Development speed as a mindset transformation

How product development opportunities enable true transformation

A quick look at the main insights

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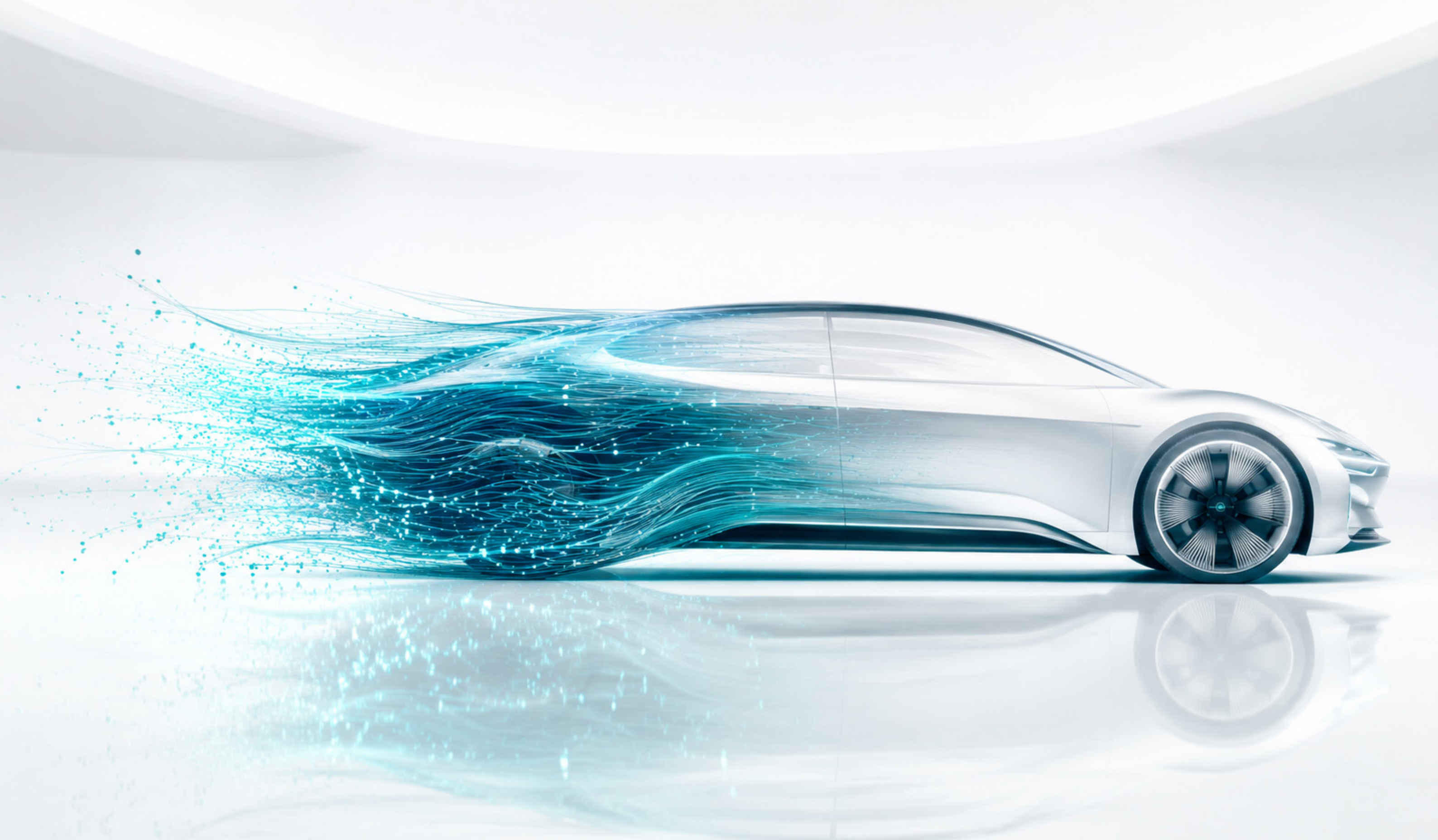


Executive Summary

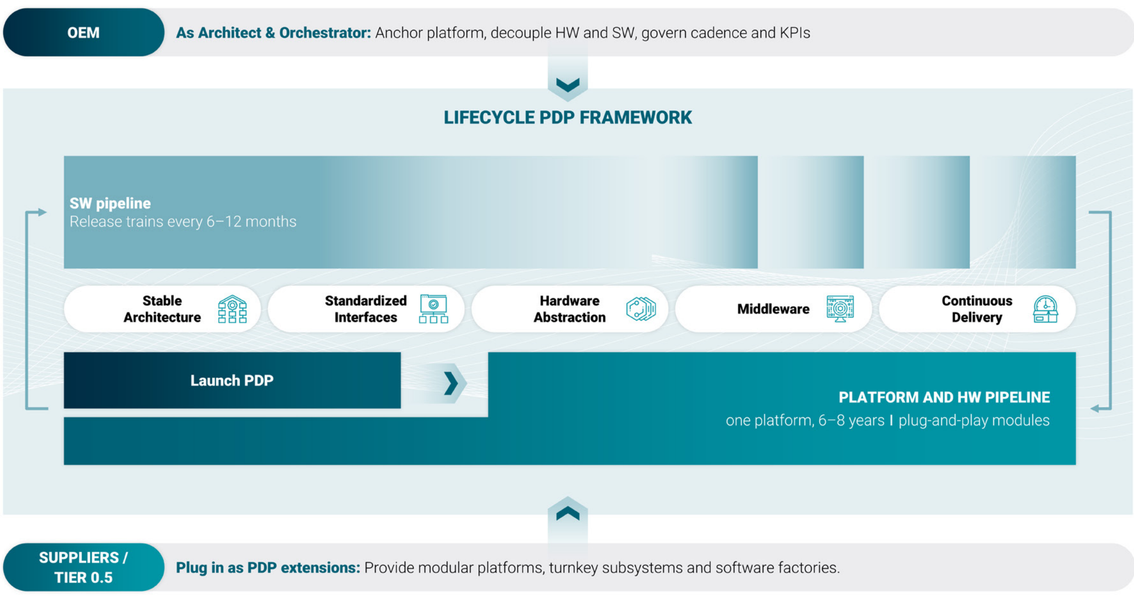
The global automotive industry is still running at different product development and product introduction speeds. Chinese NEV leaders and software-defined-vehicle native players develop new models in less than 24 months while most established OEMs still need up to 50 months. OEMs therefore need to redesign their **product development process (PDP)**, and so do the suppliers and system integrators whose commercial viability depends on matching that cadence. The gap is not a vanity benchmark. For OEMs it translates into stranded R&D capital, technology obsolescence at launch, and lost market windows. For suppliers it translates into shorter program pipelines, margin pressure from OEMs rationalizing their supply base, and displacement by platform-capable Tier 0.5 players. Our Berylls by AlixPartners levers close these gaps holistically and systematically across the full value chain.

