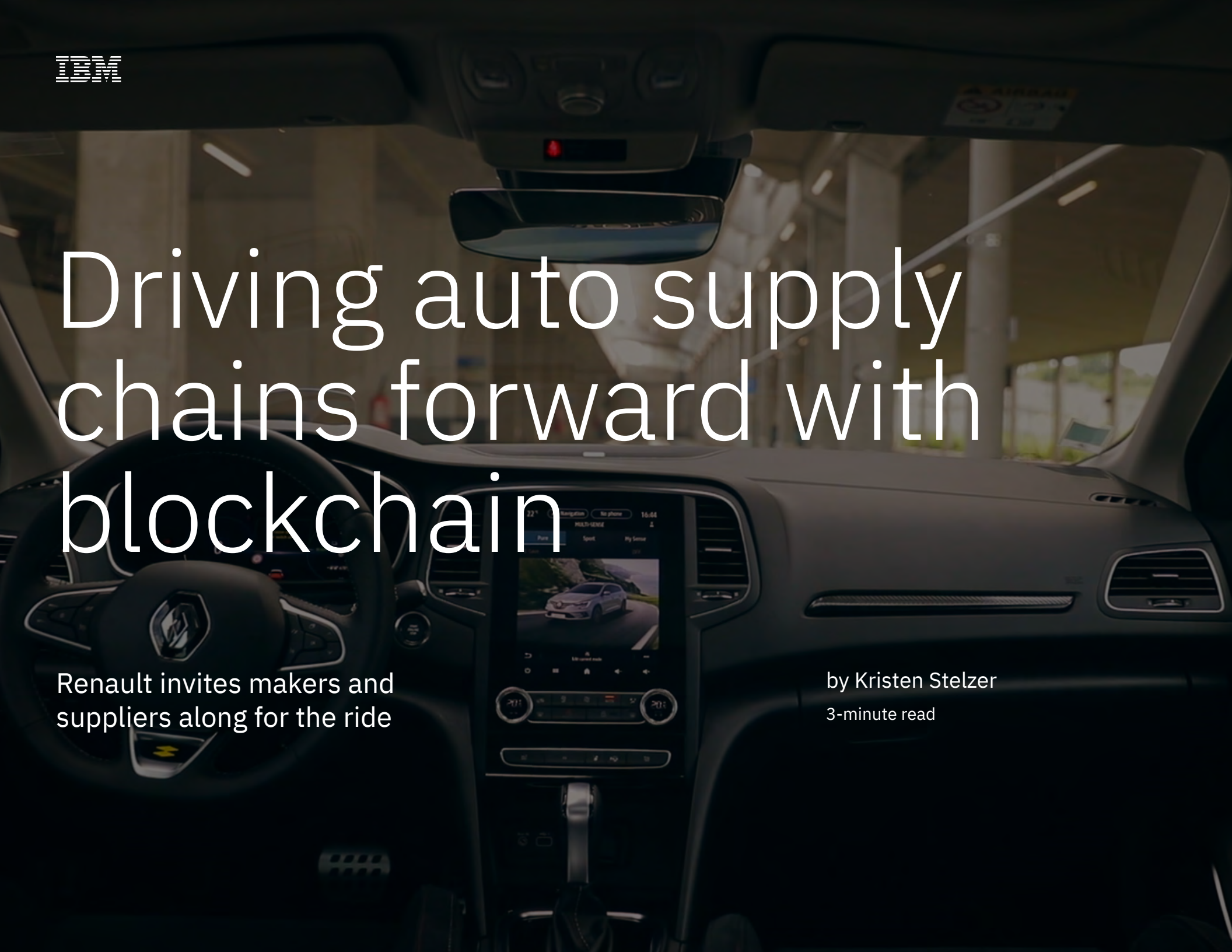


Driving auto supply chains forward with blockchain

Renault invites makers and suppliers along for the ride

by Kristen Stelzer

3-minute read

In the first tenth of a second of a front-end crash, your bumper deforms. In the next instant, your hood crumples. Airbags explode open. Your seat belt stretches to slow your body down. In less than a second, you and the car have stopped moving forward. You snap back hard into your seat. It's a violent, jarring moment.

It's no wonder we expect stringent safety standards for our vehicles—we want to be as safe as possible in a crash. A front-end collision safety standard is just one of many that auto manufacturers must meet to sell a car to consumers.

