

This file was downloaded from the institutional repository BI Brage - <http://brage.bibsys.no/bi> (Open Access)

***Comparing internal and alliance-based new product development processes: case studies in the food industry***

**Nina Veflen Olsen  
Nofima**

**Geir Gripsrud  
BI Norwegian Business School**

This is the authors' final, accepted and refereed manuscript to the article published in

***International Journal of Product Development*, 13 (2011)3: 245-261**

The publisher, Inderscience, allows the author to retain rights to "use the article for non-commercial purposes after publication: posting the Accepted Version (i.e. final post-acceptance manuscript version) on the author's personal web pages or in an institutional repository maintained by the institution to which the Author is affiliated, provided acknowledgement is given to the Journal as the original source of publication and upon condition that it shall not be accessible until after six months from Inderscience's publication date". (Publisher's policy 2011).

# Comparing Internal and Alliance Based New Product Development Processes: Case Studies in the Food Industry

Nina Veflen Olsen\*, Nofima,

Oslovn. 1, 1430 Ås, Norway,

Formatted: Norwegian (Bokmål)

Phone +47 64970100, E-mail: [nina.veflen.olsen@matforsk.no](mailto:nina.veflen.olsen@matforsk.no)

Geir Gripsrud, Norwegian School of Management

Nydalsveien 37 , Oslo, Norway

Phone:+47 46410536, E-mail: [geir.gripsrud@bi.no](mailto:geir.gripsrud@bi.no)

**\* Corresponding author**

## **Author biography**

Nina Veflen Olsen is a scientific researcher at Nofima, Norway where she is doing research on consumer behavior and product development management. Dr. Olsen is currently involved as a workpackage leader for two large integrated research projects funded by the EU Commission: NovelQ and Q-PorkChains. She has published in the European Journal of Marketing, Appetite, Food Quality and Preference, British Food Journal, International Journal of Retail & Distribution Management, International Journal of Innovation and Regional Development, in books, and in several conference proceedings.

Geir Gripsrud is Professor in Marketing at the BI Norwegian School of Marketing. Since graduating in economics from the University of Oslo, his research has focused mainly on retailing/distribution issues and international marketing, in particular foreign entry mode and export behavior. He has published in journals like Journal of International Business Studies, Journal of Business Research, The Journal of Industrial Economics, European Journal of Marketing and International Journal of Research in Physical Distribution & Logistics Management.

## **Comparing Internal and Alliance Based New Product Development**

### **Processes: Case Studies in the Food Industry**

Companies may simultaneously pursue different new product development (NPD) strategies. This article reports a comparative two case design study of in-house NPD projects as well as alliance based NPD projects in a food company. Two contradicting proposition's of the efficiency of NPD in an alliance compared to NPD performed internally are stated, and the findings indicate that the alliance based NPD solution creates a better context for NPD than the in-house solution. Less forwarding of unsolved problems between the departments and a better communication is observed within the alliance. The observed pattern may be interpreted in terms of the framework developed by evolutionary economics, which states that what a firm can do is mainly determined by its organizationally embedded routines. We propose that the observed differences are explained by in-house routine failure, and highlight the importance of including routines when investigating the efficiency of new product development in alliances.

Key words: New product development, alliances, resources, routines, case study, food

## **1. Introduction**

New product development (NPD) has become a key to success for companies in a number of industries. As the NPD process has become more complex and costly, firms are increasingly using various partnering arrangements to accomplish their innovative goals (Millson et al. 1996). Firms are more and more compelled to leverage their internal strengths with partners' core competencies to secure their ability to provide superior new products (Mohr and Spekman, 1994). A NPD alliance has been defined as a "formal arrangement with a separate company for purposes of development" ([www.pdma.org/library/glossary.html](http://www.pdma.org/library/glossary.html)). Different kinds of NPD alliances exist. A company might collaborate with customers or lead-users (von Hippel, 1986), with suppliers (Takeishi, 2001, van der Valk and Wynstra, 2005), or other manufacturers (von Hippel, 1987).

NPD alliances between manufacturers typically entail manufacturing companies which have existed independently for some time before they enter into an alliance. Over time, they have developed different core competencies which the alliance can benefit from. A considerable amount of research has analyzed different aspects of such alliances as the literature review will show. The research to be reported in this paper differs in the sense that the NPD projects analyzed are carried out in an alliance between a large manufacturing company and a smaller subsidiary, the latter one being established explicitly for the purpose of NPD. The NPD process in this alliance is compared with the NPD process which still takes place inside the larger company. The establishment of the smaller company was a business venture designed to overcome some of the missing capabilities in the larger company. Both types of NPD processes utilize the R&D department in the larger company. The aim of the research is to investigate if there are any differences in the way NPD are carried out in the two situations,

and in case how the NPD processes differ. The overall NPD process from strategy, organization, concept generation, product and marketing plan creation and evaluation, to commercialization of a new product is explored.

The paper proceeds as follows: In the next section, we present two theoretical foundations and give a review of the literature dealing with strategic alliances and new product development. Based upon the literature review two propositions are outlined and the research context described. The methodology applied is then presented, followed by our findings. Basically, our findings indicate that the NPD process was more effective in the strategic alliance than when it was carried out 'in-house'. The paper ends with a discussion of the results and suggestions for future research.

## **2. Literature Review**

Innovation and new product development have attracted a lot of interest in many disciplines. A recent review of innovation studies covering a comprehensive set of journals publishing innovation research (238 articles), maintains that the literature should be organized according to a theoretical basis (Harmancioglu et al. 2009). In this paper, two theoretical foundations, the resource based view of the firm (RBV) and evolutionary economics, are presented. The RBV is a frequently applied theory in innovation research, which the Harmancioglu et al. (2009) article, classifying 67% of all the investigated articles as based upon a resource-based/contingency theory view, illustrates. Evolutionary economics, however, have also been applied, but less frequent than the RBV.

