



“Shifting the controller paradigm: Some reflections”

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SHIFTING THE CONTROLLER PARADIGM: SOME REFLECTIONS

Abstract

The control domain is undergoing a significant transformation due to societal demands and technological progress, particularly in the field of AI. This change creates uncertainty and marks a fundamental shift in how control is managed. Key changes require trust, a thorough understanding of technology, a flexible organizational structure, and vigilant monitoring of societal developments. The traditional role of the controller is likely to decrease, as many responsibilities are being shared across multidisciplinary teams within organisations in a more interdisciplinary way.

AI systems can cause a paradigm shift in the financial and organizational spheres. Paradigm shifts are more than just a change in strategy or working methods; they are a fundamental transformation in how we perceive and interpret organizations.

This article presents a crucial inquiry: Do these ongoing transitions represent incremental change, or do they indicate a fundamental, revolutionary transformation within the control domain? Gaining insight into these trends is vital for organizations as they navigate these changing landscapes, where agility and proactive adaptation to external dynamics are essential for sustained success.

Keywords

controlling, paradigm shift, AI, digital technology

JEL Classification

M41, O33

INTRODUCTION

Today's control domain is based on several key premises, defined by three essential components: the efficiency of financial processes, the safeguarding of business integrity, and the development of strong reporting systems. These guiding principles – business economics, technical efficiency, and managerial control – are widely recognized and respected across industries.

However, external developments are fundamentally transforming these principles. Although this discussion may not cover every detail, it highlights an undeniable shift that could significantly alter organizational strategies. Understanding these trends is crucial for redefining the control domain and its functions, particularly in light of the rapid progress in artificial intelligence (AI).

The rise of AI applications is significantly transforming organizational landscapes. The World Economic Forum (WEF, 2023) identifies technology as one of the most influential forces shaping the future of work. Innovations such as advanced technology, AI, robotics, and algorithms are not just changing the nature of work; they are revolutionizing the fundamental processes that support it. To succeed, companies must adapt their workplaces, redefine skills, and develop professional roles and knowledge bases. The driving forces behind these changes are twofold: the integration of technology as a catalyst for progress and the emergence of major societal shifts. Together, these factors create an environment of increased uncertainty within the control domain, reducing the predictability of standard tasks.

This article poses an important question: Are these changes merely gradual, or do they signal a fundamental, revolutionary shift? If the latter is accurate, we are on the brink of a transformative new era within the control sphere.

1. CHANGE IN THE CONTROL DOMAIN

As highlighted, the control domain is undergoing significant upheaval. The evolving profile of controllers reflects these shifts, revealing an expanded set of responsibilities. The controller's role, once viewed as a basic business partner, is transforming into a crucial, value-adding function. This change is notable as controllers redefine themselves from 'bean counters' to essential information brokers equipped with broad professional expertise. Furthermore, the influence of stakeholders beyond traditional boundaries is increasingly shaping the content and purpose of the control function.

Many scenarios and predictions are being shared, illustrating a wide range of possible futures. However, organizations must develop the agility to manage the uncertainty that comes with this period of transformation. Our reality is characterized by inherent uncertainty, making it essential for organizations to actively adopt agile practices in their operations.

These developments are not only enlarging the scope of the control domain; they are also introducing new responsibilities that demand exceptional adaptability. The rising need for prompt information propels the controller's evolution into a versatile role, acting both as a strategic business partner and an information broker. With the widespread influence of information and communication technology (ICT), controllers must work more closely than ever with other organizational members. These new social dynamics are fundamentally changing the traditional frameworks within which the control domain has operated.

In conclusion, the current control domain relies on several fundamental premises, encapsulated within three specific and functional components: the efficiency of financial processes, the protection of business integrity, and the effective management of these processes through reporting. These

guiding principles – business economics, technical efficiency, and managerial control – are not just universally accepted; the realities of our rapidly changing world are now challenging them.

