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FEATURE

How to Drive Value Your Way

As industries and technologies evolve, value can migrate up or down the value chain. But the players have a big say in how—and even whether—that happens. *by Michael G. Jacobides and John Paul MacDuffie*



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**by Michael G. Jacobides
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THE ADVENT OF THE PC, in 1981, famously resulted in the wholesale reorganization of the computer industry. Within a few years value in that industry migrated from the manufacturers that assembled and marketed the computers to the suppliers upstream of two key components: the operating system, owned by Microsoft, and the microprocessor, owned by Intel. Those two companies quickly amassed market capitalizations that eclipsed those of IBM and the other OEMs that had dominated the market.

The PC story is now etched in the minds of analysts and strategists as a template for how industries evolve in the knowledge economy. In the natural order of things, so the story goes, industries disaggregate as interfaces between various stages of the value chain become open and standard, allowing competition to drive down costs all along it. As this happens, value and profits migrate to the suppliers of key components or the owners of platforms or other standards.

PHOTOGRAPHY: ELIE HONEIN

DOWN TO
GIVE VALUE
OUR WAY

We question that narrative. Industry disaggregation is not, in our view, inevitable. Neither is value migration, even when sectors do disaggregate. Many industries characterized by intense competition and innovation—including those that are vulnerable to highly disruptive technologies—are likely to remain tightly integrated and dominated by traditional players.

The auto industry is a case in point. On the face of it, there are strong parallels to the early computing industry: Both are dominated by large powerful incumbents; both involve the manufacture and delivery of a product within a complex value chain. Many industry experts believed that the parallels would only strengthen. In the 1999 report “The Dawn of the Mega-Supplier,” Bain & Company predicted that new giant suppliers would achieve preeminence in the auto industry by “designing vehicle systems that [could] be ‘standardized’ within and across OEMs.” The lion’s share of the industry’s profits would accrue to a handful of suppliers designing and producing modular, standardized components. The likes of Chrysler, GM, Daimler, and even Toyota would be relegated to simply assembling and marketing cars made up of those components. Just the way it now is in computers.

As we know, things turned out rather differently. The traditional auto manufacturers have, in good times and bad, kept a fairly constant share of their industry’s total market capitalization, despite much recourse to outsourcing and intense competition among the carmakers (see the exhibit “Cars and

ment to more than 30 major global companies in a range of sectors. On the basis of this work, we have developed a playbook that companies can use to understand the factors that cause value to migrate up or down their industry chain or to stay where it is. Through the lens of the auto industry, we’ll look at how established players can defend value in their industries and how emerging players can change the competitive landscape to drive value their way.

Companies can influence whether value migrates—and if so, to where in the chain—in four ways. These *value rules*, as we call them, work collectively, like the rules of a board game; a company looking to influence value migration should try to apply all of them. The first rule emphasizes capabilities and strategic positioning. Rules two and three are about the value proposition and customer needs, and the fourth focuses on strategic investments and scope. Let’s look at the rules in turn.

RULE 1

Be the Least Replaceable Player

The question of who along an industry value chain is most replaceable fundamentally affects who can capture surplus value. In many cases, the hardest firms to replace are the “system integrators”: the companies that put together the components and deliver the final product to the customer. In autos, system integration is tough. No new OEM has successfully entered the market as a major competitor in the past few decades: Hyundai was the most recent, more than 40 years ago (although Tesla’s survival as the first all-electric carmaker is looking more and more likely). Moreover, no supplier has forward-integrated into becoming an OEM since the very earliest days of the industry, when companies such as GM were assembled out of various suppliers. The only such recent effort from a supplier—Magna’s ambitious bid on Opel—fell flat. In the computer sector, by contrast, the system integrator role was so trivial that a student named Michael Dell was able to assemble computers in his college dorm room.

What makes system integration in certain industries so complex? To some extent it’s a technical issue. Mechanical systems (as MIT’s Dan Whitney observed) are harder to integrate than electronic ones. But the challenge is not just about technology. “Soft norms” such as reputation (for example, in luxury goods), regulation (salient in health care and financial services), and technology and industry standards (as in the case of Apple and Google and

The hardest companies to replace in a value chain are the “system integrators.”

Computers: Where Has All the Value Gone?”). Value has not migrated upstream (or downstream to after-market products and services)—it rests where it always has: with the OEMs. And there, we believe, it is likely to stay, despite disruptive technology on the horizon.

