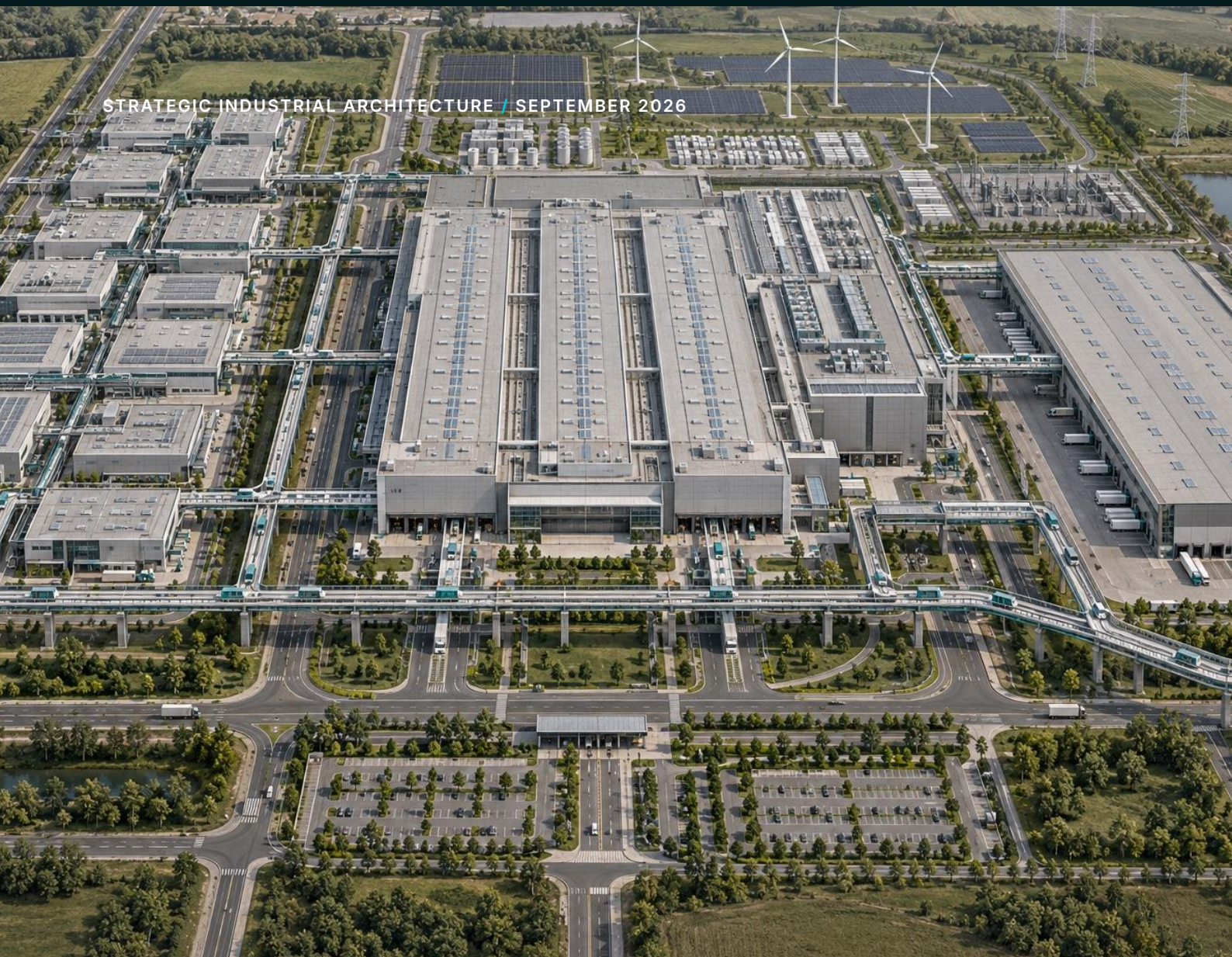




# VOLKSWAGEN 2 I WOULD START WITH ŠKODA

A conservatively costed system architecture for a first Volkswagen 2 greenfield in Romania.



