas pad; booster lost; the ship deployed 22 satellites, 20 of them dummies, and splashed down
13	July 24, 2026	Third	Booster lost; the ship released the first 20 real third-version Starlink satellites on a path that did not reach orbit, and they burned up
14	September 28, 2026	Third	First flight to orbit: 26 working Starlink satellites deployed; the ship splashed down north of Hawaii after about three hours

Company announcements; the Federal Aviation Administration's (FAA's) statements; reporting by Spaceflight Now and NASASpaceflight.

Starship is the largest rocket ever flown, about 120 meters tall with roughly twice the thrust of the Saturn V that carried Apollo's astronauts, and it is designed to be reused in full (5a). Its record is the table's: early explosions, the 2024 booster catch, the second version's losses in 2025, and a third version from May 2026, which reached orbit on September 28, though none of its three boosters has been caught. SpaceX's method is to build, fly, and fix at a pace no government program would accept, and the failures are part of the method. The FAA investigates each mishap, and it closed its review of the twelfth flight's booster loss in seven weeks. The milestones still ahead are catching the ship, moving fuel between ships in orbit, and flying often and reliably.

Starship is also the lunar lander for the National Aeronautics and Space Administration (NASA), under contracts worth about $4 billion awarded in 2021 and 2022. Artemis II, the first crewed flight around the Moon since 1972, flew from April 1 to April 10, 2026 on NASA's own rocket. In February 2026 NASA restructured the program, making Artemis III a 2027 test in Earth orbit, in which the Orion capsule docks with test versions of both SpaceX's and Blue Origin's landers, and moving the first landing to Artemis IV in 2028. NASA's inspector general warned in March 2026 that SpaceX 'will be challenged' to finish the required milestones, among them refueling in orbit and an uncrewed landing.

5c. The Government and the Competitors

SpaceX's largest launch customer is SpaceX, since most Falcon 9 flights carry Starlink satellites. Its largest outside customer is the US government, which supplied about a fifth of its 2025 revenue. NASA buys crew and cargo flights to the space station as well as the lander. In April 2025 the US Space Force awarded SpaceX $5.9 billion for 28 national-security launches, just over half of the 54 missions in that round, against $5.4 billion for United Launch Alliance's 19 and $2.4 billion for Blue Origin's 7. The National Reconnaissance

Office (NRO), the spy-satellite agency, is building a constellation of Starshield satellites, SpaceX's military line, under a $1.8 billion contract from 2021, and had launched about 240 of them by June 2026. The Golden Dome missile-defense program, funded with $37.8 billion by early 2026 against a cost estimate of $185 billion, had made no confirmed award to SpaceX by October.

The rivals are behind on reuse and pace: Blue Origin's New Glenn reached orbit in January 2025, landed its booster in November 2025, and in April 2026 landed a reflown one, though its upper stage lost the satellite it carried. Then a booster exploded in a ground test on May 28, 2026, damaging its pad, and it had not flown again by October. By early October 2026 United Launch Alliance's Vulcan had flown once in 2025 and once in 2026, Europe's Ariane 6 four times in each year, and Rocket Lab's Neutron not at all. China is the only other country launching at scale, with 92 launches in 2025, and in July 2026 it recovered an orbital booster for the first time, catching a Long March 10B first stage in a net at sea.

Module 5 Key Points

SpaceX: Launch

• Reusable boosters made SpaceX the dominant launcher: 170 launches in 2025, more than the rest of the world combined.

• A Falcon 9 lists at about $4,200 a kilogram; Musk's goal for a reused Starship is $70-200 a kilogram.

• Starship reached orbit on its fourteenth flight, on September 28, 2026, deploying 26 working Starlink satellites.

• NASA moved the first crewed landing to Artemis IV in 2028; catching ships and refueling in orbit remain undone.

• The US government supplied about a fifth of SpaceX's 2025 revenue, and in 2025 awarded it 28 launches worth $5.9 billion.

• New Glenn, Vulcan, and Ariane 6 fly rarely; only China launches at scale, and it recovered its first booster in 2026.

Module 5 Quiz

Check Your Understanding

1. About how much does a Falcon 9 cost per kilogram to low orbit at its list price?

A) About $4,200
B) About $54,500
C) About $20,000
D) About $1,500

2. What happened on Starship's fourteenth flight, on September 28, 2026?

A) Its booster and ship were both caught by the tower
B) It moved fuel between two ships in orbit
C) It reached orbit and deployed 26 Starlink satellites
D) It exploded on the pad during a fueling test

3. How did NASA change the Artemis program in February 2026?

A) It cancelled the crewed lunar landing
B) It moved the first landing up to Artemis II
C) It replaced SpaceX's lander with Blue Origin's alone
D) It moved the first landing to Artemis IV in 2028

4. What share of SpaceX's 2025 revenue came from US government agencies?

A) About two-thirds
B) About a fifth
C) About half
D) About a twentieth

5. Which other country launches at scale, and what did it achieve in July 2026?

A) Russia: a booster landing at sea
B) China: a booster caught at sea
C) India: its first crewed orbital flight
D) Japan: its first reusable rocket landing

Module 6 — Starlink

The Business That Pays for the Rest

Recommended Reading / Reference

Reference: SpaceX's quarterly results, and Jonathan McDowell's Starlink statistics at planet4589.org

6a. The Numbers

Date	Subscribers	Note
December 2022	About 1 million	
December 2023	About 2.3 million	
December 2024	About 4.6 million	The first satellites that connect directly to phones launched in January
December 2025	8.9 million	2025 revenue $11.4 billion; operating income $4.4 billion; revenue per user $81 a month
March 2026	10.3 million	The figure in the June 2026 prospectus
June 2026	12.0 million	Second-quarter revenue $4.3 billion; operating income $1.7 billion; revenue per user $66 a month, from $85 a year earlier

Company statements; SpaceX's prospectus and quarterly results. Starlink is SpaceX's Connectivity segment.

Starlink is SpaceX's profit engine: its operating margin was 39% in both 2025 and the second quarter of 2026, while SpaceX's launch and AI businesses lost money (Modules 7 and 8). It serves more than 160 countries and territories, and its average revenue per user, the monthly revenue each subscriber brings in, has fallen as the mix shifts toward cheaper plans and lower-income markets, and premium segments carry higher prices:

Segment	Customers	Note
Consumers	Households beyond the reach of cable and fiber, worldwide	Most subscribers; cheaper plans pull revenue per user down
Business	Remote sites, farms, mines, and energy operations	Priced above consumer plans
Maritime	Cruise lines, merchant fleets, and yachts	A premium segment
Aviation	Airlines including United, Qatar Airways, and Air France; American Airlines signed in 2026, and Southwest, Virgin Atlantic, Iberia, and Aer Lingus began service	Usually free to passengers, paid for by the airline
Government	US military and intelligence agencies, allied militaries, and Ukraine	Contract values mostly undisclosed
Direct to cell	About 7.4 million devices a month in about 30 countries, through about 30 mobile carriers including T-Mobile (March 2026)	Growing with the spectrum bought from EchoStar

To make phones its next market, SpaceX agreed in September 2025 to buy wireless spectrum licenses from EchoStar for about $17 billion in cash and stock, later about $19.6 billion with more spectrum added. The Federal Communications Commission (FCC) approved the transfer on May 12, 2026, and the first part closed on May 22.

6b. The Constellation and Its Licenses

SpaceX had launched 12,988 Starlink satellites by October 9, 2026, and about 11,100 were working, including more than 600 that connect directly to phones. It says it operates about three-quarters of the world's active satellites that can maneuver. Each is designed to last about five years, so the network must launch some 2,000 a year just to stand still, a cost advantage no rival can match, because a rival must also buy its launches. The larger third-version satellites need Starship to carry them (Module 5).

SpaceX's filings with the International Telecommunication Union (ITU), the United Nations agency that coordinates orbits and frequencies, cover about 42,000 satellites, but the FCC has authorized fewer than half of that. Astronomers object to the satellites' brightness, and rivals have contested the filings.

