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How CIOs Can Enable Governance of Value Nets^{1,2}

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Executive Summary

Value nets are the architecture of sourcing agreements and alliances that firms implement to gain complementary resources and capabilities from other firms. They are a source of innovation, growth, and competitive success. However, governing value nets is challenging, and the IT support needed to enable them depends on the governance mode a firm chooses. Based on case studies of three Fortune 100 firms, we define three governance modes—prescriptive, evaluative, and collaborative.

Prescriptive governance specifies partners' activities and retains decisions rights. It is effectively supported by dashboards that monitor the status of partners' activities, alerts that surface exceptions and errors, business rules that automate activities and handling of errors, and extended enterprise architectures that protect intellectual property.

Evaluative governance delegates decision rights to partners for operational execution and assesses their capabilities through periodic evaluations. It is effectively supported by loosely coupled processes that provide partners with limited autonomy, periodic reporting of performance on service level agreements, and data and process mining directed at improving partners' capabilities.

Collaborative governance promotes peer-to-peer collaboration with value net partners. It is supported by metadata architectures that control repositories of information and process resources, by consistent business rules to coordinate processes, by monitoring of the total costs of the relationship, and by business intelligence for predictive monitoring.

CIOs and senior IT executives can apply these findings to choose an appropriate governance mode and enable it with appropriate IT applications and processes.

THE GROWING IMPORTANCE OF VALUE NETS

The increasing number of interorganizational partnerships demonstrates that many CEOs and their senior executive teams are moving toward IT-enabled network-based business models. Indeed, many firms now base their business models on value nets—dynamic collections of interorganizational alliances and sourcing relationships (including coalitions of internal and external partner assets, knowledge, and competencies) for the execution of significant value-generating activities. Partners are identified and assembled for managing the flows associated with distribution and market access, customer relationships, product innovation, production, and logistics. Such relationships are typically built on and enabled by IT, where the digital platform serves as the conduit for control, communication, and coordination.³

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³ For a good discussion on how IT can transform established interorganizational relationships and channels, see Ancion-Andal, A., Cartwright, P., and Yip, J. "The Digital Transformation of Traditional Businesses," *Sloan Management Review* (44:4), Summer 2003, pp. 34-41.

Some important business capabilities are more effectively sourced from other organizations through a variety of partnerships. Studies⁴ indicate that the number of corporate alliances has been increasing at a healthy rate of 25% per year and that a significant proportion—up to a third—of the value and revenue of companies is contributed by these alliances. Indeed, a fundamental transformation has occurred in the logic used in shaping business strategies, creating profitable customer relationships, and delivering superior and sustained value to their stakeholders as firms move toward value net-based business models.

David Bovet and Joseph Martha define value nets as the extended enterprise networks that firms create to tie together their customers, suppliers, and other key external partners for managing critical activities.⁵ Cronin (2000) notes that value nets are a “Collaborative Web-centric framework for organizing the expanding universe of networked relationships and processes (p. 45).”⁶ She further suggests that “[A value net] is also a model for organizing the interrelationship of information and services within an enterprise and for seamlessly connecting the internal and external activities into a coordinated and dynamic strategy (p. 46).”

Arguably, a firm’s success depends on its ability to architect and govern IT-enabled networks of business relationships that encompass customer relationships, manufacturing flow, product innovation, procurement, fulfillment, supply chain flows, and human capital development.⁷ Such relationships are not simply about outsourcing, but rather about “right” sourcing to enhance key capabilities related to innovation, production, configuration, and distribution.

However, as most CEOs and CIOs are aware, governing value nets is not easy, and many challenging issues need to be resolved. We conducted field-based research at three Fortune 100 companies in different industries to develop insights on the governance

challenges of value nets.⁸ This article presents our key findings and the insights we gained. We present examples to illustrate how the three companies differ in their value net governance mode and in how they deploy IT to achieve their governance objectives. The three case study firms are profiled in Figure 1.

We conclude by presenting guidelines for CIOs on how they should align IT-enabling capabilities with the governance mode of value nets.

THE VALUE NET GOVERNANCE CHALLENGE

Value net governance comprises the structures, processes, and policies through which a firm coordinates its goals, actions, and interests with other firms in its value net. A successful value net strategy depends on effective governance because it synchronizes the capabilities, resources, and decision-making expertise of the value net partners and enhances the competitiveness and profitability of all the firms in the network.

