Adapt. Focus. Perform. XC Strategy Briefing

Cross-Domain Computing Solutions (XC) was founded in 2021 to address the rapidly growing demand for new solutions that enable the software-defined vehicle with assisted and automated driving as well as electric/electronic (E/E) architecture solutions. However, after two years of focusing on growth and acquisitions with high upfront investments in new products and technologies, the first signs of a slowdown in market development marked the beginning of a shift in our strategic focus. Since the end of 2022, an increasing number of automotive manufacturers (OEM) have reduced their investments in development for autonomous driving (at SAE L4 and above) and postponed the transition to more centralized E/E architectures.
The are many reasons for this. One major reason is that stagnating vehicle sales volumes mean that OEMs need to manage their costs more tightly and focus their investments on added value that their customers are willing to pay for. And XC needs to do the same.

Therefore, our focus has shifted from pure volume growth (TNS) to growing profitability (EBIT) and shortening the payback period of investments (FCF).
XC's long-term goal is to become a **self-sustained business**, meaning that we can finance our own investments from what we earn. The first milestone on that journey will be to reach break-even, i.e., making neither profit nor loss. We aim to reach that point in our established business (excluding investments in L4 and the Vehicle Control Unit – Performance (VCU-P) that got transferred from PS-EC to XC-CE) in 2024, with a planned total net sales of EUR 8.8 billion. By 2026 we want to reach free cash flow break-even (i.e., receiving as much cash as we use in a given year) with an overall profit margin (EBIT) of 5% of sales while growing our total net sales (TNS) towards EUR 10.6 billion.

To achieve that, we have to adapt our structures to the ongoing market transformation, both with regard to **market requirements** and our cost **competitiveness**.

Market requirements: relevant long-term trends

1. **Centralization of electric/electronic architectures (EEA):** More and more OEM will switch to more centralized E/E architectures that more complex but fewer vehicle control units in the coming years. However, this transition is taking several years and will happen iteratively. The transition period will see a great diversity of E/E architectures and components in the market. So, the overall demand for related control units will rise in all segments over the next years. The two business units Compute Performance (XC-CP) and Compute Enhanced (XC-CE) address this need with specific offerings. While XC-CP specializes in high-performance vehicle computers required for centralized architectures in the domains infotainment and ADAS, the XC-CE portfolio comprises all other components needed in a complete E/E architecture below that level.

2. **Decoupling of hardware and software:** OEMs are increasingly requesting hardware- or software-only offerings. In particular regarding Advanced Driver Assistance Systems (ADAS), our strength to date has been in the business of integrated system solutions. However, the demand for them is decreasing over the coming years – by an average of -

2% annually until the end of the decade. At the same time, the demand for stand-alone ADAS software and connected services (XC-AS) as well as sensor-only solutions (XC-AC) and high-performance ADAS computers (now XC-CP) is growing significantly. As of today, we have only little to no footprint in these growth areas of the ADAS market. To enter them and gain market share, we need to adapt to the specific needs of each segment. With the establishment of two dedicated business units - XC-AC and XC-AS – and the pooling of high-performance computing solutions in XC-CP we positioned ourselves well in advance according to these changing market demands to be able to capitalize on future business opportunities.

Competitiveness: dynamic competitor landscape

The competitive landscape is changing rapidly as well. In particular, the market entry of new Chinese sensor and software providers increases pressure on prices. At the same time, System on Chip providers (like Qualcomm and Nvidia) are expanding their portfolio towards ADAS software features and tech giants like Microsoft and Google are trying to penetrate the market with software features and cloud solutions, which intensifies the competition for technology leadership.

OEMs continue to develop software in-house, but increasingly face challenges with development and integration. This reduces the accessible market for differentiating functions but opens opportunities for system integration.

How we deal with those changes

XC implements a new strategic approach ‘Adapt. Focus. Perform.’ to reach our long-term strategic targets:

- **Self-sustained portfolio**: XC strives for an overall profitability of 8% across product areas by 2027 to be able to finance the transition from current to future portfolio from our own funds.

To achieve that, we will…

- **Harvest our core business** by maintaining our current top 3 market position in Cockpit integration platform, body computer/central gateway and ADAS systems business that still provide many opportunities during the prolonged transition phase to centralization and focus on operational performance. We can build on the strong market position of XC in 2023. The profitability of our existing system business for traditional E/E architectures will support growing our business in centralized and software-defined vehicle architectures.

At the same time, we will selectively invest in future market segments of ADAS and COMPUTE

- **Shape the market for new electric/electronic (E/E) architectures** by guiding customers through the transformation with specific consulting/design offerings and shaping the future fusion compute market with focused investment in new products.
- **Grow software-only business** by transferring systems software capabilities to competitive standalone software solutions that are designed to be easily combined with Bosch and non-Bosch products.
- **Establish sensor-only business** by decoupling our hardware and software offering with next generation ADAS sensors (e.g., ultrasonic sensors, future camera heads, radar) that are compatible with centralized E/E architectures.