As change occurs, the controller domain is gradually adapting to external social influences, including comprehensive EU obligations, such as the Corporate Sustainability Reporting Directive (CSRD), which addresses various environmental aspects, and the Corporate Sustainability Due Diligence Directive (CSDDD). These emerging regulations are reshaping the landscape of the control function, emphasizing the urgent need for organizations to redefine their approach to control in this new era. They require a proactive adoption of agile practices within organizational operations.

Ultimately, these developments are widening the scope of the control domain, introducing new activities that require adaptability. The increasing need for timely information drives the controller's evolution into a more versatile role, acting as a business partner and information broker. With the widespread influence of ICT, controllers will need to work more closely with others within the organization. Therefore, it is clear that these emerging social dynamics are transforming the traditional frameworks within which the control domain functions.

The current control domain is based on several key core principles, expressed through three distinct, separate, and functional 'building blocks': the efficiency of the financial process, safeguarding the integrity of the business, and ensuring that these processes are managed with proper reporting. These guiding principles - business economics, technical efficiency, and managerial control - are universally recognized.

Ultimately, the fundamental question posed in this article is whether these changes are merely marginal or fundamental. If the latter is the case, it will lead to a paradigm shift in the control domain.

As mentioned earlier, the control domain is experiencing gradual changes. Moreover, developments in the profile of the controller are also perceptible as a logical result of these changes in the control domain (WEF, 2023). Generally, the role of the controller as a typical business partner includes a significant value-adding component. Many traditional responsibilities of the controller are evident (Sathe, 1983). For example, the controller's role is shifting from the conventional 'bean counter' to an information broker with a broad professional background (Nijenrode, n.d.). It is also observed that the inclusion of interests beyond the traditional 'stakeholders' in organizations is increasing and will impact the function and scope of the control domain (Getkate & de Vries, 2012).

Various scenarios are circulating; some may make predictions, while others attempt to explain events. However, organizations will need to increasingly learn how to cope with the uncertainty resulting from these events. The world is inherently uncertain, and that involves a certain level of information uncertainty that we must accept or embrace through agile organizational practices in our business activities.

All of the above developments originate from the current view of the control domain to which new activities are being added. This also expands the controller's focus. This can be attributed to the emerging information needs of management or the controller as a business partner or information broker. This suggests that, due to the widespread influence of ICT, the controller must share their traditional domain with others within the organization (TIAS, 2023). It can also be concluded that these social developments mainly continue to occur within the conventional control domain.

The research showed that in the early 1980s, significant attention was paid to the potential effects of new technologies, referred to as the Third Industrial Revolution, on the quality of work. Expectations, such as 'the end of the division of labour,' were not fulfilled (Pot, 2024). Efforts by employee representatives and their advisors to influence technological innovation processes rarely produced concrete results. It thus appears that, at first, the impact of technology did not play a significant role during that period.

Now, due to its far-reaching influence, what the World Economic Forum (WEF, 2023) has called the 'Fourth Industrial Revolution' revolves around the fruits of ICT, or digital technology (DT), which will be further incorporated into all aspects of society. ICT is the infrastructure we know and is predictable. DT is a tool like AI that operates on the infrastructure and can be unpredictable.

2. AI DEVELOPMENTS AND APPLICATIONS

Recently, we have been inundated with stories about AI and its future impact (Mucci, 2024). Several articles have also emphasized AI applications in the control sector (Ministry of Economic Affairs, n.d.; Controllers Magazine, 2025). This is why this technology has such a profound effect on organizations, the people within them, and society as a whole. Of course, not all societal issues can be tackled with AI. The barriers are mostly not technological but primarily economic and organizational. Implementing change processes and fostering cultural shifts requires considerable time and effort (Goedhart, 2023).

What are the predictions for AI applications? The value lies in the use of 'machine learning'.

Algorithms and statistical techniques are used to analyze historical data and make informed predictions about future events. AI is already making significant progress with financial dashboards and tools, such as Copilot for Finance and Joule in SAP, for predictive analytics.

