Mastering the Digital Innovation Challenge

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BY FREDRIK SVAHN, LARS MATHIASSEN, RIKARD LINDGREN, AND GERALD C. KANE

In 2010, a small group of managers at the automaker Volvo Car Corp. assembled to craft a vision for the future involving wirelessly connected cars. They recognized that the company needed to renew its innovation capability to compete more effectively in an increasingly digital environment. Doing so, of course, was easier said than done. One problem was that many managers didn’t see a need to innovate digitally. Volvo Cars was a car manufacturer, after all, and not a digital business. Others saw the need to engage in digital innovation, but they couldn’t get their head around how to do so. How could they convince their colleagues, when they didn’t necessarily have a clear vision of what the innovation outcome would be and the process itself appeared to be ambiguous? At the same time, Volvo Cars’ automotive business was strong, raising additional concerns about how to innovate digitally while maintaining core competencies.

Many incumbent businesses share similar questions to those Volvo Cars faced in 2010. A recent report by MIT Sloan Management Review and Deloitte found that nearly 90% of managers surveyed report that their industry is likely to be disrupted by digital technologies, yet less than half report that their company is doing enough to prepare for this disruption. Our four-year research project at Volvo Cars offers insights into a challenge that established companies must master — and competing concerns that they must balance — as they pursue digital innovations. (Detailed findings from our research were published in the March 2017 issue of the journal MIS Quarterly. See "Related Research.")

Working on a strategy for connected cars, the executive team of Volvo Cars outlined a vision that would allow certain digital aspects of the car to be updated after the car was manufactured and sold. New digital technology would enhance users’ experience and enable new revenue streams. By rethinking traditional automotive product development cycles, car connectivity could increase the pace of change. It would also allow the company to engage with external innovation ecosystems and sync with developments in consumer electronics.

The executive team realized this vision would not be easy to implement, nor was it mainly about creating new technological infrastructures. This bold vision stood in stark contrast to Volvo Cars’ existing innovation practices and business models. Indeed, pursuing the digital innovation necessary for connected cars required fundamentally rethinking the organization, while also keeping the core business functioning efficiently. To chart a new way forward while maintaining the integrity and viability of its core business, Volvo Cars had to balance four sets of interrelated competing concerns regarding: (1) innovation capabilities, (2) focus, (3) collaboration, and (4) governance of partnerships.

1. Balancing New and Established Innovation Capabilities

Volvo Cars’ first concern was how to balance the need to develop new capabilities for digital innovation yet still preserve the established innovation practices surrounding its core business. The company had traditionally invested substantially in innovation within product silos and multiyear time frames by relying on hierarchical structures and modular product architectures. Digital technologies, however, required a new way of thinking that cut across these specializations and moved forward more quickly than the company had ever done.
To achieve digital innovation, company executives realized they had to cross-fertilize the company’s existing innovation environments and break away from its conventional product development practices. Although this transformation was necessary to leverage the new opportunities afforded by digital technology, it would require shifts in the company’s capabilities, routines, and structures in fundamental ways that would affect Volvo Cars’ identity and culture.

To manage those competing concerns, the executive team mandated a new initiative known as the Connectivity Hub, a cross-functional team tasked with developing new innovation capabilities for connected cars. The Connectivity Hub director, Mikael Gustavsson, noted, “The main job was to establish a new network that didn’t reflect the existing organization. The Connectivity Hub was an opportunity to bring different parts of the firm to the same table. We didn’t have an integrated forum where we could discuss those things.” The Connectivity Hub orchestrated a broad internal debate about digital innovation and spearheaded efforts to prepare the organization for it.

The Connectivity Hub was set up as a temporary initiative so that it would not be perceived as a threat to existing organizational procedures. Nonetheless, the initiative at first generated substantial pushback. Resistance to the initiative occurred most intensely among middle managers, who felt torn between long-term visions requiring new capabilities and short-term commitments involving existing practices. This resistance was not unfounded: New product development at Volvo Cars customarily required product details to be frozen years in advance so that they could be implemented in production. However, making decisions about car connectivity features three years ahead would be impossible. These features could not be designed that far in advance; instead, they had to be generated through ongoing developments involving automakers, external developers, end users, and regulatory authorities. The Connectivity Hub had to figure out how Volvo Cars could foster such continuously ongoing innovation processes without compromising its ability to produce cars.

2. Balancing Process and Product Focus
At Volvo Cars, process innovation was traditionally associated with production efficiency and incremental product improvements. But now the company faced a very different challenge in that its digital features were not necessarily defined up front. Yet Volvo Cars’ executive team did not believe its connected car vision would come to fruition unless digital features could be integrated with the physical car environment. New innovation processes had to be developed while still benefiting from the company’s current strengths in building cars.