For the past 30 years, we have studied competition and innovation in the auto and computer industries, as well as in sectors such as telecommunications, health care, and financial services. We’ve also consulted and provided executive develop-

Idea in Brief

THE PROBLEM

In times of turbulence, profits have a way of migrating up or down the value chain, away from established companies. The iconic example: the early days of the PC, when value moved from manufacturers (IBM et al.) to suppliers (Wintel).

THE ARGUMENT

This trajectory is not inevitable—witness the auto industry, where the incumbent carmakers have maintained a constant share of the industry's market capitalization despite dire predictions to the contrary.

THE LESSONS

Successful companies such as Apple and Google—or the established carmakers—dominate by doing four things well: controlling the assets least likely to be commoditized; being the guarantor of quality to the end customer; staying in close touch with changing customer needs; and balancing the imperatives of growth and strategic control of the value chain.

their ecosystems) are part of system integration. And these are all factors that firms can attempt to control.

A company seeking to preserve or gain advantage needs not only to reinforce its own irreplaceability but also to ensure that none of its suppliers becomes impossible to replace. That's why automobile OEMs require multiple (or at least dual) sourcing for all components. During the financial crisis, for example, OEMs made sure that struggling suppliers survived: Volkswagen bought assets from Karmann during bankruptcy and is thought to be setting the company up as a (largely captive) subsidiary, partly to avoid assuming liabilities, but also as a means of keeping the competition stiff against Magna. Toyota vertically integrated into electronic components for the Prius to keep its own capabilities strong, to enable it to evaluate new technology proposals from its longtime partner Denso—and to thwart any bids by Denso at irreplaceability.

In general, the more an integrator can foster competition in its supply chain the better able it is to keep hold of industry value. Apple is an extreme case in point. "Apple 'atomizes' its supply chain to an unprecedented degree, breaking up component processing steps across multiple vendors," a recent analyst report remarked. "This aids in preserving product secrecy—since even the suppliers themselves often do not know how Apple will ultimately use a component—and gives Apple inordinate control over the manufacturing process."

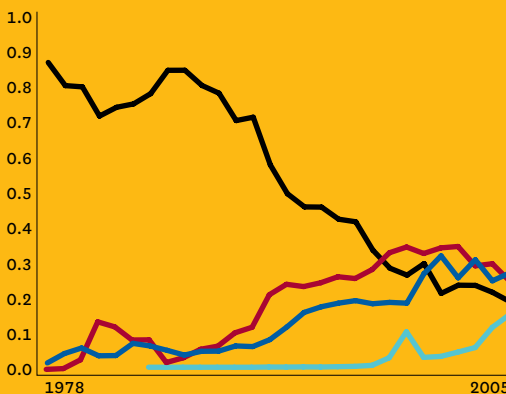
So what can an aspiring entrant do to drive value its way? For one, it can develop IP assets and continuously upgrade its role from "outsourcer" to producer—that is, a supplier that sells to a growing number of firms and is valued as a key quality differentiator. An entrant can also gain stealth advantage by supplying to multiple sectors; no single customer in any one sector will have visibility into the capabilities the firm is developing and hence how irreplaceable it is becoming.

Cars and Computers: Where Has All the Value Gone?

Traditional auto manufacturers kept a stable share of their industry's total market capitalization over the three decades prior to 2005. By contrast, OEMs in the computer industry have seen their share of industry value fall from more than 80% to less than 20% over the same time frame.

COMPUTER SECTOR

SHARE OF TOTAL INDUSTRY MARKET CAP



COMPUTER AND PERIPHERAL EQUIPMENT MFG

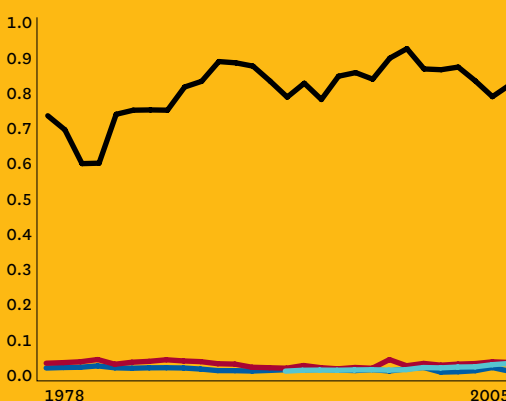
SEMICONDUCTOR AND OTHER ELECTRICAL COMPONENT MFG

