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Abstract

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This article contributes to the debate on the relation between trust and control in the management of inter-organizational relations. More specifically, we focus on the question how trust and formal contract are related. While there have been studies on whether trust and contract are substitutes or complements, they offer little insight into the dynamic interaction between the two. They fail to answer, first, whether contract precedes trust or follows it, in other words, what causal relationship exists between the concepts; second, *how* and *why* trust and contract can substitute or complement each other; and third, how the various combinations of trust and contract affect a relationship's development and outcome. In search of answers, we conducted longitudinal case studies to reveal the relationship between trust, contract and relationship outcome in complex inter-firm relationships. We find trust and contract to be both complements and substitutes and find that a close study of a contract's content offers alternative insight into the presence and use of contracts in inter-firm relationships.

Keywords: trust, contracts, transaction costs, control, inter-organizational relationships, longitudinal case study

According to classical transaction cost economics (TCE; see Williamson 1975, 1985), relations that entail specific investments create dependence and vulnerability to opportunistic 'hold-up'. Also, TCE argues that it is impossible to reliably judge possible limits to other people's opportunism and that trust does not yield a reliable safeguard. From a social science perspective, many people take the view that trust is viable and that it may be an important element in the mitigation of relational risk (e.g. Macaulay 1963; Ouchi 1980; Gambetta 1988; Gulati 1995; McAllister 1995; Chiles and McMackin 1996; Nooteboom 1996). As Knights et al. (2001: 314) note, 'a long tradition of management thought conceptualizes trust and control as opposing alternatives' in which high trust allows for limited formal control and vice versa. However, empirical evidence about the relationship between trust and formal control is mixed. Conceptual contributions, much in line with TCE thinking and incomplete contracting theory, claim that legal regulation is an important precondition for trust (Luhmann 1979; Zucker 1986). Empirical studies, on the contrary, found that trust preceded contracts (Larson 1992) and higher levels of formalization and vertical integration (Anderson and Narus 1990; Zaheer and Venkatraman 1995; Poppo and Zenger 2002). In the words of

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Lane (1998: 25) we may conclude that there is a 'fundamental disagreement in the literature' on the relationship between trust and control.

This article contributes to this debate on the relationship between trust and control in the management of inter-organizational relationships. More specifically, we focus on contracts as a form of formal control. The key question of this article is: How are trust and contract related? We will answer this question by addressing the following sub-questions: Are trust and contract complements or substitutes, or both? Does contract precede trust or does it follow it? And how does this affect relationship development and performance? In view of the importance of relationship development in our analysis, our unit of analysis is not a transaction, as in TCE, but the relationship in which transactions arise and develop.

Before we proceed, we first define the key concepts — trust and contract — since we believe that much disagreement in the current literature is likely to be due to confusion over the definition of these concepts. Next, we discuss the literature on the relationship between trust and contract. We then explain the methodology for the empirical part of our study, and present the results. Finally, we draw conclusions, discuss these conclusions and give suggestions for further research.

Trust and Control

For a clear understanding of trust, we employ Nooteboom (2002). We have to distinguish between competence trust and intentional trust. The first refers to the trust one has in the technical, cognitive, organizational, and communicative competences of a partner. We focus on intentional trust, referring to the trust one has in the intentions of a partner towards the relationship, particularly in refraining from opportunism. Opportunism can have a passive/weak and an active/strong form. The passive form entails lack of dedication in performing to the best of one's competences. The active form of opportunism entails 'interest seeking with guile' (Williamson 1975); lying, stealing and cheating to expropriate advantage from a partner. The absence of such active opportunism is called 'benevolence' or 'goodwill'. Thus, intentional trust has two dimensions: trust in dedication and trust in benevolence/goodwill.

We propose that, like trust, control may be interpreted in a weak and in a strong way. In a weak interpretation, control is regarded as any instrument or condition that may mitigate relational risk. This could include trust. In a strong form, control is seen as 'deterrence' (Maguire et al. 2001), i.e. in case of opportunistic behaviour the partner incurs a penalty or material loss. In other words, here control is based on power.

Based on the distinction between weak and strong forms of trust/opportunism, control can be designed accordingly. Following Nooteboom (1996) we suggest that relational risk may be mitigated in three ways: opportunity control, incentive control and benevolence (or goodwill). These three ways of mitigating relational risk may be based on macro or universalistic

Table 1.
Limitation of
Opportunism
(Trustworthiness
Broadly Interpreted)

	Macro, universalistic	Micro, particularistic; relation-specific
Self-interest		
Opportunity control	Contracts, legal enforcement	Hierarchy, managerial fiat
Incentive control	Reputation	Dependence: unique partner value, switching costs, hostages
Altruism		
Benevolence	Values, social norms, moral obligation, sense of duty, bonds of kinship	Empathy, identification routinization, affect, friendship

Source: adapted from Nootboom (2002)

and micro or particularistic sources (Williams 1988; Nootboom 2002; Deutsch 1973; Shapiro 1987; Bachmann 1998), as shown in Table 1. Macro sources are general and impersonal, aside from any specific exchange relation. They arise from the institutional environment of laws, norms, values, standards, and agencies for their enforcement. This yields ‘institution-based’ or ‘thin’ trust. This kind of trust is based on the trust we have in those institutions to support or enforce trustworthiness of people and organizations. The micro sources arise in specific relations, are personalized and are referred to as sources of ‘thick’ trust.

As Table 1 indicates, there are three ways of mitigating relational risk (Nootboom 1996). *Opportunity control* refers to the limitation of opportunities for opportunism by restricting the range of a partner’s actions. It has an ‘outside form’ which refers to control of external partners by contract (enforcement), and an ‘inside form’ within an organization which refers to the exercise of ‘hierarchy’ and/or managerial ‘fiat’ under an employment relationship. Both entail monitoring of behaviour to detect cheating, and sanctions as a manner of enforcement.

Incentive control refers to the limitation of material incentives to utilize opportunities for opportunism due to dependence on the relationship. In other words, it refers to the situation that partner B behaves well towards A because B is dependent on A (e.g. because A has a unique value to B), B faces switching costs (e.g. as a result of relation-specific investments), or A holds a hostage from B. The notion of specific investments is derived from TCE, except that we consider the relation rather than the transaction as the unit of analysis, and hence speak of relation-specific investments. In this, investments may include the building of relation-specific mutual understanding and trust. The notion of hostages is also taken from TCE. It mostly takes the form of sensitive information that is of value to B, and is held by A, who can destroy, divulge or transfer it to a competitor of B, if B does not behave well.