Our strategic PDP pipeline for new development speed

Our strategic process map understanding is that a genuine hardware–software decoupling and the establishment of two interlinked but distinct PDPs is key in winning the race in the coming years:

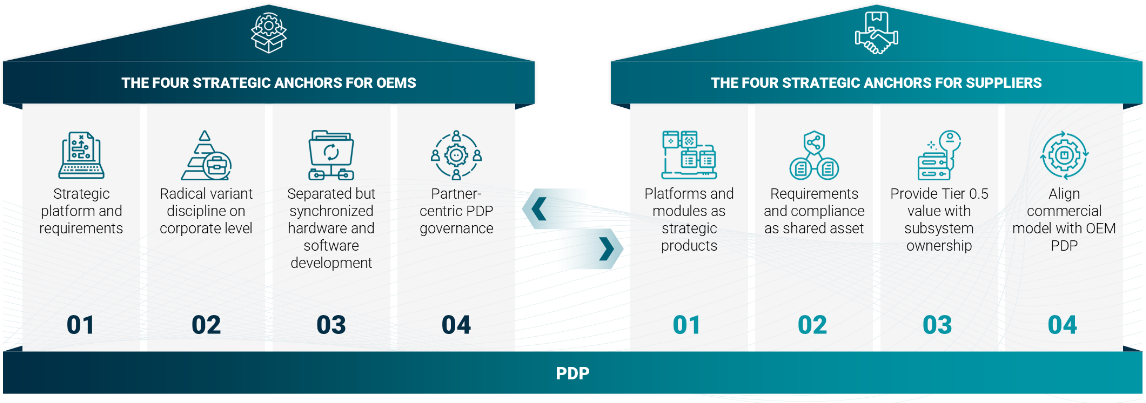
- A long production-cycle focused **hardware platform PDP** with lifecycle capabilities (plug and play enabled)
- A fast lifecycle **software/feature PDP** with continuous delivery capabilities across multiple vehicle generations

Figure 1 | The two interlinked PDPs: long-cycle hardware platform and fast software and feature process



These PDPs are tied together through a clearly defined product and E/E architecture with stable hardware abstraction layers, standardized interfaces and interchangeable modules for product variation, resulting in a consistent hardware base across multiple software generations.

Figure 2 | Strategic anchors for OEMs and suppliers



The four strategic anchors for OEMs

- **Strategic platform and requirements formulation:** No program starts without a pre-defined platform strategy, reuse targets and a curated requirement set. A cross-functional steering body owns platform and domain-level libraries and controls sourcing partnerships.
- **Radical variant discipline on corporate level:** Variant count, hardware complexity and reuse rate become board-level metrics. "Reuse first" is our default; any new variant requires explicit sign-off.
- **Separated and synchronized hardware and software processes:** The long-cycle hardware platform runs parallel with a fast software and feature process, built on stable E/E architectures and OTA-first delivery infrastructure.
- **Partner-centric PDP governance:** One established PDP owner steering programs across the lifecycle. Tier 0.5 partners and technology players integrated against a shared cadence with common expectations.

The four strategic anchors for suppliers

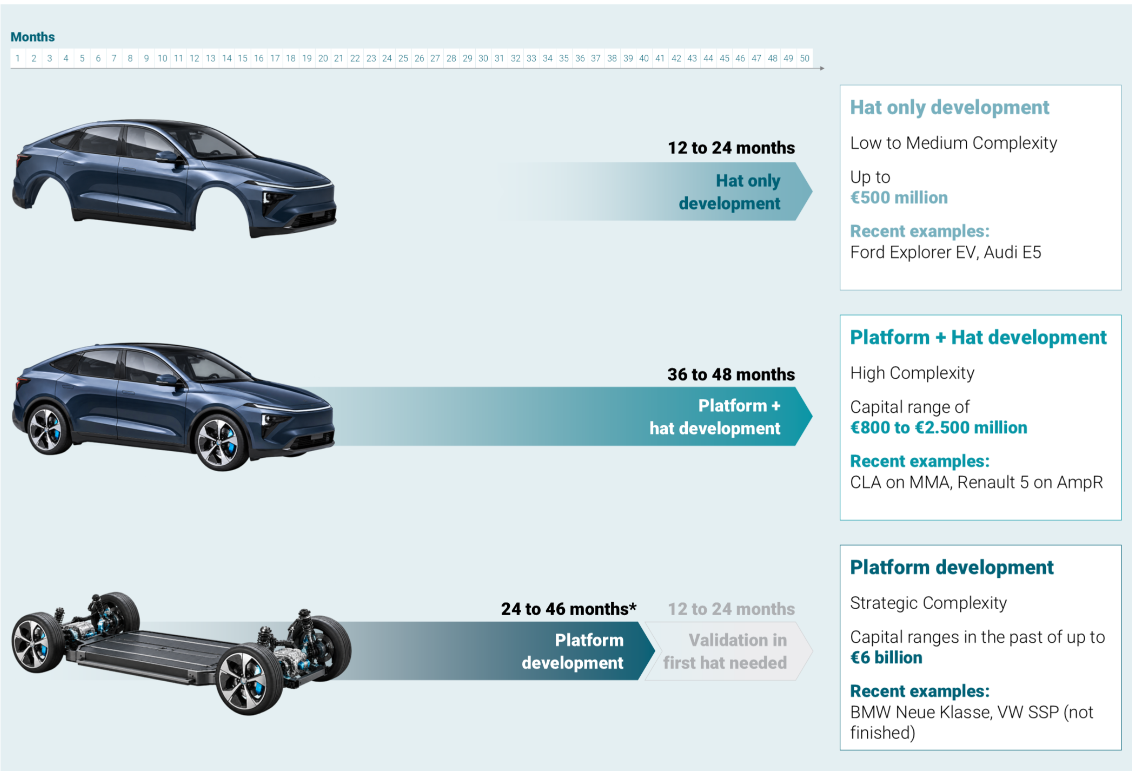
- **Platforms and modules as strategic products:** Invest in proprietary modular platforms, reference designs and validated requirement libraries reusable across OEMs and regions.
- **Requirements and compliance as shared asset:** Standardize interfaces and manage validation assets centrally so that a high share of content can be reused from one program to the next. This makes compliance and homologation repeatable and lowers the marginal cost of each additional type approval, e.g., under UNECE regulations.
- **Move to Tier 0.5: software-first, turnkey subsystem ownership:** Offer complete subsystems backed by a software factory, CI/CD, automated testing and OTA readiness. Take end-to-end responsibility for architecture within a defined domain, including cybersecurity and software-update evidence the OEM needs for type approval.
- **Align cadence and commercial model with OEM processes:** Synchronize roadmaps and release trains to the 18 to 24-month OEM cycle. Steer on speed-focused KPIs (time-to-market, reuse rate, platform profitability) rather than piece price shifting commercial models toward lifecycle value.