## 2.1 *The resource based view*

The resource-based view (RBV) argues that the basis for achieving a competitive advantage for a firm rests upon a bundle of valuable resources at the firm's disposal (Wernerfelt, 1984).

The resource based view of the firm can be traced back to Penrose (1959/1980). In her discussion of the importance of entrepreneurial qualities for the growth of the firm she noted: "Physically describable resources are purchased in the market for their known services; but as soon as they become part of a firm the range of services they are capable of yielding starts to change. The services that resources will yield depend on the capacities of the men using them, but the development of the capacities of men is partly shaped by the resources men deal with. The two together create the special productive opportunity of a particular firm.....The process is one by which new productive services are continually becoming available to a firm, and the new services are not just those of its managerial and other personnel, but also of the physical resources with which a firm works." (p.78-79).

Penrose here describes the *dynamic* interplay between the services provided by different types of resources and the capacities of the men using them, and she points out that the two together create the "special productive opportunity" of a particular firm. The key point is how unique resources and capabilities *develop over time* in a firm as a result of an ongoing interactive process. The resource based view (RBV) maintains that those company resources which are rare, inimitable, and difficult to trade form the basis for sustainable competitive advantage (Barney, 1991). Different terms have been applied to denote basically the same phenomenon. Prahalad and Bettis (1986) used the term "dominant logic", Prahalad and Hamel (1990) talked about "core competencies" and Stalk et al. (1992) introduced "capabilities". As a matter of fact, it has become customary to split the previous all encompassing construct called

'resources' into capabilities and resources (Amit and Schoemaker, 1993). In this more narrow sense *resources* are tradable and not specific to the firm, while *capabilities* are firm-specific and necessary to utilize the resources within the firm, for instance the transfer of the knowledge required to conduct a NPD process.

When strategic alliances are utilized to improve innovation and NPD, it can be interpreted as a strategy to acquire both the resources (in a narrow sense) controlled by the partner and the *capabilities* of the alliance partner.

#### *2.1.1. The resource based view in NPD alliance studies*

The Resource Based View of the Firm (RBV) has been applied to investigate NPD alliance formation and the effect of alliances on the NPD process and the NPD outcome. Eisenhardt and Schoonhoven (1996) state that NPD alliances are formed when firms are in a vulnerable strategic position as well as when firms are in a strong social positions. Emden et al. (2006) argue that strategic partners are chosen based on technical, strategic and relational alignment, and Rotharmel and Boeker (2008) maintain that dyadic complementarities and similarities directly influence alliance formation.

One of the key factors affecting new product development success in alliances seems to be cooperative competency. The ability to build trust, good communication, and efficient coordination is an important means of developing interfirm cooperation (Deeds and Hill, 1998; Sivadas, and Dwyer, 2000; Cousins and Lawson, 2007; Walter et al., 2007). Horizontal alliances have, according to Rindfleisch and Moorman (2001), lower levels of relational



embeddedness and higher levels of knowledge redundancy than vertical alliances. While embeddedness enhances both acquisition and utilization of information in alliances, redundancy diminishes information acquisition but enhances information utilization. Relying on insights from the new product development literature, Faems et al. (2006) argue that formal governance mechanisms may hamper the exploring of new technological opportunities. They highlight the importance of balancing formal and relational governance.

Based on the RBV and capability literature, the effect of alliance experience on the NPD outcome has also been discussed. According to Rothaermel and Deeds (2006) alliance type and alliance experience moderate the relationship between a high-technology venture's R&D alliance and its new product development. In addition, Hoang and Rothaermel (2005) state that partner-experience has a negative effect on joint project performance, and Fey and Birkinshaw (2005) argue that the use of external contracting has a net negative impact on R&D performance.

## *2.2 Evolutionary economics*

“The Evolutionary Theory” was developed by Nelson and Winter as an alternative theoretical framework to profit maximization for the analysis of the firm (Nelson and Winter, 1982). Instead of such an optimizing procedure, they propose an evolutionary model in which selection operates on the firm's internal routines. Routines include “characteristics of firm's that range from well-specific technical routines for producing things, through procedures for hiring and firing, ordering new inventory, or stepping up production items in high demand, to policies regarding investments, research and development (R&D), or advertising, and business strategies about product diversification and overseas investment”(p.14).

Routines are not simply widespread and characteristic of much activity within organizations: They also have functional characteristics. Being concerned about how technical skills are acquired and passed on within the economy, Nelson and Winter argue that habits and routines act as relatively durable repositories of knowledge and skills. In their words, routines are the “organizational memory” (p.99) of the firm. Furthermore, routines may have the capacity to replicate through imitation, personal mobility, and so on. Because of their relatively durable character and their capacity to replicate, routines act as the economic analogue of genes in biology. They transmit information through time in a manner which is loosely analogous to the conservation and replication of information via the gene (Hodgson, 1998)

### *2.2.1 Evolutionary economics in NPD alliance studies*

The dynamic and organisational learning parts of Evolutionary Economics have been applied to investigate alliances and NPD. One of the main questions investigated is how the *alliance structure* changes over time. Doz (1996) explores how learning processes in alliances mediate between initial conditions and outcome. Successful alliance projects go through a sequence of interactive cycles of learning, reevaluation and readjustments, while failing projects were characterized by inertia and little learning. The dynamics of exploitation and exploration (March, 1991) in interorganizational NPD projects are investigated by Holmqvist (2004). He proposes a conceptual framework where experiential learning is a driving force behind much interorganizational change in the form of a transformation between exploitation and exploration.

