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Leveraging Past IT Decisions in Future Strategy Cycles

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Article Abstract

The ubiquity of legacy computer systems as well as the rich and complex technological heritage of today's private and public organizations creates a context where IT decisions made in the past dictate present and future organizational decisions. This phenomenon, crystalized in various catchphrases such as "history matters" or "Bygones are rarely bygones," is particularly potent and has been observed to have both positive and negative bearings on an organization's performance. The objective of this paper is to explain why and how IT decisions from past strategy cycles impact future ones as well as provide insights to help organizations leverage with this influence.

LEVERAGING PAST IT DECISIONS IN FUTURE STRATEGY CYCLES

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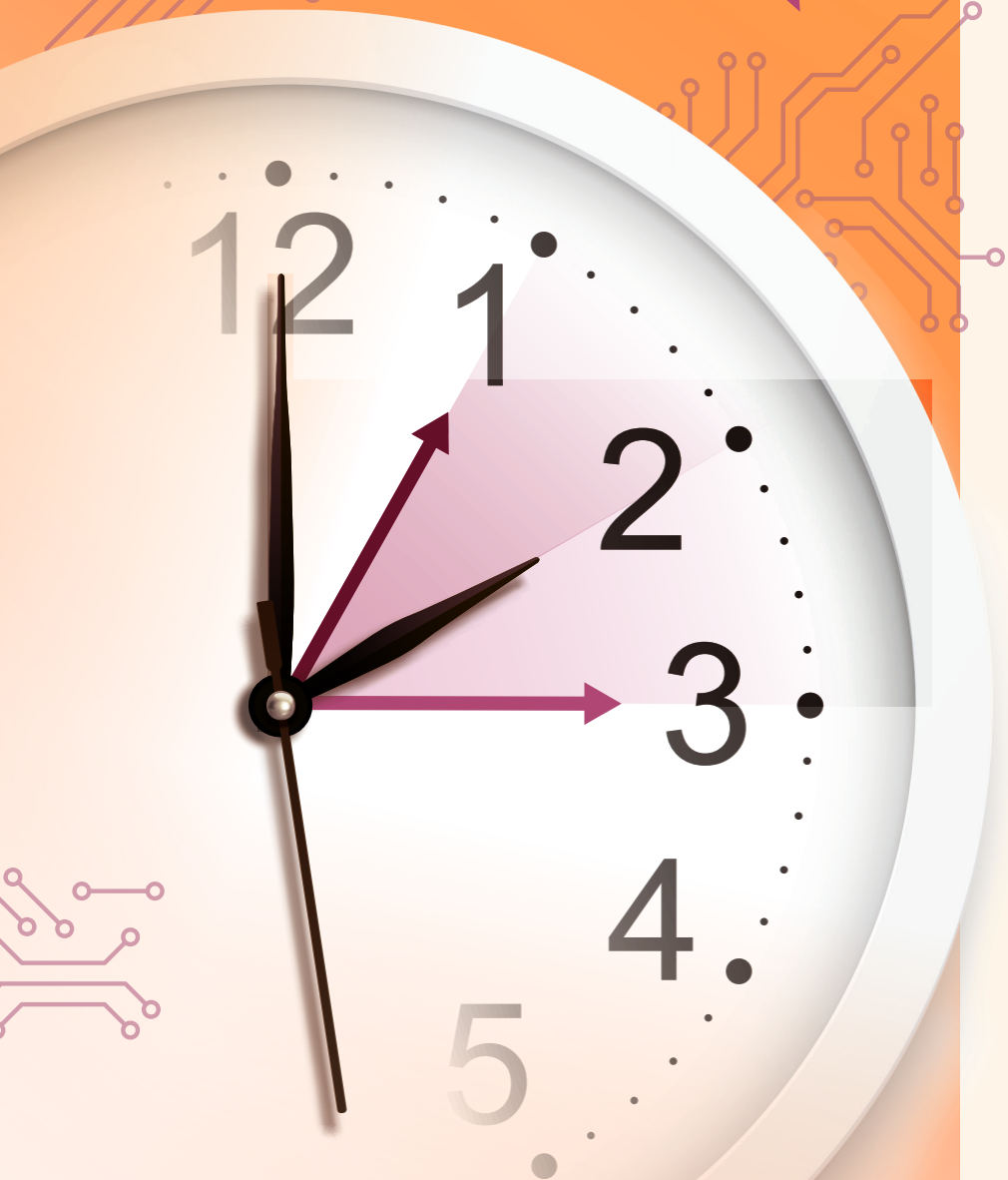
BY **PHILIPPE MARCHILDON** AND **PIERRE HADAYA**



The ubiquity of legacy computer systems as well as the rich and complex technological heritage of today's private and public organizations creates a context where IT decisions made in the past dictate present and future organizational decisions. This phenomenon, crystalized in various catchphrases such as "history matters" or "Bygones are rarely bygones," is particularly potent and has been observed to have both positive and negative bearings on an organization's performance. The objective of this paper is to explain why and how IT decisions from past strategy cycles impact future ones as well as provide insights to help organizations leverage this influence.