Instead of removing human input, the future of AI depends on collaboration between humans and machines. AI provides data and suggestions, while humans retain control over key strategic and decision-making processes. This partnership between humans and machines is known as the 'human-in-the-loop' approach and is vital for AI's long-term success.

It turns out that introducing AI systems can cause a paradigm shift. This is not only relevant to the subject of this article but also to society. The reason AI can lead to a paradigm shift is due to the fundamental changes this technology provides.

3. PARADIGM SHIFT?

A paradigm is the system of models and theories that, within a specific scientific discipline, provides the framework for analyzing and describing reality. In the control domain, the prevailing paradigm is generally accepted, such as the pursuit of technical efficiency and managerial control (Vosselman & Aernoudts, 2021; Dhar, 2024).

The renowned philosopher of science Thomas Kuhn described the progressive development of knowledge as a series of paradigms (Kuhn, 1962). When using the scientific method, observations often arise that do not fit into existing models or paradigms, known as anomalies. For a time, it is possible to incorporate these new observations through minor adjustments to a model. However, sometimes these cumulative adjustments strain a model, making it less elegant and revealing many exceptions or unique cases. At such moments, a new set of hypotheses can emerge, a new paradigm that explains all previous observations in a different light. A group of scientists, or in our case, practitioners such as controllers, will form around this new theory, supporting its view. However, resistance to this change will also develop; this latter group will continue to defend the old practices (Markensteijn, 2019). If the new developments prove successful and garner increasing support, this constitutes precisely a paradigm shift.

Ultimately, a paradigm shift is more than just a change in strategy or working methods; it is a fundamental transformation in how we perceive and interpret the financial and organizational sphere. Literature indicates several signs of changes or adjustments in the overall financial function or in the control domain itself. The question arises whether these observed developments are specific to that domain, requiring adjustments to the original approach and perspectives, or whether they are of such a nature that they could lead to a paradigm shift (Romme & Van Olfen, 1994; AB Magazine, 2024; Dalio, 2019; Baker & Filbeck, 2015).

The fundamental question is whether all these technological developments lead to a paradigm shift. To evaluate this, follow these steps. The tra-

ditional control domain is built from the ‘building blocks’ mentioned earlier to ensure technical efficiency and managerial control. This, therefore, forms the current paradigm. This paradigm is no longer sufficient because it does not account for the benefits of the DT. For instance, a new software package is introduced that immediately generates journal entries, enabling faster and more accurate reporting. This development is a marginal addition to current ICT technology, but not a fundamental change. The ‘building blocks’ remain unchanged and therefore cannot be considered a paradigm shift. Another example: an organization adopts a new, advanced HR system. This system not only tracks hours spent on a project but also directly links with payroll administration. Likewise, this does not result in a fundamental change.

The above references ultimately suggest only minor changes; no significant fundamental changes are yet occurring in the control domain or its function. These observed developments cannot yet be regarded as a paradigm shift, as the core of the control domain remains unchanged, with the current three separate ‘building blocks’ still in place. The dominant rationality, with its focus on technical efficiency and managerial control, has remained constant, even with the inclusion of the traditional factor of technology.

Another example is the introduction of robotization in financial administration (KPMG, 2016). This indeed represents a paradigm shift compared to traditional processes. Robotization does not aim to automate the entire financial business process. Instead, it concentrates on automating those parts of the business process that are not yet automated in the source system and still require manual intervention. Robot automation focuses on the user interface between humans and the system, enabling seamless interaction. Knowledge of source code and programming languages is not necessary. With a traditional system, users must be thoroughly familiar with the source code and programming language to make system changes. Robotization uses only the output of the source system (computer screens, data in the database). A robot (software) can therefore quickly and inexpensively add functionality to an existing computer system. It also emphasizes

the user interface and available data in the database rather than the back end (the source code) of the system. This makes it relatively easy to integrate functions from different systems (which are based on distinct codes and programming languages). Robotization also offers a higher degree of customization compared to traditional automation.