1 | Competing in a 24-month automotive product development world

Global automotive product development has entered a new speed paradigm since the 2010s. Chinese NEV manufacturers and software-defined-vehicle native players bring new models to market in roughly 18 to 24 months, while many established OEMs still run programs up to 50 months. The gap is real and well documented in industry and academic research.[1][3] Berylls by AlixPartners puts the average time-to-launch of Chinese EV startups at around 20 months, roughly twice as fast as the global average.[1] Volkswagen, working with Xpeng, reached series readiness on a joint vehicle in 24 months and architecture in 18, a pace it described as unheard of in the West, where three to five years remains the norm.[2] Toyota, after studying BYD, called the company's development speed something it had not believed possible.[8]

However, headline numbers should be read with care, because they mix different kinds of programs. Full greenfield platform development is not the same exercise as a platform carryover or a top-hat derivative, yet all circulate under the same "development time" label. New entrants and new partnerships typically buy ready-made platforms, modules or components and skip the early phases of long research, product-study and platform-development entirely. Part of the measured advantage is therefore a structural process gain, and part is an artefact of comparing unlike programs. Being aware of this distinction strengthens the argument rather than weakening it, **because it separates what OEMs and suppliers can copy, and what they cannot.**

Figure 3 | What the 24 months actually cover: greenfield platform, platform carryover and top-hat derivative compared



* Strategic phase not included in platform development, can add up to another 24 months

A further structural lever is the choice between two archetypes along the critical technology stacks of electrical and electronic systems, software, batteries and drive units. **An OEM can vertically integrate** to own the key modules and the integration work, cutting handovers and controlling architecture and release cadence,[9] or **can deliberately build on external platforms** and standardized components, gaining speed but accepting higher dependency and less differentiation.[5] Both are legitimate and carry different trade-offs, however, **the choice needs to be made deliberately** rather than by default.

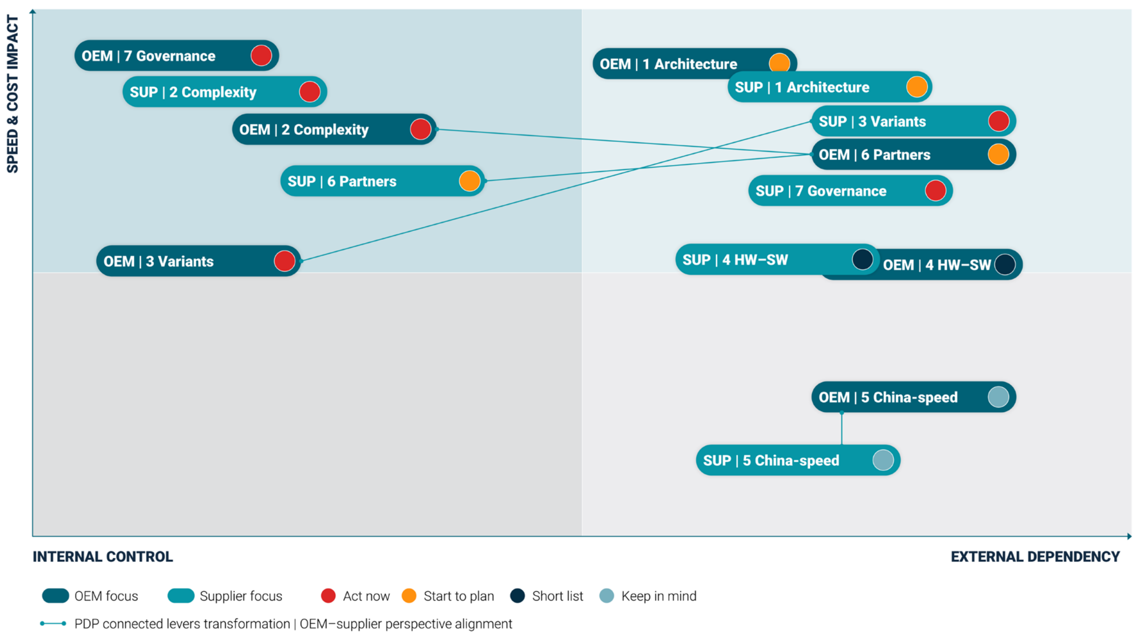
The speed gap furthermore translates into lost market opportunities, reduced price realization, and larger R&D cost as work expands to fill the time available. It strands R&D investment over a full model lifecycle and accelerates obsolescence, because vehicles reach the market carrying fundamentally older technology. **Closing it requires more than doing projects faster.** It needs a redesign of the product development process that combines new-speed practices, SDV architecture, complexity reduction, empowered systems engineering and platform reuse.

One caveat belongs at the foundation of any such PDP redesign. China's speed leaders are survivors, not a representative sample. Berylls by AlixPartners expects only about 15 of 129 Chinese EV and PHEV brands to remain financially viable by 2030.[17][18] The conditions that produced extreme speed, abundant capital, local subsidies, no legacy architecture, and lighter regulatory enforcement, also produced mass failure.[19][30][31] **China is a lesson that includes its costs, not a model to be copied uncritically.** That context also explains the limits of the causal argument. Capital intensity, founder-led governance, no legacy burden, and lighter home-market regulation do much of the work in China, **and Western OEMs cannot import those conditions.** The opportunities below are therefore argued on engineering merits, not on the China narrative. That is the more transferable and more durable case for them.

Closing the speed gap cannot be confined to a single program or project team. **It requires a shift in how the whole organization approaches product development, from architecture decisions through supplier relationships to governance.** The levers typically can be applied easily, however, what is usually missing is the collective will to apply them in a holistic future oriented way.