These compliance standards affect more than the car as a whole. They affect each individual part. The headlights and their component parts. The passenger cage and its component parts. The radiator and its component parts. One regulation can affect hundreds of parts from dozens of suppliers, all at different levels of the supply chain.

Cars also meet more than safety standards. There are environmental regulations as well. Proving a single model meets all standards requires tracking thousands of pieces of information from many sources.

And that's only for the regulations that exist today. More are coming, including standards for cybersecurity and vehicle and parts recycling. Automakers must

keep up with ever-evolving standards to remain in compliance. Add in many car models across multiple countries, and you're tracking millions of compliance documents.

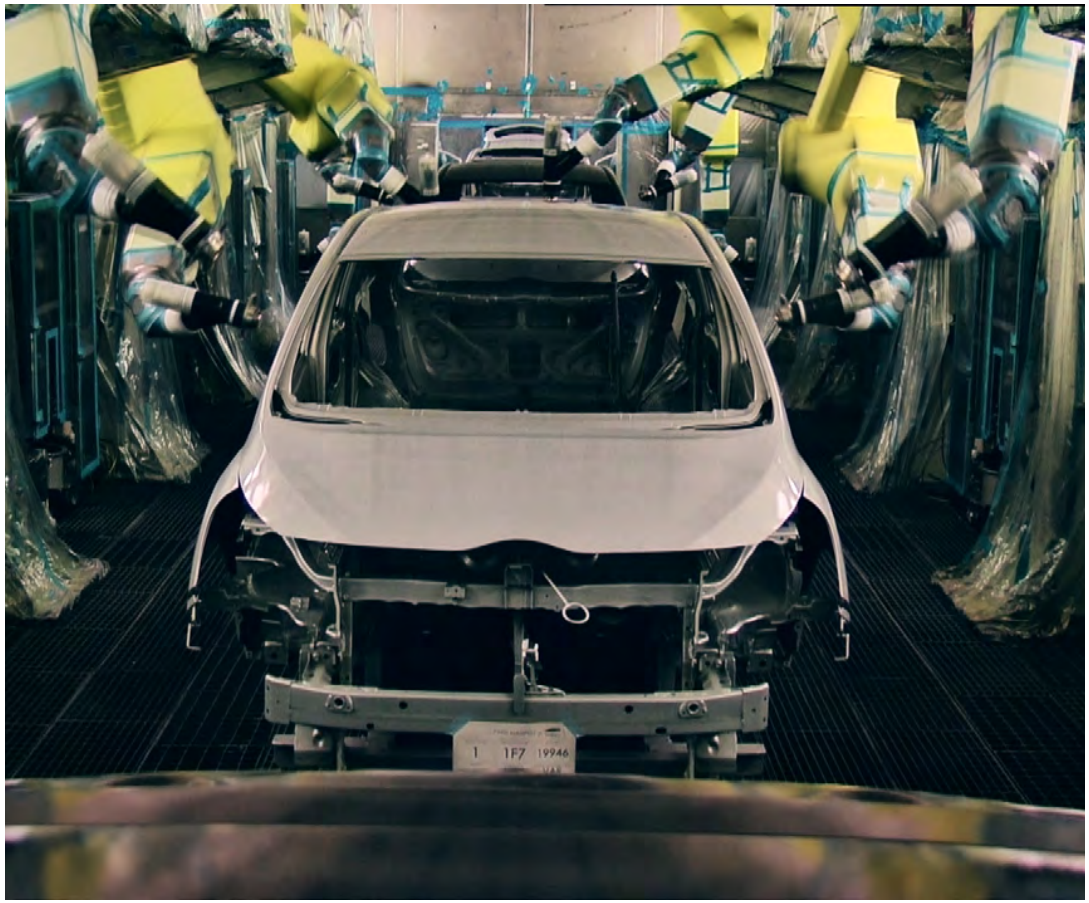
Until recently, the only way to keep track of the supply chain was through databases and paper trails. Keeping up with compliance documentation was an onerous, time-consuming task. Automakers and suppliers had little visibility into the layers of component compliance. They also had no way to share this information across the supply chain to regulators or consumers.

That all changed when Renault Group moved its supply chain documentation to blockchain—and invited the rest of the auto industry to join in.

Shifting into gear

Over the past few years, Renault has invested heavily in its digital transformation. One specific focus has been made on blockchain technology. Supply chains are an excellent use case for this technology, and the vast supply chain ecosystem of auto manufacturing is no different.