For instance, Apple’s recent string of successful iPod and iPhone product launches results not just from the firm’s product innovation capability, but also from its ability to orchestrate a global value net of component providers, contract manufacturers, and logistics providers. Apple’s ability to govern its value net is a key factor behind its success in launching these products with speed and success. Similarly, Toyota’s sustained success in innovation and operational agility is in large part due to its excellence in value net governance.⁹

On the other hand, the business costs of ineffective governance of value nets can be extraordinarily high. For example:

- Cisco Systems’ response to the decline in demand in the telecom sector in 2001 was muted because it could not adjust the procurement, production, and distribution

4 See, for example, Hughes, J., and Weiss, J. “New approach needed for corporate alliance success,” *Australian Financial Review*, January 25, 2008.

5 Bovet, D., and Martha, J. *Value Nets: Breaking the Supply Chain to Unlock Hidden Profits*, John Wiley and Sons, 2000.

6 Cronin, M. J. *Unchained Value: The New Logic of Digital Business*, Harvard Business School Press, 2000.

7 For a good primer on the distinction between standalone firm strategies and collaborative strategies with partners, see Iansiti, M., and Levien, R. “Strategy as Ecology,” *Harvard Business Review* (82:3), March 2004. For a detailed discussion on the impact of IT capabilities on the flows of information, physical resources, and financial resources across supply chains, see Rai, A., Patnayakuni, N., and Patnayakuni, R. “Firm Performance Impacts of Digitally Enabled Supply Chain Integration Capabilities,” *MIS Quarterly* (30:2), 2006, pp. 225-246.

8 We used a three-phased research approach, including literature review, interviews with thought leaders and consultants, and three case studies. The case studies were conducted at firms that represented instances of “best practice” in how they assembled and leveraged value nets. We conducted several interviews with senior IT and business executives in each of the firms. We also examined secondary data in the form of reports, presentations, and plans.

9 For further information on the supply chain capabilities of Apple and Toyota and of other firms that are leaders in supply chain capabilities, see “Supply Chain Top 25—Our Take,” AMR Research, (www.amrresearch.com/supplychaintop25/; accessed on August 14, 2008).

Figure 1: Profile of the Three Case Study Firms

Company Description	Emphasis of Offerings and Capabilities
One of the world's largest telecom solutions providers (referred to as "Telecom Solutions Provider")	<ul style="list-style-type: none"> Offers solutions for global telecom platforms. Has established alliances and sourcing agreements for innovation, production, logistics, and configuration to achieve efficiency and innovation. Value net partners: contract manufacturers.
Leading global supply chain solutions vendor (referred to as "Global Logistics")	<ul style="list-style-type: none"> Offers solutions to create precision and unity across the supply chain of customers so that goods, information, and funds move quickly and efficiently. Has established an international multi-modal transportation network, which is interconnected by one of the largest IT infrastructures in commercial history. Value net partners: other logistics services providers.
Large home mortgage lending broker (referred to as "Mortgage Broker")	<ul style="list-style-type: none"> Offers solutions to provide liquidity, stability, and affordability to the housing market. Has established IT-enabled linkages with lenders and investors to expand market reach for its services to automate underwriting and assess credit risk, and to reduce cost and cycle time for mortgage processing. Value net partners: banks and other home loan lenders.

arrangements with its partners in a timely manner.

- The major fallout between Nike and i2 was largely due to mismanaged expectations about roles, responsibilities, and outcomes to apply i2's supply chain management analytic solutions to Nike's supply chain.¹⁰
- Mattel's recent recall of nine million toys that contained hazardous magnets or lead paint used by contracted Chinese manufacturers was a consequence of inadequate monitoring and controls.¹¹

A firm faces significant challenges in choosing a governance approach for its value net. The first challenge is to decide how tightly it should control and monitor the actions of its value net partners. Tight control could help a firm in aligning its partners' actions with its own interests when unexpected business conditions arise (e.g., demand spikes or product shortages) or when new opportunities arise (e.g., a new product opportunity). Tight control could also help a firm in ensuring that its partners are devoting resources toward maintaining and enhancing their capabilities in ways that meet the firm's interests. Yet tight control can be problematic because it could

require significant time, attention, and expertise. Additionally, tight control could stifle partners' creativity and innovation, or it could impair the development of trusting relationships. A firm therefore needs to ask itself when tight or loose control might be appropriate in its value net governance.

