A model to support development of procedural description to improve the quality control of production in different cultures

*A case study of a Swedish toys vendee and its outsourcing*
A model to support development of procedural description for improving the quality control of production in different cultures

A case study

The main purpose of this thesis is to develop a model for designing a quality control procedural description with respect to cultural differences. This project is conducted at the case company. The problem in the case company is to analyse the existing procedural description of quality control to develop a model to improve the quality control of production with respect to different cultures. The authors visit the case company to collect essential information to accomplish the thesis, face-to-face user interviews, Question & Answer via email. The knowledge gained on different quality tools during studies at School of Technology and Design (Terotechnology) for the basis of this research. The plan of this thesis uses the different quality tools and techniques to solve the problem by analyzing, mapping the existing processes. The analysis is based on theoretical and empirical facts, also different quality tools like process mapping, cause & effect diagram and flowchart are use to identify the problem and relevant suggestions have been proposed to improve their current situation. In the results and conclusions the authors explain a model for designing a quality control procedural description. The authors believed by implementing the suggested improved model company can address their quality issues, which will improve the productivity to a greater extent and enable them to achieve their goal of continuous improvement.

Communication is main factor in this thesis. In the case company there is such as no main problem of low or bad quality in the product. Occurrence is more important to develop good relations with the suppliers. Continuously repeat of the specification and demand over & over again is very important for clear communication between buyer & seller as well as feedback and follow up of the order from both parties.

Key Words
Procedural description, Quality Control, Total Quality Management, Culture, Communication
Abstract

The main purpose of this thesis is to develop a model for designing a quality control procedural description with respect to cultural differences. This project is conducted at the case company. The problem in the case company is to analyse the existing procedural description of quality control to develop a model to improve the quality control of production with respect to different cultures. The authors visit the case company to collect essential information to accomplish the thesis, face-to-face user interviews, Question & Answer via email. The knowledge gained on different quality tools during studies at School of Technology and Design (Terotechnology) for the basis of this research. The plan of this thesis uses the different quality tools and techniques to solve the problem by analyzing, mapping the existing processes. The analysis is based on theoretical and empirical facts, also different quality tools like process mapping, cause & effect diagram and flowchart are use to identify the problem and relevant suggestions have been proposed to improve their current situation. In the results and conclusions the authors explain a model for designing a quality control procedural description. The authors believed by implementing the suggested improved model company can address their quality issues, which will improve the productivity to a greater extent and enable them to achieve their goal of continuous improvement.

Communication is main factor in this thesis. In the case company there is such as no main problem of low or bad quality in the product. Occurrence is more important to develop good relations with the suppliers. Continuously repeat of the specification and demand over & over again is very important for clear communication between buyer & seller as well as feed back and follow up of the order from both parties.
ACKNOWLEDGEMENTS

We would sincerely like to thank for all who contributed in preparation of this thesis, but most of all Göran Kulberg, Lena Cikos from Brio in Osby, Magnus Örnhem and Erik Anderson from Avalon Technology and Tony Brogery from S-Remmen AB.

We would also like to thank our supervisor, Ia Williamsson, who has helped us during this project and as well as our tutor Anders Ingwald.

____________________                                _____________________
Muhammad Zeeshan             Irawati Djaya
Email: mzeex06@student.vxu.se     Email: idjcq06@student.vxu.se
# Table of Contents

1 INTRODUCTION ................................................................................................................................. 1
  1.1 BACKGROUND ................................................................................................................................. 1
  1.2 PROBLEM DISCUSSION .................................................................................................................... 2
  1.3 PROBLEM FORMULATION .............................................................................................................. 2
  1.4 PURPOSE ......................................................................................................................................... 2
  1.5 RELEVANCE .................................................................................................................................... 2
  1.6 LIMITATIONS .................................................................................................................................. 3
  1.7 TIMEFRAME .................................................................................................................................... 3

2 METHODOLOGY ..................................................................................................................................... 4
  2.1 SCIENTIFIC PERSPECTIVE ............................................................................................................ 4
  2.2 RESEARCH APPROACH .................................................................................................................... 4
  2.3 RESEARCH METHODS ...................................................................................................................... 5
  2.4 METHODOLOGY USED IN THE THESIS ......................................................................................... 6
  2.5 DATA COLLECTING .......................................................................................................................... 6
  2.6 VALIDITY AND RELIABILITY .......................................................................................................... 7
  2.7 DATA COLLECTION METHODS USED IN THE THESIS .................................................................. 8

3 THEORY .................................................................................................................................................. 9
  3.1 CONCEPT OF QUALITY ................................................................................................................... 9
  3.2 DESIRED QUALITY .......................................................................................................................... 9
  3.3 TOTAL QUALITY MANAGEMENT .................................................................................................... 10
  3.4 QUALITY CONTROL ........................................................................................................................ 12
  3.5 PROCEDURAL DESCRIPTION ........................................................................................................ 12
  3.6 CULTURE ....................................................................................................................................... 12
  3.7 LANGUAGES .................................................................................................................................. 14
  3.8 COMMUNICATION ........................................................................................................................... 14
  3.9 PRINCIPLES OF MULTI CULTURE QUALITY OPERATION .............................................................. 15
  3.10 MANAGEMENT OF QUALITY CONTROL PROCESS ................................................................. 16
  3.11 CUSTOMER SATISFACTION .......................................................................................................... 20
  3.12 CAUSE AND EFFECT DIAGRAM ................................................................................................. 20
  3.13 CHILD SAFETY CAR SEAT ......................................................................................................... 21

4 EMPIRICAL FINDINGS ............................................................................................................................ 23
  4.1 COMPANY DESCRIPTION ................................................................................................................ 23
  4.2 COMPANY QUALITY POLICY ......................................................................................................... 23
  4.3 COMPANY MANAGEMENT PROCESS WITH OUTSOURCE SUPPLIER ....................................... 24
  4.4 SPECIFICATION OF CHILD SAFETY CAR SEAT ....................................................................... 24
  4.5 QUALITY CONTROL PROCEDURAL DESCRIPTION IN PRODUCTION PROCESS ..................... 27
  4.6 PROBLEM IN THE COMPANY ...................................................................................................... 29

5 ANALYSIS ............................................................................................................................................... 30
  5.1 STEPS FOR ANALYSIS .................................................................................................................... 30
  5.2 DIFFERENT CULTURES ENVIRONMENT ...................................................................................... 30
  5.3 CAUSE AND EFFECT DIAGRAM WITH POSSIBLE REASON OF IMPACT ON QUALITY ............ 32

6 RESULT .................................................................................................................................................. 35
  6.1 CULTURAL ENVIRONMENT .......................................................................................................... 35
  6.3 CULTURE & QUALITY CONTROL PROCESS .............................................................................. 36
1 Introduction

This chapter includes the background of the problem addressed in this study, followed by the purpose of the project and its relevance. It is provide a holistic view to the readers.

1.1 Background

In the past, many organizations competed mainly within their home country or region. Nowadays firms develop alliances, purchase and sell their products and services all over the world. Ever increasing emphasis on globalization is one of the most important trends facing by the managers (Chakravarty 1997). Today our daily lives and schedules depend totally upon the satisfactory performance and operation of products and services. The goal of competitive industry, as far as product quality is concerned with providing the product or service into which quality is designed, built, marketed and maintained at the most economical costs which allow for full customer satisfaction (A.V. Feignbaum 1991).

Competitive intelligence is a strategy, towards globalization should involve monitoring the moves of competitors. Business leaders are agreeing that the only way to survive in our competitive world is by obtaining full customer satisfaction through the consistent delivery of high quality products and services. The competition and flow of information has become very high. So it has become more and more important for the companies to improve all the different components of the business (Subba Rao Siriginidi 1996).

Quality is a measure of the utility, or the want satisfying capacity of products. Control is a process for delegating responsibility and authority for a management activity while retaining the means of assuring satisfactory results. Therefore quality control aspect, strongly influence the competitiveness of organisations and continually demand managerial attention (Evans and Lindsay, 2001; Goetsch and Davis, 1997).

Quality, price and delivery are no longer considered as static. Preference and perception of customers are continuously changed. To increase the competitive advantage of a company, supplier adaptability and relationship are very important factors. Fast and reliable communication over the entire world is enabled through rapidly changes in information technology day by day, but the interaction is still far away from the evident between buyer and supplier. Communication, collaboration and cooperation between the buyer and seller are disturbed with the remote distance and cultural differences (Lisa Campbell, Edward Finch 2004).

The importance of quality as a driver of competitive advantage increases with increases in local and global competition. Industrial corporations are very interested in upgrading the quality of products and services. In the background of globalization, more and more multinational corporations shift the labour-intensive production form the developed countries to the developing countries because the lower labour and raw material cost. Nowadays quality control aspects strongly influence the competitiveness of organisations and continually demand managerial attention (Evans and Lindsay, 2001; Goetsch and Davis, 1997).

Among management gurus, consultants and senior management teams, there would appear to be fairly broad agreement that culture is the key factor underpinning success in terms of developing the necessary commitment to any form of change. The efficacy of the concept of
culture rests with the idea that culture acts as a force for cohesion in organizations and that because of this; current cultural forms can act as a bulwark against the changes required in moving towards TQM (Meyerson, D. and Martin, J.1987, Kotter, J.P. and Heskett, J.L. 1992). The efficient transaction of international business is made more challenging because of several kinds of obstacles i.e. geographical, financial, legal/political and cultural. Difference in language, values and behaviours are the several obstacles of cultural which make human interactions more difficult (Alan M. Rugman & Thomas L. Brewer 2001).

While obtaining competitive prices, the Swedish companies also have to face the enhanced risks of the longer lead-time of products cycle and especially quality deviation of products. The occurrence exists generally between the Swedish companies and the suppliers, which are insufficient quality monitoring, insecure delivery accuracy, cultural difference, communications problems and the lack of employee training.

1.2 Problem discussion

The research of this thesis focuses on a Swedish multinational corporation to commission a outsource suppliers. In the production process, the quality of products, which the supplier provides, deviates from what the customer expects.

There are two main purpose of outsource
1. Lower the purchase price of some input by taking advantage of external suppliers’ low cost.
2. Improve the quality of some input by purchasing some superior quality from external supplier (Peter Barrar & Roxane Gervais).

Quality control system consists of a system of tasks, methods, and means, which an organisation uses to agree and maintain the product characteristics to the expectations of the internal as well as external customer. (Water, H. van de, Vries, J. de 1992). Procedural description is regularly and habitually performed programmes of action or procedures (Scott, 2001).

1.3 Problem formulation

Taking all the above into consideration, authors decided to come up with the following research questions:
1. Is the case company’s existing quality control procedural description suitable for international strategy?

2. How can cultural differences be considered in a quality control procedural description?

1.4 Purpose

The main purpose of this thesis is to develop a model for designing a quality control procedural description with respect to cultural differences.

1.5 Relevance

Some time to identify, analyse and come up with workable solutions restrict by the culture trap of management. The reinforcement of routine patterns of thought has sacred place in the

The employees are more responsible, manage their work by themselves, commitment, communicate in good way and working in group in flexible timing then management has less pressure about the job because they know their employees are committed and hard worker. They easily understand the requirement of the organization as well as customer. Therefore when quality results are achieved there is some assumption that employees must be controlled and directed by the management (Deal, T. and Kennedy, A. 1982, Ogbonna, E. and Wilkinson, B. 1988.).

Continuously improvement in quality work and reduce the cost of production are beneficial for every organization to survive in this competitive market. Form the cost of production and quality, quality is more important, its build the goodwill of the company at every level in the market. Customers are focus on the quality of product at the same price level. Therefore better control on production, continuously improvement, competent employees and organizational environment lead the organization as well as survival in this business world (John Sinclair, David Collins1994).

1.6 Limitations

This thesis does not aim to provide the reader with all the cultural aspects i.e. language, values, behaviour etc. of business. Because of the limited data from the case company, we can only compare culture differences between Sweden and China. Since the case company did not give permission to show all the data that we needed in order to accomplish this thesis, therefore we use a flow chart to explain the process. In the result chapter, model for quality procedural description is not practically applying.

