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Executive conversations with...

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YVES CASEAU

Group Chief Digital and
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Michelin

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WHEN CODE
MEETS ROAD

Yves Caseau is in charge of Digital and Information Systems at Michelin Group. He joined Michelin in 2017 as CIO and has worked extensively on modernization, data-driven transformation, and quality of service. He was previously associated with the AXA Group, and Bouygues Telecom.

He has taught the "Information Systems Theory and Practice" lecture at École Polytechnique for three years and is a frequent public speaker on information systems architecture. A former student of the École Normale Supérieure in Paris, he holds a PhD in Computer Science from Paris XI University and a habilitation professorial qualification from Paris 7 University, as well as an MBA from the Collège des Ingénieurs, also in Paris. Yves is a member of the Académie des Technologies, and the author of books about information systems, lean management, and enterprise organization.

How is software impacting the automotive industry? And what does that mean for Michelin?

Yves Caseau: There is a dilemma for car manufacturers: they can either build the software themselves and risk lagging the rest of the market, or partner with organizations such as Android and risk losing differentiation and know-how.

The overall trend is obvious and unstoppable: cars are becoming computers with added features. The key issue is ecosystems. Open or closed marketplaces, APIs [application program interfaces], partnerships, and alliances. This is why it's so important for Michelin.

Software-defined vehicle design goes hand in hand with virtual car design and digital twins. Michelin is strong in tires and simulation. This creates opportunities but also risks. For example, if cars are designed digitally around a competitor's tire, a Michelin tire might be less suitable, even if it's structurally superior.

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Group Chief Digital and Information Officer, Michelin

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We need to understand how fast this shift is happening and how many ecosystems will emerge – one per manufacturer, or a few shared platforms. We've seen OEMs [original equipment manufacturers] such as Mercedes, BMW, Volkswagen, and others vacillating between building their own systems and partnering with tech companies like Google.

WE'VE SEEN OEMs [ORIGINAL EQUIPMENT MANUFACTURERS] SUCH AS MERCEDES, BMW, VOLKSWAGEN, AND OTHERS VACILLATING BETWEEN BUILDING THEIR OWN SYSTEMS AND PARTNERING WITH TECH COMPANIES LIKE GOOGLE

The shift toward software-defined vehicles is inevitable. It's being accelerated by electrification, although rollout varies by region. But it is a hard shift because you cannot play alone. You need ecosystems, critical mass, and ways to attract developers. Otherwise, you risk ending up like Nokia, where no one develops apps for the platform anymore. We have already collaborated on ABS systems, for example, showing that our digital twin expertise improves performance. But moving from physical to digital also raises issues of intellectual property and data protection.

So, the trend is clear, but the transition is complex. For Michelin, it's both an opportunity and a challenge.

Which strategic decisions has Michelin taken to shift toward software-driven mobility?

Yves Caseau: First, for a long time, Michelin has developed digital models of tires, mixing physical and numerical approaches. Initially, this was for our own use and for collaborations with Formula One teams and other manufacturers. About a year ago, we decided to make some of our tire twin expertise more broadly available, as it's a big market. Instead of starting with a physical tire, we begin with a digital model.

Second, once you have software-defined vehicles with APIs, sensors, and data flows, you can develop tire-related software. At first, car manufacturers

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told us they could do this themselves with their proprietary data. But they discovered that our algorithms, which we have been developing for decades, are better. We are not better data scientists, but we have a better understanding of tires. So, we are making progress here, and our goal is to embed Michelin software inside software-defined vehicles.

Third, we are looking at opportunities in vehicle app stores. We demonstrated this with a predictive wear app for Renault's electric car Mégane. There are many other potential applications, such as solutions for pickup trucks carrying heavy loads. Predictive maintenance can bring huge added value.

So, these are our three frontiers: selling digital tire models, improving internal vehicle functions through software, and providing add-ons via app stores. Beyond that, Michelin has a tradition of driver services, dating back to road signage 100 years ago, to digital tools like ViaMichelin in the 1990s. We believe this new era could herald a rebirth for Michelin as a company that helps people drive better.

How do you balance the ownership of data between OEMs, yourselves, and the end customers, while maintaining trust among all parties?

Yves Caseau: There is no simple answer. A large part of the discussion with OEMs and regulators is whether all the data generated by the car belongs to the driver, or should it be considered the OEM's property? OEMs are saying the data is produced by our car and there are security issues, therefore it has to be ours. But that battle is not over.