The third way of mitigating relational risk, *benevolence*, refers to the limitation of inclinations towards opportunism based on established, socially inculcated norms and values (macro), and empathy, identification, affect and routines developed in specific relations (micro). The first includes pressures

of allegiance to groups one belongs to, and values and norms inculcated by socialization into those groups. On the micro side, empathy entails that one knows and understands how partners think and feel. It allows one to assess strengths and weaknesses in competence and intentions, to determine the limits of trustworthiness under different conditions (Nooteboom 2002). Identification (McAllister 1995; Lewicki and Bunker 1996) goes even further: it entails that people think and feel in the same way, sharing views of the world and norms of behaviour. This may lead to affect- and friendship-based trust. Identification may go so far that one is not able or willing to consider the possibility of untrustworthiness, including cognitive dissonance. Routinization (Nooteboom 2002) emerges when a relation has been satisfactory for a while and awareness of opportunities for opportunism is relegated to 'subsidiary awareness' (Polanyi 1962): one takes the relation for granted and does not continuously think about opportunities to gain extra advantage from it, nor does one consider the other to do so.

In this article, we investigate the relationship between formal contracts as a source of control that can entail clauses for opportunity as well as incentive control, and trust in its narrow interpretation, which is benevolence. Many have claimed that trust can go beyond formal control, i.e. deterrence (Das and Teng 1998; Williams 1988; Lane and Bachmann 1998; Maguire et al. 2001). In line with these authors, we assume that 'genuine' trust is based on social and personal foundations in which reciprocity and affective relations play a role next to self-interested motivations. Recent empirical studies confirm this by showing that roughly 40 to 50% of the people are completely selfish, whereas others exhibit egalitarian preferences (they tend to equalize payoffs among parties), surplus maximizing (those who try to maximize joint outcomes even to their own disadvantage) or even altruistic preferences (Fehr et al. 2001; Andreoni and Miller 2000; Charness and Rabin 2000). In other words, the assumption that actors have an intrinsic tendency to keep promises is as true as their likelihood to behave opportunistically (Chen 2000; MacNeil 1980; Macaulay 1963; Maguire et al. 2001). Apart from the fact that trust in the narrow sense does exist, some authors have argued that there are also conceptual reasons to use a narrow definition. Maguire et al. (2001: 286) argue that if we use a broad definition we conflate trust and power. Similarly, Williamson (1993) indicates that trust has no meaning if it does not go beyond calculative self-interest, i.e. if benevolence and/or goodwill are absent. Therefore we adopt the narrow definition of trust entailing the expectation that a partner will not engage in opportunistic behaviour, even in the face of opportunities and incentives for opportunism, irrespective of the ability to monitor or control that party (McAllister 1995; Bradach and Eccles 1989; Chiles and McMackin 1996; Ring and Van de Ven 1994; Nooteboom 1996). This definition is felt to indicate better what most people would call 'real trust'.

Contract

In the collaborative inter-firm relations that we focus on in this article, there is no hierarchy that overarches the relationship. As a result, control of opportunities and incentives for opportunism are reduced to contracts. Classical contract theory defines formal contracts as agreements in writing between two or more parties, which are perceived, or intended, as legally binding (Lyons and Mehta 1997: 241). We follow this definition. Whereas an agreement may take a variety of forms, written or verbal, implicit or explicit, a formal contract refers to such an agreement in tightly written legal forms (Lyons and Mehta 1997). Efficient outcomes are assumed when the contractual form rightly reflects the uncertainty, asset specificity and frequency of the transaction (Williamson 1985). Contracts vary in the degree of completeness, i.e. some contracts contain more and more specific clauses (Chen 2000). Complete contracts are more legally binding, because more clauses can cover more aspects of the relationship and because more specific clauses are easier to interpret and enforce. To be enforceable, clauses need to be specific because general clauses are ‘... easily misinterpreted by the courts, which do not have access to the specialized knowledge or assumptions shared by the parties’ (Deakin and Wilkinson 1998: 150). Incomplete contracts leave more open to interpretation and are thus less legally binding because they contain fewer clauses or because clauses are not verifiable or observable (Chen 2000). In relations that are characterized by high uncertainty and/or complexity, entail specific investments and require intensive knowledge transfer (as is the case in the relationships that we discuss in our empirical part), one would expect at least clauses to safeguard (intellectual) property rights (ownership of knowledge/product/method, patents, licences, right of publication) and spill-over (pledge of secrecy, sanctions on spill-over, limitation of freedom to work with other partners), and clauses on the management of the complex relationship (relationship duration, project management, project plan i.e. division of tasks, responsibilities, investments and time path, accountability, conflict resolution or mediation, relationship termination) (Klein Woolthuis 1999; Blumberg 2001). A complete contract, in so far as that can be achieved, will contain these clauses.

The Relationship Between Trust and Contract

Now that the notions of trust and contract have been clarified, we return to the key question of this article, i.e. how are trust and contract related. We distinguish three different views on the role of contracts and their influence on trust. First, TCE and contract theory see contract as a basis for trust since it limits the opportunities and incentives for opportunism. This enables parties to trust each other, since they have no other option than to behave trustworthily (their opportunism will be at the cost of sanctions). Here contract and trust are positively related, with contract as a prerequisite for trust.

Second, social scientists often envisage contract as 'in conflict' with trust. Contracts can be detrimental to trust development since contracts can be interpreted as a sign of distrust (Bradach and Eccles 1989; Neu 1991; Lyons and Mehta 1997). Also, active use of the contract (e.g. by monitoring activities, threat or litigation) may evoke conflict (Gaski 1984; Hunt and Nevin 1974; Lusch 1976), opportunism (Goshal and Moran 1996) and defensive behaviour (Zand 1972; Hirschman 1984). As a result more coercion will have to be used (Goshal and Moran 1996). In the words of Deutsch (1973: 88): 'Without the other's trust as an asset, power is essentially limited to the coercive and ecological (i.e. conditional) types, the types that require and consume most in the way of physical and economic resources.' Taking this 'dark side' of contracts into consideration, we may conclude that it may not always be desirable to completely specify and enforce a contract (Fehr et al. 2001; Fehr and Schmidt 2002; Lyons and Mehta 1997; Chen 2000), especially since the negative effects may not only materialize in the present, but also in future relationships. If few alternative partners are available, the opportunity costs of this may be very high; also, by indirect reputation, effects. Hence, in this view, contract and trust are negatively related: the drawing up of a contract reduces the level of existing trust and/or disables the development of trust.

The third interpretation of the relationship between trust and contract states that trust and contract are negatively related, with trust preceding and 'embedding' relationships, thereby decreasing or eliminating the need for formal control or contracts. This is echoed by, for instance, Bradach and Eccles (1989), who argue that personal relationships can prevent opportunism and can thus be seen as control mechanisms. In this view, trust precedes contracts, and contracts can as a result become unnecessary.

In other words, the dominant conceptualization of trust and contract is that of 'opposing alternatives' (Knights et al. 2001: 314) with contract leading to less trust, and trust leading to decreased contract completeness. However, empirical evidence about the relationship between trust and formal control is mixed. On the one hand, studies found evidence that high trust and formal control are found together and can be conceptualized as complementary mechanisms in inter-firm relationships (Anderson and Narus 1990; Powell 1990; Zaheer and Venkatraman 1995; Poppo and Zenger 2002; Luo 2002) or found trust to be a precondition for contracts (Larson 1992; Ring and Van de Ven 1994). On the other hand, studies found evidence that trust was reducing the need for contracting and monitoring and hence trust can be conceptualized as substituting for formal control (Lyons and Mehta 1997; Das and Teng 1998). So, the 'fundamental disagreement in the literature' on the relationship between trust and control (Lane 1998: 25) and the question how trust and contract are related remain.