Second, the growing sophistication of IT solutions and the implementation of IT-enabled business processes for effective management of value net activities raises questions about the types of process architectures that might facilitate effective governance of the value net. Should firms seek to tightly couple their key business processes with those of their value net partners? What types of information exchanges, decision making, and business intelligence should they automate within their interorganizational processes? Do the forms of enabling IT differ across different modes of value net governance?

We set out below the insights we gained from our three case studies and show how these can be used to help answer these questions.

ATTRIBUTES OF THE THREE VALUE NET GOVERNANCE MODES

The mode of value net governance refers to how a firm structures information exchanges, communication, and decision rights with its external partners in executing activities, making decisions about managing

¹⁰ For a good review of challenges faced by companies due to deficient supply chain collaboration, see Taylor, D. *Supply Chains: A Manager's Guide*, Addison-Wesley, 2004.

¹¹ For further information on the problems faced by Mattel due to offshore contract manufacturing, see "Mattel Issues Massive China Toy Recall," Associated Press, (www.msnbc.msn.com/id/20254745/; accessed on August 14, 2008).

problems and disruptions, and developing future capabilities. We identified three specific modes of value net governance: prescriptive, evaluative, and collaborative.

The *prescriptive* governance mode relies on tight control and monitoring of partners' actions. Firms choosing this mode prescribe most of the actions partners can perform and retain most of the decision-making authority. Mortgage Broker uses this governance mode, while both Global Logistics and Telecom Solutions Provider indicated that they had used the prescriptive governance mode in the early stages of their value net implementations.

Evaluative governance gives value net partners greater discretion in the daily execution of activities. Firms using this governance mode periodically evaluate their partners' performance both to recommend corrective actions and to assure themselves that their partners are complying with the agreed service levels. Global Logistics currently uses this mode of value net governance, whereas Telecom Solutions Provider used this mode of governance for a while in the past.

The *collaborative* governance mode provides partners with significant discretion in executing their activities. Firms adopting this mode observe trends in their partners' performance and stay informed of actions taken by their partners to maintain the agreed service levels. They expect their partners to be active collaborators in developing new capabilities, products, or services. Telecom Solutions Provider currently uses this mode of governance having previously used both the prescriptive and the evaluative governance modes.

Figure 2 summarizes the differences between the three value net governance modes. The modes differ from each other in three dimensions: monitoring approach, decision rights management, and the economic orientation of the contracts with partners.

Monitoring Approach

Prescriptive governance mode. With prescriptive governance, firms specify the decisions and actions their value net partners can take. Partners are expected to provide performance information and comply with the decisions made by the focal firm. Therefore firms use tight and real-time oversight over their partners' actions. They expect their value net partners to provide detailed process traces on inputs, activities, outcomes, and exceptions as contractually agreed. Process traces are detailed reports about how partners undertook the actions associated with a process, what

the outcomes of those actions were, and how those outcomes influenced subsequent actions. These traces provide audit trails of partners' execution actions and help the focal firm to understand whether its partners were following the prescribed behaviors. Partners are required to gain approval before they can take any significant actions to modify activities and remedy exceptions.

Mortgage Broker currently uses this monitoring approach, prescribing in detail how activities are to be conducted by its partners, what outcomes are to be achieved by them, and what the zones of tolerance are for different outcomes. Its partners provide real-time process traces, which are monitored by Mortgage Broker. Global Logistics initially used a similar approach, by requiring its partners to report process traces for each freight shipment and follow its directive on how to resolve problems and exceptions. Likewise, Telecom Solutions Provider's initial prescriptive governance approach required its contract manufacturing partners to report quality metrics on every batch of manufactured products and obtain its approval before shipping those products to customers.

Evaluative governance mode. In contrast to the prescriptive mode, evaluative value net governance relies on periodic evaluations by the focal firm of how its value net partners are performing their roles and dealing with problems and exceptions. Service level agreements (SLAs) are established with partners as a guide for performance. The firm periodically evaluates its partners' execution capability and their ability to achieve those outcomes. Partners provide weekly or monthly reports about the key performance metrics, problems and exceptions, and the corrective actions initiated. Rather than monitoring every significant action of its value net partners, as with prescriptive governance, the evaluative mode focuses on trends in partners' performance.

When Global Logistics changed its governance mode from prescriptive to evaluative, it stopped monitoring details of each shipment and instead established compliance standards and reporting requirements for its partners. It now receives information on service outcomes, trends in these outcomes, and information on outcomes that fall outside zones of tolerance. However, it does not monitor information on daily activities, outcomes, and exceptions. For problematic trends, Global Logistics discusses with its partners what corrective actions should be pursued and periodically evaluates the steps that have been taken by partners to remedy the problems.