**MATEUSZ CHRZANOWSKI**  
System of Systems Architect

# Volkswagen 2 — I Would Start With Škoda

In my previous article, I argued that Volkswagen should not try to turn the existing organisation into Volkswagen 2. The current Volkswagen still has a job to do: sell cars, generate cash, protect its customer base and remain strong enough to finance what comes next. I would build Volkswagen 2 next to it.

If I had to choose the first real greenfield for that system, I would start with Škoda in Romania.

What follows is a conservatively costed system architecture, not an execution-level factory project. I am not trying to calculate every conveyor, robot, production second or warehouse buffer. That would require an industrial project many orders of magnitude larger than an article. What I want to test is something more fundamental: what happens when the car, factory, suppliers, energy, logistics and economics are designed together from the beginning instead of being optimised separately inside an inherited system.

**I would build Volkswagen 2 next to it.**

# Start with three cars, not a catalogue

I would begin with only three models. The names are working names, but their functions are clear.

The Škoda Vela would be the smallest of the three: roughly 4.21 metres long, with a wheelbase around 2.77 metres. I would not design it as a "city EV". It would simply be a smaller universal car for one or two people, commuters, company users and sales representatives who do not need a large vehicle but still expect to travel normally. Its electric versions would use 75 kWh and 90 kWh batteries. The hybrid would be the only unusual drivetrain in the range: a compact naturally aspirated 1.0-litre engine driving the front axle, with a separate electric motor at the rear and a small high-power battery. The electric side would provide regeneration, low-speed torque support and an electric AWD function, including a proper winter mode. The reason for doing this would not be to make the car technically exotic. It would be to keep the combustion side mechanically simple while using the electric axle to provide the functions that are actually useful.

Above it would sit the Škoda Raviq, a roughly 4.59-metre crossover with a wheelbase close to 2.97 metres. Here I would not develop a new hybrid system. Volkswagen already has a modern 1.5 TSI full-hybrid architecture, and a greenfield does not mean redesigning good components simply because everything around them is new. Raviq would therefore use that system alongside 85 kWh and 100 kWh electric versions.

## VELA

**4.21 m**

WB 2.77 m

Hybrid / 75 kWh / 90 kWh LR

## RAVIQ

**4.59 m**

WB 2.97 m

1.5 TSI Full Hybrid / 85 kWh / 100 kWh LR

## Atria closes the range

The third model would be the Škoda Atria, the functional equivalent of an Octavia-class family car. Around 4.80 metres long and with a wheelbase close to 2.89 metres, it would be designed from the beginning around both the full hybrid and a serious electric package: around 100–105 kWh in the standard BEV and 120 kWh in the Long Range. For the purposes of this architecture I would assume roughly 575–580 km for the standard electric version and around 700 km for Long Range. Those are intentionally conservative targets. Mercedes has already demonstrated what European engineering can achieve when efficiency is treated as a primary design objective, so I see no reason to base a new European platform on the assumption that an electric family car should accept mediocre long-distance capability.

The proportions of all three cars would follow the same logic: shorter overhangs, longer wheelbases and more of the overall vehicle length used for cabin and battery packaging. We are not inheriting a combustion platform and trying to fit an electric architecture into it afterwards.

ŠKODA ATRIA

**4.80 m**

Wheelbase ~2.89 m

**100–105  
kWh**

~575–580 km

**120 kWh**

~700 km Long Range

**Shorter overhangs. Longer wheelbases. More of the car used for cabin and battery.**

# One product philosophy. Three different functions.

**VELA**

4.21 m / WB 2.77 m

**RAVIQ**

4.59 m / WB 2.97 m

**ATRIA**

4.80 m / WB 2.89 m

The product range itself would be just as simple. Each car gets three normal powertrain choices and two complete equipment levels. No maze of standalone options and no configuration process in which a customer can create hundreds of combinations by choosing seats, lights, cameras, interior packages, winter packages and individual electronics separately.

