

# Power issues when integrating supply chains

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## Abstract

We aim to describe the concept of power applicable to a study of supply chain integration and based on this analyze an integration process. This despite Dahl's suggestion that the whole study of power is a "bottomless swamp" (1957) and that there is no model applicable to all situations. The concept of power is contextual as power act to influence on social processes, where simple causality is absent. Social processes on the other hand have sub-processes or at least activities and mechanisms; applicable on many different situations and therefore of relevance.

Our method in use is a case of systematic combining of insights from literature and the case in order to develop the concept of power. As a case study developed we explored the dispositional and facilitative character of power as a subjective constructed concept. Therefore mechanisms rather than a general model are investigated, illustrated and discussed via eight propositions of facilitating power for development.

The literature in use includes the industrial network approach, inter-organizational relations, supply chain management and strategy literature and organization theory. The resource base in a supply chain, often used as an indicator of power balance, is specialized per actor. Also, the interdependencies among the firms creates a dynamic power relation and the more integrated the supply chain becomes the more power exists between the parties. In strategic relationships power is an energizer to mutual development. Power is hardly a source to one part only; it is a part of a relation. This relation might be direct, indirect and also a part of a political sense-making process. Power is situational, it changes over time, and it is a subject of interpretations of the actors, its direction shifts and co-exists.

Research findings include eight propositions that outline mechanisms of dynamic power aspects. These are illustrated by a development project in automotive supply chains regarding the process of integration.

The main contribution is the conceptual development of power in industrial networks, which is of especial importance deciding when and of what level of analysis a power analysis is appropriate.

**Keywords:** Dependency, power, supply chain, integration, development.

## Introduction

The concept of power in inter-organizational relationships has lately been used to develop managerial suggestions out of power regimes (Cox 2004a). Such a development might be counterproductive in practice as it misses the dynamic nature of power based on logic of long-term relationships, where the actors are dependent of each other. Studying power is described as a risky undertaking as *“the whole study of “power” is a bottomless swamp”* (Dahl 1957:201). This implies that power exists in many forms and must be differentiated depending on specifics in the research context, which in this case is integration in supply chains. Then, use of power is likely to neutralize integrative efforts in long-term relationships (Maloni and Benton 2000) as power over a supplier is not over every aspect of the supplier's behavior (Blois 2005).

Maloni and Benton (2000) argue that it would be injudicious to transfer the marketing channel literature findings of power and its influence between different industries or even other echelons within the same industry due to differences in power environments. Nevertheless, predictive models of power are missing in the marketing channel literature despite many attempts (Lusch and Brown 1982). Power is a dynamic part of a relationship and the definition in use underlines an ability to affect scenarios; *“power can be regarded simply as the ability of a firm to affect the decision making and/or behaviour of another to some degree, no matter what the source of this ability is.”* (Wilkinson 1996:31). This ability to affect decision-making or behavior has consequences to strategizing in industrial networks. Gadde et al (2003) means that strategizing implies simultaneous consideration to the heterogeneity of resources and interdependencies between activities across company boundaries, as well as the organized collaboration among the companies involved. More specifically, we define strategizing as *“the detailed processes and practices which constitute the day-to-day activities of organization life and which relate to strategic outcomes”* (Johnson et al. 2003:14). The supply chain typically have a coordination process and its acts might be attributed to power (Lukes 2005). In this paper we will focus on dependence-based power (Emerson 1962; Thompson 1967), as a supply chain is a specific type of network, with a material flow as a common denominator that connects and creates dependencies within it (Hertz 2005). Relatively little is known, states Hardy (1996), about how strategic actions materializes in the strategy-making process, where the use of power can provide the energy to ensure strategic action by driving the organization and its members through the strategy-making process.

### **Purpose**

We aim to describe the concept of power applicable to a study of supply chain integration and based on this analyze an integration process

## Theoretical framework

Different ways of conceiving power are natural to differing perspectives and purposes. Lukes (2005) argue that power is a dispositional concept *“comprising a conjunction of conditional or hypothetical statements specifying what could occur under a range of circumstances if and when the power is exercised”* (p. 63), which, naturally, make the concept more attractive in a practical context in a grounded theory than in a higher-order and context-free theory.

Channel theory has developed in two disparate disciplinary approaches; an economic approach and a behavioral approach (Stern and Reve 1980). Broadly speaking, this development also regards power in business relationships, which is seen as intrinsically intertwined with conflict and punishment or intertwined with dependency (Kumar 2005; Zolkiewski 2001). Figure 1 illustrates these approaches to power. Basically, existence of power and conflict in relationships with two or more parties is natural as contradictory and complementary goals co-exist. The economic approach applies microeconomic theory and industrial organization analysis to achieve increased economic output. This means that efficiency can be improved by a specific channel design, where power and, more or less, conflict is one of the elements determining the appropriateness of the supply chain design (cf. Cox et al. 2002).

	Objectives	Elements
Economic approach	Efficiency and channel design	Instrumental aspects of power and conflict
Behavioural approach	Power and conflict as social phenomenon	Power and dependency are dynamic parts of relationships

Figure 1 Different facets of power

The behavioral approach borrows from organization theory and applies a socially oriented analysis to understand processes, whereof power is a part. Co-operation manifests interdependence in relationships. Power is related to dependence and is a dynamic part of relationships (Bacharach and Lawler 1980; Emerson 1962; Pfeffer and Salancik 2003). Thus, in a supply chain context, which is characterized by long-term and interdependent relationships, the behavioral approach is natural to understand dynamics in power relationships and specifics in power environments.

The economic approach, more specifically the power regime perspective, uses buyer dominance over suppliers as an explaining variable for rewarding partnerships. The transactional exchange is argued to result in power, and high and standardized demand creates buyer dominance, or at least interdependence that is needed to make close collaboration beneficial for buyers (Cox 2004b). This contrasts to the view applied in a behavioral approach where e.g. Kumar (2005) implies that power increase with the network of mutual dependencies.

### **Power regimes**

Cox and his colleagues at Birmingham Business School prescribe strategies for managing within power regimes. Basically, the power regime perspective seems to characterize relationships based on two variables: degree of operational integration and relationship intention (Cox 2004a) and a categorization into a two-by-two matrix. The intent of a relationship is divided into own profit maximization and non-adversarial value appropriation. Dyadic exchange is described to be dominated by one of the parties, interdependent or independent. Based on the power structures that follows these exchanges; Cox et al suggest that "business success is essentially about an understanding of appropriate behavior in a wide variety of different supply chain and market circumstances" (2002:23), i.e. strategy should follow power position. With an ambition to achieve an analytical typology of supply chain power regimes, the basic unit of analysis, the dyadic exchange, is assessed in other levels; the relationship, the double-dyad exchange regimes, and an extended double-dyad exchange regime, i.e. a power regime.

