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Nikolaj Hansen

The IT University of Copenhagen, ngh@itu.dk

Jan Pries-Heje

The IT University of Copenhagen, jph@itu.dk

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ALIGNING CUSTOMER RELATIONSHIP AND PRODUCT STRATEGY AT INTERNET SPEED

Hansen, Nikolaj Grønning, the IT University of Copenhagen, Glentevej 67 DK-2400
Copenhagen NV, Denmark, ngh@itu.dk

Pries-Heje, Jan, the IT University of Copenhagen, Glentevej 67 DK-2400 Copenhagen NV,
Denmark, jph@itu.dk

Abstract

The Internet has changed the way many software developing companies have to work – They have to reconsider their IT strategy. Theory on IT strategy suggests a close intimate relationship between supplier and customer. Theory also suggests a job shop or a batch job organization of the software production. In 2002 we set out to study a number of Danish Internet software companies. Through careful interviewing and analysis we found that the theory actually fitted well with our empirical findings. But we also found an emphasis on building trust in customer-supplier relationships that were not well-developed in the theory we studied. In the paper we give an account of our findings and we characterise the element of trust building in internet customer-supplier relationships.

Keywords: Internet speed, customer-supplier relations, trust, process structure.

1 INTRODUCTION

Historically industrial organisations have found it more profitable to build and maintain long term business relations with their customers than to constantly be in search for new business (Comer & Zirger, 1997). In long term customer-supplier relationships practitioners claim that the most important success factor is trust (cf. Glover, 1994) while researchers have recognized its major influence on aspects such as high-tech development projects (cf. Gambetta, 1988). Trust is not only an integral component in the development of on-going business relationships it has even been said to be "...the binding force in most productive buyer/seller relationships" (Hawes et al., 1989). The matter of trust is furthermore important in increasing productivity (Sabherwal, 1999) and building the right product. Also because lack of trust often leads to restricted information sharing (Kimmel et al., 1980). This leads to our first research question; how do Internet software companies actually try to establish trust in the customer-supplier relationship?

Another question is then how to organize this relationship? One of the more well known models of the alignment of process and strategy is the four phase product-process matrix by Hayes & Wheelwright (1984) shown in table 1.

Product Structure / Process Structure	Low-Volume, Low Standardization, One of a Kind	Multiple Products, Low Volume	Few Major Products, Higher Volume	High-Volume, High Standardization, Commodity
Jumbled Flow, Job Shop	X			
Batch Flow		X		
Assembly Line			X	
Continuous Flow				X
Priorities:	Custom Design Fast Reaction Flexibility	Custom Design Fast Reaction Flexibility Quality Control	Dependability Efficiency Standardized Design Volume Production	Dependability Efficiency Standardized Inputs Economies of Scale
Competitive Strategy:	Differentiation, Needs-Based Positioning		Cost Leadership, Mass Market, Variety-Based Positioning	

Table 1: Product-Process Matrix. Adapted from Hayes and Wheelwright, 1984, p. 216. Optimal alignment of process structures to competitive strategy and product structures is along the left-to-right diagonal in the matrix, indicated by "X's"

This leads to our second research question. What processes do Internet software firms actually use to develop their products?

In order to explore these two research questions we selected six Danish Internet companies within professional software services & enterprise solutions, typically developing, adapting and integrating internet products for individual customers.

2 RESEARCH METHOD

Besides the research questions we did not set out with any theories under consideration or hypotheses to test. We have tried to stay clear of preordained propositions which might bias or limit the findings.

In light of our exploratory approach we employed qualitative interviewing to collect the data. In order to obtain cross-case comparability we developed a semi structured interview guide that was then used to create a coherent sampling frame without ruling out the possibility of encountering unanticipated topics. The data collection was conducted according to Miles and Huberman's Interactive Model (1994:12); see Figure 1.