Version 1 would already be a properly equipped car. Good full-LED lighting, electrically adjustable comfort seats, normal modern ADAS, a good infotainment system and the equipment customers actually use. Version 2 would be the highest sensible ŠKODA specification: AGR seats in all three models, segment Matrix LED lighting, better interior materials and the full comfort and safety specification.

There is an important product principle behind that. Vela would not be worse equipped because it is smaller. It would simply be a smaller car.

# Reduce complexity without reducing the car

Behind the visible product, I would standardise as much as possible across the entire range: seat mechanisms and motors, controllers, switches, cameras, radar modules, HVAC components, infotainment hardware, electronic modules and anything else where commonality does not compromise the function of the car. A supplier should not be producing dozens of slightly different solutions simply because each model historically developed its own component set. If Version 2 uses AGR seats across all three vehicles, the supplier gets real scale. If the same controller, motor or switch can work across the range, it should.

The savings do not come from removing equipment. They come from removing unnecessary complexity from the system that produces it.

I would also keep RS. Škoda has had sportier versions for years and there is no reason to erase that part of the brand just because the mass-production architecture is deliberately simple. The difference is that RS would be isolated from normal production. Each model gets one electric RS based on the largest battery already available in that car, with stronger motors, stronger inverters, AWD, different brakes and suspension and a different calibration. One equipment level, two unique colours and two deliberately distinctive wheel designs. Nothing else.

RS would be build-to-order and produced only in dedicated production windows. If the next three windows are full, the customer waits for the fourth. That waiting time is part of choosing the exceptional version. There is no reason for the entire factory to carry permanent complexity just because a relatively small group of buyers wants something special.

## VERSION 2

AGR across all three models. Common high-volume systems wherever the function allows it.

## RS

Electric only. One specification. Two colours. Two wheel designs. Dedicated production windows.

# The production system should be designed around repetition

The normal versions would be built very differently. I would produce them in large batches, with Version 1 and Version 2 running in planned blocks and colours grouped sensibly through the paint shop. The popular combinations would be built to stock.

That changes the entire logic of the plant. The factory is no longer trying to manufacture thousands of individually configured cars in an endless mixed sequence. It is manufacturing a small number of well-defined products in large, predictable series.

A customer ordering a common version may simply receive a car that already exists in regional stock. If the exact colour or specification is not available, the order can enter the next appropriate batch. In favourable cases, an individually ordered car could arrive within roughly a month.

The larger benefit is inside the factory. Predictable batches reduce line-side inventory, kitting complexity, sequencing effort, changeovers, training burden and the number of opportunities for assembly errors. Suppliers know exactly what the plant will consume over the next production block. The number of engineered hours per vehicle can fall without pushing workers harder, simply because the system asks them to deal with fewer exceptions.

MODEL → POWERTRAIN → VERSION 1 / 2 → BATCH → STOCK

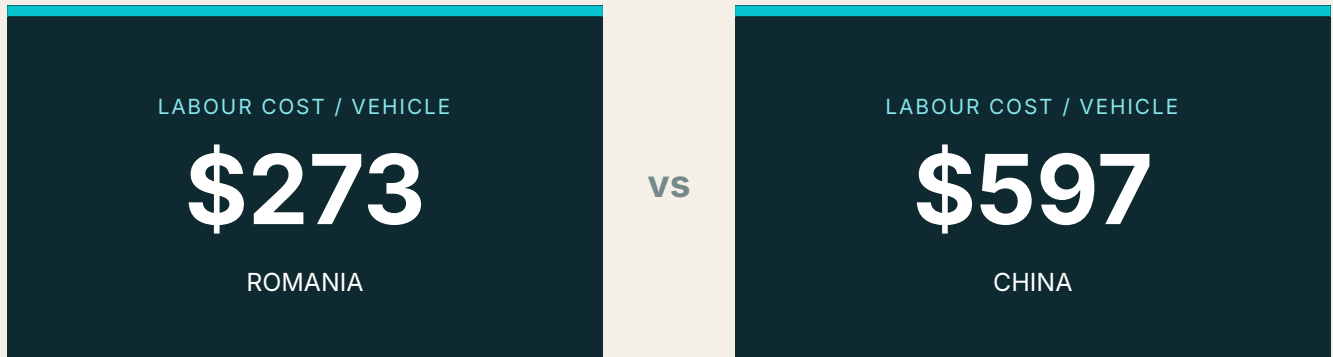
**The factory manufactures a small number of well-defined products in large, predictable series.**

## Romania gives one advantage — and one bottleneck

That matters when comparing Europe with China. Labour cost per vehicle is not just a wage question. It is also a question of how much labour the architecture requires to produce one car.