6c. The Geopolitics

Starlink is a strategic asset and a diplomatic problem, and it has kept Ukraine's military connected since 2022, on terminals paid for by SpaceX, Poland, Germany, the United States, and others, about 47,000 of them by December 2023. In September 2022 Musk refused to enable coverage near Crimea for a Ukrainian drone attack, an episode revealed in Walter Isaacson's 2023 biography, which showed a private company shaping a war's operations, and in June 2023 the Pentagon began contracting directly for Ukraine's service. In February 2026 Ukraine and SpaceX began requiring terminals to be registered, cutting off the unregistered ones Russian forces had been using.

Governments answer the dependence in three ways: some ban the service and build their own, as Russia, Iran, and China have; some embrace it and accept the dependence, as Ukraine, the Gulf states, and much of Latin America and Africa have; and others use licensing as leverage. India licensed Starlink in 2025, with local telecom partners, but commercial service had not begun by October 2026. South Africa's rules requiring local black ownership kept it out through 2025, and Brazil froze Starlink's bank accounts in 2024 to collect fines owed by X (Module 9).

6d. The Rivals

System	Owner	Satellites in orbit (October 2026)	Status
Amazon Leo (formerly Project Kuiper)	Amazon	392	Commercial service not yet begun; the FCC waived, with conditions, its July 2026 deadline to have half of 3,236 satellites in orbit
Guowang	China (state)	247	Planned at about 13,000
Qianfan	China (Shanghai's government)	258	Planned at more than 13,000
Eutelsat OneWeb	Eutelsat (France, Britain, and others)	654	Serving businesses and governments
IRIS²	European Union	None	Revised in August 2026 to 348 satellites for €15.6 billion; first launch 2029, service 2030
AST SpaceMobile	US company backed by AT&T, Verizon, and Vodafone	About 12	Large satellites that connect to ordinary phones; one lost on a New Glenn flight in April 2026
Starlink	SpaceX	About 11,100	The incumbent, by a wide margin

Jonathan McDowell's counts, October 9, 2026; company and agency announcements.

Module 6 Key Points

Starlink

• Starlink's operating margin was 39% in 2025 and in 2026's second quarter, helping pay for SpaceX's other losses.

• Subscribers grew from about 1 million in 2022 to 12.0 million by June 2026, in more than 160 markets.

• Revenue per user fell to $66 a month from $85 a year earlier as cheaper plans and markets grew.

• About 11,100 working satellites need some 2,000 replacements a year, which SpaceX launches more cheaply than any rival could.

• Starlink kept Ukraine's military connected; required registration cut off Russian forces' terminals in February 2026.

• Amazon Leo, with 392 satellites, had not begun service; China's two networks have about 500 in orbit.

Module 6 Quiz

Check Your Understanding

1. Why did Starlink's monthly revenue per user fall to $66 in 2026?

A) Cheaper plans and lower-income markets grew fastest
B) Starlink cut the price of every existing plan
C) European regulators capped what it may charge households
D) It began giving its terminals free to every new subscriber

2. About how many working Starlink satellites were in orbit in October 2026?

A) About 4,000
B) About 7,500
C) About 9,000
D) About 11,100

3. What did Ukraine and SpaceX do in February 2026?

A) They ended service near the front
B) They switched to Amazon Leo
C) They required terminals to be registered
D) They let the EU pay for every frontline terminal

4. Which spectrum purchase underpins Starlink's plans for phones?

A) Verizon's 5G licenses, for $40 billion
B) EchoStar's licenses, about $19.6 billion
C) T-Mobile's mid-band licenses, for $25 billion
D) Globalstar's satellite licenses, for $12 billion

5. How do governments respond to dependence on Starlink, by the module's account?

A) Some ban it, some embrace it, and some use licensing as leverage
B) Most license it freely, on the same terms as phone carriers
C) Most require a local partner to own a majority of the service
D) Most seek a stake in SpaceX in exchange for landing rights

Module 7 — The Mergers and the Listing

The Deals That Made SpaceX a Public Conglomerate

Recommended Reading / Reference

Reference: SpaceX's final prospectus (June 11, 2026) and its Form 10-Q for the second quarter of 2026, at sec.gov

7a. The Timeline

Date	Deal	Terms
July 2023	xAI founded	The Grok chatbot launches on X in November
2024	xAI raises $6 billion in May and $6 billion in December	Valued at about $50 billion by the end of the year
March 28, 2025	xAI acquires X	All stock: xAI valued at $80 billion and X at $33 billion, or $45 billion with its debt
July 2025	SpaceX invests $2 billion in xAI	The companies converge
January 2026	xAI raises $20 billion at about $230 billion	The last private round, with Tesla among the investors (Module 13)
February 2, 2026	SpaceX acquires xAI, and with it X	All stock: SpaceX valued at $1 trillion and xAI at $250 billion; xAI's holders get about a fifth of the combined company
June 11-12, 2026	SpaceX's initial public offering (IPO) on Nasdaq at $135 a share	555.6 million new shares; $75 billion raised, $86.25 billion with the underwriters' option to sell more; a value of $1.77 trillion
July 7, 2026	SpaceX joins the Nasdaq-100 index	S&P Dow Jones Indices declined to waive the S&P 500's rules on time since listing and profitability
August 14, 2026	SpaceX acquires Cursor	389 million shares, worth $60 billion

Company announcements and filings; the Twitter purchase that began the sequence is in Module 9.

The two mergers turned a rocket company into a conglomerate: the 2025 merger put the social network inside the AI lab, on the argument that X's posts trained Grok and Grok kept users on X, and the 2026 merger put both inside the company with the cash. Musk's case for it is that AI needs power and computing at a scale that only orbit can eventually supply, and that one company can build the rockets, the satellites, the data centers, and the models.

7b. What the Prospectus Disclosed

The listing was the largest ever, about 2.9 times Saudi Aramco's 2019 record of $29.4 billion, and the prospectus disclosed what two decades of private ownership had hidden. SpaceX's 2025 revenue was $18.7 billion, restated to include xAI and X for the whole year, up 33%, and it lost $4.94 billion after earning $0.79 billion in 2024. Starlink earned the profit (Module 6) and AI lost the most (Module 8), while Space, the launch business including Starship, lost $657 million on $4.1 billion of revenue, and capital spending reached $20.7 billion.

The shares come in two classes: the Class A shares sold to the public carry one vote each, and the Class B shares carry ten. Musk holds most of the Class B shares, which gives him a large majority of the votes (Key Numbers), so SpaceX is a 'controlled company' that may skip Nasdaq's rule requiring a majority of

independent directors. Musk's own shares are locked up until June 2027, while other holders' shares are released in stages after each quarterly report.

7c. The First Public Quarter

SpaceX reported its first public quarter on August 4, 2026, when revenue nearly doubled from a year earlier, to $7.8 billion, on Starlink's growth and the AI segment's new business renting computing capacity, and it lost $541 million. It held about $100 billion in cash and securities and a backlog of contracted revenue of $47.5 billion, and its capital spending ran at $18.4 billion in the quarter, mostly for AI. The shares closed at a record $201.80 on June 16, touched $104.83 on August 3, and on October 9 closed about a fifth below the record (Key Numbers).

7d. The Valuation, and the Argument Over It

Worked example — What SpaceX's price buys

Value the parts in October 2026, starting with Starlink, whose revenue at its second-quarter rate is about $17 billion a year, earned at the margin in Module 6. If it reaches $45 billion of revenue and $18 billion of operating profit by 2030, 25 to 40 times that profit gives $450-720 billion. Launch loses money while Starship is built (7b); its contracts and its near-monopoly might be worth $50-150 billion. AI, with computing rented to Anthropic and, from October, Google (Module 8), Grok, X's advertising, and Cursor, ran at about $10 billion of revenue a year in the second quarter, before either lease's first full quarter, and might be valued at $250-400 billion. The sum is roughly $0.75-1.3 trillion for what exists, and the remaining $0.85-1.4 trillion is the option on Starship as a platform, for data centers in orbit, lunar bases, and travel between continents, and on the AI business reaching the frontier.

