

LEAN COOPERATION: LEARNING TO BE LEAN

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Abstract Increasing cooperation trends force firms to roll out their strategic management approaches like lean management to their intra- and interorganizational network. Regarding lean management as a people-oriented management approach we argue that a successful roll-out constitutes a learning process comprising the level of individuals (i.e. managers and employees) as one of the most important factors. In this article we aim at recommendations for realizing competitive advantages by an efficient roll-out processes focussing the individual level. Therefore we look at cooperations as social networks. Combining the accepted relational view and social exchange theory we develop a framework for realizing relational rents regarding the individual level. We argue that the individual level acts as an enabler and has the potential to be managed depending on the stage of corporation development. Summing up we suggest the constructs of exchanged resources, individual assets and relationship structures and characteristics to be approaches for an effective management of exchange-relationships.

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1. INTRODUCTION

Intra- and interorganizational cooperation is still an increasing phenomenon due to aspects like an on-going internationalization of markets, the shortage of product life cycles and a concentration on core competencies. Firms have to roll out their strategic concepts companywide and to integrate their business partners.

Lean management as a management approach affecting especially operations and logistics has become important and proven for a variety of industries optimizing firm's processes and performance indicators like costs, delivery service and quality. A lot of firms recently face the challenge of a successful roll-out of lean management to their intra- and inter-organizational network. We argue that the roll-out constitutes a company- and partner-wide learning process. Concentrating on the behaviour of individuals (e.g. managers or employees) we examine the relationships of individuals contributing to a roll-out and learning process.

Recent research on the cooperation of firms is based on the relational view (Dyer & Singh, 1998) and explains competitive advantages reached by firms due to cooperation and an exchange of individual firm resources. This focus on resources and relational competitive advantages neglects individual aspects that can make mechanisms within cooperation more concrete and manageable. Hence we look at cooperation as social networks and introduce social exchange theory to explain individual behavior towards the purpose of making recommendations for an effective lean cooperation.

We aim at recommendations for realizing competitive advantages through a cooperation-wide roll-out of lean management regarding especially individual aspects that are crucial for learning to be lean as a whole. Therefore we firstly define our understanding of lean management showing secondly that this concept is suited for reaching competitive advantages through cooperation. At least we find out that learning to be lean has to focus the individual level which can be explained by social exchange theory. Finally we give a conclusion and implications for research and management.

2. LEAN MANAGEMENT AS A COMPREHENSIVE APPROACH

2.1. Literature review: lean management

The basic idea of lean production goes back to the reorganization of the Toyota Motor Group in the 1950s facing threatening market, governmental and internal conditions (Womack, Jones & Roos, 1994, pp. 53). The invented "Toyota Production System" comprises the just-in-time production as well as the respect-for-human system as two basic concepts (Sugimori, Kusunoki, Cho and Uchikawa, 1977, p. 553). This already suggests looking at lean more as a comprehensive management approach. Supporting this Liker (2004, p. 6) states regarding The Toyota

Way that its “*success is ultimately based on its ability to cultivate leadership, teams, and culture, to devise strategy, to build supplier relationships, and to maintain a learning organization*”. Furthermore he develops the four categories of lean management (Table 1) also mentioning that most firms starting the implementation of *lean* are successful in the process-category, but that this is insufficient for being a lean corporation. Other authors agree, that the implementation of lean-tools in operations and logistics not necessarily means implementing a comprehensive management approach neither in a single corporation (e.g. Sakakibara, Flynn, Schroeder & Morris, 1997, p. 1246); (Parks, 2002, p. 18); (Hines, Holweg & Rich, 2004, p. 1006) nor in a network (e.g. Adamides, Karacapilidis, Pylarinou & Koumanakos, 2008, pp. 35). In the following we consider lean management as a comprehensive approach in strategic management of a firm.

Table 1 Categories for implementation of lean management (Liker 2004, pp. 6)

Category	Realization
Philosophy	Management decisions are based on a long-term philosophy.
Process	Eliminating waste means reducing time spend without generating value for the customer. Realized by: principles like creating flow, pull-systems, standardization of work and further more.
People and Partners	Leaders who support the philosophy are developed, people, teams and suppliers are respected, developed and challenged.
Problem Solving	Perceiving and understanding situation through intensive contact and continous improvement and organizational learning.

