

Using Lessons from the COVID-19 Crisis to Move from Traditional to Adaptive IT Governance

IT played a central role in ensuring corporate survival during the COVID-19 crisis, which accelerated changes in many areas, including IT governance. Specifically, traditional formal IT governance was complemented by relational governance to ensure quick and flexible decision-making. Based on a study of how IT governance changed during the crisis in companies operating in regulated industries, we provide recommendations for incorporating successful elements from crisis-mode IT governance to create adaptive governance that enables faster and more flexible IT decision-making without jeopardizing compliance with regulations.¹

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"Who digitized the company? The CEO, the CIO, the CTO or the CDO? It was 'Mr. COVID;' he achieved what we tried for a long time ..." CIO, Professional Services

Traditional IT Governance Is Not Suitable in Times of Crisis

The COVID-19 pandemic affected corporations all over the world, placing them in a state of crisis. Although the consequences were mainly negative, some developments were apparently for the better, as social distancing and lockdowns provided an unprecedented push for digital transformation in the corporate world.

During a crisis, corporations need to act much quicker and more flexibly than in normal times. In the specific case of the COVID-19 pandemic, IT decisions were affected, in particular. The existing IT governance structures needed to be adapted to ensure that crucial decisions were made quickly and effectively.

The primary purpose of IT governance is to ensure that IT delivers business value for the organization by defining "the decision rights and accountability framework to encourage desirable behavior in the use of IT."² Its overall aim is to achieve the effective use of IT and the best possible allocation of IT investments through a strong focus on the alignment of business



¹ Ulrike Schultze and Hope Koch are the accepting senior editors for this article.

² Weill, P. and Ross, J. W. *IT Governance: How Top Managers Manage IT Decision Rights for Superior Results*, Harvard Business School Press, 2004, p. 8.

and IT strategy.³ Unfortunately, business/IT alignment is traditionally a major challenge in parts, because “the business” comprises a diverse set of stakeholders from various business functions, often with conflicting interests and diverging requirements and different attitudes toward risk/benefit structures.⁴ Consequently, companies have developed ever-more sophisticated IT governance systems to accommodate the needs of the various stakeholders and their divergent requirements.⁵

All too often, these IT governance systems have evolved into what Gregory et al.⁶ refer to as “functional IT governance,” which is characterized by excessive formal control mechanisms to manage the scope of the IT function, IT assets and microlevel tasks, such as initiating a project or ordering IT products. Such IT governance systems are designed to control the IT function’s established role as supplier of efficient and reliable services, which are often measured against service levels and costs.⁷ Functional IT governance systems are control-oriented and designed to avoid business risks through tightly integrated compliance rules. These systems work well in stable environments but are not suitable in times of crisis, when decisions need to be made quickly and flexibly.

Even before the COVID-19 pandemic, scholars were calling for the role of the IT department to be rethought in order to accommodate the need for increased IT agility driven by digitization

and digitalization.⁸ However, the COVID-19-induced crisis made traditional ways of working increasingly difficult, if not impossible. IT departments were in the spotlight and needed to act with extraordinary speed to keep their organizations operational. Consequently, the need to rethink the role of IT became more urgent than ever before.

To enable the IT function to step up to the task, businesses all over the world switched to “crisis mode,” relaxing formal IT governance rules and empowering small groups of decision makers. IT departments made use of the new freedom and often delivered better-than-expected results. Many business executives were full of praise for the way their IT departments responded to the crisis, something previously unheard of.⁹

From our analysis of these positive experiences during the COVID-19 crisis, we argue that the IT governance systems that have grown over time need to be reviewed and adapted for the post-crisis era. We examined how the IT departments of nine international companies that operate in highly regulated industries were governed pre-COVID, during the pandemic (i.e., in crisis mode) and when they started shifting back to normal business toward the end of the crisis. (To preserve their anonymity, the nine companies are referred to by pseudonyms. The research methodology for this study is presented in the Appendix.)

We found that the temporarily relaxed formal IT governance rules, complemented by close interactions among stakeholders and an emphasis on interpersonal norms such as trust, greatly contributed to positive outcomes such as agility in decision-making and harmonization of IT and business domains. Our analysis identified three mechanisms for adapting IT governance systems that enabled IT departments to successfully address the challenges of the crisis:

1. Leaner decision-making structures
2. Increased influence of IT experts in decision-making

3 Previous research has indicated how strategic alignment mediates the effectiveness of IT governance on organizational performance and shows how organizational value is created through IT governance mechanisms. See Wu, P.-J. S., Straub, D. W. and Liang, T.-P. “How Information Technology Governance Mechanisms and Strategic Alignment Influence Organizational Performance: Insights from a Matched Survey of Business and IT Managers,” *MIS Quarterly* (39:2), June 2015, pp. 497-518.