If OEMs win that case, it probably favors one-to-one data contracts, rather than an open model. That means we might go to Tesla and say: "We have this capability – do you want it?" Then, we go to BMW and propose a partnership. This might mean we focus on a few use cases, which could make progress slower.

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It's unclear how it will evolve. My guess is that, in the end, we will have something around data portability, with universal recognition that some domains of data belong to the user, while technical data is linked to the car. For instance, your GPS navigation data belongs to you, but engine-related data belongs to the car manufacturer.

What kind of revenue models do you see emerging for digital models of tires?

Yves Caseau: We've been trying to find examples for the past 10 years, but without much success. What we understand is that it's too early to sell data.

Ultimately, what you are selling is a feature. If that feature has a clear benefit, then it can be offered for a subscription fee, which can be shared. At the moment, it's more likely you're selling software. In other words, a capability. Typically, we sell with a yearly software fee, and that's it. Right now, we're testing the market.

Usually, we don't break even by a long way, but we say, OK, let's see if both parties agree that the added value is worth it. A typical example is this: "Tesla, if you were to do this on your own, it could cost you $1 million over two years. Instead, why don't you pay us $300,000 a year?"

Right now, the value is in the car itself. But people aren't saying, "Oh, in that price you paid, $2,000 is because you got the extra non-flat tires with this software." One day, maybe, but not yet.

Do you foresee Michelin creating dedicated software units or integrating digital skills within existing functions?

Yves Caseau: Both approaches are valid. For instance, if you look at 6S, which is a connected solution, they integrate AI capabilities and software teams.

When it comes to selling digital twins of tires, this may start as an independent team hosted by R&D that eventually becomes an independent business model. Sometimes, you integrate digital skills within each function, and sometimes you create separate teams that evolve into new businesses.

How is Michelin using AI and generative AI today?

Yves Caseau: We've been using AI for a long time. At first, it was what I would call classical AI: rule-based or statistics-based systems. We used it for scheduling, planning, routing, supply chain management, and manufacturing. About five years ago, we started using deep learning neural nets, mostly for machine vision in manufacturing, and that added value.

If I look at where AI is bringing the most value today, it's in manufacturing. We're improving electricity consumption, reducing waste, and optimizing processes.

Gen AI started to make an impact about two years ago. One of the first applications of Gen AI was helping people solve maintenance problems in factories. We also use it to summarize large amounts of information, make retrieval easier, and enable dialogue. In factories, we've moved fast and had success quickly.

MICHELIN'S STRATEGY IS THREEFOLD: TIRES, SERVICES AROUND TIRES, AND ADVANCED MATERIALS

> **"One of the first applications of Gen AI was helping people solve maintenance problems in factories"**

We have similar projects for R&D, but they are taking more time. Another big use case is using GitHub Copilot to write code. Our coders are really happy with this and report productivity gains. It's still too early to say how much money we are saving, but the feedback is positive.

Strategically, this is important because the automotive industry is going through uncertainty and downturns. We are looking for efficiencies and new ways to create value. Automation, supported by Gen AI, is one way to do that.

And this leads to the next step: agentic AI. Think of it as a new form of automation, following RPA [robotic process automation]. We have a few use cases where agents are already saving money and performing well. But only about 1% of Michelin is currently exposed to it. Michelin is a big company, so I'm not expecting everyone to use agents, but if we get to 10%, that would be great progress.

Are there use cases where AI has helped you in your role as a CXO?

Yves Caseau: Definitely. For example, last month, when I came back from vacation, I had two things to do for my colleagues. I asked GPT-5 to help me and each time I did in one hour something that would usually have taken close to a business day. So I saved two days of work. I'm very happy with that.

But if you ask about the impact on the bottom line, it's not that much. I saved some time, but not in a transformative way. AI has a bigger role in R&D. We are using AI simulation and digital twins to explore designs. For instance, part of the design of our new winter tire, Alpin 7, was produced by algorithms. Our R&D department has been using simulation and AI for a while, and now it's really accelerating exploration. We don't claim to have invented a new tire with AI, but we've improved and we've been able to explore more. For us, it's an exploration tool, an acceleration tool.

What are some challenges of using AI at C-suite level? Do you see a future where you would delegate authority to an AI agent for decision-making?