A couple of studies have also highlighted how alliances affect the product development process. Emphasizing the tension between an *alliance logic* and an *innovation logic*, Linnarson (2005) identifies a pattern where changes in the alliance structure trigger changes in the innovation. Plotting the changes in the alliance structure on a timeline together with the triggers of these changes, he observes that findings during the exploration of the innovation seem to require a different alliance structure for commercialization. He argues that the pattern observed illustrates a dependency between the innovation and the planned alliance structure. The findings are very much in line with Rothaermel and Deeds (2004). According to this study, new technology ventures using an exploration-exploitation strategy in their NPD tend to have more new products in development and on the market.

While routines in NPD alliances are less investigated, studies have discussed the role of in-house NPD routines (Madhavan and Grover, 1998), as well as how organizational routines in general affect learning and change (Feldman, 2000). Madhavan and Grover (1998) propose that the level of appropriate NPD routines will be related positively to the team's performance. They perceive NPD routines as important and suggest a need for managerial processes that preserve and make resources available across projects, in spite of inevitable team turnover. As an alternative proposition, they suggest that NPD routines also have a negative side to them. Studies of team performance in psychology have observed that group longevity and familiarity among team members eventually become detrimental to performance (Katz, 1982). The very routines that facilitate smooth team functioning can become dysfunctional by inviting the miscoding of familiar situations and reduce innovation (Gersick and Hackman, 1990). Based on these studies they propose that NPD routines will have a curvilinear (inverted-U) relationship with the team's performance outcome.

### **3. Theoretical Propositions**

Our starting point is that a company will develop particular core competencies and capabilities over time. The core competencies will depend upon the type of human resources needed in the company, the company culture and the degree of competition one is facing. A limited number of NPDs in a given product area may have been handled internally in a satisfactory way. When the external situation is changing, the need for new core competencies and capabilities may arise and become rather urgent. Establishing a NPD alliance is a possible solution in this situation. As pointed out by Eisenhardt and Schoonhoven (1996), NPD alliances are both formed when firms are in a vulnerable strategic position as well as when they are in a strong social positions. The strategic partners are chosen based on technical, strategic and relational alignment, and dyadic complementarities and similarities directly influence alliance formation. (Emden et al., 2006; Rotharmel and Boeker, 2008).

Studies of alliance performance have underscored the difficulties involved in coordinating two independent firms. According to Park and Ungson (2001) strategic alliances fail because each partner tries to maximize its own individual interests instead of collaborative interests. Apart from the many challenges involved in maintaining a healthy and productive alliance between independent companies, the number of established companies eligible as an alliance partner may be limited or nonexistent. In such a situation, the established company may consider setting up a subsidiary which may act as an alliance partner further down the road. The alternative is to expand the original company and hopefully build the competencies needed internally. A priori, it is not clear which strategy will lead to the most efficient NPD process.

First, few – if any - of the many studies undertaken have compared inter-firm processes with intra-firm processes. Second, in spite of all the NPD alliance studies conducted, few studies have focused on the organizational context of NPD. According to Walter et al. (2007) “*alliance-related decision making cannot be adequately understood without explicitly considering the micropolitical context in organizations*” (p.530). Alliance-related decision making – as many other organizational phenomena – does not unfold in an intra-organizational vacuum, but is embedded in the fabric of the organization. Organizations are comprised of coalitions with different, competing, and in some cases, conflicting interests (Pfeffer, 1992; Pfeffer and Salancik, 1974). As NPD in an alliance context is confronted with significant internal and external uncertainties, politicality represents a crucial contextual factor, since decision makers may attempt to influence decision processes by engaging in political tactics. Thus, by applying a process approach, where we investigate the NPD contexts, as well as different steps, stages, and activities involved from idea generation to commercialisation, we hope to contribute to an increased understanding of the efficiency of alliance based NPD.

According to Sivadas and Dwyer (2000), internal organization increases the process capabilities by improving communication and coordination throughout the different NPD steps. They found that internal NPD outperformed alliances on communication and coordination, since there is higher communication frequency and stronger relational norms inside the company than in inter-firm arrangements. As indicated in the literature review, a previous study has also found that the use of external contracting had a net negative impact on R & D performance (Fey and Birkinshaw, 2005). This leads to:

*P1: NPD in an alliance is less efficient than NPD performed internally*

An alternative theoretical approach is the framework developed by evolutionary economics. Nelson and Winter (1982) presents “an alternative to orthodoxy’s view of organizational behavior as optimal choice from a sharply defined set of capabilities” (p.96) and underline the importance of organizational routines. They claim that routinization of activities is the most important way of storing the organization’s operational knowledge. Hodgson and Knudsen (2004) have discussed the linkage between habits at the individual level and routines as some kind of organizational meta-habits, and Katz (1982) observed that routines may become dysfunctional over time. It may be that over the decades routines have developed concerning how NPD processes are carried out in the larger company. These routines may have allowed inefficiencies to develop and to be maintained, particularly if the company has been insulated from stiff competition. In this case, we may find that the process is actually carried out more efficiently in an alliance:

*P2: NPD in an alliance is more efficient than NPD performed internally*

An empirical study has been carried out to compare the R&D processes in the two types of governance and to evaluate in what case it is the most efficient.

