

Decoding. Stellantis starts a software revolution

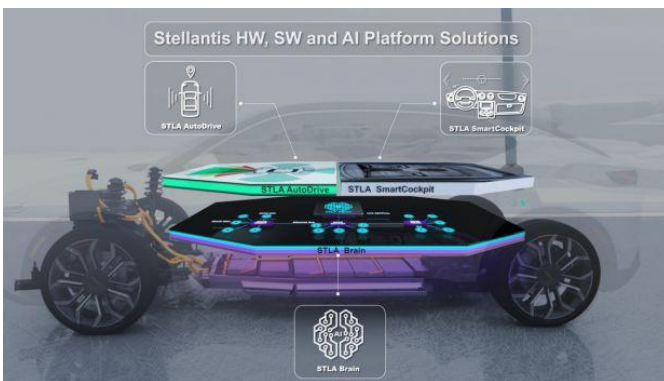
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Carlos Tavares wants to transform the Stellantis group into a "technological mobility company" capable of generating 20 billion in revenues by 2030 through new services and software. Yves Bonnefont, the group's software director, explains.



The three new technology platforms will be rolled out across all Stellantis brand lines at the same time as the new vehicle platforms, starting in 2024.

After presenting, in July 2021, (STLA Small, Medium, Large and Frame) intended for the future vehicles of its 14 brands from 2024, the Stellantis group detailed its roadmap in terms of connectivity and software during a "Software Day" organized on December 7. Carlos Tavares, CEO, wants to transform the group into a *"technological mobility company"*. Yves Bonnefont, appointed as Director of Software, explains to L'Argus that this new strategy is based on *"the dissociation of the software development cycle to the hardware development cycle, and the automotive development cycles in*

general". While it takes about three years to develop a new car, the idea is to *"have short software cycles, of the order of three months"*.

Indeed, the software integrated in cars has been progressing until now *"at the speed of This is because they were loaded at the factory and then underwent "no or few" modifications, "except at mid-life" or, of course, when a replacement model arrived, which quickly made them obsolete. But today, Yves Bonnefont tells us that "a new element is coming into play, the remote update" (ed. note: called "Over the air" or OTA). This "allows us to bring new features to customers during the life of a vehicle. By using the software to "improve the*

continuously the customer experience" and "offer new services," while leveraging data from its flotte of connected vehicles, Stellantis wants to go for growth this way.

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"We are recruiting at high speed

This strategy is "a revolution because it changes the way we develop a car in a profound way", enthuses the head of software before adding that it is "underpinned by the creation of three technological software platforms" named STLA Brain, STLA Smart-Cockpit and STLA AutoDrive (see box). But Yves Bonnefont points out that Stellantis has chosen to differentiate itself from its competitors. Rather than relying on a

development of all these new technological bricks in-house, the manufacturer wishes to "take more responsibility for them than in the past", while surrounding itself with specialist partners afin

to "save time and benefit from the best skills around the world. Convinced that it is necessary to surround itself with the best talent "to regain ground on the software value chain," he says **Stellantis needs 4,500 dedicated engineers to achieve all the fixed objectives.**

In addition to in-house engineers trained via the new "Software and data academy," Yves Bonnefont says the manufacturer has already attracted "several hundred people." "We are recruiting at high speed," he says, while benefiting from "enhanced access to software talent in Asia" thanks to its partnership with Taiwanese giant Foxconn, which runs both on the creation of application software for future cockpits and on the development of new semiconductor families. Since that meeting in December, Stellantis has announced agreements with Amazon, another world-renowned specialist. As for the development of autonomous driving, "a few hundred engineers" have been working for a year and a half in partnership with BMW teams in Munich, but also at Stellantis in Italy and the United States.

However, don't tell Yves Bonnefont that Stellantis is trying to catch up with new carmakers like Tesla. "I wouldn't say we're a generation behind Tesla," he says. Considering the company founded by Elon Musk as "a competitor like any other", he believes that there is "no reason why we can't beat it".



into a "technological mobility company".

"Someday, when a car is disconnected from the cloud, it will be able to run in "degraded" mode until it regains its full connectivity features and full capabilities

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Better residual values

While he admits that he has difficulty putting a figure on the percentage of customers who will be tempted by these new services in the future, evoking "a very open range of 20 to 80%" depending on the brand, or



Stellantis' software strategy is set to be deployed in concert with the electrification of the ranges.

operation of electric cars as technology advances. Citing a Formula E world championship won by DS thanks to this, he affirms that *"optimizing the battery management system (BMS) and inverter software" can "shave a few percent off the efficiency of the electric drivetrain," or "a few tens of kilometers of range."* He looks even further ahead: *"One day, when a car is disconnected from the cloud, it will be able to run in 'degraded' mode until it regains its full connectivity functions and all its capabilities."* Far from the 1970s fantasy of flying objects, the car of the future will be ultra-connected and more sustainable.