1.7 Timeframe

In table 1.1 the timeframe of this report can be seen.

<table>
<thead>
<tr>
<th>Week No.</th>
<th>34</th>
<th>35</th>
<th>36</th>
<th>37</th>
<th>38</th>
<th>39</th>
<th>40</th>
<th>41</th>
<th>42</th>
<th>43</th>
<th>44</th>
<th>45</th>
<th>46</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 Time Frame
2 Methodology

In this chapter the authors present the different research approaches used for this thesis.

2.1 Scientific Perspective

Scientific perspectives are different ways of identifying the truth and how to draw the conclusion from the given or collected knowledge. The different ways of looking at science and conclusions can according to Thurén (2002) compared with the difference of looking at religion. Davidson and Patel (2003) divide the scientific perspectives into different suspensions based on how interpret humans, the world, philosophy, science and the definition of knowledge. Common perspectives of science are positivism, hermeneutic, empirical studies like grounded theory, critical theory, feminism and postmodernism, where the focus is usually on positivism and hermeneutic.

2.1.1 Positivism

Positivism could be defined as the finding of the absolute truth (Thurén, 2002), studies that are based on concrete observations and the need to find the objective facts.

Positivism studies should be realistic, based on causality and from theory derive the hypothesis and test them with empirical findings through scientific methods. The scientific methods and knowledge are founded in physics and natural science (Patel and Davidson, 2003).

2.1.2 Hermeneutic

Hermeneutic are defined by Thurén (2002) as a humanistic interpretation method, knowledge based on text translations and the signification of understanding and the ability to handle experiences.

To seeking the truth different kind of knowledge can be valid depending on how draw conclusions, in the scientific perspective there are two basic ways, inductive and deductive (Andersen, 1998).

2.2 Research approach

The scientist is trying to make theories that shall give as correct knowledge about the reality as possible. To be able to build theory about the reality that are going to be investigated, the scientist needs data or information. The basic data that is needed is often called empiricism. Accordingly, there are three different concepts that the scientist can work with for relating theory and empirical findings; induction, deduction and abduction (Patel and Davidson 2003).

2.2.1 Induction

A scientist that implies the inductive approach follows the way of discovers. In this approach, the scientist can study the objective of investigation without using any existing theories, and formulate theory based of the collected information and the empiricism (Patel and Davidson 2003).
2.2.2 Deduction

A scientist that is working according to the deductive approach is following the way of proofing. The characteristic of this approach is that the scientist is using common principles and theory for drawing conclusions about specific phenomenon. Hypotheses are derived from the existing theory and are afterwards tested empirically in the actual case. This method is often referred to as the hypothetic-deductive method (Patel and Davidson 2003).

Through using existing theory, the objectivity of the research is assumed to be reinforced. This makes the research process less affected by the individual scientist’s subjective ideas. The danger of this is that the existing theory that the scientist is using will direct and affect the research progress in a specific way, as a result, new and interesting findings are not exposed (Patel and Davidson 2003).

2.2.3 Abduction

Combining induction and deduction implies the third approach of relating theory with empiricism, explicitly abduction. The first stage of this approach is to inductively formulate hypothetical patterns that can explicate the case. The next deductive stage is testing this hypothesis or theory on new cases. The original hypothesis can then be broaden and developed to become a more general one (Patel and Davidson 2003).

The advantage with this approach is that it does not restrict the scientist so much that might be the case when working strictly the inductive or the deductive way. Every scientist is coloured by experiences and earlier researches, this implies that no research is done unprejudiced. Thereby, the risk with this approach is that the scientist is choosing the object of investigation based on previous knowledge and thus also formulates a hypothetical theory that excludes alternative interpretations, Patel and Davidson (2003). Wallén (1996) points out that abduction is no method that can be used schematically but demands thorough experiences in the concerned area. The conclusions is not strictly logical applied but has to be further tried through practical experiments.

2.3 Research methods

Research methods can be divided into qualitative or quantitative. Both qualitative and quantitative research methods give the researcher a better understanding of problems.

2.3.1 Qualitative methods

Value and motivation, intention to human experience, property, behaviour and gestures are studies in Qualitative studies. The qualitative research method uses a few variables and a large number of respondents in order to reach generalizability (Holme & Solvang, 1997). To gain a deep understanding the situation of individual or organization a qualitative method is good to gather the organization’s information (Yin, Robert K. 2003). In qualitative research, researchers analyses and judge the different peoples’ point of view (Bryman 1997).

2.3.2 Quantitative methods

A quantitative research method uses few respondents but many variables in order to allow for deeper understanding. To develop different theories about different phenomena is objective of a quantitative research (Holme & Solvang, 1997).

The quantitative method is standardized research technique which is used the data dealing
with numbers or any tools which are measureable. In this method to present the result often used the statistical tables and graphs. To find out quantitative properties and their relationships through a systematic scientific investigation is defined as Quantitative research. To develop a connection between empirical observations the measurement should be central to research (Yin, Robert K. 2003).

Although scientific disciplines differ in their preference for one type over another, some investigators utilize information from both quantitative and qualitative with the expectation of developing a richer understanding of a targeted phenomenon (Yin, Robert K. 2003).

2.4 Methodology used in the thesis

The case study research strategy is going to use in this thesis. In case study the main source of collecting information is interview and observation. As the problem of this thesis closely relates to an increasingly complex business environment, a qualitative method is considered the best alternative for conducting the interview. To compare the collecting data with theory deduction approach is used.

2.5 Data collecting

There are four common methods of evidence used for performing case studies, namely documentation, surveys / questionnaire, interviews, and observations. Since each method is useful in some characteristic, a good case study will preferably include as many of these methods as possible. A brief description of each source will be given the following.

2.5.1 Documentation

There is a large amount of data that has already been collected from the company, although it may not necessarily have been analyzed or published. Locating these sources and retrieving the information is a good starting point in any data collection effort. In order to retrieve the data from available sources, the researcher will have to design an instrument such as a checklist or compilation sheet. In designing such instruments, it is important to inspect the layout of the source documents from which the data is to be extracted. (ICPSR, 2005)

2.5.2 Surveys / Questionnaire

The questionnaire, or survey, can be a written document that is completed by the person being surveyed, an online questionnaire, a face-to-face interview, or a telephone interview. Using surveys, it is possible to collect data from large or small populations. In general, there are three categories of survey presentations: written surveys, oral surveys, and electronic surveys (Holme & Solvang 1997).

2.5.3 Interviews

Interviews are referred to as the different kinds of questioning via personal contact directly, by e-mail, or by phone. There are different kinds of interviews and the number of respondents and interviewers can vary. It is common to record the interview or to make notes during it. When performing interviews concerning sensitive subjects, it can be a good idea to avoid recording or notes during the interview and instead take notes directly after. This routine often makes the responder give more complete answers. There are several kinds of interviews:

- When performing a structured interview the questions are prewritten and arranged in order to be asked.
• A semi-structured interview has got determined areas of topics but the questions are developed and asked during the interview depending on when the interviewer thinks it is convenient.

• If the interview is more like a conversation, it is an unstructured interview. In this kind of interview the questions are often leading and it is important that the interviewer is familiar with this and tries to avoid leading questions (Björklund & Paulsson, 2003).

One major advantage by doing interview is that they give access to primary data, that is, data that has only been gathered with the purpose of this specific study. It also often gives a deeper knowledge since (Björklund & Paulsson, 2003).

2.5.4 Observations

A statement that is determined by using one of the five senses is called the Observation. The authors or observer can perform it different ways and also the level of participating is different. The observer may fully participate in observation or observe the occurrence from outside. Some time only from the observation we got very objective information which is very useful during the studies (Björklund & Paulsson, 2003).

2.6 Validity and Reliability

In qualitative studies the concept of validity has a wide range of terms. A question or scale is measuring the concept; attribute and property are extent in validity. In practice, the success of the project in achieve “valid” result can also refer as validity. Poor data collection, coding errors, misunderstanding of management’s point of view, research questionnaire and misunderstanding of the questions by the respondents are the main source of errors, which can reduce the validity of the project / research. Without an appropriate judgement of subgroup result never drawn the conclusion and analysis result. For example, results from Undergraduate Medicine and Health Sciences Admission Test (UMAT) 2006 are valid for application to enter an undergraduate medicine or health science course beginning in 2007 and/or 2008 but not in 2009(Elgmork 1985, Ejvegard 2003). Researchers’ perception and hypothesis assumption can easily affect the validity of his / her study (Creswell & Miller 2000). The idea of trustworthiness is replaced with the idea of discovering truth through measuring of reliability and validity (Lincoln and Guba, 1985). The researcher’s perception of validity in the study and his / her choices of hypothesis assumption easily affected the validity.

2.6.1 Reliability of results

The concept of Reliability is used for testing or evaluating of quantitative research but it is more often used in all kind of research. The results of the research are present in graphs and charts. The reliability of results is very important in any research. In qualitative research, designing a study, analyzing results and judging the quality of study are rely on the validity and reliability (Bogdan and Biklen, 1998, Marilyn Healy and Chad Perry 2000). The steps of the research are verified through examination of such items like primary data, data reduction process and process notes to achieve the consistency of data (Campbell, 1996). In quantitative paradigms reliability and validity are essential standard for quality. Creditability, Neutrality or Conformability, consistency or Dependability and Applicability or Transferability are essential standards for quality in the quantity research (Lincoln & Guba, 1985).
2.7 Data collection methods used in the thesis

In this thesis authors used different data collection methods like company’s documentation, asking questions from the top management to gather useful information for the thesis, which is helpful to analyse the company current situation so the authors can see the big picture of the company, interview with management, middle management and employees and supplier to get true information about the existing situation and observed the employees at Brio’s assembling plant in Osby, Sweden and gathered the information from Chinese factory through email and telephone conference to collect the all required data to accomplish the thesis.
3 Theory

In this chapter all necessary theory for conducting this research is presented, in order to make the reader more acquainted with the subject and also to increase the understanding in the following analysis.

3.1 Concept of quality

Quality has become a business strategy leading to success, growth, and enhanced competitive position. The concept of quality with respect to customer satisfaction has been with us since the beginning. The word “quality” is derived from the Latin “qulaitas” meaning “of what”. Its use goes back to antiquity. Cicero, the roman orator and politician (106 – 43 A.D.), is thought to be person who first used the word. (Bo Bergaman 2003)

In recent decades, we have seen a tremendous interest in quality as a strategic issue in the western world. An important reason for this is the successes of Japan’s industries, particularly in the 1970s and 1980s. These successes were largely due to the strategic role that quality played to Japanese managers. They realized early that the quality concept should emanate from the requirements and expectations of the customer. (Williams 1995)

3.1.1 Definition of Quality

There is wide variety of definitions proposed for “quality”. There are two common aspects of quality; one of these has to do with the consideration of the quality of a thing as an objective reality independent of the existence of man. The other has to do with what we think, feel, or sense as a result of the objective reality; this subjective side is closely linked to value (Shewhart). “Quality is fitness for use” (Juran). “Value to some person” (Gerald M. Weinberg). “Quality is conformance to requirements” (Crosby). “Quality is the loss (from function variation and harmful effects) a product causes to society after being shipped, other than any losses caused by its intrinsic functions”. (Genichi Taguchi). "Costs go down and productivity goes up, as improvement of quality is accomplished by better management of design, engineering, testing and by improvement of processes. Better quality at lower price has a chance to capture a market. Cutting costs without improvement of quality is futile" (William Edwards Deming). “Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs”, (ISO 9000, Bo Bergaman 2003, Juran 1988, Williams 1995).

However, the American Society for Quality defines "quality" as "a subjective term for which each person has his or her own definition. In technical usage, quality can have two meanings:

- The characteristics of a product or service that bear on its ability to satisfy stated or implied needs.
- A product or service free of deficiencies.