#### **4. Empirical Setting and Research Method**

TINE is the sales and marketing organization for Norway's Dairy Cooperative and is responsible for product development, quality assurance, production and distribution planning,

marketing and the export of TINE products. The dairy cooperative is Norway's largest food company with a total of 5734 employees and an annual turnover in 2008 of \$ 3.0 billion (Annual report (Årsrapport) 2008) TINE is owned by 15 847 milk producers, and its main mission is to give their owners the best possible economic results by collecting, refining and converting milk into dairy products. TINE perceives innovation to be important and their R & D department develops a number of new dairy products every year.

Fjordland was established in 1994 and was originally wholly owned by TINE. The TINE CEO at that time wanted to establish a company for development of ready-to-eat meals based on raw materials from Norwegian agricultural cooperatives. The core competence of Norwegian food cooperatives was in the production and logistics of food products (dairy, meat, poultry, and vegetables). Less was known about development and marketing of ready-to-eat meals. TINE acted on behalf of all the food cooperatives in Norway when establishing Fjordland, and the CEO of TINE became the first chairman of the board. The initial capital of \$ 5 million and the responsibility for two product categories, margarine and Yoplait yoghurt, was transferred from TINE to Fjordland. The decision to establish Fjordland as a subsidiary and not as a new department of TINE, made it possible for Fjordland to develop their own business culture. The board of TINE has been described as sitting with its back towards the market, facing their owners. Fjordland, on the other hand, was established to become a market oriented company with the board facing the market.

Today, Fjordland has more than 40 different ready-to-eat meals in their portfolio, plus different kinds of margarine, yoghurt and desserts. Their slogan is “So good, So easy”, and their corporate mission is to develop products based mainly on their owners' raw materials,

and to create value through product-development, branding, and sales. TINE still has a majority share, but agricultural cooperatives representing other product areas have become minority share holders. The company in 2008 had a turnover of \$ 170 million and 78 employees. While TINE conducts all development and production in-house, Fjordland co-develops their products with TINE. All R&D activities for both TINE and Fjordland projects are conducted at the same place. Accordingly, TINE and Fjordland utilize the same people and have access to the same facilities in their technical product development.

TINE Market and TINE R&D, which are the two departments studied in TINE, are approximately the same size as Fjordland. Fjordland is basically a marketing organization, comparable in many ways to TINE Market, the market department in TINE. Fjordland and TINE Market are both located in Oslo, geographically far away from where the R&D takes place at TINE Voll located on the West Coast of Norway. It is the relationship between TINE Market and TINE R&D on the one hand, and the relationship between Fjordland and TINE R&D on the other hand, which have been compared..

To explore the differences between inter-organizational NPD and intra-organizational NPD, a 6 month long cross case comparison study of how TINE and Fjordland carry out their NPD was conducted. The unit of analysis is the NPD program, defined as how NPD usually are conducted within these organizations. A NPD program consists of different NPD projects as well as more general NPD procedures and routines. According to the terminology presented by Yin (2009) this study is a comparative embedded case design, consisting of two case studies. The rationale for choosing such a design is related to the scope of a case study. *“A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and*



*within its real-life context (Yin 2009, p.18).* Since our aim is to increase our understanding of a real life phenomenon, a case study is considered to be the most appropriate research approach. A two case design was deliberately chosen because each of the cases offered different context for studying NPD; intra-organizational NPD in case one and inter-organizational NPD in case two. Since the same R&D department is involved in both the in-house process and the alliance co-development process, the investigation of these two cases gave us a unique opportunity to investigate our research question.

Multiple data collection techniques as interviews, observations, and document reviews were applied in the study. A major strength of case study data collection is the opportunity to use many different sources of evidence, and any case study finding is likely to be more convincing and accurate if it is based on several different sources of information, following a corroboratory mode (Yin 2009, p.116). Our observations were collected by using a field-based methodology. We spent considerable time on site in both TINE and Fjordland, to watch, listen to, talk with, and question individuals and groups. We observed people in charge of R&D and marketing, but also people working hands-on with the project, like project- and production managers. 16 of the more semi-structured interviews were tape-recorded and transcribed, but mostly our observations were documented as ex post field notes.

**(Table 1 around here)**

Another main source of information was all the written material we got access to. General NPD process prescriptions, as well as more specific NPD reports were studied. We investigated in detail the whole process behind the development of a new cheese cake and two new milk based drinks in TINE, and a new dessert and two new kinds of margarine in

Fjordland. People involved in these projects spent a lot of time describing the whole process to us, and in addition we got access to various types of written material. Pre-development reports, project reports and evaluation reports, plans for progression and decisions, minutes from meetings and saved e-mails concerning the projects were all studied in detail. At the end of the study, as a quality control, our observations were presented and discussed with the NPD management in both firms. This was done as a tactic to increase construct validity.

The first and most preferred strategy for case study analysis is to follow the theoretical propositions that led to the case study in the first place (Yin, 2009). In this study, two theoretical propositions are stated. These propositions, which emphasize R&D processes and outcome, have guided this case study analysis. The technique applied is a pattern-matching logic (see Yin 2009, p.136) where the two cases are compared in relation to R&D process variables and R&D outcome variables. To structure the R&D process data, we applied a theoretical framework describing success factors for intra-organizational NPD. According to Cooper (1999), eight common denominators of successful new product projects exist. The drivers of success are:

1. Solid up-front homework
2. Voice of the customer
3. Product advantage
4. Sharp, stable, and early product definition
5. A well planned, adequately resources, and proficiently executed launch.
6. Tough go/kill decision points
7. Cross-functional teams with strong leaders
8. An international orientation

The eight variables explaining NPD success supplemented with R & D outcome variables guided the case study. Accordingly, the case study is deductive in the sense that the data were coded and structured in relation to a theoretical framework. As the research process evolved “abductive or systematic combining” might be a better label for the process. Dubois and Gadde (2002) state that the “*main characteristic of this approach is a continuous movement between an empirical world and a model world. During this process, the research issues and the analytical framework are successively reoriented when they are confronted with the empirical world.*” This description fits our case analysis well.