A strategy cycle consists of three key interconnected group of activities – formulate, implement, and execute strategy – that collectively allow an organization to address challenges and optimize the rewards of its strategic efforts (Hadaya and Gagnon, 2017). To ensure its long-term survival and success, an organization must repeatedly and effectively navigate this cycle, which restarts whenever its strategy is revised or updated throughout its history.

PATH DEPENDENCY THEORY TO EXPLAIN THE INFLUENCE OF THE PAST

Various theoretical frameworks (e.g., structural inertia, imprinting) from a wide range of disciplines have been proposed in the literature to elucidate how past events shape present and future organizational decisions. Among these, **path dependence theory (PDT)** stands out by offering valuable insights to organizations aiming to capitalize on this influence, shedding light on its origins and providing sound explanations for its positive and negative impacts.

Originating from studies in economics, PDT suggests that once a particular path – such as a technology, strategy, or behavior – is chosen, it creates a self-reinforcing trajectory that becomes increasingly difficult to alter over time (Arthur, 1989; David, 1985). Specifically, PDT posits that past

decisions and actions may trigger self-reinforcing mechanisms, eventually locking individuals or organizations on certain paths by generating increasing returns (Marchildon and Hadaya, 2022; Sydow *et al.*, 2009). It is for the pursuit of these increasing returns that organizations embrace self-reinforced paths or cycles and end up trapped by past decisions when making new ones.

PDT has three key elements at its foundation. First, a **contingent choice** that represents the initial conditions and random events that set the course by triggering one or more self-reinforcing mechanisms. Second, the **self-reinforcing mechanisms**, in the form of four effects – complementary, coordination, learning, and adaptive expectations – generate increasing returns. These returns then foster the emergence of a dominant action pattern by rendering potential alternatives uninteresting, thereby narrowing the range of choices to a point where the whole decision process is increasingly irreversible (more on these mechanisms in the next section). Third, the **lock-in** that ensues. As increasing returns grow over time, switching to alternatives becomes costly or even impractical. It is at this point, that an organization's flexibility in decision-making is lost and deeply influenced by past decisions.

As for the impacts of this phenomenon, the PDT literature highlights that they can be both positive and negative. Indeed, depending on context, organizations can be locked-on virtuous and/or vicious paths or cycles. As such, it is key for organizations to be mindful of the path or cycle they are on and, based on a sound understanding of market forces, to know when they should transform or leave it (Garud *et al.*, 2010).

THE MULTIFACETED INFLUENCE OF PAST IT DECISIONS ON FUTURE STRATEGY CYCLES

Over the past decade, we have conducted in-depth empirical research and provided advisory services to both private and public organizations to explore why and how IT decisions made during past strategy cycles impact future ones. Our findings confirm that the four mechanisms at the heart of PDT, along with the increasing returns they generate, account for this influence. This section details these mechanisms, offers specific examples to highlight their powerful multifaceted influence on future strategy cycles, and provides insights to help organizations leverage this influence.

Complementary Effects

Complementary effects happen when the benefits provided by a set of two or more discrete elements (i.e. resources, systems, rules and/or practices) are greater than the sum of the benefits provided by each of the elements in the set alone. To maximize these enhanced benefits, certain elements are often combined, explaining why past decisions that establish complementary pairings can shape future ones.

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The rise and fall of Blockbuster vividly demonstrates the potent impact of complementary effects. In the 1990s and early 2000s, Blockbuster dominated the video rental market thanks to its integrated IT ecosystem, which included store-based inventory management, point-of-sale systems, and supplier coordination tools. This system integration boosted inventory efficiency, secured favorable revenue-sharing agreements with suppliers, and strengthened customer loyalty. Yet, these IT decisions locked Blockbuster into a path where complementarities favored reinforcing existing systems over innovation during future strategy cycles. Consequently, when Netflix disrupted the market with DVD-by-mail in 1998 and streaming in 2007, Blockbuster stayed tethered to its physical media ecosystem and an outdated business model, leading to its decline.