SOFTWARE PUBLISHERS

INTERNET SERVICE PROVIDERS AND WEB SEARCH PORTALS

AUTOMOBILE SECTOR

SHARE OF TOTAL INDUSTRY MARKET CAP



MOTOR VEHICLE MFG

MOTOR VEHICLE BRAKE SYSTEM MFG

MOTOR VEHICLE GASOLINE ENGINE AND ENGINE PARTS MFG

MOTOR VEHICLE TRANSMISSION AND POWERTRAIN PARTS MFG

SOURCE: DATA FROM COMPUSTAT

Industry Stability and Creative Stagnation

There's an unspoken assumption that an industry whose value chain is stable is conservative, stodgy, uncreative, and lacking in energy and dynamism.

The auto industry is often cast in that light: OEMs dominate as all-controlling system integrators and protectors of proprietary standards, and in doing so they obstruct all manner of positive changes, hindering suppliers' ability to invest in R&D capabilities and reducing total innovative capacity in the ecosystem.

That view is not entirely fair. Consider Apple, which successfully wrested back control of the value chain from upstream players. Was this shift detrimental to the computer

industry? Not if you consider that Apple's success has spurred creativity and innovation, brought utility (and pleasure, aesthetic and otherwise) to consumers, boosted the wealth of Apple employees and shareholders, and reestablished competition in a sector formerly dominated by Wintelization. Indeed, followers of Steve Jobs—posthumously regarded as not only brilliant but also wise—would argue that Apple's integrated model produces better products—even if it may yield fewer of them, less total innovation,

Consider the trajectory of Flextronics and Solec-tron, which started as contract manufacturers of circuit boards. They gradually moved from simple to complex assembly, and next to designing manufacturing processes. They then began to help with design issues related to manufacturing (such as miniaturization), then began tackling modest incremental improvements in product design attributes, and finally moved into developing entire designs. All the while, they were carefully developing complementary capabilities in sourcing, supply chain management, and logistics.

RULE 2

Become the Guardian of Quality

Value in an industry almost always accrues to the player that customers associate most with the quality of the product. Who this will be isn't always predictable—and strong competition can erupt along the value chain to capture the “quality guarantor” role and reap the rewards.

Consider the wine industry. Fine French wine has historically come from prestigious châteaux with unmistakably French names—Margaux, d'Yquem, Petrus. Yet the premier names in port wine are mostly those of the English shippers—Sandeman, Taylor, Warre. The establishment of shippers as quality guarantors in port, rather than the Portuguese growers, came about when England and France were at war and England was seeking alternatives to French wine. After the Napoleonic wars, the English shippers wanted to put their brands on French wine, as they had done with port, edging out the growers. To retain control of the quality guarantor role, the French government waged a massive campaign in English wine-trade journals to promote acceptance of Bordeaux wines. The battle raged for almost half a century before the question was finally settled. We are seeing a similar struggle today: As part of their

ongoing “white labeling” campaigns, supermarkets like Sainsbury's and Tesco are trying to displace winery brands to become quality guarantors in the wine industry.

In computing, a key part of the story was the shift in who controlled the customer experience. Microsoft and Intel (“Intel Inside”) succeeded not only in asserting their brands over the OEMs but in convincing consumers that they were the driving force behind the entire computing experience. In large measure, they were able to do this because there was little resistance from the OEMs. In the automobile industry, by contrast, carmakers vigorously fought suppliers' efforts even to label their parts, let alone promote them. And they pursued a distinctive “look and feel” at the nameplate (for example, Mustang) and brand (Ford) as a crucial source of their competitive appeal. To this day, very few supplier-provided components are known to customers. The exceptions are tires and audio equipment, plus aftermarket parts favored by consumers who want the “tricked out” look. Even when a component is offered as a branded option before the sale (for instance, a JBL audio system), its value as part of an integrated vehicle design is emphasized. For carmakers, control over the entire automobile is a strategic imperative, and they have consciously and successfully resisted any attempt to erode it.

The quality guardian in a value chain, we should note, typically carries a disproportionate share of legal liability. Although as much as 75% of an automobile's cost comes from purchased parts, OEMs generally bear the liability when consumers bring legal claims for vehicle malfunction. This is because a car is a large, heavy, fast-moving object, operating in public space, and it crashes as a unit, not as an assembly of parts. Indeed, one of the cases taught the first year of law school is *MacPherson v. Buick Motor Co.*, which establishes this very principle. Large car

fewer opportunities for new entrants, and less freedom for consumers.