3.2 Desired Quality

Desired quality is the perceptions of the end customer instead of statistical measurements. Such perceptions include not only the product itself but also the interaction process as such and how the customer feels that they have been treated by the supplier.
In some situations attainment of a certain level of quality may be desirable because it provides external recognition, which might be considered a status symbol (e.g. winning the ISO certification or receiving a prestigious award such as the Malcolm Baldrige award in the USA or Deming’s prize in Japan). Efforts must be made to assure the existence of such recognitions in the foreign environment, followed by the establishment of internal processes to meet or exceed quality levels required by such recognition standards.

3.3 Total quality management

Total = Quality involves everyone and all activities in the company.
Quality = Conformance to Requirements (Meeting Customer Requirements).
Management = Quality can and must be managed.
TQM = A process for managing quality; it must be a continuous way of life; a philosophy of perpetual improvement in everything we do.

Total Quality Management (TQM) is interpreted as “A constant endeavour to fulfil, and preferably exceed, customer needs and expectations at the lowest cost, by continuous improvement work, to which all involved are committed, focusing on the processes in the organization” (Bergman, klefsjö 2003). According to International standard organization (ISO), “TQM is a management approach for an organization, centred on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society.” It is a key strategy for maintaining competitive advantage and market leadership. In today’s manufacturing environment, where quality is crucial to success manufacturers use TQM as a powerful tool to continuously improve productivity and customer satisfaction. The practical application of TQM leads to decrease the average operations cost and others expenses, which automatically increases profit (Bo Bergman, Bengt klefsjö, 2003, Dexter A. Hansen 2005).

TQM should be regarded as a holistic approach, where values, methodologies and tools are combined in the quest of higher customer satisfaction meanwhile reducing the resource consumption. Gideon Halevi (2001) stress that “the concept of TQM includes both goods and services, that the customer is either internal or external and that a customer does more than just accept delivery”. The service and communication is also included in the concept. Customer satisfaction leads to sales and cash flow. There is a shared consensus among quality researchers that both a TQM approach and the implementation must build upon a continuous and consistent commitment by the top management of the company as well as to which extent they provide personal leadership (Deming, 1982; Juran, 1988). The TQM approach should rest on a culture based on the values presented in figure 3.1. Mutually supporting and interconnect of these values shaping the cornerstone of TQM. Tools and methodologies are support for every cornerstone (Bo Bergman, Bengt klefsjö, 2003, Dexter A. Hansen 2005).
3.3.1 Total quality management as foundation

TQM is the foundation for activities which include:

1. Meeting Customer Requirements
2. Reducing Development Cycle Times
3. Just In Time/Demand Flow Manufacturing
4. Improvement Teams
5. Reducing Product and Service Costs

3.3.2 Ten steps to total quality management

The Ten Steps to TQM are as follows:

1. Pursue New Strategic Thinking
2. Know your Customers
3. Set True Customer Requirements
4. Concentrate on Prevention, Not Correction
5. Reduce Chronic Waste
6. Pursue a Continuous Improvement Strategy
7. Use Structured Methodology for Process Improvement
8. Reduce Variation
9. Use a Balanced Approach
10. Apply to All Functions (Dexter A. Hansen 2005).

3.3.3 Principles of total quality management

The Principles of TQM are as follows:

1. Quality can and must be managed.
2. Everyone has a customer and is a supplier.
3. Every employee is responsible for quality.
4. Problems must be prevented, not just fixed.
5. Quality must be measured.
6. Quality improvements must be continuous.
7. The quality standard is defect free.
8. Goals are based on requirements, not negotiated.
9. Life cycle costs, not front end costs.
10. Management must be involved and lead.

3.3.4 Total quality management processes

TQM processes must be managed and improved. This involves:

1. Defining the process
2. Measuring process performance (metrics)
3. Reviewing process performance
4. Identifying process shortcomings
5. Analyzing process problems
6. Making a process change
7. Measuring the effects of the process change
8. Communicating both ways between supervisor and user (Dexter A. Hansen 2005).

3.4 Quality Control

Quality control is an effective system to integrate the quality development, quality maintenance and quality improvement efforts of the various groups in an organization so as to enable marketing, engineering, production and service at the most economical levels which allow for full customer satisfaction (Feigenbaum 1991). The quality control system consists of a system of tasks, methods, and means, which an organisation uses to agree and maintain the product characteristics to the expectations of the internal and external customer. (Water, H. van de, Vries, J. de 1992)

3.5 Procedural description

Procedural description is regularly and habitually performed programmes of action or procedures (Scott, 2001). Procedural description is integral both to the continuity of the personality of agent, as he or she moves along the paths of daily activities and to the institution of society, which are such only through their continued reproduction. (Giddens, Anthony 1984)

3.6 Culture

Samovar et al. (2007) use a definition to culture from the researcher Triandis, where culture is defined as

“Culture is a set of human-made objective and subjective elements that in the past have increased the probability of survival and resulted in satisfaction for the participants in an ecological niche, and thus became shared among those who could communicate with each other because they had a common language and they lived in the same time and place.”
One reason for Samovar et al. to prefer this definition to others is that it includes subjective elements or what is also referred to as softer values, beliefs and underlying assumptions. Another is that it is trying the culture together with communication and language.

The well-known researchers, the father and his son, Hofstede & Hofstede (2005) determined and described five universal dimensions of national cultures;

1. Power distance.
2. Collectivist - Individualism
3. The gender perspective – masculine versus feminine,
4. Uncertainty avoidance
5. Short-term versus long-term orientation.

3.6.1 Power Distance
In Power Distance unequally distribution of power is expected and accepted by the less powerful members in the organization and institution. It’s represent the inequality of power from the below management of the organization which is shows that the followers as well as leaders are endorsed the society’s level of inequality. Any society or person with international experience will be aware that distribution of power and inequality are main factors to unequal the society and some are more unequal that others (Hofstede & Hofstede 2005).

3.6.2 Collectivism – Individualism
Collectivism and individualism are refers to the integrated in groups. In collectivism the personal relationship prevails over the task and relationships are established before dealing with the task. On the other hand in individualism the task is prevailing over any personal relationship (Hofstede & Hofstede 2005).

3.6.3 Feminism – Masculism
Feminism and masculism are refers to the distribution of roles between the genders. In a feminism society stress the result and rewards on rewards. The women have the same values as the men. On the other hand a masculine society, men are expected to be tough, assertive and strong. The values of men are different with the women (Hofstede & Hofstede 2005).

3.6.4 Uncertainty Avoidance
The tolerance of uncertainty and ambiguity are deals in the Uncertainty avoidance. The person of a culture feels either uncomfortable or comfortable in an unstructured situation, deals in uncertainty avoidance. A person lived in this culture, is motivated by inner ambitious and emotion. In uncertainty accepting cultures people are more tolerant on the opinions of others, they try to have as few rules as possible which are based on philosophical and religious level and these rules also allow other opinion to flow side by side (Hofstede & Hofstede 2005).

3.6.5 Short-term and long-term orientation
This refers to the society’s traditions and values how much long standing as opposed to short term. Chinese scholars designed a questionnaire, which is studied by twenty three (23) countries’ student to find out this dimension. The result of this study is Asian countries have a strong link with Confucian philosophy which is focuses on human morality and good deeds. In long term orientation values are associated with economy and determination. In short term orientation tradition and social obligations are very important to setting the values (Hofstede & Hofstede 2005).
3.7 Languages

Language is the most common tool we use to communicate with each other in our daily life. We express our feelings and thoughts mostly by languages. The same language and sharing the culture with the people not come up with any problem in the communication. On the other hand different language and culture arises the misunderstanding and convey the point of view of the person (Herbig, P.A., Kramer, H.E. 1991). “Language is more than a vehicle of communication; it teaches cultural lifestyle, ways of thinking and perceiving the world and different patterns of interactions” (Samovar et al., 2007).

Mixture of languages also arise the problem. In the world there are thousands of languages. One word in the language can has the more then one meaning in that language. “The five hundred most-used words in the English language can have more than fourteen thousand meanings” (Samovar et al., 2007). When persons can not get the real meaning of the statement then there is misunderstanding arise between them.

When speaking, people are always influence by their own experiences and their cultures. In this context, the role of culture is emphasizing in the process of communication. Samovar et al (2007) states that culture greatly influences languages and determines largely the way people think and the way they ultimately speak. People from western countries generally use a direct language in their daily life. They often express directly what they think and what they feel. Samovar et al. (2007) characterizes such kind of language by honesty, frankness and clear expressions. However, the situation is different in some countries. People usually avoid using direct languages especially when expressing their disagreement and dissatisfaction. They usually go roundabout to the point instead of getting directly to the point. This way of expressing their feelings and thoughts can help achieve face-saving and maintain social harmony (Samovar et al., 2007).

3.8 Communication

Communication is concern with interacting, cultural lifestyles and way of thinking. It is also main issue like language. Culture has a massive influence on communication. People often bring their own experience and cultural background into conversation. To abstract the meaning of the speaker is easier when same cultured people are communicating with each other. On the other hand situation is vice versa when people from different culture communicate with each other. Therefore to understand the opponent culture is very important in communication to avoid the gap (Robert D. Gulbro, Paul Herbig 1998, Samovar et al., 2007).

The achievement of intercultural communication abilities passes through three phases: awareness, knowledge and skills. Awareness is the recognition of an individual that he or she carries unique mental software as a result of their childhood and environment. Knowledge follows upon awareness and if someone has to interact with another culture it is necessary to learn the symbols of the other culture even if someone does not share the values of that culture. The skills develop upon the base of awareness and knowledge together with experience (Hofstede & Hofstede, 2005).
3.9 Principles of multi culture quality operation

According to Feigenbaum 1991 and Evans & William 2001, to establish the quality operation at outsource some principles such as follow, are very important to applicable in the company.

3.9.1 Consistent & clear quality activities
The structure of quality activities throughout all operation must be clear, consistent and uniformly applicable. To achievement the appropriate quality, system to be most effective, build on the basic proven principles of preventive, clear specifications & standards, reliability verification, process control, motivation of employee, testing of product, etc (Feigenbaum 1991, Evans & William 2001).

3.9.2 Production process
To implement the proper quality in a production process, company adopt the specific procedure according to the region or country with proper maintenance. Without the specific procedure, employees never fully understood nor accepted. The company, day to day operation must be absorbed on regular basis to become more effective the procedure (Feigenbaum 1991, Evans & William 2001).

3.9.3 Regional & country strength
Some areas like employee motivation, technical strength, effective testing practices, etc. These are should be based upon regional & country strengths (Feigenbaum 1991, Evans & William 2001).

3.9.4 Quality authority
To achieve day to day quality in design, purchasing, process of production or service should be placed directly where product or part is engineered, manufactured or serviced and this should be understood. Otherwise it will be difficult to accountable, maintain and measure the require quality of product or service (Feigenbaum 1991, Evans & William 2001).

3.9.5 Communication
Good communication is an essential foundation for quality operation and it must be recognized, carefully established and continuously practiced. For the strong communication in the company there is encouragement of periodic, personal, face to face intercommunication among key quality personal throughout the countries and region (Feigenbaum 1991, Evans & William 2001).

3.9.6 Training & motivation
To achieve the desired quality, there is must be programmed and budgeted for training and motivation in the knowledge, skill and attitudes (Feigenbaum 1991, Evans & William 2001).

3.9.7 Audit the quality
To better quality performance in the production or service, the audit of quality result and maintenance of the operation or service procedure must be systematically performed throughout the regions (Feigenbaum 1991, Evans & William 2001).

3.9.8 Quality policy & organizational structure
In the company, quality policy and organizational structure must be clearly identified and established. There is clear description of quality policy whose principles will provide the
quality guidance throughout all the countries. There is strong relationship link among the different quality aspects like design, purchasing, production, etc. when each takes place on a geographically separated basis (Feigenbaum 1991, Evans & William 2001).

3.9.9 Development of quality structure
When the structure of quality is developed there should be possibility of involvement of all countries and regions that are related with this product or service (Feigenbaum 1991, Evans & William 2001).