As illustrated in the Blockbuster example, organizations can leverage complementary effects to their advantage in future strategy cycles in several ways. First, they can create synergies between their assets, physical and/or digital. For instance, throughout several strategy cycles Nike combined physical products like Nike+ shoes with apps such as The Nike Training Club (NTC) and Nike Run Club (NRC), creating a synergy that today strengthens sales and customer loyalty.

Second, organizations may leverage data across operations. For instance, over multiple strategy cycles, Netflix has developed a sophisticated capability to collect detailed viewing data (e.g., titles watch, pause points, completion rates) from its vast customer base. Today, this data can be repurposed to create content, optimize streaming, and improve marketing, thereby creating a personalized offering that enables the company to cut churn, increase revenue, and diminish bandwidth costs.

Third, organizations can form partnerships with complementary entities. For example, throughout its numerous strategy cycles, Apple has developed an expertise in forming and maintaining key partnerships with partners to reach its growth objectives while minimizing capital investments (e.g., Hon Hai Precision Industry to manufacture and assemble iPhones and iPads, Taiwan Semiconductor Manufacturing Company to design Apple's new proprietary processors, and Nike to first leverage the iPod and later the Apple Watch in the Nike+ strategic initiative).

Coordination Effects

By creating an ecosystem comprised of an ensemble of technological components (e.g. hardware, devices, software), past IT decisions foster the emergence of technological standards or key common denominators that enable seamless component interaction. However, these standards also create barriers to change, as only compatible components can join the ecosystem, influencing future decisions.

Nokia's experience with Global System for Mobile Communications (GSM) highlights the power of coordination effects. In the early 1990s, GSM emerged as a critical standard for mobile communication across Europe and beyond, and Nokia, a key contributor to its development, rode this wave to become the world's top mobile phone maker. Yet, Nokia's deep ties to GSM became a liability during future strategy cycles when competitors and consumers shifted toward open, app-centric ecosystems that favored software innovation over hardware dominance, a trend Nokia underestimated. Nokia's journey illustrates the dual nature of aligning with technological standards; its GSM-compatible phones initially unlocked a vast global market, but clinging to outdated standards while ignoring emerging ones ultimately led to its downfall.

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As illustrated in the Nokia example, organizations can leverage coordination effects to their advantage in future strategy cycles in several ways. First, they can use standards to lock-in users. For example, across multiple strategy cycles, Apple's ecosystem – comprising its proprietary hardware and software – has progressively evolved to lock-in users, raising the cost and inconvenience of switching to or incorporating competitors' solutions.

Second, organizations may take advantage of established standards when launching new products or services. Rather than creating its own proprietary operating system, Samsung, for example, capitalized on the Android platform during earlier strategy cycles with the launch of its Galaxy smartphone series. By leveraging an existing ecosystem – complete with Google Play Store's vast app library, a robust developer community, and widespread user familiarity – Samsung gained immediate compatibility and scale, securing the success of its initial Galaxy lineup and setting the stage for future strategy cycles.

Learning Effects

Learning enhances our ability to perform tasks quickly, reliably, and with fewer mistakes, making actions that build on these skills appealing for their effectiveness and efficiency. However, because learning is limited to existing systems and technologies, IT decisions made in past strategy cycles limit learning possibilities (and thus IT decisions) during future strategy cycles.

BlackBerry's journey in the mobile device market powerfully showcases the impact of learning effects. From the late 1990s to the early 2000s, the company thrived by building expertise in 1) secure, real-time email delivery, 2) seamless keyboard-operating system integration, and 3) efficient data compression and network performance. This mastery positioned BlackBerry as the benchmark for enterprise users, generating $20 billion in revenue by 2011. Yet, these IT choices cultivated an expertise so narrowly focused on secure, keyboard-driven devices for business users that it obscured the shift to consumer-focused, app-centric smartphones. This limited perspective steered its future strategy cycles, triggering a steep fall.

As illustrated in the Blackberry example, organizations can leverage learning effects to their advantage in future strategy cycles in several ways. First, they can refine core processes. For instance, Toyota spent decades optimizing its assembly lines with its Kaizen system that refines car-making efficiency by using insights from models introduced during previous strategy cycles. This enabled Toyota to drastically reduce the costs and improve the quality of its vehicles over the years.

