



***”Utilizing Indian engineers in Aker
Kvaerner Pusnes”***

Master thesis in
Industrial and Information Management

By

Fatima Beig

Agder University College

Grimstad, May 2006

PREFACE

This master thesis is written in subject INDØK 590 (HIA Grimstad technology department) spring semester 2007. The project is given by Aker Kvaerner Pusnes in subject of “utilizing external competence from India in Pusnes Norway”. During this thesis I have had hard, confusing and sometimes very exciting moments. Over all the period was very educative and will remain as part of my golden memories.

This achievement could not have been possible without HIA Grimstad, my teachers, and all those wonderful people in HIA Grimstad. I express my whole heartedly thanks to them.

Here I feel it great pleasure to thank my supervisor Prof. Hans Christian Garmann Johnsen for his full support, inspiration and worthy suggestions, Pusnes Company for giving me the project and my contact person in Pusnes Kristen Grenlee (senior project manager in Pusnes) for his information and setting interviews with accurate people.

Finally I would like to thank all those people in Aker Kvaerner and Pusnes who provided me suitable and necessary information during interviews and my family members for their untiring support during all those tough days and long late nights’ writings.

I hope this master thesis will prove itself informative and suggestion presented here will help Pusnes in solution of its outsourcing process.

HIA/ Grimstad May 29th 2007

Fatima Beig

LIST OF CONTENTS

PREFACE	2
1. INTRODUCTION	6
2. THE CASE	9
2.1.1 Pusnes Strategy	10
2.1.2 The challenge	10
2.1.3 Pusnes motives	10
2.2.3 Research questions	13
3. THEORY	13
ANALYTICAL MODEL	13
3.2 Transaction cost economic	15
3.2.1 Bounded rationality	16
3.2.2 Opportunistic behaviour	17
3.2.4 The theoretic fundament for governance of contractual relations	18
3.2.4.1 Contract types	20
1) Classical contract law	20
2) Neoclassical contract law	21
3) Relational contracting	22
3.2.4.2 Governance structure	23
3.2.5 Dimensions of transactions	23
3.2.5.1 Asset specificity	24
3.2.5.1.1. Human Asset	25
3.2.5.1.2 Eliminating the danger of opportunism	26
3.2.5.1.3 Consequence of personal knowledge lack	26
3.2.5.2 Frequency	27
3.2.5.3 Uncertainty	28
3.2.5.3.1 Consequence of uncertainty on highly specific investments	29
3.2.6 Governance Structures	30
3.2.6.1 Standardized services	30
3.2.6.2 Highly specified jobs/ services	30
3.2.6.3 Semi specific Services structures	30
1. Market Governance: Classical Contracting	31
2. Trilateral Governance: Neoclassical contracting	32
3. Transaction-Specific Governance: Relational contract	33
a) Bilateral Governance: Obligational Contracting	33
3.2.6.1 Changing behavior dilemma	34
b) Unified Governance: Internal Organization	36
3.2.7 Labor	37
1) Nonspecific labor-market Transactions:	37
2) Mixed labor-market Transactions:	38
3) Highly idiosyncratic labor-market Transactions	39
3.2.7.1 Regulation	39
Summary	39
3.3 Porters competition and strategy core competence theory	41
3.3.1. Competitive Strategy	43
Pusnes's Business model/activity system	43
3.3.2 Competition	43
3.3.3 Competitive Strategy	45

3.3.4 Core competence	46
3.3.5 Strategic fit	46
3.3.5.1 Types of Strategic Fit	47
3.3.6 Success Sustainability	48
Summary	48
3.4 Organizing workforce in the Firm.....	49
3.4.1 Value of Human Resources.....	50
3.4.1 Firms Specific Competence	50
3.4.2 Connecting forms and Organizing of workforce.....	51
3.4.2.1 Quadrant 1: Development of Human Capital.....	52
3.4.2.1.1 Connecting form: Internal development	52
3.4.2.1.2 Employee relation: Organizational focused relations	52
3.4.2.1.3 Configuration of Human Resources: obligation/ commitment	53
3.4.3 Extern recruiting.....	53
3.4.3.1 Connecting form: Hiring/Recruiting	53
3.4.3.2 Employee relation: symbiotic relation	53
3.4.3.3 Configuration of the Human resources: Based on market	54
3.4.4 Quadrant 3: Contract based workforce.....	54
3.4.4.1 Connecting form: External contract	54
3.4.4.2 Employee relations	55
3.4.4.3 Configuration of human resources: Compliance.....	55
3.4.5 Quadrant 4: Developing alliance partners	55
3.4.5.1 Connecting form: Alliance	56
3.4.5.2 Employee relation: Partnership	56
3.4.5.3 Configuration of Human resources: Co-operation	57
3.5 Learning in Organization	57
3.5.1 Learning spiral.....	57
3.5.2 Interaction between tacit and explicit knowledge	58
3.5.3 Methods for knowledge exchange.....	58
3.5.3.1 Socialization: From Tacit to Tacit.....	58
3.5.3.2 Externalization: From tacit to explicit.....	59
3.5.3.3 Combination: From explicit to explicit	60
3.5.3.4 Internalization: From explicit to tacit.....	60
3.5.4 Knowledge Spiral.....	61
3.6 Managerial Dilemma.....	63
4. METHOD FOR EMPIRIC ANALYSIS	65
4.1 Methods.....	66
4.2 Method use	66
4.3 Choice of qualitative interview model	67
4.4 Advantages and disadvantages of qualitative method.....	68
5. DISCUSSIONS AND ANALYSIS	70
5.1 Collected Facts and Data	70
5.1.1 Interview with Vice president Pusnes	70
5.1.1.1 Core competency Pusnes.....	70
5.1.1.2 Employees	71
5.1.2 Interview with Indian Engineers	72
5.1.2.1 Social challenges	73
5.1.2.2 Working challenges.....	73
5.1.3 Aker Kværner Interview	74

5.1.3.1 Outsourcing	74
5.1.3.2 Engineers	77
5.1.3.3 Organizing and leadership.....	80
5.1.3.4 Knowledge Transfer	81
5.1.3.5 Core concept.....	82
5.1.4 Facts about India	84
5.1.4.1 Economical Growth.....	85
5.1.4.2 High Education.....	85
5.1.4.3 Cheap labor force	86
5.1.4.4 Basic cultural difference.....	86
5.1.4.5 Use of Indian workforce in Norwegian firms	87
5.2 Results and Achievements	88
5.2.1 Sorting Activity alternative	89
5.2.1.1 Positive Aspects:	89
5.2.1.2 Negative Aspects.....	90
5.2.2 Integrating Alternative	91
5.2.2.1 Positive Points	92
5.2.2.2 Negative Aspects.....	93
5.3 Suggested Alternative	94
6. CONCLUSION.....	97
7. Literature list	99
Links	100

1. INTRODUCTION

In today's globalisation period, everything has been transferable from capital up to the workforce. This new phenomenon of capital flow is called global capitalism and the next process of workforce flow is called as KPO (Knowledge Process Outsourcing). In today's communication revolution period it is not impossible to govern the projects from homes in to a totally new geographic region. Many companies in all over the world have begun with knowledge outsourcing process. It is not only the sweat workers to be used by companies willing to reduce cost, but as well hiring the services of qualitative and high educated workers from the global labour market. The countries providing these expertises are India, China, Singapore and etc. We can assume that no one can escape Globalization. It is a fact incumbently. In the globalization period the geographic borders are turning to be part of history. No more distances can create hurdles in growth of capital.

In Norway many companies have already begun with competence outsourcing process. There are total 35 Norwegian companies established in India and money has co-operation contracts with Indian companies providing flexible competence in need. The examples are Aker Kværner, Capgemini IT consulting company and etc. Aker Kværner Pusnes also has started to use Indian engineers in order to increase its capacity and effectiveness. Pusnes is an offshore loading mooring, deck machinery designing and manufacturing company. Pusnes is a known label in offshore market, and has the strategy to keep its leading position in the market in future. The market for offshore products is quite good right now. Pusnes needs to respond positively to today's top as well as demanding offshore market. For this purpose Pusnes is willing to expand its engineering. However the local market is not capable of providing enough resource to this need.

One of the alternative solutions is to fulfil the scarcity by using external expertise, like Indian engineers. This solution is both economical and flexible way of increasing capacity. The main challenge in this thesis is based on how Pusnes can use these external expertises in spite of keeping the core activities at its home ground. To find a suitable solution for this, we go through different set of theories that guide us with tools to be used for bringing flexibility around firm's activities where they are intended to use external workers.

Utilizing Indian Engineers in Pusnes

We go through transaction cost economic theory because using external expertise itself is a transaction and in order to figure out how to govern them by minimum transaction cost. On the other hand we will study Porters competitive strategy theory to devise how Pusnes would be able to keep its leading position and how to sort its different activities in value chain. In addition we will find out how the firm should organize its workforce while using external competence in core competency. After a brief study we will also find a way to how a firm can train the potential external workers? For this purpose we will get help of Nonaka's learning theory. Finally we will go through a managerial dilemma theory to figure out the points a management ought to consider while using external expertise.

An additional challenge in this thesis is management dilemma which is to figure out a suitable way to govern the transaction cost of using Indian competence in engineering section of Pusnes. Definitely engineering is considered as firm's core competence. In relation to this issue I contacted Aker Kværner, one of the companies that has already tried this outsourcing process to accumulate data and necessary information. The method used to collect data is qualitative which is interviewing the principle firms.

After studying all theories and going through facts that we collect during project with help of interviews, researches and literature passage we come to two topical alternative methods to govern the outsourcing process of the firm. These two alternatives solutions are as follows

- division activity method (dividing engineering in to process and detail engineering)
- Integrating external expertise (using Indian engineers in core competence)

These two alternatives are the result of our researches and we are going to choose only one of them. In the empiric section of thesis we will come to discuss all positive and negative points with each of alternatives. The final result will be definitely based on comparative study of both alternatives.

The central positive point with first alternative is that, this method has been used by other offshore companies. The outcome has been successful and lucrative. They are not the only advantages lying under this hypothesis; it has also been proved as secure method of using Indian engineers. However the negative angle of this hypothesis is limited use of these expertises.

Utilizing Indian Engineers in Pusnes

The positive point with integrating method is 100% use of Indian expertise as an integrated part of the company. It will make convey of tacit knowledge easier and will consequently increase firm's innovativeness. The central negative point with this method is that it has relatively unknown outcome and is also quite unsecured way of using external expertise. The risk for confidential knowledge leak is high in choosing this method of using external expertise in core competence area of the firm.

On the other hand we will present some facts about India, and study the fundamental differences between western and Indian Society or culture. In order to discover which way is the most sufficient way to build a close and trustworthy relations with Indian workforce, it is important to figure out the Indians mentality and reciprocal cultural differences. In the end I will use these facts to justify and implement the chosen method.

2. THE CASE

Aker Kværner Pusnes is an innovative designing and manufacturing company established in 1875, but there have been activities at Pusnes since 1751. Pusnes is now a part of Aker Kværner Corporation and grown to significant global actor within its market segments which mainly is to deliver

1. Offshore mooring system
2. Offshore loading system
3. Marine deck machinery

The modern tendencies of steady rising oil price and positive growth in oil business market, contributes to bring technical changes in system with consideration of developing more efficient offshore production equipments. An increase of prices is a typically generic directly consequence of an imbalance between demand and supply in any commodity market.

Offshore market requires continuously upgrading and innovation for their new products. After being a leading supplier in offshore market, Pusnes feels a pressure. They have to bring some technical changes in their new products to create technologically a superior product. This is crucial for Pusnes in order to survive and keep their leading position in the market; it would be possible only when Pusnes succeed to keep satisfy their demanding customers by providing them a better product.

In order to keep up this upgrading process and fulfilling the requirements from customer side, Pusnes need to have extra genius and creative competence in designing and engineering field. This field considers as a core competence area of the firm. According to Pusnes it is rare to find qualitative engineers in the local market. One of the alternative solutions for solving this scarcity issue is to hire competence from India. Many American offshore suppliers have begun to do so after looking the tremendous success in IT section and as well as finding out that India had a large pool of English speaking and technically proficient manpower. The reason of Pusnes's being positive to this solution is the positive feedback and experience of Aker Kværner from their Indian employees.

2.1 Analyzing the case

2.1.1 Pusnes Strategy

Pusnes is a leading actor in its market segment that is delivery of offshore mooring, loading system and deck machinery. The strategy is keeping the leading position by steady upgrading and innovative product introduction in the market. For this purpose Pusnes need extra capacity and genius employees in design and engineering section.

2.1.2 The challenge

The main challenge is finding qualitative competence which is rare in the local market. The other problem is that engineering is the core competency area of the firms. It is quite risky using extern competencies in this area. It is first time Pusnes try to outsource engineering in a completely new area like India they have no experience of using these engineers. The decision has to be taken in relative unknown situation which is not acceptable for the firm. In the Norwegian labour market there are quite strict criteria for both working condition and dismissing. That's why Pusnes need to comprehensively analyze all angles before they take any step.

2.1.3 Pusnes motives

According to Grenlee, Pusnes is intended to increase its capacity as well as looking for smart and creative engineers. It is rare to find such qualitative employees here in local market, while it is plenty in the global market. Because of steady rising oil price the offshore market is on bum position now a day, Pusnes has a large amount of orders that requires more engineers. Pusnes is intended to use Indian engineers in order to fulfil their requirements in this bum market period. On the other hand Pusnes has an economic motive too, it is cheaper to provide skilled and high educated employees in global market like India, China, Singapore etc comparative to local labour market. In Norway there are strict criteria for hiring and dismissing employees. The offshore market is quite uncertain regarding future orders. It goes up and down almost all the time nowadays market is on top Pusnes need to increase capacity but it can go down after some period of time. For this purpose Pusnes want to have a flexible labour access where they can act freely in case of low markets situations. The flexibility is achievable and possible in the area where Pusnes is intended to outsource part of its engineering like India comparing to Norway.

2.2 Analytical model of the case

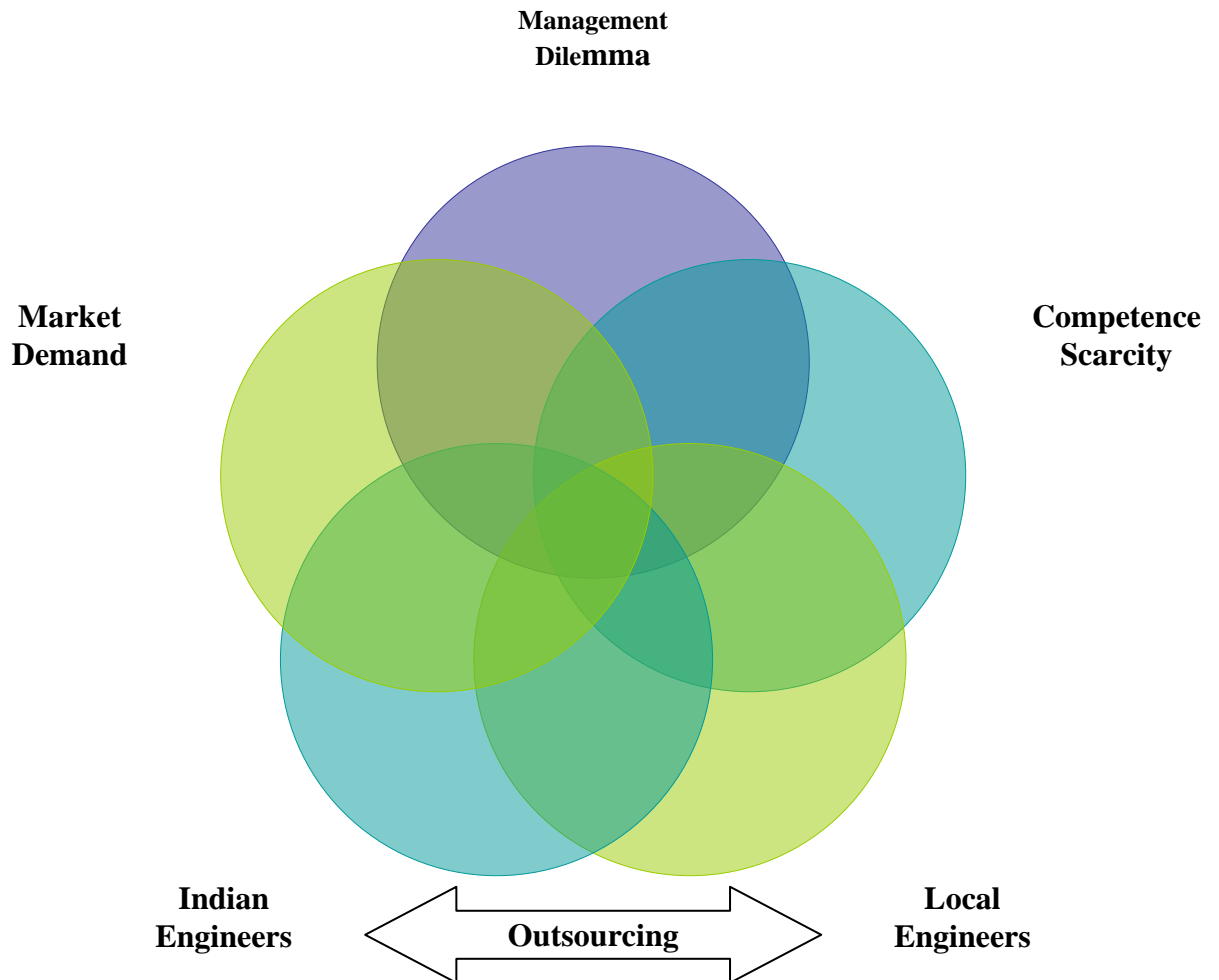


Figure 1 analytical model for the case

The model shows nowadays offshore market situation. It indicates that the demand market is quite good right now, while the local labor market is not sufficient enough to fulfill the requirements. Company faces competence scarcity problem in the local market. On the other hand it is plenty of skilled and educated labor in global market like India. Besides it is possibility of access to flexible as well as cheaper labor in India. In this situation Pusnes has following strategic choices:

- 1) Outsourcing Engineering
- 2) Using Local Engineers

- 3) Using Indian engineers freely without any restrictions as integrated part of company.

2.2.1 The problem

Pusnes had the tradition of outsourcing from quite early period when there was no common tradition of internationally outsourcing among western companies; however it was the production section they usually outsourced. Production outsourcing of established products involves relocation of physical manufacturing processes to a lower-cost destination. Examples of production outsourcing in Pusnes include the manufacture of Winches other loading and mooring system in Korea, Poland etc.

This time it is some of the engineering Pusnes intended to outsource. Engineering contains the activities like product design, research and development process that leads to new products. These activities are relatively difficult to control from remote areas. This is because research and development to improve products and create new reference designs requires a skill set that is harder to obtain in regions with out close collaboration and supervising of senior and experienced competencies. For this reason in the past, in many cases only the manufacturing has been outsourced by a company wishing to reduce costs. The engineering considers as firm's core competence. It is the most crucial and essential area for Pusnes where they build their competitive scopes.

The attempt in this task would be to clarify how to solve this problem of relocating the core competencies away from the head office? And in which way Pusnes should organize a co-operation with out giving up the core competence?

Since the decision is to use competence from India, Pusnes need to know more about conditions, circumstances in India. What are important values for them that can motivate and build a trustful relationship with Indian engineers? On the other hand finding out the capability of potential competence, to make sure whether they are smart enough and it is worth to use the resources and take the possible risk of putting away the engineering from head office location. All these mentioned uncertainties would be researched and clarified closely in this thesis.

2.2.2 The dilemma

Pusnes is now standing on a management dilemma which is in one hand relocating the core competencies in a remote area away from head office while On the other hand the pressure of innovation and product differentiation from market side. As well as desire to increase firm's capacity in order to be able to accept more orders from customer. It is a significant decision to be made that consequently change firm's main policy perhaps strategy. Since companies are often skeptical by the transfer of valuable information to the remote site. Pusnes is not sure yet that such information and training able the remote workers to produce results of comparable value previously produced by internal employees, When such transfer includes protected materials, as confidential knowledge and trade secrets has been transferred or exported. The documentation and valuation of such exports is quite difficult for the firm. The main problem/challenge in this task is in fact this dilemma and it has been clarified and given an account for the problem more closely in the above model.

2.2.3 Research questions

By taking in consideration the above mentioned problems and dilemma we have reached to following research questions. These questions will be tried to answer in this thesis.

1. What are the possible solutions for the problem of relocating the core competencies away from the head office?
2. In which way the firm can organize a co-operation with out giving up the core competencies? What is the mentality of Indians regarding business?
3. What criteria and framework conditions firm should make in this situation to avoid confidential knowledge leak? And in which grad Pusnes can bring flexibility and stability around firm's core activities?
4. How can the employees in Pusnes overcome the reciprocal cultural differences?

3. THEORY

ANALYTICAL MODEL

In this master thesis task in order to figure out a possible solution for the addressed issues we got to use some related existing theories developed by experts and researchers after years of studies and experience. The below model analyzes possible alternatives for theoretical solution of the problem. The main problem is corporate governance where the management must decide how to solve the competence scarcity problem in today's' increasing offshore

market. The model present two main alternatives one is Porters competitive strategy where the activities sorts in two specific portions. One of them is core activities which are strategically important for firm’s competitive advantages and the other is periphery activities which are not as important where company can use external expertise without any certain restrictions. The other main alternative is learning theory which requires integration through social get together. It is relatively new way of solving the problem. This solution brings different implication and is a dynamic way to solve the problem.