In a traditional financial computer system, instructions are encoded in the algorithm so that each task and step is carried out in sequence within the business process. For instance, consider an accounting program like SAP. Extensive knowledge of the accounting process, the source code, and the programming language is required to make functional changes to the system. Similarly, the entire system must be thoroughly tested to ensure that the software modification does not produce side effects on other components. In this example, the relationships between the building blocks are redefined. The main point is the integration of individual and functional building blocks into a dominant ICT or DT component, which serves as the organization's backbone.

In summary, it can be said that the dividing line between a marginal or fundamental change is indicated by the ability of the interdisciplinary combination of three factors: 'sense', retrieving data, which a traditional system can also do; 'think', applicable through AI; and 'act', performing actions, for example, in robotization.

4. CRITERIA FOR A PARADIGM SHIFT IN THE CONTROL DOMAIN

The examples provide some clarity on when a marginal or fundamental change in the control domain occurs; however, a framework needs to be established. First, it is essential to explain why organizations strategically choose either a marginal or a fundamental change in the control domain. This decision is crucial for achieving the intended goal. Some organizations are so heavily reliant on ICT that they must always incorporate that technology. These external technological developments mark a shift from mechanistic, linear thinking to holistic,

systemic thinking. This shift has significant consequences for how we solve problems, organize structures, and collaborate.

The criteria for recognizing a paradigm shift in the control domain are as follows:

- The core is the fundamental shift from control to trust. As mentioned above, this perspective is crucial to how organizations are structured, leadership is exercised, and collaboration is established. This, in turn, represents the actual transformation of the control function.
- Embrace the key role of integrating technology into organizations. Technology acts as the primary driver of lasting change and, consequently, economic growth.
- Transitioning from a functionally structured organization ('silo structure') to a functional, interdisciplinary matrix organizational structure. Integration between the functional organizational units, using familiar 'building blocks', is central to this. The control domain will increasingly evolve from a functional discipline into an integral part of the (matrix-) organizational structure. The control function will, in effect, be fragmented across other organizational units.
- Monitoring external social developments that influence organizations and ultimately determine their chances of survival.

Organizations monitor these external developments and must respond strategically to understand the implications of these changes. This can only be achieved by planning change and leading the process. This may result in (digital) concerns for those involved. A straightforward communicative approach can help alleviate these concerns (Van Slooten et al., 2022).

What will the profile of the future controller be? Others will assume parts of the role within the organization in an interdisciplinary way. The uniqueness of the current controller will gradually fade. However, there will always be someone whose secondary task is to continue monitoring external financial and organizational developments.

CONCLUSION

The control domain is experiencing significant change due to technological advancements and societal demands, necessitating a shift in the controller's role from conventional tasks to a more dynamic, interdisciplinary approach. This development underscores the urgent need for organizations to embrace agility and redefine their strategies to manage the challenges of a rapidly shifting landscape, ultimately signalling a potential paradigm shift in how control is understood and applied.

The future of the control domain looks promising if organizations and controllers are willing to adapt to change. The rapid development of technology and AI presents both challenges and exciting opportunities for innovation. Controllers will need to adopt a more flexible mindset, working closely with interdisciplinary teams and stakeholders across the organization. Trust, adaptability, and communication will become just as important as technical skills. By fostering a culture of continuous learning and openness, organizations can turn uncertainty into progress. The evolving role of the controller is not about losing relevance but gaining fresh influence as a strategic partner. Human insight, creativity, and ethical judgment will remain vital in guiding organizations through complexity. Those who embrace new tools and perspectives will help shape a more resilient and future-ready control domain. Moving forward, collaboration and curiosity will be key to unlocking success. Let us approach these changes with optimism, knowing that together, we can redefine what it means to lead and support organizations in a rapidly changing world.

AUTHOR CONTRIBUTIONS

Conceptualization: Dirk Swagerman.
Formal analysis: Dirk Swagerman.
Methodology: Dirk Swagerman.
Supervision: Dirk Swagerman
Validation: Dirk Swagerman
Writing – original draft: Dirk Swagerman
Writing – review & editing: Dirk Swagerman.

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