4 Heinrich, R. P. *Complementarities in Corporate Governance*, Springer, 2002, p. 2.

5 Wu, P.-J. S., Straub, D. W. and Liang, T.-P. op. cit., June 2015, pp. 497-518.

6 Extant research in the context of IT consumerization shows how the widespread adoption of digital technology in everyday use can result in misalignments which then propagate into the transformation of IT governance. See Gregory, R. W., Kaganer, E., Henfridsson O. and Ruch T. J. “IT Consumerization and the Transformation of IT Governance,” *MIS Quarterly* (42:4), December 2018, pp. 1225-1253.

7 This article considers bimodal IT, where the *traditional* mode focuses on stability and the *agile* mode on the speed and experimentation necessary to support innovative uses of IT. See Hafke, I., Kalgovas, B. and Benlian A. “Options for Transforming the IT Function Using Bimodal IT,” *MIS Quarterly Executive* (16:2), June 2017, pp. 101-120.

8 Ibid.

9 For a study on the development and sustainability of a firm’s IT capability reputation from the perspective of senior IT executives, see Lim, J.-H., Stratopoulos, T. C. and Wirjanto, T. S. “Sustainability of a Firm’s Reputation for Information Technology Capability: The Role of Senior IT Executives,” *Journal of Management Information Systems* (30:1), Summer 2013, pp. 57-96.

Table 1: Key Questions of IT Governance

Who decides?	What is decided on?	How are decisions made?
The structure of decision-making bodies and their respective decision-making power	The issues and areas the respective decision-making body is empowered to decide upon	The procedures and criteria for decision-making (meeting cycles, documents, etc.)

3. Enhanced social interaction, complementing formal controls.

We also identified the specific characteristics of these three mechanisms that enabled IT to deliver superior business value in these turbulent times.

We believe that companies can benefit from incorporating these mechanisms post-crisis into an adaptive IT governance system that will enable them to increase business value from IT through shorter decision-making cycles, more flexibility in decision-making, better fitting solutions and less human effort, resulting in lower costs.

Principles of IT Governance

Governance of corporate IT departments is an integral part of corporate management and strategy execution. IT governance concerns the roles, responsibilities and procedures related to IT decision-making and aims to ensure that IT investments contribute to business value and the effective use of IT.¹⁰ Several studies have shown that “top-performing enterprises succeed where others fail by implementing effective IT governance to support their strategies.”¹¹

IT governance systems are typically organized around the three questions formulated by Weill and Ross (see Table 1).¹²

When businesses organize their IT governance systems around these three key questions, there are two basic modes of governance they can use—formal and relational. While formal governance relies on written rules and controls

as safeguards against hazards, relational governance is based on interpersonal norms such as trust. Table 2 provides a comparison of these two modes. As shown in the table, formal and relational governance mechanisms are complementary and, according to Poppo and Zenger, successful corporations use a well-balanced mix of the two modes.¹³

Over the past several years, many IT governance systems have become ever more control-oriented, especially if the business operates in a highly regulated sector such as financial services, healthcare or auditing. The number and granularity of regulatory rules and specific laws, as well as firm-specific compliance rules, have continuously increased. Examples include:

- Regulators increasing their requirements in response to major cases of corporate misconduct (e.g., the Sarbanes-Oxley Act following the Enron and WorldCom scandals) and to prevent systemic risks that could cause an economic crisis (e.g., the Dodd-Frank Act following the financial crisis of 2008)
- Board members having the legal responsibility for ensuring the implementation of measures to satisfy all rules and regulations; in many jurisdictions, they are personally held accountable if they fail to do so
- Businesses responding to these developments by developing internal compliance systems with sophisticated and complex sets of rules to ensure that legal and regulatory requirements are met, and also to avoid business risks.

10 Previous research investigated how contingency forces influence the mode of IT governance and showed which spheres of IT activity such as project management are associated with the modes of corporate IS, divisional IS or line management. See: 1) Sambamurthy, V. and Zmud, R. W. “Arrangements for Information Technology Governance: A Theory of Multiple Contingencies,” *MIS Quarterly* (23:2), June 1999, pp. 261-290; and 2) Wu, P.-J. S., Straub, D. W. and Liang T.-P. op. cit., June 2015.

11 See, for example, Weill, P. and Ross, J. W. op. cit., 2004, p. 4.

12 Ibid.

13 Table 2 draws on previous research into the characteristics of formal and relational governance that shows their relationship is complementary. See Poppo, L. and Zenger, T. R. “Do Formal Contracts And Relational Governance Function as Substitutes or Complements?” *Strategic Management Journal* (23:8), August 2002, pp. 707-725.