We propose that some of the conceptual differences of opinion, and the diverging empirical results, are due to different interpretations of the notion of trust. If trust is regarded in the wide sense, including trust based on contract, then clearly trust and contract go together. On the other hand, detailed contract specification and strict enforcement is likely to be in conflict with trust in the narrow sense, based on benevolence. While such misunderstandings may

explain part of the confusion over the relationship between trust and contract, they do not explain it completely. Trust and contract can still be seen as both complements and substitutes and both make intuitive sense. However, previous empirical research has failed to uncover *how* and *why* contracts and trust substitute for and/or complement each other. In our opinion this is often due to the research design. Most studies present quantitative and cross-sectional data that can reveal the relation between trust and contract, but not *why* this is the case, or *how* this has evolved. In order to go beyond conceptual discussions on the interplay between contract and trust, we defined the concepts in detail and subsequently designed a longitudinal empirical research that allows us to look into the process of trust development and the drawing up and use of contracts. Next we discuss the research method that we used, and the findings of our empirical longitudinal case studies on relationship development, to explore first whether contract precedes trust or follows it; second, whether trust and contract substitute or complement each other in relationship development; and third, how trust and contracts affect relationship performance.

Method

We used a case study methodology (Yin 1994) to gain insight into the relationship's development and outcome to investigate the interaction between trust and contract. Case research is very suitable for exploratory research where understanding is the primary objective and the phenomenon to be investigated is difficult to quantify, not well understood and needs to be studied within its natural setting (Bonoma 1985; Yin 1994), as was the case here. Four cases were selected from a larger study on inter-firm relationships in technical innovation (Klein Woolthuis et al. 1999). As the degree of trust and contract completeness are the two main variables in the research question, cases needed to vary on these two variables. Therefore, we choose to explore our research question on the basis of four cases that represent the extremes of low versus high trust and low versus high contract completeness. Table 2 shows how the cases are categorized according to these two selection criteria.

The cases dealt with collaborative innovation and hence involved complex transactions for which close collaboration between partners was necessary over a considerable period of time. The cases involved two or more legally independent partners that shared costs and benefits more or less evenly. All

Table 2.
Cases Categorized
by Degree of Trust
and Contract
Completeness

		Degree of trust	
		Low	High
Contract completeness	Low	Wrapline	Biowrap
	High	Petfood	Pharm Venture

cases entailed uncertainty and/or complexity, and specific investments, and hence risks of dependence, opportunism and 'hold-up'.

Data sources: The highly proprietary character of the project data made it impossible to speak to the companies directly. (For the same reason it is not possible to refer to the real names of the companies in the case descriptions below.) Therefore data were obtained from two other sources that were triangulated to arrive at the final conclusions of our case study research (Denzin 1970). First, a rich selection of secondary data was collected. As all projects received government subsidy, which required a detailed administration of the project, the projects were very well monitored and documented. This provided us with an important source of secondary data. The documents included the contracts and agreements, project plans, annual reports of the companies involved, and half-yearly project reports on the project's progress (technological as well as financial data). Also, clippings from newspapers and trade magazines concerning the projects and/or the collaborations were collected. Every project was guided and monitored by a consultant, who visited the companies on a yearly basis and mediated whenever needed. The visiting reports from these consultants as well as all notes from their telephone contact with the companies were included in the project file and hence analysis. Second, we conducted four in-depth face-to-face interviews with each consultant involved in the projects (16 interviews in total). Each interview took about an hour and a half, and was especially focused on obtaining information that could not be retrieved from the secondary data such as information about trust development, conflict, and the relationship's history. The interviews were transcribed into interview reports. The four interviews allowed us, first, to reconstruct the development of the project and the relationships, and second, to check data obtained from the secondary data sources. Apart from the in-depth interviews, the consultants were also personally contacted whenever clarification was needed.

Case protocol and operationalization: To enable comparison between cases and to ensure the quality of the case analysis, a case protocol was written (Yin 1994), to describe the relationship's history, development and outcome. The central constructs of our research (trust, dependence, contract completeness, and relationship outcome) were measured using both secondary data and in-depth interviews.

Trust was measured by asking the consultant his overall assessment of the degree of trust, using the definition of trust as explained in the literature section. We asked the consultants to explain their assessment, resulting in detailed descriptions of the trust or distrust between the partners. Furthermore, trust was discussed in the interviews with the consultant as a possible explanation of how the relationships had developed, e.g. whether a breach of trust had led parties to call on the consultant to mediate. We triangulated these data with secondary data sources such as news clippings from an industry journal and personal notes or letters that were sent to the consultant and documented in the project file. All in all this provided us with an in-depth and balanced insight into the social relationships between the partners involved.

Dependence was measured because it determines whether trust and contracts are relevant since, first, deterrence can be based on dependence making contracts superfluous (private ordering), and second, lack of dependence makes parties invulnerable to opportunistic behaviour, making both trust and contracts unnecessary or even meaningless. Dependence was measured by evaluating the size of the companies, the lock-in due to uniqueness of resources (technological knowledge, capabilities), uniqueness of partners (number of alternative partners), and the switching costs due to asset specificity. This evaluation was based on the project plan, companies' annual reports, half-yearly project evaluations and on the consultant's inside knowledge. In particular, the project plan provided detailed information on the level of the investments, how these project-specific investments related to the company's total R&D budget (indicative of the importance of the project for the firm), and how the investment of one company related to that of the partner firm (indicative of the relative importance of the project for both firms). The project plan also provided a detailed description of the unique, complementary resources of the partners since these provided the reasons for starting the collaboration in the first place.

Contract completeness was measured by looking at the number of pages, number and type of clauses, the type of contract (standard versus custom-made), and the detail in which the clauses were worked out. We also investigated to what degree parties engaged in monitoring, and had actually used the contract to enforce behaviour. As described in the theoretical section on contracts, we expected at least clauses on, first, safeguarding the parties' (intellectual) property rights, second, safeguarding spill-over, and third, clauses to manage the complex, long-term relationship. We examined the content of the contracts with respect to whether these clauses were laid down in the contract, and to what degree of detail these clauses had been worked out. Contracts with many clauses that were specified in detail (e.g. including specifications of sanctioning) were classified as very complete, whereas contracts with only a few or very general clauses (e.g. only indicating intentions, no deadlines or sanctions) were classified as incomplete. We chose this very detailed approach, since earlier studies that relied solely on 'counting clauses' did not find a clear relationship between trust and contract completeness. We therefore included an analysis of what exactly was written in the clauses in order to reveal the intentions with which the contract was written and used by the partners. No classification of the types of clauses and function of these clauses was made beforehand, allowing the function of the contract to emerge from the data.