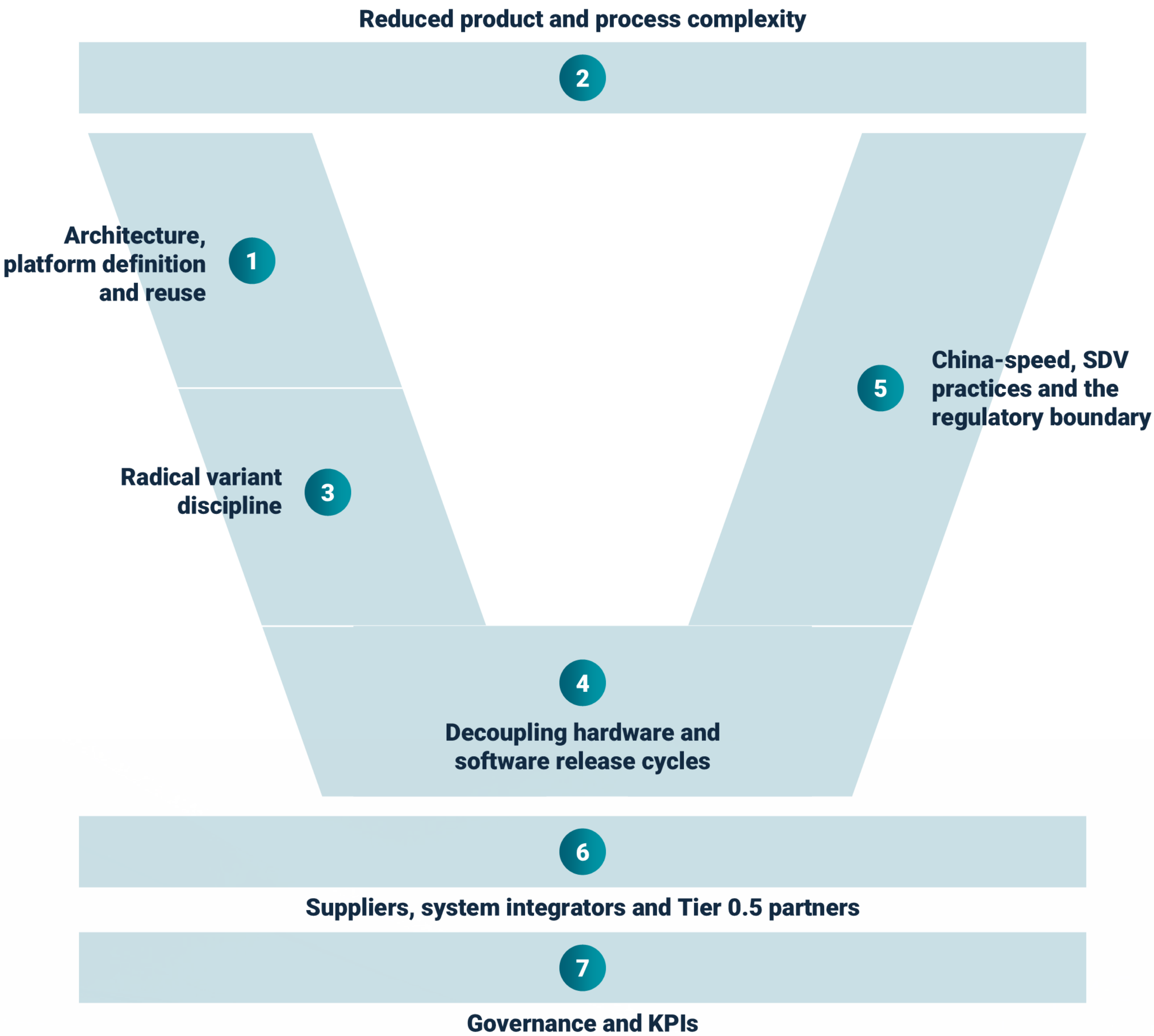
2 | Overview of opportunities

Figure 4 | Lever prioritization across OEM and supplier



The core levers sit between OEM and suppliers, and both must pull in the same direction to raise product-development speed structurally. **They are linked, however, they also expose different intentions across the value chain**: OEMs want coherent, differentiated products delivered fast, while suppliers want reusable, pre-integrated, platform-ready solutions that amortize across customers.

3 | Berylls by AlixPartners PDP opportunities



1 ARCHITECTURE, PLATFORM DEFINITION AND REUSE

Architecture, platforms and reuse are the backbone of a fast PDP. A process that manages platform, architecture and model-based systems engineering work products in the concept phase, reference architectures, technology stacks, common E/E backbones and reusable functional models, creates scalable assets for later programs and acts as a structural lever on both time-to-market and cost. Platforms concentrate a large share of development investment; spread across multiple derivatives and brands, they amortize that investment and materially lower R&D cost per vehicle. **Historically grown product structures work against these synergies and should be discontinued as soon as possible, including cutting maintenance cost down.**

Embedding architecture development and MBSE early enables frontloading virtual development and validation of vehicle and E/E architectures and later reduces structural complexity while limiting late requirement changes. Adherence to rigorous platform and architecture governance enables carry-over of modules and parts across derivatives, compressing engineering, testing and industrialization timelines. However, there is a limit: setting too wide a scope on potential requirements slows early platform development and module definition, **so governance has to discipline scope, not just enforce reuse.**

If the underlying structure, technology stack, E/E backbone and subsystems have already been validated and captured in reusable model a stable platform can be leveraged, enabling derivatives to be developed within 12 to 24 months. Additionally, leveraging existing platforms and partnering with other manufacturers lets new brands or niche programs bypass the initial 24 to 30-month platform pre-development phase and move directly into a derivative-based cadence. Beyond just shared platforms, modularization with strictly standardized interfaces is the deeper structural lever: only the interfaces between modules need to be fixed platform- or industry-wide, while the modules themselves can be swapped, upgraded or sourced from several vendors without ripple effects.

2 REDUCED PRODUCT AND PROCESS COMPLEXITY

High product complexity, in variants, trims and special solutions, drives development and process complexity and extends the PDP by adding interfaces, dependencies, testing effort and decision loops that slow every phase. Strategic, platform-spanning requirements management links feature and content decisions to both customer value and complexity cost, which makes the process more predictable and shorter by preventing the uncontrolled feature build-up that stretches concept, design, validation and industrialization.

Requirements overengineering has to be broken at its root. Hundreds of pages of specification content carried over verbatim from prior programs encode complexity without an explicit choice, whereas target-cost and target-timeline-driven requirements force scope to fit a defined envelope. Reuse of modules, kits and software components frees development capacity and lowers overhead, which then links complexity reduction directly back to architecture definition. Additionally, if value engineering is applied systematically the PDP is stabilized by challenging over-specified solutions, materials and features that add design and validation work without improving perceived value. Furthermore, dual sourcing should be targeted as a resilience tool rather than a blanket standard, because legacy KPIs typically drive unnecessary second sources that add suppliers, interfaces, testing effort and process complexity.

Comparable to modern server and personal-computer architectures, OEMs need to design plug-and-play modules with standardized interfaces and clearly defined performance envelopes, so that components can be swapped or upgraded without re-engineering. This limits regression testing to well-defined boundaries and shortens cycles for both new models and mid-cycle updates. **The strategic target picture needs to rest on fewer platforms and a minimum set of needed technology stacks,** so that programs can be planned on stable, reusable architectures, with remaining complexity actively governed to avoid timeline creep from late, variant-driven change.

3 RADICAL VARIANT DISCIPLINE

Variant discipline is the operating system for a faster, leaner PDP, and it runs across the product, the methods and tools, and the supporting functions.

On the product side, **hardware complexity must be reduced** through fewer model lines, hard cuts in hardware variants and simplified physical options, **while still offering a set of clearly differentiated configurations that customers understand and value. Software complexity needs to be concentrated where it creates visible value** rather than mirrored one-to-one to hardware. OEMs should deliberately cap hardware-driven differentiation and shift most variation into the interior, the human-machine interface, connectivity and service layers, so that the physical platform stays simple while the perceived experience can be tailored and updated over time. This **implies over-dimensioning a few key hardware baselines once and accepting higher upfront investments** treating them as long-lived physical platforms on top of which software, functions and services evolve.

The point where these two meet is requirements carry-over. By treating platform- and domain-level requirement sets as product assets, separating stable hardware requirements from fast-cycle software requirements, and reusing a high share of validated requirements across derivatives,[4] OEMs avoid blank-sheet definition for every variant and translate complexity reduction into shorter specification phases and fewer change loops.