2.2. Individuals as key success factors

Reflecting the respect for people and the approach challenging and developing them continuously, indicates a strong orientation on people (e.g. Imai, 1986, p. 227); (Pfeiffer & Weiß, 1994, p. 78). Accordingly Thun, Drüke & Grübner (2010, p. 7103) show in their empirical analysis the importance of people’s capabilities and training for implementation of lean approaches. Pfeiffer & Weiß (1994, p. 78) describe the principle of human capital dominates tangible assets and highlight the importance of individuals implementing lean approaches. The individual is prominent in the concept of people-orientation. As in the words of Liker (2004, p. 185): “[T]eams do not do value-added work. Individuals do. The team coordinates the work, motivate and learn from each other.” Lander and Liker (2007, p. 3684) emphasize individual commitment to lean management as necessary for creating a social system where lean management can be implemented successfully.

For planning a lean management roll-out these findings get important. Especially regarding the aspect that there are lot of firms having trouble in implementing lean management (e.g. Spear & Bowen, 1999, p. 97); (New, 2007, p. 3547); (Lander & Liker, 2007, p. 3682).

3. COMPETITIVE ADVANTAGES THROUGH COOPERATION

3.1. Development of cooperation and determinants for relational rents

Due to increasing dynamics in organizations within the spectrum of market and hierarchy (Picot, Reichwald & Wigand, 2003, p. 3); (Bradach & Eccles, 1989, p. 112) it is necessary not neglecting relationships within cooperation. While Smith, Carroll & Ashford (1995, p. 8) highlight the contribution to success and the increasing importance of cooperation for firms, Ring & Van der Ven (1994, p. 90) develop a framework that gives reason for and constitutes the developmental process of cooperation. In doing this the authors (Ring & Van der Ven, 1994, p. 96) already emphasize the role of underlying social conditions and individual behavior within cooperation: “*From a developmental process perspective, cooperative IORs [inter-organizational relationships] are socially contrived mechanisms for collective action, which are continually shaped and restructured by actions and symbolic interpretations of the parties involved.*”

Besides the developmental process the relational view (RV, Dyer & Singh, 1998, p. 660) explains determinants of relational rents resulting from cooperation. They state the four determinants as follows:

- Relation specific assets are resources that are cooperation-specific and available for participating corporations. Therefore they can achieve rents.
- Knowledge-sharing routines act as pattern for interactions. Partners benefit from new created, transferred or modified knowledge as a source for innovation.
- Complementary resources and capabilities can generate higher relational rents by combining the resources of cooperating partners.
- Effective governance reduces transaction costs and is able to increase the willingness of partners to engage within cooperation.

The authors also focus on interorganisational relationships as a source of competitive advantages. Complementary we propose these determinants are also relevant for intraorganisational relationships getting along with Duschek & Sydow (2002, p. 11) arguing that intraorganizational resources and processes are often neglected in relational views. Whilst initially cooperation can be interorganisational it can change to an intraorganisational relationship over time due to integration. Therefore we broaden the scope of relational view and the four-stages framework (Ring & Van der Ven, 1994, pp. 90).

Table 2 shows the four overlapping developmental stages of cooperation and the four determinants for relational rents. Whilst the developmental process highlights the importance of the individual it gets obvious that relational view is neglecting this aspect. Although knowledge transfer on an individual level has been studied (e.g. Dyer & Hatch, 2006, pp. 715); (Dyer, 1996, pp. 273); (Dyer & Noeoka, 2000, p. 346) a theoretical integration of the individual level is still missing.