Finally, since we investigated not only the relationship between trust and contract, but also their influence on relationship development and outcome (to test TCE reasoning that reliance on trust would be unwise), an assessment of the outcome of the project was needed. For this we measured, first, the technological success of the project, second, the degree to which the project remained within budget and time schedule, and third, the degree to which partners were able to solve problems within the relationship. Data on the project's success could be retrieved from the half-yearly project evaluations that gave detailed progress reports on these items, from the evaluations that

were conducted by the consultant based on these reports and their regular company visits, and on the additional information retrieved in the interviews with the consultants.

Data analysis: With the available secondary data, we reconstructed the development of the relationship and investigated the relationship between trust and contract, as well as their influence on the relationship's success. For this, we made use of qualitative data analysis techniques: we drew up a matrix of categories and placed evidence within these categories (all information on our key constructs), and we put all information in chronological order (to reconstruct developments in time) (Miles and Huberman 1994). We discussed this analysis with the consultants to arrive at a realistic representation of the developments as observed 'in real time' by the consultant. The result of this phase was an extensive description and analysis of the relationship's development.

The final analysis of the cases started with carefully re-reading all secondary data as well as the interviews reports from the in-depth interviews with the consultants. These texts were divided into meaningful text fragments, which were coded to reflect their relationship with key concepts of our study. Based on this analysis a rich and detailed description of each individual case was written. In order to check the accuracy of the final case description and conclusions derived from it, we had another feedback session with the consultants to discuss the case.

Important for the interpretation of the results is the fact that the cases described concern relationships between Dutch companies. Their trusting and contracting behaviour will thus reflect the Dutch (or broader continental European) culture in which 'voice' is the prevalent option for solving problems and cases are seldom taken to court (Bachmann 1998). This may explain why in the four cases, despite conflicts and sometimes complete and enforceable contracts, none of them went to court.

Results

In this section a description of the four cases is presented. Each case description starts, after a short introduction, with a characterization of the project in terms of degree of trust, dependence, and contract (i.e. completeness and content of the clauses). Next, we describe how the project evolved and whether the project was successful or not. Finally, a conclusion on each individual case is presented. To give a short introduction to the cases, Table 3 summarizes the cases on the key dimensions.

The Petfood Case

In December 1989, FoodCom, a large producer and seller of specialty foods, and Processor, an international firm specializing in developing a wide range of food ingredients, decided to jointly develop a new enzyme for a specialty petfood that would be a strategic new product in FoodCom's product range.

Table 3.
Description of the
Four Cases

	Petfood	Biowrap	Wrapline	Pharm Venture
Degree of trust	Low	High	Low	High
Dependence	High, asymmetric	High, symmetric	Low/moderate symmetric	High, symmetric
Contract completeness	High	Low	Low	High
Outcome	Conflict and premature end	Highly successful	Conflict and premature end	Highly successful

The parties knew each other from another collaborative project two years earlier and were complementary in the sense that Processor provided (basic) research outcomes which FoodCom implemented in its production process.

Degree of trust: Although the relationship built on an earlier project, the consultant told us that there was little trust between the partners:

‘The people do not get on. The cultural differences are large, just as the gap between their levels of scientific knowledge. That of Processor is high, whereas Foodcom is mainly interested in direct application of new ingredients. This results in the parties not understanding each other and not getting along.’

Also, the consultant indicated that in the previous project Processor had been sloppy in its execution of the project, which led FoodCom to become distrustful with regard to Processor’s intentions towards a new collaborative project.

Dependence: The reason that the partners did cooperate again was due to FoodCom’s dependence on Processor’s specialist knowledge, for which FoodCom had very few alternative partners to turn to. Once the project had started, this dependence increased since the petfood project was of strategic importance for FoodCom and they had invested a large proportion of their R&D budget in it. Processor, on the contrary, was relatively independent: the project’s level of knowledge development was more or less standard for them, and their investment in the project was only a fraction of their R&D budget (around 1%). The project was hence characterized by highly asymmetrical dependence from the start.

Contract: As a result of its vulnerable position and negative earlier experiences, FoodCom had serious concerns that Processor would behave opportunistically again, and thus placed much emphasis on contract negotiations to ensure that legally enforceable safeguards would be installed. The resulting very detailed and complete contract mainly focused on legally enforceable clauses on safeguarding (intellectual) property rights and spill-over (property and publication rights, secrecy of information, limitations of cooperation with other parties, and patent rights). The contract also included less enforceable clauses on the project’s management (e.g. project plan, project management, meeting frequency). In the contract it was explicitly stated that Processor should provide assistance with the implementation of

the enzyme in FoodCom's production process. Interviews with the consultant revealed that this was included in the contract because, in the earlier project, Processor had been seen to lose interest in collaborating as soon as they had achieved their goal (knowledge development). They had then failed to see the implementation process as a joint responsibility.

Process and outcome: Despite the detailed and complete contract, Processor started shirking after they had developed and patented the new enzyme in 1992. They skipped project meetings, replaced their project leader three times within a year and refused to help FoodCom with the implementation of the enzyme in their production process. While FoodCom faced great difficulties with this implementation and badly needed help from Processor, the latter informally ceased cooperation because they had achieved their individual goal and used up all their budget in 1993. FoodCom then tried to enforce the contract by turning to the consultant and referring to the explicit agreements that had been laid down in the contract. The consultant tried to mediate but concluded that both companies found it difficult to cooperate with each other. When the consultant visited Foodcom in August 1993, Foodcom stated: 'Processor in general takes implementation problems much too lightly. They do not help us to solve problems. They just supply the enzymes while we face great difficulties with implementing these enzymes.' FoodCom asked the consultant to mediate and use its authority to make Processor stick to the formal contract. However, Processor ignored both the contract and the mediation, and unilaterally ceased cooperation without helping FoodCom. Hence, FoodCom also had to halt the project after the first tests of the enzyme's implementations showed that there were many technical hurdles to be overcome. They stopped buying Processor's enzymes, but did not take the case to court. They knew they would need Processor's specialist knowledge again in future projects. Two years later, in 1995, they collaborated again on a new project.

Conclusion: To a large extent, this case illustrates what one would expect on the basis of TCE. In the presence of high one-sided dependence and expectations of opportunism, the hazards involved should be safeguarded by detailed formal contracts. Because FoodCom did not trust Processor, and lacked private ordering mechanisms (e.g. mutual dependence or hostages), a complete formal contract was the only credible safeguard. According to contracting theory, this should produce efficient outcomes. However, this proved not to be the case: the project was characterized by high ex-ante and ex-post transaction costs because of the detailed contract, haggling, conflict, mediation, etc., and the project did not result in the planned outcome.

In this case, distrust preceded the process of extensive contracting, illustrating the general view that trust and contracts are negatively related. Here fear of opportunism is the main reason to put emphasis on a formal, enforceable contract that, however, does not increase the level of trust between the parties. Judging from the type of clauses, we conclude that the main function of the contract was to safeguard the parties' interests. However, the contract could not prevent Processor from behaving opportunistically, even though trilateral governance through mediation supported it. Due to its

dependence on Processor, FoodCom could not risk a break in the long-term relationship by taking the case to court. In our interpretation, the case therefore illustrates that contracts may not work when they are needed most, i.e. in the case of asymmetric dependence. This case seems to suggest that under asymmetric dependence, where there is an increased (and justifiable) fear of opportunism, a contract will logically entail clauses that focus on safeguarding (with detailed enforceable clauses on property rights and spill-over), but also that these contracts may not be enforceable if they are not complemented with other governance instruments, such as mutual dependence and trust. Processor acted without any regard for the interests of FoodCom and showed no loyalty, decency or morality, which they might have showed if bonds of trust and friendships had existed.