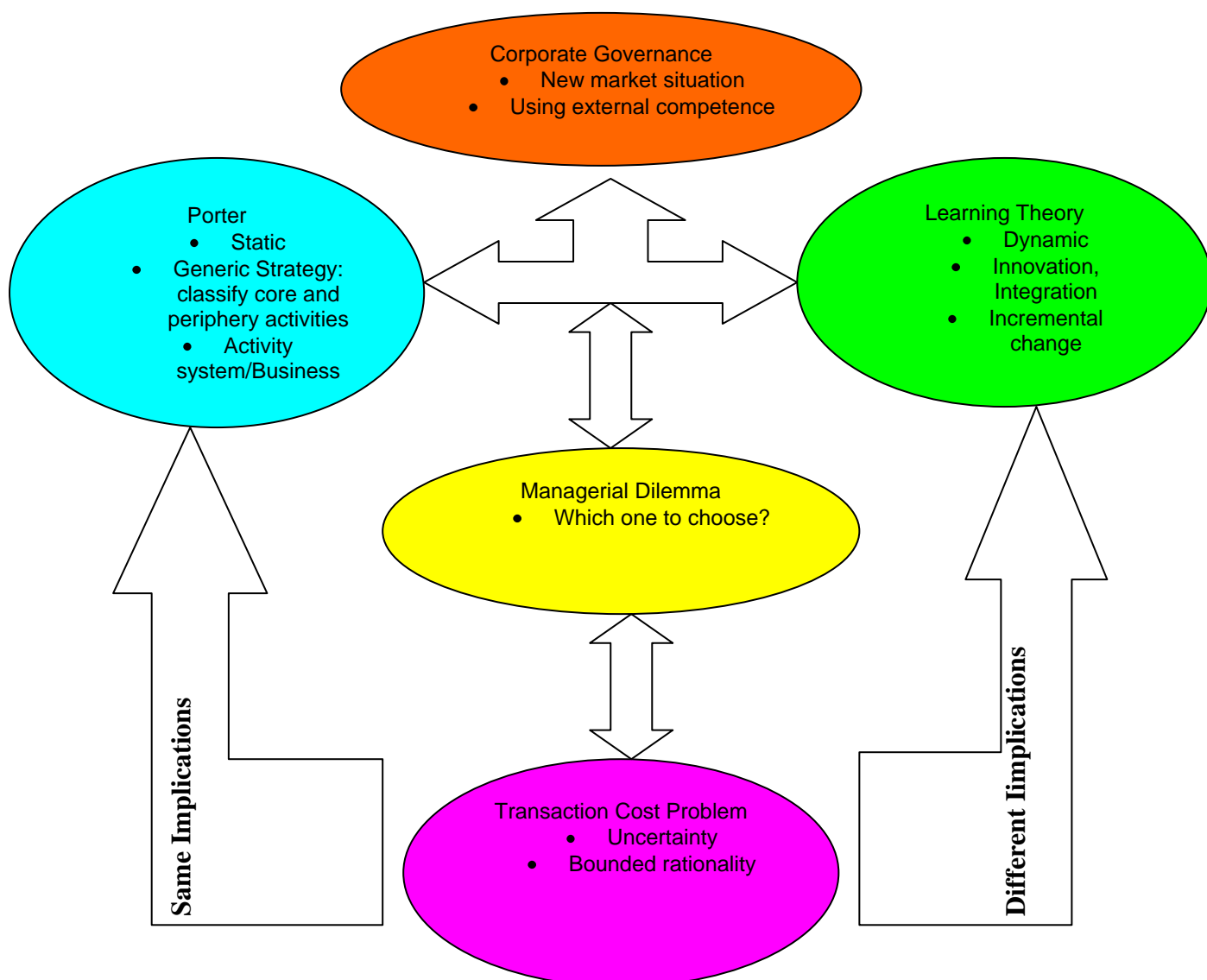


Figure 2: analytical model for theory

The outsourcing concept is not new for Pusnes, they began with outsourcing quite early but it was only manufacturing they had outsourced. Now the intention is to outsource engineering

Utilizing Indian Engineers in Pusnes

which considers as firms core competence. We will try to figure out the most suitable possibility to handle this situation. We will analyze and compare both main alternatives closely in coming pages and as well as find out which alternative will increase the transaction cost for the firm. The Porter alternative is more secure and static way to sort the activities and outsource only the activities where firm has a certain control on core areas, but this alternative increase transaction cost for the firm. Pusnes must use resources to train the external expertise a specific and restricted part of engineering like let the Indian engineers do only the detail engineering while the Norwegians do the process engineering. The process engineering is also called product development engineering.

The other possible main alternative was learning theory solution where both Norwegians and Indian employees work together as an integrated team member in order to find out new technological solution for the offshore loading, mooring and Deck machinery market. This solution is dynamic and innovative way of using Indian engineering competencies. It results to more integrated and economical teams of engineering in future. This alternative is relatively risky comparing to Porters organizing activity solution. It is because both Indian and Norwegians works together as a team by this they convey all tacit knowledge to each other. It requires courage, trust, understanding, reciprocal culture respect and of course a solid management. Besides this alternative, requires a brief study of Indian business mentality and a well integrated international company, under the same management Pusnes. The alternative of learning theory (integration) will decrease the transaction cost economic in long term. It is more successful if the company manages to build trustful relation with Indian workforce. The whole process depends on the decision of management. And it is a quite complicated as well as crucial decision to be made. All these alternatives, mentioned methods will be studied one by one closely in coming theory capitals.

3.2 Transaction cost economic

According to Systse Douma & Hein Schreuder Division of labour creates opportunities. It triggers the need of co-ordination of economic decisions. There are two types of co-ordination, Markets and organizations co-ordinations. In the transaction cost economic the basic mechanism is transaction. Transaction can takes place across market and organization. In both cases the fundamental motive is cost reduction. The transaction cost economic explains that

production cost is not the only cost to be considered here but also the other costs like market and internal transactions are essential factors that should be taken into account.

The theory of transaction cost economics is developed by Williamson. It is based on that human beings are boundedly rational and sometimes display opportunistic¹ behaviour. These two behaviour assumptions will be discussed closely in following chapters. But in order to find out that the transaction cost for a transaction is high or low depends on the critical dimensions of that transaction. There are three dimensions which are

1. Asset Specificity
2. Uncertainty/complexity
3. Frequency

These three dimensions would be discussed closely in further coming chapters but first it would be easy to explain briefly the transaction cost economics.

¹ Opportunism means that companies or employees who do a task in a firm “steal” ideas to their own goals.

3.2.1 Bounded rationality

A human being is not always capable enough to formalize and solve the complex problems. The ability of solving complex challenges is limited among human beings. We can illustrate this argument by following example. Consider a game of chess; the player has all the information he needs for his decision. He can see the position of black and white pieces and can move it to anywhere he wants. But the player needs to evaluate the consequences of his movement and the next possible movement of his opposition. He must evaluate all possible moves his opponent could make in answer to each possible countermove. The problem is that the number of alternatives possible countermoves are too high that even world's best chess player can't speculate all possibilities. It is not because a chess player doesn't want a fully controlled rational decision; it is because his capability to evaluate fully the consequences of all possible decisions is limited. It indicates that bounded rationality is a part of human nature.

It indicates too that bounded rationality poses a problem in complex situations, but there is another game called bridge where it is a combination of both uncertainty and complexity. In this game bounded rationality is a problem because of uncertainty and complexity.

In Pusnes case the complexity is of course designing of steady new models and products regarding offshore market. But the uncertainty can be market uncertainties of future demand. As well as the possible behaviour of external employees Pusnes is intended to use in their core competency area.

3.2.2 Opportunistic behaviour

Williamson describes opportunism as 'self interest seeking with guile' which means trying to exploit a situation to your own advantage. Williamson does not mean that every one behaves opportunistic but he claims that some people might behave opportunistic in particular situations. As well as Williamson declare that it is quite difficult to recognize the honest people in advance.

In order to know about opportunistic characteristics man has to experience anyone after making deal. Williamson assume that such opportunistic people would show their behaviour some times that's way it is difficult to know when or where they will come to show opportunistic behaviour. Some people blame Williamson for too pessimistic view of human nature but Williamson has proved this by several simple everyday examples that it is true. We human beings unfortunately sometimes display opportunistic behaviour.

Williamson explains opportunistic behaviours by several examples and assumes that there are two kinds of opportunistic behaviour one is ex ante example a car seller might not tell you about defects before you buy it. Such behaviour would be possible in case of asymmetric information. Asymmetric information means that only one part has the complete information in a deal. The other opportunistic behaviour type is ex post example is after you booked a holiday you might want to back of it if there is a better and cheaper alternative.

Human beings after discovering that the opponent has no other choice and is on depended situation, use to exploit the situation on his own fever and behave opportunistic. We can discuss it in Pusnes situation where they are intended to hire engineers from external market. In case of recruiting these engineers, Pusnes come to use resources and time in order to train them. The fresh engineers come to know about firms core competencies which are quite

Utilizing Indian Engineers in Pusnes

valuable section for any firm. As a result Pusnes expect the new employees to give a stable, long-time and positive feedback. On the other hand there is a scarcity of skilled workers in today's job market.

After gaining all training these workers feel a demand in the market and it is the time they can show opportunistic behaviour by joining another firm who offer for example more salary or a better work condition. In this situation Pusnes is vulnerable that's way it is essential to realize the possible behaviour of potential workers. But it is quite difficult to know it in advance, that's why there are certain governance structures that save both firm and employee from opportunistic behaviour.

The other alternative of possible opportunistic behaviour from employee side can be that they require steady higher salary. These requirements can end with an evil reinforcing cycle of steady demanding situation, which is not acceptable for Pusnes. But in case of engineer reputation is quite important factor in job market anyone who becomes known as opportunistic person the firms would never trust the person concerned. As a result he will lose the job opportunity in the market. But in this case information about reputation should be freely available for possible employers.

3.2.4 The theoretic fundament for governance of contractual relations

Transaction cost is essential to the study of economics. Nevertheless there is skepticism according to Stanly Fischer, transaction cost have well deserved bad name as a theoretical device. Fischer claims that "there is a suspicion that any thing can be rationalized by invoking suitably specified transaction cost"

Fisher tries to explain here, that the word of suspension is quite suitable for transaction cost. The characteristic is based on a phenomenon that it is possible to find ways making company or industry efficient, especially by getting rid of staff and equipment and using it to justify the right specified transaction cost.

There are some factors that base the general agreement in study of transaction cost, for example opportunism is a central factor. Opportunism is especially essential for activities that

Utilizing Indian Engineers in Pusnes

involve transaction specific investment in human and physical capital. As well as an efficient procession of information is a related concept. In addition the assessment of transaction costs is important factor.

In order to explain the transaction costs closely an evaluation and identification of critical dimension is necessary. The critical dimensions base on which transaction costs differ and an examination of the saving properties of alternative institutional modes for organizing transactions. This can put together the transaction with modes to be skilled and expert with confidence. Oliver E. Williamson claims that transaction cost is an essential factor to the study of economics. The critical dimensions will be identified to characterize transaction and indicates how and why transactions can be marched with institutions in a different and easy way by Williamson. The critical dimensions will be further discussed closely in rapport.

Williamson is concerned about intermediate product market transaction. It is because Williamson first encourages the firms to remove transactions from market and organize them internally, which is called vertical integration. The analysis of vertical integration and market is identical and deal with market, hierarchical, and intermediate modes of organizations. There is so much vertical integration but still there are so many markets-mediated transactions. And this can be explained that, which transaction is located where and why by a discriminating analysis. This will find the most economical governance structure for each abstract description of a transaction. Governance structure is the institutional framework that decides the integrity of a transaction.

Williamson did come with idea of vertical integration in order to have a sort of control over transactions. This is also called as governance structure.

Williamson explains that occasional labor market transactions show up as a replacement services, for example plumber, electrician etc. These transactions can take an idiosyncratic quality. The most relevant transaction for our case is recurrent labor-market transactions of specific kinds. However some characteristics of nonspecific transactions and mixed transaction are also relevant in our case. The case in this project is using Indian engineers in designing section of Pusnes value chain. That's why we will consider going through all

alternatives transactions in labor market. In order to choose out the relevant points from each those help us explaining and solving the case.

Clyde Summers has explained in his test of collective agreements in relation to the law of contract that there is a great difference between collective agreement and ordinary agreement in exchange market. Collective agreements are however a part of “mainstream of contract” (1969, p. 527)

Clyde Summers has divided the study of contract in two levels. The first one is finding a basic framework and the second one is finding the difference between different types of transactions. After these formations has Clyde Summers tried to add that the rules and regulations related to the whole range of contractual transactions are few. They are quite general that’s why it shouldn’t be recorded as legal rule.

Williamson is agreeing with Summers two part strategy of studying contract. Williamson declares that this will leads use to deeper understanding of issue. In order to build and fined out the basic framework of contracting and its transaction types we do a comprehensive study of it in following pages.

3.2.4.1 Contract types

Ian McNeil has explained the difference between discrete and relational transactions through his articles about contracts. With that McNeil has purposes the three way classification of contracts. These are Classical, neoclassical and relational contract law.

1) Classical contract law

According to McNeil the system of contract law is to facilitate the exchange among two dealers. It can be supplier and firm, customer and provider firm, employer and employees etc. According to McNeil, classical contract is trying to facilitate the exchange by bringing discreteness and supporting presentation. Where presentation helps or makes present in place or time in order to be realized at present. The economic replacement for presentation is contingent-claims contracting that cause comprehensive contracting.

McNeil has presented several ways of implementing discreteness and presentation. One of them for example is the identity of parties involved in transaction considers irrelevant. This is similar to ideal market transaction in economic. The second factor is that the nature of contract is delimited, as well as more formal features are preferred comparing to informal features. Third those remedies are prescribed in a limited way that if the initial performance fails because of nonperformance, the consequences are known in advance from the beginning of contract they are not open ended. Conclusively classical contract can be defined as contract which performs on legal rules, formal documents and self-liquidating transaction.

2) Neoclassical contract law

There are many long term contracts under conditions of uncertainty which do not fit in to classical contract. For example, the future contingencies where adaptation is the intention can't be known in advance at the beginning. Second, the suitable adaptation is not going to exist until the circumstances materialize. Third, with out political and state changes in the country, hard contracting between independent parties will support to confirm disputes when state represented responsibilities are made. McNeil believed that some times parties behave opportunistic after wining election so it is difficult to figure out which one should be believed.

After analyzing both situations and the only transaction contracting law classical contracting, there was three possible ways to deal with such opportunistic behavior in transaction cost economic. The first possible alternative was simply to give up and avoid such transactions altogether. The second possible ways was removing such transactions from market and arrange them internally in the firm. The intention was to have fully control on transaction by having a hierarchical intensive and control system. And the third possible way is to create another contracting law which facilitates trading and at the same time provides certain governance structure over the deal. The two first possibilities are quite old fashioned way to deal the challenge while the third one gives a basement to neoclassical contract law.

After a period of observation and research, McNeil realizes that there are two main characteristics of long term contracting. One is the existence of long gap in planning and other is the changing ways, processes and techniques by contract maker in order to create flexibility

instead of leaving gaps. All the functions of filling gaps and creating flexibility around contracts were evaluated and controlled successfully by third party existence like litigation, court and laws.

Conclusively neoclassical contract law is established after realizing that world is complex and the arguments and agreements are incomplete. Some times contracts can never be completed until both parts are not fully confident about each others future performance and prestige. According to Fuller, The important difference in arbitration and litigation contributes to procedure difference. This can be explained that the completion of contract can be confirmed by litigation much stronger comparing to arbitration.

3) Relational contracting

The complexity and flexibility around trades creates many new contracting laws by the passage of time. McNeil explains the every time progressively increasing the duration and complexity of contract and it has result to displacement of correcting processes of even neoclassical contract to correcting processes of more thoroughly transaction-specific. The old traditional contracting tools were replaced by new relations that “takes on the properties of a mini society with a vast array of norms beyond those centered on the exchange and its immediate processes.” (McNeil, 1978, p.901)

McNeil try to explain that the simple exchange rules and regulations are no more in use in the modern business world. The rising complexity and long period of duration require new systems that facilitate trading in modern time. The new contracting should be smarter then traditional contracting laws.

McNeil characterizes relational contract in such away that in relational contract’s main reference point or the point of origin and it is the entire relation as it has developed through the time. This is actually the opposite of neoclassical contracting where the main reference point is the original agreement. In relational sometime the original agreement may not includes at all as well as some time it does. In case of including original agreement it does not results a great difference anyway.

Utilizing Indian Engineers in Pusnes

Relational contracting seems to be quite realistic in today's business world where there is no more talk about traditional family business or restricted vertical integration. The world is toward a globalization and the businesses are much wider and complex comparing to old time. In such circumstances Building relations are an essential factor in order to be a successful actor in today's business world. As well as by creating a good trustful relations the actors can work much relax in a warm friendly way this can leads that both partners working towards common goal and in such a way partners can steady reinforce the power, efficiency and ability of each other. If we consider Pusnes here, Pusnes is intended using external expertise in their core business area. The fundamental factor is building relation with that expertise. Unless Pusnes will not be succeed to use the technical resources in best way with maximum output.

3.2.4.2 Governance structure

The above mentioned discussions of contract by McNeil discovered that contract despite being a good deal is also quite complex then it normally looks.

The governance structures-the institutional matrix where transactions are discussed and performed are changing with the nature of the transaction. The critical dimensions of contract are not explicitly identified and the purpose of governance is not said or written formally yet. Agreement about interest that gives way to a positive and friendly achievement of the business goals are important governance function.

According Williamson the most reasonable way of using governance structure is that simple governance structure should be used in conjunction with simple contractual relations, and the same with complex one. Using a complex structure in order to govern a simple relation is nothing more then increasing the unnecessary costs, and vice versa with opposite uses. But in order to figure out what is simple and complex in contractual respect, we need to define qualities and features of transactions closely.

3.2.5 Dimensions of transactions

Transaction cost for particular transaction depends on critical dimensions of that transaction. There are three critical dimensions for characterizing transactions 1) Uncertainty, 2) The

frequency with which transactions takes place, 3) The grad of specificity. Among these three mentioned dimensions uncertainty observes as a critical feature and the frequency matters seems to be true. But the governance explanation is not complete with out analyzing the third dimension which is transaction specific investment. Investment is especially relevant to understand the idiosyncrasy. In order to find a suitable governance structure we need to go through all three dimensions of transactions which are as follows.

3.2.5.1 Asset specificity

An asset is transaction specific if it can not be deployed to an alternative use without a significant reduction in the value of the asset. There are two kinds of asset specificity physical and human assets.

We can clear the concept of physical asset by following example. We consider a town with many inhabitants/population. For the time being there is no local newspaper in this town. However there is a publisher, who wants to start a local newspaper. The news paper should be printed locally in the town because of transaction cost. The one who wants to print the local news paper have no knowledge about how to do the technical things. He needs to get help of one of the local printers. There are several printers in the town but none of them has a press suitable for printing newspapers. One of the printers in the town considers buying a press for printing newspaper. In case of buying a press it will be a transaction specific asset. She only can use the print with co-operation with the one who publisher the newspaper unless it would be costly for the publisher to transport the newspaper to press in other town. So we conclude that the transaction between these two local partners is characterized by asset specificity. They are dependent upon each other for a transaction to occur.

The cost of market transaction is high for transactions with high asset specificity. In order to explain it we can consider that the newspaper has a lifetime of five years. So the press owner wants five years contract with newspaper publisher before buying the press. This will generate still more problems among mentioned dealers. Those are for example uncertainty/complexity whether the publisher would be able to pay. There are two possibilities either the publisher has ample financial resources, or the news paper will generate enough cash flow. In case of comprehending the situation for both partners only, a long-term contract will work well.

According to Williamson the most important investment distinction is in which grad the investment is specific. There are three types of investments non-specific, mix and highly specific investment the last one is also called as idiosyncratic. The nonspecific investments are not a big problem for customers since they can easily turn to other sources, and as well as suppliers can sell outputs intended to one order easily to another buyer. In case of specific identity of parties bearing important cost consequences, no marketability problems arise. Sometimes the identities of the parties are quite important from the beginning. It is because when a buyer persuades supplier to invest in a particular physical capital of a transaction specific kind. Also if the alternative use of the capital is comparing low, then supplier is effectively locked in to the transaction in some grad. After such deal also a buyer can't turn to alternative supplier. It is because the cost of supply from unspecialized capital is quite high. Conclusively we can say that both buyer and supplier are committed to the transaction.

3.2.5.1.1. Human Asset

The physical capital is not the only exchange in idiosyncratic (highly specific). The human capital investments are also considers as highly transactions specific exchange. These are specialized trainings and learning by doing economies in production, designing, marketing etc areas. Human capital investments are rarely transferable to alternative supplier at low cost. By transaction specific investments the firms would be able to increase both quality and cost saving processes. The firms would achieve it only by successful adoptions of contracts between buyer and supplier in such way that it follows with reaching contract renewal agreements.

Experience and familiarity would permits communication economies. The worker who have been working together for a while can communicate easily with each other, as well as they have received training and got experience by worker with particular product for a while. After a period of working together, the workers and firm have build a relation which is based on trust and loyalty among each. Thus the individuals who are responsible for adapting the investments have both personal and organizational motives in transaction. Where personal integrity is used to be operative, individuals in transaction may refuse to be a part of an opportunistic behavior where he takes advantage of contract and miss use the opportunity. These behaviors would be recorded and noted by both partners in order to know each other

better where they can trust and deal easily next time. On the other hand the parties will figure out which feature personal trust will survive greater stress and display greater adaptability. Idiosyncratic or highly specified transactions usually happen occasionally where delivery of a specialized design is stretched out over a long period for example certain construction contracts. While recurrent spot contracting is usually used in standardized transactions.

Conclusively can we say that for idiosyncratic activities cost economies in production will be realized only when a supplier invest in a special purpose plant and equipment or if the worker develops transactions specific skills in the course of contract techniques. The only thing needed is the guaranty of continuing relations to encourage the investments.