Romania is particularly interesting here because its automotive labour cost per vehicle is already extremely competitive. Oliver Wyman's benchmark puts Romania below China. The weak point is energy, and that is exactly why the greenfield would include a substantial own-generation system from the beginning.

I would not treat that energy system as an ESG add-on. It is part of the cost architecture. If the chosen location gives me excellent labour economics but expensive industrial electricity, I do not simply accept that disadvantage and try to compensate for it elsewhere. I remove the bottleneck at system level.



### ENERGY

Do not accept expensive industrial electricity as a permanent disadvantage of the location. Remove the bottleneck at system level.

# The greenfield is a campus, not a building

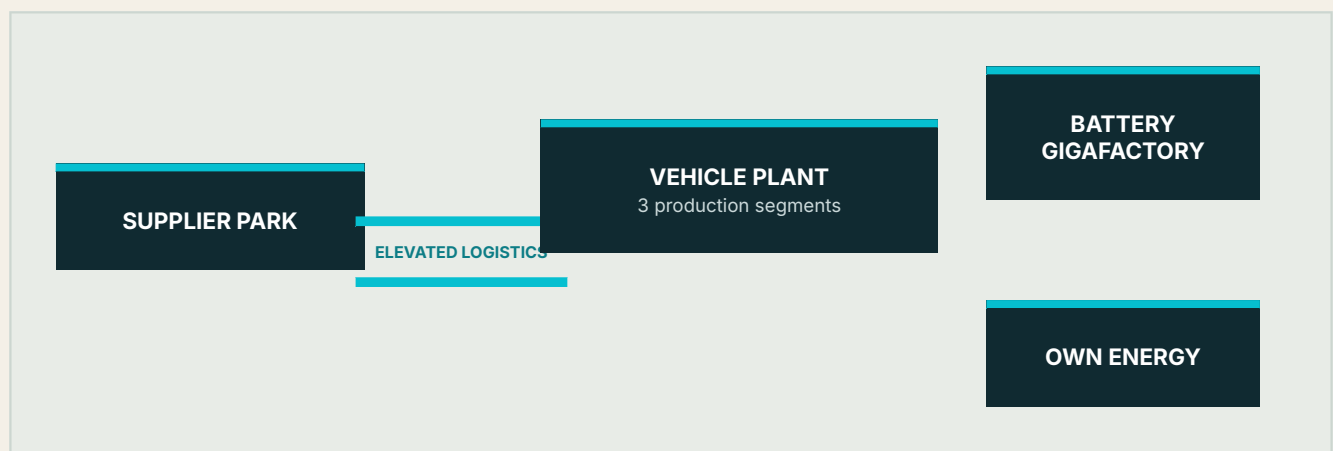
The site would consist of the vehicle plant, battery gigafactory, supplier park, long-term warehouse for external suppliers, the energy system and one common digital and control layer. They would be planned together as one production environment.

The battery factory is a strategic core asset and would sit directly inside that environment. Its material flow into vehicle production can therefore be very short and direct. It does not need to behave like an ordinary external supplier.

The supplier park is different, and this is where the physical geometry becomes important. The major suppliers would occupy ready industrial halls immediately next to the vehicle plant, sharing infrastructure with the campus. They would be connected to production by dedicated elevated logistics viaducts crossing above the main campus roads. Autonomous electric tugger vehicles would move pallets and containers over those viaducts directly towards production.

That is a deliberate part of the design. Production logistics should not cross normal campus traffic. Employee buses, service vehicles, emergency traffic, trucks and general road movements should not interfere with the critical material flow feeding the assembly lines.