The Biowrap Case

In 1992, an industrial designer (from now on called Designer) won first prize at a design trade fair in Tokyo with her invention: a biologically degradable wrapping material. Encouraged by this success, Designer approached large retailers to buy her product in 1993. However, they were only interested if the product could be mass produced. To meet this requirement, Designer needed partners that could help her with the technical production aspects and with additional money for product and process development. For this, she called on two 'old friends' with whom she had worked before, who were also independent entrepreneurs. One was a graduate of a technical university, who could provide knowledge on product development and production processes. The other was also an industrial designer, but with more experience and financial resources than Designer, so that she could provide guidance and money. Their cooperation began in 1994.

Degree of trust: In this case trust had been built up in earlier cooperative projects, both in competences and intentions. The three entrepreneurs visited the consultant together to promote their joint project. They told the consultant about their shared history in which they had successfully acquired and conducted projects together for large clients. In these projects, the partners had found each other to be competent and loyal. The new project was the first project to be developed at their own risk and responsibility, but they stressed that their successful earlier experiences made them confident that they could jointly achieve success again. This leads us to the conclusion that the project started with a high level of trust. This remained so during the project's execution. On several occasions during the project the consultant observed that the partners were willing to help each other out and to be flexible, without any intention of opportunism. Also, the consultant characterized the cooperation as friendly and constructive in all phases of the project.

Dependence: All partners were highly dependent on the project, as the entrepreneurs had invested their personal money in the project and depended on the project's success for their personal income. Also, asset-specific investments were made in this project (raw materials, moulds, knowledge, feasibility study) that the partners could not use for other purposes. According

to the consultant, the partners are complementary in nature and have, in their previous relationships, learned to respect each other's expertise and to divide tasks accordingly. The costs of the project were shared equally between the designers.

Contract: The partners explicitly stated to the consultant that they regarded the Biowrap project as just one step further in a long process of recurrent collaboration. They did not put any effort into contract negotiations. Instead, they simply used the standard contract provided by the government agency. This resulted in a two-page contract that mainly included general, non-detailed clauses: a letter of intent (brief statement about the relationship and a project plan) and a statement in which they agreed to share potential benefits equally among the partners. No detailed legal enforceable clauses were included on project ownership, sharing of benefits and proprietary knowledge.

Process and outcome: During the development of the product, substantial technical problems occurred repeatedly. In 1996 problems with the raw materials delayed the project, and later technical problems with processing the materials gave additional problems. Also, negotiations with several important potential customers did not lead to concrete sales. Despite these problems, the partners managed to successfully finish the project within the set time frame and at lower costs than expected. Furthermore, the end of the project did not entail the end of their cooperation: after this project they continued cooperating in various other projects.

Conclusion: In view of the high risks for the partners and the importance of the project, TCE and contracting theory would suggest that the partners either safeguard against opportunism in a complete contract or integrate operations in a single firm to ensure a good outcome of the relationship. However, the relationship was highly successful without the partners using these safeguarding mechanisms. This observation does not necessarily contradict TCE: one might argue that partners were lucky with their prosperous and conflict-free relationship and that the necessity of a contract would have proven itself if conflict had occurred. However, this case shows that good outcomes cannot be ascribed to unspecified luck: the partners consciously built on their prior, trusting relationship. The consciousness of this process also means that trust was not blind: previous collaboration and personal bonding provided the cognitive and affective basis on which the partners developed trust in each other's competences and intentions. Furthermore, their relationship was not without trouble and could have caused just as much conflict as the petfood case described earlier. We conclude that in the Biowrap case, trust formed the basis for constructively solving problems. This supports the views of Sabel (1993) and Six (2003) that problems and even conflict do not necessarily break down trust. Instead, the joint resolution or redefinition of conflict can deepen trust.

In sum, this case illustrates the prevailing idea in the sociological literature on inter-organizational relationships that trust can substitute for complete contracts and become a superior governance mechanism due to the positive 'side effects' such as constructively solving conflicts and loyalty. In particular, it supports Shapiro's view of the development of trust (1987: 625):

'Typically ... social exchange relations evolve in a slow process, starting with minor transactions in which little trust is required because little risk is involved and in which partners can prove their trustworthiness, enabling them to expand their relation and engage in major transactions.'

It also illustrates that in such an atmosphere a contract can obtain a function that differs from enforcement and can even be interpreted as a sign of commitment as reflected in the types of clauses included in the contract in the present case. Thus, contracts are not always a sign of distrust as claimed by Bradach and Eccles (1989) and Macaulay (1963). Rather, parties may have different intentions with drawing up and using contracts.

The Wrapline Case

A small entrepreneurial company (Entrepreneur) and a large production company (Producer) jointly wanted to develop a packaging machine (the Wrapline) for electronic components for the information and communication technology industry, to be sold by Entrepreneur. Producer would make the first series of the packaging machine based on the specifications and knowledge provided by Entrepreneur. The latter was highly specialized in process development and possessed a number of worldwide patents in this field. It was an aggressive, fast-growing company: in a period of two years, from 1993 to 1995, the company grew from 5 to 35 highly skilled employees. Producer specialized in the production of machinery and tools. It was a subsidiary of a large Dutch electronics company, with a long history and traditional culture. Its age was reflected in its bureaucratic and hierarchical manner of doing business. Entrepreneur and Producer had previously cooperated on a joint production basis. In this project, Entrepreneur would provide the specifications and knowledge for Producer to make the first series of packaging machines.

Degree of trust: While the two partners had cooperated before, no empathetic and trusting relationship had been formed. Although no specific problems had occurred, the collaboration took place on the basis of rational business interest only. The interviews indicate that this was also the case in the new project. The consultant notes:

'The owner/manager of Entrepreneur is an opportunistic entrepreneur. He is not interested in developing a long-lasting relationship and does not want to be tied down to one partner. He is "shopping around" to realize his individual goals as fast as possible.'

Furthermore, the companies had very different company cultures, which made it hard to identify with each other; Entrepreneur was small, fast and flexible, whereas Producer was bureaucratic, slow and hierarchical.

Dependence: One would expect Entrepreneur to be the dependent partner. After all, Entrepreneur was much smaller, still in its starting phase, and could certainly use the financial resources of Producer for the project. Also, Entrepreneur had large strategic interests in the project as large, international chip manufacturers had shown interest in the Wrapline, which meant there was

a large potential market for Entrepreneur. Yet, its dependence was limited: because of its specialist knowledge and its possession of patents, Entrepreneur had many alternative partners to turn to. As the parties had agreed that Producer would get all future production orders if the collaboration was successful and the Wrapline sold, Producer did have a considerable interest in the project. Also, Producer had made transaction-specific investments, though, relative to Producer's size, these interests were modest. We can hence conclude that there is moderate dependence of both parties.