3.2.5.1.2 Eliminating the danger of opportunism

According to Williamson there is a serious contracting dilemma, by eliminating the dangers of opportunism the difficulties will come to disappear. Because of long term gaps the incomplete contracts could be easily filled in an adaptive way. A general statement where both parties would agree, that they will behave responsibly rather than looking for individual interest when opportunities arise. In order to find out that in what way humans make false and misleading statements, the following risk must be faced: both are in condition of highly specific mutual monopoly, both buyer and seller are strategically situated to discuss over the willingness of any increasing gain when an alternative proposal comes from other party. Though both parties have a long term interest in achieving an adaptation of a joint profit maximizing kind, each also try to achieve as much gain as they can on each occasion to adopt. In such situation governance structures which reduce opportunism and increase confidence is needed.

3.2.5.1.3 Consequence of personal knowledge lack

The idiosyncratic investment in human capital is relevant in our case. Polanyi (1962) has discussed in "Personal knowledge" that the efforts to analyze scientifically the established industries arts have given the same results. Even in today's modern industries the indefinable knowledge is still a part of technology. Polanyi mentions a machine that had been brought in Hungary in order to produce lamp bulbs. The machine was bought from Germany, Firm in Hungary failed to use the machine for a whole year they couldn't produce even a single bulb, however the same kind was producing bulbs in Germany. The reason was clear that the firm in Hungary didn't have a skilled person who could operate the machine that's why they failed.

Utilizing Indian Engineers in Pusnes

On the other hand Polanyi discussed also understanding the same language that specialized code words or expressions can and do arise in the context of recurring transactions and also “different vocabularies for the explanations of things divided into groups which can not understand each others way of seeing things and acting upon them”. Polanyi explains it that to understand a language is an art, Spoken communication is the successful application by two persons. It makes it much effective and easy in a work environment if the workers do understand each other in a proper way. It is both time saving and avoid possible misunderstanding during tasks.

Williamson submits that transaction specific human capital is central to all transactions. He explains it further by mentioning that why else would it take the Hungarians so long to operate the German light bulb machine. The main reason was unskilled operators. The general argument of above mentioned example is that special governance structure replaces standard market –cum-classical contract exchange when transaction specific values are great.

3.2.5.2 Frequency

The frequency explains how often transactions occur and the degree to which the expenses happened are transaction specific. As there are a recognized three investment categories, there are three frequency categories. The three investment categories are nonspecific, mixed and idiosyncratic while the three frequency categories are one time, occasional, and recurrent.

This can illustrate that one time transaction is obviously a transaction that takes place just once. The second one is transactions that take place sometime not often. The third one is transactions that take place again and again several times after each deal. In order to simplify the argument Williamson has made following assumptions:

- 1) Suppliers like to have continuously long term business. Then the consequences will be that small customers become ignored.
- 2) There are plenty of capable suppliers for particular requirements. It means that the monopoly of being the only supplier for particular resources is no more in the market.
- 3) The dimensions of frequency which is one time, occasional and recurrent deals directly with buyers activity in the market. While the investments dimensions which are no specific, mix and highly specific (idiosyncratic) deals with characteristics of investments made by supplier.

Specialized governance structures are easier to justify for recurrent transactions comparing to identical transaction that takes place only occasionally. As Williamson describes discrete transactions as despite being fascinated discrete transactions have totally isolated character. Williamson illustrated his argument with an example of buying local spirit from a shopkeeper in a remote area of a foreign country. Where man ever again expect to neither visit nor refer to his friends. Sometimes people do not understand the distinction between one time and occasional transactions. The only difference that can be realized is difference between recurrent and occasional. Williamson has worked out a three by four matrix shown in figure bellow. The matrix describes six types of transactions to which governance structures need to be matched.

		Investment Characteristics		
		Nonspecific	Mixed	Idiosyncratic
Frequency	Occasional	Purchasing standard equipment	Purchasing customized equipment	Constructing a plant
	Recurrent	Purchasing standard material	Purchasing customized material	Site-specific transfer of intermediate product across successive stages

Figure7: Commercial transactions

3.2.5.3 Uncertainty

The transaction where certainty is under control is relatively easy comparing to uncertain transaction. The reason is that in a certain deals every part are standardized and there is no issue of changing behavior and behaving opportunistic during transactions. According to Williamson more difficult are transactions where uncertainty is presented to a high degree. The challenge is to find out governance structures in order to govern transactions with high uncertainties. Initially we must find out how the governance of transactions is affected by increasing the degree of uncertainty.

Utilizing Indian Engineers in Pusnes

As it has been discussed above, in nonspecific transactions continuity has little interested. It is because the firms are capable of arranging new trading relations easily. In such transactions increasing the grad of uncertainty doesn't bring any difference. In any case market exchange continues and discrete contracting model support standardized transactions of all kinds, regardless the degree of uncertainty.

3.2.5.3.1 Consequence of uncertainty on highly specific investments

According to Williamson it is quite different with transaction specific investments. Here the degree of uncertainty and the degree of investment specificity plays a crucial role. It gets more importance if the degree of uncertainty increases and vice versa with investment specificity. It is because, in case of high uncertainty and highly specify investment, the contractual gaps would be larger as well as the occasions for sequential adaptations would increase in both number and importance. It is relevant with mixed investments organization of transactions. There are two ways of dealing with such problems. One of them is to replace the valued designed features with more standardized good or services. In this case market governance would apply. The second one would be let the designed features remain in exchange for more complex governance tools, by supporting more adoptive, sequential decision making. The degree of complexity of the governance tolls would increase in case of occasional and highly specified investments.

The above mentioned situation is quite similar and relevant with Pusnes's challenge. The engineering of new products would be highly idiosyncratic task, while the uncertainty of future market for such products and the incentives and potential of external expertise are the most uncertain areas in the this situation. In order to respond positively to today's dense market and to get a better use of the external expertise, Pusnes need to apply complex governance structures. As well as Pusnes may standardize some parts of their core competency tasks both to have a certain control over core activities and to make it easier for external employees to learn the tacit knowledge of the firm.

However decreasing uncertainty changes the transactions in a completely opposite direction claims Williamson. Williamson explains it that as the firms mature the degree of uncertainty decreases, at that moment the benefits that increase due to integration by the passage of time would decrease. So in that case Williamson suggests use of obligation market contracting for

transactions of recurrent trading in mature firms. That is because both parts are bounded to follow the contract to the end even if the benefits decrease. The engineers Pusnes come to use will also learn the job and become known to the firm after passage of time. In order to keep them working for Pusnes one of the alternatives is obligation contracting.

3.2.6 Governance Structures

3.2.6.1 Standardized services

Williamson has cleared that there would be three types of governance structures for nonspecific, semi-specific and highly specific transactions. A market is classical nonspecific governance structure, where different actors (Firms both sellers and buyers) come together to exchange standardized products/ Services at equilibrium prices. In order to explain this point we consider the services that Pusnes can easily provide labor in local market. For instance cleaning the office area or making lunch for personals in the firm's personal cafeteria, Pusnes can easily get a consulting firm to do the job done for them. It is easy because it is common standardized services.

3.2.6.2 Highly specified jobs/ services

However Williamson defines highly specific structures by those which are tailored to the special need of the transaction. Williamson precise, that the identity of partners/ actors plays the essential role here.

We can compare this transaction with the challenge, which Pusnes is going to face by using external expertise in core competence area engineering. The Pusnes products are tailored to the special need of customer. As well as to understand and know the identity and capability of the external expertise are quite crucial due to trust worthy relations and combine effort of doing better and better solutions for the ordered products. Joint effort and co-operations will help both the firm and employees to strength their knowledge and better their designed solutions, in order to satisfy the customers. Thus using external expertise in Pusnes's core competency area falls in highly specific category.

3.2.6.3 Semi specific Services structures

The semi specific structure comes in between non- and highly- specific structure. Williamson has suggested several assumptions regarding governance structures. They are as follows

1. There is no need of specialized governance structure for highly standardized transactions.
2. Highly specialized governance structure will be supported by recurrent transactions.
3. Transactions-specific governance structure would not be supported by occasional transaction of non-standardized products/services. Such structures need special attention with help of McNeil's three way classification of contract. For example classical contracting would be applied to all standardized transactions regardless frequency. Relational contracting would be applied to recurrent and non-standardized transactions. Neoclassical contracting would be applied on occasional and non-standardized transactions.

We can discuss it closely by splitting the governance structures in accordance with contracting type.

1. Market Governance: Classical Contracting

Market governance uses in nonspecific transactions in both occasional and recurrent transactions. Markets are successful and sufficient, when recurrent transactions take place and observe for long period of time. The reason is that the dealers must have a long term experience and close relationship in order to continue with each other. In other case it is quite easy to turn elsewhere in case of little transaction expense. Due to being standardized products the alternative purchase and supply arrangement is easy in the market.

Occasional and nonspecific transactions are not as easy as recurrent one. The reason is that the buyer can't refer to their previous experience. It happens quite rarely and can't be used as a safeguard transaction against opportunism. Thus usually the experience of other buyers of the same goods would be considered and used as a historic reputation for the principal supplier. The both parties (supplier and buyer) do believe to such reference and profile because in the market there the parties that behaves honest and responsible, they would be priced by especial incentives which supports firm's reputation.

It can be concluded that discrete contracting are more sufficient with transactions where market governance is used. It can be precised by the transactions where the identity of the dealers (buyer and seller/ supplier and customer) is not important. The reason is the

standardized kind of product which is easily available in market. The legal rules of dealing and writing contracts are preferred in market governance. The market alternatives protect the parties against opportunism by opposite side. The legal procedures are strictly followed in market governance. In such governance building relation is not a very important and efficient method of business; it is because relation is not count as a valuable factor in standardized transactions.

2. Trilateral Governance: Neoclassical contracting

The trilateral governance structure is used to govern to kinds of transactions which are occasional transaction of mixed and highly idiosyncratic. It considers quite important to finish the transaction and let it be complete. There are sated up high incentives for completing the contract. There have been sated up specialized investments in such transactions, as well as the opportunity cost of investment in alternative uses are much lower then this. However the transfer of these capitals to another supplier would cause even bigger problems in judgment of the value of these capitals. The need of sustaining a relation is more essential in idiosyncratic transactions.

Sometimes it is unclear to setup cost of a transaction specific governance structure for occasional transactions. The reasons are divided in two parts one the given limits of classical contract low of sustaining these transactions, and the other is the unaffordable cost of transaction specific governance. It seems that a middle solution is needed here.

According to McNeil neoclassical contract law has many outstanding qualities. For example in case of disputes it prefer third party (arbitration) assistance in order to resolve the disagreement, arbitration usually evaluate the performance of the parties, instead of going to strict litigation process or civil court pepper work. As well as supporting and making the concept of specific performance in past, that's why it is named as primary neoclassical contract remedy. The example to explain McNeil's claim is the section of uniform commercial code that builds and maintain the relation in situations where a seller is aggressive because of irresponsible performance of supplier where supplier has broken his promise.

3. Transaction-Specific Governance: Relational contract

Williamson did find out that, there are two kinds of transactions for which a specialized governance structure has been worked out. One of them is recurring transaction of the mixed and highly specified goods or services. The other is occasional transactions of mixed and idiosyncratic goods or services. These transactions are no more standardized kind where it is easy to apply market governance structure; it is much complicated then nonspecific one. However it takes place not just once but several times (recurrent) which cover the cost of specific governance structure.

Williamson has proposed two kind of transaction specific governance structure. One is called bilateral structure where the authority or control of organization is maintained. The other one is unified structures where transaction is removed from the market and organized within the firm under control of a single authority. This strategy is also known as a vertical integration.

We can explain each of the above mentioned governance structures closely in following paragraphs.

a) Bilateral Governance: Obligational Contracting

Williamson adds that designing and producing highly specified transactions requires high human and physical reassures. It is not possible to cut down the costs in the level of nonspecific products. Thus it requires both skilled designers and physical assets. However in case of mixed transactions the degree of assets or resources is lower comparing to idiosyncratic transactions. That's why outside procurement of mixed transactions are preferred then making it self.

Williamson recommend outside procurement in order to respond to steady state supply in a cost control framework. According to Williamson the essential issue comes after considering adoptability and contractual expenses. Where internal adaptation can be effected by official order of authority, while procurement from outside market, will effect adaptation across a market interface. The concept of adaptation has been carefully researched and followed up from the beginning. As well as it has been clearly promoted by contract, this is usually impossible or very expensive. Adaptation across market area of effect can be improved by mutual, long term, follow-on agreements. The reason is that the

parties or dealers commonly change interests and behaviors after each adaptation proposal that be made by opposite party. It is a dilemma that should be discussed closely.

3.2.6.1 Changing behavior dilemma

In order to support the relation and to promote the deal both parties gain certain incentives to let the process progress and to follow it to the very end. During this careful relation building process the only object that should be really avoids is the loss of valued transaction specific economies. Each party in transaction works out his own profit stream, which should be followed in any condition during adopting the contract. The challenge is to figure out a way for declaring legal dimensions for adjustment such that each party is confident to accept the flexibility. This can be supported by realizing and recognizing the danger of opportunism respectively with the type of the adaptation and restricting the investment or transactions to those where the dangers are minimized. But the area within which the adaptation is effected is equally important.

Williamson explains that there are two kinds of adjustments, they are quantity and price adjustment. Among these adjustments quantity adjustment has better incentives properties. It is because price adjustment has a cheap quality; however proposals to increase, decrease, or delay delivery do not have poor quality. Williamson adds that price adjustment is risky in such away that the parties try to use the mutual contract monopoly in order to turn the benefit in transaction to his own fever. However Williamson believes that growth events are responsible for that quantity adjustment is usually necessary. Considering a simple nature of exchange or business, we come to that a seller or a buyer would never doubt the behavior of his opposite when a quantity change is proposed.

Williamson explain it by that a buyer will not come to change his supplier or will not try to achieve products in favorable price from other firms. The reason is the other firms will require high price because they will invest in order to produce the specialized products that they usually do not make. And the same is with sellers; sellers will not stop the delivery because better opportunities have been raised. That is because the products they deliver has a specialized character. Thus the quantity representation for highly specified products can

Utilizing Indian Engineers in Pusnes

usually be taken at face value. So in an exchange dealers are not able to adopt both quantity and price changes in highly specified exchanges. Quantity adjustment takes place routinely.

Williamson clear that price adjustments has different degree of risk. Some of them that have been speculated in advance are of few risks. Raw escalator sentences that reflect changes in general economic conditions are not possibility. However such transactions are not specific, applying these escalators in local conditions would cause imperfect adjustment. That's why Williamson wants to make sure whether price adjustments which are more closely related to local conditions are possible to do. The challenge for Williamson her is whether it is possible to work out a temporary price adjustments in such away that strategic risks don't arise. As well as what are the preconditions to do so?

Williamson figure out one main problem that both parties in an idiosyncratic (highly specified) might face is the capability crisis which damage the relationship. Another unplanned but reasonable price may permit. According to Williamson it would be more interesting to find out whether there is a circumstance where temporary price adjustments are made routinely. Williamson presents two preconditions.

1. The proposal to adjust price must relate to progressive/exogenous, connected and easily trustworthy events
2. Anyone should be able to relate clear and countable cost consequences to that.

In order to explain or clarify further, these points has been discussed within an example. We consider a component for which a large amount of cost is accounted for a basic material (cooper, steel). Further we consider that a little cost of the component in terms of this basic material is specified. An increase in price of material would create few dangers, if partial but temporary price solution were permitted by allowing pass-through according to formula, a more pure, careful and maintained adjustment has been sustained which aggregate escalators that afford gains.

It shows that all costs are not qualified. Changes in regular and essential expenses or other expenses for which controlling the information is difficult, and even it is possible to control and find out the truth, a confirmed an uncertain relation to cost of component will not be passed through in a similar way. After recognizing the dangers the firms usually give up the relief.

b) Unified Governance: Internal Organization

According to Williamson the encouragement for trading decrease as transactions become more and more specified. It is because when as an asset become specialized to a single use, so do that asset becomes less transferable to other uses. Both the buyer and an outsider supplier can easily realize the economy of scale. The organizations obviously prefer to choose a mode that has superior adaptive properties. In such conditions Williamson recommends vertical integration.

Vertical integration has several advantages for example a firm can make the adaptation in a sequential way with out the need to consult, complete or work out inter firm agreements. Where achieving a joint profit maximization is valuable for both firms. So conclusively it can be said that price adjustment in vertically integrated enterprises will be more complete and successful then inter firm trading. In such situation a quantity adjustments will be carried out at whatever frequency serves to maximize the joint profit to the transaction.

Williamson characterizes vertically integrated highly specified transaction as unchanging identity at the effected area joint with great adaptability in both price and quantity. A detailed adaptive capability afforded by administration has taken place of Obligational contracting.

The match of governance structures with transactions that results from these economizing efforts is shown in following figure.

		Investment Characteristics		
		Nonspecific	Mixed	Idiosyncratic
Frequency	Occasional	Market governance (classical contracting)	Trilateral governance (neoclassical contracting)	
	Recurrent		Bilateral governance (relational contracting)	Unified governance

Figure 8: Matching Governance Structures with Commercial Transaction

Williamson has described three dimensions of transactions which were frequency, uncertainty and asset specificity. The purpose of describing these critical dimensions was to make governance structure for such transaction. They can be used to all kind transactions. In order to figure out a suitable governance structure for commercial transactions, the same description is required. These dimensions are study of labor market, regulation family law and capital market. The most relevant and useful dimension for our project is labor market, that's why I will go in detail of this dimension.

The three dimensions of transactions are applicable in all kind transactions. We should modify the governance of other types of transactions. In order to do so we study the framework applications of labor market and regulation briefly in following pages.

3.2.7 Labor

Williamson explains that occasional labor market transactions show up as a replacement services, for example plumber, electrician etc. These transactions can take an idiosyncratic quality. The most relevant transaction for our case is recurrent labor-market transactions of specific kinds. However some characteristics of nonspecific transactions and mixed transaction are also relevant in our case. The case in this project is using Indian engineers in designing section of Pusnes value chain. That's why we will consider going through all alternatives transactions in labor market. In order to choose out the relevant points from each of them, this can help us explaining and solving the case.

1) Nonspecific labor-market Transactions:

Williamson explain it in such away that In nonspecific labor-market transactions both employee and employers are not interested about identity of each other so long their works get done or the workers receive their salary, For example migrant farm labor. In some cases there will be created an unchanging long term employment association between worker and firm, but the firms would use the labor according to markets demand of its products not anymore. A valuable ongoing relationship, in which specific training and on the job learning gives specific benefits are not applied in nonspecific labor-market transactions. Williamson adds that both payment to temporary unskilled workers and employments are variable and markets governance concentrates to transactions of this kind.

2) Mixed labor-market Transactions:

According to Williamson the most interesting labor-market transactions are those where large number of workers learns firms middle degree specific skills. As the degree of idiosyncrasy is a design changeable, firms would try to redesign jobs in order to turn them into more standardized form. The firms do so when the jobs were impossible to work out governance structures which prevent to build a valuable relation between firm and specific skilled workers. In such process the firm might get a bit extra costs where net gain can't be seen, however the professional workers would realize little strategic advantage over having external qualified workers as a reserve in boom market conditions.

This point is quite relevant in our case. Pusnes try to redesign the jobs in to more standardized form it will help them both to make it easier to learn for the new employees and as well as to have a certain control in to confidential parts of their core competency.

Williamson describe that though temporary adaptations are necessary, money paid to workers are unchangeable under collective bargaining agreements. The temporary adaptations take three forms:

1. quantity adjustment
2. assignment changes
3. Changes to improve working rules as a result of complains

Quantity adjustments are created in order to change market opportunities. Neither the level nor the mix of employment is adjusted as economic events become known. Giving the workers training and learning for firm's specific products or services are valuable and remain in the workers. It is quite common to fire the employees with a presumption of reemployment in case of better conditions for the firm in future. Williamson assume that the degree of access to jobs where machinery govern is quite complex, it changes with the degree of how the jobs are idiosyncratic (highly specified) in the firm. That's why the promotion possibilities in firms where a progress of interdependent jobs are highly specified are long and thin. However the promotion ladder in no idiosyncratic activities is soon, easier and thicker. (Wachter and Williamson, 1978, p. 567)

3) Highly idiosyncratic labor-market Transactions

Williamson explains that idiosyncratic transactions are not only little uniqueness but uniqueness of transactions specific kind. Here Williamson talks about recurrent transaction not just once or occasional. There are money professions that can considers as unique skills like artist, administrators etc. However unique skills are not transactions-specific kind. Oppositely most of these skilled workers can moves from one company to other without losing any productivity.

The exceptions in such situations are those benefits which add to experience in to particular worker, and team interaction effects, similarity or being used to work together, building cooperative relations are valuable. Williamson find out that commercial transactions of a highly idiosyncratic nature are collected under a common ownership, restrictions and limits on written contracts foreclose this option for labor-market transactions. Instead of this another solution is discussed which is joining together complex contracts designed to keep and insure worker interests to the organization. According to Williamson bad punishments are provided where either party should search for partial ending, or to work out long term, representative reward schemes.

3.2.7.1 Regulation

According to Williamson there is needed a specialized governance structure to the degree efficient supply necessarily joins workers and employers in a mutual trading relation of continuing nature. There are two governance objects.

1. Protect the interest of respective parties
2. Adapt the relationship to change circumstances

Williamson says that he had argued that specialized governance structure is needed for services where natural monopoly feature is great. These structures have a responsibility to provide security of expectations to employers (investors) and workers. This is quite protective function, and at the same time supports adaptive, sequential decision making.

Summary

This theory chapter has begun with main definition of transaction cost economic. In the world of complexity we human beings are unable to analyze all aspects of a challenge. As well as

Utilizing Indian Engineers in Pusnes

human beings behaves opportunistic sometimes, it is quite difficult to find out someone's opportunistic behavior in advance.

Transaction cost economic has three critical dimensions that has been discussed in this chapter. They were uncertainty, asset specificity and frequency. Uncertainty is the potential market for certain products in future and behavior and capability of employees. Asset specificity is of three kinds.

There are idiosyncratic investments which are also called highly specified investments, mix investment which is not too specific and the third one is nonspecific investments which are standardized investments that can be found and provided easily in the market.