Table 2 Intra- and interfirm cooperation: developmental stages and determinants for relational rents (Ring & Van der Ven, 1994, p. 97); (Dyer & Singh, 1998, p. 662)

		Developmental process	Relational rents
(Overlapping) Stages		Content of stage	Determinants
Attending assessment based on efficiency and equity	Negotiation stage = negotiation of joint expectations risk, and trust	Parties develop joint expectations about motivation, investments and uncertainties. Bargaining process comprises partner selection consideration of alternatives. Social- psychological processes of sense making is underlying.	Relation specific assets Knowledge-sharing routines
	Commitment stage = commitment for future action	Parties agree on rules for further action. Many of the commitments are reached informally while legal agreements on the key commitments are formally determined.	Complementary resources and capabilities
	Execution stage = execution of commitments	Commitments and rules of actions are carried out. Thorough a series of interactions, parties become familiar.	Effective Governance

3.2 Lean Cooperation

Lean management approaches and implied concepts like just-in-time (Sugimori et al., 1977, p. 554) and quality improving methods (Amasaka & Sakai, 2010, p. 85) lead to advantages like in quality and productivity (e.g. Imai, 1986, p. 226). Manufacturing performance and indirectly competitive advantages of the firm (Sakakibara et al., 1997, p. 1255); (Bernard, 1996, p. 581) are facilitated. These effects explain increasing implementation of lean approaches (e.g. Lee & Jo, 2007, p. 3665). In the following we will examine the concept of lean cooperation.

Looking at the lean management approach shown in the previous chapter, one can see that cooperation is an inherent component. According to this Christopher (2011, p. 14) argues that simply transferring costs up- or downstream in the supply chain does not make firms any more competitive, because this will generate disadvantages for the customer at the end of the supply chain. Dampening effects also for the firm's own competitiveness will result. Therefore it will be attractive integrating partners in strategic concepts (e.g. Dyer & Hatch, 2006, p. 702). Esper, Fugate & Sramek (2007, p. 62) argue that areas acting as boundary-spanners and are externally oriented contribute to competitive advantage through organizational learning. We assume that lean management is taking a similar role.

In his conceptual work Hines (1996, p. 6) develops that firms who are lean have to ensure that their supplier network is lean as well and that therefore the indicators quality, costs and delivery can be improved (e.g. Stalk, 1988, p. 41); (Yang & Pan, 2004, p. 853). So & Sun (2010, p. 484) reason that lean firms who select their suppliers considering their level of lean implementation are able to share the values of lean manufacturing and are able to establish long term relationships. Also empha-

sizing the role of supply-chain relationships Jayaram, Vickery & Droge (2008, p. 5633) highlight in the reaching for competitive advantages by implementing lean strategies. While Jayaram et. al. (2008) explain that successful relationships facilitates lean implementation, Liker (2004, pp. 199) argues that one principle for going the Toyota Way is “*R[r]espect Your Extended Network of Partners and Suppliers by Challenging Them and Helping Them Improve*”.

MacDuffie and Helper (1997, p. 120) describe that a lean firm will find it more productive to work with lean suppliers and delineate alternatives for establishing a lean supply base. In their summary they conclude that “*customers may be more effective than outside parties in teaching suppliers to be lean*” (p. 121). Having analyzed the transfer of lean from Honda to its suppliers in a case study, they deduce “*that a supplier-customer relationship which generates high motivation for learning and high trust between provider and recipient is a crucial condition for any transfer of a complicated, largely tacit body of knowledge like lean production*” (p. 148). As a conclusion we find that cooperation is an important element of lean management. One can see that determinants for relational rents (Dyer & Singh, 1998, p. 663) get along with these findings, as shown in Table 3.

It has been shown that the key success factors for lean cooperation are close relationships with partners (e.g. Levy, 1997, p. 95) but actually an integration of the individual level as an enabler for competitive advantages is missing.

Table 3 Determinants for relational rents within lean cooperation (examples)

Determinants for relational rents	Examples within lean cooperation
Relation-specific assets	Investment in boundary spanning teams to spread lean behavior
Knowledge-sharing routines	Targeted development or teaching of partners
Complementary resources and capabilities	Cooperation up- or downstream the supply chain
Effective governance	Coordinating function responsible for developmental process

4. LEARNING TO BE LEAN: AN INDIVIDUAL VIEW

4.1. Learning through individual (knowledge) exchange

We assume social exchange theory (SET) to be able complementing existing relational theories in order to realize competitive advantages. SET roots in sociology and social psychology (Emerson, 1976, p. 355) and has been commonly used for examining behavior of individuals within firms (e.g. Cropanzano & Mitchell, 2005,

p. 875). In the following we refer to the assumptions of Burns (1973, pp. 188) regarding social exchange:

1. Social behavior can be explained in terms of rewards (goods or services, tangible or intangible that satisfy a person's needs or goals).
2. Individuals attempt to maximize rewards and minimize losses or punishments.
3. Social interaction results from the fact that others control variables and can therefore reward a person. In order to induce another to reward him, a person has to provide rewards to the other in return.
4. Social interaction is thus viewed as an exchange of mutually rewarding activities.

