

THE REMAKING OF INDUSTRIES: AUTOMOTIVE

**DRIVING GROWTH
WITH DIGITAL
INNOVATION**

DO ENTIRE INDUSTRIES NEED TO BE REMADE?

While executives may not want to hear it, the answer is yes. Companies that continue to operate within the usual guardrails, as challenging as that can be, will eventually find themselves in deep trouble. The reason? Broad but powerful forces are acting upon industries and making not just minor but radical change imperative.

We know this because we've been researching industry reinvention for the past several years. We've looked at the big picture, the macro environment of new technologies, societal pressures, consumer demands, and business ecosystems. And we've examined the performance, strategies, and innovation approaches of thousands of companies during this period.

AUTO FOCUS

The six forces driving change in the auto industry

In 2019, we engaged in a new study, talking to more than 1,300 executives in 14 industries and 17 countries. We looked at industry reinvention through the lens of six forces bearing down on companies.

- 01** The always-on, hyper-connected consumer's search for personalized automotive products and experiences, e.g. mobility services.
- 02** The growing imperative for higher productivity by way of targeted investments in growth levers such as technology, e.g. industrial robotics.
- 03** The challenge of digital disruption, which is blurring the boundaries of the auto industry due to the introduction of digital technologies, e.g. blockchain.

- 04** The drumbeat to "go green" and implement better energy management and greenfield plant design.
- 05** An evolution of business ecosystems, where established companies must work with, not against, startups, competitors and customers to enable new services like predictive maintenance.
- 06** And the politics of economics, in which long-held views on trade and internationalism are strongly challenged resulting in new regulations, e.g. digital trade compliance.

These forces don't exist in a vacuum; they collide in ways that increase their power and keep companies scrambling to keep up. What we've sought to answer through our research and analysis is how companies should respond.

How do you build for tomorrow without risking all that you do today? How do you make the right investment choices, across what may be an older but still-strong core business, alongside a new core that has lots of running room left and new businesses that are taking shape but face great uncertainty?

In several industry-focused reports, we explain how leading companies are stepping up to the challenge and are at the forefront of remaking their industry.

We analyzed the automotive industry and the various megatrends driving demand for a new type of mobility market. Those who successfully navigate the changing landscape stand to cement their place as leaders.



Connectivity, autonomous driving, the shared economy and electrification—or CASE. These megatrends are disrupting the automotive industry as we know it, creating new types of demand.

When you factor in rising costs of raw materials and labor as well, it's clear automakers are under enormous pressure. Though most are responding to the challenge, a small group of innovative companies are distinguishing themselves in this new era. We call them the Automotive Champions. This report shines a light on what sets them apart.

Tech takes the wheel

How technology is fueling a new mobility market

Automotive companies are facing new challenges they've never seen before. Driving is no longer just about the thrill of the open road but also about experiences while driving—listening to music, holding a meeting or catching up on current events.

Technology is taking more and more of the judgment work out of operating a motor vehicle and letting people switch to autopilot. Digitally-enabled services are set to become key drivers of growth and profitability in tomorrow's auto markets, far outstripping the profitability potential of traditional car-selling to buyers. And car owners, when they decide to buy cars instead of simply using ride-sharing services, are increasingly seeking vehicles with a lower carbon footprint such as electric vehicles, or EVs.

Taken together, these trends—connectivity, autonomous driving, the sharing economy and electrification—have the potential to fuel a growing market for mobility services in the future. Accenture research shows that by 2030, traditional automotive sales will grow marginally to \$2.2 trillion. In contrast, revenues from mobility services will soar to over half of that at \$1.3 trillion during the same period.¹

All this complexity is being spurred on by changing consumer demands. This is compounded by volatile prices of steel and other metals; an ever-shrinking talent pool of designers, engineers, and factory workers; threat from new competition; and uncertainties of global trade wars impacting supply chains and distribution networks. What do you get from the collision of these forces? A kaleidoscope of new value propositions. (See Figure 1)

