

# Configurations and Coordination for Global Information Technology Governance: Complex Designs in a Transnational European Context

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## Abstract

*This paper describes an exploratory study of configurations and coordination mechanisms for IT governance in European-based transnational companies. IT governance is traditionally defined as the formal allocation of IT decision-making authority. Rooted in organisation design theory, a research framework is proposed and comparative case study research is conducted in three large financial service companies. The findings indicate that financial institutions adopt distinct hybrid configurations and coordination mechanisms contingent on their strategic context. The results suggest that whatever formal configuration is chosen for IT governance, mechanisms for lateral coordination need to be addressed, if performance targets are to be achieved. Effective mechanisms for lateral coordination move beyond the level of structure, and focus on the different stakeholders involved in the IT governance process. An organisation's capability to deal with globalisation and IT is dependent on the complexity of both the configuration and coordination for IT governance.*

## 1. Introduction

With the continued globalisation of industries, the emerging European market, and the pervasiveness of IT infrastructures, European-based financial service companies are extending their organisational and geographic boundaries to offer customers high-quality products and services, and are internationalising their operations in search of increased efficiency, growth and profitability [39]. The ability to manage IT-based operations and innovations, and thrive in a global network economy is critically dependent on a company's governance model [1,22]. Defined as the locus of IT decision-making authority, and posed as a question of centralisation during the 70s, IT governance drifted towards decentralisation in the 80s, and the recentralisation of IT was a 90s trend.

As the global network economy dawns, companies are adopting complex configurations of centralised and decentralised IT functions [52]. Classical centralised and decentralised control structures are being replaced by hybrid configurations of centralised and decentralised control for global IT infrastructures and standards, local division applications, and e-business innovation. In this federal configuration, Corporate IT has authority over infrastructure, and division IT and local business divisions have authority over business applications and IT business-developments [45].

While a federal configuration is reported as the dominant model in contemporary global

companies [6,37], empirical studies regarding the complexity of this hybrid configuration are sparse. More importantly, formal allocation of IT decision-making authority does not resolve the need for effective coordination between corporate IT, division IT and business divisions. Dispersing IT activities across organisational and geographic boundaries presents a coordination challenge to IT governance, especially in hybrid configurations where IT responsibilities are dispersed across different stakeholder groups. Achieving global efficiency and local flexibility involves a complex balance of reciprocal interdependencies that need to be actively managed. The increased uncertainty and complexity makes coordination a strategic capability [20]. The question remains however, what coordination mechanisms are being used for global IT governance.

This exploratory study describes what types of hybrid configurations and coordination mechanisms for global IT governance are being deployed in large European-based financial service companies, and explores how configurations and coordination mechanisms are related to the strategic context and performance. In the next section, the theoretical foundations and the research framework are described (Section 2). Subsequently, the case study methodology is addressed (Section 3). The case studies and results are then described and discussed (Section 4). This paper concludes with a discussion of the implications for the conceptualisation and future research on global IT Governance (Section 5).

## 2. Theoretical Framework

Organisations facing competing pressures in competitive environments need to be simultaneously centralised and decentralised, global and local, competitive and collaborative; the challenge is to create coexisting, highly differentiated and highly integrated organisations [22]. In developing a contingency theory of organisation, Lawrence & Lorsch [29] introduced the basic concepts of differentiation and integration. Organisation design involves two fundamental complementary processes: the division of responsibilities for various tasks to be performed, and the coordination of these tasks to realise the activities and the organisational objectives [33].

As organisations interact with their external environment, they differentiate and develop specialised units that deal with subenvironments. Besides the formal division of labour, subunits develop different frames of reference and belief systems [13]. In order to achieve unity of effort, differentiation requires