3.9.10 Effectiveness of quality operation
The visible and continuing commitment of management at all levels is essential part of effective quality operation in the organization (Feigenbaum 1991, Evans & William 2001).

3.10 Management of quality control process
Quality becomes real when it is continuously work throughout in the company. The basis of effective quality program is the specific quality control applications that take place systematically, consistently and effectively applying in all activities of the organization. These applications are classified into four parts are as follow:

![Flow of management quality control process](image)

**New Design Control**, which involves the preproduction quality control activities.

**Incoming Material Control**, which involves the activities carried on while vendor and other incoming parts and materials are purchased, received and examine.

**Product Control**, which involves quality control activities carried on during active production and field service.

**Process Studies**, which involve the troubleshooting of quality problems from the new design to process control. (Feigenbaum 1991, Evans & William 2001)

3.10.1 Design Control
According to Feigenbaum 1991 and Evans & William 2001, for the new design control activity, a definite procedural description must be established and maintained within the framework of the quality system is necessary for fully effective in a company. The activities of new design control procedural description are as follow:

![Flow of design control](image)
Define require quality

Customer satisfaction oriented specification and standard like performance, reliability, maintainability and safety requirements of the product or component are involved in this stage (Feigenbaum 1991, Evans & William 2001).

Product design

Established the detailed drawing of the product and preparation of the related engineering instructions are included in this stage. In this section quality programs are evaluated. It includes the classifications of the product, product life, safety evaluation, process characteristics and reliability of component. It also includes field test and performance studies of assembled or handmade samples. Product cost, life cycle quality and cost goals are also evaluated (Feigenbaum 1991, Evans & William 2001).

Maintenance

The control of purchase material, maintenance of quality during production and processing and the assurance of quality during production and product serving are the parts of the maintenance of new design control. The development of the final specification for the quality information equipment like incoming material, in-process control and evaluation are also included (Feigenbaum 1991, Evans & William 2001).

Preproduction review

The formal evaluation the designed product at several stages of the complete design process to assure its capability of meetings its warranties and guaranties under conditions of actual use are parts of this stage. Analysis of capabilities also includes producing the product. Performance and product quality test are also conduct (Feigenbaum 1991, Evans & William 2001).

3.10.2 Incoming material control

According to Feigenbaum 1991 and Evans & William 2001, incoming material control involves the receiving and stocking, at the most economical levels of quality, of only those parts whose quality confirm to the specification requirements, with emphasis upon the fullest practical vendor responsibility. Incoming material control involves purchase, process control engineering and material handling techniques as well as techniques in other functional fields. The activities of incoming material control procedural descriptions are as follow:

Material request & specification

The plant employees generate a request for a certain material. It must have adequate specification for the material like drawings, quality requirement, quality level, quality information equipment uses, reliability requirements, etc...
**Purchase analysis**

Based on the material specifications have been made available to purchasing, a study is initiated to determine where the material should be placed to permit most economical price, proper quality, acceptable delivery cycle and other requirements (Feigenbaum 1991, Evans & William 2001).

**Vendor selection**

After purchase analysis, which has identified the best qualified vendor/s, purchasing initiates the placement of the contract and purchase order to the vendor/s that has been selected. The vendor/s is informed in detail of all aspect of quality requirement that apply to the material the vendor will be supplying (Feigenbaum 1991, Evans & William 2001).

**Material receipt & examine**

The next step is the first shipment received from the vendor. This shipment is identified and then tagged. After that they will be routed to the properly and provide properly traceability. Handling of the material is carried on rapidly but carefully as they are transported to the appropriate inspection and testing area. The inspector and tester tested and inspected the material according to the available planning of each material. When material is accepted through approved procedures, it is stamped, tagged and made available for transportation out of the inspection area (Feigenbaum 1991, Evans & William 2001).

**Material disposal**

Material accepted by incoming inspection or tester or the plant laboratory is carefully transported to suitable locations in the production or storage areas. This accepted material is use in accordance with the plant material flow requirement (Feigenbaum 1991, Evans & William 2001).

**Record keeping**

Accepted material’s vendor records are kept. There is a record for each material type or part number of that material. Unsatisfactory quality material as soon as immediately and directly notified to vendor. These data provide significant information for the plant vendor rating (Feigenbaum 1991, Evans & William 2001).

**3.10.3 Process control**

According to Feigenbaum 1991 and Evans & William 2001, process control involves the control of the products at the source of production and through filed service. In this section all quality control activities on a product from the time it is approved for production and its materials and components are received to the time it is packed, shipped and received by the customer who satisfied with it. The activities process control procedural description is as follow:

![Figure 3.5 Flow of process control](image)
Order Received
In the manufacturing area order received for the part or material. In the order all detail of the product is mentioned, specification of the product, quantity of the product, delivery date, etc. are mentioned in the order form (Feigenbaum 1991, Evans & William 2001).

Order Examine
When an order receive from the customer, after that production department examine the requirement of order and taking the required steps to complete the required production. Like determination of processing equipment, selection of require tools & fixture, availability of material, qualified worker, etc (Feigenbaum 1991, Evans & William 2001).

Order release
After examine of the order and fulfil its requirement, order is release for the production. At this stage also set the standards of quality, quality levels for sampling, point of inspection or test, etc (Feigenbaum 1991, Evans & William 2001).

Control of Material
Material flow is very important during production according to lot number. Efficient materials handling lead to product quality can be economically and consistently built in material only if the factory floor layout permits proper routing of material. There is should be consistency and good control on the material (Feigenbaum 1991, Evans & William 2001).

Approval of Product
Before proper production of any product, approval of product is very important. At this stage examine the sample of finished product with its required specification (Feigenbaum 1991, Evans & William 2001).

Quality Audit
Quality audit means a systematic examination of a quality system. A quality audit is typically performed at defined intervals and ensures that the department has clearly defined internal quality monitoring procedures linked to effective action. The checking determines if the quality system complies with applicable regulations or standards (Feigenbaum 1991, Evans & William 2001).

Packing & Shipment
The design of packing is too frequently regarded as a secondary matter in many companies, yet it can be essential to the achievement of the necessary levels of reliability. The only product reliability that counts is what the customer can actually experience. Poor protection and rough handling during shipment of any product is deteriorated its reliability either product is carefully manufactured or highly reliable design. Route, method of transportation and temperature & humidity should be considered during the packing (Feigenbaum 1991, Evans & William 2001).

3.10.4 Special Process Studies
In the plant or company, there may develop design, production or services and quality problems. If these problems are not deal with effectively and quickly, we put at risk customer satisfaction in the marketplace. In this competitive world companies need strong total quality program that they deal these all problems with systematically, timely and permanent way.
These problems generally are identified in parallel with product control operations. The organization or a company established the special process studies or continuous improvement studies to provide a channel for carrying to deal with them.

![Diagram of Process Studies](image)

Figure 3.6 Flow of special process studies

Special process studies involve investigations and test to locate the causes of nonconforming products, to determine the possibility of improving quality characteristics and to ensure that improvement and corrective action are permanent and complete. Successful quality improvement depends on the ability to identify and solve problem. According to Kepner and Tregoe “A problem is a deviation between what should be happening and what actually is happening. Problem solving is the activity associated with changing the state of what is actually happening to what should be happening.” Solving quality problems often involves a great deal of creativity (Feigenbaum 1991, Evans & William 2001).

3.11 Customer satisfaction

Customer satisfaction can be represented as follows.  
Customer satisfaction = Performance Features + Behavioural Features + Price.  
Performance features are the issues on Conformance to the standards and Variability. The following components of service are considered as the major enabler for the growth of the business that is indicated in the research publications.

1. Responsiveness - Readiness of employee to provide service.
2. Courtesy - Respect, Friendliness of contact personnel.
3. Timeliness - Delivery on Time, First Contact Resolution.
5. Communication (Empathy) - Speaking to the Customers in their language
6. Credibility - Taking Ownership in Resolving the Complaints.

If customer experience matches customer expectations, it will leads to customer satisfaction, however, if not, then it will leads to customer dissatisfaction. On similar lines if it exceeds the expectation, it leads to customer delight (Wilson, 2002).

3.12 Cause and effect diagram

It is also called the fishbone diagram, used to identify root-causes of quality problems. Starting by roughly describe types of causes (worker, machine, material, method), it is investigated deeper for each of these roughly described causes. And then it continues to refine
the diagram until possible “root causes” are found. It is a useful tool for indicating where to find plausible causes and/or where to collect data. (Bergman, 2003)

![cause & effect diagram](Skymark, 2007)

3.13 Child Safety Car Seat

From 1933 Car seats for children have been manufactured. The Bunny Bear Company specially promotes the children's car seats made with several designs, but their purpose was to change the market trend and increase their business volume, not to protect the child in the event of an accident. The first recorded child safety seat was made-up in England by Jean Ames in 1962 (Gillian S. Holmes 1997).

3.13.1 Specification of child safety car seat

Polypropylene is used by manufacturing for the shell of child safety seat. It is useable under pressure and durable then other type of plastics. Several of the smaller components like buckle latch plates, harness adjusters, locking clips, and the buckles themselves are also used during the manufacturing of the child safety seat (Gillian S. Holmes 1997).

Seat cover and harness both are made with a special fabric which is resist from flammability test and also washable with mild soap and water. Detergent and washing chemicals are affected in flame resistant treatment. The thread which is used for sewing the cover and harnesses required the same specification. Foam is used for padded the seats. It is also fulfil the required standard for flame resistance and energy absorption. Printed labels are designed according to the Scandinavian standards (Gillian S. Holmes 1997).

3.13.2 Design

The process of design conception which is depending on the complexity of it takes from one to three years. The design of new anchorage system, constructed, child’s comfort, easy to use, sizes within the particular age, ranges of weight, sales trend, customer feedback and quality & crash tests are main causes to slower the design process (Gillian S. Holmes 1997).
3.13.3 The Manufacturing Process

Moulding of the shell is first phase of manufacturing process of the child safety seat. The small plastic pallets are melted in the heater and became a shape of the seat shell through injection moulded. Other parts of the seat like padded cover with foam, cover of the seat, harness, buckle, clip and printed labels of instruction are assembled on the shell of the child safety seat. The padded cover is used accordance with new fashion design. The shell is secured with assembling of buckle and harness is included with buckle and adjuster (Gillian S. Holmes 1997).

The packing of the seat is accordance with the instruction of the marketing department or customer’s requirement. To clean and secure the packing of the seat, cartons are stacked and wrapped with the plastic sheet (Gillian S. Holmes 1997).
4 Empirical Findings

In this chapter we are going to describe the case company. And the relevant information about the case company that was collected for the thesis will be presented.

4.1 Company Description

Brio’s history began in 1884 with basket-maker Ivar Bengtsson. In 1890 Ivar Bengtsson published his first catalogue. Ivar had started to sell more and more in the areas north of Skåne in Sweden. In 1902 Ivar and his family moved to Osby, until now become head office of Brio. Today BRIO is a global corporation and the biggest in wooden toys, the product of brio from furniture, stroller, and child car seat, all the product focus on children. The Vision of Brio is the world’s best-loved family brand. The Mission of Brio is to create products for active, modern parents who want the best for their children.

Brio has subsidiaries in Scandinavia, UK and Ireland, Germany, France, Japan and Hong Kong and about 50 distributors worldwide. Brio’s shares have been listed on the Stockholm Stock Exchange since 1985. The total trading volume for the year 2005 was 822 151 shares at a value of SEK 54 518 321. (Interview with company representative & company website)

4.2 Company Quality Policy

Quality is a requirement fundamental to Brio competitiveness. Its quality policy is based on customer orientation and points the way to a further success. The core of Brio quality work lies in its understanding of and constant focus on customer needs. The customer focus is a measure of the operation’s quality awareness and competitiveness.

Aiming for the highest product safety possible has always been natural for Brio. Creating products that are safe enough for young children involves extensive testing. Every Brio product must have the approval of national and international regulatory bodies that govern the performance and labelling of products. Products are tested for a long time in Brio laboratory before they are put on the market. Brio test new products as well those already on the market and in general Brio places higher demands on toys than international testing institutes.