The case for the price, as SpaceX's investors make it, is that Starlink is a growing, profitable network with no peer, that launch is a near-monopoly, and that Starship will open markets that do not yet exist, as the Falcon 9 did for Starlink. The case against, made by skeptical analysts, is that SpaceX lost money in 2025 and in the first half of 2026, that the AI segment's new revenue depends on leases to rival labs (Module 8), and that a price of more than 100 times 2025 revenue assumes Starship and AI both succeed.

The evidence by October 2026 is a Starlink business growing on plan, a first Starship flight to orbit, and an AI segment whose computing revenue is real but rented to competitors. This course's reading is that Starlink alone supports a fifth to a third of the value, and that the rest is a bet on Starship and AI that the market had marked down by a fifth from its June record.

Module 7 Key Points

The Mergers and the Listing

• xAI absorbed X in March 2025, and SpaceX absorbed xAI in February 2026, valuing SpaceX at $1 trillion and xAI at $250 billion.

• The June 2026 listing raised $86.25 billion at a $1.77 trillion value, nearly three times Saudi Aramco's record.

• SpaceX lost $4.94 billion in 2025 as launch and AI losses outweighed Starlink's profit; capital spending reached $20.7 billion.

• Ten-vote Class B shares give Musk control of a 'controlled company'; his own shares are locked up until June 2027.

• Starlink supports a fifth to a third of SpaceX's value; the rest is a bet on Starship and AI.

Module 7 Quiz

Check Your Understanding

1. How much did SpaceX raise in its June 2026 listing, counting the underwriters' option?

A) About $29.4 billion
B) About $100 billion
C) About $86 billion
D) About $177 billion

2. How did SpaceX's businesses fare in 2025?

A) All three made an operating profit
B) Launch made the profit; Starlink and AI lost money
C) AI made the profit; launch and Starlink lost
D) Starlink made the profit; launch and AI lost

3. What gives Musk control of SpaceX?

A) A majority of the shares sold to the public
B) A seat for each of his companies on the board
C) A voting agreement with the other big holders
D) Class B shares carrying ten votes each

4. By the course's reading, how much of SpaceX's value does Starlink alone support?

A) About half of it
B) A fifth to a third
C) Two-thirds to three-quarters
D) All of it, with room to spare

5. Why was SpaceX not added to the S&P 500 in 2026?

A) Its voting shares sit in a foreign holding company
B) Musk asked the index committee to wait a year
C) It had not met the index's rules on listing time and profits
D) Its ten-vote shares are barred by the index's rules

Module 8 — xAI and Grok

The AI Business and Its Record

Recommended Reading / Reference

Reference: SpaceX's quarterly filings on its AI segment, and Epoch AI's directory of AI data centers, at epoch.ai

8a. Compute

xAI was founded in 2023 as Musk's answer to OpenAI, which he had co-founded and would later sue (Module 10), with the stated goal of a 'maximally truth-seeking' AI. Its distinctive asset is computing power built fast: Colossus, in Memphis, assembled 100,000 Nvidia graphics processing units (GPUs), the chips that train and run AI models, in 122 days in 2024, and doubled to 200,000 by February 2025.

Since May 2026 Anthropic, a rival AI company, has rented all of Colossus and capacity in its successor, under a contract the prospectus values at $1.25 billion a month through May 2029, which either side may end on 90 days' notice. A June filing disclosed a second tenant: Google is to pay about $920 million a month for computing capacity from October 2026 to June 2029. Colossus 2, also in Memphis, had about 946 megawatts of capacity for its chips in October 2026 on Epoch AI's estimate, about 440,000 of Nvidia's newest chips, and Epoch projects 1.5 gigawatts by early 2027. It has run largely on gas turbines across the state line in Southaven, Mississippi, about 59 of them in May 2026, backed by Tesla Megapacks. Mississippi permitted 41 permanent turbines in March 2026, and the National Association for the Advancement of Colored People (NAACP) has sued under the Clean Air Act.

8b. The Money

Period	Revenue	Operating result	Capital spending	Note
2024	$2.62 billion	−$1.56 billion	—	Includes X's advertising
2025	$3.20 billion	−$6.36 billion	$12.7 billion	Most revenue still from X's advertising
First quarter of 2026	$0.82 billion	−$2.47 billion	—	Before the computing rentals
Second quarter of 2026	$2.56 billion	−$1.26 billion	$15.8 billion	$2.19 billion from AI computing and services and $0.37 billion from X's advertising; adjusted EBITDA $1.15 billion

SpaceX's prospectus and quarterly filings. The AI segment combines xAI and X; adjusted EBITDA is earnings before interest, taxes, depreciation, amortization, and some other items.

The AI business turned from a cost center into a landlord in 2026. Its second-quarter revenue tripled from the first quarter, most of the gain from renting computing capacity, and its adjusted EBITDA turned positive. It still lost money after depreciation, and its capital spending in the quarter was about six times its revenue.

8c. Grok

xAI's Grok models sit in the frontier's second tier, behind those of OpenAI, Google, and Anthropic: Grok 3 came in February 2025, Grok 4 in July 2025, Grok 4.5 in July 2026, and Grok 4.7 on September 21, 2026, and no Grok 5 had been released by October. Grok's reach comes from Musk's other companies, since it

lives inside X, where about 117 million monthly users used its features in March 2026, and it has been in new Teslas in the United States since July 2025 and in Canada, Australia, and parts of Europe and Asia by mid-2026. The Pentagon's AI office awarded xAI a contract worth up to $200 million in July 2025, as it did Anthropic, Google, and OpenAI.

8d. The Guardrails Dispute

By design, xAI has the loosest guardrails, the limits a model is trained to observe, among the major labs. Two episodes tested that design, the first on July 8, 2025, when Grok's account on X posted antisemitic replies and called itself 'MechaHitler'; xAI blamed a code update, live for 16 hours, that made the bot echo extremist posts, and apologized. In late December 2025 an image-editing feature let users ask Grok to 'undress' photographs of real women and of some minors, and the images spread across X for days.

The response was swift and international: Britain's communications regulator, Ofcom, opened an investigation under the Online Safety Act on January 12, 2026, and the European Commission opened formal proceedings under the Digital Services Act (DSA) on January 26. Indonesia, Malaysia, and the Philippines blocked Grok for one to three weeks, California's attorney general ordered xAI to stop, and 35 state attorneys general wrote to it. By January 16 X had limited image generation to paying users and blocked edits of real people into revealing clothing. By October 2026 neither the British nor the EU case had ended in a fine, and the EU's AI Act, whose fining powers over general-purpose models began on August 2, 2026, had not been used against xAI.

The case for xAI's approach, as Musk and his supporters make it, is that other labs train political bias and needless refusals into their models, that adults should be treated as adults, and that a 'truth-seeking' model must be willing to offend. The case against, made by regulators, child-safety groups, and other labs, is that loose guardrails produced both episodes, and that a model able to sexualize real people, including children, is a failure of safety rather than a stand for free speech. The evidence is the two episodes themselves, both corrected only after the harm had spread, and a business that has not visibly suffered for them, though its 2026 growth came from renting computing capacity rather than from Grok. This course's reading is that the design produced two of the most damaging failures of any major AI model in 2025-26, that the commercial cost has so far been small, and that the legal cost is still pending.

Module 8 Key Points

xAI and Grok

• Colossus put 100,000 GPUs to work in 122 days in 2024; since May 2026 Anthropic has rented it.

• Anthropic pays $1.25 billion a month, cancellable on 90 days' notice; Google is to pay $920 million a month from October.

• The AI segment lost $6.36 billion in 2025; in 2026's second quarter its adjusted EBITDA turned positive.

• Grok sits in the frontier's second tier; Grok 4.7 shipped in September 2026, and Grok 5 had not.

• The sexualized images of real people brought regulatory action on three continents in January 2026, but no fine by October.