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Several strategic partnerships with Amazon, Foxconn and BMW

To develop its three new technology platforms, Stellantis has formed several partnerships. To store and process data for the STLA Brain and STLA Cockpit architectures, the group has . Then, in the framework of the Mobile Drive created with Foxconn to develop the space customizable living (or infotainment) in future STLA SmartCockpit dashboards, the automaker also plans to use Amazon's operating system to develop *"artificial intelligence-based" software solutions for navigation,*

entertainment, Alexa voice assistance, vehicle maintenance, e-commerce and payment services."

The group mentions, for example, an off-road **"digital coach"** in future Jeep models, or the possibility of **managing home automation from the car**. It will also be possible to set up vehicle functions via connected devices or the Alexa application on your smartphone. Note that Amazon must help Stellantis to train its *"traditional"* engineers from the automotive industry to become *"IT specialists"* who have *"followed a very specialized curriculum"*, in the words of Carlos Tavares. In addition, Stellantis is working jointly with BMW

yet to estimate the increased lifespan of future generations of cars, Yves Bonnefont already expects to see their residual values improve on the used car market. *"When you buy a three-year-old car that has today's features thanks to continuous updating, we have products that remain "fresh"*

"he says. On the other hand, he brushes aside possible fears linked to the use of the billions of data collected: "It is out of the question to push advertising into cars, as this would be perceived as extremely invasive by customers.

However, the OTA could optimize the



Among the subscription-based services Stellantis is working on is connecting multiple vehicles in an off-road convoy, which Jeep calls "platooning.

to develop the STLA Auto Drive platform dedicated to autonomous driving, but also with Waymo on autonomous driving for delivery services.

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Three new technology platforms



Stellantis introduced some new connected services at CES 2022 in Las Vegas.

Called **STLA Brain**, **STLA SmartCockpit** and **STLA AutoDrive**, they will be deployed together with the new technical platforms between 2024 and 2026. STLA Brain is to contain a service-oriented architecture that can be updated remotely on a quarterly basis.

Working in symbiosis with STLA Brain, STLA SmartCockpit will be dedicated to the customizable living space. Enfinding with the STLA AutoDrive platform, which will also be updated remotely on a continuous basis, it will enable Level 2, 2+ and 3 autonomous driving.

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Many new services

The future services that will be offered by Stellantis are numerous, with innovations that were not envisaged before the generalization of remote updating. These include **subscriptions to connected navigation systems, info traffic, ad-free satellite radio, but also connection packages to enable updates via 4G or 5G networks.** Motorists will also be able to subscribe to on-demand options, such as autonomy or additional performance for their electric car following software evolutions, or the connection between several vehicles which evolve in convoy in off-road (editor's note: the "platooning").

Yves Bonnefont believes that there is potential for these two types of options with Dodge, Alfa Romeo or . More pragmatically, it would also allow Stellantis to offer services

The Stellantis group is leading two huge defis that will keep it busy throughout the 2020 decade. First, there is the electrification of the vehicles of its 14 brands, which should make it possible to sell 70% of low-emission models in Europe by 2030 (40% in the United States). This is thanks to the STLA Small, Medium, Large and Frame models. At the same time, Carlos Tavares intends to take advantage of new on-board services, remote updates and data processing via the development of three new technological platforms integrating artificial intelligence and new software.



With the remote update (OTA), Stellantis wants to offer new subscription-based services, which could be of particular interest to Dodge, Alfa Romeo or Jeep customers.

related to reducing the cost of usage for flottes, or usage-based insurance, which previously required the installation of a box to monitor mileage. But he goes further, mentioning the possibility of using the sensors and cameras in the driving and parking aids to take, for example, photos in case of attempted theft when the alarm goes off. *"We have lots of ideas because these are components that were not interconnected with each other, since they were developed for a given function. So there was little cross-functional use of these sensors."*

"Pushing advertising into cars is out of the question, it would be perceived as extremely invasive by customers"

Billions of euros at stake

Stellantis intends to invest 30 billion euros until 2025 for the development of electric vehicles, as well as new software and services, without however detailing the distribution of these expenses. **While it estimates the software market at 200 billion euros in 2030, the group headed by Carlos Tavares intends to generate 20 billion**

by 2030, thanks to these new services alone, compared with 400 million in 2021 and 4 billion expected in 2026. This is without counting 1.1 billion euros of expected efficiency gains in 2030.



While this has already enabled DS to win a Formula E world championship, the OTA could eventually optimize the operation or range of electric cars.

Facing the "war for talent" to be able to recruit

4,500 internal staff will soon be dedicated to the development of the three new technology platforms. In addition to training *"more than 1,000 engineers"* through its new "Software and data academy", the Stellantis group plans to recruit thousands of engineers worldwide. Acknowledging the existence of a *"war for talent in software"*, Yves Bonnefont says he is *"very positively encouraged by the first feedback" from HR in this field, with engineers coming from "tech or gaming companies" such as Nvidia, Amazon or Activision.* According to him, they join Stellantis because *"they want to have an impact on people's real lives, and the car is real life. With our software skills, our analytics skills, our data skills, we can have a real impact on safety, on emissions, and on real everyday life, beyond online activities."* By 2024, several "software hubs" will be created in three major geographic areas (Americas, Europe-Middle East-Africa and Asia).