Second, organizations can build on existing knowledge and skills to effectively and efficiently develop adjacent offerings. For instance, Salesforce's early success with Sales Cloud allowed the company to develop a strong expertise in cloud delivery, customization, and system integration. Salesforce then leveraged this expertise during later strategy cycles to both extend its offerings with the development of its Service Cloud and Marketing Cloud as well as accelerate these launches by capitalizing on existing technologies and a trusting customer base.

Adaptive Expectations Effects

The mechanism of adaptive expectations hinges on the idea that our preferences are shaped by those of others. Given our lack of perfect foresight, we form expectations about the future based on past experiences and events, gradually adjusting them as new information emerges. Consequently, as more individuals adopt a specific product or service, its appeal grows. This means that historical outcomes inform our predictions, which then guide our choices in future strategy cycles, establishing a feedback loop that reinforces and amplifies prevailing trends.

Kodak's ascent and decline as a leading film and camera provider powerfully illustrates the influence of adaptive expectation effects. Kodak's success stemmed from its anticipation of sustained film demand, a logical forecast rooted in a century of steady growth in film and camera sales. In response, the company incrementally refined its products throughout subsequent strategy cycles to align with customer expectations and built on its historical triumphs. This approach propelled Kodak to dominance in the industry from its founding in 1888 through the early 2000s. However, this same reliance on past patterns blinded Kodak to the disruptive rise of digital cameras. As a result, its sales collapsed, culminating in the company's bankruptcy filing in 2012.

As illustrated in the Kodak example, organizations can leverage adaptive expectation to their advantage in future strategy cycles in several ways. First, they can educate stakeholders to shape their expectations. Tesla used

THE MECHANISM OF ADAPTIVE EXPECTATIONS HINGES ON THE IDEA THAT OUR PREFERENCES ARE SHAPED BY THOSE OF OTHERS. GIVEN OUR LACK OF PERFECT FORESIGHT, WE FORM EXPECTATIONS ABOUT THE FUTURE BASED ON PAST EXPERIENCES AND EVENTS, GRADUALLY ADJUSTING THEM AS NEW INFORMATION EMERGES. CONSEQUENTLY, AS MORE INDIVIDUALS ADOPT A SPECIFIC PRODUCT OR SERVICE, ITS APPEAL GROWS.

this practice to great effect by first educating stakeholders about the ins and outs of EVs when it launched the Roadster in 2008 and the Model S. Building on this groundwork, Tesla continued to shape stakeholder expectations in later strategy cycles by relying on high-profile endorsements, viral launch of products (e.g., the Cybertruck reveal), and long waiting lists to amplify the sense of a growing movement for its products and services. As a result, Tesla created a momentum that pulled in buyers and pressured rivals to enter the electric vehicles (EV) market, turning the company into a status symbol and setting the stage for future strategy cycles.

Second, organizations can present new products or services as a natural extension of their existing offerings (theirs and those of competitors). In doing so, organizations can use past successes to set positive expectations about their new products or services. Adobe adeptly applied this practice to shape expectations with the launch of subscription-based Creative Cloud in 2013. The company positioned this new solution as a natural progression of its established offerings from previous strategy cycles, leaning on its decades-long reputation for delivering dependable, industry-leading software to instill confidence in users. Consequently, the shift to a subscription model succeeded, as users – trusting in Adobe's history of quality and consistency – experienced the transition as seamless rather than jarring.

The Interplay of Self-Reinforcing Mechanisms and Their Cumulative Impacts

While earlier examples each highlight a single mechanism for clarity, these effects – complementary, coordination, learning and adaptive expectations – often intertwine in practice. Amazon's rise exemplifies the combined and cumulative influence of these self-reinforcing mechanisms across the strategy cycles the company has undergone over the past 30 years. For example, the complementarity between Amazon Web Services (AWS) and Prime enabled Amazon to evolutionarily diversify its activity. In addition, the shared technological foundations across its vast operations drove economies of scale and efficiency gains, while decades of e-commerce and tech expertise fuelled strong yet steady growth. In addition, Amazon managed to leverage past success to set positive expectations among customers, employees, and investors. Together, these forces shaped Amazon's strategy cycles, transforming an online bookstore into a $1.6 trillion empire by 2023.

CONCLUSION

We wrote this paper to help strategists leverage the influence of past technology decisions in their current and future strategy cycles. To do so, we explain four mechanisms – complementary, coordination, learning and adaptive expectations effects – through which past decisions interfere with organizational decision-making processes and provide insights to help organizations take advantage of these mechanisms to repeatedly and effectively navigate strategy cycles over time. Still, our research efforts continue with the aim of providing useful guidelines to help organizations master this important phenomenon.

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