## **5. Findings**

The structure of the inter-organizational and the intra-organizational product development processes seem in many ways quite similar. Both the in-house and the alliance teams apply a Stage-Gate model (Cooper, 1993) with clear go/kill decision points. In both cases, screening of the market and the available technology, an assessment of risk and investments needed, and a proficient market launch is conducted. So, in relation to many of the success factors mentioned in the NPD literature (Cooper, 1999; Cooper and Kleinschmidt, 1990), the in-house and the alliance NPD team activities do not differ much.

In spite of the similarities some interesting differences exist.

### **5.1 Case one: Intra-firm product development**

An in-house NPD project at TINE is usually carried out by a team of five to eight persons from different departments (market, R&D, finance, logistics, packaging, and one of the

regional dairies). The teams are managed by a team leader from TINE Market or TINE R&D, who reports to the board of product development in TINE at given stage gates.

TINE is a large and proficient product developer, which on average develops 8-10 new products annually. Incremental line extensions and product improvements dominate, but once in a while also more radical innovations are launched. The success rate for NPD in TINE is high, and very few of the launched products are shortly after removed from the market. The in-house NPD process at TINE consists of seven phases. 1. Idea, 2. Portfolio planning, 3. Predevelopment, 4. Main development, 5. Production establishment, 6. Launch, and 7. Evaluation. Different check lists, meant to be helpful tools especially for NPD freshmen, are developed for all these different phases. These check lists, as well as other procedures and routines for quality control, have been criticized internally. The critics state that “*the process seems to be more important than the outcome (TINE Market)*”. As a consequence of the internal debate the check lists and other control procedures are now optional, rather than mandatory tools.

Generally, the predevelopment phase takes a long time in TINE. A pre-development report is between 13-36 pages long, and can take as much as half a year to write. Instead of carrying out their mandate, which typically is to screen the market and the business opportunities, they leap on to activities that naturally belong in the main development phase.

*Some times we behave like we are alone in the world. We are so concerned with reducing the risk for failure, that the importance of time to market is forgotten. We should use less time on reporting, and take a higher risk. (TINE Market)*

As an example, a new TINE project was initiated in August. Five months later, in January the next year, the project was presented. The predevelopment report was so extensive that it became unnecessary to write a project report. This example is not unique. It took 6 month to write up a pre-development report for another project. The market evaluation, concluding that there was no market for this product, was presented after 600 hours of work were spent on the project, and after the budget had to be expanded. In spite of the fact that no money was to be spent on the project, more than \$ 20 000 were used on purchasing market reports. The interviews clearly showed that this was not unusual for TINE. If someone believed in a project, money was available.

Some of the delay in time-to-market might be explained by new persons having to be involved in the project. This was particularly the case for the cheesecake project in TINE. According to TINE R&D, TINE Market changed their opinion throughout the process. The cheesecake went from being a two-layer cake, to a three-layer cake. This change, which was a result of new people in the market department and no clear product concept description, had great consequences for the progress of the process. It took 5 years from the project was initiated till the product was actually launched.

The in-house predevelopment reports present thoughts according to product portfolio, price level, communication and distribution, but the product definition developed is not specific enough.

The R&D department in TINE was frustrated by all the badly described products TINE Market had traditionally wanted them to go further with, as illustrated by the following quotation:

*They just tell us to develop a new yogurt, without saying what sort of yogurt they want. (TINE R&D about TINE Market)*

This frustration was just one of many others that came forward during the interviews. Accordingly, communication difficulties seem to exist within the same organization.

## **5.2 Case two: Inter-firm product development**

As for the NPD projects carried out in the strategic alliance, a cross-sectional team of approximately five persons is usually set up. Employees from both TINE and Fjordland, take part in the project. The project leader, who typically has a background from R&D, is from Fjordland. These teams have to report to a product development board within Fjordland at given stage gates.

The NPD process for the alliance is quite similar to the process we observed in-house in TINE. Also here the process consists of seven different phases, starting with an idea-generation and

screening phase, before predevelopment, main development, production, launch and, finally, an evaluation phase takes place. Between the phases, different gate-meetings are organized where budgets, progress and cooperation are discussed. Complicated development projects demand gate-meetings between each stage, while more straight forward projects may only need a couple of formal meetings. The main aim of the NPD process is to increase the success rate for new products by reducing the risk for failures.

Generally, the alliance predevelopment phase is quite fast, and takes on average 14-days. The outcome is a 2-3 pages long predevelopment report. One of the main advantages of this predevelopment phase is related to the product definition. According to TINE R&D, the concept descriptions from Fjordland Marked are much clearer than the descriptions from TINE Market.

*The greatest difference between TINE Market and Fjordland Market is the sharp product definition activities conducted by the latter. (TINE R&D)*

Within the alliance NPD the product is in focus. This makes the description of the product more comprehensive, and both physical features, sensory features and features for use are presented.

Early product conceptualization is another factor which is regarded as very important within the alliance NPD. As the product specification presented in table 1 illustrates, Fjordland sends a very detailed product description to TINE R&D.