The frequency decides how often a transaction occurs. Frequency is also divided in to three types one is recurrent which is transactions that take place again and again. The other is occasional that is transactions that takes place occasionally and the third one is one time the transactions that takes place just once.

In order to find correct and qualified governance structure it has been discussed the contract types that can be used in transactions. We fined out three kinds classical, neoclassical and relational contracting. The most relevant and useful contract type for our project is perhaps relational contracting. Further on it has been founded and discussed some governance structures out of Williamson's book transactions cost economic.

Williamson has proposed three kinds of transaction specific governance structure. From these three the most relevant governance structure is the 3rd one called relational contract transaction specific governance which is further divided into two kind of governance structures. One is called bilateral structure where the authority or control of organization is maintained. The other one is unified structures where transaction is removed from the market and organized within the firm under control of a single authority. This strategy is also known as a vertical integration.

Since the task is transactions in international labor market, that's why we discussed labor closely. In this discussion the different type of labor transactions are explained.

3.3 Porters competition and strategy core competence theory

According to Porter, the firms can compete with each other in two areas. One is cost reduction and the other is product differentiation. Pusnes have already outsourced the manufacturing to low cost countries in order to reduce the cost and trigger its competitiveness in the market. This time it is the product differentiation Pusnes is intended to outsource. The challenge is making the decision, whether it is propitious enough to outsource the engineering or not. Engineering is the core competency area and the alternatives are: 1. Bringing extern competence in to the firm. 2. Relocating the engineering away from head office. 3. Training the local competence. 4. Using the competence or resources Pusnes has already within the firm. The alternatives seem to be a bit unclear that's way Pusnes is skeptical over the decision. This management dilemma can be evaluated by following matrix.

High risk of joining other firm's low risk

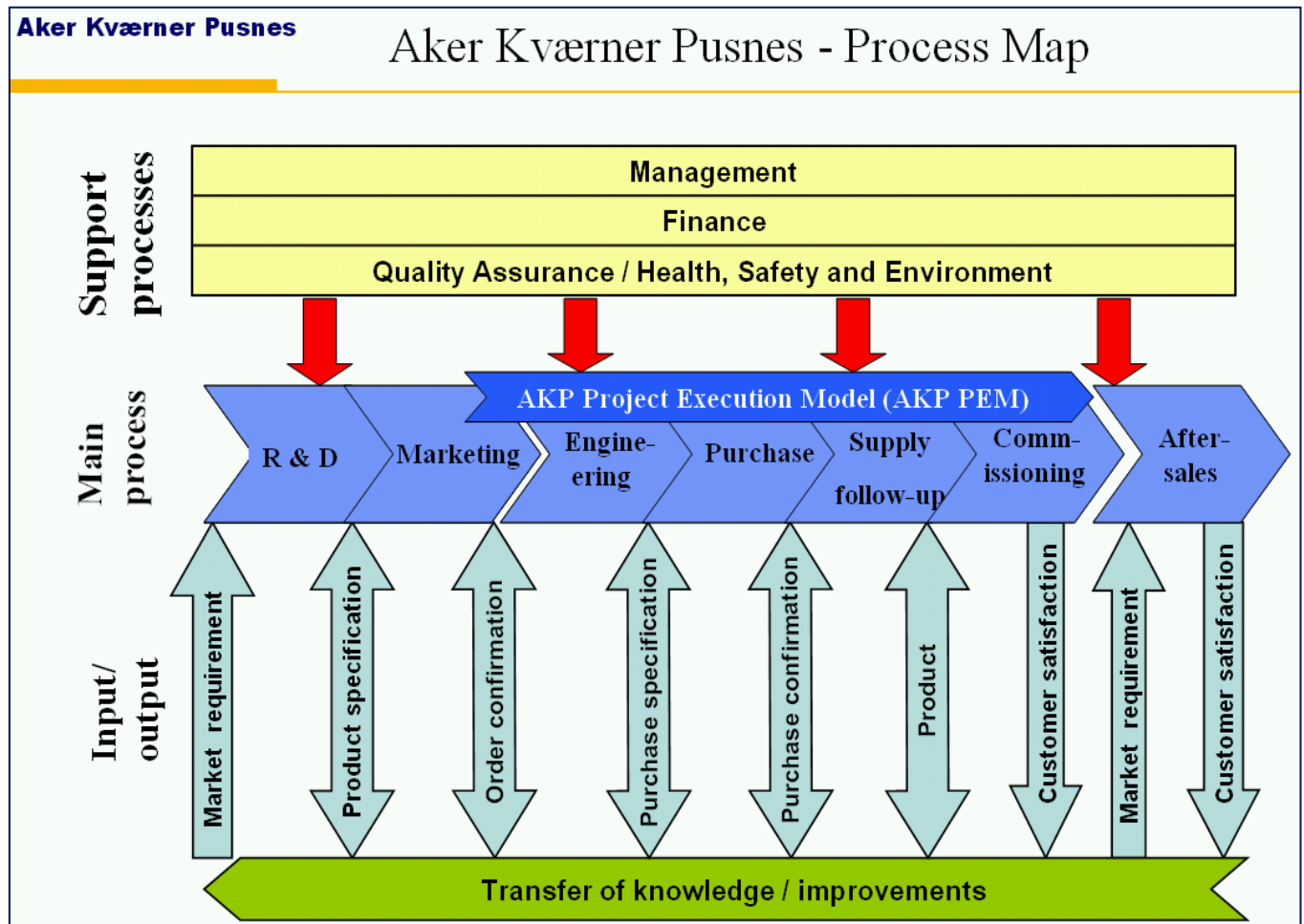
High product differentiation	Outsourcing the engineering away from head office area	bringing extern competence in to Norway
Low product differentiation	Training the local competence	Using the same engineers Pusnes has already

Figure 3: Matrix for different choices.

It seems that the alternative of bringing extern competence in to Norway is the most suitable way to solve the scarcity problem for the time being.

Michael Porter has described firm's value chain in 1980. Pusnes has a value chain figure which is called Pusnes Standard or Pusnes Process map shown in figure below.

Figure 4: Pusnes Standard/ Process map



In this value chain description all activities have the same level of importance and consider almost the same. However Porter describes firm's value chain in a different way in competition theory. In this theory the activities are building in such way that they support, complete and protect each other. In today's hard competition situation the firm's survive by building their value chain in a unique way, in such way that the rivals are not able to copy it. In the whole value chain, activities helps together to reinforce the competitiveness grad of company, which is core concept. Some activities consider more sensitive then others. The main difference between Porters value chain concept and Porters activity system is this point that activities are not the same. Some of them are more sensitive then others for example core activities like engineering is more sensitive then manufacturing that, s why it is manufacturing that has been outsourced by different firms in the last decades.

As it has been mentioned above, Pusnes is established as a designing and manufacturing company from the beginning. They provide deck machinery, offshore loading and mooring

Utilizing Indian Engineers in Pusnes

systems. Pusnes has outsourced the manufacturing part already in early 70ies to the foreign countries. In addition Pusnes deliver products to a huge part of Asian shipping market. As will as it seems that Pusnes has a problem to find qualitative and flexible labour force in local market. That's why Pusnes is trying to use Indian engineers in designing section. Designing is the core concept of Pusnes. The phenomena which is arising question here is why Pusnes is still operating in Norway? What is the powerhouse back Pusnes success that keep them operating successfully and is still willing to keep the head office in Norway?

In order to find secrete behind these questions, we need to work out Pusnes' business model, which is also known as activity system. It may further helps use to devise how Pusnes can protect its core concept after using external employees. But first it is important to research on how Porter has described competition and strategy with help of competition strategy and business model.

3.3.1. Competitive Strategy

Pusnes's Business model/activity system

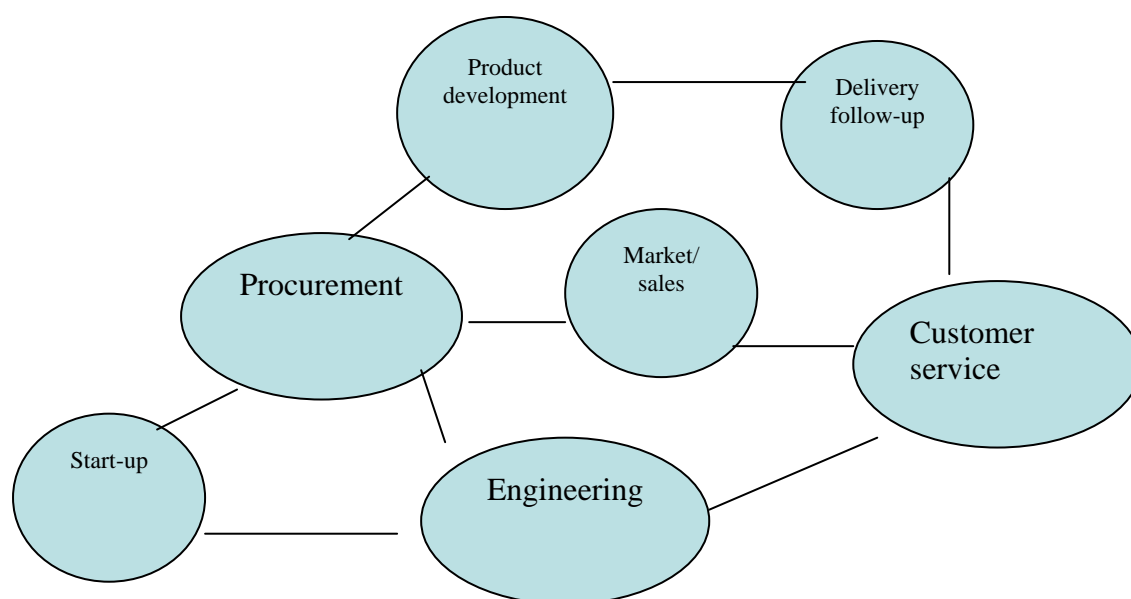


Figure 5: Pusnes business model

3.3.2 Competition

According to Porter "competition is rooted in industry's underlying economics, and competitive forces exist that go well beyond the established combatant's in a particular

Utilizing Indian Engineers in Pusnes

industry. Customer, Suppliers, potential rivals, and substitute products are all competitors that may be more or less prominent or active depending on the industry”

In this paragraph Porter try to explain the importance of competition. Porter says that competition is the base of industries success. It is essential for an industry how to take care of dealers around it. Porter believes that all actors that a company deals with can consider as competitor; these dealers join together works as a threat for industry, though all these actors in some how are depended to principal industry.

Competition in an industry depends on five basic forces which are diagrammed in following figure.

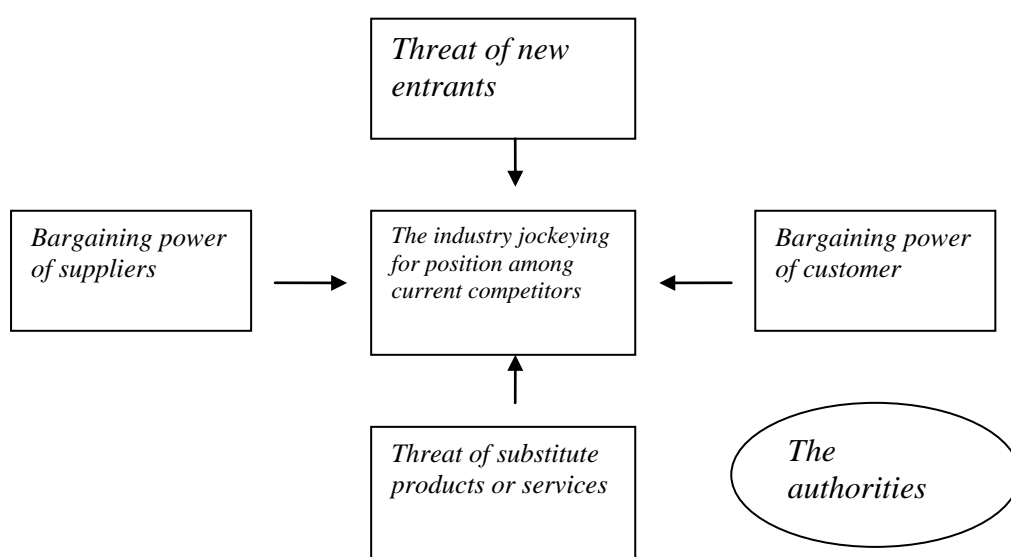


Figure 6: Forces Governing Competition in an Industry

Porter declares that regardless the collective strength, the corporate strategic goal is to find a position in the industry where his or her company can best defend itself against these forces or can influence them in its favour. The collective strength of the forces may be exists with all opponents or competitors, but to deal successfully with them, the strategist must discover more information and analyze the sources about each of them. For example what makes the firm vulnerable to entry? What factors determine the bargaining power of suppliers or customer?

The information and knowledge about these basic sources of competitive threats provide the groundwork for a strategic agenda of action. We will not go through all of these sources; it has been mentioned to have a basic explanation of competition in order to devise business model of an industry.

3.3.3 Competitive Strategy

Michael Porter defines competitive strategy as being different. Porter adds that “it means deliberately choosing a different set of activities to deliver a unique mix of value”

Here in this argument Porter doesn't mean product differentiation. He means to place and build the different activities in a unique way, which is quite different from other companies and which increase firm's value.

Porter has answered to the question of what is strategy in his article named On Competition in such away that “Strategy is the creation of a unique and valuable position, involving a different set of activities. If there were only one ideal position, there would be no need for strategy. Companies would face a simple imperative-win the race to discover and pre-empt it. The essence of strategic positioning is to choose activities that are different from rivals”

As it is obvious that activity system is the crucial factor having a competitive strategy, the way to design and setup activities are the most challenging. Activities must reinforce both each other and firm's core concept. Core concept is also part of activities means it is one of them that considers as core concept, for example in Pusnes case beside engineering procurement, customer service also considers as core activities. It is not possible to find a sequential, stepwise solution for positioning activities. If there was a single solution, there would not be competition, and no one would be better than other all firms would have the same business model. But in fact it is different; every firm makes its own activity system.

Porter describes that it is common to describe strategic positioning in terms of customers, for example choosing right product and services to customer in order to keep them satisfy. However the basic characteristics of strategy that gives it an individual identity is in the activities, choosing to perform activities differently or to perform different activities than components. Otherwise strategy is nothing more than a marketing slogan that will not tolerate competition in long term.

The other crucial factor for having competitive strategy is trade-offs. Porter claims that “Strategy is making trade-offs in competing. The essence of strategy is choosing not to do. Without trade offs, there would be no need for choice and thus no need for strategy. Any good idea could and would be quickly imitated. Again, performance would once again depends on operational effectiveness”

Business is an exchange of goods and services; simply we can say that it is a sort of communication, relationship with partners. It has been proved that in all relation compromise is the basic factor, without compromise no deal can be worked out. The same is applicable in strategy. In today's business world all good ideas become copy once it become introduce in the market, so without a unique strategy a firm can no more stand the cheap operational effective firms that operate in low cost land.

Pusnes has experienced the same threat in Korea. According to Grenlee the Koreans copied Pusnes and are still copying. It is Pusnes's unique well standing strategy that has saved Pusnes in market until now. Though Korea copy, Pusnes again compromise with them and Let them to do the manufacturing. Pusnes is still the best brand name in market.

3.3.4 Core competence

Porter answers to question about what is core competence. And what is key success factor? In such away that:

“The core competence is everything matters. Firm's strategy involves a whole system of activities, not a collection of parts. Its competitive advantage comes from the way its activities fit and reinforce one another”

In Pusnes engineering is not the only core competency. According to vice president of Pusnes Føssesstol the core competencies are procurement, spare parts or customer service and engineering. The combination of all these activities gives a full set of core concept in Pusnes. Porter explains further that in competitive companies it can be misleading to explain success by specifying individual strengths, core competencies, or critical resources. The list of strengths cuts across many functions, and one strength blends into others. It is smarter to think in terms of themes that present throughout many activities like low cost, a particular notion of customer service, or a particular conception of the value delivered. All these themes contain nests of tightly linked activities.

3.3.5 Strategic fit

A fit prevents the copiers; it protects the firm by creating a chain that is as strong as its strongest link. In companies with good strategies, activities make a good combination to promote one another in such way that creates real economic value. For example one activity becomes cheaper because of the way other activities have performed. Similarly one activity's

value to customers can be improved by company's other activities. It is the main reason that strategic fit creates competitive advantage and superior profitability. Fit is crucial because different activities often influence one another. The most valuable fit is strategy-specific because it improves a position's uniqueness and adds compromises/trade-offs.

As it seems that fit is an important factor for competitive advantages, we decide to study the concept closer in coming paragraphs.

3.3.5.1 Types of Strategic Fit

According to Michael Porter, There are three types of fit, they are as follows.

- The first-order fit is simple consistency between each activity and the overall strategy. For example supporting all activities with its low cost strategy. It can minimize portfolio turnover and does not need highly compensated money managers.

Consistency makes sure to increase the competitive advantage of activities, not to destroy or cancel themselves out. It helps the strategy to communicate to customers, employees, and shareholders, as well as improves implementation through achieving determination in the corporation.

- The second-order fit takes place when activities are reinforcing. For example co-operation between soap producing company and a luxury hotel. A guest encourages buying a sort of soap in drugstores after using it in a luxury hotel. Thus a hotel and soap company marketing activities reinforce one another, by reducing total marketing costs.
- The third-order fit goes beyond activity reinforcement to what Porter calls optimization of effort.

Porter says that coordination and information exchange across activities to eliminate redundancy and minimize wasted effort are the basic types of effort optimization. But it is possible to find higher levels too. For example product design choices can minimize the need for after-sale services or make it possible for customer to perform service activities themselves. Similarly coordination with suppliers or distributors channels can eliminate the need for some in-house activities, like end-user training. We can consider in engineering the close interaction between designer and engineers can give a cleaner and correct sketch of a

particular product. In all types of fit, the whole or totality matters more than any individual part. Competitive advantage grows out of the entire system of activities. Porter claims that the fit among activities substantially reduce cost and increases differentiation. Beyond that, the competitive value of individual activities or the associated skills, competencies or resources can not be decoupled from the strategy.

3.3.6 Success Sustainability

For the sustainability of competitive advantages, strategic fit among activities is basic. It makes difficult for the rivals to etch an array of interlocked activities comparing to copy a particular sales-force approach, match a process technology, or replicate a set of product feature. Porter insists that position build on systems of activities are far more sustainable than those build on individual activities.

In order to clarify and support the above mentioned argument porter presents an example: The probability that competitors can match any activity is often less than one. The probabilities then quickly compound to make matching the entire system highly unlikely is $(0,9^{*}0,9=0,8; 0,9^{*}0,9^{*}0,9=0,66$, and so on). Existing companies that try to reposition will be forced to reconfigure many activities. And new entrants, though do not face the trade-offs facing established competitors, still face huge problems to copy the competitors.

Porter adds that the more a company's positioning rests on activity system with second (reinforcing) and third-order fit (effort optimizations), the more sustainable its advantage will be. A competitor seeking to match an activity system gains little by copying only some activities and not matching the whole. Performance doesn't improve after copying a part of another firm's activity system, it can decline in fact.

Summary

Conclusively we can say fit means that poor performance in one activity will degrade the performance in others, so that weaknesses become exposed and as a result get more attention. As well as improvements in one activity will pay dividends in others. Firms with strong fit among their activities rarely become copy targets. Their superiority in strategy and in techniques only increases their advantages and raises the complexity of copying. When activities make a good combination with each other, competitors will get little advantage from copying unless they are able to match the whole system which is almost

Utilizing Indian Engineers in Pusnes

impossible. In such situation winner take all competition. Means the company that builds the best activity system wins, while rivals with similar strategy fall behind. So working out a new strategic position is better than being the second or third copier of an occupied position.

Porter want to explain that strategic position should have a limit of many years, not of a single planning cycle. Continuity helps to develop improvements in individual activities and the fit across activities, allowing a firm to build unique capabilities and skills tailored to its strategy. It also reinforces firm's identity. Fit among a company's activities creates pressures and incentives to improve operational effectiveness, which make coping even harder.

Conclusively a strategy can be defined as "strategy is creating fit among a company's activities. The success of strategy depends on doing many things well not just a few and integrating among them. If there is no fit among activities, there is no distinctive strategy and little sustainability. Management reverts to the simpler task of overseeing independent functions, and operational effectiveness determines a firm's relative performance" (On competition, Michael E. Porter)

3.4 Organizing workforce in the Firm

These perspectives make the fundamental base for Lepak and Snell's (1999) model, which explains how the firm can organize its workforce. The model is divided in four perspectives along tow axis showed in bellow Figure. One of the axes is firm's specific competence, while the other one take value of the human resources

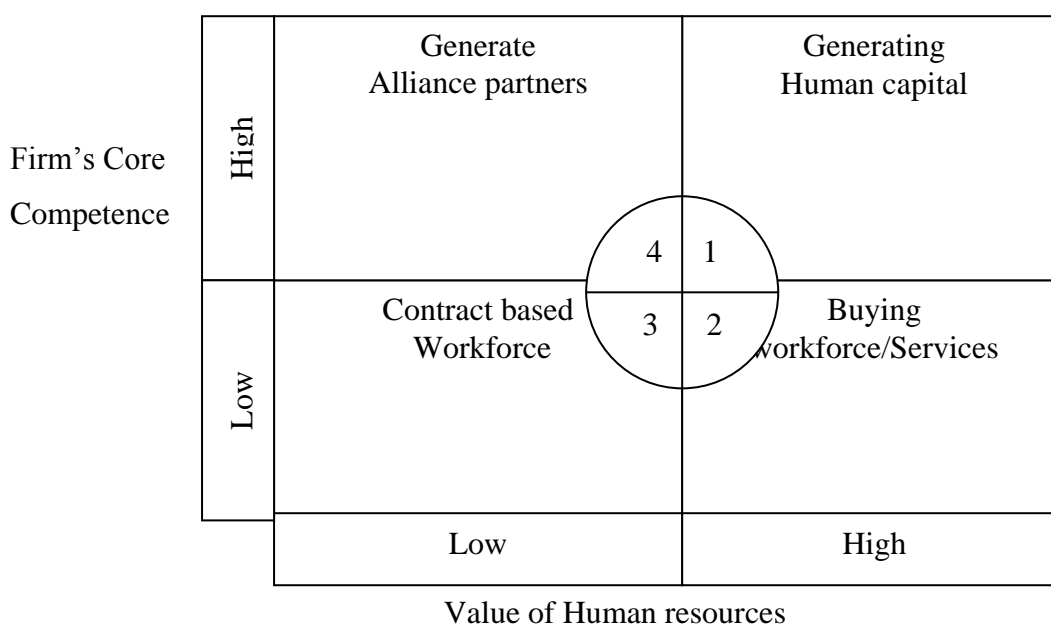


Figure 9: Different forms for organizing workforce in the firm, summarized in relation to necessity of firm's specific competence and Human resource value.