Furthermore Thibaut & Kelley (1986, p. 21) state the concept of comparison levels that specifies the retention of persons within relationships. The decision of leaving or staying depends on individual expectations regarding the exchange of existing and alternative relationships. In the following we will show how SET-mechanisms influence learning considering resources that are exchanged, individuals and their assets, relationship structures and their characteristics.

Resources are crucial for the concept of SET. They are regarding the assumptions stated by Burns (1973, p. 188) reason for individual cooperation and exchange. Foa & Foa (1974, pp. 178) identified six types of exchange-resources: love, status, information, money, goods and services. Considering business-partner relationships aiming at a lean management roll-out we assume (explicit and implicit) knowledge (e.g. Lawler & Yoon, 1998, p. 889) in a developed sense of information (e.g. Nonaka, 1994, p. 15), commitment and trust (e.g. Morgan & Hunt, 1994, p. 31) and perceived respect (e.g. Stürmer, Simon & Loewy, 2008, p. 6) in the broadest sense of love to be relevant. Cropanzano & Mitchell (2005, p. 881) explicate that “*the more concrete a benefit is, the more likely it is to be exchanged in a short term.*” According to the longing for long-term relationships between lean business partners (e.g. Dyer & Nobeoka, 2000, p. 345) or an intraorganizational lean-rollout we suggest that the exchange on non-concrete resources like knowledge facilitate the implementation of lean approaches.

Individuals and their (intangible) assets are crucial for exchange-relationships as well because they own resources and can reward others by exchanging them. Given that the exchange of knowledge is a key element we suggest that experience on an individual level (e.g. Dyer, 1996, p. 273); (Grant & Baden-Fuller, 2004, p. 67); (Kogut & Zander, 1996, p. 503) is important for transfer of tacit knowledge and for organizational learning (Argote & Miron-Spektor, 2011, p. 1124); (Levitt & March 1988, p. 326). Individuals experienced in lean methods and tools transfer their know-how and contribute to successful implementation. Regarding this Cohen & Levinthal (1990, p. 128) look at the organizational construct of absorptive capacity comprising recognizing as valuable, assimilating and applying new knowledge. The authors derive organizational absorptive capacity from individual memory processes and explain a connection to prior related knowledge and experience in problem solving methods. Regarding to lean behavior we suggest individuals to absorbing knowledge and experience of others, internalizing and adapting it for the

own company. We suggest furthermore an individual exchange attitude to be relevant. Wilkens & Nermerich (2011, p. 69) describe that individuals “*evaluate their counterpart’s actions as disadvantageous or beneficial and respond by building up commensurate negative or positive attitudes*”. Cropanzano & Mitchell (2005, p. 877) state the concept of strong and low exchange orientation of individuals. We assume that this individual attitude also influences the willingness to cooperate and contribute to another organization’s learning to be lean. Similar individual expectations are also an important because individuals evaluate current relationships with alternative relationships and may leave (e.g. Thibaut & Kelley, 1986, p. 21); (Gefen & Ridings, 2002, p. 52); (Crosby, Evans & Cowles, 1990, p. 70). In case of teams cooperating especially regarding the roll-out of lean approaches consequences could be internal or external job change.

Furthermore *relationship structures and their characteristics* influence exchanges (e.g. Burns, 1977, p. 218). One important aspect we suggest is the formality of structures. Smith et al. (1995, p. 10) differentiate formal and informal cooperative relationships. In the context of lean cooperation we assume looking at hierarchically embedded structures as formal while all others are looked at as informal. A team for implementing lean management consisting of both or several firm’s members would be formal in this case while an ad hoc problem solving team consisting of both or several firm’s members would comprise informal relationships as well. In this context Janowicz-Panjaitan & Nooderhaven (2008, p. 1337) examine the effects of informal and formal learning of boundary spanners and find both having a positive influence on organizational learning. Other authors (e.g. Erdogan & Enders, 2007, p. 321); (Wilson, Sin & Conlon, 2010, p. 358); (Settoon, Bennett & Liden, 1996, p. 219); (Liao, Liu & Loi, 2010, p. 1090) analyze formal leader-member or team-member relationships. We suggest that according to the differentiation between formal and informal learning the formality of the relationship may also influence organizational learning in different modes.