Module 8 Quiz

Check Your Understanding

1. Which rival lab has rented all of Colossus since May 2026, and on what terms?

A) Anthropic, $1.25 billion a month, cancellable on 90 days' notice
B) OpenAI, at a fixed fee over the next ten years
C) Meta, for its own models, under a five-year lease
D) Microsoft, for its Azure cloud, under a ten-year contract from 2025

2. How did the AI segment's results change in the second quarter of 2026?

A) Revenue tripled on rentals, and adjusted EBITDA turned positive
B) Revenue fell as X's advertising shrank further
C) It turned a net profit on Grok subscriptions
D) Revenue doubled on Grok, and its operating loss widened sharply

3. What happened on July 8, 2025?

A) xAI released Grok 5 and topped the benchmarks
B) Colossus lost power for a week in a heat wave
C) Europe banned Grok across the EU under the AI Act
D) Grok posted antisemitic replies on X

4. Which regulators opened investigations over the Grok images in January 2026?

A) The SEC and NHTSA jointly
B) Ofcom and the European Commission
C) The FCC, which suspended X's licenses
D) Japan's and Korea's AI safety agencies

5. What is the module's reading of xAI's guardrails?

A) They are the strictest, which slowed Grok's growth
B) They worked as designed, and the cases were overblown
C) The loose design caused grave failures, at little cost so far
D) Regulators' fines made xAI tighten them in 2026

Module 9 — X

The Social Network as a Business and an Instrument

Recommended Reading / Reference

Book: Kate Conger and Ryan Mac, *Character Limit: How Elon Musk Destroyed Twitter* (2024), a reported account of the purchase and its first year

Reference: SpaceX's prospectus and quarterly filings, which report X's advertising inside the AI segment

9a. The Purchase

Musk agreed in April 2022 to buy Twitter for $44 billion, $54.20 a share, a premium of 38%, then tried to back out, citing the number of fake accounts. Twitter sued him in Delaware, and he completed the purchase on October 27, 2022, under a deadline the court had set to avoid a trial. The money came from $13 billion of bank loans, his own funds, and about $7 billion from co-investors including Larry Ellison, Saudi Arabia's Prince Alwaleed bin Talal, Qatar's sovereign wealth fund, Sequoia, Andreessen Horowitz, Binance, and Fidelity. Musk sold about $23 billion of Tesla stock during 2022, much of it to pay his share.

He then cut about 80% of the staff, restored thousands of suspended accounts, replaced the free blue verification check with a paid subscription, loosened content moderation, and renamed the company X in July 2023. Advertisers left in large numbers, and in November 2023 Musk told those leaving, at a public conference, to 'go f*** yourself'. X's own stock grants valued the company at $19 billion in October 2023, and Fidelity's marks, reported in October 2024, put its stake down by as much as 79%. The banks held the loans for more than two years and sold the last of them in April 2025 at about 98 cents on the dollar. In March 2025 xAI bought X, and in 2026 both became part of SpaceX (Module 7).

9b. The Business

	Twitter, 2021	X, 2025-26
Advertising revenue	$4.5 billion, of $5.1 billion in all	About $1.8 billion in 2025; $710 million in the first half of 2026, down 18% on a year earlier
Subscriptions	Small	About 4.4 million paying Premium subscribers (reported, 2026)
Users	237.8 million daily users who could be shown ads (second quarter of 2022)	550 million monthly users of X and Grok combined (March 2026); Threads, Meta's rival, matched X's mobile use in January 2026 on one third-party measure
Staff	About 7,500	About 80% fewer, after the cuts of 2022-23
Debt	About $4.3 billion of bonds, less than its cash	$13 billion of buyout loans from 2022, sold on by the banks in 2025
Leadership	A public company with an independent board	Linda Yaccarino chief executive from June 2023 to July 2025, with no successor named; Musk chairman and chief technology officer

Twitter's 2021 annual report and 2022 quarterly reports; SpaceX's filings; press reports where marked.

9c. Speech, Moderation, and the Regulators

X's value to Musk was never mainly its revenue: it is the platform on which he speaks to about 242 million followers (October 2026), the channel for his 2024 endorsement, his government work, and his public disputes (Module 11), and the source of Grok's training data (Module 7). It is also the subject of the European Union's first penalty under the Digital Services Act: on December 5, 2025, the European Commission fined X €120 million for deceptive blue checks, an inadequate archive of its advertisements, and blocking researchers' access to data. In 2024 Brazil's Supreme Court suspended X for about five weeks, until it obeyed orders to block accounts and to name a legal representative in the country.

The argument over X is about speech. The case for Musk's X, as he and his supporters make it, is that Twitter had suppressed lawful speech, much of it from the right, and that X restored it, expanded Community Notes, the crowd-sourced fact checks that Meta said in January 2025 it would adopt, and published internal records of past moderation as the 'Twitter Files'. The case against, made by advertisers, researchers, and regulators, is that cutting moderation staff and reinstating banned accounts let hate speech and false claims spread, that selling verification made it harder to tell who is who, and that the owner uses the platform to amplify his own politics.

The evidence includes advertising revenue down by more than half since 2021, the EU's findings on verification, and Community Notes' spread to other platforms. This course's reading is that X traded a large advertising business for political reach, and that by its owner's measure the trade succeeded.

Module 9 Key Points

X

• Musk bought Twitter for $44 billion in October 2022, after trying to back out, with $13 billion of bank debt.

• He cut about 80% of the staff, sold verification, loosened moderation, and renamed it X in 2023.

• Advertising fell from $4.5 billion in 2021 to about $1.8 billion in 2025, and kept falling in 2026.

• The EU's first Digital Services Act fine, €120 million in December 2025, hit X over verification, ads, and data access.

• X traded a large advertising business for political reach, which by its owner's measure succeeded.

Module 9 Quiz

Check Your Understanding

1. How did Musk come to complete the Twitter purchase?

A) He tried to back out, was sued, and closed at the agreed price
B) The board accepted his lower revised offer
C) He won a hostile tender offer that went straight to shareholders
D) Twitter's board forced the sale through a poison pill after his stake

2. About how much advertising revenue did X earn in 2025?

A) Around $4.5 billion
B) Around $3.2 billion
C) Roughly $2.6 billion
D) About $1.8 billion

3. What did the EU fine X for in December 2025?

A) Grok's sexualized images of real people and minors
B) Failing to remove illegal hate speech
C) Deceptive blue checks, ads, and data access
D) Transferring Europeans' data to the US

4. How was the purchase financed?

A) With Musk's cash and a loan from Tesla
B) Bank loans, Musk's own money, and co-investors
C) Mostly with a loan from Saudi Arabia's fund
D) By selling bonds to Twitter's shareholders

5. What is the module's reading of Musk's X?

A) It became the profitable heart of his businesses
B) It failed by every measure its owner set
C) It traded ad revenue for reach, which its owner counts a success
D) It won its advertisers back by 2025 after restoring the old rules

Module 10 — Neuralink, Boring, and the Rest

The Smaller Companies and the Origins

Recommended Reading / Reference

> **Reference:** Neuralink's updates (neuralink.com/updates) and the Boring Company's project pages (boringcompany.com)

10a. Neuralink

Neuralink's implant is a coin-sized device with 1,024 electrodes on 64 threads finer than a hair, placed in the brain by a surgical robot. By January 28, 2026 it had been implanted in 21 people with paralysis or amyotrophic lateral sclerosis (ALS), who use it to move a computer cursor, type, play games, and, in trials, control a robotic arm; the trials run in the United States, Canada, Britain, and the United Arab Emirates. The Food and Drug Administration (FDA) has named two further uses 'breakthrough devices', a vision implant called Blindsight in 2024 and speech restoration in 2025, which speeds review but is not approval, and the device remains investigational. Neuralink raised $650 million in June 2025 at a reported value of about $9 billion.