3.4.1 Value of Human Resources

The value of human resources is based on resource based perspective in a firm. It means that they focus on those resources and competence that is crucial for firm's competitiveness. In order to achieve this, the firm can develop strategies and attempts that can improve firms efficiency, market opportunities or work out decisions that can minimize potential threats. Value of the 'Human capital can be used as core competence in the firm and with that can a firm carry out a huge competitive advantage. The knowledge of employees can classifies as core and periphery activities, where core activities are important for firm's competitiveness and are usually linked with continuous progress. For example the human capital increases, when a firm implements new and advanced production technology, where the employees must go through comprehensive training and competence development to make use of the new technology. To outsource activities that require this type competence can put the firm in danger in such away that firm lose its competitiveness that they have developed through long time, and the core competence in the firm can go away. Those employees, who have high competence, can contribute to raise the value of firm by achieving low cost with finding an efficient way to produce, or raise profit from customer side by producing high quality products. The value has direct influence on firm's earnings, and affects the employee's decision-making in daily work.

3.4.1 Firms Specific Competence

Firms specific competence clarify that in which grad the employees have worked out unique and firms specific competence, through experience, taking course, further education etc. Such competence is quite valuable for the firm, and it aim at building strong and good relations with employees who have the mentioned competence. Some of the unique competence can develop through several conditions. For example when competence builds up in connection with difficult tasks, where it aims with appropriate more knowledge or expertise, It is specially in used with team based tasks and by developing of unique working procedures. Because this competence often involves strange learning process, a firm probably can not find such competence easily in the open labor market. Development of unique and firm's specific human capital is usually time-consuming, and contain often tacit knowledge which is brought forward and acquired through long time.

Utilizing Indian Engineers in Pusnes

As for as general competence and knowledge is concerned, the open labor market make it an efficient mechanism which can considers as a common market with supply and demand of workforce. The general competence can be the knowledge that person self has acquired through school attendance, or worked up through experience. A firm can bring workforce to this part of activity from common market. For example Pusnes can hire qualitative expertise within economic. Sometimes it can be possible to find competence in common market that has been worked with particular activity firm is looking for, and who can contributes to new impulse. It is through such process firm has opportunity to separate and stimulate these persons who are suitable to progress in the firm, and who in future can make firms core competency.

3.4.2 Connecting forms and Organizing of workforce

According to Snell and Lepak, there are four different possibilities for a firm to associate with workforce. (Figure 4-2) Each perspective describes which type of connecting form that has been acquired in relation to it are important core activities or easy tasks that should be done. It also contains tasks which are less important and can be done by contract based workforce.

As well as the perspectives describes in which grad the employees and firm want to develop strong or weak relations, based on what kind of tasks that should be done. The last area that covers is configuration of the Human resources, which describes what kind of incentives the firm has to develop the human resources.

Firm's Core Competence	High	Connecting form: Alliance <ul style="list-style-type: none"> • Partners • Co-operation 	Connecting form: internal development <ul style="list-style-type: none"> • Organization focused relations • obligations
	Low	Connecting form: external contract <ul style="list-style-type: none"> • Transactions • compliance 	Connecting form: Buying workforce <ul style="list-style-type: none"> • Symbolic relation • Market based
		Low	High

Value of Human resources

Figure 10: Organizing and connecting form of employees in relation to value of Human resources and grad of firm's specific competence (Lepak and Snell 1999)

3.4.2.1 Quadrant 1: Development of Human Capital

In the quadrant 1 shown in figure above, we can find the human capital which is quite valuable and unique. It is clear that firm wants to hire persons that have internally firm's specific and unique competence. Firm's specific competence is rarely available in the open labor market. With few alternative sources and unique knowledge the firm must self create such competence. These competences are quite valuable and have a huge value creating potential. Competence is strategic important for the firm, that's why the cost regarding development of such competence is also crucial for the firm.

3.4.2.1.1 Connecting form: Internal development

A firm has both financially and strategic incentives to develop such an important form of human capital intently. Firm's specific competence is little transferable to other organizations, it means that the human capital doesn't has the same value creating potential in another company. As well as the internal development of human capital helps the firm to realize fringe benefits from the employees. The fringe benefits are Benefits that are provided for an employee in addition to wages or salary. These employees are valuable and unique because they know the firms core competence, that, s why this group contribute strongly to firms competitive advantage.

3.4.2.1.2 Employee relation: Organizational focused relations

According to Lepak and Snell organizational focused relation is relationship between employer and employees, and these relationships are not time limited. It can experience mutual encouraging for both sides investing in development of firm's critical core competence. As a result the personals with this competence often enter into long-term relations with the firm. By investing in development of staff members, and opening for participation in decisions and resolutions, can organization bring up a higher involvement from the employees, which again can lead to extra effort and contributions? When the employees are core components in the competition situation the firm can establish organizational focused relations, for example co-owners in the firm. The intention is to

stimulate and raise involvement and motivation, as well as increase employee's incentives to involve in firms specific training.

3.4.2.1.3 Configuration of Human Resources: obligation/ commitment

In order to support or develop the employee relation in such away that they become organizational focused, the firm will be dependent to an obligation working conditions. This will increase the involvement of employees and support to maximize firm's average rate of return on invested capital in the human resources. The firm will also invest considerably to progress unique competence through extensive training programs, where the intention is to build up specific knowledge, which is valuable for firm's competitors. The firms can also make bonus systems that focus on employees training, which stimulate continuously development of firm's specific competence.

3.4.3 Extern recruiting

The human capital in this quadrant is also valuable, but this is available in open labor market. Since these competences are valuable the organizations have incentives to hire persons with such competence internally. The competence is not unique or specific for the firm, that's why the management hesitates to invest much in intern training and competence development of these employees, the reason is the risk of leaving the firm and began to work in another firm and then transfer the resources that has been used to train them to another firm.

3.4.3.1 Connecting form: Hiring/Recruiting

The organizations can avoid the problem that has been just mentioned above by recruiting qualified workforce from market that will not require any future intern training. This makes possible for the firm to gain the goods and valuable competence that has been developed in other organizations or in education system and to keep them intern. By doing so the organization that recruits external will pay only values that reflects in the market price and immediately can carry out the goods inform of productivity. By letting the others take the competence development cost, the firm can invest the release capital in other profitable projects, or in the productivity of those persons firm has just hired.

3.4.3.2 Employee relation: symbiotic relation

Qualified workforce is important contributor to do comparatively easy and standardized tasks, but still important working tasks. The persons who do these tasks are not the unique for the

Utilizing Indian Engineers in Pusnes

firm. In order to organize and keep these workers the firm must aim to establish symbiotic relations. A symbiotic working relation mainly depends on performance of partners, both employer and employees has possibility to continue working relationship as long as it is beneficial for both sides.

This kind of employee is less committed to the firm; they have more focus their personal carrier. People who focus on carrier do not seek for lifetime working relations in one particular organization. Since those who usually build up certain knowledge can easily sell their competence to those companies who are willing to pay more. In return of hiring the firm expects a trustworthy loyalty from these employees; so long the working relation exists. Since both partners have alternatives to achieve their goals, either it is to do a work or it is a step forward to carrier. The symbiotic co-operation relations finishes when the employees want to change the job, or the firm comes to a situation where they have to reduce the workforce and with that dismiss the employees.

3.4.3.3 Configuration of the Human resources: Based on market

The firm would not come to use resources to train the workers in quadrant 2. These employees holder competence which is not unique for the firm, that's why have no influence on the economic return in case the worker quit. It assumes that payment or salary reflects the market value for such competence. The employees will contributes to build up firm's total competence since an employee relation will always bring along transmission of knowledge for the firm. The management will focus to hire persons who already holder the necessary competence. This kind of market focus makes it possible to hire personals that can do the job immediately, comparing to a committed job where firm look for personals who can do a good job after comprehensive training.

3.4.4 Quadrant 3: Contract based workforce

In this quadrant the general human capital of limited strategic value for the firm is explained. It is a general competence which can be easily found in the open labor market, and that's why considered as an item. Since there is many alternative sources for such competence for example the firm can reduce hiring cost by enter into external contracts, which is a short time hiring conditions or is within a fixed working task.

3.4.4.1 Connecting form: External contract

Utilizing Indian Engineers in Pusnes

This kind of competence is available in a market which controls of market mechanism. There is always qualified bidder in the labor market. The risk connected with contract based agreements will reduce, and the organization has a chance to use contract based workforce. The employees who work contract based should absolutely follow firm's lay down routines and procedures. The short time employees, hired-out worker and another temporary/ accrual accounting workforce come into this category. It can also contain the cases like the firm outsourcers administrative and working tasks in lower level. The working tasks that become outsourced have little influence on firm's competitiveness. Using extern workforce can give the firm possibility to cut down its workforce cost. The firm can achieve flexibility regarding requirement and use of workforce. The firm actually can raise its competitiveness by using external workforce because by this firm can use the liberate resources into strategic important activities which contributes to raise/support firm's core competency.

3.4.4.2 Employee relations

The employees in this group have a time-limited contract where the work has a fixed, terminate contents. The contract can be finished after the completions of task or can be extended by the firms for a new period of time. In such situation the employees gain to little to be known with the firm or colleges that's why they feel no responsibility over this the reason is that they don't know how long the temporary contract will hold. The other point here is that the contract is a work focused contract they firm see the result of the given task that's why the worker tries to finish the job relation doesn't come in the first place.

3.4.4.3 Configuration of human resources: Compliance

The organizations that use the contact based workforce must make sure that the contract is consistent with the given task, and is are according to important organizational instructions. In order to make sure that contract will compliance the firm must develop precise instructions and regulations that ensure firm's interest. The organizations that use external workforce use different resources on development activities within short time workers. There will be given restricted trainings which is consistent with the given task nothing more.

3.4.5 Quadrant 4: Developing alliance partners

This quadrant contains competence which is unique and important but doesn't create any value for the firm that contributes to increase price to customer. If an employee has a

competence with a limited value creating potential within organization, it will give small economic profit by permanent hiring. For example a lawyer has a specific competence that requires many years education to get it. This education also contains firm's specific or sector specific competence within higher levels, for example rules and regulations for international business. There are many organizations that do not have enough need or capital to hire such expertise in a fulltime. The reason can also be that the firm doesn't see enough value creating potential within this expertise. There is only one possible way for access to such competence that is to enter into an alliance contract with another firm.

3.4.5.1 Connecting form: Alliance

An alliance is a external co-operation where both partners contributes with their knowledge or products to realize a mutual profit. There can also be developed alliance agreements which are to bring profit by hiring expertise like good lawyers that can be used in all directions in organizations. The created profit is higher for the firm in case of alliance then acting all alone. An alliance is expedient if competence that should be used hasn't enough value creating potential for internal hiring alone, and if a contract based working conditions generates risk for opportunism. When the organizations co-operate to exploit each others resources, will a synergy profit become realized for both companies, since the one of them could not achieve that profit. An example can be a co-operation within research and development where several firms utilize their expertise to create new products. Such efforts do not give a spontaneous result, but this will give a positive return in long term. Both parts can use the other specialized knowledge to their own use by establishing alliance.

3.4.5.2 Employee relation: Partnership

Alliance agreements can develop paradoxical hiring relations; because agreements require information partition, reciprocal reliance/trust and co-operation. When many partners enter into one co-operative activity, there is only one possible risk which that firm's specific knowledge can be transferred to another part. Realizing this point can create distrust and transition to short time contracts, which is absolutely opposite of a solid alliance agreement. In order to minimize this risk the firms should develop real fellowship that focus on mutual investing in the relation, or build trust between the involved partners in such away that firm has achieved admission to each others resources and competence.

3.4.5.3 Configuration of Human resources: Co-operation

Though the alliances contains structural agreements on which employee works together, should also human resource system contain guidelines that appreciate and ensure co-operation and information partition. The firm does not seek to invest in improvement of the alliance connection, comparing to use money on development of partner's competence. In this connection if it is not anything with training of the involved partner, they will focus on process improvement and team development. Communications mechanism, exchange programs, job rotation, mentor relations etc can establish to improve information partition and exchange of knowledge between co-operated firms which is essential for decision-making and productivity.

3.5 Learning in Organization

In order to know how learning process works in different organizations? And what should be taken in consideration to create a learning organization? We decided to go through Nonaka's (1995) Learning spiral theory.

3.5.1 Learning spiral

Nonaka (1995) claims that organizational learning is something more than organization able to collect and handle much information, according to Nonaka it is a big challenge to promote learning in an organization, the way man manage to bring out the tacit knowledge and insight that all individuals in an organization have acquired through their own experiences. All these information must be accessible for all in organization, in such away that it can be tested out and become a practice useful for whole organization. The most central point of view in the theory is the meaning of tacit knowledge. This is mainly the knowledge that individual employee in organization has worked up through experiences, and which is usually difficult to describe it in words. This can be incident where man "just do things" because it is a method that has been functioned well before. The opposite of tacit knowledge is explicit knowledge, which is down write, systemized, structures routines and procedures. Von Krogh mfl (2000) have said that knowledge progress among employees in a firm is dependent on knowledge generating environment. It means that it is important to develop common meeting places which make it possible to develop and create good relations between employees. The knowledge generating environment can be physical, virtual, mental, or a combination of them.

3.5.2 Interaction between tacit and explicit knowledge

Nonaka’s (1995) dynamic model about knowledge development rely on human knowledge generates through social interaction; where tacit and explicit know ledges exchange. This exchange is a social process between individuals, and knowledge exchange doesn’t happened just within the only one individual, But all who are present in that environment. For example an engineer can spread his knowledge with help of sketching and specifications, and in this way change his knowledge in to explicit.

Other types of knowledge are tied up to our senses, skills in body control, individual perception, physical experience, rules of thumb and intuition. Such knowledge is usually quite difficult to describe for others. An individual is never isolated from social influence, for example when ever several people works together a knowledge exchange happens with out they are aware of it self. (Nonaka 1995, Von Krogh m fl. 2000)

3.5.3 Methods for knowledge exchange

The theory and presumption that new knowledge creates through interaction between existing tacit and explicit knowledge, make it possible to set up four different levels to transform knowledge, Figure 10

		To	
		Tacit knowledge	Explicit knowledge
From	Tacit knowledge	Socialization	Externalization
	Explicit knowledge	Internalization	Combination

Figure 10: Four levels of knowledge conversion where knowledge can convey from tacit to explicit, to a new tacit and explicit knowledge through different process. (Nonaka 1995)

3.5.3.1 Socialization: From Tacit to Tacit

Socialization is a process which contains to share experiences, and with in that develop tacit knowledge, as a common mental models and technical competence.

Utilizing Indian Engineers in Pusnes

Knowledge can spread among human beings without they necessarily talk with each other or consciously try to transfer it. Two colleges that work together, will observe each other, and learn from what the other does. For example a new engineer in a company would learn from seeing the experience engineers working, behaving or performing in the company. This kind of transfer is quite restricted because this assumes that employees are physically close to each other. This is also a restriction that knowledge is still tacit, something that makes complicated a systematic testing of knowledge is that whether knowledge is reasonable or not, the only thing that can be observed is whether the knowledge contributes to a task solved in a satisfactory way. (Jakobsen2002, Nonaka1995)

Von Krogh mlf (2000) presents some methods to communicate and spread tacit knowledge in his theory about learning in organization. They are as following

- Direct observation
- Direct observation and narratives
- Imitation or copy
- Experimenting and comparison or collation
- Joint exercises

Commonly the tacit knowledge can divide through a combination of these mechanisms. (Von Krogh mlf.2000)

All the employees and embodies in the organization take parts in socialization process. It means that all connection forms about organizing of work force and the flexible firm; core and periphery competence are included in this process. The exception is only if tasks solve by external actors that do a fixed and restricted job out of the firm which is incident for quadrant 3 in Lepak and Snell's model (Figure 9; capital 3.4.2), and extern groups in Atkinson's model (Figure 9: capital 3.4.2)

3.5.3.2 Externalization: From tacit to explicit

Externalization is processes that transfer tacit knowledge to explicit working procedures or concepts. This happens in such way that tacit knowledge of individual employees become expressed either written or oral, and become available to others. It can happen by for example a good and capable employee in overtime has found a good way to solve the task, able to write down the procedure, and pass it to others in organization. It is a huge knowledge development process where a tacit knowledge transfers into explicit, that should be intercepted by firm, and incorporated in to procedures, manuals or models. (Jakobsen2002, Nonaka 1995)

In externalization process it is primary employees in quadrant 1 (Figure 9; capital 3.4.2) development of human beings resources and core competence, which is transferring tacit knowledge into explicit. These are the employees who have the knowledge about firms' core competence and who have worked with developing procedures and manuals for the daily work. For the time being it is has quite big probability those personals in the remaining groups (periphery groups, quadrant 1 and 2) also take part in this process. The reason for this is from the employees of these groups often bring experiences and knowledge with themselves from other companies, that can be intercepts and changes in to explicit knowledge.

3.5.3.3 Combination: From explicit to explicit

Combination is a process that systemizes different knowledge contribution to a knowledge system. Knowledge diffuses when someone joins together the open information sources, for example different analysis of market situation that again give a new picture of situation in entirety. This form of learning is not enough strong especially when it is turning on systemizing knowledge which are already available in organization. Knowledge that creates and developed through formal education uses this kind of labor market training form. (jakobsen2002, Nonaka1995)

In the combination process, there are persons in the core group, extern contracts as well as quadrant 1 (Figure 9; capital 3.4.2), and 3 (Figure 9; capital 3.4.2) that perform this form of knowledge transformation. We can illustrate it with an example that a firm uses its market data together with extern data from an outsider company to bring new knowledge about market situation for a new product.

3.5.3.4 Internalization: From explicit to tacit

Internalization is a process where explicit knowledge transfers into tacit knowledge. An example for this can be that the employees get a new assignment that can be solves by following a specific procedures. After sometime that these employees have done the same assignment several times, and worked in the routines, will that explicit knowledge transfers into tacit knowledge, where the tacit knowledge includes more then explicit one. The explicit knowledge uses by several in the organization, which adjusts this knowledge to their own tacit knowledge. Another example can be a teacher who trays a new way of teaching. In such experiences teachers own tacit knowledge also appears, in such away that makes a kind of

synthesis in meeting between explicit knowledge and teacher's tacit knowledge.

(Jakobsen2002, Nonaka 1995)

In internalization is mainly the quadrant 2 (Figure 9; capital 3.4.2) and 3 (Figure 9; capital 3.4.2), as well as first and second periphery groups, which are the knowledge transformations. Many times it also involves this process persons in core competence group and quadrant 1 because it is them who have changed the knowledge into explicit.

3.5.4 Knowledge Spiral

The main purpose for socialization is to share and transfer tacit knowledge. This kind of knowledge development is quite limited alone. It can't influence alone the knowledge development in organization in totality, if the joint knowledge is not becoming explicit. Likewise can either different form for explicit knowledge used alone can increase organizations knowledge base. It is first when tacit and explicit knowledge interacts new knowledge arises. (Nonaka 1995)

Knowledge development in an organization is a continuous and dynamic interact between tacit and explicit knowledge. This interaction is formed by changing between different levels of knowledge conversion, which is again governed by different trigger devices.

The socializing level began with building a common understanding among employees that give foundation for interaction. This makes it easier for members to share experiences, and build common mental models. Then the externalizing level becomes unsolved of a meaningful conversation and collective reflections. In order to help team members describing their tacit knowledge, that is quite difficult to communicate sometimes, the firm ought to use suitable mechanisms and tools. The combination level can be started by joining the new know ledges with the existing know ledges from another part of organization, and using these know ledges in new products, services and control system. Internalization can be started by the famous phrase "Learning by doing".

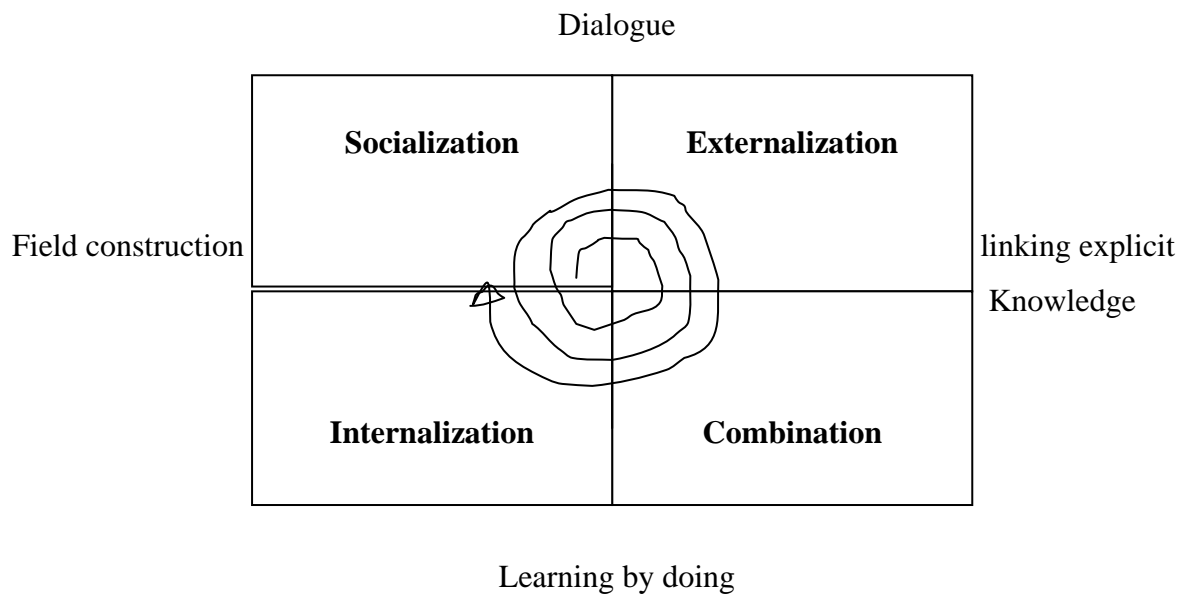


Figure 11: The knowledge spiral Nonaka (1995) shows a continuous learning process which began with socialization and then go beyond externalization, combination and internalization.