On the process, methods and tools side, **strategic requirements management needs to be institutionalized across platforms and programs,** with each feature linked to complexity, cost and reuse of validated requirements KPIs, so that any new requirement or variant needs explicit justification. Engineering and industrialization should design and deploy modular, reusable kits and shared components that lower non-recurring engineering and tooling spend, improve plant learning curves and raise volumes per module. Governance, methods and tools should embed complexity costs into decision templates, **make "reuse first" the default,** and require explicit, data-backed approval for any new variant. The speed enablers themselves are largely available today: model-based systems engineering, virtual prototypes and computer-aided engineering, digital twins for product and production, standardized E/E and software stacks, and integrated PLM and ALM toolchains. The task is to embed them consistently so that they produce structural time-to-market gains rather than isolated pilot successes.

The supporting functions also have to change with the simplified product and processes. Purchasing needs to move from lowest-piece-price, under-specified sourcing toward buying to platform and lifecycle needs, accepting specification overhead where it enables reuse and standardization. Controlling, finance and human resources should quantify and track complexity costs, align business cases and incentives with variant discipline, and build capabilities in requirements engineering, value engineering and modular system design.

4 DECOUPLING HARDWARE AND SOFTWARE RELEASE CYCLES

A genuinely software-defined PDP establishes two interlinked but distinct processes: **a long-cycle hardware platform process with lifecycle, plug-and-play capabilities, and a fast software and feature process with continuous-delivery capabilities across multiple vehicle generations.** The two are tied together by a clearly defined product and E/E architecture with stable hardware-abstraction layers, standardized interfaces and interchangeable modules, which delivers a consistent hardware baseline across several software generations. The hardware process must keep its results robust over a long lifecycle while allowing plug-and-play integration of new or updated modules without re-validating the entire platform (see plug and play concept above). On top of that stable base, agile software development, continuous integration and deployment, virtual testing and over-the-air delivery let feature sets evolve mostly independently of the hardware.

This decoupling is an established SDV design principle. A stable abstraction or runtime layer is what allows updates to move on a software cadence rather than a hardware cadence,[6] and the standardized building blocks for it, AUTOSAR Adaptive in series production since 2019 and automotive Ethernet with time-sensitive networking in zonal architectures, are in productive use today.[10] For the PDP, the principle implies committing to a robust hardware cadence of around six to eight years while running software release trains roughly every six to twelve months. **These intervals should be read as typical orders of magnitude rather than measured norms;** the hardware figure sits close to the independently documented average platform life of about 6.7 years,[3] whereas a fixed six-to-twelve-month release interval is a reasonable simplification rather than a verified industry standard. In regulated markets the software interval is also bounded from above rather than left to company preference, because, depending on functionality, an over-the-air release can be a homologation-relevant event.[27]

A caution belongs here. Turning software into an ongoing driver of value is technically real, but it is not automatically a revenue model, and over-the-air capability cuts both ways.

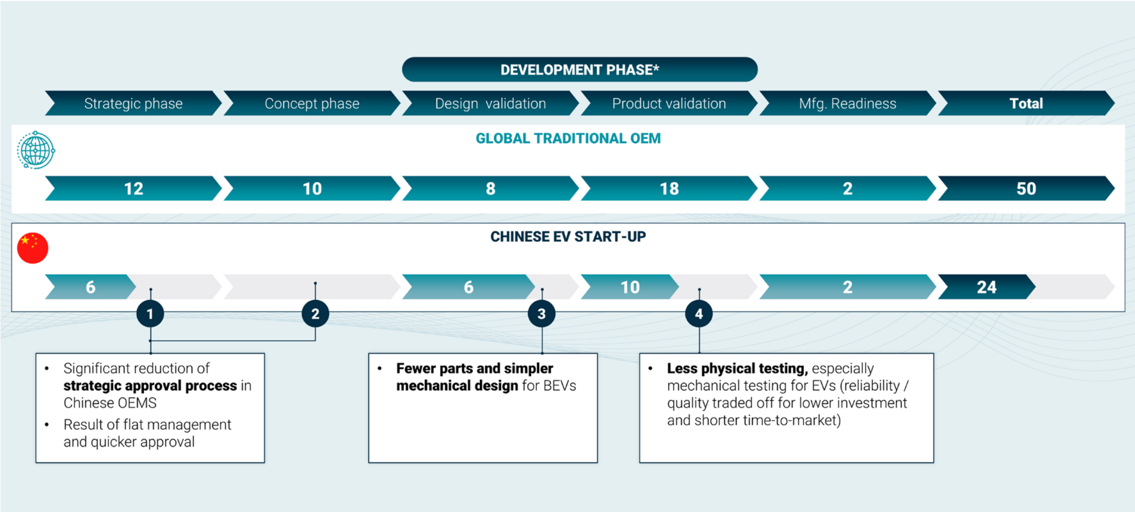
5 CHINA-SPEED, SDV PRACTICES AND THE REGULATORY BOUNDARY

Chinese OEMs compress concept-to-launch to roughly 18 to 24 months by combining aggressive platform reuse, tightly integrated decision-making and **"good-enough-for-now" mindset** with post-launch iteration while simultaneously supported by radical parallelization, fast decisions, vertical integration, powerful platforms and in-house software capability.[20] Software-defined thinking reinforces the pattern by shifting functional evolution into post-SOP software releases and extending hardware-platform lifetimes, which reduces the number of full vehicle programs required.

China-speed players also accelerate by systematically reusing proven, standardized components and software stacks rather than reinventing them, drawing on open and standardized frameworks such as AUTOSAR Adaptive and Ethernet with time-sensitive networking, adopting best-in-class Tier 0.5 reference architectures, and integrating validated off-the-shelf modules. The availability and series use of these building blocks is well established;[10] the precise claim that they eliminate months per program is plausible but not quantified in the external record, and is better framed as an expectation than a measured result.

A PDP that connects China-speed practices, SDV architecture, complexity reduction and platform reuse can, through cumulative effects, move timelines from around 50 months toward 24 months or less. The often-cited mapping of which lever shortens which phase, on the order of two to six months in strategy and concept, nine to eleven through virtual validation and, if platform carry over is used, an additional twelve to eighteen through platform and reuse in derivatives, should be presented as an illustrative allocation, not as an arithmetic proof.

Figure 5 | PDP timelines in China against established programs



* Typical duration in months. Berylls by AlixPartners industry expertise

The individual effects overlap and interact, which is the essence of concurrent engineering, and concurrent engineering compresses time precisely because phases run in parallel rather than in sequence.[11] Adding the per-lever figures together would double-count and overstate the result. The overall target of roughly 50 to 24 months is credible because it matches the observed China-versus-legacy span;[1] the phase arithmetic behind it is not.

Furthermore, "China-speed" rests on radically lower process overhead and a platform- and SDV-centric approach: a few powerful EV and SDV platforms, tightly governed reuse, and software-paced, OTA-driven evolution set the rhythm, rather than large, document-heavy program structures. **For many Western OEMs, capturing these benefits requires a transformation of the PDP and operating model,** and it depends on local infrastructure, connectivity and especially local regulation.