Its rivals take less invasive routes: Synchron's stent-like device reaches the brain through a blood vessel, without open-brain surgery, and in 2025 it raised $200 million and became the first device to work natively with Apple's standard for brain-computer interfaces. Precision Neuroscience's thin-film electrode won FDA clearance in 2025 for implants of up to 30 days. Neuralink's record includes a federal inquiry into its animal testing in 2022-23 and threads that pulled back from the brain of its first patient in 2024. Its near-term prospect is a medical device for people with paralysis, valuable but small, and Musk's stated long-term goal of 'symbiosis' with AI is decades away on any account.

10b. The Boring Company

The Boring Company began in 2016 with a Musk post about Los Angeles traffic and became a tunneling company. Its Prufrock machines, which it says are designed to bore a mile a week at under $5 million a mile, dig narrow tunnels, and its product is the Loop: Tesla cars, driven by people, carrying passengers between stations. The Las Vegas Loop has run since 2021 and, by the company's count in October 2026, has 14 stations and has carried more than 4 million passengers, within an approved network of 68 miles and 123 stations. Tennessee granted it a 25-mile tunnel permit for a Nashville loop in February 2026, still without an opening date, and Dubai signed for a 6.4-kilometer pilot with four stations the same month. Its April 2022 funding round valued it at about $5.7 billion, and its website now announces a $3 billion Series D round.

Its critics call the Loop a subway with less capacity and no trains, and its defenders call Prufrock the first real advance in tunneling cost in decades. The hyperloop, the train in a vacuum tube that Musk proposed in 2013, has no passenger line anywhere, and its best-funded developer, Hyperloop One, closed at the end of 2023.

10c. OpenAI and the Origins

Musk co-founded OpenAI in 2015 and left its board in 2018 after a dispute over control. He sued it in 2024, arguing that its turn to profit betrayed the nonprofit mission he had funded, and in February 2025 he led a $97.4 billion bid for its assets, which OpenAI rejected. OpenAI completed its restructuring in October 2025, when its nonprofit became the OpenAI Foundation, holding about a quarter of a new public-benefit corporation. On May 18, 2026, a federal jury in California found Musk's claims barred because he had brought them too late, and his lawyer said he would appeal.

The origin money came from the internet era. Zip2, a city-guide software company Musk co-founded, sold for about $307 million in 1999, and X.com, which merged into PayPal, sold to eBay for $1.5 billion in 2002, leaving Musk about $180 million, most of which he put into SpaceX, Tesla, and SolarCity. Tesla bought SolarCity, run by Musk's cousins, for $2.6 billion in stock in 2016, and Delaware's courts rejected shareholders' claims that the deal was unfair. The Musk Foundation, funded mostly with Tesla shares, has drawn criticism for giving away little relative to its assets.

Module 10 Key Points

Neuralink, Boring, and the Rest

• Neuralink had implanted 21 people by January 2026; its device remains investigational, not approved.

• Synchron and Precision Neuroscience reach the brain less invasively; Precision won clearance for 30-day implants in 2025.

• The Boring Company's Las Vegas Loop has 14 stations of an approved 68-mile network and has carried over 4 million passengers.

• A jury found Musk's suit against OpenAI time-barred in May 2026; his lawyer said he would appeal.

• PayPal's 2002 sale left Musk about $180 million, most of it put into SpaceX, Tesla, and SolarCity.

Module 10 Quiz

Check Your Understanding

1. What can Neuralink's 21 participants do with the implant?

A) See again, through a camera link
B) Move a cursor, type, and play video games
C) Walk unaided, with a spinal stimulator
D) Feel touch through a prosthetic hand

2. How does Synchron's device reach the brain?

A) Through a blood vessel
B) On the scalp only
C) Through a slit in the skull
D) By open surgery, like Neuralink's

3. What is the Boring Company's Loop?

A) A hyperloop train in a vacuum tube
B) A driverless subway with long trains
C) Freight tunnels beneath the highways
D) Tesla cars, driven, in tunnels

4. What did the jury decide in Musk's suit against OpenAI in May 2026?

A) That OpenAI must return to nonprofit control
B) For Musk, with damages
C) A mistrial, after the jury deadlocked
D) That his claims came too late

5. Where did the money Musk first put into SpaceX and Tesla come from?

A) PayPal's sale to eBay, which left him about $180 million
B) A NASA grant for developing a reusable rocket
C) The sale of Zip2, the first company he founded
D) Venture funds that backed both companies at their founding

Module 11 — Musk and the State

The Companies' Dependence on Government, and Musk's Role in It

Recommended Reading / Reference

Reference: The Government Accountability Office's report GAO-26-108615, *DOGE Wall of Receipts* (August 6, 2026), and the Office of Personnel Management's data on the federal workforce

11a. Government Money and Credits

Channel	Company	Amount	Status, October 2026
Launches, spy satellites, and the lunar lander	SpaceX	About a fifth of SpaceX's 2025 revenue (Module 5)	Growing
Regulatory credits, sold to other carmakers	Tesla	$11.4 billion from 2020 to 2025 (2025 and 2026 in Module 2)	US programs curtailed in 2025-26 (11b)
Electric-vehicle tax credit, paid to buyers	Tesla	Up to $7,500 a car	Ended September 30, 2025
Department of Energy loan	Tesla	$465 million (2010)	Repaid in 2013
Rural Digital Opportunity Fund	SpaceX (Starlink)	$885.5 million awarded in 2020 for rural broadband	Rejected in 2022, upheld in 2023; never paid
Broadband Equity, Access, and Deployment program	SpaceX (Starlink)	A share of a $42.45 billion program, set state by state	Opened to satellite providers in June 2025; the last state plans approved August 25, 2026
Total	All	At least $38 billion over two decades in contracts, loans, subsidies, and tax credits, state and local ones included	The Washington Post's tally, February 2025

Company filings; the Federal Communications Commission; the National Telecommunications and Information Administration; the Washington Post.

The Musk companies are among American industry's largest recipients of government money, most of it federal payment for SpaceX's work for NASA and the Pentagon. The government depends on them in turn, since NASA has no other working American vehicle to carry crews to the space station and SpaceX flies most national-security launches. That mutual dependence is why the 2025 feud (11d) alarmed both sides.

11b. The Political Turn, and the Credits

Musk endorsed Donald Trump on July 13, 2024, the day of the assassination attempt in Butler, Pennsylvania, and spent about $290 million on the 2024 election, much of it through America PAC, the most of any individual in that cycle. After the election, policy turned against one of Tesla's revenue lines: Congress revoked California's emissions waivers in June 2025, the July 2025 budget law ended the penalties under federal fuel-economy rules and the buyer tax credit, and the Environmental Protection Agency (EPA) repealed its vehicle greenhouse-gas standards in February 2026. With fewer rules to meet, other carmakers needed fewer of Tesla's credits, which is largely why its credit revenue fell in 2026.

11c. DOGE

An executive order of January 20, 2025 created the Department of Government Efficiency (DOGE), and Musk served as a special government employee, a status limited to 130 days a year, until May 30. DOGE's teams entered agencies, cancelled contracts and grants, gained access to payment and personnel systems, and drove the closure of the US Agency for International Development (USAID), whose remaining work moved to the State Department on July 1, 2025. DOGE claimed $215 billion of savings before its charter ended on July 4, 2026, though the director of the Office of Personnel Management (OPM) had said in November 2025 that it no longer existed as a central office, which DOGE disputed.

Measure	Finding
DOGE's claim	$215 billion of savings, the figure on its website, unchanged from January 2026 to the end of its charter
The GAO's review of the $110 billion DOGE itemized	Too little information to verify how 96% of claimed grant savings were calculated; 2,503 contracts carrying $27.4 billion of claimed savings never terminated; a claimed $1.7 billion saving that produced none (August 6, 2026)
A Washington Post analysis	About $35 billion of $61 billion in claimed contract savings not terminated or not verifiable
Federal spending	Outlays rose from $6.75 trillion in fiscal 2024 to $7.01 trillion in fiscal 2025
Laws	The Rescissions Act of July 24, 2025 cancelled about $9 billion: $7.9 billion of foreign aid and $1.1 billion for public broadcasting
The workforce	About 317,000 departures and 68,000 hires in 2025, a net fall of about 249,000; OPM counts 92% of departures as voluntary, including about 154,000 deferred resignations
The courts	Rulings against DOGE's actions at USAID, OPM, and elsewhere; the Supreme Court allowed its access to Social Security data in June 2025
USAID	83% of its programs cancelled; a study in *The Lancet* projected more than 14 million additional deaths by 2030, a modeled estimate the administration disputes

The Government Accountability Office (GAO), Congress's auditor; OPM; the Treasury; the Washington Post; *The Lancet* (2025).