The subjects in each of these developed four knowledge levels are naturally different from each other. Socialization results in some kind of knowledge called sympathized knowledge, like common mental models and general technical know ledges are exchanged between each other. Externalization gives conceptual knowledge, which can be changed in to manuals, formal procedures, hypothesis and visions. It can be developed different knowledge models on the background of processes where the employees are involved, like brainstorming or “Kick-Off” arrangements. Combination generates “systematized knowledge” which can be new pilot models or new technology which is developed by using components or personals from the whole organization. Internalization generates operational know ledges which includes project management, production processes, company policies or new products that has been used.

		To	
		Tacit Knowledge	Explicit Knowledge
From :	Tacit Knowledge	Socialization <i>sympathized knowledge</i>	Externalization <i>Conceptual knowledge</i>
	Explicit Knowledge	Internalization <i>Operational knowledge</i>	Combination <i>Systematized knowledge</i>

Figure 12: Presentation of knowledge contains that has been generated in the four learning levels (Nonaka 1995)

The different knowledge forms that are described interact with each other in the knowledge development spiral which is shown in previous figure. We can illustrate it with a simple example like the sympathized knowledge about customers need come forward through dialogue and conversation with principal customer it comes in the category of socialization. Then that sympathized knowledge, converts in to requirement specification, sketching or new technical solutions on an already existing product which is called externalization. Systematized knowledge uses on new developed components combine with already existing components that together give a pilot model of the new product. This can also turn on a stimuli zed production process for the new product. This phase can be known as Combination. The operational knowledge creates when the new product is under production, which is called internalization. The tacit knowledge of the experienced, innovative and skilled workers becomes used to get production process work in a best possible way. (Nonaka 1995)

On the other hand the experienced operational knowledge will trigger a new cycle of knowledge development, which again take us through the same cycle.

3.6 Managerial Dilemma

Gary J. Miller in his book of Managerial Dilemmas has explained that "If every individual had complete and perfect information about the effects of alternative outcomes on his or her own well-being, the problem facing society would simply be that of aggregating the

Utilizing Indian Engineers in Pusnes

differences among individuals. But social decisions also serve the purpose of combining the judgment of individuals, each of whom may have only incomplete and faulty information about the effects of an alternative on his or her own well-being”

In this statement Miller try to say that some decisions can be made on the basis of dim information about the outcomes. Some time the management has to speculate the outcome and consequences of their decisions or take a chance. In Pusnes case the management has to make a decision of putting away or not the engineering part from the head office on the basis of relatively weak data.

According to Gary J. Miller, it is a fact that no one can know enough to program the behaviour of all the other members of the firm as if they were robots. As a result the expertise of specialists becomes a political resource within the firm.

It clears that management can never fully control the behaviour of employees unless can only create a trustful situation between the employee and the firm. In this way firm would be able to keep the values in the firm. The expertise of employees considers as a valuable investment within the firm. That’s why we have gone through Williamsons transactions cost economic in order to explain the behaviour of individuals and fined out governance structure to minimize the conflict among partners. As well as tried to figure out how the Firm would be able to create a close relation with their employees. Using Indian engineers is a kind of economic transaction, where both partners (Employees and the Firm) try to achieve and promote their own benefits.

4. METHOD FOR EMPIRIC ANALYSIS

This is a case study of a problem, the problem is insight in to a firm named Aker Kværner Pusnes, and their problem. In this manner I use a case to get insight or knowledge in to the main problem which is scarcity of expertise in local market and using global workforce in order to reduce the cost at the same time increase firm's capacity and responsiveness. This limits generalization of the discovery. But the validity of the data and facts ensures by different ways of checking the data. These methods will be defined and studied comprehensively in coming parts of method chapter.

The process of outsourcing is a very extensive process which can takes months if someone starts to research it from scratch. It can lead to much in vain time by throwing oneself upon task collecting masses of detailed information with out the task is terminated with a general framework to put information inn. It is important to set up a strategy for how researches should be worked out, before someone began to assess which sources that will be used. In the beginning, we had some open questions to start the project like: How can man proceed to analyze the case and figure out the possible alternatives for the problem? What kind of information we are looking for and how this information can be systemized? Commonly there exist two kinds of information one is information that already exists called primary data and other is information that should be assemble by interviews and observations called secondary data.

A research rapport is supposed to produce new knowledge in the empiric with help of theoretical framework. A theoretical foundation assumes that the research in the empiric be based on existing theories and models. The task contains some guidance on what anticipates of results and line of action in the empiric. That's why we have chosen model analysis out of those areas Pusnes wants to be illustrated. The theoretical part of thesis contains five major elements: Porters activity sorting which recommend to sort the activities in to two parts core and periphery, Lepak and Snell's organizing workforce that focus on where to use external workforce and where not to, Nonaka's learning tells us how to change firms tacit knowledge into explicit in order to train the new workers, Williamson's transactions cost shows which one of these strategic choices increase firms transaction cost and managerial dilemma is regarding implementation and choice of business concept.

4.1 Methods

Generally there are two kinds of method to collect data. One is qualitative method while other is quantitative method. The difference between qualitative and quantitative method is that in qualitative data man works with “soft” data which exists in the form of shorter or longer texts that should be worked up and interpreted, and that are not suited for counting. In quantitative data man works with “hard” data which is suited for counting. The most utilized technique to collect quantitative data is questionnaires where questions and answer alternatives are already formulated. The challenge with quantitative data collection is to find out as much as possible precise single question that measure those theoretical phenomena researcher wants to illustrate. While there are two basic ways to collect qualitative data, one is by observation where data build on researchers sense impression in definite situations, and the other one carry out by interview where data builds on what the informer tells. This time the questions are open in such away that the one who become interviewed can self formulize his answers. The data from qualitative method let itself to be processed, interpretation and less counting. This method has at the same time a bigger flexibility, that researcher can let more information be revealed and by this can easily discover causal relations. (Johannessen & Tufte, 2002)

4.2 Method use

The procedure for data collection of informations to this thesis har been done in such away that first of all we get some outlines on what should be considered when a company wants to use external expertize, what are the advantages and disadvantage of doing so and which theories are relevant for using external workforce in the company?. These informations has been collected mainly by finding articles, books and written sources, after that in order to frame a normative but not binding interview guide that contains problem to be addressed, market situation, local and global workforce availability and other important data to go through the strategic analysis. we had some meetings and group conversations with principle firm Pusnes and my supervisor Hans Christian.

By taking in consideration the problem and being aware of that there not many firms in Norway who use Indian engineers accept Aker Kværner; we chose qualitative method to collect facts and data for the empery section of the project. Qualitative method requires more resources pr. Interview object and as a result limits the number of interview objects. It is quite a big job to find data with good qualities and which are useful for further analyze of the case.

Utilizing Indian Engineers in Pusnes

It was crucial to know the current market situation, requirements, and Pusnes position in the market in order to do a good description, and to understand the relations. The interview objects have been chosen with a view to bring out information from persons with different angle of incidence to the case. That's why we interview the responsible people in the corporation Aker Kværner that already have tried this solution of using Indian engineers. As well as to interview the principle firm in order to clarify the case and to describe firms different activities, to find out where Pusnes is most vulnerable and the Indian engineers Manjunat and Dalal Vedik. The whole outline of interviews we had with whom, when, and where is listed in bellow table:

Date	Interview Objects	Venue
2 nd January 2007	Kristen Grenlee, Senior Project Manager Pusnes	Grossevein, HIA, GRIMSTAD
15 th April 2007	Bjørn Fossetøl, Wise President of Pusnes	Pusnes Head Office, Tromøy, Arendal
25 th April 2007	Dalal Vedik and Manjunat, Indian Engineers	Pusnes Head Office, Tromøy, Arendal
23 rd March 2007	Denis Franken, Manager Global Engineering Resources, Two Indian Engineers: Vinit Ranade and Kanitkar Shrikant	Aker Kværner Head Office, Lysaker Oslo

4.3 Choice of qualitative interview model

There are three types of qualitative interviews presented by Cassell & Symon (1994):

1. *Qualitative research interview* is classical qualitative interview that little structuralized with help of a detailed interview guide in advance beyond superior thematic that wants to be discussed in the interview. Interviewer governs direction from progress/initiative and contents of interview on the spot, and interviewer will try to discuss the relevant topics. Interviews impress most by interview object's response and manner. This method uses generally when man research unknown ground and someone is unsure on what kind of answer will the interview object serve , in such away that man totally is unable to foresee interviews progress and contents.

2. *Structured interview*: is a personally qualitative interview where interview guide is detailed and central. Instead of dealing with topic, the questions are mostly formulized in advance and the interview will follow a fixed progress and structure. The interviews usually do not distinguish by interview objects response and manner, since it doesn't invite to this through the fixed structure. This method uses generally when someone wants detailed knowledge about an already mapped ground, in such away that man can usually foresee the answers.
3. *Structured Open Respond* is a kind of hybrid between previous types. In this type the questions can be structured and determined in a interview guide in advance, but at the same time the interview object invites to answer open and to draw self the relevant elements with out those need to be pointed out explicit in the questions. Ideally this will lead to that the interview principally follow an advanced sated structure, at the same time that the answers from interview object do not become influenced of unintentionally submission in the question's formulation. This method uses generally when someone has moderate knowledge to the theme and when man can foresee to a certain grad the directions of the answers.

Our interview strategy has mainly been Structured Open Response, since we have cached up knowledge about line of business in advance, and sated up an instructive interview guide on the background of collected information about business line. Similarly we have tried to chart themes that do not let it to be generalized and foresee. By this method we can work out structured guidance in the some parts of the interview, at the same time that we are free to use a more inductive and searchingly technique on another parts of interview. A major point is that the interview object will have the opportunity to come with relevant considerations besides the questions, and this ensures fairly through this method choice.

4.4 Advantages and disadvantages of qualitative method

There always is an uncertainty connected with exploring researches and qualitative methods as an informal interview. It has connections with among other factors researchers role in interview situation. The role is vital for the qualitative material that acquires. Further the researchers treatment and categorization of the data material will be vital for analyze and the interpretations that carry out. These conditions contribute to that validity of data can be re-examines of others latter, and that's why can be marked down in doubt. How much of the

Utilizing Indian Engineers in Pusnes

results can be attributable to the interviewer, and how money is build on real information from the informer's side? In order to handle this question, it is necessary to give an account for and emphasize our own choice and interpretation's basis, at the same time when man aspire to be loyal as much as possible towards informers' statements and meanings intentions. (Holme & Solvang 1991)

In qualitative researches is besides important to emphasize that researcher usually act in accordance with only a few number of persons among a large group of people. That's why it is difficult to convey ones analyze to be regarded as others individuals in the same situation then the informer's who participates in the interview. The results that researchers come to should be formulizes more as a claim about possible conditions or relations, then as descriptions of actual conditions/circumstances for others. (Holme & Solvang 1991)

An advantage with exploring approximation is that researcher can change the questions, follow up with reasoning and argumentation, to go in the depth and perhaps change or adjust focus, angle of incidence and questions on the way during interview process in such away that it can be gained a rich and varied data materials. This gives researchers bigger chance to examine larger and complicated entireties. By concentrating on few researching units, the researcher get the chance to follow, expand, extend, deepen relations with current problem, and in this way they can create themselves a more general and rich picture of his topic area. Qualitative data and methods have their strengths on to bring out the total situation. Such general descriptions open for increase understanding of social processes and connections. (Holme & Solvang 1991)

5. DISCUSSIONS AND ANALYSIS

5.1 Collected Facts and Data

5.1.1 Interview with Vice president Pusnes

The core competencies of Pusnes is Engineering as well as procurement. Pusnes makes and design machines at the same time they buy materials, equipments, pump stations etc for their finished products. Pusnes have a quite high income from spare part and after sale services which Pusnes calls it for customer service according Fossestøl. He defined the core competencies as technology within Pusnes's product segment.

5.1.1.1 Core competency Pusnes

The technology is the most fundamental competence of the firm. Fossestøl amplify it that if there is no technology which is of course designing and engineering, Pusnes would not survive longer then few years. These few years would be because of spare parts and procurement or customer service. Technology is absolutely a valuable and the basic target area for Pusnes. Fossestøl includes that engineering is at the heart of their business and the ongoing development of their engineering skill base has a high priority, to ensure they maintain a global top class engineering team. They are quite vulnerable regarding technology.

Fossestøl mentioned that nowadays the market is on the top and the firm has a bunch of orders they have to say no for, the reason is of course the scarcity of expertise and enough capacity.

Fossestøl added that Pusnes has already tried to use external expertise her in Norway but the results was not satisfactory that is why they are intended to rent engineers extern. He is looking forward to possibility of gaining competitive advantage through coordinating activities across borders in global network. Pusnes are using Swedish and Danish engineers now and have just begun with a kind of pilot project of bringing two Indian engineers in Norway. The purpose of bringing these engineers is that they gain training and travel back to their homeland and begin with finding and training several engineers. Pusnes will come to use these expertises in order to full the top requirement pitches in the market.

Utilizing Indian Engineers in Pusnes

The intention is keeping core competencies constantly in the house. Activities in this area constitute the most significant proportion of firms business. Pusnes is not going to outsource the whole core activities. They would outsource only the standardised activities. Pusnes is not afraid of losing anything, as long they manage to keep core activities in house. Regarding all external expertise, Pusnes will not come to hire them they will just rent the expertise for the period of that the market requirement and their capacity allow them to do so. They rent the expertise in order to keep the firm producing at optimum capacity.

We discussed about the conditions regarding residence and work permit for external employee. Fossetøl explained that before it was quite strict conditions but nowadays it has been quite easier comparing some years before. Before the expertise must to come on a tourist visa and had to travel back after 3 months residence but now it is easier to bring people in the country to work.

Regarding flexibility of core activities like Engineering Fossetøl added that they come to use extern expertise especially in harsh and demanding conditions. Within the core activity framework the operations can be further subdivided into distinct types. For example Engineering can be divided in to branches Mechanic and System where System can be further divided in to Electro and hydraulic. Pusnes is going to outsource some parts of engineering.

Fossetøl added that the designing of their products for example a Winch is quite complicated. It is not practical that one single engineer manage to design the whole product alone. He illustrate that with an example, in Pusnes head quarter there is hard enough to find one who is capable to design a Winch by himself alone. Maybe one or two expertise would be able to do it. In addition Bjørn mentioned that it require quite skilled expertise to full for Pusnes products.

Pusnes mostly do the procurement self and they chose supplier for their manufacturers. In the past Pusnes did sourcing by self and the manufacturers did only the job. Nowadays they have let the job to manufacturers but Pusnes chose the suppliers.

5.1.1.2 Employees

Fossetøl defined a capable employee despite being technically skilled as a person who would be able to work in team, responsible, enthusiastic and loyal.

Utilizing Indian Engineers in Pusnes

The reason for scarcity of competence is that in past there was no market for machine engineers in South region. Fossetøl himself was graduated in 80. He was quite sure that he will not found job in Adrenal. He has to search for the job in Oslo or Stavanger but it was flax that he mange to fined Pusnes and began to work there since.

Pusnes consider the expertise as an efficient and profitable resource within the firm. Pusnes look on expertise as an investment. In Fossetøl opinion understanding each other, being open and participating in social activities play the essential role in building close relationship with employees in the firm. In order to avoid confidential knowledge leak, Pusnes has some preconditions for external expertise for example they have to write under a confidentiality agreement and not taking the sketching with themselves. As well as Pusnes can confine the consulting firms not to rent the expertise they have used to their competitors.

Pusnes got the idea of using Indian engineers through corporation Aker Kværner and at the same time they think that Indians have a good reputation in having skilful engineers. The alternative of renting engineers would be to hire them or to accept fewer orders.

The challenges for using external expertise are finding the capable and right consulting firm to provide Pusnes the expertise related to their product area. For example the one who is machine engineer within Hydraulic or electro or mechanic and able to work with Auto CAD. According Fossetøl the Pusnes would not have any particular communication problem so long they can speak English. Fossetøl adds that Pusnes has English as working language they use to send the official reports and letters in English even to their Norwegian customers.

Pusnes is optimistic regarding the adjustment of the fresh co-workers. Pusnes has experience of using external expertise. They are looking positively forward towards a close cooperation with new engineers. Pusnes hope that they would relate to Pusnes values and way of thinking, unless the cooperation would not work.

5.1.2 Interview with Indian Engineers

I have interviewed the two Indian engineers Pusnes has brought to Norway already in April 2007. We discussed about how they did fined Norway and what is most challenging for them. We talked about both social and working challenges.

5.1.2.1 Social challenges

The Indian Engineers are quite satisfied with, the way they have been received and treated by the Firm and their colleges. They found their Norwegian colleges helpful, kind and caring.

They are actually quite impressed by generosity, of local public in Norway. As an example they told me about an episode in the town. They said that once we were trying to take pictures and we had each our own cameras. A passing Norwegian man asked us that if we want to take picture of both of us together, he would help us to take a picture for us. We were quite impressed because, if we compare the situation with our own country we wouldn't have come and asked them to take a picture unless they ask themselves.

We talked about weather; they came to Arendal around the period of heavy snow fall in Southern area. They actually did love the snow and it was first time they saw the snow, they enjoyed the scenery. The engineers were ready for such weather change in advance that's why they had bought themselves warm cloth for the trip. The weather is a new experience and can consider as a challenge even though they liked it.

We talked further about food and other daily things, the Indian engineers do face a challenge when it is talk about food. They came from a totally different area India with different food custom/traditions. They are making food self but as for as ingredient are concerned it is not easy to find it in Norwegian stores. That's why they try to provide themselves the ingredient from Arsenal's Asia stores. But they don't have a plenty of choices to find the desired ingredient.

5.1.2.2 Working challenges

As for as working conditions concerned, the Indian engineers are still in learning process, it is quite common that every firm has their own tacit know ledges. These tacit know ledges should be changed in to explicit knowledge in order to explain it to the new employees. The engineers are facing some tacit knowledge challenges, but they can manage to learn it after it is explained by colleges. The engineers realize quite different working process in Pusnes comparing to Indian companies. They claim that the process and know ledges become saved and profiled in a standardized and sequential way that helps them to learn the stapes easily.

The Indians I find out working hours quite limited, they say that they are not allowed to work more than 37 hours in a week which is little comparing to what they are used to do. Besides the engineers says that they have been asked several times whether they think the working conditions are ok and suitable for them but never get any feedback on how they do. The Indians are not sure whether they are able to contribute according to expectations or not they want a feedback to know if they are on the right track.

5.1.3 Aker Kværner Interview

This interview was strategic important for the progress and conclusion of my project. Aker Kværner is one of the biggest Norwegian actors within offshore products who have an established department in India today. The method Aker Kværner is using in order to limit its activities and control its competitive scopes, are crucial for the progress and presented alternatives of our project. Pusnes got the idea of using Indian engineers out of realising the successful progress of Aker Kværner Corporation in India. By considering the significant position and the essential role of this interview in our project we are going to use it as qualitative information in our empiric part of the project.

5.1.3.1 Outsourcing

1. Which activities have Aker Kværner outsourced to India?

Dennis Franken answered the question that Indian engineers do the detail engineering for the company. He explained engineering by dividing it in to two parts. The first part is product development part, which is the initial process for a concept development. This process is done by experts like PhD degree expertise here in head office and called process engineering. That is also named as FEED (front end engineering design) the detail engineering is the second part of engineering which requires time and engineering knowledge, but is not main concept.

He explained further that detail engineering is job around the main concept in order to get the product ready. He shed light on the topic with an example that doing the CAD designing for a little pipe takes many hours and this is the part of the job in India which requires time and basic engineering competence, but not high and unique innovative skills. The Indian department is called Aker Kværner Power Gas

2. Why did you choose to outsource engineering to India? What are the alternatives of doing so?

The question was answered point wise as bellow:

- The first reason was cost reduction, Cheap labour approach
- The Second reason was availability of high educated workforce. Indians have a long history with capable workforce supply with in engineering.
- The third reason that Indian department was a pre existing engineering company with all expertise. Aker Kværner just bought the whole company with their existing workers.

3. What was the biggest motive for your company to outsource?

The biggest motive was cost reduction, as well as India is considered as Engineering Hub/centre, the company has a high market to the east, that's why it was very suitable to have department near manufacturing and customers where the product is used eventually.

4. What is the biggest challenge regarding outsourcing engineering to India?

In order to answer this question Franken talked around but conclusively said that the biggest challenge for Aker Kværner regarding using Indian department is the remote control over the assignment within particular time limitation. Simply the submission of project in expected time frame.

5. Have you ever experienced any opportunistic behavior from Indian employees?

It is not experienced yet. But it is usual that people want to improve their CV. Franken said that they have some condition to avoid such situations. For example, the Engineers have a kind of bounded one year contract after they get training to work in the company. The reason is that company uses money, time, and other resources to train these engineers according to firm's specific product and definitely want to hold them. If they just leave the company with out any restriction it causes a huge loss for the company. But such incident is quite rare, and the reason is that the employees are usually interested to work further and build a carrier in an international company like Aker Kværner. In case the engineers have plans to live here in Norway and bring their families they are not allowed to do so. The company has strict restrictions regarding living and working in the head office area. They are here just for training and have to leave after training process is over. As well as the Indian engineer Vinit added that the parent company (Indian department) doesn't want to lose resources. That's why they can't allow the employees to settle in other countries.