\$2.2
trillion

Traditional auto sales
by 2030

\$1.3
trillion

Mobility services sales
by 2030

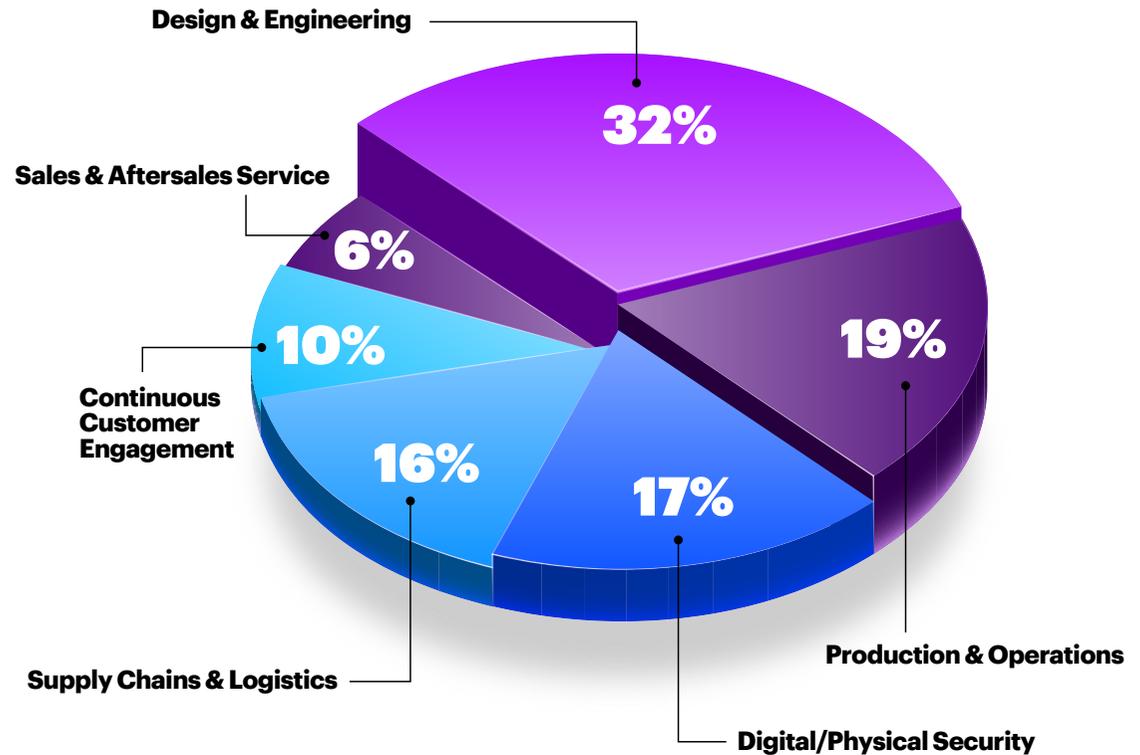


Carmakers are merely scratching the surface of these new value propositions. And all these efforts to please the consumer are not cheap.

It is therefore no surprise to see that the automotive companies interviewed for our survey are making the most innovation investments in design and engineering. (See Figure 2)

Figure 2: The design advantage

Design and engineering comprise a third of all innovation investment by automakers



Step innovation up a gear

Embrace CASE to realize higher RODI

To take advantage of these new technologies, automotive companies must reinvent the products and services they offer. They must also digitally innovate how they create value across key business functions, at scale, to achieve a commercially viable ROI.

But out of the 199 automotive companies (both OEM and OES) with annual revenues in excess of \$1 billion we studied, only a quarter are succeeding at scaling digital innovation. We call them the Automotive Champions. They have not only successfully scaled more than half their digital POCs, but also earned higher than average returns on their digital investment (RODI).

Take Tesla's problem with rechargeable batteries, for example. Designing a high-powered battery pack cannot solve the problem of range singlehandedly. You need charging stations—foundational infrastructure to support the rapid scaling of demand. Tesla did not rely on anyone for this critical investment. Instead, it built its own network of 14,000-plus superchargers, allowing it to successfully deliver the EV value proposition.ⁱⁱ

Scale is equally important to the success of Tesla's autopilot mode. The advanced assisted driving program comes with features including Autosteer, Autopark and Traffic-Aware Cruise Control (TACC). Tesla captures massive amounts of data from eight cameras and 12 ultrasonic sensors mounted on each vehicle. The company then uses this data to constantly train and upgrade its AI algorithm and improve autonomous driving capabilities.ⁱⁱⁱ

And what about RODI? Almost three quarters of the companies in our research earn an RODI lower than the industry average, irrespective of how much they scale. This implies that simply scaling more doesn't guarantee success.

“The entire industry is at a tipping point and is looking to reinvent itself to be prepared for the current and the coming disruption. OEMs need to fully embrace new technologies to become brokers of mobility rather than just car manufacturers. A wise pivot to a platform-customer-centric approach is critical to remain successful in a sustainable manner.”