Basically, Cox et al presumes existence of an objective power situation that leads to appropriateness of specific actions (Cox et al. 2002:27). Maloni and Benton (2000) argue that it would be injudicious to extend findings of power influences to other industries or even other echelons within the same industry due to differences in power environments. This is typical when actors' behavior is taken into account, as these have subjective pictures of power. However, Cox et al (2002:53) are not interested in what the actors do; it is rather the ability of these actors to use power resources that Cox et al find analytically interesting.

Notwithstanding Cox et al's enlightening codification of dyadic exchange regimes and description of seven different power regimes; a predictive supply chain power model is hardly achieved. This as a supply chain is an economic and a behavioral system. Business is dynamic and depends on what actors do (their subjective conceptions); this means that structural characteristics cannot explain strategy, which is obvious from strategic management literature. Also, power is relative and varies dependent on parties involved, resources and skill to deploy resources. In addition, power is not only an element that is at work between organizations. It is an element of importance and that is

interrelated to other levels of analysis as well, i.e. within organizations and to external stakeholders. This will be further elaborated in the section of power dynamics.

### ***Dependence-based power***

While an economic approach suggest profit-maximization of transactions, we assume all business relationships to be based upon a maximization of value. Value maximization might equal profit maximization. It is closely dependent of actors perception in terms of what is beneficial in a short-term perspective and in a long-term perspective, and naturally also if the actors are individuals or firms. The point in this argumentation is that analyses of actors involved in strategic, long-term relationship miss the target if focus is on maximization of single exchanges. Indeed, conflict and tensions predicted to arise from incommensurate outcomes in a transactional exchange perspective might be supplementary outcomes through interconnectedness, i.e. how the focal relationship relates to other relationships (Dubois 2003).

To individual firms supply chain management (SCM) is about managing in supply chains. A supply chain contains of three or more firms interlinked by e.g. commercial, legal, and social bonds in relationships. These have cooperative and competitive interactions simultaneously (Bengtsson and Kock 2000). We define SCM as

*"The systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across business within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole."* (Mentzer et al. 2001:18)

This definition emphasizes the strategic effort to coordinate parts as well as the whole towards improved performance. Supply chains are bonded by strategic commitment in long-term relationships and activities are based on high commitment and integration into a whole. Tactics are used within and across firms. Suppliers and customers have first of all obligations to act in the own firm's interest and coordination would only exist if interests overlap and the actors perceive that they create greater value for themselves by these kinds of relationships (Blois 2005; Gadde and Snehota 2000). However, power is a means to increase integration in the chain, which benefits the performance of the whole chain (Hardy 1996; Maloni and Benton 2000). Thus, integration means synchronizing involved firm's actions to decrease redundancy in activities due to a mutual commitment towards compatible goals. As integration increases; dependencies will increase and potentially also shift in character.

IMP research has, broadly speaking, regarded power as derived from resource dependencies (see e.g. Axelsson and Håkansson 1979). This perspective falls into what Lukes (2005) outlines as the "vehicle fallacy"; to equate power with power resources. But having the means of power is not the same as being powerful. *"In short, observing the exercise of power can give evidence of its possession, and counting power resources can be a clue to its distribution, but power is a capacity, and not the exercise or the vehicle of that capacity."* (Lukes 2005:70). Lukes has categorized concepts of power into different dimension of power — *"one could just agree to call one-dimensional power 'power' (attributed to those who prevail in decision-making situations) and two-dimensional power 'agenda control'... [i.e.] the power to decide what is decided."* (p. 111). The third-dimension (Lukes' contribution in the power debate) is about domination; to set the rules

*"the very idea of power's third dimension requires an external standpoint. Power as domination, I have argued, invokes the idea of constraint upon interests, and to speak of the third dimension of such power is to speak of interests imputed to and unrecognized by the actors."* (p. 146)

Already 1979, Axelsson and Håkansson experienced that power is dynamic as the importance of different power bases varied over time. In the interaction model, power is seen as a part of interactions that in turn make up relationships. Power is, however, also a product of the relationship and seems to be seen as an attribute to a relationship between two individuals. Some late contributions to IMP conferences have widened the original resource dependence based concept of power (Fairhead and Griffin 2000; Zolkiewski 2001) Also, some attention has been attributed to how network relationships are interrelated and influenced by political actions (Hadjikhani and Håkansson 1996). Hadjikhani and Håkansson analyzed how an affair, the Bofors-India case, influenced other Swedish companies and their way of doing business in India. Basically, what was a political act toward one MNC affected other

companies, but not in the same way. How others were influenced depended on positions within the network in relation to the problematic relationship and actions to distance from it. This kind of analysis illustrates what Lukes (2005) categorizes as agenda control, i.e. to affect what becomes noticed and unnoticed in decision-making situations by different actions. Fairhead and Griffin (2000) emphasize that domination might be exercised bottom-up and that the prevailing system's power also will affect development in networks. In line with this, Zolkiewski (2001) highlights the complexity and turbulence of power in networks that is evident at different levels in the network simultaneously.

As a continuation of these contributions to the power concept in industrial networks, a set of propositions is developed to understand power dynamics in terms of decisions, direct and indirect relations, dependencies, perceptions of resources (Borgström and Hertz 2006). Thus, the propositions of power add aspects to power dynamics and each of these will be further developed after the research method.

## Research method

We have studied two pilot projects of monitoring in supply chains, which follow the recommendations for Supply Chain Monitoring, SCMo (Odette 2003). In addition, we are participatory observers in another on-going project. The pilot projects lasted for approximately six months and were terminated in 2004. The participatory study started in 2004 and is on-going but frozen since March 2006 due to a lack of finances. A task force with participants from nine OEMs, four automotive suppliers, and interest organizations for the automotive industry wrote the recommendations. Some of the members of this task force were interviewed in our project as these participated in the projects. In our research the SCMo projects are the unit of analysis. We have used an exploratory case study approach enabling the researcher to come close to the respondents' experiences and context (Yin 1994). The findings of these projects's development will be used as illustrations of how power might influence an integration process. Basically, when we encountered power issues in the explorative automotive study we started with a literature review of SCM journals and IMP-papers, without finding a coherent frame to analyze power in the scenario. Distribution channel theory and organizational theory have plunged deeper to the power phenomena but some of these findings cannot be used as the power concept is dispositional. Our ambition is to analyze an integration process and therefore we have purposefully developed a framework, in an abductive manner (Dubois and Gadde 2002), to analyze hindrances and facilitators out of different actor's power in the process. This ambition excludes deterministic explanations as it is a situational model of power that is appropriate to use when analyzing management practices (Czarniawska 1999). We have earlier presented the pilot projects divided into three phases; initiation, the process, and the termination of the projects (Borgström and Hertz Forthcoming 2006) and will delimit this part to plot the case findings purposefully. Participatory observations of the on-going Swedish project are added to this plot.