To manage these competing concerns, Volvo Cars explored how to develop generic digital resources, rather than simply focus on addressing specific end-user problems. Such generic resources offered prefabricated digital building blocks that could be utilized, combined, and built upon to resolve new innovation problems in the future. To legitimize such efforts in an environment inherently focused on specific functions, Volvo Cars built a portfolio of different platforms, each with a limited scope and distinct focus. These platforms were gradually developed to cover a broader range of applications. This approach allowed the automaker to shift its current focus on product platforms for cost-efficient implementation of predefined products to digital platforms that enabled new, often unforeseen, digital services.

As an example, Volvo On Call was originally a telematics service with specific features for remote car unlocking and safety monitoring. Volvo Cars realized this technology could be developed to issue generic digital keys that would enable retailers to deliver groceries to a specific vehicle. This service was later expanded, and the digital key is now a centerpiece in a commercial platform called In-Car Delivery, connecting car owners, logistics organizations, and a whole range of retailers in different niches.

3. Balancing External and Internal Collaboration
When Volvo Cars started to conceptualize its digital capabilities as generic functions, questions were soon raised about who would use the different platforms to develop new services. The company had long controlled the internal collaboration required to leverage the scale advantages that its investments in modular product designs afforded through specialization and effective division of labor.

Not surprisingly, it became clear that this approach would not be able to release the potential of digital technology to produce increased variation and novelty of digital services for connected cars. The availability of digital platforms made the automaker realize the importance of also engaging external stakeholders as co-creators of value for the connected car aftermarket. Volvo Cars therefore launched a new software environment, called Volvo Cloud, to host in-car services based on software in back-end servers. This successful initiative opened up possibilities for external collaboration with third-party app developers, such as Pandora internet radio and Spotify’s digital music services, to secure a steady flow of new digital services to Volvo Cars’ customers.

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Because software resided in the cloud rather than being inscribed into car parts, the automaker could manage innovation concerns by opening up opportunities for collaboration with external partners without disturbing existing internal innovation practices. Volvo Cloud allowed in-car functionality, such as web radio, to be enabled, updated, or replaced without touching the car configuration.

4. Balancing Flexibility and Control

Collaborating with new partners on product development in turn invited new ways of thinking about innovation governance. Early collaborations with application development companies revealed that these new partners would not engage on the same terms as traditional suppliers of car parts. The automaker therefore launched an app development group, staffed with people from the consumer electronics industry and embedded within Volvo Cars’ internal research and development department. This group served as a bridge between internal and external environments and crafted a range of boundary-spanning resources that could help Volvo Cars interact with external application developers. Initially, this spurred a series of cocreation initiatives involving external partners such as the location-sharing app Glympse.

These options, however, lost momentum during transition from demonstration to commercialization as soon as Volvo Cars’ purchasing department got involved. The purchasing department staff instinctively applied traditional supplier contracts, based on monetary transactions, to regulate supplier implementation of Volvo Cars’ requirements. However, in its collaborations with Pandora and Spotify, the automaker did not write elaborate requirement specifications or pay these partners — essentially by accident. Volvo Cars’ executive team developed a clear vision to the organization and provided the necessary support and resources to begin and endure the journey. Not everyone was initially on board. Many executives saw it as a high-risk, low-reward undertaking. Yet the clear communication of the vision, and the implementation of changes when needed, allowed Volvo Cars to move forward.

Lastly, developing digital innovation capabilities will not happen by accident. Volvo Cars’ executive team developed a clear vision for the broad parameters of their efforts, even though they did not yet know much of the specifics. They communicated this vision to the organization and provided the necessary support and resources to begin and endure the journey. Not everyone was initially on board. Many executives saw it as a high-risk, low-reward undertaking. Yet the clear communication of the vision, and the implementation of changes when needed, allowed Volvo Cars to innovate in its organization and its products to continue competing in an increasingly digital business environment.

Fredrik Svahn is an assistant professor of applied information technology at the University of Gothenburg in Gothenburg, Sweden, and is affiliated with the Swedish Center for Digital Innovation at Umeå University in Umeå, Sweden. Lars Mathiassen is Georgia Research Alliance Eminent Scholar and a professor of computer information systems at the J. Mack Robinson College of Business at Georgia State University in Atlanta, Georgia. Rikard Lindgren is a professor of informatics at the University of Gothenburg as well as research director and cofounder of the Swedish Center for Digital Innovation. Gerald C. Kane is an associate professor of information systems and McKiernan Family Faculty Fellow at the Carroll School of Management at Boston College in Chestnut Hill, Massachusetts. Comment on this article at http://sloanreview.mit.edu/x/58315, or contact the authors at smrfeedback@mit.edu.

Reprint 58315.

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