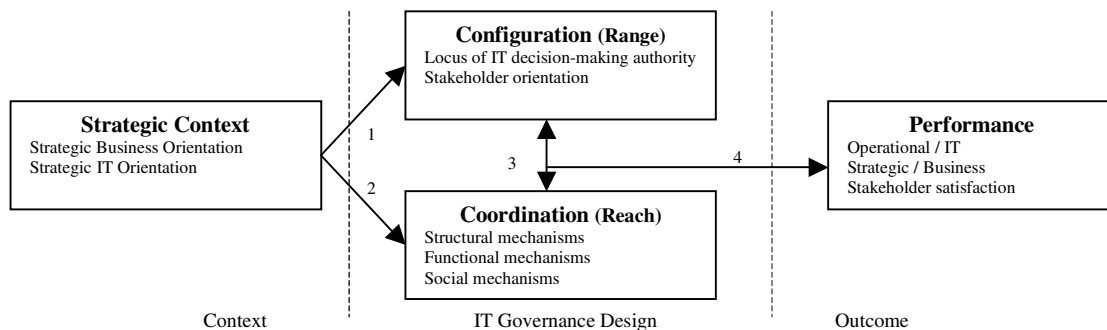


Previous research indicates that the design of hybrid configurations and coordination mechanisms is influenced by the strategic context [6,24,28,46]. The strategic context refers to the strategic orientation of the business and IT, and fluctuates with levels of complexity (i.e. multiple competing objectives), and levels of uncertainty (i.e. customer-orientation and innovation). In competitive environments, organisations adopt multi-focused strategies with value-added business models for operational excellence, product leadership, or customer value [47]. Strategic IT orientations vary from IT exploitation to IT innovation. IT innovation strategies require complex coordinated efforts between business and IT [6,45]. Hence (see also Figure 1):

*Proposition 1: Companies with a strategic context characterised by high complexity (multiple competing objectives) and high uncertainty (innovation-orientation) will adopt a more hybrid -differentiated- IT governance configuration.*

*Proposition 2: Companies with a strategic context characterised by high complexity (multiple competing objectives) and high uncertainty (innovation-orientation) will adopt more complex coordination mechanisms.*

*Proposition 3: A (more) hybrid configuration for IT governance is associated with (more) complex mechanisms for integration.*



**Figure 1. Research framework**

IT performance ranges from internally IT-oriented towards more externally business-oriented measures [35,52]. Brynjolfsson & Hitt [9] found that IT business value realisation, including productivity and customer value, is influenced by specific organisational decision-making structures and coordination processes, involving decentralisation and lateral management structures. Galbraith [20] asserts that with the use of more complex structural coordination mechanisms, both the coordination efforts and performance levels will increase. Under complex and uncertain conditions, performance effectiveness is associated with low comprehensiveness and low formalisation, and rich strategic dialogue between stakeholder constituencies [43]. Active stakeholder participation and involvement is associated with performance improvements and satisfaction [25,50]. Empirical evidence indicates that shared understanding among business and IT stakeholders is associated with IT performance effectiveness [8,30,35,36]. These studies collectively suggest the following proposition:

*Proposition 4: High IT performance effectiveness is associated with more complex coordination mechanisms, characterised by: (4a) more complex formal and network structural mechanisms; (4b) low levels of formalisation, and high levels of strategic dialogue; and (4c) high levels of stakeholder participation and shared understanding. Conversely, low IT performance effectiveness is associated with relatively simple coordination mechanisms.*

### 3. Research Methodology

An exploratory case research design was chosen given the research objectives to develop theoretical propositions for future research, and to develop a rich understanding of a complex and contemporary phenomenon within its natural setting [54]. Due to the lack of a cumulative research base, the potential terminological ambiguity, and the sensitive nature of the data, a case study research design was deemed appropriate [2].

Three European-based financial service companies were selected. All companies are large (over EUR 300 billion in assets), multidivisional (at least 3 Divisions), established organisations (no 'dot-com'), with predominant in-house IT responsibilities (IT infrastructure, IT applications, IT development), and transnational operations. All companies are strategically dependent on IT for developing and delivering business products and services, and expenditures are on average 8% of revenues. Given the sensitive nature of the data, confidentiality and anonymity were assured.

Multiple methods were utilised for data collection. Following the operationalisation of the theoretical constructs (see Appendix A), a structured interview protocol was developed and pilot-tested. On-site interviews, 23 in total, were conducted with corporate and division stakeholders, representing the IT and business divisions. Business divisions operating in consumer markets were selected. Each interview lasted approximately two hours and was tape-recorded and transcribed. Interviews were supplemented with the collection

of internal documents and external reports. All data was stored in a case study database. The combination of multiple data sources and data collection methods allowed for triangulation and the assessment of convergent validity [54].

The data collection process was undertaken over an 18 month period (1998-1999), and was divided in four phases: (1) on-site interviews and document collection, (2) feedback on interview reports, (3) confirmation of case report and (4) company presentation and discussion of research findings. Based on interviews and documents, detailed case descriptions were written-up and reported to participants. The use of a theoretically-grounded framework, structured interview protocol, multiple key informants, and a case study database, improve content and construct validity, and reliability [15,16,54].