6. Does Aker Kværner hire engineers permanently or just temporarily? What is the reason for that?

Franken answered this question with a brief explanation that the company does not hire engineers they just use them temporarily. He used the phrase (initiative) and said that it is Part of initiative. The initiative is the name of co-operation between Norwegian and Indian Ak. The co-operation is to provide low cost engineering resources to our projects and at the same time build up an engineering hub in India for Sub sea products. I understood the phrase (initiative) like to maintain workforce according to demand. Franken continued that It is part of initiative that the workforce must be flexible according to the market demand. Right now the market is good but it is not always this way sometimes there is very little to do. Franken added that Efficiency is a part of managerial gains.

7. How are the working conditions in India? How does the company react in case of dissatisfaction?

The management has a close relationship with Norwegian head office. The main controlling and managing area (head quarter) is Norway. Shrikant answered this question that the working conditions are pretty good. The management has good relations with employees, and employees work with great enthusiasm and motivations. There are some requirements from company for capable and ideal worker. For example the employees must have both social and technical skills in order to go further with the company. The management has both annual and monthly assessments based on performance. If the management is not satisfied with contribution or performance of a particular employee, he is granted a warning in advance to improve his skills; if he fails to do so then he is fired. He further explained that in some cases the process of dismissal can take a shorter period of two or three days. All these procedures are applicable after the employee gets training both within technical skills and communication skills. In addition, there can be dismissal if anyone fails to follow the learning procedure. This does not take a long time. Company can dismiss an employee at once, and it requires no paper work or restriction. Shrikant also mentioned that in case an employee want to switch of to another part or want to work with something different the opportunity will be given. It is not restricted that a person must work with that particular section. There always lies flexible opportunity if any employee shows interest to do so. Shrikant gave an example of himself that he is working in piping section of sub sea products. In case he wants to work with something else he can try another department. In the conclusion we can say that both employees and managers are flexible and co-operate towards a better working area for both company and employees.

8. How is India's state policy regarding foreign companies? Why did you choose exactly India?

Franken answered this question that I would rather ask Indian authorities about this. He doesn't know anything. I asked him about the experience of Aker Kværner in this matter. Franken said that there is no restriction or requirement from government for foreign companies. As long as Aker Kværner is concerned, they didn't meet any particular restriction. In answer to the second part of the question he said that the reason for choosing India is easy approach to the cheap engineering workforce. India considers as engineering hub, it is easy to find capable engineers in the region.

9. How is the head office relation with Indian section?

Franken mentioned that they have quite good relations with Indian department. Both of them support the initiative. Initiative is the name of co-operation between Aker Kværner Oslo and Aker Kværner Power Gas India, by co-operation he meant on time delivery of required work or being flexible regarding works to be done both concerning time and amount of work.

10. Do you think it is possible to gain competitive advantage through coordinating activities across borders in regional or global network?

Franken answered this question with Yes.

11. What have you learned from this? Something you want to do differently?

Franken explained that they should have had and may have some requirements, when they assign any designing/engineering project to the Indian departments. For example what kind of software they may use for engineering implementation. He further explained this comments with an example that the Indian department could have done the engineering with some specific kind of software called SAP. SAP is German software which is used in engineering of sub sea products. Franken mentioned that it is quite expensive software to implement. The Indian department can not afford it. The head office was requested for providing it but we can't implement the software for them either, it will cost too much

The question about what they want to do differently, Franken explained that they wish the Indian department could work more independently without daily guidance of head office. It is both time and resource taking. They wish to reduce the training period.

5.1.3.2 Engineers**12. How did you find Indian Engineers? How do you define a capable employee/engineer?**

Utilizing Indian Engineers in Pusnes

Franken answered that there are some international requirements regarding experience, skills, and etc for an employee. The company follows the international requirements during implementations. We take in consideration both social and technical capabilities, because in engineering there is not only technical skills which are counted but also social. for example they should be able to interact with designers. As long as these aspects are concerned Aker Kværner doesn't face any problem with Indian engineers. Franken added that they have found Indian engineers social and hardworking employees. They follow the rules and try to do their work follow to the very end. The engineers prefer to finish the whole work and complete the given task to the end. He said that the Indian engineers are willing to finish their tasks in compare to Norwegian engineers. For example a Norwegian engineer after doing one part of designing Leaves the other part to someone else (engineer) and says that he is finished with his part and doesn't care about further completions of the particular assignment.

Franken mentioned that in Oslo the company rent apartments for employees who come for training in the head office. He said that the company should provide special people to keep the apartments clean. The Indian engineers do not clean the apartment. It is a problem for company to rent or give the apartment to another one before they get someone to clean it first. He explained it further with a reason that, in Indian culture men do not do the household works and that's why they are not used to clean the home themselves. Franken also added that in the Scandinavian countries People exaggerate the process in such away that the men should do household works more then women. Franken self supports an equal division of household works between men and women at home.

13. Do you consider expertise of employees as a valuable investment within the firm?

Franken agreed that the expertise of employees are valuable for the firm because the firm use resources to train every single engineer within firms specific product designing. Franken said that training is a part of employment that's why the expertise are quite valuable for the firm. The firm can save both time and resources by keeping an employee over a long period of time; In that case they need less training and guidance. The management in both departments (Indian and Head office Norway) work towards more flexible and as well as experienced expertise availability in future.

14. Is the company satisfied with the result/efficiency?

Franken said that yes they are satisfied with the result and efficiency of Indian workers.

15. Do the Indian engineers work more with innovative knowledge or the existing standardized knowledge?

Franken explained the whole process of how they get the engineering done. He explained that Indian engineers do only the detail engineering which is pre existing standardized knowledge. Franken insisted on his argument that Indian engineers have nothing to do with main concept development process. The process engineering is done in Head office here in Norway.

16. Did you find Indian engineers as innovative as it was expected?

He explained further the same process that Indian engineers are not involved with innovation. They do only the detail engineering which is given by head office.

Franken explained it with an example that in a product development process only about 10% job is the process and Mechanical designing which should to be done by very skilled, creative, and experienced expertise in the head office. After this the small details around the main concept in order to complete the engineering of particular product is detail engineering which is around 30-40% work. This is done by Indian engineers. The remaining % is all other works around product development like procurement, manufacturing, market demand, sourcing and etc. So the conclusion is that Indian engineers are not involved with innovative tasks. They do only the existing standardized engineering where there is no need for being innovative.

17. Why don't you outsource manufacturing to India?

The intention by outsourcing is mainly cost reduction as well as access to materials needed to produce the products. All of these requirements are available in the countries Aker Kværner has already outsourced to. Franken said that they do not feel its need to think about manufacturing in India. The Firm has a manufacturing Hub in Malaysia. It is easier to use it. Aker Kværner also has manufacturing in other countries like Poland, China etc.

18. Do you trust your Indian employees? Do you consider them capable, loyal and hardworking employees?

Franken do consider Indian employees as capable and hardworking employees. Franken added that Indian engineers are reliable workers; they have done good repetitive works. Franken explained that detail engineering is sequential task; it is less good integrated widely. Indian employees are quite good to follow the steps. The company is satisfied with labor/effort input from Indian employee side.

19. What are preconditions for an employee to be loyal and trustful for the firm? Do you have a level of limit for this behaviour?

Franken said that it is difficult to measure peoples loyalty. They do not have any level for this so long the job is done in time within required quality, they are satisfied. But the Indian department has one year bounded contract with engineers in such away that they can't leave the company in one year after they get training they are obliged to work until completion of contract period.

5.1.3.3 Organizing and leadership

20. How do you organize the Indian workforce? Are they (Indian engineers) a part of Norwegian team or they have their own team?

The engineers are part of Norwegian team during training process. The work should be done mostly in India where only Indian engineers co-operate together, but when they came to Norway for training, they are an integrated part of Norwegian team.

21. Is there difference between organizing workforce in Norway and India? Is there difference between Norwegian team and Indian team? If there is what is the main difference?

Franken said that there is no main difference between organizing workforces. The company is working within international requirements of management, and it is almost the same conditions regarding organizing workforce. There is no big difference between methods, but one can consider a bit attitude differences between people, overall no difference.

22. What are important values for them (Indian workers) that can motivate and build a trustful relationship?

Franken added that it is important to have motivated employees where both firm and workers can trust each other, as for as Aker Kværner is concerned they have quite good relationship with Indian department. Aker Kværner has certain control over firm's core competency. That's why building trustful relationship with engineers doesn't come in first of all, so long they have control over their core areas. Franken added that it is natural that all employees like and appreciate a better working condition like flexible hours and the firm tries to provide that flexibility.

I asked the Indian engineer, Vinit Ranade who was present in the interview that what motivates him. He answered that challenging projects and more demanding conditions. I asked him back why demanding conditions? He answered that I believe if there is no demanding condition in a working area the best of mine would never come out.

23. Why did you choose an Indian chief for your India department? How do you think external expertise will relate to Firms values and way of thinking?

Franken answered this question that they didn't choose an Indian chief. They just buy an existing engineering company, and prefer to keep all its staffs including chief. They think it is best to continue the way it is. The head office is satisfied with Indian chief. He explained that chiefs in higher levels are international professional managers. They have almost the same qualifications and experience working world wide. Many of these managers have working experience and background from international market like UK, US, etc.

24. Do you consider Indian expertise as an efficient and profitable Asset in firm's strategy?

The answer was yes. In fact company uses resources on every single engineer to train them firm's specific values and product types, so they are of course valuable for the firm.

5.1.3.4 Knowledge Transfer

25. Has Aker Kværner most tacit knowledge or explicit knowledge?

Franken asked what tacit knowledge mean, I tried to explain it that Tacit knowledge is knowledge that people carry in their minds and is, therefore, difficult to access. Often, people are not aware of the knowledge they possess or how it can be valuable to others. Tacit knowledge is considered more valuable because it provides context for people, places, ideas, and experiences. Effective transfer of tacit knowledge generally requires extensive personal contact and trust. In the field of knowledge management the concept of tacit knowledge refers to a knowledge which is only known by an individual and that is difficult to communicate to the rest of an organization. After explaining the word tacit Franken answered that it is both ways. They have combination of knowledge. As he had explained before that detail engineering contains mostly standardized, existing, sequential procedures, where there is no need of too much personal knowledge. We can conclude it that engineering part where Indian expertise are used contains more explicit knowledge, but still some tacit knowledge is required, and the firm tries to transfer/convey it during training period.

26. How Aker Kværner manage to train the tacit knowledge to the Indian engineers?

Franken answered to this question that convey of tacit knowledge takes place by social get together of staffs. He added the training period is used to convey tacit knowledge by participating in team works, and through conversations. The answer is consistent with Nonaka's learning process theory explained in theory capital.

27. Do you believe that the training process to the Indian engineers is a positive gain/winning or a polish and practice of firm's tacit knowledge? Do you mean that it is a kind of upgrading and improvement chance for the company?

Franken did agree that training process is positive gain; it is a sort of upgrading and improvement chance for the firm. He explained that it is quite logical that man can polish the knowledge by practicing and trying to explain it to someone else. Tacit knowledge is personal knowledge gained through years of working experience by senior employees of the firms, and it transfers or comes forward through training. So yes transferring/training process is an improvement chance for the firm to refresh their knowledge.

28. Where (In which Area/Country) do you have a dense market?

Franken answered that they have a world wide market. They have huge market in east, Africa, Gulf of Mexico, deep sea locations and areas where new development of oil takes place. I think he meant mostly the sub sea products because he belongs to sub sea area.

29. How is the market now? Why does Aker Kværner use only few hours of Indian engineering this year? What is the reason for reduction?

Franken said that the market is on top now and the reason is oil price which has risen during last decades. In this question I had a wrong concept of using engineering hours in India this year. Franken rectified me and said that they didn't reduce the Indian engineering hours this year. They have used more then 70000 hours engineering from India this year.

30. What is the reason for keeping the head office in Norway?

Franken asked me what I exactly mean by this question. I explained the question further by that very fact they have outsourced manufacturing, part of engineering to foreign countries why do you still keep head office here in Norway?. He answered that because this is a Norwegian owned company. Franken added that it is rare that the owners shift head office to foreign countries the reason can be some tax requirement and of course local loyalty of owners. Franken mentioned the only big company who have shifted head office to foreign country is IKEA. IKEA is basically Swedish company but has shifted head office to a foreign country.

5.1.3.5 Core concept

31. Is engineering a core concept? What else do you consider as core competency?

Franken confirmed that engineering is core concept but as he has explained in the beginning that the core concept is actually process engineering. Process engineering is done in head

office by Norwegian engineers with close collaboration of experienced and innovative expertise. But again Franken verified the detail engineering as a crucial part of engineering. Franken considers also manufacturing as a core competency. He said that manufacturing of main components are essential in order to improve firm's competitive advantages. Franken explained further, having certain control over manufacturing of core components is the only reason that Aker Kværner do manufacturing of their main components here in Norway, as an example he named some of manufacturing industries in Tremby, Moss etc

32. Where in value chain do the engineering exist? How a firm can manage to reinforce its core concept?

Franken wasn't known with the concept of value chain. I tried to explain the value chain as "The value chain categorizes the generic value-adding activities of an organization. The "primary activities" include: inbound logistics, operations (production), outbound logistics, marketing and sales, and services (maintenance). The "support activities" include: administrative infrastructure management, human resource management, R&D, and procurement. The costs and value drivers are identified for each value activity. The value chain framework quickly made its way to the forefront of management thought as a powerful analysis tool for strategic planning. Its ultimate goal is to maximize value creation while minimizing costs" Then Franken answered that he would have placed engineering in the beginning of value chain, man can say after R&D and process designing come detail engineering and then manufacturing etc.

Franken answered the question of how to reinforce core concept, by adopting your product according to customers need and requirements and to response quickly to changing in market demands.

33. How your company organizes a co-operation with out giving up the core competence?

What do you think can play the essential role in building close relationship with Indian employees in the firm?

Franken said that core activities are well protected. The Indian engineers have nothing to do with core competency areas. In order to answer the second part of the question Franken said that close relationship can be built by social get together, respecting the culture, values and religion of each other. He added that the relationship can be also build by working in team, and being an integrated part of the team work.

34. How vulnerable is Aker Kværner regarding core competency?

Franken insisted that core competencies are well protected. They are quite sure about its safety and they are not worried regarding this at all. He also added that in case of secret leak regarding core areas the firm is quite vulnerable that's why they chose to use Indian expertise only in detail engineering. The basic reason is to be totally sure about security of core competency.

35. How can you limit these activities? In order to reduce vulnerability

Franken answered that core activities are a part of product development department. And that has nothing to do with outsourced engineering. So the company has a separate section for concept development which is firm's core competency. This section is well protected the firm has limited the core activities by doing the process engineering in house. Indian engineers do the detail engineering which has nothing to do with core activities.

5.1.4 Facts about India

India is a country with 1, 1 billion inhabitants located in south Asia. Since early 90ies India has meet with 8% economic growth. India is quite a rich country regarding tradition, culture and languages. But the society and peoples are very poor. There is huge class difference distinguishes Indian society from Norwegian socialistic social service system. Indian society is divided in to 3 main classes; high/ upper class, middle class and lower class, where the upper class has access to almost every facility while the degree decreases simultaneously among middle and lower classes. The classifications are as strong in India that certain classes belongs to particular job professions in such away that a person from for example lower class doesn't have access to such educations and carrier chances. 260 million Indians have less then 1 US dollar to live by day. [3] It is significant that Pusnes come to work with which one of the mentioned classis. The engineers Norwegian companies are intended to co-operate with belong to middle class.

The table bellow will show the fundamental facts about India.

Prime Minister	Manmohan Singh, Congress Party
Capital city	New Delhi
Largest City	Mumbai (Before. Bombay)
System of Government	Democratic and federation with 28 federal state and 7

Utilizing Indian Engineers in Pusnes

	union territories
Rate of Literacy	61%
Life Duration	63 years (Norway 79 years)
GDP growth	9,3 % (Last Year)
Sector Share GDP	21% Agriculture, 27% Industry, 52% Services
GDP per inhabit.	769 USD (Norway 71,673 USD)
Inflation	4,2%

A large part of Indian society suffering poverty, lack of infrastructure, a very high rate of corruption and unnecessary paper work that hamper the rate of progress. For example establishing a company in India require 89 days comparing with 2 days in Australia, 5 days in US, 18 days in Great Britain, 36 days in Russia and 41 days in China. (Nyskaperen) People say about India that the government and democracy hamper the work while corruption makes it possible. (Teknisk Ukeblad)[7]

5.1.4.1 Economical Growth

The rapid development on the territory cause that prosperity spread in India, Even though there are dozens of desperately poor people but IT- industry contribute to increase prosperity constantly during last decades. From year 2000 to 2005 increase the sectors that engage in IT and postponement of business processes share of GDP from 1, 9 to 4, 1 %.[4] It has been said that if China is the biggest fabric in the world so India is world's IT division. Both statements are becoming more and more near to reality every year and the cause the economy in both countries in a raving speed.

The experience from Japan and Korea says that India and china reach the vest labor cost level very soon. [5]

5.1.4.2 High Education

India educates 350000 engineers annually. There will not be any problem to find a engineer but it is difficult to find an experienced engineer. The reason is that all these outsourcing processes have begun in last years so it is not money experienced worker available in market. [5]

Utilizing Indian Engineers in Pusnes

More than 1,2 million Indian workers in IT section and the number is increasing dramatically. Majority of them are working for western customers. For example a French company named Capgemini has 14 000 employees in India and has the plan to increase it to 40 000 during year while IBM reduced the number of his employees at home USA, IBM has around 50 000 Indian workers. [4]

5.1.4.3 Cheap labor force

The enormous number of educated workforce is the reason for cheap workforce availability in India. We can estimate the price difference by this example under Ormen Lange project of Aker Kværner the Indian engineers invoice with 20 \$ per hour while Norwegian engineers cost 130 \$ per hour. [6]

However the experience from Japan and Korea's growth on 1960-1970ies is that they come in the market as a low wages but during short time raise level of prosperity in such away that the wages press decrease. The same is topical in India by the passage of time. Now a day's the wages are increasing with 10-15% annually in India. [6]

5.1.4.4 Basic cultural difference

In Indian culture people has a collective identity compare to individualism system of west. The reason is lack of social security and welfare system. The people find their benefit in living collective because it is part of human nature that when they feel weaker as an individual they bend towards a collective identity. The whole social system is organized in such away I years that having collective identity has been a way of survival. In collective life the people are connected to their family and trips in such away that the family bonds are strong among them. They are depended to their social networks. I is the reason the being in Norway away from family and friends is very difficult for them. In this situation the motivation is in its low level. So it is smarter to use Indian engineers in India rather than bringing them here in Norway. In that case, the rate of interest and motivation increase among Indian employees, which again contribute to more achievement or effort.

India has a hierarchical system of work, the workers behaves diplomatic with superior. They seldom come with a new idea unless you ask for it. Indians hesitates to say their meanings and it is difficult to know exactly how they feel. For example if a Norwegian worker is not satisfied with condition they may do not say directly but give signals to chiefs in such away that they understand but Indians do not give these signals so it is not easy to know how they

Utilizing Indian Engineers in Pusnes

actually has. As well as Indians are not so strict on time, man should not be surprised if they do not meet in time and they do not expect you either. The Indians has difficulties to be informal and work at the same time. The Indians are more formal in job for example it is not usual to go to work with casual dress, they prefer pants and shirt in job but very common to meet someone in the evening in restaurant, bar or home visits with common jeans and t-shirts. (Ashok Balwani from Norsk Veritas) [1]

Indians has a special aversion to say no, a “yes” doesn’t mean necessarily “yes” they usually say “I will try” it is a diplomatic way to say that “I am not able to do this but don’t want to tell you” It is necessary to know exactly such points for Norwegian firms who wants to have a co-operation contracts with Indians. [2] Aker Kværner overcomes this cultural shock by to let the Indian department be a completely Indian department with Indian management.

Indians are proficient technically; they have a long tradition with science, mathematic and technique. As Peter Plantener, Director in CG Maersk says about Indians that “*De er satans brainy. De er sjakkemestere, nobelprisvinnere, analytikere og matematikere. Hvis vi kan kombinere de ferdighetene med skandinaviske arbeidsmetoder og prosesser, har vi noe veldig godt.*» The Indians do not think path-breaking even if the general standard is good; The Indians are good when they get definite work tasks. [2]

5.1.4.5 Use of Indian workforce in Norwegian firms

Norwegian firms are expanding their plans to use Indian workforce. Teknisk Uke blad speculates that within the end of year 2007 around 20% of workforce will be Indian in Norway. There are about 10 000 vacant workplace in the Norwegian IT branch, and with out Indian supplement will many of projects has been stopped now. Until now 35 Norwegian firms are established in India and many have co-operation contracts with Indian firms. In the last years the two-way trade between Norway and India has raised to 30%. In October 2006 the Norwegian Crown Prince couple has a royal trip to India over 120 firms been present on that trade delegation. It was first time that so many Norwegian take part in such trip to India. [6]

Aker Kværner stake a lot on Indian engineers, within 2010 will Røkke have over 2500 engineers in India. With that Indians will make 10% of total employees of Aker Kværner. The average age among AK engineers in India is 32 years, and the whole 46% of engineers are under a age of 35 year. That’s why the negative points with this is that the Indian engineers

have less experience but they are more enthusiastic and willing to learn. The biggest challenge for AK is that there is to give them enough exciting challenges all along that they will not be bored. [8]

5.2 Results and Achievements

As it has been mentioned in the case that the problem is scarcity of expertise in local market and one of the possible solutions to this scarcity is using expertise from foreign countries like India. This solution has been used by several western companies in last years and they have been quite successful as well as satisfy by the results. As an example we can mention a Norwegian company called Aker Kværner, AK Corporation has a huge section in India named Aker Kværner Power Gas. By observing the success of these companies and being in competence scarcity situation, Pusnes has decided to use Indian engineers they have already begun with the process of bringing engineers to the head office for training. The main problem or challenge is managerial dilemma with our case is, how the firm can use external expertise in its engineering while it considers firms core competency? And how the firm would be able to bring flexibly around its core activities and create close relations with these employees in order to increase motivation and loyalty among them?