The monitoring projects follow the recommendations for Supply Chain Monitoring (Odette 2003). SCMo is defined as *the efforts of the actors in a supply chain to manage and control visibility of information regarding flows of products and services in different levels and directions in a supply chain*. Thus, many actors are involved in the monitoring project, which creates visibility of activities, resources, and firms. The information system has an open structure permitting different actors to view the status information of the supply chain's material flow. SCMo imposes a new degree of visibility between the firms to facilitate improved logistics and administrative practices in the supply chain. SCMo was developed as a common industry initiative under the Odette umbrella. Odette is an industry-owned organization that, among others, sets up standards for business communication, i.e. engineering data exchange. The outcome of the development work is the publication of recommendations – Supply Chain Monitoring V1.0 (Odette 2003). These address the lack of information in logistics networks. Inter-company visibility and transparency are recommended regarding demand information from OEMs and supply information of capacity and inventories from suppliers.

## Power dynamics

Stern and Reve's (1980) ambition were to view "a social system as comprising interacting sets of major economic and sociopolitical forces which affect collective behavior and performance" (p. 53). The dynamics in business depends on actor's activities and their subjective conceptions, where assessments of power balances are snapshots in a process. Moreover, levels of the power analysis are important as a power relation is affected by more than the parties, which give further insights to the dynamics. Also, power is relative and varies dependent on parties involved, resources and skill to deploy resources. This is in line with Gustafsson (1979), who propose that elements in a comprehensive dynamic model of power are made up of three parts: first, resources as bases in power relations: second, power as observable actions and events: and finally, opinions as pictures of power. These elements are our basic assumptions used in the following propositions: (1) Power works best when used implicit due to subjective interpretation: (2) Using power or dependence to explain specific outcomes might be spurious due to involved parties' interpretations and interdependencies: (3) Political sense-making is an important part in an integration or disintegration process. It is a skill that influences the use of resources: (4) Supply chain power is situational and a result of a complex and turbulent setting: (5) Direct and indirect power is effective, for example, if these facilitate a perception of fairness of those affected: (6) Mutual development is more effective in order to drive integration than punish-based power: (7) The power in supply chain relationships tends to shift over time due to a changing degree of specialization: (8) The appreciation of power differs among actors, which impact their actions. Skillful lobbyists' can take advantage of resources without use of power. These propositions will now be further described.

### ***P1 Power works best when used implicit due to subjective interpretation.***

*"...how we think of power may serve to reproduce and reinforce power structures and relations, or alternatively it may challenge and subvert them. It may contribute to their continued functioning, or it may unmask their principles of operation, whose effectiveness is increased by their being hidden from view."* (Lukes 2005:62)

The power concept, as a dispositional concept, specifies what could occur under a range of circumstances if and when the power is exercised. Thus power refers to an ability or capacity of an agent or agents.

*"power is real and effective in a remarkable variety of ways, some of them direct and some hidden, and that, indeed, it is at its most effective when least accessible to observation, to actors and observers alike"* (Lukes 2005:64)

This means that it is possible to foresee drivers and hinders to use power effectively even though causality-based explanations is spurious. In a practical context this kind of knowledge is important to actors, regarding what agents would do under hypothetical conditions in various levels of the industrial network.

### ***P2 Using power or dependence to explain specific outcomes might be spurious due to involved parties' interpretations and interdependencies.***

In long-term relationships power are different in interactions on different levels, which make an appreciation of who is powerful versus powerless to be an interpretation. Relationship development and integration is a process. Furthermore, time and environment plays a role. Dahl (1957) noted that one property of a power relation is that a time lag exists from that power is exercised to a response. In a supply chain study this means that different interactions between individuals in firms, direct and indirect relations outside the firm have to be interpreted in its complexity. For example, both parties in a relationship can have different perceptions of the relationship atmosphere in terms of e.g. power and dependency (Sutton-Brady 2000); this duality might give additional insights of power.

Tilly suggests several alternatives to why the dependent parties comply (1991 in Lukes 2005):

*"... if ordinary domination so consistently hurts the well-defined interests of sub-ordinate groups, why do subordinates comply?..."*

1 The premise is incorrect: subordinates are actually rebelling continuously, but in overt ways.

- 2 Subordinates actually get something in return for their subordination, something that is sufficient to make them acquiesce most of time.
- 3 Through the pursuit of other valued ends such as esteem or identity, subordinates become implicated in systems that exploit or oppress them.
- 4 As a result of mystification, repression, or the sheer unavailability of alternative ideological frames, subordinates remain unaware of their true interests.
- 5 Force and inertia hold subordinates in place
- 6 Resistance and rebellion are costly; most subordinates lack the necessary means.
- 7 All of the above."

(Tilly 1991:594)

These are some suggestions that might apply in one or several ways and that might be clues to describing and seeing the power system. Another suggestion is that the discourse of supply chain management is used to create goal convergence in supply chains. Clegg discuss that diffusion of disciplinary techniques throughout an organization (as a supply chain) extends any agency's governing power over time, over space and over other agencies (1989:219). This is a way to reproduce a powerful party's power and a way to work with political sense-making.

***P3 Political sense-making is an important part in an integration or disintegration process. It is a skill that influences the use of resources.***

Decisions, orders, and interactions among individuals and groups within and between organizations can be traced to some exercised implicit or explicit power (Gustafsson 1979). Therefore, strategic coordination toward a mutual goal is a starting point for many questions seen from a power perspective. A mutual goal is actually an ongoing dynamic decision-making process (Cyert and March 1963). Mutual problem-solving as well as problem-setting in an inter-organizational setting is affected by power; also how problems should be solved follows what problems that is on the agenda. What has become known as the two faces of power (Bachrach and Baratz 1956) describes that one face of power is participation in decision making while the other face is e.g. the capability to prevent issues to be subject to decision-making. A problem in research is that the first face is observable while the other is interpretable but hardly ever outspoken. This is for instance when a firm refuse to negotiate or use delaying tactics.