Regulation is where the speed model meets its hardest external limit, and in regulated markets it constrains the cadence rather than merely adding process steps. Treating homologation as a lever to be made lean, by parallelizing it with development, reusing safety and compliance evidence across platforms and industrializing digital approval workflows, is correct as far as it goes, and it remains the right instinct. UNECE Regulation No. 155/156 on cybersecurity and software update management systems has been mandatory for all new vehicle registrations in its scope since July 2024,[26][27] and has already shown what OEMs are forced to do to their model range, when replacement models are not ready on time: Porsche withdrew the combustion Macan from affected markets and Volkswagen ended the e-up!, because re-certifying an aging line cost more than the line was worth.[25][26] For the software side this means the six-to-twelve-month release train described in opportunity 4 is, in these markets, bounded from above. A functionally relevant over-the-air release is an approved event wherever it touches type-approval-relevant software, not a continuous-deployment act borrowed from consumer software. Evidence reuse across platforms can lower the marginal audit burden, but it does not remove the approval gate, and **a PDP planned for European markets has to design the regulatory pathway in from the start rather than treat it as a downstream formality.**

Product liability sharpens the same point and bears directly on the minimum-viable-vehicle logic. The recast EU Product Liability Directive, 2024/2853, which applies from December 2026, brings standalone software and over-the-air updates explicitly within the definition of a product and holds the manufacturer responsible across the product's life, with eased burdens of proof for claimants.[23][24] That changes the economics of launching a tightly scoped vehicle and extending it after start of production. What works in a lighter-liability market as launch-early-and-patch-later becomes, under this regulation, a continuing and enforceable obligation to keep the product safe through updates, with a known but uncorrected defect or an update-induced regression both capable of rendering the product defective. It also presses on the boundary that the validation-rebalancing logic relies on. The split between feature content, eligible for lighter pre-SOP gates, and safety-critical content, requiring full validation, is clean in engineering terms but porous in liability terms: a comfort feature delivered over the air that affects real range or braking behaviour can fall within the defect definition. The range-reduction cases already in the record, a US class action against Tesla and a Chinese investigation into OTA range cuts, are early signals of exactly this exposure.[15]

Validation depth should therefore be rebalanced rather than uniformly applied, with full validation for safety-critical content and lighter pre-SOP gates and faster in-market iteration for feature and experience content, on two conditions. The first is that the data, simulation and validation infrastructure can carry it. The second, and the one most easily underestimated, is that the feature-versus-safety boundary is drawn to hold up under the liability and homologation regulation, not only under the engineering taxonomy. In short, in regulated markets compliance is a design parameter that shapes the achievable cadence, not a process step to be optimized after the fact.

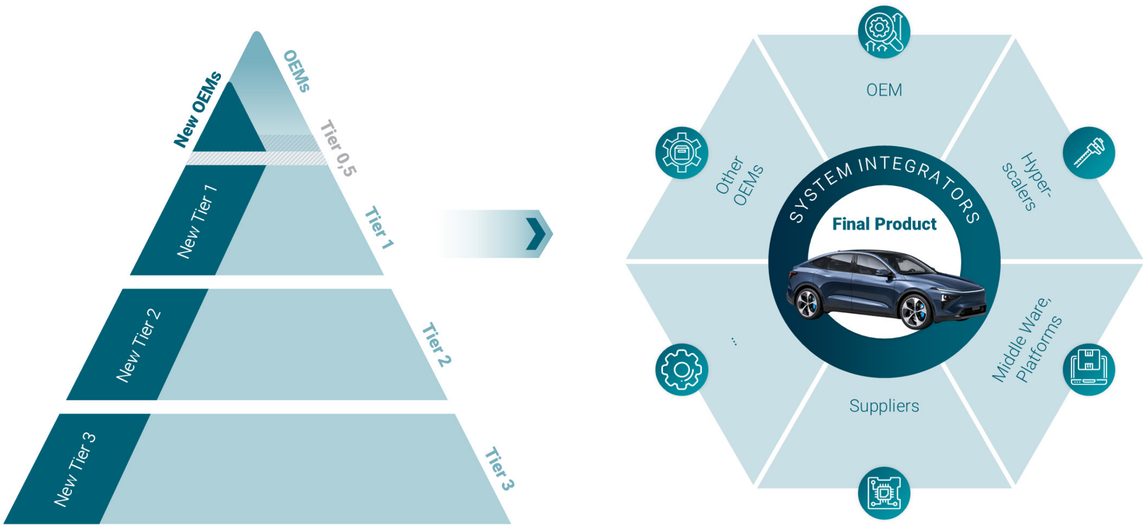
6 SUPPLIERS, SYSTEM INTEGRATORS AND TIER 0.5 PARTNERS

Early and structured supplier integration is an additional lever to shorten development while reducing change cost and improving requirement quality. Tier 0.5 suppliers and full system integrators are emerging across the value chain, taking responsibility for complete subsystems or even whole vehicle platforms, which lets OEMs concentrate on architecture, brand and customer experience. The role is real and visible in more than one market: Magna Steyr builds complete vehicles under contract for several brands and brings its own EV architecture;[7] Foxconn launched its open MIH platform in 2020 as a shared hardware and software framework for faster EV development;[5] and Huawei's alliance model co-defines the product, supplies the cockpit and driver-assistance stack and sells through its own retail channels for partners such as Seres, Chery and BAIC, while the partner manufactures.[16]

That same Huawei model illustrates the risk directly. **Integrating full system integrators shifts architectural control and key knowledge outside the OEM, increases dependency and concentrates risk, and forces a redefinition of roles, capabilities and intellectual-property boundaries.[16][28][29] Many OEM operating models are not yet ready to capture the benefit without paying that price.** The trade-off between speed and control needs to be made explicit.

A core friction point is tempo mismatch. OEMs push for 18 to 24-month cadences and frequent OTA releases, while many Tier 1s are still organized around multi-year hardware programs. Without explicit alignment of roadmaps, release trains and decision cycles, that mismatch turns suppliers into bottlenecks rather than accelerators. **Suppliers therefore need to evolve from one-time hardware sellers into software-centric service providers** that plug into each OEM's OTA funnel and align commercial models with vehicle-lifetime value. Here the same caution as in 3.4 applies:

Figure 6 | Partnership models: Tier 1, Tier 0.5 and full system integrator



lifecycle monetization via features-on-demand and subscriptions is unproven. BMW dropped heated-seat subscriptions in 2023 after backlash,[12] and Chinese regulators now require defect fixes to be treated as recalls,[13][14] which limits the use of over-the-air updates as a substitute for a recall. Making it work requires a shift to long-term co-creation with joint roadmaps, shared PLM and ALM, aligned targets, and clear ownership. Supplier continuity remains key, with stable multi-program Tier 1 partnerships and tighter OEM coordination.

7 GOVERNANCE AND KPIs

Without lean governance PDP improvements stay cosmetic, and Western OEMs will have to roughly double their design speed to stay competitive with China, a figure that follows directly from Berylls by AlixPartners' finding that Chinese startups develop about twice as fast, with the caveat that the required jump depends on the competitive intensity and regulation of each market.[1] Proven practices include a single cross-functional PDP owner, one consolidated steering forum per program, clear escalation paths, and maturity management with stage gates that combine fast decisions with strict scope discipline.