Table 2: Comparison of Formal and Relational Governance Modes

	Formal Governance	Relational Governance
Definition	Formal governance occurs through written rules that are assembled into contracts.	Relational governance occurs through social processes that promote norms of flexibility, solidarity and information exchange.
Building Block	Contracts codify promises or obligations to perform particular actions in the future.	Social processes involve expectations of future exchanges that prompt cooperation in the present, such as joint action, problem solving across parties, and the willingness to share information, plans and goals.
Function of Building Block	Contracts encompass remedies for foreseeable contingencies, or specify processes for resolving unforeseeable outcomes, and act as safeguards against hazards.	Social processes use interpersonal norms (e.g., trust) as safeguards against hazards not accounted for in formal agreements.
Problem Areas	Contracts can become complex with high levels of detail and are costly to craft, control and enforce. Moreover, they may signal distrust and encourage, rather than discourage, opportunistic behavior.	Relational governance is less costly than complex contracts once partners have developed a trustworthy status. However, the latter requires time and resources, and may restrict access to new exchange partners.
Complementarity	In contrast to complex contracts, well-specified contracts may actually promote more cooperative, long-term, trusting exchange relationships by increasing the penalties that accompany severing an exchange relationship and may narrow the domain and severity of risk to which an exchange is exposed, thereby encouraging cooperation and trust.	The continuity and cooperation encouraged by relational governance may generate contractual refinements that further support greater cooperation. Relational governance may heighten the probability that trust and cooperation will safeguard against hazards poorly protected by the contract. Relational governance may also help overcome the adaptive limits of contracts: a bilateral commitment to continue despite unexpected complications and conflicts.

Businesses usually engage specialized lawyers to ensure that their internal control systems are set up to avoid the risk of senior executives being held liable if problems arise. This has led to the development of IT governance systems that are more oriented toward formal than relational governance. These control-oriented functional IT governance systems are characterized by lengthy decision-making cycles, low flexibility and risk avoidance.¹⁴ While functional IT governance

may work well in stable environments, it is not suitable for times of crisis, when decisions need to be made quickly and flexibly. We discuss below how businesses can adapt their IT governance systems in preparation for operating in crisis mode.

Disaster Response Planning Prepares for a Crisis

Good business practices require companies to have plans in place to respond to unforeseen

¹⁴ Gregory, R. W., Kaganer, E., Henfridsson, O. and Ruch, T. J. op. cit., December 2018.

interruptions in their operations. They typically have plans for a diverse set of unusual situations in place.¹⁵ Also, after 9/11, many regulators set new requirements with a specific emphasis on disaster response planning to ensure that businesses in vital industries could continue to operate when disaster strikes.

Disaster response planning (aka business continuity planning) has general and specific components. The specific components describe how to respond to specific disaster scenarios (e.g., a large-scale fire or a massive ransomware attack) and provide predefined sets of prioritized measures such as what actions to take, which authorities to contact, and how to inform employees and the public. The general components indicate how chains of command and governance systems can be adapted because businesses cannot tolerate lengthy decision-making cycles as they respond to a crisis. Below, we describe how firms adapted their traditional disaster response planning and IT governance systems when governments declared the COVID-19 pandemic to be a crisis.

Traditional Disaster Response Planning

The disaster response plans of the companies we spoke to were all very similar. Once the CEO or board of directors has formally declared a “state of crisis,” a previously defined disaster response group¹⁶ (DRG) will be formed. DRGs comprise a small number of decision makers who work under a set of adjusted governance rules to ensure quick and flexible decision-making to counter the crisis. The commonly shared governance-related characteristics of the DRGs in our sample were:

- DRGs typically consist of at least four and a maximum of six members drawn from selected corporate functions and always include a representative from IT
- DRGs have far-reaching decision-making power, enabling them to make decisions about critical issues quickly (often in a single meeting)

- DRGs meet frequently (at least once a week) to discuss the current state of the crisis and to make decisions
- DRGs draw heavily on advice from experts, including from lower ranks within the firm’s hierarchy
- DRGs operate under a minimal set of internal rules and substitute written rules with relational governance mechanisms (i.e., social interaction).

Empowered by these relaxed governance structures, DRGs can make decisions quickly in frequent and highly focused meetings involving only a few individuals.