Apple's recent dominance also belies the notion of a computer sector on a fixed value-migration path. Indeed, our analyses show striking similarities between the system-integrator role Apple has carved out for itself and that of carmakers. The parallel is by no means exact, but it is clear that Apple is holding on to value that dissipated rapidly from other computer OEMs, not to mention from the other industries that the

firm has disrupted (mobile telecommunications, music, publishing, and video games). In short, computers may now be imitating autos, rather than the (predicted) reverse.



companies usually see liability as the price to be paid for being the quality guardian. But our research suggests that the liability affords an unrecognized opportunity to retain competitive advantage. OEMs can assert strategic control by demanding, for regulatory reasons, that suppliers build (and, increasingly, design) components that meet model-specific, closed-standard specifications. In other words, OEMs have a defensible rationale for creating a proprietary, vertical structure that generates long-term strategic gains.

The contrast with consumer electronics is stark. To be sure, those products also must be safe for people to use, but system malfunction rarely causes injury, and users can generally restore operation themselves. Manufacturers do not need to bear significant liability; consumers are sufficiently protected by product guarantees and warranties.

In the no- (or low-) liability domains, incumbents are much easier to dislodge, especially by companies that have built a strong and trusted brand in other, perhaps adjacent domains. Amazon's shift from bookseller to online retailer, and its rumored entry into the mobile-handset arena, shows how reputation and capabilities built in one sector can be transplanted into another. Such moves are feasible even in the traditional brick-and-mortar world: Just think of mass retailer Tesco and its expansion into services such as insurance, travel, and financial services.

RULE 3

Follow the Customer

When end customers or their needs change, value may shift along the value chain or industry ecosystem. In the 1980s, the customers of computer firms were large corporations such as IBM, Digital Equipment Corporation, and Control Data. Value lay in the design of the computer and in support provided to the customer; controlling those parts of the value chain meant controlling the sector. But

as PCs proliferated, the identity—and thus the needs—of the customer changed. The customer was no longer the team of technical experts operating massive computers for large corporations. Instead, individuals or small businesses, for whom interoperability among applications was most important to their daily work, were the end users. The reliability offered by OEMs became less of a selling point because the risks involved in simple word processing or data processing were relatively minimal. So value shifted from the manufacturer to the software designer.

All this is exemplified by what we can (with 20/20 hindsight) call the outsourcing blunder of the century: IBM's decision to open up and outsource to Microsoft and Intel as it developed the PC. IBM was focusing on where value was, not on where it could migrate to. It hadn't linked changes in customer needs and the value proposition to changes in value. IBM also missed the migration of decision rights in large organizations from the IT department to the CFO, allowing the creation of a multibillion-dollar enterprise software segment that SAP came to dominate. Contrast that with the auto industry: The final customer—individuals seeking personal mobility—remained unchanged, as did customers' needs (mobility plus aesthetic, functional, and emotional attributes). Thus, value did not migrate, even when carmakers chose to outsource certain parts of the value chain.

When the needs of the customer, and the products and services that can address them, shift quickly, incumbents face the more difficult strategic challenge. For starters, they must be able to recognize that the end customer has changed or is changing. They then must have the capabilities to transform their business models accordingly. Consider now IBM's rebound. That came about largely thanks

to its success in crafting system integrator roles for itself in new ecosystems, most recently in smart grids. And for all the success automakers have had in controlling their industry, if people begin to value cars as rolling telecom hubs, for instance, rather than as transportation systems, entrants may find openings to take control. Indeed, automakers have already lost battles to control car phones (they're no longer built-in); navigation systems (first losing share to portable units from Garmin and TomTom, and now to smartphone apps); and in-car music (despite OEM efforts to promote XM/Sirius as the natural digital successor to radio and installed cassette and CD players).

But in the absence of a fundamental shift in the end customer, incumbents will be well positioned to manage even disruptive technology—as long as they retain ownership of distribution and can resist the emergence of open standards. The story of mobile payments is a case in point. Mobile payments are extensions both of financial services (and the banks and other intermediaries that provide them) and telecommunications (mobile-handset manufacturers and mobile-service providers). For more than a decade, consortia have been formed and discussions conducted to find a way to bring the value and ease of mobile payments to the customer. Yet with banks holding on to the final customer and telecom giants struggling to impose their vision of the future, no standard has been able to emerge that would open the door to competition.