When a Brio product is ready to be launched, presented it for certification by the most well-known institutes. If there are differences in the various regulatory systems, Brio policy is to always choose to abide by the harder and most thorough regulations. In order to remain close to production, Brio recently added a person responsible for quality and safety at the office in Hong Kong. There are seven employees to control the content and quality of their shipments and also that their suppliers follow their code of conduct. This way company can prevent any potential safety issues early in the manufacturing process. In spite of all the measures that company have taken to eliminate risk, accidents can still happen. Therefore company developed a crisis and action plan so that it can respond quickly and appropriately in the event of accidents related to product safety.

Ethical standards have always been of highest priority for Brio. As a company that makes product for families with young children, Brio cannot afford to have slack ethical standards. Naturally, ensuring high environmental standards and working conditions in other countries is no easy task – but it is a task that Brio is committed to. During the last year Brio has taken...
significant step to ensure that suppliers abide by tough international regulations.

The whole Brio Group is certified according to the ISO 14001 environmental management system. Among other things, this means that the company must have a policy for continuous improvements, which places environmental and quality demands on all Brio suppliers. (Interview with company representative & company website)

4.3 Company management process with outsource supplier

Brio contacts the consultant for different new ideas. After several discussions with the consultant they finalized the new product idea. When new product’s idea is approved they contact the supplier to finalize the supply of finished product. Consultant also contact with the supplier, as below shown in figure: 4.1 aero sign have shown that there is two way communications between two parties.

The relationship between Brio and suppliers is a contract to manufacture the product’s parts. For a child car seat they contact the supplier to supply the parts of the product. They have three different suppliers in three different countries. From UK they purchase the safety belt harness, from Hungry they purchase the fabric (seat cover) and from china they purchase the shell of the seat and foam padding. They assembled these all parts by themselves in their own factory at Osby Sweden.

![Communication process among Brio, suppliers and consultant](image)

4.4 Specification of child safety car seat

The Shell of child safety seat is made of polypropylene, which is a tough plastic that flexes under pressure and doesn't crack easily the way some other plastics do. The plastic is transported to the factory in the form of pebble-sized pellets;

Several of the smaller components like buckle latch plates, harness adjusters, locking clips, and the buckles themselves are made by specialty manufacturers.

A fabric is used to make safety seat covers and harnesses. Both covers and harnesses have to be able to withstand flammability tests, but they also have to be washable. Only mild soap and water can be used because detergents or chemicals break down the flame resistant fabric treatments. The thread that sews these materials together has to meet the same requirements.
Colour, durability, and fashion are other considerations in selecting the cover fabrics. The harnesses meet the same strength requirements as those for adult seat belts.

The seats are padded with foam. Types of foams are heavily regulated to meet standards for flame resistance and energy absorption. Pads and covers are sewn by the child safety seat manufacturer or by outside suppliers.

Printed paper components are among the most important. Labels are designed by the manufacturer in accordance with Scandinavia standards.

Locations of labels on the device, precise wording, and paper that with stands tears (so missing information is evident) are among the specifications. Instructions are also prepared to meet exacting requirements, and the child safety seat must include permanent storage for the instructions. Physical printing of labels and instructions is done by printers subcontracted by car seat manufacturers.

### 4.4.1 Design

The manufacture of a child safety seat takes one to three years from concept through production. The plastic seat shell is injection-moulded from plastic pellets. All parts are hand assembled at work stations. Crash testing is done to ensure the effectiveness and quality of the child safety seat design.

The child's comfort and easy use of the seat are much more subjective. Charts of average child sizes within particular age and weight ranges help designers fit the seat to the child and make it comfortable. To understand the parents' perspective on using the seats, manufacturers consult with focus groups; analyze sales trends as indicators of ease of operations, ease of inserting and removing infants and popularity of features such as pillows and seat protectors; and users’ feedback like opinion or e-mail.

Consumer opinion also includes fashion (colour & design of fabric) and appearance of the safety seats. Purchasers prefer infant seats with light colour of fabrics and child-like patterns. Seats for elder children tend to match trends in vehicle design, including interior colour and more sophisticated patterns that are coordinated with interior.

Design must be consider constructability. The method of moulding the seat, materials, the method of assembly and other characteristics may simply not be compatible with other desirable design features. The process of design conception through production start-up takes from one to three years, depending on the complexity of the design. Design time is expected to be slower as the first seats with the new anchorage system are designed, constructed, and tested, although it will quickly resume speed as designers become accustomed to working with the new system.

### 4.4.2 The Manufacturing Process

Manufacture of the child safety seat begins with moulding the shell. The plastic pellets are melted and injection-moulding into the forms of shell of the child car seat.

Shells which are rejected by quality control or used in crash testing are recycled and combined with new plastic for remoulding. Only a very small percentage of reground plastic
is allowed in remoulding. Covers may not fit or sewn incorrectly these are returned to the supplier. Metal parts like clips are not plated properly can be replaced or recycled. Other parts like buckles are discarded.

The moulded forms are secure child safety seats to anchors located in every automobile. The switch from seat belt attachment to an anchoring system will reduce the problems that occur with the use of seat belts.

The parts made by outside suppliers are distributed to work stations in Osby, Sweden. These include the foam padding, cover, harness, buckle, labels, and instruction. Workers simply complete their portion of the work and hand. This enables personnel to work at their own pace and check their own work on the product.

The padded cover is placed on the shell and attached. The buckle assembly is secured to the shell, and the harness is threaded through the buckle, adjuster, and harness retainer.

The labels are secured on the safety seat, and instructions are packed in the storage compartment that is a mandatory part of design of the seat and packing.

The seats are packed in cartons that carry information and designs developed by marketing and advertising. The cartons are stacked and wrapped in plastic so the cartons are kept clean until they are ordered and shipped. The wrapped batches of cartons are stored on pallets and moved to store.

4.4.3 Quality control

Brio maintains a quality control department and an established inspection system. Every person who assembles is expected and encouraged to report errors, and all seats are inspected for visually detectable problems. Individual parts are typically compared to masters for correctness, and each product has a bill of materials that lists the part numbers of every part in the product. Product managers may also pull products during assembling for review.

Crash testing by Väg-och TransportforskningsInstitut (VTI) Swedish National Road and Transport Research Institute, is an independent and internationally research institute within the transport sector and they test the child car seat.

4.4.4 Quality control of shell

The manufacturing of the shell is in china and quality control procedural description is checked. This is shown in below figure 4.2

![Diagram of quality control process of child car seat shell](image)

**Step 1**

In this step quality control is inside manufacturing plant in china. There is approved production list (appendix II) any person who do the work on the job, he/she will be sign on it. For example the person who responsible for settings of machine, that person has to be sign
and put his/her name and this detail also print on the bar code which is paste on every shell of child car seat. So every shell of car seat has detailed information, the worker in Sweden know exactly who was the person work on this car seat shell, from setting the machine, recycle material until weight check. In the future if there is any complaint from the customer or mistake in production Brio can detect from the bard code, who is responsible of that problem?

**Step 2**
In this step, there is inspection of the product before delivering to Brio Sweden, the person who doing inspection is employee of Brio Hong Kong office. In the inspection report (appendix III), there are category of defect, critical, major and minor according to inspection, if the defect of the product is critical then they cancel the shipment to deliver to Sweden. In the inspection report they also added proof with the picture, to clear where is fault? For example, manual book is poor printed and inspection show with the picture and supplier knows exactly where the fault is.

**Step 3**
When container arrives in Osby Sweden, there is a person who responsible to receive the products, firstly he check the quantity of the good and secondly checked goods’ physical condition and third is sample checking of thickness of the shell car seat. For this they use ultrasonic thickness tester to check the quality of shell.

**Step 4**
This is the last part of quality control in Osby. At there when shell arrived, worker just only assembling it. Sometimes the drilling or mountain is not exactly at the right position so they adjusted. Before the covered by fabric, the worker check by eyes, there is any defect or not.

### 4.5 Quality control procedural description in production process

Quality control procedural description in china factory as follow

![Quality procedural description plan at china factory](image)

Figure 4.3 Quality procedural description plan at china factory

The quality control procedural description steps can be described as follows:
1. Factory in China have few customers and every customer has different requests. It is very important when they start to work in production for Brio order, the first thing to be done is setting the machine according to Brio request.

2. Raw Material is an important path of the production; good raw material will produce good shell child car seat.

3. In the production, the shell that is rejected by quality control will be back again in recycle material.

4. The last is check of finishing production.

5. The shell of child car seat is packing and ready to delivery to Sweden.

4.5.1 Quality control procedural description in assembling process

The quality control procedural description of assembling process at Osby, Sweden is as follow:

![Diagram of Quality Control Procedural Description](image)

Figure 4.4 Quality procedural description plan at Osby, Sweden

The quality control procedural description plan at Osby, Sweden can be described as follow:
The first step of present quality monitoring procedural description from Brio document is control committee, in this step assign the responsibility to restore incoming material to group leader together with quality coordinate, and group leader is responsible for all activities perform at incoming material testing.

Second step is control and examine material, when the incoming material controller checks goods are not damage by transportation and package in the right number and right quantity. After that goods will send to assembling process, if the goods in the wrong condition or quantity not complete will send to handling material section, at there they evaluated and back to purchase department.

Before assembling the process there is instruction how to put all material to record all data in data program and writing how to control. The next step is assembling, where the goods from supplier are assembled, in this step the person who assembles, double check the goods. At this step employee also receives complain from the end customers and evaluated their complaints and take positive actions to resolve it in assembling process according to the fault either it is mistake during assembling or by the user during usage of product. Every child car seat has a bar code in which detail information is added about the production and assembled.

At the end of assembling process, Brio doing, own test according to the special regulation, ECE 44/03 annex 16, and after a specific number of production of child car seat, they send one child car seat to VTI for crash testing.

4.6 Problem in the company

Child car seat is new product for company, Brio only assemble the different parts of child car seat at Osby, Sweden. They did not manufacture it.

The main question from Brio is:

1. Does the existing quality control procedural description suitable for international business or not?

2. How can cultural differences be considered in a quality control procedural description?

Even until right now the child car seat have no face big problem, either from the supplier or users.
5 Analysis

In this part an analysis of the empirical chapter, with help of the theoretical chapter will be presented.

5.1 Steps for analysis

To structure the analysis section, selected theories will be gone through to related research conducted in this thesis. Authors analyse these theories with the empirical data of the company.

5.2 Different cultures environment

For those who work in international business, it is sometimes amazing how different people in other cultures behave. We tend to have a human instinct that 'deep inside' all people are the same - but they are not. Therefore, if we go into another country and make decisions based on how we operate in our own home country - the chances are we'll make some very bad decisions.

Geert Hofstede's research shows how values in the workplace are influenced by culture. From the initial results, and later additions, Hofstede developed a model that identifies five primary dimensions to assist in differentiating cultures: Power Distance (PDI), Individualism (IDV), Masculinity (MAS) and Uncertainty Avoidance (UAI). Geert Hofstede added a fifth Dimension after conducting an additional international study with a survey instrument developed with Chinese employees and managers. That Dimension, based on Confucian dynamism, is Long-Term Orientation (LTO).

![Culture Dimension](image)

Figure 5.1 Dimensions of different culture (Source: Hofstede, Geert 2005)
5.2.1  Power Distance Index (PDI)
This refers to degree of inequality that exists and is accepted, among people with and without power, a high score PDI like in China indicates that society accepts an unequal distribution of power and people understand “their place” in the system. Low PDI like in Sweden means that power is shared and well dispersed; it also means that society member view themselves as equals. Form the Chinese company provided data (Appendix II) we analyse that there is high inspection, after each step of processing, workers has to be writing their name and sign on the production check list.

In China with a high degree of power distance, expatriate supervisors and inspectors are likely to be more successful as compared to countries in which there is a lower degree of power distance like in Sweden, we have no data about china factory they use local supervisor or expatriate, but Brio office who domicile in Hong Kong they have one manager who come from Sweden and remaining are local.