When the COVID-19 crisis erupted, the general components of these disaster response plans worked well, although none of the companies in our study had specific plans for operating under prolonged nationwide or global lockdown conditions. These challenges were not foreseen in traditional disaster planning and the COVID-19 crisis put the IT department (and the corresponding IT governance systems) into the spotlight.¹⁷

Unique Characteristics of the COVID-19 Crisis

“Of course, we had disaster response plans. We were very well prepared for bomb threats or large-scale fires in our buildings. But seriously, who in this world expected something like national lockdowns where no employee could get to work, not even to a disaster recovery site?” COO, Private Bank

A unique characteristic of the COVID-19 crisis was that IT played a much more prominent role, as compared to previous crises. Typically, the purpose of the disaster plans already in place was to provide business continuity by working from disaster recovery centers.¹⁸ But because of the government-imposed lockdowns, employees needed to be able to work from home during the pandemic, using mobile IT equipment to access corporate IT systems remotely through secure connections. Many businesses did not have the necessary hardware in place (e.g., employees had only desktop PCs, not laptops) and often did

15 Shein, E. *Unknown Unknowns: CIOs Prep for the Next Major Business Disruption*, CIO, July 5, 2022, available at <https://www.cio.com/article/402469/unknown-unknowns-cios-prep-for-the-next-major-business-disruption.html>.

16 The businesses in our study used different names for the group. We chose DRG as a generic term and use this throughout the article.

17 Shein, E. op. cit., July 5, 2022.

18 Ibid.

not have the necessary capacities to allow large numbers of concurrent users to securely access the internal systems from external sites.

Thus, a unique characteristic of the COVID-19 crisis was the strong focus on IT to provide solutions. “Most firms did not plan for the unprecedented depth and length of the pandemic or the centrality of IT in sustaining operations.”¹⁹ No previous disaster (not even 9/11) is comparable in this respect. This unique crisis forced companies to give decision-making powers to IT representatives as never before.

According to our interviews with CIOs and their corresponding business executives, IT departments often delivered beyond expectations during the crisis. This finding led us to investigate the question: What positive aspects of and insights from crisis-mode IT governance can be transferred to a post-crisis IT governance system to benefit the corporation?

IT Governance Insights from the COVID-19 Crisis

As mentioned earlier, our analysis identified three mechanisms for adapting IT governance systems to successfully address the challenges of the COVID-19 crisis: 1) leaner decision-making structures, 2) increased influence of IT experts, and 3) enhanced social interaction complementing formal controls. Below, we describe the pre-crisis arrangements that were in place for each mechanism, how the DRGs changed these arrangements during the crisis and the insights gained from the COVID-19 crisis that can help businesses to improve their post-COVID-19 IT governance.

Leaner Decision-Making Structures Pre-COVID-19:

“Due to the strong regulation [in the banking industry] our internal governance procedures are set up to minimize the risk of violating any of the countless international regulatory requirements. You always need to bear in mind that our managers—up

to the board of directors—are personally liable for wrong decisions. Therefore, it became common practice to involve many managers from diverse functions and business units to get a broad consensus in all major decisions. The term ‘major’ became flexible over time and nowadays also applies to decisions a neutral observer would classify as ... minor.” CIO, Global Bank.

The large number of meetings required at Global Bank to agree on a decision and the complexity of satisfying the multiple stakeholders involved prolonged decision-making cycles, especially in the IT context. The CIO went on to say: “When countless business managers have a say in IT decisions it takes extra time. MUCH extra time. There is no argument: We are way too slow in making decisions, specifically when it comes to IT decisions.”

During the COVID-19 crisis: When the pandemic struck, Global Bank established a DRG that assumed central decision-making power in line with its disaster recovery plans. The number of participants was restricted to a core team of five managers, including the CIO and a senior finance manager. This team was complemented by up to three subject-matter experts, depending on the respective topic. The core team delegated IT-related decisions, such as the choice of videoconferencing and VPN technology, to IT specialists.

The DRG met very frequently (sometimes several times a week), was empowered to determine the topics that needed decisions and made decisions directly.

“We [the DRG] met at least once a week but if an urgent decision was needed, we met ad hoc. We had some weeks with up to ten meetings. The meetings were extremely focused. Also, the group was empowered to make decisions and to decide on all topics we deemed necessary. Thus, we [adopted] a ‘one meeting per decision’ routine.” CIO, Global Bank.

This rapid decision-making routine was essential for the goal of keeping the business operational because it avoided excessive departmental conflicts and political maneuvers.

¹⁹ For a discussion of major issues and concerns in post-pandemic times, see Mandviwalla, M., Desai, D., Descano, L., Dignan, L., Kearns, C. and Sankaran R. “Guest Editorial: An Industry Perspective on Major Post-Pandemic Issues,” *MIS Quarterly Executive* (20:1), January 2021, pp. v-xi.