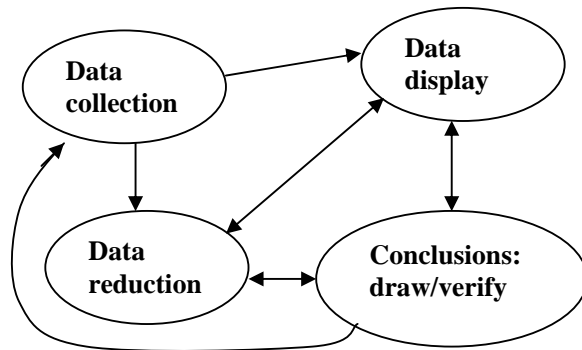


Figure 1: Components of data analysis

The data collection phase was divided in two; first a series of exploratory interviews then a series of interviews that were partly exploratory, partly confirmatory regarding the findings from the first interview series. The cases were selected using chain-sampling.

The interviews were conducted by 2-person teams during a 7 months period lasting from January 2002 to July 2002. Each interview lasted approximately 1½ hour and was tape recorded and transcribed.

Case (Pseudonym)	When founded and size	Product	Interview orientation	No. of employees interviewed	Organizational roles represented
ALFA	1998; 9 employees.	Inter- and intranet web applications.	Exploratory	2	CEO; project manager; software architect/developer
BRAVO	1999; 22 employees.	E-commerce solutions, systems integration, web applications	Exploratory	3	CEO; software developer
CHARLIE	Mid-1900; 250 in the specific department.	E-commerce solutions, systems and business integration	Exploratory	1	Software architect/developer
DELTA	1997; 50 employees.	Web applications, transaction and information based solutions.	Exploratory	2	CEO, project manager; software architect/developer
ECHO	1999 (Danish branch); 75 employees.	Websites, - applications, e-commerce	Exploratory/confirmative	1	Technical project manager/software developer
FOXTROT	2000 (Danish branch); 100 employees.	E-commerce solutions, web applications	Exploratory/confirmative	1	Project manager/software developer

Table 2: Facts on the companies studied

Initially each case was analysed individually and coded according to the terms and vocabulary used by the respondents. Then we proceeded to do cross-case analysis by comparing the codes and looking for common themes and constructs and implicit and explicit relations among the tentative codes. A new revised more abstract code was assigned to the common themes and patterns and the data was then reanalysed.

As an additional research quality assurance all the participants have read and approved our transcription and analysis.

3 THE NATURE OF CUSTOMER-SUPPLIER RELATIONS

On order to secure a sound relationship with a potential customer the supplier needs to pay attention to how to establish and maintain a fruitful customer-supplier relationship. Dwyer et al. (1987) have proposed a model of the development of a new exchange relationship consisting of 5 stages.

1. Awareness – recognition that another party might be a feasible exchange partner
2. Exploration – benefits and burdens of establishing a relationship considered
 - 5 sub phases: attraction, communication and bargaining, development and exercise of power, norm development, and future expectations
3. Expansion – recognition of increased benefit from exchange
 - 5 sub phases: attraction, communication and bargaining, development and exercise of power, norm development, and future expectations
4. Commitment - both parties invest economic and emotional resources in the project
5. Dissolution

Another model by Bjerknæs and Mathiassen (2002) see the customer-supplier relationship enacting on three different levels in situations where customers collaborate with a supplier through a project, i.e. excluding off-the-shelf buys (See *Figure 2*). At the *constituting level* there is interaction between customer and supplier over time and across different projects. At this level contracts are negotiated. When a project is initiated, there are two additional levels of interaction. The *contractual level* is characterized by contract tracking and maintenance by both customer and supplier in steering committees in interplay between trust and control. Structural control ensures promotion of decisions and monitoring progress while trust, in the form of a psychological contract building on shared interest, promotes mutual learning. The *development level* is about a specific project carried out by project teams on both sides. Here the relationship focus on engineering, needed to develop or adapt the technical system, and care which is vital when implementing the system in the organization.