Decision authority should be pushed back to empowered experts rather than delegated to committees, but only where the right experts are present, capable and continuously developed. Explicit individual decision rights, combined with wider spans of control, become a structural speed lever only when matched with competence and enablement. **Strategic requirements and their governance should be defined at portfolio and platform level,** with a cross-functional body owning the platform and domain-level requirement libraries and **deciding what is core carry-over versus genuinely new.** Multi-platform and architecture steering needs to sit above individual programs in a single committee that owns the target platform stack and enforces reuse. Financial targets should be hard-wired into the transformation through KPIs such as time-to-market, reuse rate, share of virtual tests, share of validation still waiting on hardware, change volume after design freeze, development cost per vehicle and share of OTA-capable functions, so that the impact of the transformation is transparent and steerable.

4 | Roles in the future 24-month PDP

The 24-month PDP redistributes work across four roles, and it is the full picture rather than any single lever that makes the cadence hold.

OEMs

OEMs shift from program manager **to system and ecosystem architect.** It owns product strategy, brand differentiation and customer-experience targets over the full lifecycle; defines platform and architecture governance across all programs, including strategic requirements and reuse rules; orchestrates the ecosystem of Tier 0.5 partners, technology players and traditional Tier 1s through shared toolchains, joint KPIs, aligned release trains and clear IP boundaries; and runs lean, empowered program steering with full decision rights and strict design-freeze discipline.

Tier 0.5

The system integrator, or Tier 0.5, **becomes an end-to-end subsystem owner.** It takes full ownership of complete subsystems, hardware, software, integration and validation, within clearly defined interfaces, performance envelopes and IP boundaries; plugs into the OEM's continuous-integration and test environments and delivers at factory cadence; absorbs architectural and integration risk in non-core domains such as thermal management, E/E domains and connectivity stacks while respecting the OEM's architectural guardrails; and builds long-term co-creation partnerships based on joint roadmaps and transparent economics.

Tier 1

The traditional Tier 1 faces the strongest transformation pressure and must move from reactive component supplier to proactive platform contributor, or position itself as a system integrator. That means consolidating internal product families into validated, reusable modules with plug-and-play interfaces; building cross-OEM requirement and validation libraries so that R&D amortizes across customers; investing in software factories and CI/CD pipelines to support OEM software release trains and OTA cadences as a normal operating mode; and evolving from volume- and SOP-centric commercial models toward lifecycle-value models, with the monetization caveat from opportunity 4 and 6 firmly in mind.

New players

New players, the technology companies, SDV-native startups and fast-moving OEMs, **act as pace-setters and partners.** They provide software stacks, SDV platforms, toolchains and open frameworks that others can integrate rather than rebuild; operate as reference models for parallelized development and fast decision-making; serve as platform or technology partners for OEMs and Tier 1s seeking to bypass greenfield cycles; and push standardization of interfaces, data models and ecosystems that, once adopted, raise speed and reuse across the chain. Their record also carries the survivorship warning from chapter 1: many pace-setters did not survive the shakeout, so the role is a source of practices to adopt selectively, not a template to copy wholesale.

5 | Elements to consider

Every opportunity and lever that compresses the product development process carries its own implementation boundary and its own risk. In an execution project, two questions therefore have to be settled at the start, before the levers are applied to your PDP.

DEPTH OF EXECUTION AND CHANGE

The execution boundary on architecture and reuse is mainly finding the correct platform scope. Potential over-engineering to cover every future derivative turns the platform into the bottleneck it was meant to remove, and single-platform concentration with carry-over metrics satisfied by re-classified re-engineering compounds it. Complexity reduction fails if requirements are carried over verbatim rather than re-derived, and if variant cuts are blunt enough to remove the differentiation customers pay for. Variant discipline is mostly an organizational boundary, stalling at pilot level without redesigned incentives, and the bet on over-dimensioned hardware is a one-way commitment whose payoff depends on OTA monetization and platform longevity materializing as planned.

Decoupling hardware and software only works if the hardware abstraction layer holds up under real program pressure. Any safety-relevant change still requires ISO 26262 re-validation regardless of process speed, and homologation gates set a ceiling no internal redesign can lower, a typical failure of simply applying China-speed practices in regulated markets. Tier 0.5 partnerships shift architectural control and switching leverage to the supplier, and misaligned tempo turns partners into bottlenecks. Governance holds it together: lean decision paths are hollow without expert capability, and every speed KPI is gameable unless designed to resist it. None of these levers self-correct once in motion, the cost of a second pass is the platform, the supplier relationship, or the governance model itself, **which is why getting them right the first time is the key to the whole game.**

IDENTIFYING THE CURRENT BASELINE

The 24-months-PDP figure is a useful north star, but **the first real comparison is not fast versus slow, it is legacy OEM versus new entrant,** since the two run genuinely different processes rather than the same process at different speeds. New entrants and China-based challengers compress timelines by front-loading platform pre-development or skipping it entirely through buying existing platforms, starting from a validated base rather than a blank sheet.[5][7][32] Legacy OEMs still tie platform decisions to individual vehicle programs and their successors, making platform engineering a heavier share of the process, so their timelines look longer even when the underlying engineering content is comparable.

That distinction matters because **a transformation touching product, architecture, process, and organization at once has no stable external baseline,** a drop from 50 to 24 months cannot be pinned on any single lever. The real opportunity is not matching a competitor's cycle time but **targeting your own friction, e.g., redundant validation loops,** sequential sign-offs, program-specific rework, measured against your own current cycle as the hard baseline. Applying the levers without first establishing that baseline is a guess dressed up as a strategy. This is precisely where Berylls by AlixPartners' PDP knowledge makes the difference, knowing which lever to pull, in what sequence, and against what baseline, turning a generic 24-month target into a holistic program that actually wins.

6 | Conclusion

A renewed PDP succeeds only if it is treated not as a one-off project but **as a mindset,** one that consistently links product, portfolio and business-model decisions to customer value and translates them into fast, disciplined execution. The work is as much about handling legacy products, structures and processes deliberately, reducing genuine legacy burden while keeping proven strengths, as it is about new platforms, SDV and partnership models. Both have to happen in parallel for the new PDP to become a durable advantage in an 18 to 24-month world.

For the OEM, the agenda has four anchors. Put platforms and strategic requirements in charge, so that no new program starts without a pre-defined platform strategy, reuse targets and a curated requirement set owned by a cross-functional steering body that also sets sourcing footprints and dual-sourcing strategy against geopolitical and supply-chain risk. Enforce radical variant discipline as a KPI, making variant count, hardware complexity and reuse rate corporate metrics, with “reuse first” as the default and explicit senior sign-off for any new variant. Separate and synchronize the hardware and software processes, running a long-cycle hardware process and a fast software and feature process tied together by stable architectures and OTA-ready E/E, while treating OTA as a design constraint and a delivery backbone rather than as a guaranteed revenue stream, and while planning the software release cadence around the type-approval obligations that apply in regulated markets. Build a fast, partner-centric governance model with one PDP owner and one lean steering forum per program, integrating Tier 0.5 partners and technology players against a shared cadence and common evidence expectations, including under tighter regulatory scrutiny.