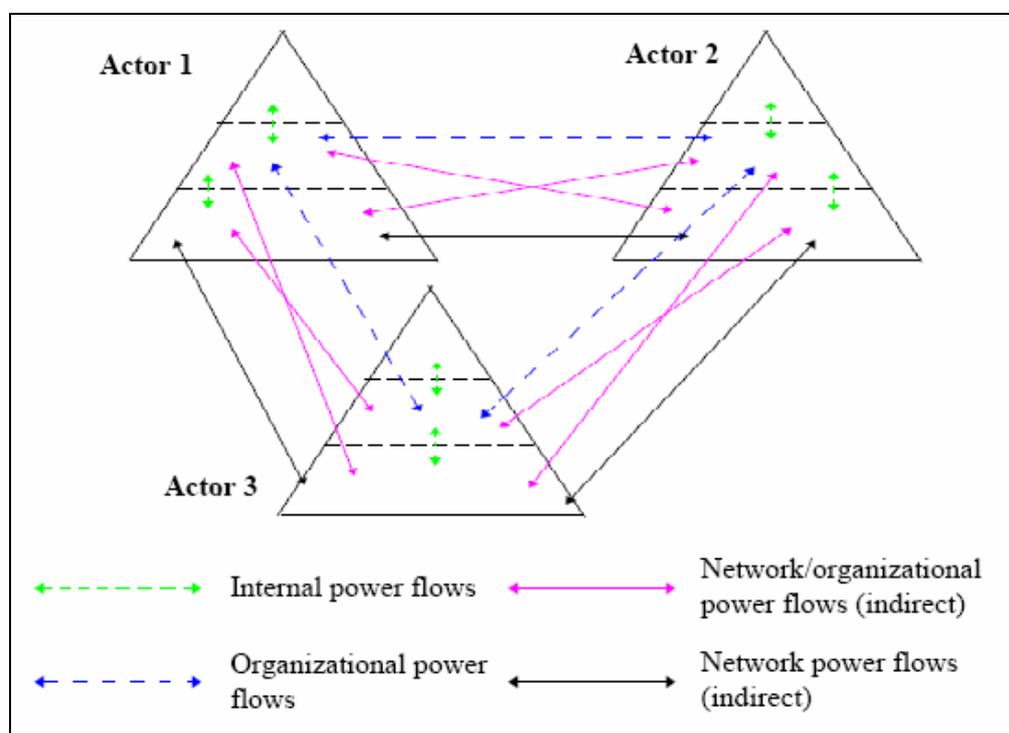
An excellent example of power dynamics in a relationship (Blois 2005), is the concept of countervailing power (Galbraith 1956). This describes the mechanism by which power evolves between organizations in a vertical channel and the ability to understand power and how resources might be used is the basic elements in countervailing strategies. Originally, Galbraith defines countervailing power as "restraints on power" (1956: 11). Thus, power refers to the ability of A to control the decision-variables of B; this ability varies in time, i.e. from occasion to occasion. Moreover, B has an ability to inhibit A's power over B's decision variables, i.e. countervailing of A's power (Gaski 1984). This is B's power over A and represents another set of decision variables with a possible but unlikely overlap because the firms' position differs (Gaski 1984).

Power is related to a system and its norms, values and rules. A social system's boundaries are important to a study of power but seldom natural, these are related to level of analysis. Natural levels of analysis in industrial network studies are the interaction of individuals, business unit, nets and networks. In supply chain management, studies, Harland (1996) outlines research levels that differs, among others, regarding individuals that are absent and regarding the business unit; seen as interlinked by a chain of activities. The levels are: First, the internal chain in a firm, this is a system that is one of two parts in the next level; the dyadic relationship. The relationship is one of several parts on the next level, i.e. the external chain, which is a part of the network. Power is thus not only a question of two parts in a relationship; the supply network will inevitably be an influencer in every relationship. And the other way around - the network will as well be influenced by the chain, different dyadic relationships as well as specific firms (Hadjikhani and Håkansson 1996; Håkansson and Ford 2002). This might be a part of the system power that is 'invisible' and 'impersonal', i.e. embedded in the system (Fairhead and Griffin 2000).

One example of indirect power regards the power within two dyadic relationships. A has power over B, and B has power over C. To the network, this means that A has power over B who has power over C; thus, A has an indirect power over C (Gustafsson 1979). This indirect power might be something

physical, as definite rules, but also psychical input to the actor's subjective appreciation of the network (Sutton-Brady 2000). Especially the latter input means that the direction of power is in two ways, for example, in different set of decision variables that varies in time. Thus, A, B, and C are all in a power system but subjective pictures of power will impact decisions. In the network of A, B, and C; a situation might occur where A use its power towards B, who will experience and interpret that situation as one scenario while C observe and interpret the situation as another scenario. Furthermore, resources are power bases but affects individuals differently dependent of their construction of a situation (Gustafsson 1979). This subjective construction makes attempts to generalize causality difficult, as A has power over B but not control of B's actions as the power might be neutralized in different ways.

Power as an energizer and neutralizer to different events can develop in different ways. Zolkiewski (2001) remarks that different individuals, especially that have different functional origin, have different power. This is in line with everyday experience and depends on, among others, certain position's resources but also images of these. However, Zolkiewski's findings put some flesh on Fairhead and Griffin's (2000) argumentation regarding the powerless parties' power and countervailing power. This means, for instance, that power can be identified to influence top-down as well as bottom-up in an organization. Zolkiewski (2001) suggests three levels of analysis (personal power that is internal in organizations, organizational power, and indirect power from the network). An individual with Personal power has control over resources and thereby the ability to influence other individuals. Organizational power is an organization that has control over resources and thereby the ability to influence others. The organization does not act but the organizational power is a characteristic in relationships, which, for example, might be seen in willingness to adapt. Power provide energy to the strategy-making process in related firms (Hardy 1996; Maloni 1997), such adjustments might be seen as "the basis for productivity and innovation of the individual firms, of the relationships, and of the network as a whole" (Dubois and Pedersen 2002:41). Indirect power means that actors have different images of a setting which involves ability to influence the network and the ability to invoke political action and/or media action. This seems to be a possibility that originates in, what Hardy (1996) describes as 'system power'; which is difficult to perceive directly and to intentionally change as no one actor has mastery over it. Thus, for politically less-active network actors, indirect power may be experienced only in more objectified terms, through the medium of agendas and resource-endowments (Fairhead and Griffin 2000) while active actors influence others regardless of their control of resources.