IT governance insights from the COVID-19 crisis: Decision-making structures are an essential part of IT governance, aiming to ensure that IT strategy and projects are effectively designed and implemented to serve the company and its business units. However, Global Bank, and other businesses in the study, reported that their decision-making structures had ballooned over time and, as a result, their originally intended purpose had been lost. Before COVID-19, rather than aligning business and IT to create business value, the decision-making structures had evolved into a means to satisfy regulators and shield managers from possible liabilities. From an outside perspective, many of Global Bank's meetings within the traditional IT governance structure were not really necessary and often involved stakeholders who were only marginally affected. Global Bank's CIO explained: "We wasted a lot of time, energy and people hours in countless meetings, but it obviously reduced risks in the organization."

This attitude changed during the COVID-19 crisis. Fewer cross-functional decision makers (including experts) were involved and empowered to define or redefine decision areas. Decision makers agreed on a lean process following the rule: "no more than one meeting to reach a decision." This approach fostered speedy results and prevented never-ending decision-making cycles. The approach was underpinned by the overarching corporate goal of keeping the business operational rather than focusing on individual or departmental goals.

In our follow-up interviews, we asked the managers whether the leaner decision-making structures had any negative side effects: "In retrospective, it is fascinating to see that we managed both: the decision speed was much faster and the decision quality much higher. I hope we can maintain this in the future." (CIO, Global Bank). The leaner decision-making structures necessary to respond to the COVID-19 crisis played a vital role in achieving this unexpected outcome.

Increased Influence of IT Experts

Pre-COVID-19: Auditing Firm traditionally had rather strict governance structures, as recounted by the CIO: "As regulation grew tighter over the years, our company developed an ever more risk-

averse system. More boards were implemented, and more managers needed to be included to get a decision: less expert involvement [from IT], more lawyers. We aimed to make everything overly correct but from a functional point of view, we achieved mediocre results at best."

During the COVID-19 crisis: Auditing Firm switched to crisis mode and enacted the corresponding governance procedures. To make decisions quickly but thoroughly, the meeting cycle per decision was dramatically reduced, ideally to one meeting; a second meeting was held only if the decision affected a high-risk area. The number of meeting participants was also reduced but always included IT representatives. This led to an increased influence of IT experts compared to previous meeting structures where IT representatives were vastly outnumbered. Moreover, IT experts were actively involved in making decisions and setting meeting agendas. This led to discussions becoming more content-based and focused on finding an appropriate solution; prior to the pandemic, meetings typically revolved around finding the least risky option. In the words of Auditing Firm's CIO: "It was classic business/IT alignment. The business described the problem and we [IT department] provided the best solution. The finance department acted as counterbalance to keep the budget under control." The shift in decision-making power toward the experts at the table moved the discussion from the previously dominant risk-avoidance perspective to decisions focused on maximizing business value.

IT governance insights from the COVID-19 crisis: IT governance arrangements are typically based on hierarchical positions and formal role assignments.²⁰ However, the extant research shows that IT competencies are essential to identify IT solutions that fulfill business needs. Thus, IT competencies are necessary if an organization is able to successfully integrate knowledge and favorable business outcomes.²¹ Despite these insights, many IT governance

20 Medaglia, R., Eaton, B., Hedman, J. and Whitley, E. A. "Mechanisms of Power Inscription into IT Governance: Lessons from Two National Digital Identity Systems," *Information Systems Journal* (32:2), February 2021, pp. 242-277.

21 Kearns, G. S. and Sabherwal, R. "Strategic Alignment between Business and Information Technology: A Knowledge-Based View of Behaviors, Outcome, and Consequences," *Journal of Management Information Systems* (23:3), January 2007, pp. 129-162.

committees over time have accumulated more members from different functional and business units who outnumbered the IT experts, resulting in these experts' input being diluted. As Auditing Firm's CIO sarcastically put it: "For every IT member we have ten lawyers on every [IT governance] committee."

During the COVID-19 crisis, DRGs worked with a small number of participants, which, because of the nature of the crisis, always included the CIO, and therefore increased the influence of IT executives on decisions. Thus, during the crisis, the voices of IT experts came through loud and clear and their influence increased significantly. Professional Services' CIO recounted: "It was a completely new game. Instead of ongoing discussions for months and years we were able to convince [the DRG] in one meeting. The solution we suggested was implemented and not diluted by countless objections from myriad managers with limited technical expertise." Including IT experts in decision-making and listening to their advice—which is necessary for successful knowledge integration, collaboration and favorable business outcomes—was facilitated by social interaction and trust among the participants in DRGs, including the IT experts.