Axel Schmidt, Senior Managing Director,
Global Mobility Industry Lead, Accenture

The new mobility mindsets

Automotive Champions employ three distinct mindsets

A closer look at the Automotive Champions underscores the importance of how you scale POCs over how many POCs you scale. These leaders view innovation and the associated costs differently, spending more time and money than their peers to design and build differentiated products.

They have the courage to scale new digital innovation at the right pace so that they neither miss the moment nor overreach themselves. It is their progressive mindsets that allow them to pivot their organization to new value propositions and earn higher returns on digital investments.

We distilled three distinct mindsets:

Automotive Champions consider innovation spending as investment and show strong commitment to it.

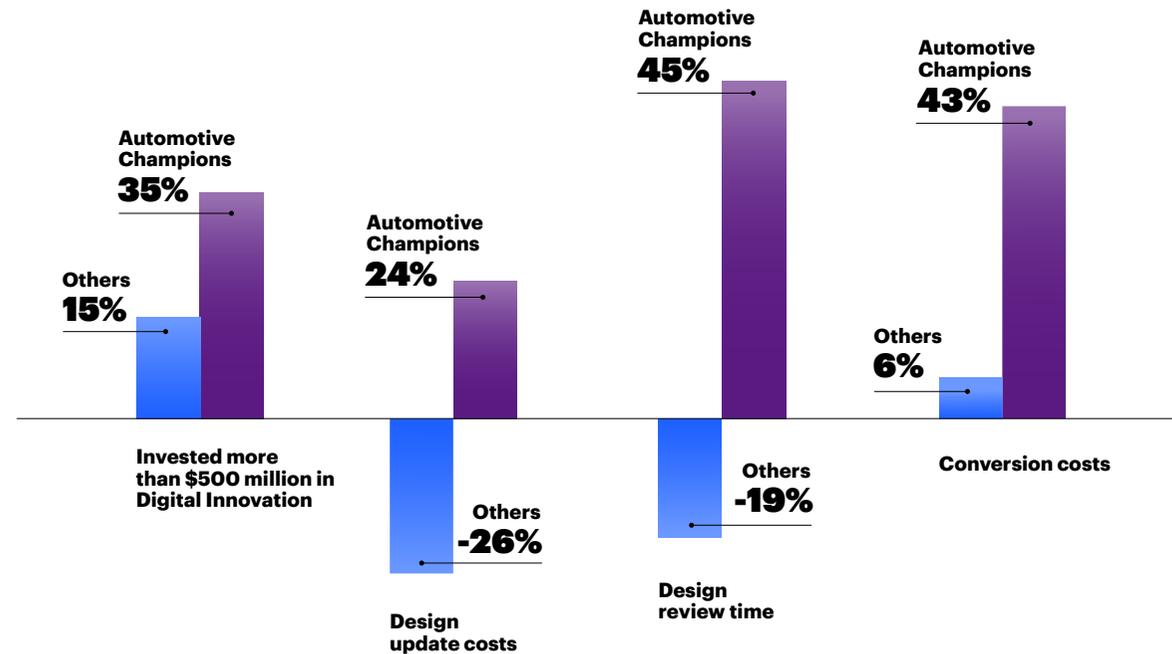
In contrast, regular companies view such spending as cost and focus on cutting it. Around a third (35 percent) of Automotive Champions invested more than \$500 million in digital innovation from 2016 through 2018. In comparison, only 15 percent of the others spent as much.

A closer look reveals that Automotive Champions are indeed betting big on digitally reinventing their design and engineering function and are staying true to their innovation focus. In the past three years, they spent 24 percent more on updating design. They also spent 45 percent more time on reviewing designs. In comparison, the other companies cut their design update costs by 26 percent and reduced design review cycle times by 19 percent.

That Automotive Champions are spending more time and money on design updates and reviews would have looked counterproductive in the past. But not anymore, because they see these metrics in a different light. They understand the importance of coupling conventional hardware with new software to create smart, connected automobiles.

Figure 3: Investing in innovation

Champions invest more in digital innovation than others



As a result, they spend more designing hardware and software that work well together to deliver the desired customer experience.

To match rapidly improving design and engineering, Automotive Champions also are spending more on production and operations—converting raw materials into finished products. In fact, they are turning the way they measure key performance metrics such as conversion costs on their head. Automotive Champions spent 43 percent more in conversion costs, as compared with a mere 6 percent increase by others.

Also, they believe that to succeed at mass-customization—or the “lot size of one”—such investments are imperative. A large portion of this growing conversion cost can be attributed to better managing unprecedented amounts of data. Automotive Champions build new capabilities by leveraging data and make significant investments to ensure the smoother integration of operational technologies, faster data networks, AI-powered analytics techniques and the latest data visualization tools.