Current state
We have adapted our organizational structure to the changing market structure in the course of the Mobility Company program (see above). We have started to adapt our portfolio and R&D activities to changing market requirements and increasing speed, e.g., with the phase out of our display/cluster products, by stopping lidar development and monetizing the developed assets (e.g., intellectual property), and by the discontinuation of the parallel development of our (SAE) L4 stack. At the same time, we have started to work on our efficiency and cost performance ratio in our established business. As the challenges differ depending on the market and even product segment, dedicated performance programs have been set up at all business units.

1 COMPUTE

XC established the cross-domain COMPUTE horizontal layer according to the BBM tech stack with the two business units Compute Performance (XC-CP) and Compute Enhanced (XC-CE). While XC-CP specializes in the high-performance vehicle computers required for centralized architectures, the XC-CE portfolio is comprised of all other components needed in a complete E/E architecture below that level. In both market segments classical turnkey business models (i.e. the customer receives a complete solution from us) continue to be in demand, albeit customers increasingly demand more flexible business models, like built-to-print (B2P), HW+ (hardware with base software), and design and integration services.
XC has decided to offer Turnkey, HW+, and hardware design services going forward but not to enter low-margin B2P-only business.

1.1 Compute Performance (XC-CP)

XC-CP competencies and system understanding are essential to master the complexity within the tech stack of modern vehicles and enable the transition to more centralized E/E architectures that support our future ADAS software and services business as well as solutions from all other mobility domains (e.g., motion, energy). The strategic target is to become a leading provider of competitive and scalable performance compute solutions.
Therefore, CP is implementing a new target operating model to implement learnings from Turnaround and prepare for CP´s targeted future business. Especially bringing ADAS and Infotainment expertise close together is one key aspect.

The existing Compute Performance “classic” business (i.e., our infotainment products head unit and cockpit integration platform) is a volume business and will be further commoditized over the coming years. That requires a strong focus on cost efficiency improvements to defend our market position and achieve the target profitability of 3.7% of sales. The CT Turnaround project is implementing the measures required to reach our target profitability for CP.

The earnings from CP classic business will finance the development of new business with high performance computing platforms for centralized E/E architectures. That includes ADAS integration platform, cross-domain, and fusion integration platforms, as well as an automated driving computer for L4 applications. CP pursues the ambition to shape the market for these high-performance vehicle computers and become one of the top 3 players in the market for

ADAS integration platforms. The approach is to focus on developing fusion integration platforms with domain fusion on multiple SoC in one box and domain fusion on one SoC (entry level offering) as a potential unique selling proposition with limited pre-invest, while acquiring selected profitable projects in the above-mentioned growth areas. The investments in these programs will be steered in a startup-like way on the basis of achievement of defined project milestones. Consequently, we ensure that we balance risk and reward in these still volatile markets.

1.2 Compute Enhanced (XC-CE)

The XC-CE portfolio comprises vehicle access systems (Perfectly keyless) and all components required to build a complete E/E architecture at varying integration levels. CE can build on a strong market position with its classic business (23% market share) and a significantly growing demand for its new products over the next years. Therefore, the clear ambition is to maintain a strong market position amongst the top 3 suppliers for E/E architecture components and access systems with a balanced share (one third each) in Europe, Americas, and Asia.

The **'classic' business** (body computer, gateway, and electronic battery sensor) faces strong competition from established and local Tier1 suppliers, in particular in China. The strategic focus for the coming years is to maintain market leadership by securing highly profitable follow-up business. The consistent implementation of measures defined as part of the CE breakeven program as well as profitable project extensions will help achieve the target EBIT of >12% of sales in this business.

This high profitability is needed to finance the development and market entry of new E/E architecture products (e.g., Zone ECU, Powernet guardian, motion integration platform/vehicle integration platform, Perfectly Keyless). The markets for Compute Enhanced will exceed EUR 16 billion by 2030 with growth coming almost exclusively from the new E/E architecture products. The sales in growth areas will exceed classical business from 2026 onwards. XC-CE's ambition is to take a leading position amongst the top 3 suppliers in these growth areas as well.

However, the required upfront investments must be balanced with earnings from classic business. To ensure this, the CE breakeven performance program for the classic business is accompanied by expenditure containment in the new business areas. That includes a cost-reduction initiative in Zone ECU development and stronger focus on execution in ongoing customer projects with the products Powernet guardian (PNG), Perfectly Keyless (PK) and vehicle integration platform (VIP). Potential new business will be acquired with a focus on sufficient profitability and early payment of the required development work (OTP).