Data analysis consisted of within and cross-case analysis through coding and pattern-matching techniques, and was designed to meet internal validity requirements [16,32,54]. Case studies were analysed and categorised, thereby providing an 'IT governance profile' for each case. Based on the profile and following the theoretical framework, the level of support for each of the propositions was assessed. This process was replicated for each case study, and patterns of similarities and differences were identified across cases. The findings were analysed against the explanations offered by the theoretical framework and underlying propositions.

#### 4. Case Studies

This section presents the case studies on the configurations and coordination mechanisms for global IT governance. The case studies are first described (Section 4.1) and subsequently analysed (Section 4.2).

##### 4.1. Case Descriptions

###### COMPANY X

###### *Strategic Context*

Company X is an internationally and domestically operating financial service company, rooted in a long tradition of customer orientation. It makes available to customers the full range of Allfinanz services, including retail banking, insurance, leasing, private banking, asset management and venture capital. All clients have access to the expertise and full range of services and products created by a network of professionals supported by advanced IT systems. In developing its global network, Company X has opted for a policy of intensive, global networking. It emphasises the importance of cultivating and exchanging knowledge at all levels, both within and between units in the network. Company X is pursuing a strategy for establishing new, pan-European networks.

Its strategic orientation is characterised by partnering, exploiting Internet channels and developing customer value. Company X now revolves around a network of some 150 offices,

50.000 employees operating in more than 40 countries worldwide. Company X' strategic objectives are to exploit multiple distribution channels, including Internet and call centres, and provide added value to customers. IT is regarded as a 'life line'. Business executives state: "*without IT there is no production, no innovation, no marketing, no added value for customers*". Continued investments in IT are seen as critical for sustaining a competitive position.

###### *IT Governance Design*

There are different structures and stakeholders involved in the governance of IT at Company X. At top management level, the Executive Board shares responsibility for IT strategy. This recentralisation occurred in 1997, after senior executives experienced 'islands of automation'. The Corporate IT director provides support to the Board and Business management, and is responsible for IT support, IT security and IT infrastructure policy and standards. He has been working with the company for almost 15 years.

IT application and development responsibilities are decentralised to business divisions, and are lead by Business Division Management. "*While we have recentralised IT infrastructure services, we need to be flexible enough to meet business demands and add-customer value; business management takes the lead in this*", according to the Corporate IT director. Division IT management acts as vice-president of the business division, and supports Business management in decisions regarding IT and organisational change.

A steering committee, consisting of CEO, CFO, Marketing director, IT director, and Division Executives, is responsible for prioritising, selecting, and evaluating IT investments. Scenario discussions are used to identify new developments. Multidisciplinary teams are involved in business development projects. Standard computer-based project management tools are used. Regular monthly formal reviews are used to discuss performance issues and resolve conflicts. Business executives are required to achieve a MBA degree in Information Management. Every two years, IT managers are rotated between divisions, and follow courses on business economics and management.

###### *IT Performance*

IT performance is formally assessed by looking at targets set for time, budget, functionality, and business improvement. Business improvements mentioned by both business and IT management include: improved time-to-market, product innovation, multi-channel distribution, reduced transaction costs, sustained market growth, customer satisfaction. 80% of IT developments meet IT and business performance requirements. IT availability is rated at 99.5% and responsiveness at 90%. Business rates the IT governance system with an 8.5, while IT rates the system with an 8.

## COMPANY Y

### *Strategic Context*

Company Y is a global financial service provider, active in the fields of banking, insurance and asset management. The company is operational in over 60 countries with more than 90.000 employees. Company Y seeks to provide a full range of integrated services and products to private and corporate clients through a variety of distribution channels.

Company's Y vision is to become a global integrated financial service provider by expanding in both the America's and Europe. Its growth strategy is actively acquiring insurance companies and banks on both sides of the Atlantic. Consolidation and cross-border mergers are on the agenda as Europe prepares for economic integration. In order to achieve global synergy, Company Y recently reorganised their management structure in global executive centres. Company Y aims to be an integrated flexible provider of financial services. Its strategic drivers are operational and product excellence: staying a low-cost producer of flexible products and services. IT support for these strategic objectives is diverse. However, Division Management indicates, "*it is unclear whether there is indeed coherent IT support for our business objectives*". A recent memo by the Executive Board states that IT is not playing its strategic role.