Automotive Champions achieve tangible and timely returns on their investments.

On the other hand, regular companies that view digital innovation as a cost rarely expect returns, let alone achieve them.

Automotive Champions have razor sharp focus on returns. They make sure that digital investments made toward improving design, engineering and production deliver tangible returns. Our study shows they were able to improve design win rates—the ratio of designs successfully scaled up into full production to overall designs created—by 11 percent between 2016 and 2018. In comparison, others were only able to increase this critical performance metric by 0.01 percent.

Similarly, in production and operations, Automotive Champions have significantly improved both capacity utilization and first-pass yield—the number of good units with no rework or scrap coming out of an individual process—by about 8 percent each. Others, in contrast, saw reductions on both these metrics—a 0.6 percent drop in capacity utilization and 0.2 percent fall in first pass yield.

Take Tesla again. The carmaker realized that some of its vehicle batteries could catch fire after being punctured by objects whipped up from the road surface. Normally, this would lead to a large-scale product recall, bad press, and falling share prices. But Tesla was able to solve this problem with a single remote software update that raised the suspension sufficiently to avoid such incidents. This would have never been possible if the hardware was not designed for variable suspension heights effected remotely through software commands.^{iv}

For Automotive Champions, the returns don't just stop at better design win rates or higher capacity utilities. It even translates into greater financial returns. We calculated that they on average earned an RODI of 26.9 percent in our study over a three-year period, from 2016 through 2018. That's four times higher than others who earned a mere 5.9 percent.

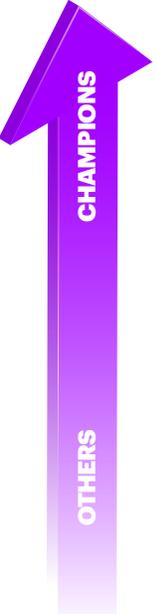
“Incumbents must change the ways in which they measure business performance, and they must change them fast. Champions know this and pivot their organizations by pivoting how they measure success.”

Brian Irwin, Managing Director,
Industrial Group Lead, North America

Most companies continue to work and collaborate in conventional ways to avoid racking up costs. Champions make unique, differentiated investments in growth levers to enhance productivity and agility.

Figure 4: Five growth levers

Targeted investments enhance productivity and agility



	Strategic Acquisitions	Competitors	Application Lifestyle Management	UX Design	AR/VR/MR
	Digital Vision & Roadmap	Tech Partners	Management Information System	Digital Systems Engineering	Machine Learning
CHAMPIONS	Digital Native C-Suite	Customers	Product Data Management	Customer Experience Analysis	Cyber Security Protocols
	Chief Digital Officer	Channel Partners	Customer Service Management	Digital Sales and Marketing	IIoT Sensors and Transmitters
OTHERS	Early-win Collaborations	Research Clusters	Product Lifecycle Management	Digital Platform Management	Cloud
	Digital Experiments	Suppliers	Manufacturing Execution System	Quality Analysis	Industrial Robotics
	LEADERSHIP	PARTNERSHIPS	PLATFORMS	SKILLS	TECHNOLOGY

We identified five levers that organizations use to scale digital innovation—skills, platforms, technology, partnerships and leadership. We found Automotive Champions use these growth levers in new ways. (See Figure 4)

Consider partnerships, for instance. Regular companies continue to be wary of competition. Automotive Champions, on the other hand, partner with competitors with complementary competencies to neutralize disruptive threats from new entrants. Toyota is one such example. In 2019, the company partnered with Chinese automotive major BYD to jointly develop electric vehicles in China. The two automakers will work together on electric sedans and SUVs, while also partnering to develop electric batteries.^v

Automotive Champions are also working with technology partners to extend collaborations beyond typical engagements such as IT hardware supply, ERP software implementation, or tech support. For example, Honda has partnered with Amazon to launch in-car delivery services for vehicle owners. Amazon tracks the customer's vehicle via the cloud-based, connected car system and then delivers the package to the trunk of the car using key access that the customer has provided through the HondaLink app.^{vi}

Conclusion

Innovation highway

The critical question today is how can businesses simultaneously prepare for unprecedented social, political, environmental and technological challenges—both imminent and distant?

The answer is complicated.

We've learned from our research that only a handful of companies are taking on disruptive forces, making dynamic decisions and successfully remaking industries. We call them the Champions.

The Champions understand that digital technology is creating more discerning customers who want connected products that don't pollute, save time, and are easy to use. But Champions also know how to create these products.