**Figure 2** Illustration of power relationships among three actors' different levels Source: Zolkiewski (2001).

Zolkiewski (2001) argues, based on three case studies, that the different influences of power makes up a complexity within and among the organizations (see Figure 2). The complexity and turbulence of power within a network context is situational, i.e. the sum of individual and organizational power will not equal the power situation at network level. This means that it would be unwise to suggest that managers try to manage power within the network even though power issues have to be considered. Access and control over resources, processes and personnel should be considered from an individual, relationship and network perspective, also managing indirect power, i.e. the ability to influence the network, media or political action is an important management task (Hadjikhani and Håkansson 1996; Zolkiewski 2001).

Firms have complex relations to other firms that differ from individuals' relations to each other. A firm consists of a multitude of functions and individuals and therefore might every interaction between firm's individuals be unique. Thus, the firm's actions and reactions have to be interpreted in their context.

#### ***P4 Supply chain power is situational and a result of a complex and turbulent setting.***

Power is weighted and balanced by involved actors. Power, as the ability to affect another firm's decision-making, relates to that the actors are very interdependent, this as supply chain processes have pooled, sequential, as well as reciprocal interdependencies. Decisions are negotiated, sometimes by conflicts, and relates to a past and a future with its interdependencies. The actors in a long term relationship have a common past that influence actions today and they will probably have a common future too. The relationship's available resources do not have a fix value. They are bases in a power relation only to the extent the other party value them, i.e. they give rise to different pictures of power as a matter of opinions but also over time (when looking back or to the future for particular reasons to a decision-making). In addition, increasing coordination, and thereby dependencies, means that troublesome uncertainties about supply and demand are lessened, which easily becomes a part of the prevailing system power. In this, resources are only one part among others:

*"Contrary to some conventions of power analysis, there is little point in constructing a priori abstract list of specific resources as power resources. Whether they, whatever they are, are power resources depends entirely on how they are positioned and fixed by the players, the rules, and the game."* (Clegg 1989:209)

#### ***P5 Direct and indirect power is effective, for example, if these facilitate a perception of fairness of those affected.***

Academic literature has dealt with power within firms rather than between firms (Blois 2005). The results cannot be applied automatically to inter-organizational situations although power refers to a relation. Common power definitions in use are in most cases rooted in French and Raven's paper from 1959 and Dahl's paper from 1957. French and Raven (1959) define power in terms of influence, and influence in terms of psychological change on a person by a person or a group. They are specific that they do not consider influence exerted on a group. Also Dahl (1957) is specific to point out that *"power is a relation, and that is a relation among people"* (p. 203). Dahl later argues that the actors in this relation might be groups or other human aggregates as well as individuals as long as the two sets of individuals as comparable (Dahl 1957). Extending this to an inter-organizational setting, where firms are actors, are indeed difficult as every firm is a set of different individuals with its own characteristics that is comparable to other firms only in specific situations or with regards to some characteristics, for example, business in automotive supply chains.

Maloni (1997) studied the US automobile industry in a survey with 180 responses and a response rate of 35.2 %. Maloni defines power in a supply chain as:

*"the ability of one channel member (the source) to influence the actions and intentions of another channel member (the target). Several sources of power, both positive and negative, exist to affect the operational strategies and processes of both the power target and the source."* (Maloni 1997:185)

Conceptually Maloni modeled power in a supply chain to influence relational elements based on French and Raven's definition. The relationship then, in turn, was conceptualized to affect the performance of the supply chain members as well as the satisfaction of the suppliers. The findings indicate that expert and referent power sources enhance the value of partnerships and supply management efforts while coercive power influences can destroy a relationship and serve to neutralize programs and policies toward integration of the supply chain. Another finding is that supplier satisfaction is primarily driven by the relationship; suppliers expect alignment with powerful buyers to result in better performance. Also, the suppliers are seen as the key to maintaining buyers' capabilities (Maloni 1997). The dependence and expectations are consequently different from suppliers' and from buyers' perspective but they are interdependent.

Power balancing can, for example, be seen in influencing actions and events and in activities to avoid or side-step these. Each situation has to be interpreted in its context of space and time, as a part of a process. Among others, coalition's existence and development might be interpreted as a balance of dependencies. Opinions of balancing are forming the continued integration process as well as actual change in degree of integration do. Enforced integration, however, might cause resistance to integration and further mutual development.

Mutuality is a qualitative estimation rather than fifty-fifty sharing of input and output. Mutuality implies a certain degree of fairness, for example in terms of pay off to vulnerable parties. The perception of fairness in a relationship is driven by perception of the outcome, e.g. pay-off, as well as of the process of collaboration. The process is most important in order to perceive fairness and to develop trust and commitment (Kumar 2005; Kumar et al. 1995). This is logical as it is difficult to assess whether the outcome is fairly shared as the relationships are complex; *"The participants may not fully understand each other's competencies, strengths, and weaknesses, and the outcome of the collaboration may not be clear."* (Jap 2001:86). However, the participants in the process know if they have been treated as equals.

#### ***P6 Mutual development is more effective in order to drive integration than punish-based power.***

Mutuality in goals seems to prohibit one-sided utilization of power advantages. Maloni and Benton (2000) studied co-dependent relationships between manufacturer and dealer in the automotive industry, which have developed into a *"fairly equitable power balance...Despite the current push toward relational integration ... [relationships] tend to be extremely competitive, and the manufacturers maintain a relatively lop-sided power advantage."* (p. 51). This, as the big manufacturers have considerable purchasing power advantage.

Yet, Honda as well as Chrysler tend to de-emphasize their power advantage focusing on a more relational orientation (Maloni and Benton 2000). This is logical in a long-term perspective, as focusing on the power advantage upset relationships and becomes barriers to integrative advantages. In addition, it would be a risky operation as any attempt to utilize power outside the range of power will tend to reduce the power (French and Raven 1959), this range of power is difficult to be aware of as it varies (Gaski 1984). In addition, a cross-industry analysis of manufacturers and retailers implied that *"if you use power, you use it up"* (Ailawadi et al. 1995:218), which means that actions in the current situation should broaden future freedom of choice and avoid the risk of pushing it too far. Effects of such risks are future retaliation or counteractions that decrease dependency and also spoiling future development potential (Kumar 2000). The implications of dependence-based power are fundamentally different from those of punitive-based power. Absence of punitive actions imply that great mutual dependence based power generate trust and commitment and this power comes by creating a network of mutual dependencies (Kumar 2005). Force and punitive actions, on the other hand, is described to secure outcomes which cannot be achieved through social integration, particularly against those constituted as 'others' or as 'outsiders' in terms of the network (Clegg 1989:219).