Contract: Producer and Entrepreneur hardly negotiated their contract and just used the standard buyer–supplier contract provided by Producer. This contract did not include clauses to guide their shared investments and benefits. There were no clauses on safeguarding intellectual property rights or spill-over. The contract was stated in very general terms, only specifying the investments and tasks of both parties. The interviews reveal that Producer did not fear opportunism when it negotiated the contract because of its size, dominant position in the industry and earlier experience with Entrepreneur. As a result, Producer did not give the contract much thought and used its standard buyer–supplier contract. Entrepreneur did not put much emphasis on the completeness of the contract either. The owner-manager did not want to be tied down by a detailed contract and opportunistically kept his options open for alternative partners, as was stated by the consultant of the government agency as well as by the report of an independent commercial consultant who evaluated the relationship ex-post in 1996. This resulted in a very incomplete contract that did not safeguard against opportunism and did not take the specificities of the relationship into account.

Process and outcome: The project got off to an enthusiastic start by Entrepreneur in 1993. All its employees (six in total) joined the first project meetings, whereas there was only one representative from Producer. Soon after, though, Entrepreneur ran into liquidity problems. It therefore decided to postpone the project to meanwhile finish another project. When these problems were solved, they continued their collaboration with Producer. In 1994 the feasibility study was finished and a first patent was applied for. Since the feasibility study revealed that the current design would not be economically feasible, the specifications for the packaging machine were changed, and consequently the project was delayed. Because of the delay, and the fast-changing requirements, cracks began to show in the collaboration. Producer could not adapt its production capacity in a timely manner because of its bureaucratic culture, nor did they really try to, because the project did not have the same priority for them as it had for Entrepreneur. Because Entrepreneur wanted to keep up a fast pace of developments, they started to look for an alternative partner, however, without first discussing this with Producer or giving them a chance to speed up the project. The consultant recalls:

'From the start, the decision makers of the companies did not get along. The relationship was definitively broken when Entrepreneur invited a bid for the adapted packaging machine from an alternative producer, without first discussing or even telling this to Producer. In my view, a lack of both cultural fit and mutual business interest add up and explain the failure of the relationship.'

As it turned out on several occasions, the large cultural differences (flexibility versus bureaucracy) made it hard for the partners to understand each other's working procedures and to sympathize with each other. The relationship between Entrepreneur and Producer ended in 1995, without achieving the goals that the parties had wanted.

Conclusion: Considering the specific investments that had to be made in this project (especially on the side of Entrepreneur), and the high risk and complexity of joint development, both TCE and contracting theory would have suggested a highly specified contract to safeguard at least property rights and spill-over. Instead, a standard buyer–supplier contract was used that included neither detailed nor specific clauses. Entrepreneur did not insist upon a fully specified contract since they valued the flexibility of options and Producer did not give the contract much thought. As a result, the contract did not provide a source to fall back on when the relationship broke up. There was also no trusting, loyal relationship to complement the contract, which made it difficult for the partners to solve the problems together.

Although one might argue that considering the limited dependence of the partners, extensive safeguards were not needed, the carelessness of both Producer and Entrepreneur remains surprising. This might partly be ascribed to the fact that the partners had cooperated before and doubts of the other's trustworthiness might have been relegated to subsidiary awareness (Polanyi 1962). One might also conclude that Producer exhibited a certain arrogance: they considered themselves invulnerable because of their size, age and reputation and hence did not make the effort to draw up a specific contract. In sum, this case shows that the absence of a fully specified contract, in spite of specific investments, may be explained not by mutual trust as one might expect, but quite to the contrary, by the fact that a party's high propensity towards opportunism leads him 'to leave the back door open' or by the fact that routinized behaviour reduces a party's alertness. In sum, this case did not illustrate a substituting relationship between trust and contract, nor a complementary one.

Pharm Venture

In January 1993 two large international players in the pharmaceutical industry, Syntecs and Curex, started official negotiations on the joint development of a biodegradable antibiotic because of increasingly stringent government regulations. One had specialist knowledge and good access to raw materials; the other had complementary specialist knowledge and a very strong market position. Together they wanted to set a new standard and achieve technological leadership in the world market. In doing so, they were racing against large competitors in countries such as Japan and the United States.

Degree of trust: When Syntecs and Curex started negotiating their partnership, they already had a long and trusting relationship. The history of their relationship was described extensively in an industry journal in November 1993. Syntecs had been looking for a strategic partner for new

drug development since 1983. They had taken a number of partners into consideration to become their strategic partner over these years. During this period, negotiations took place on an informal basis and focused mainly on evaluating the competences and trustworthiness of the potential partners. One 'flirtation' led to a joint venture with another large company, but this relationship was dissolved after they realized that their cultures did not match. After 10 years of talking with Curex, both partners strongly believed in the potential of their relationship, which resulted in the current project. They referred to the project as the formalization of their trust in each other and even called it an 'engagement'. They explain: 'We feel that this relationship has a better chance since our cultures match and especially our personal chemistry is right' (industry journal, November 1993). The partners explicitly mentioned their trust to be a factor of utmost importance in their decision to collaborate and stated that their ultimate goal was to establish a joint venture, which they consequently saw as their 'marriage'. The interviews confirmed the high levels of trust and the long process of trust building. We hence conclude that this relationship started in a highly trusting atmosphere.

Dependence: For both parties the development of the new antibiotic formed a large and important project. Both invested substantially: the total investment of approximately €3m was shared evenly. Considering the highly specific investments in the project, the high relation-specific investment in a 10-year relationship build-up, the great strategic value of the project, and the strong complementarity (and limited number of alternative partners for such a relationship), we may conclude that mutual dependence was high.

Contract: The high level of trust did not prevent the partners from drawing up an extensive contract and, at a later stage, using unified governance (a joint venture) to formalize the relationship. They signed a letter of intent in March 1993 to confirm their intentions to cooperate, and in November 1993, after 10 months of contract negotiations and a positive outcome of the feasibility study, the partners signed a formal contract. The contract contained all expected clauses, which were specified in great detail. The clauses focusing on safeguarding property rights and spill-over included, for instance, cost sharing (50/50), secrecy of information, ownership, division of labour, duration of cooperation, and a procedure for relationship termination. In addition, clauses on project management were specified such as meeting frequency and management of the project. In January 1994 their relationship was further formalized in the 50/50 joint venture BiCom. Through BiCom they executed collaborative projects with four Dutch universities in related fields, making it a joint venture that fitted with their expansion strategy and facilitating administration of collaborative projects with the universities.

Process and outcome: The development of the new antibiotic was not at all without problems. During the first half of 1994 there were start-up problems. During the consultant's first company visit, the parties told him that the start of the collaboration was suffering from miscommunication. The partners had to get acquainted with each other's ways of working and communicating. In the course of 1995, technical problems delayed the project, which led parties to 'stretch' their original time plan. Complexity also forced

the partners to invest more time and money than planned. However, they jointly solved their communication and technical problems and were flexible and cooperative in allocating more time and money to the project. This led to a delayed but good result: by September 1995 four patents were applied for, and in August 1996 the partners developed a concrete plan for production and economic exploitation of the new drug.