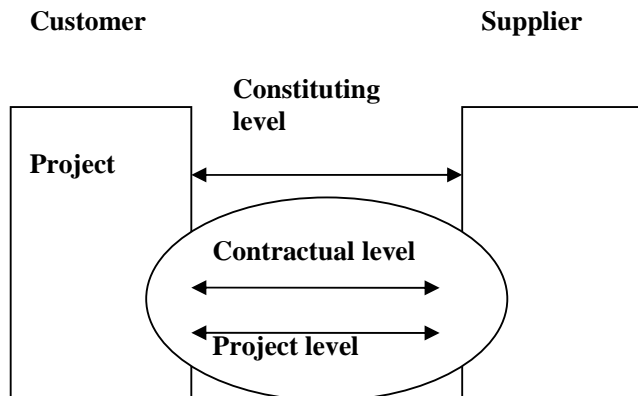


Figure 2: Levels in customer-supplier relationship

The three levels are intrinsically related, e.g. a project based on care reinforces trust on the contractual level, which in turn leads to further collaboration on the constituting level.

In order to achieve a good collaboration between customer and supplier, it is important that both parties recognise and respect the other party's "Bill of Rights" (McConnell, 1998). The customer is to formulate the goals and make reasonable requirements changes while the developer is to develop the technical solution.

4 TRUST

Trust is one of those intangible notions causing confusion because no generally accepted definition exist (Blomqvist, 1997). In our context Sabel's (1990) definition "The mutual confidence that no party to an exchange will exploit the other's vulnerability." is applicable. The client enters the relationship because of the lack of skills and expertise to achieve a desired outcome and becomes vulnerable in trusting the supplier to achieve this. On the other hand the supplier is dependent on the client for the payment of fees and wages. Furthermore, the supplier is interested in a positive outcome in order to secure his reputation. Equally applicably is Blau's (1964) definition "Parties can gradually build trust in each other through social exchange demonstrating capacity to keep promises and showing commitment to the relationship." The problematic element about trust is that on the one hand it is usually seen as the outcome of a process and yet on the other hand it is a very fragile phenomenon. Trust is hard to initialize, slow to grow and easy to break (Keen, 1999; Blomqvist, 1997).

Lindskold (1978) suggests that four different kinds of trust exist in any relationship:

- Objective credibility relates to the truthfulness of an individual/group whether their words can be believed and whether their actions correspond with their words
- The attribution of benevolence refers to the motives of an action
- Non-manipulative trust is based on the perceived level of self-interest.
- The cost of lying aspect of trust balances possible gain against the cost of deceit

These four types of trust all play a role in determining how a customer-supplier relationship will evolve. If one acts contradictory to any of the trust criteria he is likely to be deemed untrustworthy. According to Butler (1983) an individual has two levels of trust, a global trust, which is the universal perception of an individual or group based on experiences of and influences on the individual, and a specific trust relating to the way in which an individual responds to a particular situation. The latter tends to override the former in any situations.

5 THE FINDINGS

In the following section we will present the interesting findings in relation to our research questions. Due to the length of the paper the actual quotations are left out but in general every finding was supported by at least three of the cases, often more.

5.1 An environment where the customers are perceived as sceptical and ignorant

The IT-suppliers in our study are nearly all of the impression that the customer is sceptical and even distrusting towards him because the global trust towards the IT industry is lacking. This has the consequence described by Luhmann (1979) that they feel they are forced to argue for their every step and be very open knowing that only explicit information control can establish specific situational trust in them.

Furthermore the suppliers experience the customers as fundamentally ignorant about the software developing process.

5.2 Demonstrate seriousness in the preliminary phase

In the beginning of a project we see the supplier putting a great effort into demonstrating seriousness. The customer is to have the impression that the project is at least equally important to the supplier as it is to the customer. Having the CEO or the like present at the preliminary meetings and the sales people supplemented by technicians is a way of trying to establish trust in a situation where the parties have not done business previously and specific situational trust is thus an abstract phenomenon.