5.2.2  Individualism (IDV)
This refers to the strength of the ties people have to other within community, high IDV score like Sweden indicates a loose connection with people and lack of interpersonal connection and little sharing of responsible, beyond family and perhaps a few close friends, a society with low IDV score like in China would have strong group cohesion and there would be a large amount of loyalty and respect for member of the group. The group itself is also larger and people take more responsibility for each other’s well being. When we get individualism dimension data it refers to be team work or not tem work. Team work is likely to be more successful in cultures that are low individual (like in China). From the survey studies figure 5.1 China prove to be a true collectivist society while Sweden score high values in the index of individualism.

Being a collectivist culture, the Chinese put emphasis on the needs within the group and more willing to cooperate with group members. Thus, the Chinese usually prefer to establish relationship before any commercial transactions are conducted, whereas Swedish build a relationship if there are successful transactions between them. The Chinese believe that they can trust on people with whom they have a certain relationship, which help to facilitate and conduct business. Trust will also impact the closeness and then effectively also owned smooth the interaction process in the relationship will be. Trust and closeness in the relationship create an environment effects on changes and improvement on quality.

5.2.3  Masculinity (MAS)
Low MAS society like in Sweden who has the lowest score in the whole world, the roles are simply blurred. Women and men are working together equally across many professions. Men are allowed to be sensitive and women can work hard for professional success. In countries with high degree of masculinity, like in china empowerment of workers is likely to be more successful as compared to countries with low degree of masculinity like Sweden. when we see Appendix II Approved Production, we notice that workers just only doing what manager (or people who sit in the high position who have a power to make decision) in manufactory give orders, and employees also have to sign, and put their name on the approved production list, so if something wrong, the manager easily trace out where and who make mistake. The employees of factory in china do work according to the instruction of the manager. When authors visiting assembling plant of child car seat in Osby Sweden, author analyze the foundation of high quality in Brio is empowering employees. Employees who working in the
assembling process know exactly what they have to do, and what the company quire for quality

Authors analyze from appendix III inspection report which is inspected by Brio’s employee who domicile in Hong Kong. The structure of organization in Osby is same as in china. Workers in assembling process can make decision according to the situation, after that they also inform to the manager and get approval. According to interview with employee of assembling area, till now there is no big issue from china factory.

5.2.4 Uncertainty Avoidance Index (UAI)

This relates to the degree of anxiety society members feel when in uncertain or unknown situations. High UAI-scoring nations try to avoid ambiguous (uncertain) situations whenever possible. They are governed by rules and order and they seek a collective "truth". Low UAI scores indicate the society enjoys novel events and values differences. There are very few rules and people are encouraged to discover their own truth.

Uncertainty avoidance affects the manner in which the workers carry out their work. It is also defined as the extent to which the workers in a culture feel threatened by uncertain or unknown situations. This, in turn, requires very specific instructions on carrying out one’s job. In cultures with low uncertainty avoidance like in Sweden, worker must be told in great detail what is expected of them, including the quality of their work and output.

From figure 5.1 we can see UAI between Sweden (is 22) and China (is 38) is low, who have characteristic informal business attitude who conduct that worker in china and Sweden do not impose rules or structure unnecessary, more concern with long term strategy that what is happen on daily basis, worker in Sweden and China minimize emotional response by being calm and contemplating situation before speaking, and accepting of change and risk, workers of these two countries express curiosity when they discover differences. Communication is critical part of empowerment and workers in Osby they already work minimum 15 years together, this is make empowering employee in Osby working very good.

5.2.5 Long-Term Orientation (LTO)

This refers to how much society values long-standing as opposed to short term – traditions and values. This is the fifth dimension that Hofstede added in the 1990s after finding that Asian countries with a strong link to Confucian philosophy acted differently from western cultures. In countries with a high LTO score, delivering on social obligations and avoiding "loss of face" are considered very important. Geert Hofstede analysis for China has Long-term Orientation (LTO) the highest-ranking factor (118), which is true for all Asian cultures. This Dimension indicates a society's time perspective and an attitude of persevering; that is, overcoming obstacles with time, if not with will and strength. The character of high LTO family is the basis of society, the effect is loyalty of employee is low, every china new year usually in china factory will have new employee and old employee already move to another factory. When we are interview with representative of china factory, usually after china new years the quality will be little bit down because all new employee who have to be teach how to do it his or her work.

5.3 Cause and effect diagram with possible reason of impact on quality

The figure 5.2 from interview with Consultant Company there is possible reasons, which are
impact on the quality of child car seat’s shell. It illustrates the possible reasons why there is a problem in quality. The most relevant causes for quality are highlighted in the figure correspond with the text in the following description.

**Figure 5.2 Cause & effect diagram for influence of the Quality**

### 5.3.1 Management
Management has a vital role in improving the quality. Strong leadership, commitment with the company goals, define the quality policy with targeted customers and reduce the production cost are the main area for management. If the management loose any one point it’s directly impact on the quality, especially in the company case. Figure 4.1 shows that suppliers are working with Brio and consultant company, in the beginning of launching new design of child car seat, supplier receive instructions of the product from consultant and Brio, this make confusion for the suppliers, with the passage of time they make an agreement between Brio and consultant company just only one person who is project manager forward instructions to suppliers.

### 5.3.2 Measurement
Measurement is very important to verify the quality level of any product. Standards of quality, calibration, devices for measurement, and awareness of procedure of measurement, usage of measurement devices and data collection and proper record of all measurement are very important to achieve the desire quality, when Brio doing contract manufactory, while Brio can’t monitoring all manufactory process, data collection is very important to monitoring the quality of the product. Figure 4.3 and appendix II are shown that all process data collect from the production plant China properly record and when the shipment of child car seat receive at Osby Sweden, they also make measurement and record (see figure 4.4).

### 5.3.3 Material
Material specification, inspection of incoming material, proper handling of goods or parts and best vendor are very important for production material. According to interview with Brio
quality manager the main difference between Swedish and Chinese vendors is that the Swedish suppliers know what Brio is doing, and usually they already working together for long period of time while the Chinese suppliers do not know exactly their intentions and how products are used and thus they need to give them more details in specification. Often there are many questions in return from the Chinese upon new offers.

5.3.4 Environment
Environment in the organization includes the hiring of the workers, right person for the right job, orientation of company for new employees, training of existing workers, define the responsibilities of each job and proper controlled on the working environment also impact on the quality of product, Brio have representative office in Hong Kong, who the employee is require from local people, and the leader is one from Sweden
Hiring right employee in Hong Kong is also very important, because this people will doing the quality check before delivery to Sweden, employee have get enough knowledge about Brio quality

5.3.5 Culture
Culture of any region or country is very important for the better production. Information of the specific region is very important like norms & values of that region or country, what is the regional strength, motivation of the employee and language problem are the main reason which impact on the quality of production.

Different culture can cause of miscommunication between two different country, When Brio communicate with Swedish suppliers, they always give clear answer, if say YES its means really YES and when they have any problem, they will tell directly but when Brio communicate with Chinese suppliers, “YES” not always means YES, sometimes means I do the best, or other meaning, communication in china supplier is more indirect.

Another important cultural factor in China is family security, which is very important for the Chinese. Workers will do anything to safeguard the family economy, which might cause of turnover of workers to look for better jobs and better opportunities all the time. Once they receive a better employment contract in a better salary, they will move over to the new job.

5.3.6 Equipment
Proper selection of equipments is very important in choosing the right manufactory. The availability of specific equipment, maintenance of the machine, capability of requires production, proper installation & assembling of the equipment and design of the equipment is very important.
According to interview with manufactory in china, to produce shell child car seat factory need special machine, and the price of this machine is quite expensive and in china who produce child car seat a few plants have this specific equipment.
6 Result

In this chapter will answer to problem statement

The culture influence an individual’s attitude towards work and time, this is also related with the beliefs, norms and value of that person. Cultural values result from unique sets of shared values among different groups of people. These in turn have a significant impact on the behaviour of individuals and groups of employees in regard to motivation, commitment, productivity and ethics.

6.1 Cultural environment

A global enterprise faced the most significant challenge is dealing effectively with the difference in culture in various countries. The external business environment and the behaviour of the people have a deep impact by the culture. In authors’ opinion the answer of the first research question is,

Is the existing quality control procedural description suitable for international strategy?

From analysis of appendix II which authors translate in figure 5.1 approved production list and appendix III inspection report and figure 4.3 quality procedural description plans at Osby Sweden, the existing Quality control procedural description from Brio is partially fulfilling the international strategy, when any company start its business they also need the market information, in which included the customer demand, expectations, requirement, market trend, culture of the region, environment of the region etc… these are very important information for every businessman. The authors are analysed that Brio has lack of information in this scenario therefore they are confused about the quality of the product which they are purchase from the suppliers.

Culture makes help the Brio to get the knowledge about the traditions, norms and values of the supplier as well as employee of that region. Using of these information Brio can get a more clear idea and direction of quality model like less or more inspection, use team work or not team work or level of team work, less or more empowerment, or use local or expatriate supervisor, less or more supervisor.

In authors opinion it is importance to get some knowledge of a regional culture in advance. It will help the Brio to understand the business environment out of the country. After that Brio can get a more clear idea and direction of quality control like less or more inspection, use team work or not team work, less or more empowerment, or use local or expatriate supervisor, less or more supervisor, government policies and control on imports & exports, standards, testing practices, level of technical skill, managerial and leadership approach & philosophy, employee work pattern & motivation, etc….

6.2 Communication

Different languages may raise a communication problem between two different persons. Communication between Brio and Chinese Supplier is carry out in English language, which is more popular in Sweden than China. Interview with representative of Brio, we found, it is difficult to communicate with Chinese in English language through telephone; it can easily lead to misunderstanding.
From the research and discussion with the Brio we also analyse that Chinese always say “YES” and it is difficult for them to say “NO”, because they think, if they say NO it is against the respect of their respective guest. Therefore either they understand the opponent point of view or not they always say YES and it create problem in future.

In theory part we also explain China belongs to high context cultures in which people tend to use hidden, fuzzy and indirect words, whereas Sweden is categorized into low context in which people are used to expressing themselves in a more direct and open & clear way. Directness and bluntness is regarded by Chinese as being impolite and reflecting disregards for others which may lead to embarrassment and hurt feelings while indirect languages help to maintain social harmony and facilitate face-saving.

From the theory, principles of quality control, empirical finding of the company and interview with representatives of company and analysis, authors recommend that Brio continue work with the existing suppliers. There is only lack of communication, information and insufficient knowledge about the culture of these countries. To avoid these problems regular communication is needed and it is important to try to discuss with suppliers as much as possible, either it is oral or written, that is a foundation of good communication. Both culture and communication will matter a lot to the quality outcome of the relationship.

6.3 Culture & quality control process

The second question of research is:

**How can cultural differences be considered in a quality control procedural description?**

Believe and behave of the people across nations and cultures are differently. Nations and cultures differ in terms of their behaviour, language and institutions. There is an also systematic difference. It is involved with values, beliefs and philosophy of social regulations that drive the overt, manifested phenomena in a nation or culture.

Quality becomes real when it is continuously work throughout in the company. The basis of effective quality program is the specific quality control applications that take place systematically, consistently and effectively applying in all activities of the organization. Total Quality Management should be regarded as a holistic approach, where values, methodologies and tools are combined in the quest of higher customer satisfaction meanwhile reducing the resource consumption. The service and communication is also included in the concept. Customer satisfaction leads to sales and cash flow. We have introduced a model on the basis of theory and research which an organisation can discuss, specify and design which type of procedural description for which quality management activity has to be performed. The model enables each organisation to formulate its own specific procedural description depending on the organization environment. Through applying of this model it is possible to keep the quality initiative within an organisation alive.