The competitive challenge for entrants is thus to find significant numbers of new customers to whom they can offer their superior value proposition. This is possible if incumbents have excluded or overlooked groups of potential users. M-Pesa, a mobile-payment system launched by Safaricom in Kenya, now transfers amounts totaling 27% of the country's GDP. But it began by targeting customers who could not access traditional payment processes offered through the country's creaky and expensive banking system. On the basis of these new customers, new industry architectures are emerging, shifting the locus of value in the ecosystem.

RULE 4

Manage the Growth Story

When a sector has high growth potential, the mind-set of participants changes. Rather than considering

Growth potential makes firms accept changes in industry architecture that may adversely affect their replaceability.



how best to win market share from rivals, they are (understandably) excited by the prospects of revenue growth that a larger market will bring and are more willing to enable that growth by collaborating on technology and standards. To put it in terms of our framework, growth potential makes firms accept changes in industry architecture that may adversely affect their replaceability and ultimately change who acts as quality guarantor. In computers, excitement about the demand that would be ushered in by the development of new technologies prompted coordinated efforts by companies to accept open standards, even when doing so meant sacrificing control of the sector. Such changes clearly benefit entrants or challengers, because they help reshape the competitive landscape.

Growth in an industry also attracts equity investors, venture capital, and other sources of ready financing. That favors entrants seeking to build a new industry architecture, set up a new ecosystem, and establish open standards. This is particularly the case when the high-growth industry in question is relatively small: Incumbents will be less inclined to fight hard to preserve dominance when the absolute profits are limited. The opposite applies, however, when the high-growth market is large. Here, scale often favors stability, because established players are large enough to maintain closed systems of suppliers, eschew open standards, and forestall change.

Indeed, growth presents an interesting dilemma for incumbents: A smaller share of a fast-growing pie may well be worth a lot more than a stable or increasing share of a slower-growing one. In these situations, companies need to evaluate the relative merits of encouraging growth in their segment versus keeping the segment captive. Viewed in this light, the equivocation of financial services firms over mobile-payment standards is understandable.

Firms routinely face hard calculations in deciding what is strategically more advantageous, growth or control. A key variable in that calculus is the

firm's choice of discount rate or target ROA.

A firm that emphasizes a high return today may undervalue growth potential and so may relinquish strategic control through underinvestment or misplaced investment focus. Companies in developed markets often fall into this trap, allowing activities to be transferred to other parts of the value chain as they retreat to areas

How Incumbents and Challengers Shift Value

Incumbents and entrants are all trying to push the four drivers of value in different ways to make sure that it ends up with them.

1 Replaceability INCUMBENT STRATEGIES	2 Quality	3 Customer	4 Growth
Prevent others from assuming a system integrator role Avoid open standards	Brand the customer experience Assume responsibility for the final product	Keep your grip on customer needs Anticipate changes in the identity of the end customer	Pursue growth, but not at the cost of strategic control Use your scale advantage to keep supplier networks closed
ENTRANT STRATEGIES			
Become the go-to outsourcee Move to selling solutions	Leverage brand adjacency Manage standards to commoditize incumbents	Try to change who the customer is or what it wants Find new or overlooked customers and build new ecosystems	Be patient in terms of returns Exploit incumbents' need to outsource Make the case that open standards will fuel growth

that they feel are more profitable. Conversely, many emerging-economy firms that started out as subcontractors, such as Huawei Technologies and Hon Hai Precision Industry, have pursued a strategy of gradually moving up the value chain, accepting lower returns in the short term as they make themselves ever more differentiated—and irreplaceable.

Putting the Framework to the Test

We believe that this model can help companies predict whether value will migrate in their value chain or ecosystem and, if so, where. To illustrate, let's consider how the four value rules apply to developments on the horizon for the auto industry. A big question facing the industry is whether new entrants offering electric cars, such as Tesla, will succeed in displacing the Volkswagens, GMs, and Toyotas of the current era. Another question is whether value could shift upstream to the providers of new components, such as the battery. If OEMs are to retain their position of strength, they'll need to take clear strategic action.

Replaceability. OEMs are keenly aware that technology innovation could very well usher in changes in industry structure, and they are actively resisting any standardization that might put a mega-supplier in control of a key component. They are rapidly hiring chemical engineers, for example, so that they can evaluate a range of batteries and suppliers. Some are even considering vertically integrating

into battery design and production. Wherever possible, OEMs are developing relationships with multiple battery suppliers to make sure that they receive competitive bids—but also to keep any of them from becoming irreplaceable.