5.3 Earn goodwill, then money

A happy customer is more likely to do business with you again than an unhappy customer. This simple logic reflects the way companies seeking customer intimacy and long-term relationship do business. Several of the suppliers we have studied were willing to accept the fact that the first business project with a customer could end in a negative profit. The object is to get a chance for the suppliers to prove their worth and build a good reputation within the customer organization thus glimpsing a chance to do re-business at a later point. A “what we lose on the swings we gain on the roundabouts”-mentality. If the customer is satisfied it often manifest itself in a continuation of the existing project or even in new projects.

5.4 Locate the project team at the customer site

Generally there is a trend towards locating the project team at the customer’s site. This is done both to enhance the customer’s involvement and to provide them with the feeling that the supplier really cares for the system implementation in the organization. The measure also allows for quick interaction to clarify how potential changes will affect the system. But the initiative also has some potential drawbacks. One has to realize that the customer can become a disturbing factor in the development, impeding the productivity.

5.5 Involve the customer in the system engineering process

In general the cases we studied all work with an agile and flexible system engineering approach. The development methodology is normally tailored as needed to best fit every new project undertaken. Our data shows that the customer is often involved in this tailoring. This involvement of the customer at the development level is both to show care and to enhance the objective credibility of the supplier. It is also a way of ensuring customer satisfaction with the product developed as the customer themselves have co-created the outcome.

5.6 Have a detailed contract as the project basis

Several of our cases have had negative experiences due to vague requirements specifications which have lead to disagreements between supplier and customer as to how the requirements were to be interpreted. As a consequence the supplier tends to want to have structural control over the project in the form of a detailed requirements specification as the basis for the contract as a safeguard against non-financed changes requested by the customer.

5.7 Use a prototype to capture and adjust user expectations as well as establish trust

Based on the experience that customers and their end users cannot relate to a written requirement specification, most of our cases use some sort of preliminary visualisation to capture the user

requirements. This not only facilitates mutual learning and the development of a shared vision for the system to be built, i.e. care at the development level, but also enhances the sense of ownership among the end user resulting in a smoother and faster adoption of the system. It is also a consequence of the products being highly customized.

5.8 Let the customer continuously monitor and approve the progress of the project

Another mechanism employed by the suppliers to establish trust is to be open towards the customer for instance by allowing the customer to follow the real time progress in the project plan or by breaking down the development plan to a manageable size, e.g. 5-10 man hours. However, the fact that the customer wants to scrutinize the project so closely and to approve every milestone can impede the time to develop since the customer often is slow to validate the milestones.

6 THE ELEMENT OF TRUST IN CUSTOMER-SUPPLIER RELATIONSHIP

Our study shows how Danish Internet software companies emphasises obtaining an intimate on-going profitable relationship with the customer. This is done by building trust in the customer-supplier relationship. From our cases it is evident that trust building is an important issue for suppliers especially since they are of the impression that the customers lack trust not in them specifically, but towards the business in general. In such a situation there is a very real risk of ending up in a spiral of distrust (Zand, 1972). Taking the situation where both parties enter with a lack of trust in one another figure 3 illustrate how the relationship will develop into reinforcing the initial lack of trust.