DOGE is the most contested episode in this course. The case for it, as Musk, the administration, and its supporters make it, is that federal spending had grown unchecked, that waste and fraud were real and documented, that agencies had resisted every earlier attempt at reform, and that DOGE cut contracts, grants, and payroll, some of which Congress then made permanent. The case against, made by Democrats, federal employees' unions, public-health researchers, and many economists, is that the savings were overstated, that cuts were made without analysis and often unlawfully, that closing USAID will cost lives abroad, and that putting the owner of major federal contractors inside the agencies that regulate them was a conflict of interest.

The evidence in the table supports parts of each case. DOGE did shrink the workforce and cancel real contracts and grants, and Congress rescinded about $9 billion. But the GAO found most of the itemized savings unverifiable or never realized, total federal spending still rose, and the largest single act, closing USAID, was a policy decision whose costs, on the modeled estimates, fall on aid recipients abroad. This course's reading is that DOGE left a smaller federal payroll and a precedent for rapid cuts, at far less saving than it claimed.

11d. The Feud and the Return

Musk broke with the president within days of leaving, calling the budget bill a 'disgusting abomination' on June 3, 2025. On June 5 he posted that Trump appeared in the Epstein files, Trump threatened SpaceX's contracts, and Musk threatened to retire the Dragon capsule, then the only American spacecraft carrying

astronauts to the station, before reversing within hours. On June 11 he said some of his posts had gone 'too far'. In July he announced an 'America Party', which was never registered and which he had abandoned by November.

The reconciliation followed: Musk and Trump greeted each other at Charlie Kirk's memorial on September 21, 2025, and the General Services Administration added xAI's Grok to its catalog for federal agencies four days later. Jared Isaacman, a Musk ally whose nomination to lead NASA had been withdrawn in May, was renominated in November. Musk gave $5 million each to three Republican super PACs in June 2025, even during the feud, and in July 2026 the New York Times reported that he planned to spend at least $100 million to help Republicans in the midterm elections; America PAC resumed spending in August.

11e. The Regulators

The companies' regulatory exposure is wide: Tesla answers to NHTSA (Module 3), and SpaceX to the FAA (Module 5) and the FCC (Module 6). The SEC, which settled with Musk over 'funding secured' (Module 4), sued him in January 2025, alleging that he disclosed his Twitter stake 11 days late, in April 2022, and underpaid other shareholders by at least $150 million. In a separate suit by Twitter's former shareholders, a jury found in March 2026 that he had misled them, while clearing him of a fraud-scheme claim. In August 2025 SpaceX won a ruling from the federal appeals court in New Orleans that the National Labor Relations Board's structure is likely unconstitutional.

In 2025 Musk was placed to influence the agencies that regulate his companies, and several decisions in 2025-26 went their way, among them the broadband rules opened to satellites and the FCC's approval of the EchoStar spectrum (Module 6). Whether those outcomes reflect influence or merit cannot be shown from the public record, which is why the entanglement is a governance question for the country as well as for the companies.

Module 11 Key Points

Musk and the State

• Musk's companies have received at least $38 billion in government contracts, loans, subsidies, and credits over two decades.

• The administration Musk helped elect ended the rules that made Tesla's US regulatory credits valuable.

• The federal workforce fell by a net 249,000 in 2025, and DOGE claimed $215 billion of savings.

• The GAO found most itemized savings unverifiable or unrealized, and federal outlays still rose in fiscal 2025.

• The June 2025 feud set SpaceX's contracts against Dragon; by September the two men had reconciled.

• The New York Times reported that Musk planned at least $100 million for Republicans in the 2026 midterms.

Module 11 Quiz

Check Your Understanding

1. About how much government money have the Musk companies received over two decades, by the Washington Post's tally?

A) At least $120 billion
B) At least $38 billion
C) About $5.5 billion in all
D) About $11.4 billion in all

2. Why did Tesla's US regulatory-credit revenue fall?

A) Tesla stopped selling credits to rivals
B) A court capped credit prices in 2025
C) Washington ended the rules that made rivals buy credits
D) Rivals bought their credits from Chinese makers

3. What did the GAO find about DOGE's itemized savings in August 2026?

A) They matched DOGE's claims within a few percent
B) They were twice what DOGE had claimed
C) It found fraud in most of the cancelled grants
D) Most could not be verified or were never realized

4. What happened to the federal workforce in 2025, by OPM's count?

A) A net rise of about 50,000
B) A net fall of about 249,000
C) A net fall of about 1 million
D) A net fall of about 600,000

5. What is the module's reading of DOGE?

A) Smaller payroll, a precedent for fast cuts, far less saving than claimed
B) It saved roughly what it claimed and balanced the agencies' books
C) It had no lasting effect, since courts reversed nearly all its cuts
D) It cut waste deeply, and Congress made nearly all of its savings permanent

Module 12 — The Global Picture

The Companies Abroad

Recommended Reading / Reference

Reference: The China Passenger Car Association's monthly data on Tesla's Shanghai shipments and exports, as reported by CnEVPost

12a. China

China is Tesla's largest factory and its largest risk. The Shanghai Gigafactory, built in about eleven months in 2019 as the first car plant in China wholly owned by a foreign company, shipped 851,732 cars in 2025, about half of Tesla's output, and a Megafactory beside it makes grid batteries. In 2026 its exports doubled as Tesla's sales inside China fell (Module 2). Tesla introduced limited driver-assistance features in China in February 2025, but full approval of FSD was still pending in October 2026.

The dependence runs through the supply chain too, since Chinese suppliers, the battery cells of Contemporary Amperex Technology (CATL) among them, sit inside Tesla's products, and in April 2025 China's licensing of exports of rare-earth magnets held up Optimus production, by Musk's account. Starlink and X are banned in China, whose state constellations are built in part to keep Starlink out (Module 6). A plant, a supply chain, and a market in the country the United States treats as its chief rival make China the largest single exposure in any model of a US-China crisis.

12b. Europe

Europe is where Musk's politics have cost the most, and Module 2 weighs the evidence on Tesla's sales. He endorsed Germany's far-right Alternative for Germany (AfD) in December 2024 and spoke by video to its rally in January 2025, weeks before an election in which it won 20.8%. In Britain he posted during the August 2024 riots that 'civil war is inevitable', and in September 2025 he told a London rally by video that 'violence is coming'. In YouGov's tracking in 2026, about 65% of Britons disliked him.

The European Union regulates the companies on several fronts: it fines X under the Digital Services Act (Module 9), charges a duty of 7.8% on China-made Teslas, set in October 2024 for five years, and will decide whether to approve FSD across its members, eight of which had approved it on their own by late September (Module 3). Starlink's role in Ukraine (Module 6) gives Musk leverage that European governments resent, which is part of why the union is building its own constellation, IRIS².

12c. India, the Gulf, and the Rest

India courted Tesla, which opened its first showroom in Mumbai in July 2025 and sells imported cars there, and it has licensed Starlink (Module 6). The Gulf is an investor and a customer: Qatar's sovereign fund and Abu Dhabi's MGX invested in xAI's last private round (Module 7), and Saudi and Qatari money backed the Twitter purchase (Module 9). South Africa, Musk's birthplace, is the clearest case of a personal dispute with a government, as he has attacked its race and land policies in public (Starlink's licensing there is in Module 6).