In automotive supply chains the OEMs have a purchasing-power advantage that might be de-emphasized in order to take advantage of technologically advanced suppliers with a logistics capability that is adapted to the OEMs specific demands. This is especially true during the life-cycle of a car model. However, it applies also in a more general sense as modules and platforms are more and more used for several car models. The more creative and profitable solutions that spring up from the relationship the more difficult it is to substitute it or leave the relationship. The first tier suppliers in automotive supply chains are powerful purchasers and suppliers. They leverage purchasing power

within the supply chain but have also a common responsibility to be innovative. The next tiers are often less integrated, i.e. less dependent on one supply chain. Nevertheless, to these suppliers the financial magnitude of exchanged resources is critical. In addition, the automotive buyers develop the suppliers technologically and logistically. Thus, system suppliers, more specifically sequence suppliers have accumulated their customers' resources (through outsourcing) and have many OEMs as customers, which imply that these suppliers are actually more powerful than the automotive OEMs. The changed balance in resource base might be realized differently in the individual, organizational and network level (cf. Gustafsson 1979). Thus, from a resource-based perspective the automotive supply chain's integration has resulted in a transfer of power over time through outsourcing.

***P7 The power in supply chain relationships tends to shift over time due to a changing degree of specialization.***

Power derives from resource dependencies, which Emerson formulated as  $P_{AB} = D_{BA}$  (Emerson 1962). This relationship emphasizes A's and B's relative position to each other. Basically, Axelsson and Håkansson's study in 1979 is based on a concept of power that is derived out of dependences of different resources, internal and external. Dependences is natural as the organization tries to decrease uncertainties towards the environment (Thompson 1995). To analyze the external dependencies Axelsson and Håkansson use Pfeffer and Salancik's resource dependence perspective (1978), which discuss, among others, strategies to handle different uncertainties and dependences towards the environment. They found specialization as a driving force to change in the power system, which implies more and more integration among firms. Papers of interdependences have ever since prospered in IMP-literature while the power discussion has stopped. This infers problems to understand development in industrial networks as actors are a part of them and power is an important concept related to managerial action. Dependencies are, however, also important as these make up one dimension of power (Lukes 2005).

In a recent study of buyer-supplier relationships; *organizational* dependence was described by four characteristics that have different implications to suppliers and to buyers (Caniëls and Gelderman 2005). First, the financial magnitude of the exchanged resources is critical to the supplier but less critical to the buyer if alternative suppliers are available. Second, the criticality of resources might be divided in technological knowledge and logistics capability (Caniëls and Gelderman 2005). Buyers rely on technologically advanced suppliers and suppliers rely on customers in their technologically development. Logistics-based capability is developed out of the customers perspective, who is dependent of deliveries compatible with its production system while suppliers "only" rely on customers in their logistics development. The last characteristics of organizational dependencies are the availability of alternative sources and switching costs when exiting a relationship.

The different resources are utilized in activities with pooled, sequential and reciprocal interdependencies (Håkansson and Persson 2004; Thompson 1967). The pooled interdependencies exists per definition in a supply chain and several supply chain strategies aims at capturing pooled and reciprocal interdependencies e.g. to increase learning, improve innovation and agility (see e.g. Maloni 1997). Power is a necessary mechanism by which the firms are organized and is used to affect decision making and behavior among the interdependent firms (Hardy 1996; Wilkinson 1996), especially towards increased supply chain integration (Maloni and Benton 2000; Maloni 1997).

Supply chain integration consequently means an initial process of adaptation with decisions, conflicts and power, which inevitably will influence the subsequent steps that we might observe between the same actors. The dynamics of dependencies, when unbalance becomes balance, are discussed by Cook as a process where for example an initially powerful firm takes advantage of another and by this becomes dependent of the advantage, makes investments in the relationships and becomes more dependent (Cook 1977). Balancing dependencies is, thus, a tactic that affects the relation (Håkansson et al. 1977). The buyer's power over the supplier is based on the supplier's dependency of the buyer and the other way around; the buyer might be as dependent as the supplier (Emerson 1962; Pfeffer and Salancik 2003). However, Emerson (1962) points out the parties are "*being controlled by the relation itself*" (p. 34). The relation is affected by on-going actions of the parties and of the parties' other relationships that ultimately control important resources. Power and dependence are a driving force for change, for instance, by balancing relationship operations (Emerson 1962). A change such as further integration might thus imply a change in coalition pattern and create conflict and bargaining between actors. Coalitions seems to be an important part of power dynamics in industrial networks as

these exist naturally in networks and changes of them implies unforeseen effects (Hertz 2001; Hertz 1993).

In the definition of SCM in this paper we assumed that “the individual companies and the supply chain as a whole” are parts and a whole. However, in the supply chain and especially the supply network there are firms with a common owner, which might form a coalition. Other types of coalitions are common, such as supplier associations. These coalitions’ effect might be greater than the parts’ in different areas. Fundamentally, dependence-based power is embedded in a relationship and implies multidirectional influence (Bacharach and Lawler 1980). Power coalitions of two or more actors will jointly influence another actor. A supply chain example is where A has more resources than B, B has more resources than C, and a coalition of B and C controls more resources than A is shown below:

$$A > B > C, A < (B+C)$$

The coalition of B and C can place A in a subordinate power position as B’s and C’s combined resources outweigh A’s. This might be seen as a skill of B and C to deploy resources.

The supply chain relies on sequential commercial relationships. Each actor is responsible towards its customer regarding supply; responsibility becomes an outcome of supply chain structure. Bacharach and Lawler (1980) argue that this structural property of power is authority. In business relationships has the customer a natural authority rather than the customer’s customer. When a supply chain becomes more integrated, the coalition pattern might change or an actor might perceive that a beneficial pattern might change, which naturally will be a trigger to counteractions to further integration.

***P8 The appreciation of power differs among actors, which impact their actions. Skillful lobbyists’ can take advantage of resources without use of power***

Furthermore, the European car industry has historically been the most politicized industry as it is important to the region’s economy (Cox et al. 2002:185). In Sweden Saab’s problems generated a governmental initiative to finance research and development in order to keep a competitive automotive industry in the country. This started a hectic period of cooperation among Swedish OEMs and representatives for automotive suppliers, to take advantage of the opportunities both within the industry and within the organization. Integration projects within the automotive industry are complex because of interdependencies; complexity infers costs and the automotive supply chains are reluctant to add costs as the pressure to continuous price reductions is continuous. This means that external funding might realize actual implementation. Naturally, the politicking regarding which projects to fund, and thereby which functions that gain in importance, is immense and involves individuals, organizations, external organizations and the network. Thus, endurance, timing and lobbying is an effective use of power.