2 ADAS (Advanced Driver Assistance Systems)

Our strength to date has been the business with embedded ADAS systems (e.g., Parkpilot, Near Range Camera Systems, Front Video Systems), which accounts for 85% of the 13 billion Euro ADAS market today. However, the demand for ADAS systems solutions is slowly decreasing. At the same time, the demand for stand-alone software and services as well as sensor-only solutions is growing significantly until the end of the decade. The standalone solutions will account for roughly 60% of an estimated 24 billion Euro market by 2030. The new ADAS business unit setup reflects these market developments.

2.1 ADAS Systems, Software and Services (XC-AS)

Due to the delayed transition to more centralized E/E architectures, cost-driven and decentralized solutions like our **embedded ADAS systems** (Radar, Near Range Camera System, Park Pilot, Vehicle Motion and Position Sensor) will remain relevant to our product portfolio for longer than we expected during the foundation of XC in 2021. The strategic target is to maintain our market position as top 3 system supplier with cost-efficient solutions. Therefore, the focus is on improving our cost efficiency and competitiveness in this area.

To meet the increasing demand for **software-only** solutions and position as software partner for OEMs, software capabilities from the embedded systems have to be transferred into standalone software offerings. The future ADAS software stack for driving, parking and interior features shall be modular (i.e., all standalone solutions can also be easily combined with each other) and scalable (i.e., performance can be adapted gradually).

To implement this, we will…

1. Merge and harmonize the existing software stacks (e.g., OneDriving, Automated Driving Alliance, former XC-AD and Wave3) and streamline corresponding development activities to avoid further parallel developments (Driving Convergence project)
2. Focus on demoing and selling the software and services products at SAE level 2+ already developed within the scope of the Wave 3 customer project in China and the Automated Driving Alliance partnership (e.g., Video Perception Module Software und Connected Map Services).
3. Switch to an incremental development approach towards SAE L3/L4 functionality (i.e., step-by-step advancement of current L2+/L2++ functionality towards higher levels) and therefore stop current L3/L4 development activities. The focus will be on the usage of AI to enable advancements and on maintaining our demo capabilities with regard to future market developments.

To further succeed in maintaining a balance between investments and cost savings, we want to focus on those areas where we have the greatest chance of success, and which fit in with our strengths. We therefore constantly review (as part of the regular cadence as well as the ADAS Performance Program) how we can adapt our range of products and services to changing market and customer requirements.
As part of this ongoing adaptation, XC has now decided to stronger focus the portfolio elements “automated valet parking” (AVP), “-charging” (AVC) and “-maneuvering” (AVM) (AVx), “vehicle motion and position sensor” (VMPS) as well as “Ride Care”:

- **AVx:** solutions such as "automated valet parking" for automated and driverless parking and "automated valet charging" for the automated charging of e-cars in suitably equipped parking garages are scaled back.
- **VMPS:** No further projects are being acquired for the "vehicle motion and position sensor" for determining the position of automated vehicles with centimeter precision.
- **Ride Care:** XC is focusing on the products “insight” and “connected rent”. The product occupant care with the companion solution will be scaled back and the B2B2C (business-to-business-to-consumer) business model discontinued.

2.2 ADAS Components (XC-AC)

XC-AC targets to offer a competitive sensor suite for all SAE levels in the growing standalone sensor market (from EUR 0.5 billion in 2023 to EUR 7.8 billion in 2030, whilst market for embedded sensors decreases). Based on a strong market position (~25% market share) with embedded sensors, XC also aims for a long-term leading market position in the sensor-only business (new radar generations, future camera heads, ultrasonic sensors, and inertial measurement units). Strategic initiatives like a potential Ultrasonic Sensor (USS) entry-level solution that is being evaluated in China support the ambition.
One of the key challenges is the fierce price competition from low-cost sensor providers in China. Therefore, the achievement of planned product cost and target pricing will be crucial. Dedicated cost measures for next generation sensors are implemented to improve competitiveness.

3 Summary & Outlook

We are changing XC’s strategy from a pure growth and innovation focus to a stabilizing approach considering profitability (EBIT) and free cash flow as the key indicators -- “Adapt. Focus. Perform.”

- **Adapt**: We adapt our setup to the ongoing market transformation and changing competitor landscape
  - This is reflected in our new setup and strategic focal points.
- **Focus**: We prioritize our investments for future products and balance future and current business within our financial targets
  - This is reflected in reduced R&D activities, portfolio adjustments and corresponding structural measures.
- **Perform**: We consequently work on operational excellence (i.e., efficiency and effectiveness of our core processes) and performance (i.e., consistent target achievement)
  - This is supported by Performance Programs in all XC business units.

As the market continues to change, we are shifting to a more iterative approach by implementing a continuous diagnosis, design, implementation, and control of our strategic direction. To manage the complexity of our business and achieve operational excellence, XC is implementing a holistic management approach. This is including the introduction of an integrated steering model and a new leadership model to increase transparency, accountability, and effectiveness at all levels of the organization.