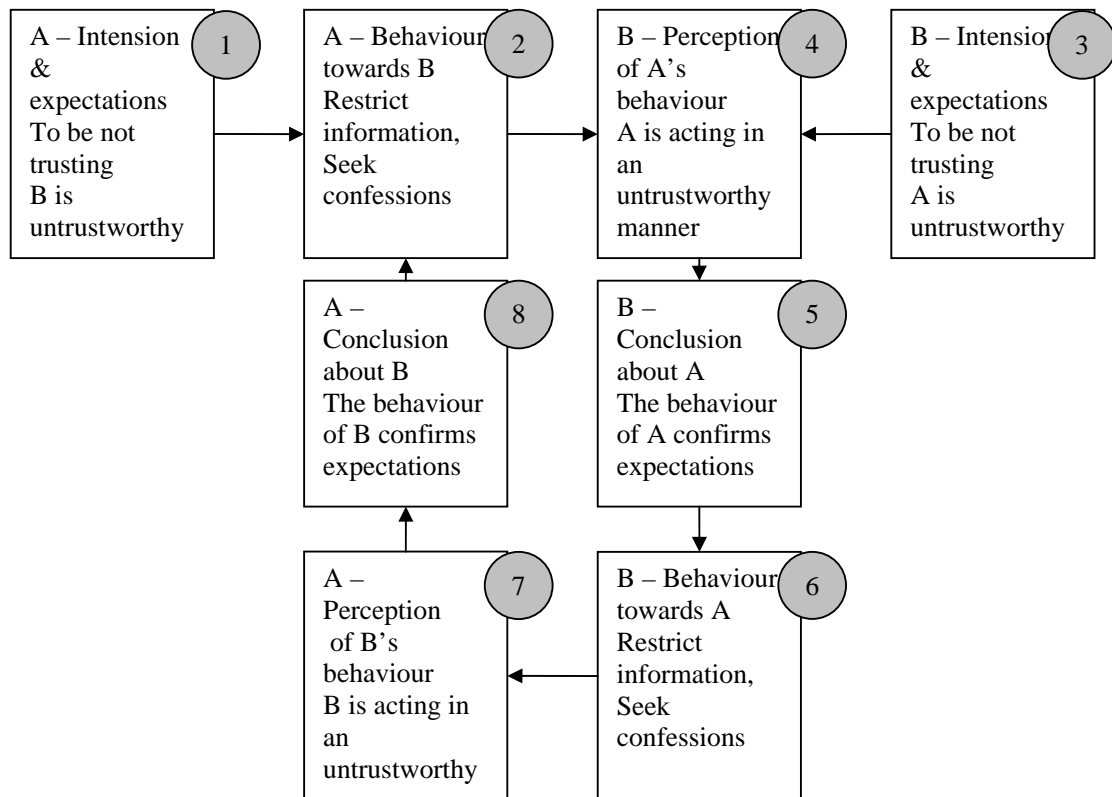


Figure 3: The spiral of trust. Zand (1972)

However it is an important aspect of trust that it is reciprocal in nature (cf. Butler, 1983). Trust can be developed if one party shows trust in the other. So if A entered the model with a positive attitude, the response of B could be changed thus avoiding entering a downward spiral of trust.

In all of our cases the perceived distrust of the customers is a consequence of specific situational trust still being an abstract phenomenon to the customers. The specific element of trust can be developed in a project which is why we witness such a great emphasis on getting a chance to demonstrate your capabilities (see Blau, 1964) even to the length of losing money on the project.

Most of our cases indicate that they put a great effort into the preliminary phase, i.e. the awareness and exploration phases in order to reach the expansion phase and eventually the commitment phase (Dwyer et al., 1987) This is done through demonstrating seriousness and giving the project top priority, e.g. having their CEO present at the preliminary meetings and having early prototypes mocked up and by demonstrating previous systems. Once the contract is signed the supplier can develop the trust relationship through the project by demonstration competence and by actively involving the customer, i.e. at the contractual and developmental level. The suppliers even go to the extent of losing money on the first project in order to get their feet in the customer's door. But it does not end here. Just as Comer and Zirger (1997) have shown how the supplier-customer relationship is built through the use of joint participation of customer and supplier in the product development in a case from the automobile industry, the same applies in our cases. There is a great emphasis on building trust through caring and structural control by actively involving the customer in the development process e.g. by prototyping, locating the project team at the customer site, involving the customer in the system engineering process and letting the customer monitor and approve the progress of the project – all as a reflection of the perceived lack of trust. Our findings thus support Luhmann (1979) and Keen's (1999) notions that trust can be created or enhanced through concepts as visibility, openness, feedback mechanisms, break down of the project course, and mutual learning.

Based on our findings we can adapt Lindsold's GRIT model (1978) to propose some techniques for software developing companies to build trust.