A supplier located a few hundred metres from the plant should not need to send components through the traditional chain of truck, gate, loading dock, central warehouse, unloading, internal transport and finally line-side delivery. Its useful path should be much shorter: supplier, internal autonomous transport, elevated connection, line-side logistics.



## External suppliers become part of the same operating system

Not every supplier can be located inside one greenfield, of course. Components coming from outside would therefore enter through a dedicated long-term warehouse on the other side of the vehicle plant. That warehouse becomes another supplier from the perspective of production. External deliveries arrive in larger batches, the warehouse handles buffering, preparation, sequencing and kitting, and from that point the material enters the same internal logistics architecture as everything coming from the supplier park. The warehouse receives its own elevated delivery connection to production as well.

The assembly system should not care whether a component was manufactured 300 metres away or arrived from another country. The complexity of that difference should disappear before the part reaches the line.

For that to work, the supplier park, warehouse, battery plant and vehicle factory cannot operate as separate organisations exchanging information through disconnected systems and reacting to shortages after they happen. They need one common production and communication layer covering forecasts, production schedules, inventory visibility, supplier requirements, material tracking, quality traceability, internal logistics, energy and finished-vehicle stock. The supplier sees what the plant will need. The warehouse knows what has to be prepared. Internal transport knows what must move and when. Production sees the state of the entire environment, not only what is happening inside its own building.



### COMMON DIGITAL & CONTROL LAYER

Forecasts / schedules / inventory / supplier requirements / traceability / logistics / energy / finished-vehicle stock

## The line itself should be boring



That is actually a compliment.

I would use three production segments, one for each model. They can sit inside one very large building, but each remains a clear production system. On both sides of the main vehicle flow sit the operator stations and the same basic line-side rack architecture. Material is replenished from the external side of those racks, which means logistics personnel do not have to move through the operator's working area to keep the line supplied.

The operator should have the component close at hand, the correct tools in the same place every time and a station built around one logical sequence of work. Not one screw, but one coherent operation. If a task only involves one fastening step, then the design question is what other work naturally belongs with it so that the station still performs a sensible sequence.

## One direction. Components come to the car.

Large components join the same flow where they are needed. Doors can enter from the side and move suspended alongside the main line, being equipped progressively with glass, seals, mechanisms and trim before meeting the vehicle at the correct point. A boot lid can enter the centre flow, be prepared over several stations and then be installed on the corresponding car. The vehicle does not leave the main line to search for its components; the components enter the line where the vehicle needs them.

Nothing goes backwards, and the different flows do not cross each other unnecessarily.

I also would not design the plant around an obsession with squeezing every possible millisecond from every station. If a car leaves one assembly operation and the next required operation is several station lengths further ahead, there is no reason to force it to crawl through empty takt positions. That transfer section simply runs faster. The car reaches the next operation, slows down and returns to the normal assembly rhythm.

For me, optimisation means making the complete flow simple, stable and predictable. It means removing bottlenecks, crossings, unnecessary handling and avoidable waiting. A factory that is so tightly wound that a small disturbance stops half the building may be locally efficient, but it is not a particularly good system.

### ONE-WAY FLOW

Nothing goes backwards. No avoidable crossings. Transfer speed changes where the operation changes.

## The economics are already interesting before deep optimisation

For the first cost model I assumed three lines at roughly 900 vehicles per day each, giving around 2,700 vehicles per production day. At approximately 250 production days per year, that is about 675,000 vehicles of annual nameplate capacity. A battery gigafactory of roughly 50 GWh per year fits that scale.

The first estimate for the complete greenfield comes to approximately €10 billion of CAPEX, including the vehicle plant, battery production, own energy, supplier park, warehouse, internal logistics, digital systems, utilities, site infrastructure and commissioning.

Ten billion euros sounds enormous until it is spread over more than 600,000 vehicles per year and a twenty-year asset horizon. The supplier park also generates income through rent, energy and shared services, although its larger economic contribution is probably the logistics, stock and handling cost it removes from the system.