Figure 2: Comparison of the Three Value Net Governance Modes

Attribute	Governance Mode		
	<i>Prescriptive</i>	<i>Evaluative</i>	<i>Collaborative</i>
<i>Monitoring</i>			
<i>Monitoring Philosophy</i>	Real-time oversight of partners' execution activities	Periodic oversight of partners' execution capability	Periodic review of new capability development
<i>Reporting Requirement</i>	Partners must report performance metrics for key events and gain approval for action	Periodic (e.g., weekly and monthly trends) reports on exceptions and corrective actions	Quarterly review of trends, problems, and opportunities
<i>Performance Metrics</i>	Detailed event and outcome measures for activities	Trends and capability of execution outcomes	Aggregate measures of capability, risk, and innovation
<i>Decision Rights</i>			
<i>Decision Rights Management</i>	Unilateral: prescribes actions and decisions to partners	Negotiated: allows partners discretion in decisions related to daily transactions, but develops guidelines for capability improvement	Bilateral: allows partners discretion on most execution activities; collaborates on future capability development
<i>Decision Rights Retained by the Firm</i>	Process that partners must adopt to handle key transactions and events	Evaluation of partner's compliance to service level agreements and ability to correct performance problems	Evaluation of opportunities for innovation and new capability development and how partners can contribute to them
<i>Decision Rights Delegated to Partners</i>	Minimal	Routine handling of key transactions and corrective action to remedy gaps in service level agreements	Performance management to comply with service level agreements and improve processes
<i>Shared Decision Rights</i>	Minimal	Process to improve daily execution performance	Process to develop new capabilities
<i>Contracts</i>			
<i>Economic Orientation of Contracts</i>	Partner is paid for execution of specific transactions	Partner is paid for achieving agreed-on outcomes	Partner is paid for total execution capability, and shares risks and rewards of new capability development

Likewise, when Telecom Solutions Provider moved from the prescriptive to the evaluative governance mode, it no longer expected its contract manufacturers to report on the quality metrics for each manufactured batch. Instead, they reported the batch-by-batch trends in quality every two weeks, the corrective actions taken to rectify quality problems when needed, and evidence of quality improvements. Though the contract manufacturers could ship manufactured products to customers without waiting for Telecom

Solutions Provider's approval, the firm reserved the right to intervene if it detected concerns during the periodic reviews of its partners' performance.

Collaborative governance mode. Collaborative governance shifts the focus of monitoring away from current execution toward new capability development. Firms using this value net governance mode expect their partners to monitor current performance themselves and report quarterly trends, problems, and

corrective actions. In contrast with the prescriptive and evaluative governance modes, collaborative governance uses more aggregated performance metrics. Telecom Solutions Provider now uses the collaborative mode of governance with its contract manufacturers. It expects them to monitor their own performance and take actions to meet current problems. Though the partners report their performance details quarterly, they are also required to share information that might form the basis for new capability developments (e.g., accelerated cycle time to launch new products).

Decision Rights Management

Prescriptive governance mode. With prescriptive governance, the focal firm dictates the decisions its partners can take. Mortgage Broker specifies to its partners, in detail, how their activities must be conducted, what outcomes must be achieved, and what the zones of tolerance are for different outcomes. It must be made aware of exceptions as they occur and retains the decision rights on how to resolve them. For instance, if a loan-origination problem occurs due to Mortgage Broker's credit scoring, it expects to receive detailed information from the partner so that it can diagnose the problem and determine remedial action. However, it does not reveal its credit scoring algorithms to its partners, nor does it expect them to assist it in developing better approaches.

Evaluative governance mode. In contrast to prescriptive governance, firms using the evaluative governance mode delegate decision rights to partners on daily execution of activities and actions to remedy performance gaps, but retain decision rights on evaluating partners' adherence to SLAs. They share decision rights with partners on how operational performance is to be continuously improved.

Global Logistics periodically receives from its partners reports on SLA outcomes. It examines levels and trends of outcomes and additional information on those outcomes that fall outside zones of tolerance. However, it does not dictate how daily activities are to be conducted nor how exceptions are to be handled by partners. For problematic trends, it periodically evaluates the progress made by its partners to improve performance. It also discusses with them how operational processes could be continuously improved to achieve greater accuracy and precision in service levels.