Conclusion: This case shows a combination of high trust and complete contracts (and even unified governance) and hence illustrates that trust and contract can be positively related, in a complementary fashion. It also illustrates a process in which trust preceded a detailed formal contract, which makes one wonder why the partners drew up such complete contracts despite the presence of high levels of trust. In other words, why did trust not substitute for contract, as in the Biowrap case? A first explanation may lie in the fact that the Biowrap case was between small entrepreneurial firms that might in general have less tendency to formalize their agreements. However, looking at the process that evolved during the Pharm Venture case, we can derive a richer explanation and learn more about the dynamics and complex interaction of trust and contract.

When we look at the order of things, we see that a long period of trust building preceded the formalization of the relationship. This finding contradicts claims that formal contracts would form the basis for (in other words, would precede) trust (Lewicki and Bunker 1996). In TCE reliance on a partner follows from control, based on confidence in institutions (e.g. courts), one's power, and other external sources that would prevent opportunism. Contracts clearly have a different function and meaning in TCE from the one found in this case. Here, the contract, however formal and detailed, was not primarily intended to safeguard against opportunism, because the partners clearly believed in each other's benevolence. Rather, the contract was a sign of commitment (as can be concluded from the proud announcement of their 'engagement' in the media by the partners themselves) and a tool for coordination, simply to avoid misunderstanding in the project's management (comparable to minutes of a meeting). Another function is safeguarding against unforeseen contingencies. Whereas safeguarding against opportunism is aimed at potential non-cooperative behaviour by the partner, contingencies refer to conditions that are beyond the control of the partners, but that can still influence the relationship (such as technological and market development and bankruptcy of an important supplier). In this case, the partners do not seem to consider opportunistic behaviour, but do consider the contingencies that may affect the relationship that will continue over a considerable period of time and hence contains many uncertainties.

It is interesting, with regard to our question on whether trust precedes or follows contracts, that this case shows that prior trust may be needed and used, first, to enable open communication and negotiations on the details of the contract, including the thorny sensitive clauses like relationship termination, without evoking a feeling of distrust and conflict, and second, for partners to be willing to engage in the expensive and specific investment in a detailed contract. In this interpretation, trust serves as a basis for detailed

contracting, whereas the contract is seen as deriving from trust. In earlier research it was found that trust can be a basis for both relationship and its outcome (Ring and Van de Ven 1994). Here, we find the same for formal contracts. The results of this case support earlier empirical work by, for example, Zaheer and Venkatraman (1995) who found a positive relationship between trust and formalization or unified control but could not explain these findings due to a lack of insight into the dynamics and into what came first — trust or contract — and how these influenced each other in the relationship. Our results do uncover the complex interaction between trust and contract in relationship development, and thereby reveal how trust and contract can go ‘hand in hand’.

Conclusion

Results from earlier research were ambiguous about the relationship between trust and contract, and about the effect both would have on relationship outcome. Therefore this study set out to uncover how contract and trust relate to each other, and how this affects relationship outcome. While the limited number of cases in our study urges us to be careful in drawing conclusions, our study does support and in other cases contradicts earlier findings and, most importantly, provides insights that question common beliefs on the relationship between trust, contract and relationship outcome.

The Biowrap case illustrates the relationship, much hypothesized by sociologists, that trust can successfully substitute contracts (e.g. Bradach and Eccles 1989; Macaulay 1963). Based on their trust relationship, the partners in this case made use of a very incomplete contract, and still had a most efficient and successful relationship. This outcome contradicts TCE and contract theory reasoning that one should optimally safeguard a relationship to achieve efficient outcomes (e.g. Williamson 1985). We additionally argue that this case shows that a contract can be interpreted as a sign of commitment and tool for coordination.

The petfood case shows that a contract is not always effective in reaching good outcomes. In this case, the extensive contract could not safeguard FoodCom’s interests nor guarantee relationship success. We conclude that contracts may be a poor ordering mechanism in the case of one-sided dependence, which is precisely the situation where contracts are needed most. It illustrates that a contract may not be enforceable because of other than technical legal reasons (e.g. enforceable clauses, availability of courts). Social considerations (e.g. reputation, the will to keep a friendly relationship) and the shadow of the future (one might need the partner again) may make it undesirable to enforce a contract. This finding supports MacNeil’s claim that contracts, as presumed in classical and neo-classical economics, do not actually exist because they are cut loose from their social context and meaning (MacNeil 1980: 1), and contradicts both TCE and contract theory reasoning that contracts form an effective safeguard (e.g. Chen 2000; Lyons and Mehta 1997; Williamson 1985).

The Pharm Venture case illustrates how trust and contract can complement and mutually reinforce each other. This finding contradicts the 'substitution' hypotheses as described by, for example, Neu (1991) and Lyons and Mehta (1997). How and why trust and contract complement each other can be understood when looking at the process. The case illustrates that trust may be needed as a precondition for negotiating and drawing up a complex contract. First, to prevent distrust: in a complex, intended long-lasting relationship, partners have to discuss the potential hazards of a relationship and agree how they deal with this. To come to a fair and effective agreement on these issues, parties have to compromise and trust each other's intentions. Prior trust may provide the basis for openness and psychological safety (Edmonson 1999) that is needed to negotiate these sensitive issues (e.g. relationship termination or sharing costs in case things go wrong) and prevent the triggering of a vicious circle of mutual distrust, defensive behaviour and conflict. This contradicts earlier contributions which claimed that emphasis on contracting would lead to a spiral of distrust, defensive behaviour, conflict and increased emphasis on monitoring and control (e.g. Goshal and Moran 1996; Gaski 1984; Hunt and Nevin 1974; Lusch 1976). Second, prior trust may be needed for the parties to be willing to invest in the relationship: since a contract may entail a lot of effort, and by itself constitutes a specific investment, prior trust may be needed to ensure that this effort will be successful and worthwhile. If the contract is viewed in this light, signing the contract can be interpreted as a sign of trust and commitment to the relationship. This supports Bacherach and Gambetta's (2001) claim that contracts can also be interpreted as signals.

The Wrapline case, finally, illustrates that the absence of complete contracts cannot always be interpreted as a sign of trust. Here, it was the result of Entrepreneur's inclination to opportunism and hence wish to keep 'the back door open' that led to an ill-suited, incomplete contract.

The cases show that the relationship between trust and contract is a complex and dynamic one, and that in a trusting atmosphere contracts can have a different function and meaning. Whereas companies that fear opportunism view their contract as a safeguard against opportunism, companies that have a trusting relationship tend to interpret contracts as a tangible expression of trust that has been built up over the years. More specifically, and returning to the questions addressed in the introduction, we conclude the following.