## **Findings**

Strategies in supply chains are compatible and continuously negotiated; implicit or explicit. In this case the overall objective of the SCMo is a smooth and secure supply with minimal safety inventories. The information sharing that SCMo refers to is the data handled in ERP systems.

### ***Planned and emergent strategies***

Strategically, the aim of the suppliers was mainly to increase efficiency through elimination of non-value-adding costs while the aim of the OEMs was the possibility to build to order through flexible supply networks. A common strategic focus was to create reliable and flexible supply networks with high visibility of relevant data and collaboration. The organizational dependence between suppliers and OEMs are mutual and an important driver to integration, in line with our 6<sup>th</sup> proposition.

*“If the supplier answered that they didn’t want to participate we tried to involve our management to get them in. In most cases there was no chance, the suppliers said: no, we can’t or we don’t want to join. We also said it wouldn’t do to force them into it; if suppliers didn’t want to participate the project wouldn’t be successful.”* Project manager OEM

At this phase of the project advantages are easy to detect for involved parties and the force of the arguments are settled in supply chain management practices, which has become diffused in the automotive industry as upcoming disciplinary management techniques (in line with Clegg 1989). In essence, the main advantage for the suppliers seems to be longer planning horizons and thereby minimizing inventory costs. For the OEMs it seems to be synchronization of the supply chain since they have to offer a variability of cars that they cannot afford to keep in stock. OEMs proposed pilot projects in supply chains with delivery problems where some suppliers decided to take part. Thus, use of power to initiate integration is effective as long as those affected perceive it as fair, regarding the development process and the planned outcome, in line with the 5<sup>th</sup> proposition. However, at this stage the 3<sup>rd</sup> proposition is important as well as the mutual goal in terms of mutual problem-solving as well as problem-setting is affected by power. At this stage the dominating view is that transparency in supply chains is solving common problems that should be on the agenda. The other face of power (Bachrach and Baratz 1956) was not used by either parties (to use the capability to prevent issues to be subject to decision-making, among others).

It was the OEMs that decided to implement SCMo and only critical parts of the automotive supply chains are subject to monitoring. In all cases the purchasing department was asked to pick critical supply chains, which thereafter was invited to the project if they was committed to the ideas. The OEMs decided which 1<sup>st</sup> tier suppliers to involve and these had to choose which of their supply chains that should be involved. The decision to involve firms is thereby made step-wise by customers, i.e. in collaboration with its suppliers. The automotive supply chain is a long and hierarchical quasi-organization and the OEM has a limited insight of what problems their closest suppliers have with their suppliers.

*We at [OEM] didn't want to control. Our material suppliers are not responsible for tier 3 or 4's functioning. We are only responsible for tier 1. We don't want to control the whole supply chain; our material planner would not call a tier 3 supplier. There are enough problems; they don't want to take part in that problem. Project manager OEM*

Thus, the automotive supply chain, that is highly integrated, has transparency in relationships rather than in the chain as a starting point. The role of SCMo, creating supply chain transparency, is to bypass, for example, the first tier supplier with information upstream and downstream. This means that different actors get access to information about involved actors, resources and activities. Even though this is with consent of first tier, SCMo creates implications in different levels and processes. If we use proposition 1 and 2 the increased information give rise to subjective interpretations of the involved parties and thereby less reason to comply with earlier agreed business terms as power flows are changed (Zolkiewski 2001). It is changed power flows between different firm's functional specialists, it is new indirect network/organizational and network power flows. The first tier supplier has developed to a system integrator as the OEMs are specialized and outsource a lot. If power flows are changed the players, the rules, and the game are changed as well (Clegg 1989), reflecting the complexity and turbulence of supply chain power systems (prop. 4).

*"Our experience is that suppliers are scared of showing us the supply chain. This because they have had bad experiences in the past, for example, our purchasing department gets into the discussion with 2<sup>nd</sup> tier suppliers, and thereafter tells 1<sup>st</sup> tier suppliers that you have to lower your prices and such things: They wouldn't show their sub-suppliers, it is a big disadvantage. They are afraid of losing their planning control."*

First tier suppliers' and OEMs' relationships are closely integrated and the actors collaborate in different supply chain processes. Interactions are on different levels between these big organizations, the agreements between the selling organization and purchasing organization means also frequent contacts on an operational level. In order to succeed with individual work tasks the practitioners' interactions and relationships between organizations are important. However, OEM managers of material flow might be hindered in their efforts to improve efficiency because of purchasers' actions and decisions. The information about the other firms and their execution of operational activities eventually reach the purchaser who used it in negotiation. Also operation managers in supplier firms might be hindered in their ambition to create an effective flow by selling tactics in their own firms. In addition, a lack in internal commitment hindered the development as some users had to feed data to the SCMo system without any obvious gains to them or their group in the organization. This operational group was quite satisfied with the earlier working procedures.

On the other hand, the uncertainties of the other parties' outcomes become clearer to purchasers and sellers, which give improved basic data as input to negotiations. On an operational level the execution/deliver process gets more integrated with improved communication across organizations. Thus, contradictions and goal-conflicts appear between levels in the supply chain.

*Also, the 1<sup>st</sup> tier's existing tool is doing the planning now, they say their own planning tool is much more complex, use much more parameters were they can influence and optimize their production.*

This means that efficiency in parts of the supply chain might drop. SCMo is a tool to achieve the strategic goals but when the project was implemented these didn't match with different intra-organizational goals. Consequently the power system in the different organizations was partly working against the implementation (in line with prop 3).

Appealing characteristics of the monitoring concept regard interoperability in the supply chain. The interoperability of SCMo is interesting as a common information-flow structure is a general automotive industry investment rather than, as earlier information-sharing tools, a customer-specific investment. This means that the resources involved is not specific to one customer, which typically make firms less interdependent. However, the collaboration to reach interoperability integrates the actors. The suppliers that participated in the project were generally interested in development. Many of them had plans to implement SCMo in their internal supply chains, as these are complex with production at different sites in different countries.