Collaborative governance mode. With collaborative governance, the focal firm delegates decision rights related to operations and how partners meet evolving

SLAs for operations. It retains decision rights on what innovation and capabilities should be explored and shares decision rights with partners on how new capabilities should be developed.

Telecom Solutions Provider delegates autonomy to its partners on how SLAs will be met and how processes will be continually improved. It closely collaborates with them to refine shared processes and to implement technologies to integrate, share, and analyze information. Finally, it retains decision rights on what products and services to develop and when they will be phased-in or phased-out of the market.

Economic Orientation of Contracts

Contracts are an important mechanism for firms to formalize governance and expectations with value net partners. As a result, the nature of contracts differs significantly across the three governance modes.

Prescriptive governance mode. For prescriptive governance, the formal contracts focus on the execution of activities to achieve outcomes. Mortgage Broker's contracts specify the economic terms for executing activities and the penalties for deviating from specifications.

Evaluative governance mode. With evaluative governance, contracts focus on the outcomes that are expected and the economic implications of meeting or not meeting these expectations. They do not specify how activities are to be performed to achieve outcomes. Global Logistics' contracts are based on SLAs related to freight management.

Collaborative governance mode. With collaborative governance, contracts specify the compensation partners will receive for the portfolio of services that are sourced from them, and are designed to promote innovation and the development of new capabilities. Telecom Solutions Provider develops contracts based on total costs for all the services provided by partners and on sharing the risks and rewards of new initiatives. Given the close collaboration with its value net partners on innovation, Telecom Solutions Provider recognizes that both parties may have claims to the intellectual property (IP) for innovations. Consequently, during contract renewal discussions (and during review meetings leading up to these discussions), Telecom Solutions Provider places strong emphasis on issues related to IP ownership so as to avoid contractual ambiguity on this key aspect.

SELECTING A VALUE NET GOVERNANCE MODE AND MIGRATING BETWEEN THE MODES

Figure 3 summarizes the criteria a firm should use to select its value net governance mode. The choice will be determined by partners' capabilities, the level of trust in their commitment to the value net, and the perception of monitoring costs.

Firms implement value nets to leverage the assets and capabilities of their partners. Typically, value nets cannot be effectively managed if the focal firm does not have at least some confidence in its partners' execution capabilities and trust in their commitment to the service levels and mutual goals of the value net. The investment in resources the focal firm will need to make to monitor its partners' actions and decisions, and the scale of monitoring costs, depend on the levels of confidence and trust it has in its partners. At each of the three firms, the choice of value net governance mode was shaped by these three criteria.

Prescriptive governance mode. When a firm has lower confidence in its partners' capabilities, or low to medium levels of trust in its partners' commitment, it will likely choose the prescriptive governance mode. However, as described above, choosing the prescriptive mode means that the focal firm must invest considerable resources in close and real-time monitoring of its partners' actions. Such monitoring costs could reduce the economic gains realized from the value net. Therefore a firm choosing the prescriptive governance mode has to believe that the high levels of monitoring costs are justifiable for the effective operation of the value net.

Mortgage Broker's choice of the prescriptive governance mode took account of the high level of monitoring costs. However, it has begun to reevaluate its perspective on monitoring costs and is examining whether it should transition to the evaluative governance mode.

Evaluative governance mode. Evaluative governance is appropriate when firms develop higher levels of confidence in their partners' capabilities and trust in their commitment to the performance goals of the value net. The higher levels of trust and confidence mean that firms can reduce the costs of monitoring partners' actions. Not only does this help the focal firm capture greater economic gains from the value net, but also enables it to redirect monitoring resources to other valuable activities.

Both Global Logistics and Telecom Solutions Provider initially started with the prescriptive governance mode but subsequently migrated to evaluative governance. As they gained greater confidence in their partners' execution capabilities and trust in their commitment to devote resources toward upholding performance levels without being constantly monitored, they realized that evaluative governance would help them reduce monitoring costs.

Collaborative governance mode. Collaborative governance becomes appropriate when a firm has high confidence in its partners' capabilities and trusts them to monitor their own performance and take corrective actions to uphold the performance goals of the value net. This mode is appropriate when partners have demonstrated process capability and the ability to innovate, and have also demonstrated their commitment to the value net. Collaborative governance allows a firm to significantly minimize its monitoring costs.