The business managers we interviewed were surprised by the speed with which IT acted to provide valuable business-focused solutions to keep operations running during the pandemic. In the follow-up interviews, nobody complained that the DRG structures had produced unfavorable outcomes. Thus, a recommendation for better IT governance in the post-COVID-19 era is to include (proportionally) more IT experts in the meetings.

Enhanced Social Interaction Complementing Formal Controls

Pre-COVID-19: The firm we refer to as Financial Services has an international presence and is therefore subject to regulation from several national and international bodies. Financial Services' CIO explained the firm's IT governance:

"The culture in our organization is all about control—templates, bodies, governance and all that stuff—everything is regulated. To quote Lenin: 'Trust is good, control is better.' [IT] governance is great and really comfortable for managers: As long as

everybody adheres to the process there is no wrongdoing in the firm. However, as the degrees of freedom in our IT governance are extremely limited, so is our flexibility. The result is a totally restricted IT."

However, the formal controls used to ensure compliance with complex regulations constrained the scope of action that individual organizational members could take and led to rigidity, making it very difficult to adapt to changing situations.

During the COVID-19 crisis: When Financial Services established a DRG in response to the COVID-19 crisis, the formal controls in IT governance were reduced to the minimum. Previously, explicit rules dominated social interactions between stakeholders, leaving little room for flexibility. But during the crisis, formal controls were largely replaced by social interaction, as explained by Financial Services' CIO: "We do not exchange lengthy documents anymore; instead, we actually talk to each other. And the people who talk are those who are either affected or have something to say, not the ones that the corporate IT governance structure requires to sit in meetings due to their hierarchical rank." Many interviewees reported that, in DRG meetings, people from different functions sat down to formulate and align expectations and create or reinforce linkages between their business functions and IT. This "new type" of meeting provided the environment necessary to reaffirm common goals in order to keep the entire organization operational, create a sense of mutual dependence and foster social identification. "Eye-level" collaboration ensured that everyone involved in DRG meetings contributed to identifying problem areas and finding solutions.

IT governance insights from the COVID-19 crisis: The relaxed formal controls—complemented by or even replaced by social interaction—led to more effective and successful IT governance meetings and decision-making processes. The selection of meeting participants based on an as-needed basis ensured the presence of affected managers who were empowered to make decisions within the meeting. Restricting meetings to a few "right" participants resulted in more productive

meetings and less time wasted than before the pandemic.

Social interaction based on relational norms, rather than written rules, engenders “trust as a safeguard” (as opposed to “contracts as safeguards”) against exchange hazards. The shift toward more relational IT governance gained ground during the second year of the COVID-19 crisis, resulting in more flexible decision-making processes that could swiftly be adapted to unforeseen situations. One example was shortcuts for decisions on the corporate rollout of software, which, within the boundaries of relaxed written rules, could be made much more quickly.

Summary of IT Governance Changes Before and During the Crisis

The crisis-induced adaptations of IT decision-making procedures affected all three classic governance dimensions: *who* decides, *what* is decided on and *how* decisions are made. Table 3 summarizes the changes in these dimensions during the crisis, compared to the pre-crisis period. Before the crisis, the established IT governance mechanisms were strongly control oriented. During the crisis, IT governance systems shifted toward relational governance, with governance rules being relaxed and relational aspects coming to the fore. Table 3 also summarizes the consequences of these changes.

Recommendations for Moving to an Adaptive IT Governance System

Based on our analysis of the interview data on how pre-COVID IT governance systems were adapted during the crisis, together with insights from IT governance literature, we provide recommendations for implementing adaptable IT governance systems post-crisis. Following these recommendations will enable organizations to increase the quality of IT governance decisions and the speed of decision-making and will provide greater flexibility.

From our analysis of the cases, it became apparent that over the last few decades, many businesses have lost track of the original purpose of IT governance and its role of ensuring that

IT supports the creation of business value. Many of our interviewees mentioned that their existing governance systems involved numerous (“excessive”) meetings with multiple (“way too many”) participants to reach a single decision. In a nutshell, IT governance had lost focus and got in the way of agility, while risk reduction was favored over the generation of business value.

We believe that the insights from how IT governance was adapted during the COVID-19 crisis and the extant research show that it is possible to move to an adaptable IT governance system that incorporates formal and relational governance. Such a system will ensure adherence to regulatory requirements and risk mitigation while simultaneously enhancing flexibility and enabling better decision-making. To achieve these goals, we recommend that businesses revisit their existing IT governance systems and carefully reduce overly formalized mechanisms that have built up over time without supporting the intended goals of IT governance. Table 4 summarizes our recommendations structured by the classic *who*, *what* and *how* IT governance questions.