They rely on digital technology to build smart factories, nimble supply chains, and responsive distribution networks. Most important, they successfully scale digital innovation and earn a higher return on those investments.

But the truth is such successes are rare.

Our research shows three mindsets work best in concert to help any company that wants to become a Champion. First, view digital innovation as an investment that needs thoughtful allocation, not a cost that ought to be cut. Second, set timely and robust expectations on return on digital investments. Third, invest in five in-house levers to scale digital innovation—skills, platforms, technology, partnerships and leadership.

The payoff from adopting these mindsets can be substantial, and help any company answer this simple question: Will you move beyond the usual guardrails and remake your business to successfully face off the forces before they take you down?

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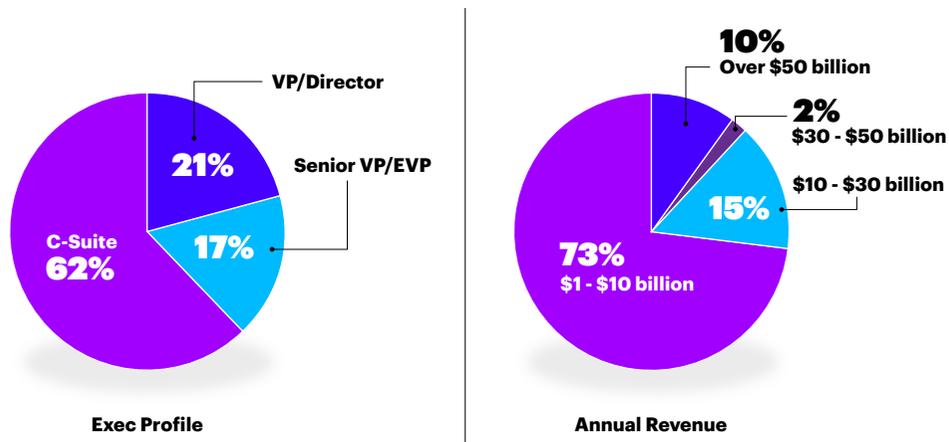
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Research Methodology

We surveyed 199 executives from automotive companies (91 Auto OEMs and 108 Auto-parts suppliers) with annual revenues in excess of \$1 billion, across 14 countries. In our survey, companies were asked to report how much they spent on scaling digital innovations and the returns they achieved on those investments, over the period 2016-18.

The consistent and clean survey data set was utilized to arrive at the set of Champions. We defined “Champions” as companies that were scaling more than 50 percent of their digital proof of concepts and achieving a return on digital investment (RODI) higher than the average RODI being clocked by their industry peers and higher than their industry-level ROIC. The rest—whom we called “Others”—were companies which were achieving a RODI lower than the average RODI being clocked by their industry peers, as well as, their industry-level ROIC, irrespective of their scaling efforts.

Thereafter, specific questions in the survey were utilized to examine the impact of digital on certain key performance metrics across various organizational functions. Lastly, key differences and drivers that generate higher digital ROI for Champions were compared to other companies to understand the difference in approaches and strategies between these two sets of companies.



Appendix

ⁱ Accenture (2018), Mobility as a service, downloaded from: <https://www.accenture.com/nz-en/insight-mobility-automotive-ecosystem> on August 26, 2019

ⁱⁱ InsideEvs (2019), Tesla Vs Competitors: 5 Key Advantages In Tesla’s Favor, downloaded from: <https://insideevs.com/reviews/366828/tesla-top-5-advantages-video/> on August 26, 2019

ⁱⁱⁱ Medium (2018), Tesla Enhanced Autopilot Overview—L2 Self Driving HW2, downloaded from: <https://medium.com/self-driving-cars/tesla-enhanced-autopilot-overview-l2-self-driving-hw2-54f09fed11f1> on August 26, 2019

^{iv} Eric Schaeffer and David Sovie (2019), Reinventing the Product: How to transform your business and create value in the digital age, Kogan Page Publishing

^v Bloomberg (2019), Toyota Teams Up with China’s BYD on Electric Vehicles, downloaded from: <https://www.bloomberg.com/news/articles/2019-07-19/toyota-teams-up-with-byd-to-develop-electric-vehicles-for-china> on August 26, 2019

^{vi} CNBC (2019), Honda drivers can now get Amazon parcels delivered to the trunk of their car, downloaded from: <https://www.cnbc.com/2019/07/25/honda-drivers-can-now-get-amazon-parcels-delivered-to-trunk-of-car.html> on August 26, 2019

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