Telecom Solutions Provider now uses this governance mode, having evolved through prescriptive governance and then evaluative governance. It now has the needed confidence and trust in its partners to delegate decision rights to them, and has been able to reallocate the monitoring costs previously necessary to other activities.

Figure 3: Selecting a Value Net Governance Mode

Decision Criteria	Governance Mode		
	<i>Prescriptive</i>	<i>Evaluative</i>	<i>Collaborative</i>
Confidence in partners' capabilities	Low	Medium	High
Trust in partners' commitment	Low-Medium	Medium-High	High
Monitoring costs	Justifiable	Reduce	Minimize

IT NEEDED TO ENABLE THE GOVERNANCE MODES

Figure 4 summarizes the differences in the IT-related requirements needed to enable the three value net governance modes. The differences fall under three headings—process architectures, information sharing, and use of business intelligence—and the ways the firms that we studied approached the IT requirements of value nets are discussed below.

Process Architectures

Prescriptive governance mode. With prescriptive governance, a focal firm should tightly integrate its processes with its partners’ corresponding processes to enable activity-level monitoring. Mortgage Broker has done this by mapping in detail the activities and dependencies between its processes and those of its partners and by using real-time dashboards to monitor them. Partners’ processes share data and requests with Mortgage Broker, but the processing of the data and queries is done within Mortgage Broker’s applications infrastructure, and only preformatted results are returned to the partners.

Given the tight coupling of processes across its value net, Mortgage Broker has to manage the risks of leakage of its core intellectual property—its algorithms

for risk scoring. It has established a “thin-client, thick-center” architecture to protect its analytical expertise on risk scoring. Its models and algorithms are encapsulated in a “thick center” of applications, which operate behind firewalls and which partners access through thin-client applications. Standardized inputs and outputs are exchanged between the thick-center and thin-client applications via application program interfaces (APIs).

Evaluative governance mode. To enable evaluative governance, the focal firm should loosely couple its processes with those of its partners to provide the partners with increased autonomy and to reduce monitoring costs. The firm can standardize process interfaces by adopting Partner Interface Processes (PIPs) that are developed by industry standards groups. These interfaces can be used to standardize the exchange of information between independently owned and operated process modules and to streamline interdependence between firms.

Global Logistics uses standardized process interfaces to receive information on the status of shipments and inventories from its partners. Its use of standardized interfaces to coordinate independently designed processes across the value net derives from the architectural vision of the firm’s top IT management. Over the last decade, Global Logistics’ senior IT

Figure 4: IT Requirements for Enabling Value Net Governance Modes			
	<i>Prescriptive</i>	<i>Evaluative</i>	<i>Collaborative</i>
Process Architectures			
<i>Nature of Process Integration</i>	Tight integration of activities	Loose coupling of process capabilities	Peer-to-peer process integration
<i>Mechanism for Process Integration</i>	Thin-client, thick-center architecture	Partner Interface Processes (PIPs)	Metadata architecture
Information Flows			
<i>Transactional Information Flows</i>	Real-time flows to monitor activities and automate execution	Real-time flows to coordinate processes but not to monitor activities	Real-time flows to coordinate processes but not to monitor activities
<i>Tactical and Strategic Information Flows</i>	Minimal	Periodic exchange of information on operational capability and of tactical information	Periodic exchange of tactical and strategic information
Business Intelligence			
<i>Use of Business Intelligence</i>	Rules embedded to automate processes, issue alerts, and handle exceptions	Process capability improvement based on mining of data related to outcomes and process traces	Predictive capability development based on pooling information across partners

management has realized this vision and established several modular partner-facing processes. In fact, the firm has taken a leadership role in several industry standards groups, such as RosettaNet in the high-tech and electronics industries, to develop PIPs. It has developed PIPs for key partner-facing processes such as shipping, receiving, warehousing, cross-border transit, and inventory management, which it uses to achieve loose coupling with partners.

Collaborative governance mode. To enable collaborative governance, the focal firm should use a metadata architecture as the primary means of coupling its processes with those of its partners. Such an architecture allows each firm to operate its processes autonomously while making data about performance accessible to the focal firm. A metadata architecture allows each firm to retain its own data definitions and rights over the data, and contains a dictionary that defines the content of data used by each firm. As such, it enables the focal firm to establish very loose coupling with its partners. It also allows the focal firm to access information and process resources from its partners, enforce visibility rights to these resources, reconcile data definitions, and enforce business rules to manage process dependencies across the value net. With this type of architecture, individual partner firms create and maintain their own data definitions and retain autonomy in how they execute processes while conforming to the visibility requirements and the business rules for close collaboration.