Do contracts precede trust or vice versa? Based on our results we conclude that trust will in general precede contracts. In the Pharm Venture we saw how trust enabled detailed complete contracting. This supports the findings of, for example, Larson (1992) and Ring and Van de Ven (1994) who, by looking at the process of inter-organizational relationship development, found that trust was an important precondition for contracts. We saw no example of contract providing a basis for trust. This contradicts the claim by, for example, Luhmann (1979), Zucker (1986), Zaheer and Venkatraman (1995) and Anderson and Narus (1990), that legal regulation is an important precondition for trust. We can explain this contradictory result by coming back to our definition of trust that explicitly distances itself from the rational calculative

interpretation of trust. We argue that, although calculative trust may be based on legal regulation, this will form a poor basis for the interpersonal care, concern and benevolence that characterizes the deep trust that we investigated in this study. Moreover, the petfood case also contradicts the claim that rational trust can always be based on complete contracts.

Are contracts and trust complements or substitutes? We conclude that trust and contracts can be both substitutes and complements. The Biowrap case illustrated how trust enabled the contract to be left incomplete and flexible, thereby supporting the 'substitution' hypothesis of trust and contract. The Pharm Venture case illustrated that trust and contract can also complement and mutually reinforce each other. We argue that whether contracts and trust are substitutes or complements depends on the intentions with which contracts are drawn up and used. First, if a contract is not interpreted as a strict legal safeguard, trust and contract may go well hand in hand, in which case trust and contract will be complementary. Second, when parties trust each other, they may decide not to include safeguarding clauses in their contract, in which case trust substitutes for contract. Third, in situations of high distrust, parties may put great emphasis on contracts and detailed safeguarding clauses, in which case contract substitutes for trust.

How do trust and contract relate to a relationship's success or failure? Although we have to be careful with our conclusions in view of the limited number of cases we studied, we found that relationships characterized by trust were more successful. This supports earlier claims by social scientists that trust is an important condition to create an open and constructive atmosphere (e.g. Zand 1972; Larson 1992; Ring and Van de Ven 1994). In such an atmosphere, parties will likely share information in a more timely manner and more accurately, signal problems earlier, and jointly solve problems as they arise. In these cases, conflict does not necessarily harm the relationship or the level of trust. On the contrary, the joint resolution of problems and conflict may deepen the relationship and increase the level of trust. These findings were illustrated in the Biowrap and Pharm Venture cases (problems were successfully solved and execution of the projects was both effective and efficient) and support earlier findings by Six (2003) and Sabel (1993) who described how conflict is dealt with in a trusting relationship. We did not find an example of how a contract can guarantee success. The petfood case illustrated that, despite the complete contract, a good outcome could not be achieved.

We conclude that, looking at the relationship's development, the exact content of contracts and intentions with which these contracts were drawn up and used provides an increased understanding of how trust and contract are related. Key to this understanding is that the general conceptualization of contracts as uni-dimensional legal safeguarding instruments is wrong. Our cases show that contracts may have different functions, which can also be social in nature. These functions may be reflected in the content of clauses included in the contract. This study has uncovered three additional functions of contracts.

- **Coordination:** In a trusting atmosphere, where parties do not fear opportunism, a contract may be used to specify what goals parties aim for and how they want to achieve these goals, as in the Pharm Venture and Biowrap cases. This contract may be very detailed but will generally focus more on the positive (what we want to achieve and how) than on the negative (which legally enforceable measure we put in place to safeguard property or knowledge and how we take the case to court). Such a contract can be interpreted as a technical aid to managing the relationship, in the same way that minutes of a meeting remind participants of arrangements that were made.
- **Safeguard for contingencies:** When parties engage in a long-term and complex relationship, parties may put a detailed contract into place to have a framework for how to (re)act if unforeseeable contingencies occur. These contingencies do not refer to unforeseen opportunism, but to outside contingencies such as technical or economic developments, a hostile take-over of one of the partners, bankruptcy of a partner, or accidents. The very detailed and complete contract in the Pharm Venture case can be seen as an illustration of this function.
- **Sign of commitment:** Partners may also use the contract as a tangible expression of their trust in each other and their intention to be loyal partners (see Biowrap and Pharm Venture cases). In these cases the contract can partly be interpreted as a symbol, or a signal (Bacherach and Gambetta 2001) for showing commitment.

Mostly contracts will contain a mixture of clauses and serve a number of functions. The analysis should hence not be understood as an 'either-or' discussion, with contracts having, for example, either a symbolic or a safeguarding function. Contracts will be mixed, but at the same time, be directed towards one or the other function, which will be reflected in the clauses included. In this sense, one could claim that contracts may be envisaged as the sedimentation of the negotiation and commitment stages that partners go through. In this interpretation contracts can, like trust, be seen as both the basis and outcome of cooperation. In a trusting atmosphere, negotiating the contract can be seen as a process of getting to know and understand each other. Here, trust can serve as a basis for contract. In an opportunistic atmosphere, instead, contract negotiations can resemble the battlefield as sketched by MacNeil (1980), where the most powerful partner dominates contract content and execution.

Discussion and Notes for Further Research

We have empirically shown that trust and contract need not be 'opposing alternatives' and, more important, shown why this is the case: trust and contract can well be complements because contracts are in practice often not used and interpreted in a strictly legal fashion with opportunism as a central focal point. We claim that future research should no longer focus solely on

the mere presence, absence or completeness of contract. Rather, future researchers should look at, first, the precise content of clauses included, second, the intentions with which the contract is drawn up, and third, the actual use of the contract. In other words, the contract should be placed in its social context and within the relationship's development. By interpreting contracts in this dynamic social as well as legal fashion, the relationship between trust and contract becomes less simple, yet we also believe that it brings us closer to reality.

Having looked into the dynamics of relationship development, and explained the different contents, functions and intentions of contracts in these relationships, we believe this study has made an important step in resolving the 'fundamental disagreement in the literature' (Lane 1998: 25) concerning the relationship between trust and control. Both from the viewpoint of TCE and from a social science perspective it was believed that trust and formal control were opposing alternatives (Knights et al. 2001). Yet, empirical results from various studies (Anderson and Narus 1990; Poppo and Zenger 2002; Zaheer and Venkatraman 1995) did not support this belief and offered no satisfactory explanation of why empirical results did not support their hypotheses. The results of our study suggest that these empirical results may be explained by taking into account that contracts (and possibly other forms of formal control) may have other than strictly legal and safeguarding functions.

While our study renders new insights, it also has limitations. The limited number of cases raises questions on the generalizability and external validity of the study. We acknowledge these problems and therefore view our study as exploratory. Large-scale follow-up studies should test whether our results hold for other types of inter-organizational relationships and for other sectors. In these studies, not only the relationship between trust and contract should be investigated, but also the relationship between these concepts and relationship outcome, in order to test the competing hypotheses from social sciences and TCE as to whether trust or contract has a stronger impact on efficient outcomes.

Our study is also limited by the fact that all the cases studied are from one country. As noted before, this may have influenced the behaviour of the companies and thus our results. Future research might investigate whether the results of our study hold in other countries, where companies are more inclined to bring problems to court (such as the US). Finally, we restricted our inquiry to contracts. It would be interesting to study the relationship between trust and other forms of formal control as well.

Note

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