The failure of the once-promising venture Better Place to gain industry support for a standardized battery (critical to its innovative battery-leasing-and-exchange business model) exemplifies the struggle currently under way. OEMs are aggressively promoting closed standards that allow for proprietary designs, arguing that a standardized battery would not be sufficient to cover the range of vehicle types, sizes, and drivetrains they offer—but they're no doubt just as concerned about losing control. Carmakers will most likely continue to put pressure on battery suppliers to build to OEM-specific specifications and to share IP.

Quality. Carmakers clearly want to retain overall responsibility for the product—even if it means assuming additional liability. Consider Chevrolet's actions when a damaged Volt battery caught fire three weeks after the routine crash testing. General Motors issued a voluntary recall, offering a refund to purchasers or a repair to enclose the battery in a metal case for all Volt owners. It was General Motors that endured the bad press and undertook the remedies, not battery manufacturer LG Chem. In doing so, GM solidified its role as guardian of quality for all its cars, including electric ones. (Boeing's recent

New corporate giants do not compete in a sector, they shape it.

Dreamliner grounding because of battery problems is another example.)

Customers. The introduction of electric cars will not lead to a significant change in the end customer. It will, of course, change their needs somewhat: One of the most important constraints for such vehicles is the lack of an established energy infrastructure. As a result, OEMs will need to address “range anxiety” as the primary factor affecting electric vehicle purchase—and, until the infrastructure develops enough to support higher growth rates, will need to continue offering a portfolio of drivetrain alternatives, from enhanced internal combustion and “clean diesel” engines to gasoline-electric hybrids.

Growth. The most likely mistake that OEMs will make is to undervalue future growth. If they fail to invest in initiatives that shape industry architecture, retain control of the customer, and preserve responsibility for the product, they may leave a window open for challengers. This very nearly happened in 1998 and 1999, when first GM and then Ford spun off their captive parts divisions into separate corporations—Delphi and Visteon. Other carmakers, notably Chrysler and Fiat, followed suit in outsourcing heavily. The new mega-suppliers began to consolidate horizontally, taking over certain critical design and engineering tasks, handling more complex manufacturing and logistics tasks, and overseeing lower-tier suppliers. Pretty soon, however, the carmakers realized that they were jeopardizing their strategic position and took steps to recover control.

Barring a strategic misstep and provided they invest properly, incumbent carmakers can keep value where it is in the chain and maintain their role as system integrators, our framework suggests. So what should potential entrants and disruptors pin their hopes on? A few have begun to capitalize on novel materials and technologies. But the lack of distribution systems and the need for reliable, large-scale production are already starting to tell. And existing OEMs are not about to subcontract their skills to the new entrants.

Chinese battery manufacturer BYD (for “Build Your Dreams”) offers a cautionary tale. BYD made headlines in recent years with its announcement

of forward-integration into designing and building electric vehicles, using its own proprietary battery design; it even attracted a substantial investment from Warren Buffett. BYD acquired small Chinese domestic automakers and focused initially on traditional ICE drivetrain vehicles. However, its sole all-electric vehicle has sold only a few hundred units, primarily to regional governments. Although it had initially announced ambitious plans to export traditional and electric vehicles to the U.S. by the mid-2000s, it no longer claims to have any plans to enter the U.S. market, focusing for now on the Chinese domestic market. This shows just how high the bar is, given stability in customer needs. Consumers may be interested in zero emissions or high fuel efficiency (or simply a very low purchase price), but not at the expense of safety, styling, comfort, or acceleration power.

We believe that the best hope for new entrants into the car industry will come from providing services that support the existing architecture of the sector. The way that the electrical grid is managed—among governments, businesses, and home owners—to support electric vehicles is likely to produce more innovative new categories of products and services than the vehicles themselves.

OUR WORK suggests that success in an industry is driven less by the creation of a “competitive advantage” than by a firm’s ability to move value to its part of the value chain. To do that, companies must work to make themselves less replaceable (and others more replaceable), establish themselves as curators of quality in the eyes of their customers, leverage their control over customers (or introduce new value propositions to new customers), and make sure they don’t achieve high ROA at the expense of strategic control of the sector.

For new corporate giants—such as Google and Facebook—a concern with steering value their way seems to have underpinned their strategies. These firms do not compete in a sector; they work *on* a sector, they *shape* their sector. They do not offer a value proposition; they push value to their part of the ecosystem. ♥

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