Relationship quality we assume is another characterizing aspect of exchange relationships. Palmatier (2008, p. 77) states consistent with previous research relationship quality as a higher-order latent construct consisting of the first factors commitment, trust, reciprocity norms and exchange efficiency. While commitment and trust should be treated as resources like discussed previously, reciprocity norms and exchange efficiency describe characteristics of relationships.

Another characterizing aspect of exchange relationships is the strength of ties concept (e.g. Granovetter, 1973). This concept seems to be appropriately comprising frequency and density of relationships and having effects on knowledge-sharing efficiency (Hansen, 1999, p. 82). While earlier authors find that weak ties (Hansen, 1999, p. 82) facilitate the accumulation of new and non-redundant knowledge, later authors question these assumptions (Hansen, 1999, p. 82); (Rindfleisch & Moorman, 2001, p. 2). Regarding a successful implementation of lean management approaches may benefits from regarding the strength-of-ties concept when building teams or setting up project organizations. Rindfleisch & Moorman (2001, p.

3) examine in their study also the competitive environment of partners. They find that knowledge redundancy within new product alliances is lower in vertical than in horizontal alliances stating vertical exchange partners as channel members and horizontal exchange partners as competitors (Rindfleisch & Moorman, 2001, p. 10).

Finally we assume a common identity to be important for implementing lean management. McLeish & Oxoby (2011, pp. 172) examine the effect of priming identities on cooperative behavior finding that a common identity increases cooperativeness. Especially in the context of our stated lean management approach we assume activities for creating a common identity facilitate a successful roll-out.

4.2. Learning through individual (knowledge) exchange

In this chapter we will combine general mechanisms of relational view with findings of individual exchanges. In their article Becker, Lazaric, Nelson & Winter (2005, p. 775) argue that organizational routines that are “*keys to understanding organizational change*” (p. 787) are comprising social and technological aspects and also refer to lean management approaches. We assume the developmental process to be relevant for realizing competitive advantages regarding mechanisms on an individual level as an enabler. Whereas individual mechanisms facilitate relational determinants for reaching competitive advantages their management probably has to depend on the stage of cooperation development. While long-term relationships facilitate exchanges on an individual level conditions for long-term relationships have to be assured at first. Fig. 1 shows the integration of social exchange aspects within the concepts of cooperation development and determinants for relational rents.



Fig. 1 Realizing competitive advantages regarding individual level

5. CONCLUSION

With this article we show that lean management constitutes a comprehensive management approach firms implement to gain competitive advantages. Individuals, their individual assets and behavior are crucial in realizing competitive advantages. We propose that additionally there are increasing trends for cooperation for being competitive and reaching competitive advantages. Lean management is compatible with this trend of increasing cooperation because cooperation is an inherent aspect of comprehensive lean management approaches. Rolling-out a firm's lean approach attention has been given to individuals that are central within people-oriented approaches. Therefore learning on an individual level is an important part of a successful roll-out. Integrating SET regarding this problem acts as a theoretical contribution that can be connected with well established relational view. This integration has the power to explain the realization of relational rents through acknowledgement of individual's contributions. Furthermore our approach contributes to explaining the transfer of existing capabilities to new ventures (e.g. subsidiaries) regarding competitive advantages of firms that has been found as a research gap (Argote & Miron-Spektor, 2011, p. 1131). Contributions for management can be derived. One important aspect is the recommendation for long-term relationships as an example for theoretical findings on an individual level. Further research should examine constructs comprising the categories exchanged resources, individual assets, relationship structures and characteristics considering existing and proven constructs and questionnaires. An application of these constructs using qualitative and quantitative methodology within real business-cases looking at firms and their cooperation partners is able to enhance theory of individual level as enabler for competitive advantage.

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