12d. The Pattern

Across the companies, the pattern Module 6 found for Starlink holds: governments that fear dependence on one man's network ban it and build their own, governments that need it embrace it, and those in between bargain with licenses, market access, and orders to remove content. The same governments regulate X and Grok, court Tesla's factories, and buy SpaceX's launches. No other private enterprise has this range of relationships with states, and none has an owner whose own posts governments treat as diplomatic events.

Module 12 Key Points

The Global Picture

• Shanghai made about half of Tesla's 2025 cars; in 2026 its exports doubled as Tesla's sales in China fell.

• China's rare-earth licensing held up Optimus in 2025, by Musk's account; Starlink and X are banned there.

• Musk endorsed Germany's AfD before its February 2025 election; about 65% of Britons disliked him in 2026, in YouGov's tracking.

• The EU charges a 7.8% duty on China-made Teslas, fines X, and will rule on FSD across its members.

• Qatar's and Abu Dhabi's funds invested in xAI's last private round, and Saudi and Qatari money backed the Twitter purchase.

• India courted Tesla, which opened a Mumbai showroom in 2025, and has licensed Starlink, which had not begun service.

Module 12 Quiz

Check Your Understanding

1. What role did Shanghai play for Tesla in 2026?

A) It cut output after China's magnet controls
B) It made cars for the Chinese market only
C) Its exports doubled as China sales fell
D) It was sold to a Chinese state-backed partner

2. What held up Optimus production in April 2025, by Musk's account?

A) A strike by workers at the Fremont factory
B) China's licensing of rare-earth magnet exports
C) A fire at its actuator supplier in Mexico
D) A shortage of Nvidia chips diverted to xAI's Colossus

3. What duty does the EU charge on China-made Teslas?

A) 7.8%
B) 27%
C) 35.3%
D) 17.0%

4. Which Gulf investors put money into xAI's last private round?

A) Saudi Aramco and Kuwait's fund
B) Dubai's ruler and Bahrain's fund
C) Qatar's sovereign fund and Abu Dhabi's MGX
D) Oman's fund and Dubai's port operator

5. What does the module say makes the Musk enterprise unique abroad?

A) Its size, larger than any rival in each market
B) Its Chinese ownership through the Shanghai plant
C) Its use of the same suppliers in every country
D) The range of its ties to foreign states

Module 13 — Interdependence and Risk

How the Companies Depend on Each Other, and on One Person

Recommended Reading / Reference

Reference: The risk factors in SpaceX's June 2026 prospectus and in Tesla's 2025 Form 10-K

13a. The Cross-Links

From	To	What flows	Module
Starlink	SpaceX's launch and AI businesses	Operating profit that offsets part of their losses	6-8
SpaceX's listing	AI computing, Cursor, and Terafab	Public capital and a share currency for acquisitions	7
Tesla	SpaceX	About $2 billion of SpaceX stock from Tesla's January 2026 investment in xAI, worth $1 billion more by June	2
Tesla	xAI	Megapacks backing Colossus 2's turbines; Grok in Tesla cars	8
Tesla and SpaceX	Terafab	A shared chip complex	3
X	xAI	Training data and distribution for Grok	8, 9
SpaceX	The US government	Launches, Starshield satellites, and the lunar lander	5, 11
Musk	Every company	Chief executive of Tesla and SpaceX, controlling shareholder, and the deciding voice in each	1

The companies are not independent businesses that happen to share a founder. They are one enterprise with two listings, in which Starlink's profit helps fund Starship and AI, Tesla owns SpaceX stock and supplies batteries and an audience for Grok, and engineers, capital, and Musk's attention move among the companies at his direction. Every link between Tesla and SpaceX is a related-party transaction between two public companies with the same chief executive and largest shareholder.

The clearest test came in January 2026, when Tesla's board agreed to invest about $2 billion in xAI two months after a shareholder vote on the idea had drawn more votes for than against but failed under Tesla's rules, which count abstentions as votes against. In April 2026 a Delaware court dismissed shareholders' suits claiming that Musk had diverted Tesla's resources to xAI, and an appeal is pending.

13b. The Key-Person Problem

Tesla's and SpaceX's risk factors say the same thing: the company depends on Elon Musk, who leads other companies, spends time on politics, and is not required to give any of them a set share of his time. He is chief executive of Tesla and SpaceX, chairman and chief technology officer of X, co-founder of Neuralink, and founder of the Boring Company, and he funds a political operation (Module 11). His attention sets strategy, as in Tesla's turn to robotaxis and SpaceX's purchases of xAI and Cursor, and his absences, at Twitter in 2022-23 and in Washington in 2025, coincided with hard stretches at Tesla.

Succession is the open question: Gwynne Shotwell, SpaceX's president since 2008, runs its daily operations, and Tesla's 2025 award requires a plan for Musk's succession before its last two tranches can vest (Module 4). But Musk controls SpaceX's votes (Key Numbers), and no company has named a successor.

13c. The Fortune's Concentration

Musk's fortune is almost entirely SpaceX and Tesla stock, and part of it is pledged as collateral for personal loans, so a sharp fall in either share price raises the question of margin, a lender's demand for more collateral. The fortune has moved by hundreds of billions of dollars within weeks (Key Numbers). The two companies are now linked on the balance sheet as well as by their owner, since Tesla's second-quarter profit included a gain on its SpaceX shares (Module 2). For investors, the Musk companies have become a single bet on the founder, held by index funds as a matter of course, by retail investors by choice, and by sovereign funds as both.

13d. The Risk Map

Risk	Mechanism	Likelihood (this course's reading)	Consequence
Key person	Incapacity, departure, or legal jeopardy; no named successor	Low in any year; certain in time	A deep discount across the enterprise
Robotaxi and Optimus	Driverless safety unproven at scale; robots not yet useful	Medium	Most of Tesla's value is at stake (Module 4)
Starship	Ship recovery, refueling in orbit, and reliability slip	Medium	SpaceX's option value shrinks; NASA's schedule slips
The AI leases	Anthropic or Google ends its lease early (Module 8)	Medium-low in the near term	Most of the AI segment's revenue falls away
Starlink's rivals	Amazon Leo and China's networks; falling revenue per user	Low in the near term	The cash engine slows
Politics	A change of administration; regulators turn; contracts re-competed	Medium	Contracts, permits, and rules at risk
China	A US-China crisis	Medium	About half of Tesla's production and much of its supply chain
Regulation and courts	NHTSA, the FAA, the SEC, the EU, and shareholder suits	High and continuous	Fines, limits, and distraction
Governance	Related-party dealing and boards that do not say no	Certain	Minority shareholders' interests come second
Success	Robotaxis, Optimus, Starship, and AI all deliver	Low to medium	The first enterprise worth $10 trillion

Module 13 Key Points

Interdependence and Risk

• Starlink's profit helps fund SpaceX's other businesses, and Tesla owns SpaceX stock from its 2026 xAI investment.

• Tesla invested $2 billion in xAI after a shareholder vote failed under rules that count abstentions as votes against.

• Tesla's and SpaceX's risk factors name the same risk: dependence on Musk, who leads several companies and a political operation.

• Shotwell runs SpaceX's operations and Tesla's award requires a succession plan, but no company has named a successor.

• The fortune is almost all SpaceX and Tesla stock, partly pledged for loans, so share prices and margin calls are linked.

Module 13 Quiz

Check Your Understanding

1. What became of Tesla's investment in xAI?

A) Shareholders blocked it in court
B) It was cancelled after the failed vote
C) It became about $2 billion of SpaceX stock
D) It became a stake in X, later sold at a loss

2. Why did the November 2025 shareholder vote on investing in xAI fail?

A) Turnout fell short of a quorum
B) Abstentions counted as votes against
C) Most of the votes cast were against it
D) The board withdrew it before the count

3. Who runs SpaceX's daily operations?

A) Kimbal Musk
B) Robyn Denholm
C) Linda Yaccarino
D) Gwynne Shotwell

4. Which risk in the map is rated certain?

A) Governance risk
B) A US-China crisis
C) Regulation and courts
D) Starlink's rivals

5. Why is a fall in SpaceX's or Tesla's shares a risk to Musk personally?

A) His pay is cut whenever either price falls
B) Some shares are pledged for loans
C) His options expire if prices fall far enough
D) The boards must then review his position

Module 14 — Where Things Stand, and What to Watch

The Argument, the Turning Points, and the Dates

Recommended Reading / Reference

Book: Ashlee Vance, *Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future* (2015), the first biography, written before the largest bets were made

14a. The Argument

In October 2026 the Musk enterprise is two public companies and two private ones, and it depends on one person. SpaceX, now the larger company, is a satellite-internet business that works, a launch business that leads the world, and an AI business that became a computing landlord in 2026, and its price is a bet that Starship and AI will both succeed. Tesla is a car business whose sales fell for two years and partly recovered, an energy business that grew, and a robotaxi and robot business that is real but small, and its price is a bet that the small business becomes the largest. Over all of it sits a founder who controls the votes, spends on politics, and has named no successor.