By following these recommendations, organizations will build an adaptive IT governance system strongly focused on complementing formal with relational governance mechanisms. Relational governance, in particular, promotes trust as a safeguard against hazards and thus reduces the need to craft detailed rules. In turn, minimizing the rules that must be followed results in faster and more efficient and effective IT-related decisions.

However, there will still be a need for a small set of well-specified rules to encode responsibilities and decision-making procedures that will ensure that regulatory and internal compliance requirements are met and minimize the corresponding risks. But reducing these formal guidelines—in particular, their level of detail—and complementing them with enhanced relational mechanisms as safeguards against unanticipated events, provides more room for flexible solutions to common business issues. The aim of complementing formal rules with relational governance mechanisms is to “promote more cooperative, long-term, trusting exchange

Table 3: Comparison of IT Governance Systems Before and During the Crisis

	Before the Crisis	During the Crisis
Observations		
Who?	<ul style="list-style-type: none"> Numerous committees comprising multiple stakeholders across various business units Decision-making power allocated based on hierarchical positions within the organization 	<ul style="list-style-type: none"> Only one central decision-making body involving few participants Decision-making power granted as per disaster plans (i.e., member of the DRG) Proportionally more influence of IT expert input
What?	<ul style="list-style-type: none"> Every decision-making body had predefined areas to decide upon Little to no flexibility to make decisions that were not formally allocated to the respective body 	<ul style="list-style-type: none"> Central decision-making body chooses which decisions to handle directly
How?	<ul style="list-style-type: none"> Risk avoidance emerged as a dominant decision-making criterion Strong “control attitude” Oversight through detailed formal rules 	<ul style="list-style-type: none"> Main decision-making criteria are functionality and outcome for the business Reduced set of rules, as long as rules and regulations are not violated Formal rules are complemented by relational governance based on social interaction
Consequences		
	<ul style="list-style-type: none"> Risks are minimized Compliance with rules and regulations is the highest priority Decision-making rights based on hierarchy Formalized decision-making processes to incorporate stakeholders’ divergent interests Lengthy decision-making processes Low flexibility 	<ul style="list-style-type: none"> Acceptance of higher risks to increase speed and flexibility in decision-making Reduction of formal IT governance rules to the minimum needed for compliance with external rules and regulations Decision-making rights based on hierarchy and (especially) IT expertise Flexible decision-making processes that are frequently adapted to accommodate unforeseen situations Fast decision-making Greater flexibility to react to unforeseen issues

relationships”²² among stakeholders involved in IT governance.

Concluding Comments

Our analysis of interviews with CIOs and business managers from nine international companies in highly regulated industries shows that, over the years, many businesses built up control-oriented IT governance systems, consisting of numerous complex formal rules. Particularly in regulated industries, the predominant goal of IT governance appeared to be avoiding mistakes rather than generating business value from IT. However, during the

COVID-19 crisis corporate digital transformation became a priority, which led to accelerated change in many areas, including IT governance structures. Companies had to switch to survival mode and, to ensure operational continuity, risk considerations were no longer viewed as a top priority. During the crisis, IT governance mechanisms were relaxed to enable faster decision-making and greater flexibility to react to unforeseen issues. To the surprise of many, these changes resulted in superior results. Although the relaxation of IT governance was certainly necessary during the COVID-19 crisis, the insights gained can be applied to create a better,

²² Poppo, L. and Zenger, T. R. op. cit., August 2002, p. 708.

Table 4: Recommendations for an Adaptive IT Governance System

Recommendation	Who decides?	What is decided on?	How are decisions made?
Implement Lean Decision-Making Structures	<ul style="list-style-type: none"> • Constitute decision-making bodies with as few participants as possible • Ensure that participants represent the affected business functions and the CIO 	<ul style="list-style-type: none"> • Assign all IT-related topics to the top-level decision-making body, including topics that emerge during a crisis • The top-level decision-making body should have the right to delegate to lower-ranking bodies 	<ul style="list-style-type: none"> • Implement a general rule of “no more than one meeting for a decision” • Support goal alignment by setting incentives to collaborate
Increase Influence of IT Experts	<ul style="list-style-type: none"> • Increase decision-making power of IT experts 	<ul style="list-style-type: none"> • Include input from IT experts in the decision-making agenda (topics and priority) 	<ul style="list-style-type: none"> • Involve IT experts in making decisions and discussing solutions
Enhance Social Interaction	<ul style="list-style-type: none"> • Foster social interaction between all decision makers and also with IT experts 	<ul style="list-style-type: none"> • Don’t set the decision-making agenda in an exclusively top-down manner; instead, take account of prior discussions (social interaction) 	<ul style="list-style-type: none"> • Set commonly agreed upon boundary conditions in lieu of explicit rules to leave room for discussion • Foster collaboration and knowledge exchange through joint governance meetings

more adaptive IT governance system for normal business conditions.