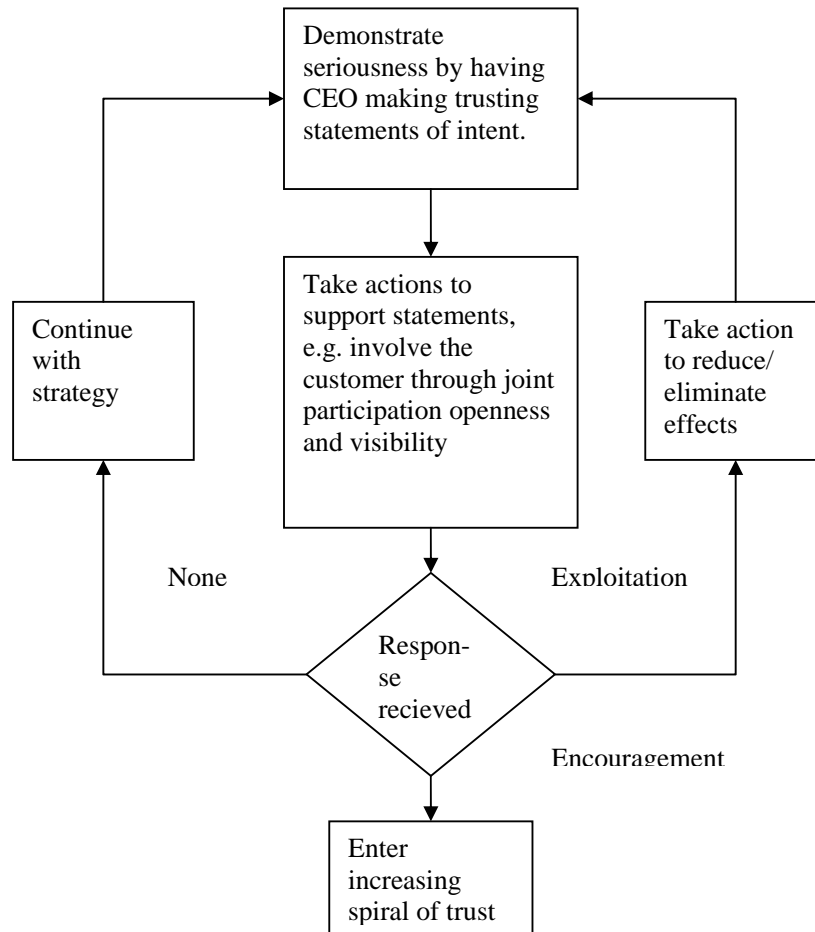


Figure 4: Lindskold's (1978) GRIT model adapted to our study

In order to break the spiral of distrust there is a conscious decision by the software supplier to make themselves vulnerable by making trusting statements. This is best done by the CEO and in general by being willing to earn goodwill and then money, in that order. These statements are then backed by actions such as intense customer involvement e.g. prototyping and letting the customer have a say in the systems development process. Furthermore openness and visibility by having the project team located at customer site and letting the customer follow and approve the progress of the project also contributes to support the trusting statements. A detailed contract can serve as a means to avoid exploitation as well as an assurance to the customer that supplier intends to build what one has agreed upon. From the received response one can enter either a spiral of trust, if no response is received continue with the strategy or if the vulnerability is exploited try to take measure to counter act this and hope the customer accepts or discontinue the project if the customer keeps on trying to exploit the relationship.

However, some words of caution are in place here. The openness and intense involvement of the customer is not always all positive. According to Sabherwal (1999) trust can improve a performance while distrust can hurt performance. In our case the involvement is often a mechanism of structural control because of lack of trust and ends up representing a communication and documentation overhead which both hurts productivity and the speed of development, e.g. the customer wants to approve every milestone, but is slow doing this.