**3**

PRODUCTION LINES

**900**

VEHICLES / DAY / LINE

**675K**

ANNUAL NAMEPLATE CAPACITY

**50 GWh**

BATTERY GIGAFACTORY

**€10bn**

GREENFIELD CAPEX

**20 yr**

ASSET HORIZON

## The first BOM already works

I then built a first architecture-level costed BOM using current component benchmarks and deliberately conservative assumptions. It is not a quotation-level production BOM with thousands of individually priced parts, but it is detailed enough to see whether the concept survives contact with basic economics.

For the highly equipped Hybrid V2 versions, the estimated manufacturing cost comes out at around €16.5k for Vela, €17.8k for Raviq and €18.8k for Atria. Standard BEVs land roughly around €19–20k, €22–23k and €24–25k respectively.

Those numbers do not assume the full savings that could eventually come from detailed line balancing, the exact logistics geometry, lower inventory, supplier quotations or execution-level industrial engineering. I have not used savings that have not yet been engineered.

More importantly, the current model does not need them.

Using roughly the present operating profitability of Škoda rather than assuming that the company accepts lower margins, the high-equipment full-hybrid versions land around €25k for Vela, €27k for Raviq and €28k for Atria.

The last number is particularly useful as a reference. The cheapest possible Octavia today starts at roughly €26,000. In this architecture, an Octavia-class car with a full-hybrid drivetrain and the highest equipment specification comes out around €28,000.

That is not achieved by reducing the manufacturer's margin. It comes from changing the cost architecture underneath the car.

|                                      | VELA    | RAVIQ   | ATRIA   |
|--------------------------------------|---------|---------|---------|
| <b>HYBRID V2</b><br>manufacturing    | €16.5k  | €17.8k  | €18.8k  |
| <b>STANDARD BEV</b><br>manufacturing | €19–20k | €22–23k | €24–25k |
| <b>HYBRID V2</b><br>estimated retail | €25k    | €27k    | €28k    |

## Price freedom should create margin as well as volume

The electric versions also do not need to be sold at the lowest price the spreadsheet technically allows. If Atria Long Range with its 120 kWh battery can be manufactured at roughly €27k, I would not automatically list it around €39k simply because the calculation says that is possible. A regular price in the €43–45k region leaves room for promotions, fleet programmes and financing while still giving the manufacturer a strong margin.

That also puts the car into a much more useful comparison with BYD Seal, one of the strongest Chinese benchmarks in Europe. Atria Long Range would bring a 120 kWh battery, around 700 km of conservative target range, high equipment, an established European brand and an existing service network while sitting in the same general price territory.

That is a very different competitive position from asking a customer to pay substantially more for a European car simply because it is European.

ATRIA LONG RANGE

**120 kWh**

~700 km target

**€43–45k**

COMPETES DIRECTLY  
IN EUROPE

STRATEGIC BENCHMARK

**BYD SEAL**

Strong Chinese reference point

**same market territory**

The product should not need the argument “buy European because it is European.”

## Europe can compete. The cost architecture has to change.

One assumption I would keep throughout this programme is that additional savings discovered later do not automatically have to be handed back through a lower retail price.

The prices above are already attractive. If execution-level engineering removes another few percent from manufacturing cost, let part of that improvement remain with Škoda.

Why should a company that has redesigned its system successfully not move towards a 12% average operating margin?

If a customer can buy an Atria Hybrid V2 for around €28,000, there is nothing inherently wrong with the manufacturer earning more because it has built a more efficient production architecture.



# Europe can compete

This is the part of the discussion about Chinese competition that I think is often missed. European manufacturers do not necessarily have to choose between competitive prices and healthy profitability. They can have both, but not by endlessly optimising fragments of an architecture built for a different automotive industry.

Europe has the engineering capability. It has the brands, customers, supplier base and industrial knowledge. What it needs is a willingness to rethink the system that connects all of them.

The answer does not require worse cars, lower wages or permanently lower margins.

Sometimes it simply requires starting again — and building the next system beside the old one.

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**Mateusz Chrzanowski**  
System of Systems Architect