In fact, most of the firms in our study have set up projects to reevaluate their IT governance systems or are planning to do so. Their main goal is to speed up decision-making processes and reduce the costs associated with the ever-growing formal controls while also ensuring compliance with rules and regulations. Based on our findings, the best way to achieve this is to complement a reduced set of formal controls with more relational governance.

Appendix: Research Methodology

Data Collection

We interviewed nine CIOs of large international companies in regulated industries and triangulated their statements with those of business managers from the same companies. Regulated industries are characterized by numerous formal rules imposed by regulators to protect the well-being and security of customers who use a company’s services and/or the wider economy. Regulated companies are bound to

these rules and have no choice but to implement them. Failure to comply results in harsh consequences for the company and also for the responsible managers.²³

As governance is a typical focus area of regulations, the selected companies are good examples of what Eisenhardt calls “extreme cases.”²⁴ All the interviewees acknowledged the strong impact that regulation has on their companies’ operations and confirmed that clearly defined structures and rules are in place to ensure their IT governance complies with all applicable laws and regulations.

We conducted phone or online interviews at two points during the COVID-19 crisis: 1) the initial phase of the pandemic (mid-2020), and 2) 18 months later (end 2021), when businesses were slowly getting back to normal and the crisis was widely considered to be coming to an end. Details of the interviewees and their companies are provided in Tables 5 and 6. Two researchers

23 See, for example, Damianides, M. “Sarbanes–Oxley and IT Governance: New Guidance on IT Control and Compliance,” *Information Systems Management* (22:1), December 2005, pp. 77-85.

24 Eisenhardt, K. M. “Building Theories from Case Study Research,” (14:4), October 1989, pp. 532-550. In this paper, Eisenhardt states (p. 527): extreme cases are “extreme situations and polar types in which the process of interest is transparently observable.”

Table 5: Interviewees

No	Company Pseudonym	Position
Interview Cycle 1 – mid-2020		
1	Private Bank	COO
2	Professional Services	CIO
3	Global Bank	CIO
4	Auditing Firm	BM
5	Auditing Firm	BM
6	Auditing Firm	BM
7	Special Bank	CIO
8	Professional Services	BE
9	Professional Services	BE
10	Professional Services	BM
11	Professional Services	BM
12	Professional Services	BM
13	Financial Services	CIO
14	Auditing Firm	BE
15	Special Bank	CEO
16	Special Bank	COO
17	Professional Services	BM
18	Auditing Firm	BE
19	Professional Services	CIO
20	Special Bank	BM
21	Special Bank	BM
22	Special Bank	BE
23	Special Bank	CIO
24	Auditing Firm	CIO
25	Insurance Company	CIO

CEO = Chief Executive Officer; CIO = Chief Information Officer; COO = Chief Operating Officer; BE = Business Executive; BM = Business Manager; LC = Legal Counsel

independently coded the interview transcripts to derive the findings. Diverging opinions were settled through discussion and, eventually, a combined set of codes emerged.

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Table 5: Interviewees (Continuation)

No	Company Pseudonym	Position
Interview Cycle 2 – end 2021		
26	Professional Services	CIO
27	Financial Services	CIO
28	Auditing Firm	CIO
29	Global Bank	CIO
30	Professional Services	LC
31	Critical Infrastructure	CIO

CEO = Chief Executive Officer; CIO = Chief Information Officer; COO = Chief Operating Officer; BE = Business Executive; BM = Business Manager; LC = Legal Counsel

Table 6: Company Descriptions

Pseudonym	Description
Auditing Firm	An internationally active auditing firm with diverse business lines including tax, legal and consulting
Global Bank	A financial service provider with a global presence
Financial Services	A provider of banking and insurance services with activities mainly in Europe
Global Systems	A software company that provides software for critical infrastructure, which is used worldwide
Insurance Company	An insurance company with operations in several European countries
Professional Services	An international organization that tests and certifies products
Private Bank	An international bank that focuses on wealthy customers
Special Bank	A bank specializing in financing mobile goods, active mainly in Europe

at Neu-Ulm University of Applied Sciences (HNU), Germany, and the director of the Center for Research on Service Sciences (CROSS). He holds an MSc in business administration from University of Bamberg, an EMBS from Heriot-Watt University, Edinburgh, and a Ph.D. in information systems from Goethe University, Frankfurt. His research focuses on the use of digital resources by the ageing generation, health IT and IT management. His work has been published in *European Journal of Information Systems*, *Journal of Economic Commerce Research*, *Health Systems* and *Communications of the ACM*, and presented at international conferences.

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