The Power of Dynamic Capabilities to a Successful Digital Transformation Path in Information Systems Management

Our new reality is technology's daily evolution, which poses opportunities and challenges for businesses across various sectors. Digital transformation is a complex and multifaceted process that requires firms to leverage digital technologies to create and capture more value. However, many firms struggle to align their business strategy and their digital strategy and often end up with suboptimal outcomes. In this work, we argue that the alignment between business strategy and digital strategy is a mirage and that firms need to develop dynamic capabilities to adapt and innovate in the digital environment.

Dynamic capabilities have been widely used to explain how firms can adapt to changing environments by creating, extending, or modifying their resource base (Teece et al., 1997). Dynamic capabilities are "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997, p. 516). According to Teece (2007), those capabilities consist of three elements: sensing, seizing, and reconfiguring. Sensing refers to scanning the environment and identifying opportunities and threats. Seizing involves making strategic decisions and mobilizing resources to capture value from opportunities. Reconfiguring entails the power to transform the organization and its processes to align with changing conditions.

Digital transformation is a phenomenon that involves the use of new digital technologies to enable significant business improvements (Fitzgerald et al., 2013). Digital technologies are characterized by their high velocity, volume, variety, and veracity, which create unprecedented opportunities for innovation and value creation (Bharadwaj et al., 2013). However, digital technologies pose significant challenges for firms, such as increased competition, disruption, complexity, and uncertainty. Therefore, digital transformation requires firms to rethink their strategies, structures, processes, and cultures to leverage the potential of digital technologies and cope with their implications (Singh & Hess, 2020).

The concepts of dynamic capabilities and digital transformation are combined because of how fundamentally disruptive digital technologies have the potential to be for traditional enterprises, forcing them to alter to take advantage of new market opportunities. The effective utilization of dynamic capabilities is a critical factor in achieving successful digital transformation within the context of ISM. ISM is the discipline that deals with planning, developing, implementing, and managing information systems that support organizational goals and strategies (Laudon & Laudon, 2003). ISM is crucial in enabling digital transformation by providing the infrastructure, platforms, applications, data, and analytics that support the firm's digital initiatives. However, ISM also faces significant challenges in coping with digital technologies' complexity, uncertainty, and rapid change. Therefore, ISM needs to develop dynamic capabilities to adjust to the evolving technological landscape and deliver value to the business.

Having now a better idea of the concepts, we will discuss how incumbent firms can build dynamic capabilities for digital transformation by identifying and implementing specific routines that enable sensing, seizing, and reconfiguring activities. We will use a recent study by Ellström et al. (2022), who conducted interviews and focus groups with representatives of a company undergoing a digital transition and a consultancy firm with experience assisting

companies with such transformations. They identified six routines that are particularly pertinent for digital transformation:

- Cross-industrial digital sensing: This routine involves scanning the external environment for new digital technologies and trends that may affect the firm's industry or create new opportunities across sectors. It requires a broad perspective beyond the firm's current market boundaries and competitors. It also considers potential threats and opportunities from other sectors that may leverage digital technologies to enter or disrupt the firm's industry.

- Inside-out digital infrastructure sensing: This routine involves assessing the internal capabilities and resources of the firm concerning its digital transformation goals. It requires a thorough understanding of the current state of the firm's digital infrastructure, such as its IT systems, data sources, platforms, and applications, as well as its gaps and weaknesses that need to be addressed. It also involves identifying the key stakeholders and decision-makers within the firm who are responsible for or affected by the digital transformation initiatives.

- Digital strategy development: This routine involves formulating a clear and coherent vision and strategy for the firm's digital transformation that aligns with its overall business objectives and value proposition. It requires setting specific goals and priorities for the digital transformation initiatives, defining the scope and scale of the changes needed, and allocating resources and responsibilities accordingly. It also involves communicating the strategy effectively to all relevant internal and external parties, such as employees, customers, partners, suppliers, regulators, etc., and ensuring their buy-in and support.

- Determination of enterprise boundaries: This routine involves deciding on the optimal level of integration or separation between the firm's existing core business and its new digital business. It requires balancing the trade-offs between exploiting synergies, avoiding conflicts between the two businesses, and considering the implications for the firm's organizational structure, governance mechanisms, culture, and identity. It also involves choosing the appropriate modes of collaboration or competition with external actors, such as other incumbents, startups, platforms, etc., that may be involved in or affected by the firm's digital transformation.

- Decomposition of digital transformation into specified projects: This routine involves breaking down the firm's digital transformation strategy into manageable and measurable projects that can be executed agilely. It requires defining clear objectives, deliverables, timelines, budgets, and roles for each project and monitoring and evaluating their progress and outcomes. It also involves adopting a flexible and iterative learning, experimentation, and adjustment approach.

- Creation of a unified digital infrastructure: This routine involves integrating and harmonizing the various IT systems, data sources, platforms, and applications that support the firm's digital transformation projects. It requires ensuring the firm's digital infrastructure's interoperability, compatibility, security, and scalability and leveraging cloud computing, artificial intelligence, and other advanced technologies to enhance its performance and functionality. It also involves establishing clear standards, policies, and governance mechanisms for managing and maintaining the firm's digital infrastructure.

By implementing these routines, incumbent firms can build dynamic capabilities for digital transformation that enable them to respond effectively to changing customer needs, market conditions, and competitive pressures. Building dynamic skills, however, calls for ongoing monitoring, evaluation, and improvement. It is not an isolated exercise. Therefore, firms should also develop feedback loops that allow them to learn from their experiences, capture best practices, and identify areas for further development.

To illustrate how these routines work in practice, we can use some practical cases of companies like Bosch, which has developed a predictive maintenance solution that uses IoT sensors and machine learning algorithms to monitor the health of industrial machinery and has also launched a connected mobility platform that provides real-time traffic information and other services to drivers; or Nestlé that has developed a range of digital initiatives to improve its operations and customer experience, such as using blockchain technology to enhance supply chain transparency and launching a personalized nutrition program that leverages artificial intelligence and DNA testing, among multiple other companies that are in the race for maintain competitive in the digital field.

In conclusion, digital transformation is a complex journey that requires firms to develop dynamic capabilities. These capabilities enable firms to adapt to changing environments by sensing new opportunities, seizing them effectively, and reconfiguring their resources and processes accordingly. By implementing specific routines and continuously monitoring, evaluating, and improving their capabilities, firms can effectively navigate the challenges and opportunities of digital transformation.

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