### *IT Governance Design*

From within the Executive Board, the CIO of Company Y is responsible for Corporate IT strategy. The Corporate IT department, under responsibility of the CIO, is responsible for strategy development, network infrastructure and managing IT investments. The CIO states that a mismatch in global IT strategies prevents him from integrating IT infrastructures: "*the greatest challenge I face, is getting all the divisions connected, both in strategy and infrastructure*".

Responsibilities for IT application and development are decentralised to Division IT Management. An IT Programme Bureau provides administrative support and coordinates IT developments at the corporate level. Relationship managers function as account managers for internal customers. Business and IT managers are often co-located and transferred from locations, and IT managers are professionally trained in project management. Ad-hoc decision-making and informal reviews are used to discuss performance issues. According to business management: "*we still live in silos; the organisation works in a very hierarchical manner and the chain of command always needs to be followed*".

### *IT Performance*

IT performance is primarily assessed for large projects by looking at targets set for time, budget, and functionality. Business improvements mentioned by both business and IT management include: productivity and reduced transaction costs. Business management indicates however: "*while IT has reduced costs to some extent, the real value for*

*our business and customers, have not improved with the large amount of investments in IT*". 30% of IT developments meet IT and business performance requirements, and IT availability is rated at 80% and responsiveness at 60%. Business rates the IT governance system with a 5, while IT rates the system with a 6. A senior IT management states: "*as IT governors we still need to learn to govern IT effectively*". In response to the deteriorating performance, an 'E-Business' centre was recently organised, and a GEO -Global E-business Officer- appointed, to coordinate global e-business strategies and infrastructures.

## COMPANY Z

### *Strategic Context*

Company Z is a well-established globally operating bank, and provides both banking and insurance products through its network of branch offices and IT-based distribution channels. Company Z's strategy is to offer complete flexibility to all personal and business customers worldwide. Company Z is pursuing expansion on a global scale, placing emphasis on internal growth. Substantial investments have been made in IT, focusing on pan-European transaction processing, multi-distribution channels, including Internet channels, product innovation and risk management.

The development towards a global, market-oriented, and customer-focused organisation through the strategic exploitation of information and communication technology, has enabled Company Z to expand internationally and sustain its growth. A global transaction system is successfully operational and is currently being applied to the pan-European market. The company distinguishes itself through its large global network of more than 3500 offices and 85.000 employees in 70 countries.

Company Z aims to supply a comprehensive high-quality range of products and services, with a focus on customer's unique financial situation, wishes and requirements. According to one business executive: "*we have reached an optimum cost-quality level and a commodity market exists. We need to add customer value through product and service innovation; without IT this just isn't possible*". New distribution channels, such as the Internet, are used to cater to the needs of customers.

### *IT Governance Design*

The Corporate IT department, under direction of the CIO, is responsible for strategy development, architecture and network operations. Responsibilities for IT application are decentralised to the different local business divisions. IT developments are lead by Business Division Management

A steering committee, consisting of CEO, CIO, and Division Executives, is responsible for prioritising, selecting, and evaluating IT investments. According to business management: "*Much lobbying goes on to get IT investments through the committee*". Scenario developments are used to identify new developments and develop a

shared vision for IT. A programme office provides quality control and administrative support. Relationship managers function as client managers for internal customers. IT projects are organised in a multidisciplinary manner. Computer-based project management tools are used, and electronic communication is frequently used to disseminate time-sensitive information. Regular monthly formal reviews are used to discuss performance, lessons learned, and resolve conflicts. Project managers are professionally trained by an international corporate competency centre of Company Z.

**IT Performance**

IT performance is formally assessed by looking at targets set for time, budget, functionality, quality and business improvement. Business improvements mentioned by both business and IT management include: efficiency, improved time-to-market, product innovation, multi-channel distribution, sustained market growth, customer satisfaction. Business management states: “Without IT these business achievements would not have been possible”. 70% of IT developments meet IT and business performance requirements. IT availability is rated at 99% and responsiveness at 95%.

Business rates the IT governance system with a 7.5, while IT rates the system with an 8.