*Conceptualization is something we have to do, but it can be painful. You don't know exactly what you want, and then you have to describe it. We try to be strict with ourselves to manage to launch the product on time. To be able to do that, we need to define the product.*

*(Fjordland)*

This early product definition is mentioned by many of the respondents, both in TINE R&D and Fjordland, as the main reason the alliance predevelopment phase is perceived as better than the one conducted in-house by TINE. It takes much more time to finish a project when the product lacks a sharp, stable, and clear definition (Cooper, 1999). By taking the time to define the product at an early stage, the time to market is drastically reduced.

*Up-front homework and especially the product description is much more thorough in Fjordland than in our system. This is of great importance for timeliness. Fjordland avoids a lot of trying and failing and the progress is faster. (TINE R&D)*

Even though the up-front homework within the alliance is perceived to be better than the homework conducted in-house, this is not reflected in the time spent on predevelopment activities.



Another observation we found interesting is related to the cooperation and communication within the alliance. A frequent and close communication seems to exist between Fjordland and TINE R&D.

*We have much closer communication with Fjordland, both in the pre-development phase, the idea phase, and last but not least in the technical development phase than we have internally in TINE. (TINE R&D)*

One plausible explanation for the close communication within the alliance is dependency. Since Fjordland do not have a R&D department, they are dependent on a good relationship with TINE.

Fjordland wants to integrate TINE R&D as early as possible in the product development process. They want TINE R&D to feel that they own the project, and thereby become committed to the task. TINE R&D perceives this as positive and wishes they had a similar early contact with the market department in TINE. It also seems to be the case that the external client is given priority.

*We can not demand that TINE R&D produce and develop products for us. We are dependent on a win-win model, where both TINE and Fjordland find the relationship to be fruitful. (Fjordland)*

Another explanation is that TINE employees behave differently towards actors from outside than they do towards internal actors. An employee in TINE R&D stated that Fjordland is perceived as a customer, and customers are prioritized.

*We work harder to fulfill their (Fjordland's) wishes. (TINE R&D)*

### **5.3 Comparison of the two cases**

A significant difference exists concerning the predevelopment stage in the two cases. According to the NPD literature, activities in the predevelopment stage are instrumental for the ultimate success or failure of a new product. A positive and significant correlation is found between new product success and measures of proficiency in screening, preliminary market assessment, and marketing research (Song and Parry, 1997). Adequate up-front home work is important (Cooper, 1999), and a failure to define the product – its target market; the concept, benefits and positioning; and its requirements, features and specs – before development begins, is a major cause of new product failure (Cooper and Kleinschmidt, 1990). The strategic alliance case is clearly superior in this respect.

Another difference between the in-house process and the alliance process is related to the communication. A much closer communication exists between TINE R&D and Fjordland, compared to the one between TINE R&D and TINE Market. Not only does a more frequent communication flow exist within the alliance, but employees at TINE R&D also seem to prefer working with people from Fjordland instead of cooperating with their colleagues at TINE Market. While TINE R&D employees state a lot of negative comments about their in-house

cooperation and communication with TINE Market, the alliance communication is described in positive terms. Moreover, while common understanding and trust are expressed between TINE R&D and Fjordland, this is not the case between TINE R&D and TINE Market.

In general, the case studies indicate that the product development conducted by Fjordland in cooperation with TINE is superior to the in-house development process at TINE. Fjordland's products are clearly defined at an early stage, and the whole pre-development phase takes less time. This means that the second proposition based upon evolutionary economics and organizational routines was supported, while the competing proposition based upon RBV indicating that NPD in the alliance case would be less efficient was contradicted.

## **6. Discussion**

Fjordland was established with the explicit purpose of developing new products based upon the raw materials handled by agricultural cooperatives, in particular the dairy cooperative TINE. TINE had core competence in technical R&D but had not developed the marketing and project management capabilities needed for generating an efficient NPD process. Our case supports the resource based view on alliance formation. Eisenhardt and Schoonhoven (1996) state that NPD alliances are formed when firms are in a vulnerable strategic position. This is exactly what happened in the TINE-Fjordland case. The CEO of TINE recognized the potential market for ready-to-eat meals, but at the same time he was aware of the limitations of TINE's capabilities. Their facilities and human capital was tailored towards a specific raw material, milk, not towards complete meal production. The company lacked the necessary

resources for entering the ready-to-eat meal market. This lack of resources was the main driver behind the establishment of Fjordland and the NPD alliance between TINE and Fjordland. The two partners' dyadic complementarities did, as Rothaermel and Boeker (2008) argue, directly influence the alliance formation. Fjordland was designed to have competence in product development and marketing of meals, while TINE had a state-of-the art R&D department.

Our case studies have shown that many years after the establishment of Fjordland, the NPD process is still superior in the Fjordland-TINE alliance compared to the internal NPD carried out in TINE. Even though the same Stage-Gate model for product development is applied in both the alliance and the in-house strategy, and many of the same human resources and facilities are utilized, the NPD alliance strategy is perceived to be best by the employees of both TINE and Fjordland. The in-house NPD process is characterized as less efficient and lacking good communication between the departments.

The resource based view indicates that communication and coordination is easier within a single company than across different companies. Incentives and other motivational resources may be utilized to stimulate in-house NPD processes, and a higher communication frequency increases the in-house cooperation capability. Thus, the in-house NPD process should run smoother than the NPD process in the alliance. (Deeds and Hill, 1998; Sivadas, and Dwyer, 2000; Cousins and Lawson, 2007; Walter et al., 2007). According to our results this is not always the case, since TINE R&D and Fjordland had a closer and more frequent communication than TINE R&D and TINE Market. An explanation may be that the alliance partners, because they do not have formal control over each other, use tight communication as a tool to build relationships, and thereby increase informal control.