Telecom Solutions Provider has established a metadata architecture through which it can access any relevant data from its partners without requiring them to tightly couple their processes or conform to the firm's data definitions.

Information Sharing

Prescriptive governance mode. With prescriptive governance, the focal firm needs to vigilantly monitor its partners' activities and see detailed transaction data. Mortgage Broker seeks to observe the status of activities and errors across its value net and to resolve problems that it finds there. It therefore requires partners to provide detailed process traces.

Evaluative governance mode. In contrast, a firm using evaluative governance reduces the volume of transaction data and increases the amount of information related to process outcomes. Global Logistics uses process interface standards to loosely couple processes and does not monitor individual transactions. Instead, it collects information on and

monitors a granular set of more than 100 SLAs it has defined to manage relationships with its value net partners.

Collaborative governance mode. With collaborative governance, the focal firm needs to share not only operational and tactical information, but also strategic information. The objective is not to monitor partners, but to pool information to discover ways to improve, innovate, and create value. Such information sharing will enable the firm to redesign processes, coordinate competitive actions, and enable innovation across the value net.

Telecom Solutions Provider uses its metadata architecture to share not only operational plans, but also plans related to competitive actions, such as offering new products, entering new markets, reducing prices, and offering promotions. Based on negotiated agreements with partners, it pools and shares plans. The firm facilitates the assessment of a partner's process capability by automating the consolidation of outcome data and generating and sharing performance reports for processes in comparison to negotiated SLAs.

In fact, Telecom Solutions Provider has developed personalized "total cost portals" to provide its managers and partners' managers with customized views of total costs, cost-quality trade-offs, and customer satisfaction. These portals have enabled the firm to shift managerial attention from minimizing the purchase price of individual services to the total costs of conducting business with a partner.

Use of Business Intelligence

With the growing scale of value nets (i.e., a larger number of value net partners to be managed), value net governance can benefit from the use of business intelligence applications. Business intelligence can be used to detect exceptions and issue alerts, discover patterns of association by mining data on process outcomes and process traces, and select and apply business rules.

Prescriptive governance mode. With prescriptive governance, business intelligence should be directed at closely monitoring actions of partners across the value net, as this will reduce the level of resource required for monitoring. Mortgage Broker uses automated business rules to monitor activities, issue alerts, and handle errors across its value net.

Evaluative governance mode. In contrast, a firm using evaluative governance should use business

intelligence to monitor process outcomes and not transaction activities. Global Logistics uses data mining to identify trends in, and patterns among, outcomes for SLAs. It also mines process traces to discover how interface and change events affect the performance of processes. (An example of an interface event is a partner picking up or delivering shipments from or to the firm's warehouses; an example of a change event is the implementation of a new system or integration of a new partner into the value net.) Global Logistics has combined the mining of outcome data related to SLAs and the mining of process traces to improve process capability across its value net.

Collaborative governance mode. A firm using collaborative governance should direct business intelligence not only to understanding process capabilities, but also to achieving "predictive monitoring capabilities." These capabilities enable a firm to anticipate an operational or strategic problem and prevent it through early corrective action. Telecom Solutions Provider pools information related to competitive plans, market intelligence, and R&D information, which is provided at different levels of detail by its partners. It has used business intelligence to develop the capability to anticipate a slowdown in market demand and then trigger reductions in purchasing and production so as to avoid inventory build-ups.

GUIDELINES FOR PRACTICE

Each of the three firms we studied extensively leverages value nets but has adopted different modes of value net governance and has implemented different forms of IT to enable its value net. Our findings have implications for how CIOs and senior IT executives should deploy IT resources and develop IT capabilities for value net governance.

Guideline 1

Select the value net governance mode based on confidence in partners' capabilities, trust in their commitment to the value net, and your firm's perceptions about monitoring costs.

While value nets are designed to leverage partners' capabilities and reduce the resources the focal firm needs to allocate to certain activities, the governance mode must be chosen on the basis of knowledge about partners and how much monitoring a firm can afford. The governance mode determines what is to be monitored, the decision rights that will be allocated to partners, and the focus of formal contracts.