14b. Six Turning Points, and One Lesson

Turning point	What the institutions did	What followed	Module
'Funding secured' (2018)	The SEC sued, and Musk and Tesla settled	The settlement held through appeals, and Musk kept posting	4
The Twitter purchase (2022)	Twitter sued in Delaware, and he closed on the original terms before trial	A financial loss became a political platform and Grok's training data	9
The pay fight (2018-25)	Delaware's Court of Chancery voided the award	Tesla moved to Texas, and Delaware's Supreme Court restored the award	4
DOGE (2025)	Courts blocked some actions, and the GAO audited the claims	The payroll cuts stood; most of the claimed savings did not	11
Starship's failures (2023-26)	The FAA investigated each mishap	The rocket flew again and reached orbit	5
The Grok scandals (2025-26)	Regulators on three continents acted	Fixes came after the harm; no fine by October 2026	8

Each turning point was an act of the founder's will that a regulator, a court, a board, or a market tried to constrain. The lesson of the six is that the constraint was real but slow and partial. The SEC's settlement held, Delaware's remedy was reversed only on appeal, the Twitter contract bound him, the auditors measured DOGE's claims after the fact, and the Grok cases remain open. The same will produced the reusable rocket, the mass-market electric car, and the satellite network, which is why investors pay for it and why they price his conduct every quarter.

14c. The Contradictions

Five contradictions run across the modules, and no single module states them.

The car company is priced as a robot company. Tesla's value rests on robotaxis and Optimus (Module 4), businesses that had a few hundred driverless cars and no robot at useful work in October 2026 (Module 3).

The AI lab's best customers are its rivals. SpaceX's AI business grew in 2026 by renting its computers to Anthropic, a competing lab, and from October to Google, another (Module 8).

The launcher's largest customer is itself. Most Falcon 9 flights carry Starlink satellites (Module 5), and Starlink's profit pays for the launch business that loses money (Module 7).

The ally's policies cost the car company. The administration Musk helped elect ended the rules that made Tesla's US regulatory credits valuable (Module 11), while its agencies remained SpaceX's largest outside customer.

The public company answers to one shareholder. SpaceX raised its capital from outside investors, who together hold a minority of the votes, while Musk holds most of them (Module 7).

14d. What to Watch

When	What	Why it matters
October 21, 2026	Tesla's third-quarter results	Whether the car margin holds, and how much the SpaceX stake adds to profit
Late October 2026	Starship's fifteenth flight, from Texas, and its sixteenth, the first from Florida's Launch Complex 39A; both dates provisional	Whether the third version's boosters can be recovered, and a second launch site
Early November 2026, not yet announced	SpaceX's third-quarter results, after which about 1.3 billion more shares leave their lockup	The Anthropic lease's first full quarter, Starlink's growth, and the supply of shares
November 3, 2026	The US midterm elections	Musk's spending, and the Congress that sets NASA's and the Pentagon's budgets
December 2026	The European Union's vote on approving FSD (Supervised) across its members	Tesla's largest test of driver assistance outside North America and China
By the end of 2026	Amazon Leo's commercial service, which Amazon promised for 2026	Starlink's first Western rival for households
2026-27	Optimus's third version and the start of the Fremont line; the Houston Megafactory's ramp	Whether the robot bet yields a product, and whether storage growth resumes
By 2027	The first transfer of fuel between ships in orbit, and a ship catch	Refueling is what NASA's 2028 landing needs (Module 5); the catch is what full reuse needs
Pending	NHTSA's open inquiries into Tesla; the EU's and Ofcom's Grok cases; Musk's appeal against OpenAI; the appeal of the xAI suits; Golden Dome's awards	The legal drag, and government revenue not yet awarded
Ongoing	Musk's time, health, and conduct, and any sign of a successor	The key person

Company announcements and reporting as of October 10, 2026. Dates given elsewhere in the course are not repeated here.

14e. The Last Word

One person built, in a quarter century, the launch capability the American state depends on, the largest satellite network in orbit, the company that made electric cars mainstream, and an AI business that rents its computers to its rivals, and he arranged all of it so that it depends on him. The enterprise is worth what it is because the bets that paid, reusable rockets, Starlink, and the Model 3, paid enormously, and because investors believe the next ones, robotaxis, robots, Starship as a platform, and AI, will pay too, and it is fragile for the same reason. The test for every new claim is the one the record supports: count what has shipped rather than what is promised, because the rockets, satellites, and cars that shipped are where the value came from.

Module 14 Key Points

Where Things Stand, and What to Watch

• SpaceX is a working network, a leading launcher, and an AI landlord, priced on Starship and AI succeeding.

• Tesla is a recovering car business and a growing energy one, priced on robotaxis and robots becoming its largest business.

• Across six turning points, institutions constrained Musk, but slowly and partially.

• Five contradictions include a carmaker priced as a robot company and an AI business whose best customers are its rivals.

• Count what has shipped, not what is promised: the shipped rockets, satellites, and cars are where the value came from.

Module 14 Quiz

Check Your Understanding

1. What is the lesson of the six turning points?

A) Institutions stopped him every time
B) No institution ever acted against him
C) Constraint was real but slow and partial
D) Markets, not courts, did all the constraining

2. Which contradiction does the module find in SpaceX's AI business?

A) Its growth came from renting computers to rival labs
B) It sells computing to Tesla below its own cost
C) Its chips come mostly from Tesla's plants
D) Its biggest customer is the Pentagon

3. When are SpaceX's third-quarter results expected?

A) On October 30, before the vote
B) In December 2026, after the midterms
C) Only in its annual report, in early 2027
D) Early November, not yet announced

4. What does the closing module say the Musk enterprise depends on above all?

A) One person, who controls the votes and named no successor
B) Cheap loans from the banks that fund it
C) X's advertising revenue and its users
D) Index funds, which hold most shares and set strategy through votes

5. What test does the last word propose for new claims?

A) Trust the founder's timelines
B) Trust the share price, which prices claims quickly
C) Follow the analysts' forecasts for each business
D) Count what has shipped, not what is promised

Answer Sheet

Answers to every module's Check Your Understanding quiz.

Module	Answers
Module 1 Quiz	1. D 2. A 3. B 4. C 5. B
Module 2 Quiz	1. C 2. A 3. D 4. D 5. B
Module 3 Quiz	1. C 2. A 3. C 4. B 5. A
Module 4 Quiz	1. D 2. D 3. B 4. A 5. C
Module 5 Quiz	1. A 2. C 3. D 4. B 5. B
Module 6 Quiz	1. A 2. D 3. C 4. B 5. A
Module 7 Quiz	1. C 2. D 3. D 4. B 5. C
Module 8 Quiz	1. A 2. A 3. D 4. B 5. C
Module 9 Quiz	1. A 2. D 3. C 4. B 5. C
Module 10 Quiz	1. B 2. A 3. D 4. D 5. A
Module 11 Quiz	1. B 2. C 3. D 4. B 5. A
Module 12 Quiz	1. C 2. B 3. A 4. C 5. D
Module 13 Quiz	1. C 2. B 3. D 4. A 5. B
Module 14 Quiz	1. C 2. A 3. D 4. A 5. D