Another important issue to raise in connection to customer involvement is the actual quality of the product. The excessive use of joint participation was a success in building a customer-supplier relationship in the Comer and Zirger (1997) study, however there is an important difference between the customers in the Comer and Zirger (1997) case and the customers in our study. In the former case the customers had extensive prior knowledge within the actual product field while this was not the case in our study according to the suppliers. This fact can have dire consequences in the commitment phase, where the supplier actively involves the customer, if not checked. The customers' fundamental lack of knowledge about the software development process in combination with their increasing involvement in just that process can lead to flaws in the final product quality. We have evidence of customers not wanting to pay for and thus skipping processes such as developing a prototype, doing documentation and letting the development process pass several iterations, all of which have been acknowledged as important features in securing a quality end product (Hughes and Cotterell, 1997). If the software supplier is willing to obey even contrary to his knowledge of how a quality software development process is to be the product will lack quality. This does not seem to be a constructive way to establish trust, rather it can reinforce the lack of trust the customer has towards the internet software business. Both parties seem to have neglected their "Bill of Rights" (McConnell, 1998), which emphasises that the customer is to formulate the requirements but has to leave the development of a technically satisfying solution entirely to the supplier.

7 PRODUCT AND PROCESS STRUCTURE AT INTERNET SPEED

The cases we studied were all working within professional software services & enterprise solutions, and they were all developing, adapting or integrating internet products for individual customers, it could be expected that they all have a product structure which emphasizes low volume, low standardization and one of a kind products. Our cases confirm this. Yet when we take a closer look at our cases a trend towards some specialization and a more coherent product line emerges which allows for the companies to utilize a reuse of components and frameworks. However each product is still tailor made in accordance with the specific customer needs and the companies still pride themselves of having the ability to take on truly unique assignments.

What process structure is adopted to match these two conflicting/different strategies? A characteristic of the job shop process structure is that most often the sequence or set of processing steps of the individual product is unique while the batch line flow process is more standardized, and the products produced generally follow one of a few dominant flow patterns. Our cases aren't as clear cut as this but seem to operate in the muddy waters in between these two process structures. Our study indicates that it is usual for a software company to have adopted a certain method specifying the phased the project must pass through and a number of different processes to complete every given phase. While the overall sequence of phases seems to be consistent for most of the projects the companies undertake the selection of which processes to employ in the specific project differently. What we see is a picture of a more unique process structure created from project to project. However, for the primary product types a few dominant flow patterns seem to have emerged. The flow pattern sends the unique projects through a set of common operations and then forwards them to other less standard tasks. The cases also exercise typical job shop/batch flow characteristics such as large job scope which requires highly skilled labour and a high level of mutual coordination the project group members in between.

Product Structure	Low-Volume, Low Standardization, One of a Kind	Multiple Products, Low Volume	Few Products, Volume	Major Higher	High-Volume, High Standardization, Commodity
Process Structure	<p style="text-align: center;">BRAVO</p> <p style="text-align: center;">ALFA CHARLIE</p> <p style="text-align: center;">ECHO DELTA FOXTROT</p>				
Jumbled Flow, Job Shop					
Batch Flow					
Assembly Line					
Continuous Flow					

Table 3: Product-Process Matrix

As Table 3 illustrates all of the studied internet firms lie within in the upper left quadrant which indicate that they prioritize flexibility – i.e. the ability to react quickly to new responses, quality and product customization.

Our study also shows a trend towards decreased variety and increased standardization. Whether this trend will continue only time can tell. As one company (Echo) noted, at this present time there does not exist specific solutions to the different lines of business, but perhaps in 5 years time there may?

8 CONCLUSION

This paper has shown that the internet software houses we studied all sought an intimate on-going relationship with their customers. This was done by trying to establish trust by showing openness and using extensive customer involvement. However, we also found that these trust building initiatives can have negative effects - such as lower quality and slower development time - on the actual product being produced.

The customer intimacy strategy is matched by a product structure which facilitates custom design, one-of-a-kind systems, fast reaction time, flexibility and differentiation, though some standardisation is also common. This product structure is achieved by a process structure which emphasises a flow pattern that sends different projects through a set of common operations and then forward them to other less standard tasks.

One limitation of our study is that it is based solely on suppliers' point of view regarding the business relationship. To obtain a more balanced perspective we need to collect and analyse data from the customers' point of view. Such a study might unveil important differences in perspectives between customers and suppliers.

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