Our all researches and literature reviews assume into two hypotheses. These hypotheses are alternatives to solve the problem. One of the alternatives is as Michael Porter says that the firm ought sorts its different activities into core and periphery sections. After sorting the activities firm would be able to figure out where and how they can use an external expertise? In order to limit and keep their competitive scopes in the head office while use the external activities to increase their capacity in more standardized activities, company can use the first alternative. The other alternative is to use external workforce as an integrated part of the firm and allow them to do almost all activities equally with their Norwegian colleges, as it has been recommended in learning theory. By this method firm can both increase its efficiency (cost reduction) and responsiveness (building capacity and strengthen its innovative capabilities) After presenting the alternatives we compare them according transaction cost economic theory that which one of them increase the transaction cost for the firm.

We assume our discussion by considering the efficiency as well as profitability and opportunity creation for the firm by arguments and discussions into favor or against of different presented solution finding positive and negative aspects of each alternative and in the last comparing all these points and figure out the most sufficient way to govern the corporate. Eventually how a firm can organize its workforce besides using external expertise in some parts of the engineering?

5.2.1 Sorting Activity alternative

This method has been used by the other companies aimed increasing capacity and reducing cost. It is relatively static and old way to use Indian expertise, besides it is a way that has been examined and proved to be a quite secure way of using external expertise in engineering. In case of using this alternative Pusnes need to use the procedure that Aker Kværner has been used.

Aker Kværner has divided engineering into two main portions, one is Process engineering and the other is detail engineering. The process engineering is the main process or product development engineering. It basis the research and development section and has be done by experts and experience expertise of the firm. This is the crucial portion of engineering which will be done in the head office. The other part is detail engineering which is engineering around the main concept in order to complete the product. Detail engineering requires engineering competence but is not the core area. According to Franken, if we consider a product, the 10% engineering of that product will be process engineering while the other 35-40% engineering is detail engineering around the product. Thus Pusnes can outsource the detail engineering to India in the same way as Aker Kværner has done.

Activity sorting alternative has the same implications and the results are closely the same, by considering all facts and available data we come to that sorting activity method is quite successful way of using Indian engineers. It has its positive sides as well as some negative sides I wants to go through both sides closely in following pages.

5.2.1.1 Positive Aspects:

We know that engineering is a core competence activity for Pusnes. As it is first time Pusnes is going to use external expertise in its engineering, they want to precede it quite carefully.

Utilizing Indian Engineers in Pusnes

The reason is obviously the importance of engineering in firm's competitiveness. The positive aspects by using sorting activity alternative is first of all that it is

- A secure way of using external expertise in the core area engineering. By doing the process engineering in the head office the firm has certain control on its core areas despite using Indian workers in engineering.
- It has been used by other companies and proved to be the sufficient way of using Indian engineers. It is pre-examined and tested way of using external expertise.
- Doing detail engineering by Indian expertise firm can 1. Reduce engineering cost; Pusnes can invest the release capital in other profitable projects or in the productivity of its main staffs in the head office. 2. Increase capacity, by this Pusnes can take more orders and increase its responsiveness as well as effectiveness. 3. Pusnes reduce the work burden/density from head office employees and gives them a space and opportunity to focus on product designing and innovation projects.
- Opportunity to develop an engineering HUB in India, by facilitating flexible workforce availability within low wages.
- Flexibility, according to Grenlee offshore market is very varied no one can figure out a demand forecast for such products in advance. Speculations and prognoses will be relatively unspecific comparing to other commodity market products. In case of low market demand Pusnes can easily let the external expertise not to work for Pusnes anymore. Without feeling any risk of losing competitiveness of the firm. The reason is that they have only been used into restricted part of the engineering. So they can't convey any confidential information to other company.

5.2.1.2 Negative Aspects

Sorting activity alternative is a limited or restricted way of using the Indian expertise; in today's globalization world the companies in order to survive in the market need to improve its competitiveness by giving steady innovative designs. Using Indian engineers in only detail engineering section will limit Pusnes opportunities of testing the innovative abilities of these expertises. They never get the chance to discover or use innovative abilities of Indian expertise. The co-operation between Pusnes and Indian engineers will be limited into only detail engineering section that's why the Indians do not get the chance to come with new impulse into company.

Utilizing Indian Engineers in Pusnes

The second negative point is that Indian expertise never feels them as an integrated part or as a resource for the firm this results again dislikes and hamper motivation among employees. They feel themselves as a spare worker. And realize gradually that the company doesn't trust them fully as well as they are not considered as resources for the firm in future. Motivation plays a crucial role on employee's productivity and contributions. In case of low motivation an employees would do as much as he has been asked for not any more. They never engaged fully into the tasks and this also cause to brake down experience gaining progress. As well as trigger individuals behaving opportunistic in case of better alternative availability.

The third negative aspect is increasing transaction cost, sorting activities dividing engineering into process and detail engineering, Training and using Indian engineer's restricted in to only detail engineering section, though decrease the wages cost entirely but at the same time increase transaction costs for the firm. Organizing these workforces in different ways having a double role policy regarding organizing workforce increases transaction costs for the management too.

5.2.2 Integrating Alternative

This alternative is relatively a dynamic way of using external expertise. As long I know, using Indian engineers as an integrated part of the team in particularly engineering of offshore products has never been tested by any Norwegian company yet. But the method has been used by Americans for several years in IT section. Microsoft use Indian expertise in it core areas, that's why the company is the most successful software company in the world. Microsoft is very satisfied with contributions of Indian expertise and the Indians' work in the most important confidential core areas of the company. This alternative brings different implications with itself after passage of time. According Fossetøl vice president of Pusnes, The firm is suffering by lack of competency and willing or need to increase the capacity in today's top market situation for offshore products. On the other hand there is an innovation pressure on the firm to come with steady new designs in order to facilitate the offshore production process. The high price of oil market contributes to more rate of return in offshore products and the companies with innovative designs will win the race in this heavy invested demand market.

To throw sufficient light on the above mentioned hypothesis I would like to quote examples from the neighboring country, SWEDEN. Volvo is using Indian expertise in its R&D

Utilizing Indian Engineers in Pusnes

(research and development) section, and yet has not faced any leak in its secrets. Volvo has 100 employees in Bangalore India and has a plan to increase it to many more. But Volvo is not ready to tell what exactly they are doing in India because of its confidences. On the other hand several other Swedish corporate giants have opened its research sections into Bangalore the examples are Astra Zeneca research centre, who researches on developing new medicines for different disease, Sony Ericsson mobile company and ABB etc.

This alternative requires taking initiative implementing a division in India, as we are aware of that finding expertise is not any problem in India and they are available in relatively low costs. As all other European countries, Pusnes can hire Indian employees and try to use them as an integrated part of company. As the previous hypothesis sorting activity this alternative has also its positive and negative aspects. I am going to map these aspects respectively in following paragraphs.

5.2.2.1 Positive Points

The positive aspects of this alternative are for example Pusnes will have the chance to use Indian expertise fully and have the opportunity to test the innovative capabilities of Indian engineers. As it has been mentioned in organizing workforce theory that the new worker bring new impulse with themselves and the chances of innovation increases, which is significant for Pusnes.

After decision integrating alternative, Pusnes will come to hire the Indian engineers, which contribute to reduce transaction cost for the firm in long term. As it has been mentioned in transaction cost economic that the reasonable way of reducing transaction is Vertical integration, which is transferring the transactions from the market into the firm under the same management. We can strength our argument by the following example: If Pusnes has its own division in India and hire permanently workers; they no more need to sort and limit its activities, as well as use Indians more openly in the firm's core areas. All these will results to decrease the transaction costs.

The other positive point is that firm increasing motivation among Indian workers. The expertise become more optimist and see a brighter future of themselves in the company by this they become interested in the job and can contribute more, Increasing productivity of the workers is the basic success factor for any firm. Engagement, motivation of workers can increase firms both experience rate and innovation capability. This again results to win the market in this demanding situation.

Utilizing Indian Engineers in Pusnes

Another positive aspect is that as long we know in the Norwegian offshore market this solution of integration is relatively new. It is just like a implementing a new technology strategy in economic. One reason for this is that in India due to stream of knowledge outsourcing process the rate of wages are increasing rapidly, so the it is no more as cheap as today's labor market in India. The one who implement first will win the whole market. By implementing integrating alternative Pusnes can trigger both its efficiency because of cost reduction as well as responsiveness by increasing its capacity at the same time increase chances of innovative product development by entering new impulse of new employees.

India is a cost society the people have leaved collectively in centuries; it is quite different by individualism system of Europe. The people in Indian culture and society are very connected to each other they are used to value family relations. They appreciate the relations more then westerns, I do not mean that western do not respects at all but I mean that these bonds are much stronger among Indians. As long they are satisfied with their position, their cultures and religions are respected and they self has a respected position in a working area, as well as they are working in their own country. The Indians become more loyal so this solution increases the rate of loyalty and productivity among workers.

Integration alternative also contributes to closer relations among team members, because in case of using Indian workers freely in the firm the Norwegian and Indian colleges can behaves more closely without considering any information sensor in such away that it would be easy to transfer tacit knowledge through social conversations or interactions. Besides it is consistent with learning method presented in Nonaka's learning theory that that new knowledge creates through interaction between existing tacit and explicit knowledge. So this method again triggers Pusnes's innovativeness.

5.2.2.2 Negative Aspects

The alternative of using Indian engineers in the core area is relatively risky process. The chances of that these employees might behaves opportunistic and joining other companies after knowing their requirements in the market is quite high. There is no guarantee that they won't behave such, this method is based on relatively unknown results and outcomes. It may results into just wasted time and resources. The risk of raising unnecessary transaction cost is quite high in this alternative.

The second negative point that should be taken in consideration is that in today's controversial environment debate it is naive to invest into a completely non environmental source market offshore. As it is known that Oil is not a renewable energy sources and it comes to finish one day. Pusnes deliver mostly loading and mooring products to the offshore market. By considering that it will come to finish in coming years it is wasted effort, time and resources to stake a lot on offshore product development. Though Pusnes has deliveries in deck machineries in the shipping market too, however it is not big enough to take such a big step of implementing engineering HUB in India.

The third negative point by this alternative is that the firm is suggested to hire the potential engineers in India. On the other hand offshore market is quite unstable market it decline and increases often. Nobody can speculate a market for such products. Sometimes there are too much to do like right now the market is on top but when it began to decline nobody knows. The demand forecasting and prognoses is relatively unknown for the offshore products. This alternative hamper the flexibility, Pusnes need to keep its workers also in low market demand because if they dismiss them the risk of joining a competent firm will increase besides the workers know about all core activities of company if these workers join a competent company Pusnes come to lose its competitiveness.

5.3 Suggested Alternative

Considering all negative and positive aspects, comparing both presented alternative solutions, I suggest the first alternative. First alternative is sorting activity method that has been used and tested by Aker Kværner. As it has been explained in detail in previous chapter, in this alternative firm divide engineering into two parts. One is called process engineering and the other is detail engineering, where process engineering considers as a core competency area that should be kept in the head office, while let the Indian engineers do detail engineering. Though it is a limited/restricted way to use Indian expertise, but still is a secure way of outsourcing the engineering.

I will not go through all positive reasons for choosing this alternative since it is mentioned in previous chapter, I will discuss that what firm needs to consider later in order to implement and utilize this alternative. The procedure has already been started-up by Pusnes. It is in such away that Pusnes brings Indian engineers here in Norway for training and after that send them back to India to work on Pusnes given engineering projects. The projects will be definite

Utilizing Indian Engineers in Pusnes

detail engineering tasks, also partly engineering around the main concept/process engineering to complete engineering of particular product.

Though detail engineering is not the main concept development process which is the core area, but it is still a part of engineering and overall considers as core activity. As well as outsourcing detail engineering to India it self is a transaction, that's why Pusnes need a contract with these workers or companies who will do detail engineering for them. On the other hand Pusnes has to use a contract that facilitate and support building close relations with engineers. As it has been discussed in transaction cost theory chapter that for such transaction, where there is high rate of complexity, uncertainty, highly specific and frequent transactions Pusnes can use relational contract. The governance structure to control such transaction is known as transaction-specific governance.

As the transaction or using Indian engineers in Pusnes is not occasionally or just once but recurrent that's why Pusnes need to use Bilateral Governance: Obligational contracting. In this governance structure because process engineering is crucial for firm's competitiveness we let this be done at home while Pusnes can buy detail engineering from India in order to increase capacity as well as reduce costs. Williamson has assumed that in such idiosyncratic transactions the chances for changing behavior after each adaptation is very high, that's why obligational contracting is important to control potential opportunistic incident from both partners. Close relationship is necessary for Pusnes to avoid such conflicts situations, complain and self critic must be a part of social skills training. As well as Pusnes must provide the workers space and chances to come with suggestions and arguments. In order to trigger productivity and control changing behavior we suggest Pusnes to have an incentive system too.

On the other hand division of engineering and sorting activity increase transaction cost, but the wages are too low in India so Pusnes has the chance to bring down the labor cost. In addition once in a Seminar Svein Erik from Hydro Automotive said that now a day's firms are as busy cutting the cost that they forget the productivity. He said that it is more profitable to increase capacity and get more orders rather than being busy reducing costs. Pusnes's vice president mentioned that market is quite good right now and Pusnes has to say no to some orders due to lack of capacity. By using Indian engineers Pusnes has the opportunity to get more orders.

One of the challenges is organizing workforce, Lepak and Snell has presented a model for different situations and forms of using external worker in the firm. After assuming the data

Utilizing Indian Engineers in Pusnes

and facts we realize that at this situation the quadrant 1 Generating human capital is relevant for Pusnes. As it has been explained in detailed at theory chapter, detail engineering requires high educated engineers with high human resource value as well as it is part of core competency area. Pusnes need to use connecting form internal development which is based on organization focused relations and obligations.

The facts and data have shown that Indians has collective identity so the social network is quite important for raising motivation rate among Indian employees. As well as interaction between Norwegian and Indian colleagues is an effective way of transferring tacit knowledge, so we recommend Pusnes to facilitate some social arrangements for employees. By this the workers will be known better with each other. But the Pusnes also needs to change some of its tacit knowledge to explicit it is because the process of conveying tacit knowledge through socialization is quite slow when the Indian workers are involved. For example Norwegian workers will talk to Indian in English, though English is working language in Pusnes but they come to talk in English only when they have to interact with Indians, it is limited to only that specific project or task that he/she have to explain to Indian colleague. They will not come to talk in English in lunch or smoking breaks, thus the conversations between Norwegians and Indians are restricted comparing to two ethnic Norwegian colleagues. That's why it is important to have all tacit knowledge written in sequential, step wise way to make sure that if the Indians couldn't catch it through social interaction; they have still chance to get it through reading the instructions.

In the end I want to go through managerial dilemma challenge, it is significant that firms do not consider these employees as machines. If Pusnes want to have motivated, loyal and engaged workers, they have to consider not only the working area facilities, for example it is not enough to make sure that the working tasks are interesting enough or they are satisfied with wages. For that Pusnes should also consider the social network and interest also out of the office area. As well as give them some feedback about their works, appreciate them if they did it in a good way for example Vedik Dalal and Manjunat said that they don't know if Pusnes is satisfied by their performance and whether they are on the right track. Sometimes it helps if you have a conversation with them out of office area.

6. CONCLUSION

Pusnes has made its mind using Indian engineers in order to increase its capacity. They came with a relatively wide project proposal in the beginning, in order to find the significant problem and limit the case I had some interviews with Pusnes and my supervisor. Then we sat up the research question. I begin my research to figure out the sufficient way of using Indian engineers in designing section of the firm at the same time keeping save firm's core competency. As well as how the firm and potential employees can overcome the reciprocal cultural differences? For this purpose I begin to point out some relevant theories for this theme.

Using Indian engineers in firm's engineering section is itself a competence outsourcing process, in addition a transaction with uncertain outcome. That's why I chose to go through transaction cost economic theory. As well as Pusnes want to increase its competitiveness in the offshore product market for that I go through Porters competitive strategy theory. After that in order to figure out how Pusnes should organize its workforce in case of using Indian engineers I pointed out Lepak and Snell's organizing workforce model. On the other hand to find out in which way Pusnes can train these external workforces I went through Nonaka's learning theory. In the end to figure out how Pusnes can build a closer relationship with these external workers I studied managerial dilemma theory. Studying all these theories gave me an assumption theoretical solution to solve competence scarcity problem, which was sorting activity method and learning theory method.

In order to find out and justify whether these methods are useable in real world I interviewed the principle Firm and the other firms that has tried these methods. Besides I found facts and data about using Indian engineers by different firms both national like Aker Kværner and international like Microsoft, Volvo and etc. After studying and researching all available theories, facts and data I came to two specific method of using Indian engineers.

These two alternatives are simultaneously sorting activity method and using Indian engineers fully as an integrated part of the firm. Activity sort method is based on that the firm must divide the engineering in to two parts. Process engineering, which also known as concept development engineering and detail is engineering. Detail engineering is standardized

Utilizing Indian Engineers in Pusnes

engineering tasks around the main concept in order to finish engineering of a product. The other alternative use of engineering was fully use of Indian engineers also in R&D section of engineering in order to increase chances of innovation in the firm. This method is relatively new and has different implications. After pointing out the positive and negative points with both presented alternatives, I compared both alternatives and chose only one of them which is sorting activity method.

The main reason for choosing engineering division method was that it is a tested, secured and well functioned method of using Indian engineers. In this case the best using contract was relational contract, and in order to govern the transaction using Bilateral Governance: Obligational contracting. As well as organizing work force let the Indian engineers be a part of Norwegian team this will trigger the training process. Pusnes ought to have some requirements regarding use of software in engineering tasks given to Indians, because Aker Kværner has a bit problem regarding this.

The solution of overcoming cultural differences is also the same solution as AK. Aker Kværner overcomes cultural shock by let the Indian department be a totally Indian department with an Indian management. As well as building a closer relationship with Indian engineers through social interactions, Pusnes can also include social skill training. In Indian culture morals and ethics are quite strong. Indians appreciate social status and position, so if they get a good and respected position the financial income doesn't come in the first place.

I personally am in fever of the integration method but as I am not sure and it is a dynamic way of using Indian expertise I don't suggest it in case of Indian engineers. In addition it has a long term result so it is going to take time before it generates any return. To some extend I feel it recommendable that Pusnes may establish R&D (Research and Development) centre in India, It may have some costs initially but it can raise innovation possibility and rate of return in long-term. Many western companies has began with such process and it has proven to be successful, For example Volvo, Microsoft, Astra Zeneca and Sony Ericsson mobile company has tried this method and are very satisfied with results and contribution, some of them have also plan to expand their projects.

7. Literature list

- Williamson, O.E. “Transaction-Cost Economics: The Governance of Contractual Relations” 1979, Jay B. Barney and William G. Ouchi “Organizational economics” (P.97-P.124)
- Williamson O.E. The Economics of Behavior: Managerial Objectives in a Theory of the Firm. Englewood Cliffs, N.J.: Prentice Hall, 1964
- Sytse Douma & Hein Schreuder “Economic Approaches to Organizations” Prentice Hall International (UK) Ltd, 1992
- Scott, W.R.(1987) Organizations: Relational, natural, and open systems,2nd edn, Englewood Cliffs: Prentice Hall
- Simon, H.A.(1961), Administrative Behavior, 2nd edn, New York: Macmillan
- Williamson, O.E. and Ouchi, W.G. “The Markets and Hierarchies Perspective: Origins, Implications, Prospects” In A. Van de Ven and W.F. Joyce (eds), Assessing Organization Design and Performance. New York: Wiley, 1981.
- Porter, M. E. “How Competitive Forces Shape Strategy” Harvard Business Review, 1979a, 57, 137-156.
- Porter, M. E. Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York: Free Press, 1980.
- Gary J. Miller. Managerial Dilemmas: “The Political Economy of Hierarchy” United States of America, 1992.
- Greert Hofstede. Culture’s Consequences: “Comparing Values, Behaviors, Institutions across Nations” Second Edition, 2000.

Utilizing Indian Engineers in Pusnes

- Lepak, D.E. & S.A. Snell (1999): The Human Resources Architecture: Toward a theory of Human Capital Allocation and Development. Academy of Management Review, Vol. 24, No.1: 31-48.
- Von Krogh, G., K. Ichijo & I. Nonaka (2000): Enabling Knowledge Creation. How to Unlock the Mysteries of Tacit Knowledge and Release the Power of Innovation. Oxford University Press, Inc.
- Holme, Idar Magne og Solvang, Bernt Krohn (1991): “Metodevalg og Metodebruk”. 2. Utgave. Tano A.S. Otta.

Links

[1] http://en.wikipedia.org/wiki/Corporate_governance

[2] http://en.wikipedia.org/wiki/Value_chain

[3] <http://www.tu.no/industri/article63401.ece>

[4] <http://www.tu.no/data/article93943.ece>

[5] http://www.tu.no/a/00008/tu30_8588a.pdf

[6] <http://www.tu.no/nyheter/arbeidsliv/article47846.ece>

[7] <http://www.tu.no/>

[8] <http://www.tu.no/offshore/article62777.ece>

[9] <http://www.skaperen.no/>

[10] <http://www.akerkvaerner.com/internet/default.htm>

[12]

<http://www.akerkvaerner.com/Internet/AboutUs/GroupStructure/ProductsandTechnologies/MaritimePusnes.htm>