In 2018, Odile Panciatici, Vice President of Blockchain Projects at Renault, saw new European regulations on the horizon. These stricter regulations would come with shorter response timeframes. She knew using blockchain to manage the supply chain could provide real-time certification of compliance to partners, customers and regulators.



The distributed ledger technology makes it possible to share and track information across various users. Permissions control access and visibility, so each party maintains confidentiality of its data. And users and transactions are verified and preserved by the blockchain. This creates a network of trust between participants, even if they don't know one another.

It also speeds up information sharing and creates greater efficiencies. Efficiencies that Panciatici wanted to share throughout the automotive industry—even among competitors.

"That's the point of blockchain projects," says Panciatici. "The value is not for one entity. The value is for each member of the ecosystem."

"An innovative platform like XCEED helps us all to be more reactive, robust and sustainable in compliance management. The future of industry will be collaborative and cooperative."

Odile Panciatici, Vice President of Blockchain Projects, Renault Group

Panciatici contacted IBM, which has a long-standing relationship with Renault. After a design session with Renault and other industry participants, IBM developed a solution using its IBM® Blockchain and Hyperledger Fabric. That solution became the basis of the eXtended Compliance End-to-End Distributed (XCEED) blockchain project. XCEED certifies compliance of all vehicle components, from design through production, to aftersales.

Renault tested the project at its Douai plant. XCEED archived over one million documents at 500 transactions per second.

After the pilot project proved its value, Renault and its partners selected IBM Blockchain Services as their technology partner to roll out the XCEED solution. As of April 2021, Renault, Faurecia, Simoldes, Knauf Industries and Coskunoz have launched on the project.

With XCEED, suppliers and automakers share compliance information across a trusted network. The sharing is automated and accurate. Participants no longer spend time processing compliance paperwork, allowing them to focus on other tasks. Data discrepancies, which used to take hours of research to resolve, are essentially eliminated now.

“Instead of spending time in linear exchanges—trading files, emails, calls—we have a direct common tool that everybody shares ,” says Panciatici. “We have real-time exchanges, we have transparency, and we have increased reactivity, all of which benefit our customers.”

Customers have authentication that their car meets environmental and safety regulations. And regulators have transparent, up-to-date, accurate data on compliance.

Sharing the road ahead

Because of the collaborative nature of XCEED, many ideas come from various sectors. The roadmap for where XCEED will go has several planned destinations already. And as more companies and ideas join the project, Panciatici expects that roadmap to extend beyond current plans.

“What’s wonderful about XCEED is now that we’ve created the basis of the ecosystem, there are a lot of opportunities coming. We have years of enriching additional features to add, which gives even more value to the ecosystem.”

Panciatici would also like to onboard other industry participants as soon as possible. Creating a collective intelligence

is necessary for the industry to thrive as technological innovations advance.

Mobility and connectedness are particularly big issues, as customers demand more connection and more personalization.

Increasing technology comes with significant investment, as does increasing personalization. Individual companies will have a hard time keeping up with these expenditures. Collaborative projects like XCEED allow companies to share investment and risk, satisfy customers, and remain profitable.

“Together we are more powerful. An innovative platform like XCEED helps us to be more reactive, robust and sustainable in compliance management” Panciatici says. “The future of industry will be collaborative and cooperative.”

“Instead of spending time trading files, emails, calls, we have real-time exchanges, we have transparency, and we have increased reactivity, all of which benefit our customers.”

Odile Panciatici, Vice President of Blockchain Projects, Renault Group

About Renault Group

Renault Group (external link) is at the forefront of a mobility that is reinventing itself. Strengthened by its alliance with Nissan and Mitsubishi Motors, and its unique expertise in electrification, Renault Group comprises 5 complementary brands - Renault, Dacia, LADA, Alpine and Mobilize - offering sustainable and innovative mobility solutions to its customers. Established in more than 130 countries, the Group has sold 2.9 million vehicles in 2020. It employs more than 170,000 people who embody its Purpose every day, so that mobility brings people closer. Ready to pursue challenges both on the road and in competition, Renault Group is committed to an ambitious transformation that will generate value. This is centered on the development of new technologies and services, and a new range of even more competitive, balanced and electrified vehicles. In line with environmental challenges, the Group's ambition is to achieve carbon neutrality in Europe by 2050. www.group.renault.com

Solution components

- IBM Blockchain Services
- Hyperledger Fabric

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