**4.2. Case Analysis and Interpretation**

Analyses of the case studies reveal different ‘IT governance profiles’ (Table 3). All companies are characterised by a complex strategic context of multiple competing objectives. The strategic orientations include operational excellence and both product and service innovation. Companies X and Z, in comparison to Company Y, are characterised by a higher degree of uncertainty due to the external orientation on customer orientation. The strategic context of Company Y is characterised by IT exploitation focused on product innovation, while the strategic contexts of Companies X and Z are characterised by IT innovation focused on the creation of customer value. The strategic use of Internet and e-business technologies are exemplary of the innovativeness in Companies X and Z, which is relatively absent in Company Y, which is only now experimenting and implementing internet-based business processes.

**Table 3. Case studies: ‘IT governance profiles’**

Case	Strategic Context	Hybrid Configuration	Coordination Mechanisms	IT Performance
X	Strategic Business Orientation: Cost leadership, product innovation, <i>customer value</i>  Strategic IT Orientation: Efficiency, flexibility and <i>innovation</i>	Infrastructure: CIT	Structural: complex, formal, business-IT	Operational: High
		Applications: BD (+DIT)	professionalisation, complex IT network	Strategic: High
		Development: BD (+CIT)	Functional: comprehensive, formalised, rich strategic dialogue Social: active all-round involvement, shared understanding	Satisfaction: High
Z	Strategic Business Orientation: Cost leadership, product innovation, <i>customer value</i>  Strategic IT Orientation: Efficiency, flexibility and <i>innovation</i>	Infrastructure: CIT	Structural: high complexity, formal and business-IT	Operational: High
		Applications: BD (+DIT)	professionalisation, complex IT network	Strategic: High
		Development: BD (+CIT)	Functional: comprehensive, formalised, rich strategic dialogue Social: active all-round involvement, high shared understanding	Satisfaction: High
Y	Strategic Business Orientation: Cost leadership and <i>product innovation</i>  Strategic IT Orientation: Efficiency, flexibility and <i>exploitation</i>	Infrastructure: CIT	Structural: complex, formal, IT professionalisation, maturing IT network	Operational: moderate
		Applications: DIT	Functional: ad-hoc, informal, vertical	Strategic: low
		Development: DIT (+CIT)	Social: IT participation, political conflicts and growing distrust among stakeholders	Satisfaction: low

With regard to IT governance configurations, all companies are described by hybrid structures. However, the case studies show different patterns of IT decision-making authority. The key differentiator is the formal allocation of IT decision-making authority to business management. In Company Y, only Corporate and Division IT are formally involved. Corporate IT and division IT are responsible for daily IT operations and for leading new IT developments. In contrast, Companies X and Z show a higher degree of differentiation, in which the business exercises IT decision-making

authority for new IT developments and the improvement of current IT operations.

Assessing what types of coordination mechanisms are being employed in each company (Table 4), the results indicate that all companies are characterised by complex structural coordination mechanisms, involving e.g., CIO-positions, project teams, steering committees, integrating roles, and cross-functional training. Companies X and Z are moreover characterised by comprehensive formal and informal functional mechanisms, and high levels of social coordination, i.e., active stakeholder participation and shared understanding. In contrast,

Company Y is characterised by ad-hoc and informal functional mechanisms, and low levels of social coordination. More specifically, stakeholders are

not actively involved and there is a growing level of unresolved conflicts and distrust in Company Y.

**Table 4. Case summary of coordination capabilities.**

Coordination Case	X	Y	Z
<b>Structural</b>			
Formal positioning	+	++ (focus on integrators and committees)	+
Network building	++ (professionalisation, job-rotation)	+	++ (professionalisation, communication infrastructures)
<b>Functional</b>			
IT decision-making	+	-+ (ad-hoc IT decision-making)	++ (focus on IT investment/ benefits management)
Communication	++ (informal lateral communication)	-+ (strong vertical communication)	+
<b>Social</b>			
Active participation	++	-+ (low business involvement)	++ (active involvement by Corporate, Business and IT)
Shared understanding	++ (shared understanding between stakeholders)	- (stakeholder conflicts)	++

Regarding IT performance, Companies X and Z are associated with high levels of operational and strategic IT performance. Both business and IT, as well as corporate stakeholders, are satisfied with the performance achievements of IT. In the case of Company Y, IT performance is associated with lack of responsiveness, lack of efficiency, and lack of perceived business value. Business objectives (product service innovation) and IT objectives (standardisation) are not being achieved, and stakeholders are largely and unanimously dissatisfied.