The observed pattern can be interpreted in terms of the framework developed by evolutionary economics. When Fjordland appeared on the scene the individual habits and organizational routines developed in TINE came under attack. The conventional way of conducting R&D was not acceptable any more, and the people in TINE R&D actually found the tasks presented by Fjordland challenging and refreshing. Evolutionary economics states that what a firm can do, and will do, is mainly determined by its organizationally embedded routines (Nelson and Winter, 1982). What we observed in our study was an in-house routine failure. Over time bad NPD routines seem to have developed within TINE, probably partly because of their monopolistic situation and partly because of top-down control losses. This is in-line with Katz (1982) and Gersick and Hackman (1990), who states that well functioning routines can become dysfunctional over time. In cooperating with Fjordland, which seems to have better NPD routines than TINE, individual habits and organizational routines were changed in TINE R&D. It is worth noting that even after several years, the increased efficiency achieved in the alliance had not been matched by a similar efficiency in the internal NPD process.

## **7. Conclusions**

The results from this study indicate that the resource based view of the firm is an important theoretical framework for understanding NPD alliance formation, while evolutionary economics seems to be an important framework for understanding NPD alliance structures. In this case study, proposition 2, stating that NPD in an alliance is more efficient than NPD performed internally, is supported. Our findings indicate the importance of including routines when investigating governance forms for new product development. We observed differences between attitudes as well as motivation in the alliance compared to the internally governed

NPD process. In particular, less forwarding of unsolved problems between the departments and better communication in alliances may improve the level of proficiency in the pre-development phase and thereby shorten time-to-market.

As usual, when conducting case studies the question arises to what extent the findings may be generalized. Two factors are particularly relevant in this context. First, given the different history of the two organizations, TINE and Fjordland may have developed distinct cultures. Fjordland's main mission is to develop innovative new products based on their owners' raw materials, while TINE's goal is to be Norway's most important value creator (Annual report TINE 2008, p.7). This fact may influence the differences observed in the NPD processes. Second, the TINE-Fjordland alliance may be a special case, in particular due to the cooperative ownership of TINE. As a consequence, the superiority of the alliance over the internal NPD needs to be explored in other cases and other industries.

The aim of this case-study was to explore possible differences between inter-organizational NPD and intra-organizational NPD. In future studies our observation that inter-organizational NPD structures may be more efficient than an in-house NPD structure needs to be further explored to assess to what extent it may be generalized. From a theoretical point of view we have indicated that both the resources available (RBV) and the routines developed (evolutionary economics) are important in explaining the relative efficiencies of the two organizational arrangements. In the cases analyzed a new company was established with the explicit purpose of complementing the resources available to the existing company. The routines were also developed from scratch from the start of the alliance. In a situation where an alliance is initiated between two already established companies with given resources and

routines, the situation may be different. Future research should explore to what extent our conclusion regarding the advantages of an alliance compared to internal NPD apply to such situations. Ideally, the relative importance of compatible resources and routines should be analyzed more in depth."

## **8. References**

Amit, R., Schoemaker, P. 1993 Strategic assets and organizational rent. *Strategic Management Journal* 14, 33-46.

Barney, J. 1991. Firm Resources and Sustained Competitive Advantage, *Journal of Management*, 17(1), 99-120

Cooper, R.G. 1993. *Winning at New Products* (2nd ed.): Addison-Wesley, Reading.

Cooper, R.G. 1999. From Experience. The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*, 16, 115-133.

Cooper, R.G., Kleinschmidt, E.J. 1990. *New Products: The Key Factors in Success*. American Marketing Association, Monograph.

Cousins, P. D., Lawson, B. 2007. The Effect of Socialization Mechanisms and Performance Measurement on Supplier Integration in New Product Development. *British Journal of Management*, 18, 311-326

Deeds, D. L. , Hill, C. W. L. 1998. An Examination of Opportunistic Action within Research Alliances: Evidence from the Biotechnology Industry. *Journal of Business Venturing* 14, 141-163

Doz, Y. L. 1996. The Evolution of Cooperation in Strategic Alliances: Initial Conditions or Learning Processes? *Strategic Management Journal* 17, 55-83.

Dubois, A., Gadde, L-E. 2002. Systematic combining: an abductive approach to case research. *Journal of Business Research* 55, 553-560.

Eisenhardt, K.M, Schoonhoven, C.B. 1996. Resource-based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms. *Organization Studies* 17 (2)136-150.

Emden, Z., Calantone, R.J., Droge, C. 2006. Collaborating for New Product Development: Selecting the Partner with Maximum Potential to Create Value. *Journal of Product Innovation Management*, 23, 330-341



Faems, D., M. Janssens, Bouwen, R., Looy, B.V. 2006. Governing Explorative R&D Alliances: Searching for Effective Strategies. *Management Revue* 17 (1) 9-29

Feldman, M.,S. 2000. Organizational Routines as a Source of Continuous Change. *Organization Science* 11 (6) 611-629.

Fey, C. F., Birkinshaw, J. 2005. External Sources of Knowledge, Governance Mode, and R&D Performance. *Journal of Management* 31 (4) 597-621.

Gersick, C.G., Hackman, J.R. 1990. Habitual Routines in Task-Performing Groups. *Organizational Behavior and Human Decision Processes*, 47 (1), 65-97.