Culture and manufacturing process are worked parallel to better output in the quality, as below in figure 6.1. This is also assist to making a procedural description in process to quality control (see figure 6.2).
Attitude toward quality, involves with the degree of inspection, supervision and expatriate for the better quality output with the specific of a country. Figure 5.1 shows that in china power distance index are high, its means Chinese suppliers use high inspection and expatriate supervisor and low power distance index like in Sweden means that power is shared and well dispersed; it also means that society member view themselves as equals.

Use of teams, involves with the degree of worker combination towards the quality management in a particular department. Figure 5.1 show that China has low individual index. As being collectivist culture team work is more successful for Chinese suppliers and high individual index score like Swedan indicates a loose connection with people and lack of interpersonal connection and little sharing of responsible.

Empowerment, involves the decision power of the employee. Figure 5.1 shows that China has high masculinity; its shows that Chinese suppliers granted low empowerment to their employees and low masculinity society like in Sweden who has the lowest score in the whole world, the roles are simply blurred. Women and men are working together equally across in any profession. They have empowerment to make a decision according to the situation, after that they also inform the manager and get approval.

Quality goals, involves with the quality of output of employee. These are related with the employees training, motivation and attention with the work.

Long and short term orientation, involves with the economy and social obligations of that region or country Figure 5.1 show that China has Long-term Orientation (LTO) the highest-ranking factor (118), the effect of high LTO is more turn over of employees therefore every Chinese new year there are new employees hired in production plant and they need training and time for familiar with the system. At this point Chinese suppliers are stand again at starting point therefore on those days there is low production and they also some time face the quality problem in the production process.

Figure 6.1 Influence of culture environment & management of quality control process diagram
6.4 Management of quality control process

Quality becomes real when it is continuously work throughout in the company. The basis of effective quality program is the specific quality control applications that take place systematically, consistently and effectively applying in all activities of the organization.

6.5 Desired Quality

Desired quality is the perception of the end customer instead of statistical measurement. The quality of product produced at certain location can be affected by some key consideration i.e.

Compliance with standards – Scandinavian quality standards exist in child car seat is ECE44 r4 1-7, Brio adopts these standards then their products must meet the required quality specifications, regardless of where they are made.

6.6 Developing a model for quality procedural description

From the theory, empirical finding of the company and analysis of empirical finding, we draw a model of quality procedural description as shown below in figure 6.2. Brio is working as trading company, therefore when they want to sell a product firstly they define the quality policy of that product and analyse the customer demand, expectations, requirement etc... This information helped them to find out the best and suitable supplier to satisfy the customers according to their demand and expectations.

This procedural description makes help them to doing work on each & every new task or new order or new design, as well as daily routine work. This procedural description also helped them to make accuracy & efficiency in their.
Define Goal & Scope

Identify the Customer

Examine Norms, Values & Tradition of the region or country

Determine the Requirement, Expectations & Perception

Define Authority & Responsibilities

Product Design

Does the design fulfil the requirement of the customer?

Yes

Process Design

Does the process fulfil the product requirement?

Yes

No

Identify the gaps.

Identify the gaps.

Flow of material
Quality of material
Availability of material
Capacity of machine
Skill of the employee
Training & motivation

Inspection
Supervision
Expatriate
Empowerment

Attitude towards quality
Team work
Economic & Social obligations

Analyze the material
Analyze the machine
Analyze the employee
Time of production

Figure 6.2 Model for Quality Procedural description
The figure 6.2 shows the flowchart for quality control procedural description, which is useful for the Brio to maintain the quality of product. The flow chart of quality control procedural description is a proposed solution for Brio to maintain quality. With this procedural description they can increase the accuracy & efficiency of process through maintaining the quality of product, quality testing policy, motivation & training of workers. The detail of the procedural description is as follow:

6.6.1 Quality policy

To comply with this requirement Brio must be has a written Quality Policy of the organization as well as product. In the quality manual there is quality policy, objectives and statement of purpose should be clearly identified. Any message or information from the management passed throughout at all level in the organization. In training manuals, advertising literature and any other documents have the same quality statements which are write-down in the quality policy.

6.6.2 Define Goals and Scope

It is necessary for Brio, the needs and expectations of customers evaluate and developed the company’s goals. These goals are very important for the company therefore everyone know these goals. Due to the importance of the matter these are should be thoroughly examine by the management. Management of the organization during setting of the company’s goals consider the personal goals of the employee because these are very important for every company. If personal goals are parallel with the company’s goal then company performance boost.
6.6.3 Identify the Customer

After defining objectives and goals, Brio identifies the customer. Who are the main customers either target any specific customers or general. It is help in design the product and also in process defining.

6.6.4 Determine the Requirement, Expectations & Perception

Customers generally have different requirements, expectations and perception. Brio cannot satisfy the all customers with the same products or services. Therefore Brio covers the targeted customers’ requirement and perception with reliability, performance, features and assurance of the product.

6.6.5 Examine Norms, Values & Tradition of the region or country

The norms, values and tradition of a region or country are very important. These are effect on information processing issues such as perceptual classification, perception of time and education. During the designing of product & process, recruitment of worker, Brio also considers and keeps in mind these norms, values and tradition of that region or country.

6.6.6 Responsibility and Authority

Brio mentioned the authorities and responsibility of the position through organizational chart and job description. Where clearly identify the responsibility of the quality personal which is cover the production process and overall quality system.

6.6.7 Product Design

Product design is very important stage. Business stands on the design of the product or service. At this stage Brio is not only the design of the product but also quality requirement of the product, assure the maintenance of require quality and review of the design are include. These are lead to accomplish the all organizational goals as well as requirements, necessity, expectation & perception of the customers.

6.6.8 Process Design

Process design is related with the product requirement. In this stage Brio examine and analyse the required product like order quantity, availability of employees, analyse the skill, experience, knowledge and performance of employees, assign the responsibilities, define the position of employees, training schedule and motivation of employees, availability of material, flow & handling of material, availability of machine & tools, maintenance strategy, time schedule for working & shipment, etc. to continue the flow of production during the process.

6.6.9 Inspection & Testing

The inspection and testing of the equipment is very important for every production. Brio applied the inspection & testing during the production and after production to minimize the failure product. Purpose and degree of utilization are set the frequency of calibration of equipment and tool used in manufacturing process. Records of maintenance work must be documented.
The requirement of inspection and testing should be fulfilled by the Brio. All equipments and tools which are used in the production process are verified and measured according to the management control system and these all identified and documented.

6.6.10 Packing storage and delivery

After inspection and testing of the product the next step is packing, products are packed according to the customer requirement or which is suitable during the transportation. The packing of the product is affected by the route and method of transportation, temperature & humidity of the container & store area of the store and stacking & storage method.

6.6.11 Entered in Record keeping

There is a record of every goods like lot size, inspection test, reliability test, design name etc… these things are very important to find out the true record of any product.

6.6.12 Quality Control Procedural description

When Brio follows the all steps of this model, the result is quality control procedural description, which is helpful tool for Brio to move new region or country and this model also give guidelines, how to make a quality control procedural description of daily routine as well as with respect to different cultures.
7 Conclusion

In this chapter the conclusion of this paper will be presented.

In this thesis we focus on a Sweden Multinational Corporation ‘Brio’ whom commissions a product child safety seats for car. Brio introduces the child car seat project by purchasing the design from a consultant company and purchases its parts from other factories which are located in different countries.

We analyse from the theory that uncertainty avoidance and individualism-collectivism are mainly affect quality management. In cultures with high uncertainty avoidance may be more difficult to implement the changes in organization for continuous improvement and directly focus on the business process. On the other hand in different cultures customer orientation will have different meanings. In countries with low uncertainty avoidance there should be a larger trend to focus on a few important customers and companies in socialist countries will be more trends to focus on those customers with whom they already have good relations. In individualist countries with high uncertainty avoidance there will be a tendency to treat all customers on an equal basis. Sweden has a high UAI, therefore when we analyse the working environment with Chinese working environment there is main difference of turnover in the organization. In Sweden turnover of employees is very low but in China it is high, due to high turnover they facing the problem of qualified / expert employee. Therefore when Brio selects the supplier they firstly check the expertise team at the supplier.

From the analysis we can conclude that communication is the most important issue in order to establish the relationship and improve both quality and business in general. Both communication and relations should be considered by the Brio when they select the suppliers. There are a lot of risks of shortcoming in the communication at the initial stage during the establishment of the business. In the beginning of the relationship there is likely to be some hassle which leads the quality issues. The solution of these issues are mode of communication and expressing the requirements with very detail and all parties Brio and suppliers keep the knowledge of the business environment of the other party and they not only expressing their own demands and wishes, but also the end customers / users’ point of view, needs and demands. These are very important for the development of the business for all parties. From the empirical findings we conclude that the culture is not such as issue and the only problem of miscommunication among the parties. It is possible and quite reason that the culture is a primary issue when communication system and feedback from all side not received properly.

What quality is and how it should be defined is not evident. It is clear that quality of today relates increasingly to the perceptions of the end customer instead of statistical measurements. Such perceptions include not only the product itself but also the interaction process as such and how the customer feels that they have been treated by the supplier. Quality is then very subjective and relate closely to the type of product or function. There are of course large variations in between different products and functions. The higher degree of complexity the more communication and interaction a product or a function is likely to generate. In some sense quality and product development are closely linked together and requires extensive communication and interaction in between the parties. Some products are very easy and are not really questions of product development but just smaller variation of already existing products or concepts.
It is very difficult for Brio to directly monitor each production process of the outsource suppliers, thus carrying on the direct quality management. In many cases, it only can do certain afterwards examinations of the finished product to conform whether the requirement is matched or not.

As a final conclusion the Swedish buyer will get what they ask for. Their ability of communicating and their willingness to communicate with their supplier will determine the result at the end. Historically the Chinese suppliers did not use to communicate with their customers but this will need to change as the supplier and customer must cooperate and work together for the future. Neither the scarce resources nor the limited time frame will allow for any bigger mistakes. There must be quick response to the customer demands and needs involved in the relationships or they will not sustain and remain.


8 Recommendations

In this chapter the recommendation will be present to the case company.

From the experience of the company interviewed, it can be seen that to get some knowledge and information about the country or region in advance very important where the Brio Company want to do business in future. Such knowledge will help to understand the business environment of these regions or countries. Company can thus get a more clear direction about the choice of business partners, locations, ownership issues and government policies. That is likely to increase the chance of success when entering in planned locations. Without such knowledge, external help from the Trade Council, the Chamber of Commerce or diverse intermediaries who are specialized on that region will facilitate and support the process of entering in the region.

8.1 Pre-process

When deciding the location of manufacturing sites or suppliers from the Brio they need the knowledge of customs, norms and values of that region. The performance of manufacturers, the availability of qualified staff and the convenience of infrastructure and transportation systems all areas are vary in different territory of a country. Based upon the empirical finding and the analysis authors recommended that Brio also study the way and mode of communication of that regions to understanding the culture. The necessary relationship with suppliers can facilitate the daily business. It is important to clarify all points clearly and precisely, repeat key points over and over again as well as follow up in positive way. Written communicating is a good method then communicates by telephone. Using an appropriate language based on informative and leading questions instead of pointing out mistakes done by the supplier is necessary. It is important to avoid the change of supplier every time make long term relationship with the suppliers which is helpful to boost up the business.

8.2 During process

It can be difficult for companies to investigate the procedure of how the supplier works in the manufacturing and how they control and inspect. There is a risk that the whole process is performed only on the very occasion and presence of the buyer. Once again the importance of communication and continuous feedback is very important. It is also very important to keep all communication at a very positive level and avoid pinpointing on suppliers on their mistakes and solve the issue with dialogues and give some solutions how to avoid that repeat mistakes and focusing on improvement through continuous demonstration of important tasks. The quality as such is not any problem at all (Interviewing with employee of the Brio), but the true problem is lack of communication between supplier and Brio with regards to perceptions of both. Many things and issues are perceived as understandable by the Brio as buyer but not understandable or even attention-able for the supplier. These are simply not part of the experience of the supplier and also likely to be widely separated from what is normal and obvious in the supplier context. Developing a skill of handling the unexpected and pointing such things out to the supplier in a good manner is a true challenge for the Brio as buyer.
8.3 Organization environment

The relationship will be the base for developing the trust and then also the potential of growth in the business. Brio developed regular communication with the supplier and it is important to try to discuss with suppliers as much as possible. That is a foundation of good communication between the Brio and supplier. Both culture and communication will matter a lot to the quality outcomes which are work out through good relationship. Quality is a lot more than statistics regarding failure of the products and the most important issue is to be able to communicate not only the product specifications and requirements but also the more subjective quality issues related to the perceptions of the customers. To fulfil the customer perception, all channels of business are interrelated with each other in proper way.