Yves Caseau: That's a good question. The big challenge, as our CEO Florent Menegaux keeps reminding us, is that Michelin wants to go fast and far. To go fast, we need to learn how to use these tools, but not at the expense of becoming too dependent on automation and losing critical thinking.

If learning is accelerated too much by AI, then you don't really learn. You need to find a balance: using the tools to go faster while retaining your learning capacity. Because the challenges two years from now won't be the same as today.

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Another challenge is staying in control. You don't want to treat AI as a black box you trust blindly. The risk is that, because AI is usually right, the day it makes a mistake you may not notice and you keep following its instructions.

This is why practice is important. For example, this April at our Michelin North America convention, Matthew Cabe, our CEO there, told his leadership team to take the time to play with GPT-5 and other tools. He wasn't asking them to replace themselves with AI agents, but to develop familiarity and practice so they can lead effectively.

What is Michelin's long-term vision in the mobility ecosystem?

Yves Caseau: I'll start with what we know. We want to master digital twin simulation, so we can invent sustainable mobility. Today, we can make tires with 30% recycled materials. We also know how to make them with 50%. The goal is to move closer to 100%, and to do that we need new materials, new processes, and new designs. The role of IS/IT is to support this with more powerful GPUs [graphics processing units], better tools, and new techniques.

The second clear thing is that the market is moving extremely fast, so we need to be more adaptive. Historically, Michelin has optimized unit costs at the expense of flexibility. We were particularly good at producing 10,000 identical tires, but the challenge is: What if you need to change every 200 tires? That's where AI, robotics, and automation can help.

The third point is about our position in the market. Our tires are high-quality, but we are seen as expensive. That's fine for the premium segment, but we also need to offer tier-2 and maybe tier-3 tires. Otherwise, we risk becoming a niche
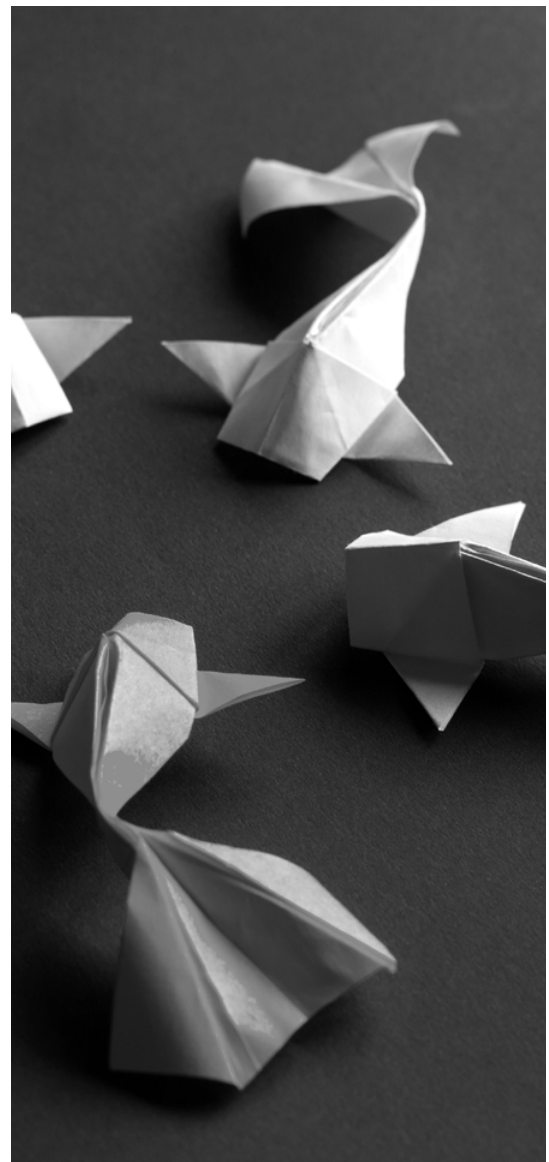
supplier. Tire manufacturing is a volume business, and if we lose that, we'll be in trouble.

So, we've been working to improve our game as an intelligent, software-driven manufacturing company. In the past, we might have just bought software from outside. Today, we still work with partners like Capgemini, but we also want to own our destiny. We have to become good at designing manufacturing software and software for manufacturing. That is a clear strategic goal.

We're not trying to become the global software platform, but if we want to capture more of the value chain, we need to deliver more value through services. Michelin's strategy is threefold: tires, services around tires, and advanced materials. Today, services account for about one billion out of thirty, and we want to grow that. But that can only happen if we become a leader in the software market.

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