The interoperability SCMo provides is intertwined with increased OEM and sub-supplier power due to increased knowledge of actors, resources and activities in the supply chain; transparency of the chain. On the other hand, it is also intertwined with decreased OEM power as the suppliers' investment in SCMo is advantageous towards several customers and their own suppliers; the investment is network specific rather than net specific. 1<sup>st</sup> tier suppliers lose some of their knowledge advantage towards the OEMs and towards the sub-suppliers. One project that was characterized by conflicts solved this by denying OEM access to the information. This way the existing pattern of coalitions could prevail and the shift in power, implied by proposition 7, could be avoided.

The strategic development in the network can be partially planned but emerges due to circumstances. The on-going SCMo project, which we are participatory observers in, has not yet been implemented. Early in the project's planning phase our research group was invited to take part. This has, among others, resulted in increased interest internal in the OEM organization and among supplier representatives. Researcher presence underlines an ambition from the initiators that the aim of the project is co-development rather than exploitation. Also representatives of industrial organizations, representing OEMs and suppliers, are active parts in the project. These representatives are skilled as lobbyists and crucial to get a project going as they impact the prevailing supply chain and actors that are important to its functioning. In line with proposition 3 and 8 the lobbyists influence a system's rules and values as active parts in the system's sense-making. However, it is impossible to expect a pre-specified outcome of this.

One of the lobbyists was secure that the project was going to be funded and informed the group of this. However, it turned out that other interests were prioritized. The ongoing project was reliant on external funding and therefore it is on freeze for the time being. Naturally, the politicking regarding which projects to fund, and thereby which functions that gain in importance, is immense and involves individuals, organizations, external organizations and the network. Thus, endurance, timing and lobbying is an effective use of power. However, the lesson learnt is that it is important to know the formal powers of others; what they can really do for us or to us under different circumstances (Lukes 2005) in order to continue the project as planned despite some drawbacks.

### ***Dynamic dependency***

The approached firms were in general interested in the idea of SCMo. The aim to create a smooth supply through a holistic chain perspective was generally agreed upon. The OEMs are dependent on their supply chains, as problems leading to stops in the assembly process are costly (1500-3000 Euro per *minute*). In addition, it is common for OEMs to be short of various parts due to supply problems that force them to decouple specific cars from the line to wait in the courtyard for final assembly. The advantage they found attractive was that collaborating through SCMo would enable them to re-plan

production in case of problems and minimize problematic effects. Increased dependency is a result among others. An OEM purchaser states *"The more collaboration between us and the suppliers the more dependent we get of each other."*

The OEMs are aware that they probably could force suppliers to take part in this kind of project but they prefer not to. This because as a supplier states: *"the OEM could use their power but if that would help them is unclear"*. Dynamic dependency implies existence of indirect power, which is a driving force and a carrot to integration rather than a stick, in line with proposition 5. Indirect power is earlier discussed as "network-effects" and is closely related to the dynamics in dependence-based power as, in line with proposition 1 and 2, subjective interpretation might result in unexpected outcomes. To use power to achieve agreed goals might be spurious as the actor cannot be sure where the limit of its power is, thus, power might be used up and the abused actor is likely to try to disinvest and eventually also dissolve the relationship. The power relation might, however, change in a less dramatic way. One supplier, earlier satisfied with how the Swedish OEM facilitated co-development, notes that the relationship towards its customer, the OEM, had changed since the OEM was bought by an America-based OEM, which is well-known to use power coercively. The Swedish OEM had to integrate their way of everyday work with their new owner, such as routines of how to handle supplier relationships. Even though the supplier expressed that power were used to a greater extent in the relationship since the take-over it is not seen as problematic.

*"Our relationship is running well but becomes rougher the more [the America-based OEM] becomes involved... The [the America-based OEM] and [the Swedish OEM] has very different cultures"*

The OEM personnel were reluctant to use the new routines but they, as well as the supplier, complied with the new demands. This is in line with Tilly's (1991) suggestion that power is in the system and as long as there is something to win the "powerless" parties comply; it is a way of on-going organizing.

The dependencies change in character dependent of perspective. The suppliers are dependent on their automotive customers as they develop knowledge in collaboration with highly skilled actors. Taking part in a SCMo implementation means operational advantages as longer planning horizon and synchronization of supply chain. Also the increased collaboration in the chain was appreciated by upstream suppliers that didn't have close contact with the OEM before the collaboration. Furthermore, visibility of the material flow gave insights about dependencies in the chain. Suppliers' awareness of their importance increased *"you get transparency; you see what effect you have on a supply chain to bring benefits to your partners"*. General drivers to join SCMo were dissatisfaction of the present planning situation and the opportunity to learn and develop, which diminish uncertainties of demand and supply. Thus, suppliers' power increase as they can develop their technology in cooperation with customers and as they are more integrated and therefore have a logistics capability needed by the customer. In addition, OEM's power increases as well due to increased involvement and knowledge of supplier technology.

## Final discussion

We have described propositions of the concept of power applicable to a study of supply chain integration and based on this analyzed an integration process, whereof the main contribution is conceptual and regards power's role in an industrial network process. However, power and dependence are seen as natural elements by the practitioners in the integration process. Power is remembered if it is used coercively while dependence is a natural part in the development.

The propositions outline different elements of power dynamics:

- (1) Power works best when used implicit due to subjective interpretation:
- (2) Using power or dependence to explain specific outcomes might be spurious due to involved parties' interpretations and interdependencies:
- (3) Political sense-making is an important part in an integration or disintegration process. It is a skill that influences the use of resources:
- (4) Supply chain power is situational and a result of a complex and turbulent setting:

(5) Direct and indirect power is effective, for example, if these facilitate a perception of fairness of those affected:

(6) Mutual development is more effective in order to drive integration than punish-based power:

(7) The power in supply chain relationships tends to shift over time due to a changing degree of specialization:

(8) The appreciation of power differs among actors, which impact their actions. Skillful lobbyists' can take advantage of resources without use of power.

Power facilitates and hinders social processes. Attempts to manage processes by usage of power are very risky as the outcome is impossible to predict. You don't have power "over" rather power to (Lukes 2005). Dependencies on the other hand are managed in different ways. Supply chain integration involves taking advantage of interdependencies to create learning, innovation, increased efficiency and effectiveness. The interdependency and the dependence-based power, which creates willingness and capability to integrate, is an imperative to integration. More integration implies more interdependence but the development of power is more complex than that. Different levels and processes in the supply chain create contradictions about how and by whom power can be exercised. In addition, different levels in the supply chain and different episodes in the integration process are ambiguously affected of power. The coordination process in strategizing is marked by power dynamics. Therefore, power is an important concept to understand managers' every-day work and strategizing but cannot be used as a predictive concept.

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