To reach a level of continuous development is most important for Brio and suppliers they have a better mode of communication at work as soon. A repeated exchange of information in positive way is a key to success at all level of business and this lead to quality improvements. Many things cannot be covered by the specifications and drawings at once time but with explained over and over again these are more understandable.

Employees with relevant skill, knowledge and training are important elements in the quality and education which is easily accessible by the general public of any country will affect the availability of such employees. Brio and supplier should organize the jointly training sessions and workshops to enhance the ability of understanding the culture business environment as well as got the knowledge about the norms, values and tradition of each other which lead to mutual understanding among them. Furthermore, they need for translation of procedure manuals; leaflet etc. in one or more languages.

In life generally we got what we pay, this statement is also eligible in manufacturing industry. Quality has a price, wherever you are. If a company move its production plant to any other country it doesn’t mean they can produce high quality product with cheep material, like Brio they purchase child car seat shell from china & the raw material and machine which is use in manufacturing for shell is has a similar price in all other countries. There is an only benefit for a company is low labour wages which reduce the total cost of child safety seat. Therefore Brio also investigate before signing a contract with any supplier that they set their wages according the labour law of that country and also they follow all labour laws. Now a days it is also very important to boost up your sales that you are not violence any law by hook and cook as well as ethically.

8.4 Future research

Authors also recommended for the future research in the following areas to seeking more knowledge about the culture and quality and also find out the more relationship between them.

- How culture differences can impact on the quality of the product and manufacturing and service process?
- Developing a model for quality monitoring of a system for outsource manufacturing.
- With what techniques can the quality monitoring be assessed with respect to the cultural differences?
We hope that research in these areas will be the missing link of knowledge that is necessary to progress smoothly within quality in production for the international businesses in the future. Through this Brio can enhance competitiveness for businesses engaged in global production operations.
References

Literature


Bo Bergman, Bengt klefsjö, 2003 Quality from customers need to customers satisfaction.


Dexter A. Hansen 2005 Total Quality Management (TQM)


Evans R James, Williams M Lindsay 2001, The Management and Control of Quality


Giddens, Anthony The constitution of society outline of the theory of structuration Cambridge Polity Press, 1984
Gideon Halevi, Handbook of Production Management Methods, Reed Educational and professional publishing ltd. 2001


Holme & Solvang, 1997, Research methodology - about qualitative and quantitative methods


J. M. Juran 1988, Planning for quality


Lisa Campbell, Edward Finch, Customer satisfaction and organisational justice 2004


Peter Barrar and Roxane Gervais Global outsourcing strategies an international reference on effective outsourcing relationships, Aldershot: Gower, cop. 2006

Robert D. Gulbro, Paul Herbig, Cultural differences encountered by firms when negotiating internationally, Industrial Management & Data Systems; Volume: 99  Issue: 2; 1999 Research paper


Subba Rao Siriginidi, Business information: its sources and role in globalization, New Library World; Volume: 97  Issue: 1; 1996 Research paper)


UN/ECE Regulation No. 44: UNIFORM PROVISIONS CONCERNING THE APPROVAL OF RESTRAINING DEVICES FOR CHILD OCCUPANTS OF POWER-DRIVEN VEHICLES ("CHILD RESTRAINT SYSTEM", Europe)


William J. Kolarik 1995, Creating quality concepts, systems, strategies and tools


Internet


http://www.vti.se/ VTI, the Swedish National Road and Transport Research Institute. [2007-01-27]

The case company website [2007-03-27]
http://www.skymark.com/resources/tools/cause.asp


http://www.answers.com/topic/child-car-seats
Appendices

Appendix I - Questionnaire for the case company

For the interviewee
1. Would you please state your job position within your company?
2. How long have you been working in the company?
3. In what different positions?

For the company
1. Does the company have the operation office in China, and since when? Where does it located, how many employees, and how many is the local employees?
2. What is the main responsibility for the office?
3. How many products and which kind of products are produced in China now? from which manufacturers in which region of China?
4. What are your perceptions of communicating with the Chinese suppliers/partners? By which means do you usually communicate with the suppliers? e.g. EDI, Email, Fax, inspection / visit frequently
5. What is the position in the supply chain for The company? e.g. upstream for design and manufacture, downstream for distribution
6. How do you perceive the cooperation and the relationship with the Chinese suppliers/partners?
7. Have you encountered any of the following problems when placing production in China? We are especially interested in problems that have grown with time or problems that at first were significant but have subsided with time (i.e. have been overcome to some degree). If so, please specify.

Cultural
1. Problems in dealing with the Chinese and the Chinese culture.
2. Legal/political
   Any problems with differences in legal system, instable political system, etc., fraud, bribes. Any problems with intellectual property rights (IPR).
3. Competitive
   E.g.: Loss of competitive advantage, any problems with competitors. Loss of integration between R&D and production.
4. Technological
   Differences in production technology.
5. General quality
   Loss of quality.

6. Other
   Anything not mentioned above. E.g. transport problems.

QUALITY
1. Is the company clear about suppliers / manufacturing partners work processes regarding product-, process and delivery quality? Describe briefly.

2. Does the company give the supplier / manufacturing partner any training programs? What type?

3. Is the company working with continuous improvements in the factory supplier, and between the suppliers?

4. How does the company set improvement goals?

5. Does the company have any influence or contact with the suppliers’ sub suppliers?

LOGISTICS, DELIVERY AND SERVICE
1. How does the company collect the customer needs and demands from the market?

2. How is information about customer needs and demands transferred to China?

3. What sort of information technology are you using for this purpose?

4. Are you continuously connected by an Internet portal?

5. How do you perceive the packaging in relation to the value of the goods?

6. What transport mode is used?

7. How do you perceive the administrative work with the freights?

8. How do you perceive the delivery accuracy and the ability to avoid disruptions in supply?

9. How do you perceive their ability of solving problems in general?

10. Do you perceive that you get timely answers from your supplier/partner?

11. How do you handle goods that are defective from either manufacturing or delivery?
### Appendix II

#### Approved Production List

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Settings of Machine (blowmoulding)</td>
</tr>
<tr>
<td>2</td>
<td>Weight include bard ca 20 gr min weight 5370gr max 5900 gr</td>
</tr>
<tr>
<td>3</td>
<td>Checking thickness (2,6 mm -0,0; +1,0)</td>
</tr>
<tr>
<td>4</td>
<td>checking scraches</td>
</tr>
<tr>
<td>5</td>
<td>packing in bag</td>
</tr>
<tr>
<td>6</td>
<td>packing on truck</td>
</tr>
<tr>
<td>7</td>
<td>income control</td>
</tr>
<tr>
<td>8</td>
<td>Talke away bard on shell</td>
</tr>
<tr>
<td>9</td>
<td>Drilling holes shell</td>
</tr>
<tr>
<td>10</td>
<td>Drilling holes foot rest</td>
</tr>
<tr>
<td>11</td>
<td>Mounting bracket</td>
</tr>
<tr>
<td>12</td>
<td>Mounting long bar</td>
</tr>
<tr>
<td>13</td>
<td>Mounting foot cup</td>
</tr>
<tr>
<td>14</td>
<td>Mounting foot rest</td>
</tr>
<tr>
<td>15</td>
<td>Mounting foot rest</td>
</tr>
<tr>
<td>16</td>
<td>Mounting arm rest</td>
</tr>
<tr>
<td>17</td>
<td>Mounting foam</td>
</tr>
<tr>
<td>18</td>
<td>cleaning and total control</td>
</tr>
<tr>
<td>19</td>
<td>Pating in bag and cart</td>
</tr>
<tr>
<td>20</td>
<td>weight check 100% including all accessories</td>
</tr>
</tbody>
</table>

#### Bar Code

<table>
<thead>
<tr>
<th>Term</th>
<th>Document</th>
<th>Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign list for approval production</td>
<td>文件编号</td>
<td>修订号</td>
</tr>
<tr>
<td>产品质检跟踪文件</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Issued by</th>
<th>Produced</th>
<th>Approved</th>
<th>Valid from</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>瑞典RWW公司</td>
<td>生产日期</td>
<td>审批</td>
<td>生效日期</td>
<td>Production list</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Xxx = text in kina</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Settings of Machine (blowmoulding)</td>
</tr>
<tr>
<td>3.2 Recycled material</td>
</tr>
<tr>
<td>3.3 Plastic granulate batch</td>
</tr>
<tr>
<td>3.4 Weight include bard ca 20 gr min weight 5370gr max 5900 gr</td>
</tr>
<tr>
<td>3.5 Checking thickness (2,6 mm -0,0; +1,0)</td>
</tr>
<tr>
<td>3.6 checking scraches</td>
</tr>
<tr>
<td>3.7 packing in bag</td>
</tr>
<tr>
<td>3.8 packing on truck</td>
</tr>
<tr>
<td>3.9 income control</td>
</tr>
<tr>
<td>3.10 Talke away bard on shell</td>
</tr>
<tr>
<td>3.11 Drilling holes shell</td>
</tr>
<tr>
<td>3.12 Drilling holes foot rest</td>
</tr>
<tr>
<td>3.13 Mounting bracket</td>
</tr>
<tr>
<td>3.14 Mounting long bar</td>
</tr>
<tr>
<td>3.15 Mounting foot cup</td>
</tr>
<tr>
<td>3.16 Mounting foot rest</td>
</tr>
<tr>
<td>3.17 Mounting arm rest</td>
</tr>
<tr>
<td>3.18 Mounting foam</td>
</tr>
<tr>
<td>3.19 Mounting small middle part sitting area</td>
</tr>
<tr>
<td>3.20 Mounting sitting foam</td>
</tr>
<tr>
<td>3.21 Cleaning and total control</td>
</tr>
<tr>
<td>3.22 Packing in bag and cart</td>
</tr>
<tr>
<td>3.23 Weight check 100% including all accessories</td>
</tr>
</tbody>
</table>
## Appendix III

### Inspection Report

<table>
<thead>
<tr>
<th>Supplier:</th>
<th>Re-inspection? (yes/no)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Specification:</th>
<th>Article no:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Buyer:</th>
<th>Order no:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sign sample:</th>
<th>Place of inspection:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Order quantity</th>
<th>Produce quantity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Delivered quantity</th>
<th>Inspected quantity</th>
</tr>
</thead>
</table>

### Inspection Performed by:

**Date of Inspection:** (dd.mm.yy)

### Defectives

<table>
<thead>
<tr>
<th>Description</th>
<th>Categories</th>
<th>Critical</th>
<th>Major</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Safety/ Function/ Measurement/ assembly/ Indentations/ Paint/ Quantity/ Misc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Defectives</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Allowed Defectives</th>
</tr>
</thead>
</table>

### Overall Inspection result
<table>
<thead>
<tr>
<th>8.4.1 APPROVED</th>
<th>8.4.2 IMPROVEMENT</th>
<th>NOT APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FOR SUPPLIER:**

Corrective action to "not approval" result:

______________________________________________________

When to implement:

______________________________________________________

Pictures

<table>
<thead>
<tr>
<th>Product</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipmark</th>
<th>BOM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carton Box</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dimension check</td>
</tr>
<tr>
<td></td>
<td>Gross weight check</td>
</tr>
<tr>
<td>Pictures</td>
<td>Testing result</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td>Defects ~1</td>
<td>Defects ~2</td>
</tr>
<tr>
<td>Defects ~3</td>
<td>Defects- 4</td>
</tr>
</tbody>
</table>