**4.3 Support for Theoretical Framework**

With regard to the proposed theoretical framework, and consistent with previous studies, propositions 1., 2. and 3. are supported by all cases. A strategic context characterised by multiple competing objectives for business and IT is associated with the adoption of a hybrid configuration. Companies X and Z, pursuing a market-based, customer-focused, IT innovation strategy are associated with a more complex hybrid -business centric- design for IT governance and more complex mechanisms for integration. Company Y, pursuing an operations-focused, IT exploitation strategy has a less hybrid, more -IT centric- governance design, with a strong focus on structural coordination mechanisms.

With regard to proposition 4., the findings support propositions 4a. and 4b. Complex structural and social coordination mechanisms are associated with IT performance effectiveness. In complex and dynamic environments, effective organisations adopt more organic coordination mechanisms, characterised by informal and lateral coordination, and rely on the experience, values and collaboration among stakeholder groups. Proposition 4b was not supported, as high IT performance was also associated with comprehensive IT decision-making.

Comprehensive IT decision-making in companies X and Y involved explicit means through which the different stakeholders systematically influenced IT decisions, used performance monitoring, and adapted. This involved both formal assessments and lobbying for IT investments, and stimulated socialisation and the development of shared understanding. Both comprehensive IT decision-making and rich dialogues are thus associated with high IT performance effectiveness in Companies X and Z.

The findings indicate that high IT performance is characterised by co-existing high hybrid configurations and complex coordination mechanisms. The evidence suggests that meeting global pressures and leveraging IT for addressing competing demands of flexibility and standardisation, requires highly differentiated and integrated IT governance structures and processes.

**5. Discussion**

The objective of this study was to gain a richer understanding of the complexities of configurations and coordination mechanisms of global IT governance in European-based financial service companies. The aim was to expand the traditional conceptualisation of IT governance by not only analysing the locus of control, but also the mechanisms for (lateral) coordination. While prior research has focused on the context and design of IT decision-making authority structures, this research extends the traditional conceptualisation of IT governance by examining the range of hybrid configurations, the reach of coordination mechanisms, and the performance-related impacts in a transnational context.

Regarding strategic context, the research supports previous studies [9] that find a customer value orientation, a business-centric IT governance

model and network coordination capabilities to be associated with IT business value realisation. Faced with competitive pressures of global standardisation and local flexibility, and in pursuit of e-business value, the case study companies have adopted a hybrid configuration for the locus of IT decision-making authority. The research indicates however, that whatever locus of control is chosen for global IT governance, mechanisms for lateral coordination need to be addressed, if IT performance effectiveness is to be achieved. Global IT governance is not solely concerned with the formal allocation of IT decision-making authority, but moreover, describes a social-network of stakeholder roles and relationships. Contrary to previous studies [17,23], the results indicate that a 'federal' IT governance configuration alone is not associated with IT performance effectiveness.

While structural coordination mechanisms are necessary, they are not sufficient for meeting the coordination demands of global IT governance. The case studies reveal the importance of social-network coordination mechanisms, i.e., professionalisation, communication infrastructures, active stakeholder involvement in comprehensive IT decision-making processes and shared understanding among key stakeholders. Local policies, stakeholder conflicts, IT opportunities and trust need to be addressed within this social network of global IT governance.

An important trend in both business and IT governance structures is the decentralisation of demand and the re-centralisation of supply services within the corporate network. Supply services range from executive business centres to IT infrastructure offices. However, as the case studies illustrate, differentiating demand and supply, without appropriate coordination is likely to lead to a dysfunctional organisation. IT governance coordination needs to be actively managed in a transnational company, for it will not occur automatically and voluntarily. The case findings suggest that effective hybrid configurations in a global environment, require complex structural, functional and social mechanisms for coordination.

The conclusions and generalisation of these findings are however limited due to the objectives and exploratory nature of this study, the limited number of case studies, the intra-corporate level of analysis, and the inability to control for all contingency factors. More research is required to assess the statistical validity of the research framework and underlying propositions, and to address the above mentioned limitations.

Future research could address the following questions: How do configurations and coordination mechanisms evolve in time and influence one another? How does social-network coordination enable and/or inhibit global IT governance. What is the role of internet-based technology in the coordination of IT governance processes? How is IT governance designed in an 'electronic corporate-to-corporate' network?

In light of continued globalisation of industries, the networking of corporations, and the pervasiveness of e-business infrastructures, these questions seem particularly relevant for future research.

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