Harmancioglu, N., Droge, C., Calantone, R.J. 2009. Theoretical lenses and domain definitions in innovation research, *European Journal of Marketing* 43 (1/2), 229-263

Hoang, H., Rothaermel, F. T. 2005. The Effect of General and Partner-specific Alliance Experience on Joint R&D Project Performance. *Academy of Management Journal* 48 (2) 332-345

Hodgson, G.M. 1998. Evolutionary and competence-based theories of the firm. *Journal of Economic Studies* 25 (1), 25-56

Hodgson, G.M., Knudsen, T. 2004. The Firm as an Interactor: Firms as Vehicles for Habits and Routines. *Journal of Evolutionary Economics* 14 (3) 281-307

Holmqvist, M. 2004. Experiential Learning Processes of Exploitation and Exploration Within and Between Organizations: An Empirical Study of Product Development. *Organization Science* 15 (1) 70-81

Katz, R.L. 1982. The Effects of Group Longevity on Project Communication and Performance, *Administrative Science Quarterly*, 27 (1), 81-104.

Linnarson, H. 2005. Pattern of Alignment in Alliance Structure and Innovation. *Technology Analysis & Strategic Management* 17 (2) 161-181.

Madhavan, R., Grover, R. 1998. From Embedded Knowledge to Embodied Knowledge: New Product Development as Knowledge Management. *Journal of Marketing* 62(October), 1-12

March, J.G. 1991. Exploration and Exploitation in Organizational Learning. *Organization Science* 2, 71-87

Millson, M.R., Ray, S.P., Wilemon, D. 1996. Strategic Partnering for Developing New Products. *Research Technology Management* 39 (3) 41-49

Mohr, J., Spekman, R. 1994. Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques. *Strategic Management Journal* 15 (2) 135-152.

Nelson, R.R., Winter, S.G. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, Mass.: Harvard University Press.

Park, S. H., Ungson, G.R. 2001. Interfirm Rivalry and Managerial Complexity: A Conceptual Framework of Alliance Failure. *Organization Science* 12(1) 37-53

Penrose, E. T. 1959/1980. *The Theory of the Growth of the Firm*. Oxford, UK: Basil Blackwell.

Pfeffer, J. 1992. *Managing with Power: Politics and Influence in Organizations*. Boston, MA: Harvard Business School Press.

Pfeffer, J., Salancik, G. R. 1974. Organizational decision making as a political process: the case of a university budget. *Administrative Science Quarterly* 19, 135-51.

Prahalad, C., Bettis, R. 1986., The Dominant Logic: A New Linkage between Diversity and Performance, *Strategic Management Journal* 7, 485-501.

Prahalad, C.K., Hamel, G. 1990. The core competence of the corporation, *Harvard Business Review*. pp. 79–91.

Rindfleisch, A., Moorman, C. 2001. The Acquisition and Utilization of Information in New Product Alliances: A Strength-of-Ties Perspective. *Journal of Marketing* 65(April), 1-18.

Rothaermel, F.T., Boeker, W. 2008. Old Technology Meets New Technology: Complementarities, Similarities, and Alliance Formation. *Strategic Management Journal* 29, 47-77.

Rothaermel, F. T., Deeds, D. L. 2006. Alliance Type, Alliance Experience and Alliance Management Capability in High-technology Ventures. *Journal of Business Venturing* 21, 429-460.

Rothaermel, F. T., Deeds, D. L. 2004 Exploratory and Exploitative in Alliances in Biotechnology: A System of New Product Development. *Strategic Management Journal* 25, 201-221.

Sivadas, E., Dwyer, F.R. 2000. An Examination of Organizational Factors Influencing New Product Success in Internal and Alliance-Based Processes. *Journal of Marketing* 64(Jan), 31-49.

Song, X. M., Parry, M.E. 1997. A Cross-National Comparative Study of New Product Development Processes: Japan and the United States. *Journal of Marketing* 61(4), 1-18

Stalk, G., Evans, P., Shulman, L. E. 1992. Competing on capabilities: The new rules of corporate strategy. *Harvard Business Review*, March: 57-69.

Takeishi, A. 2001. Bridging inter- and intra-firm boundaries: Management of supplier involvement in automobile product development. *Strategic Management Journal* 22, 403-433.

Valk, W. van der, Wynstra, J.Y.F. 2005. Supplier involvement in new product development in the food industry. *Industrial Marketing Management* 34(7), 681-694.

von Hippel, E. 1986 Lead Users: A Source of Novel Product Concepts. Management Science 32 (7) 791-805.

von Hippel, E. 1987. Cooperation between rivals: Informal know-how trading. Res. Policy 16 291-302

Walter, J., Lechner, C., Kellermanns, F. W. 2007. Disentangling Alliance Management Processes: Decision Making, Politicality, and Alliance Performance. Journal of Management Studies, 1-28

Wernerfelt, B. 1984. A Resource-Based View of the Firm, Strategic Management Journal, 5 (2), 171-187

Yin, R.K. 2009. Case Study Research. Design and Methods (4<sup>th</sup> Ed.) Los Angeles: SAGE

Formatted: Norwegian (Bokmål)

Årsrapport for TINE gruppa 2008: <http://www.tine.no/75245.cms>

Formatted: Norwegian (Bokmål)

<http://www.pdma.org/library/glossary.html>

Formatted: Norwegian (Bokmål)

Formatted: No underline, Font color: Auto, Norwegian (Bokmål)

Formatted: Norwegian (Bokmål)

Field Code Changed

Formatted: No underline, Font color: Auto, Norwegian (Bokmål)

Formatted: Norwegian (Bokmål)

Formatted: No underline, Font color: Auto

*Table 1: A table of participants in each firm*

	TINE	Fjordland
Number of Persons Interviewed	Marketing: 2  R&D: 3  NPD project leaders: 3  Production: 2	Marketing: 2  R&D: 2  NPD project leaders: 2