For the supplier, the agenda mirrors the OEM shift. Turn platforms and modules into strategic products by investing in proprietary modular platforms, reference designs and validated requirement libraries reusable across OEMs and regions. Simplify the internal landscape and manage requirements strategically, standardizing interfaces and processes and managing validation assets centrally so that a high share of content can be reused from one program to the next, which also makes compliance and homologation more repeatable. Move up to Tier 0.5 with software-first, turnkey capabilities, offering complete subsystems backed by a software factory, CI/CD, automated testing and OTA readiness, and taking end-to-end responsibility for architecture within a defined domain, including the cybersecurity and software-update evidence the OEM now needs for type approval. Align cadence and economics with OEM processes, synchronizing roadmaps and release trains to the 18 to 24-month cycle and steering on speed-focused KPIs such as time-to-market, reuse and platform profitability rather than piece price alone, while shifting commercial models toward lifecycle value with realistic expectations about what customers will actually pay for.

Across the value chain, the priorities resolve into a short list per role. OEMs should redesign the PDP rather than optimize it, shift culture toward parallelization and explicit risk-reward, anchor launches on a minimum viable vehicle extended post-SOP via OTA while scoping the initial feature set and the update commitments to hold up under lifetime product-liability rules such as the recast EU directive, and empower mandated experts while stabilizing the supplier base through multi-program partnerships. On the architecture itself, the step to SDV should be taken in one move rather than by extending legacy ECU landscapes incrementally, but only with running intermediate builds and a defined fallback for every dependent vehicle program. That condition is not a detail. It is what separates an architectural step from a portfolio-wide dependency.[21][22]

What a slower PDP actually costs makes the urgency concrete rather than rhetorical. In our project experience, a 12-month launch delay runs to roughly EUR 150 to 200 million per affected program for an OEM and EUR 10 to 15 million for a Tier 1 supplier, stacking from program burn rate, deferred contribution margin, capital carrying cost and unabsorbed plant overhead during the extended ramp.

Two publicly documented cases show the two halves of the problem. The mechanism: the launch of the electric Macan slipped by around two years because the group's E3 1.2 software platform was not ready, a hardware program held hostage by a software release.[33][34] The magnitude: when Porsche rescheduled its new platform for electric vehicles in 2025, the depreciation and provisions this triggered burdened that year's operating result by up to EUR 1.8 billion, within extraordinary expenses of around EUR 3.1 billion, and Volkswagen lowered its group outlook by EUR 5.1 billion on the back of the delayed Porsche EV ramp-up.[35][36] The first is a software dependency inside a hardware program, the second a platform timing decision that reshaped the product plan around it. Both show what happens when vehicle programs cannot move independently of the platform and the software underneath them, and both illustrate the condition set out above: the architectural step is not the risk, taking it without running intermediate builds and a fallback for every dependent program is. That is precisely what a decoupled PDP is designed to prevent. **The PDP redesign is therefore not a cost center competing for budget, it is the budget.**

The opportunities themselves are known and defensible on engineering grounds, independent of any China narrative. What decides the outcome is whether an organization applies them together, the honesty to treat speed as a means rather than an end, and **the willingness to let a renewed PDP replace the old process rather than run alongside it.** Read in that way, the numbers are not a threat but a measurable agenda: where platform scope holds, variant count falls and the hardware and software processes genuinely run on separate clocks, the economics of a shorter PDP follow. Where they do not, the early signals appear long before launch, in change volume after design freeze and in the share of validation still waiting on hardware. That is what makes the 24-month world a target a program can be steered toward rather than an abstract benchmark.

Figure 7 | Cost of a launch delay along the PDP (for OEMs)

PROGRAM BURN RATE

Monthly risk of additional costs:
~$17-26M

Nature of the cost:
Engineering, validation, and program office activities beyond original program scope

Typical attribution to delay cost:
Program burn rate
~50%

CAPEX CARRYING COST

Monthly risk of additional costs:
~$4-5M

Nature of the cost:
Cost of capital on committed, idle assets

Typical attribution to delay cost:
CAPEX
~15%

IDLE PLANT FIXED COST

Monthly risk of additional costs:
~$4-5M

Nature of the cost:
Unabsorbed overhead during delayed ramp

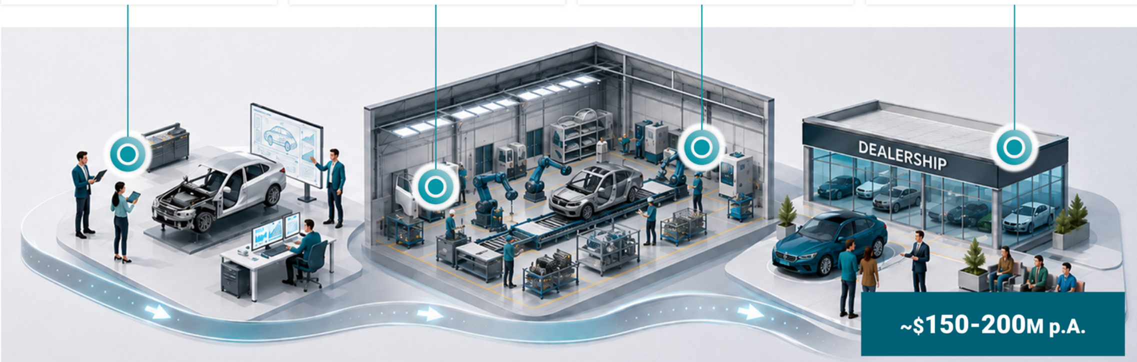
Typical attribution to delay cost:
Idle plant
~15%

LOST/DELAYED CONTRIBUTION MARGIN

Monthly risk of additional costs:
~$17M

Nature of the cost:
Loss of volume and margin competitors capture during the delay

Typical attribution to delay cost:
Lost contribution margin
~20%



Source: Berylls by AlixPartners estimation based on industry experience. Cost can, but do not need to occure in a similar manner in each program.

7 | What Berylls by AlixPartners can do for you

The opportunities and levers in this paper are not secret. They are engineering choices most executives already recognize. What separates the companies that close the speed gap from those that only discuss it is the will to redesign the product development process rather than accelerate the old one, and the capacity to hold that redesign together across architecture, software, systems engineering and governance at once. **That is the work Berylls by AlixPartners does, for OEMs, suppliers and new entrants:** R&D transformation and efficiency, SDV and technology-stack definition, R&D strategy and footprint, and empowered systems engineering, **delivered as one coherent PDP redesign rather than four disconnected workstreams.**

Concretely: defining the two interlinked PDPs and the stable E/E architecture that ties them together, setting platform and reuse targets that survive board scrutiny, cutting variant and process complexity to a defensible core, and building the governance, KPIs and Tier 0.5 partnerships that let a program run at an 18 to 24-month cadence. Berylls by AlixPartners brings the automotive-specific knowledge and a proven track record restructuring engineering organizations and shaping new target operating models for OEMs and suppliers across Europe, the US and Japan.

That reach is the point: a 24-month PDP is a global cadence question, not a European one, and the redesign has to hold across regulatory regimes, supplier bases and engineering cultures simultaneously.

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