Prescriptive governance should be adopted when the level of monitoring costs is not an issue and the need for monitoring is perceived to be high. These conditions typically occur when the commitment of partners to the value net is unknown or suspect, or when confidence in partners' capabilities is low. As a firm gains confidence in partners' capabilities and in their commitment to the value net, and as it finds better use for the resources allocated to monitoring, it should adopt the evaluative governance mode. As confidence in partners' capabilities and their commitment to the value net continue to grow, and as the desire to redirect resources allocated to monitoring to other value-creating activities increases, a firm should move to the collaborative mode of value net governance.

Guideline 2

Align the enabling IT—process architectures, information sharing, and business intelligence—with the value net governance mode.

The three modes of value net governance require distinct forms of enabling IT.

Prescriptive governance specifies, monitors, and controls how a partner achieves outcomes. It is best enabled by tightly integrated digitized processes and high visibility into process traces, including inputs, events, outcomes, and exceptions. This governance mode can be supported with a thick-center, thin-client architecture, which protects the focal firm's intellectual property and uses APIs to link with partners' processes. Finally, prescriptive governance can be supported with business intelligence that is operational in its orientation and that is embedded both in rules to automate process execution and handle errors, and in dashboards to monitor activities and provide alerts.

Evaluative governance monitors outcomes and provides autonomy to partners on how outcomes are achieved. It is supported by loosely coupled process architectures, well-defined SLAs for outcomes, and periodic reporting on performance outcomes relative to SLAs. It is also enabled by mining SLA data and process traces, especially related to how partners coordinate activities to improve operational capability.

Collaborative governance facilitates peer-to-peer collaboration for operations and innovation. It is enabled by metadata architectures that pool repositories of information and process resources, and reconcile definitions of data and conflicts in business rules on how resources are shared and used. In addition, collaborative governance is supported by predictive monitoring, where historical analysis

of peer-to-peer processes is used to anticipate how processes will behave in different scenarios and when they will degrade.

Given these differences, CIOs and senior IT managers should evaluate the gaps between the requirements of the governance mode and the enabling IT that is in place, and take actions to address the gaps.

Guideline 3

Evolve toward the collaborative value net governance mode to fully leverage the potential of value nets.

The full potential of value nets is realized when firms are able to apply a collaborative governance mode for peer-to-peer collaboration. This mode represents an “ideal state” where decision rights are allocated based on expertise, where information and knowledge is pooled and shared to leverage partners’ capabilities, and where partners are concerned about long-term sustenance of the value net’s performance. However, effective collaborative governance requires a firm to progress first through prescriptive governance and then evaluative governance.

As a firm gains confidence in how its partners execute processes and in their commitment to the value net, the relative value of closely monitoring partners’ activities decreases. At this point, the process architecture should be reformed to support new contracts that allow looser coupling and periodic reporting of outcomes. Finally, as partners’ process capabilities reach a level of excellence and as rewards and risks can be shared by partners, full decision authority should be granted to partners on operational matters. Governance should now focus on loosely coupled peer-to-peer operations, coordinated competitive actions, and collaborative innovation.

To transition to collaborative governance, IT support needs to be established to report total costs, to pool and share operational and strategic information, and to leverage this information for predictive monitoring. Thus it is critical that firms establish the IT capabilities related to process architectures, information sharing, and business intelligence in a way that can support a planned transition to a different value net governance mode. Establishing IT capabilities with this in mind will facilitate the new levels of partnering and value creation that are being sought in the transition to the next level of governance mode.

EVALUATING GOVERNANCE CAPABILITIES

Value nets have emerged as an important strategy for firms to leverage partnerships and to achieve multiple business objectives. The effectiveness of value nets depends on CIOs and senior IT executives establishing the process architectures and IT capabilities that align with the value net governance mode. With prescriptive governance, the focal firm monitors and controls partner activities. With evaluative governance, the firm assesses partners’ capabilities while providing autonomy to them. With collaborative governance, the firm orchestrates peer-to-peer collaboration for operations and innovation.

In summary, the IT support capabilities required are:

- For prescriptive governance, automated process execution and business intelligence for vigilant monitoring and control.
- For evaluative governance, a loosely coupled process architecture and mining of SLA outcome data and process traces to enhance process capability
- For collaborative governance, a metadata architecture that pools and distributes strategic and operational information and process resources, that reconciles business rules to coordinate processes, and that mines pooled information to develop predictive monitoring capabilities.

Given these substantial differences, senior IT and non-IT executives should develop a shared understanding of the value net governance mode being pursued, the gaps in process architectures and IT capabilities, and the initiatives needed to remedy them.

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