

Process optimization with the Six Sigma DMAIC approach using
the example Danzas AEI Emirates LLC
(Deutsche Post DHL Group)

(Project)

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Abbreviations

AED	Dirham (Currency of the UAE)
CES	Cost estimate
CTB	Critical to Business
CTC	Critical to customer
CTQ	Critical to Quality
Danzas	Danzas AEI Emirates LLC
DMAIC	Define, Measure, Analyze, Improve, Control
e.g.	For example
FDI	Foreign Direct Investment
GNI	Gross national income
IMP	Import
KPI	Key Performance Indicator
LLC	Limited Liability Company
LOT	Logis Ocean Transfer
OFR	Ocean Freight
POD	Port of destination
RES	Revenue estimates
RFQ	Request for quotation
SES	Sales estimates
SIPOC	Supplier, Input, Process, Output, Customer
SOP	Standard Operating Procedure
UAE	United Arab Emirates
US\$	U.S. Dollar
VOC	Voice Of the Customer

Abstract (English)

The project takes place within the Ocean Freight Import department at Danzas AEI Emirates LLC - which belongs to the Deutsche Post DHL Group- in Dubai, United Arab Emirates. The project handles the process improvement procedure of late invoice issuing within the import department. For this purpose the process improvement approach Six Sigma is used, particularly the DMAIC tool, which stands for define, measure, analyze, improve and control. This tool is embedded in Danzas “First Choice Excellence” concept, and has a team responsible for assisting the department in improving their processes. Furthermore, it is important to take into account the circumstances of the culture environment of the enterprise; Danzas AEI Emirates is a Joint Venture, between a German company Deutsche Post DHL Group and a local company called Al Tayer. It is a legally forced joint venture, and therefore has its influences on process improvement initiatives.

Keywords: Six Sigma, DMAIC, Import, Process Improvement,

JEL Classification: F23- Multinational Firms; International Business, L22 – Firm Organization and Market Structure, M14 – Corporate Culture, O22 – Project Analysis, L24 Joint Ventures

Abstract (Portuguese)

O projeto é desenvolvido no departamento de Importação por Fretes Marítimos da Danzas AEI Emirates LLC - que pertence ao Grupo Deutsche Post DHL, no Dubai, Emirados Árabes Unidos. O projeto lida com o processo de melhoria de procedimentos de emissão atrasada de facturas dentro do departamento de importação. Para este efeito foi utilizada a abordagem de melhoria de processos Six Sigma, principalmente a ferramenta DMAMC, que significa definir, medir, analisar, melhorar e controlar. Esta ferramenta faz parte do conceito Danzas "First Choice Excellence", e tem uma equipa responsável por auxiliar o departamento na melhoria dos seus processos. Além disso, é importante ter em conta as circunstâncias do ambiente cultural da empresa; A Danzas AEI Emirates é uma joint venture entre uma empresa alemã Deutsche Post DHL Group e uma empresa local chamada Al Tayer. É uma joint venture obrigatória por lei, e como tal, tem influência sobre as iniciativas de melhoria de processos.

Palavras chave: Six Sigma, DMAMC, Importação, Melhoria de Processos

JEL Classification: F23- Multinational Firms; International Business, L22 – Firm Organization and Market Structure, M14 – Corporate Culture, O22 – Project Analysis, L24 Joint Ventures

Executive Summary (English)

The purpose of this project was to identify the causes in late invoicing within the import department of Danzas AEI Emirates LLC, a logistic company based in Dubai, United Arab Emirates. In 2008, Danzas AEI Emirates was the result of a Joint Venture between the German company Deutsche Post DHL Group and the local company Al Tayer.

Due to regular analysis of processes through key performance indices (KPI), the management of Danzas AEI Emirates LLC had the result of poor productivity with the import process and its invoicing process to the end customer. An improvement in this process could bring an ease on employees, which leads to employee satisfaction and though to motivation, and also could the company offer a better service to their customer, in being more customer oriented. Furthermore, best optimized processes are guaranteeing smooth order fulfillments, empowered employees, which lead to good enterprise reputations, gaining new customers, increasing the revenues and the profit in the end. Process efficiency is partially influenced by the environmental, international and local culture. Being operative in a host country, the enterprises need to adapt to the local laws and regulations, as well as to the available workforce within a country. These aspects have an influence on how efficient processes run, but also how fast and effective the processes can be improved.

The project is divided in five main parts, starting with the introduction, followed by the literature review, followed by the used methodology. The Methodology of this project is as follows: The first part represents the literature review, mainly divided in two parts, into the environmental culture aspects and on the other side the process improvement literature review. These theories have been found through student literature and online research databases. The books have been used in this project were found in the library of the ISCTE Business School, e-books, and other books. The second part of this project is the real case scenario of Danzas AEI Emirates LLC, the process improvement with the Six Sigma technique DMAIC+Lean, which is included in the Deutsche Post DHL Group “First Choice Process Excellence” concept. There are public materials available on the main homepage of Deutsche Post DHL Group (www.dhl.com), but especially for the purpose of this project was Danzas AEI Emirates LLC able to provide further relevant material from internal sources (their intranet and other databases). Furthermore,

it was important to have interviews with the members of the initiatives, to understand the whole picture.

What has been achieved in this project is that the improvement initiative reduced the late invoicing from 17 % to 5 % of all invoices issued by the ocean freight import department. Also clearer standard operation procedures and work instruction are distributed within the ocean freight import department to ensure a sustainable improvement of the process.

The author recommends that Danzas continues like this, being innovative and seeing the current and in the near future trend, they will remain as the market leader in the Gulf Region.

Executive Summary (Portuguese)

O objectivo do presente projecto consiste em identificar as razões do atraso no processo de facturação no departamento de informação da empresa Danzas AEI Emirates LLC, um empresa de de logística sediada no Dubai, Emirados Arabes Unidos. A Danzas AEI Emirates foi constituída no ano de 2008, sob a forma de "joint-venture" entre a empresa Alema Deutsche Post DHL e a empresa local Al Tayer.

Na sequência da análise que a empresa leva a cabo periodicamente para verificação dos indicadores, "key performance indicators - KPI's", foram identificados KPI's baixos relativos a produtividade no processo de importação e de facturação ao cliente final. o corpo de gestão concluiu que a melhoria do processo de facturação iria não só facilitar a realização deste trabalho por parte dos seus executantes, que aumentaria a satisfação dos empregados e consequente motivação e também melhorar o nível de qualidade do serviço prestado aos seus clientes, permite dotar os empregados de melhores conhecimentos no desempenho das suas funções que conduzem a boa reputação da empresa no mercado que é por conseguinte a conquista de clientes novos e consequentemente o aumento de facturação e dos lucros da empresa. A eficiência dos processos é parcialmente influenciada pelos factores do ambiente da empresa e pela diferença cultural internacional e local.

A operação num país estrangeiro obriga as empresas a adaptarem-se a legislação e regulamentos locais e ainda a nível de qualificação da mão-de-obra local. Estes factores têm uma influência decisiva na eficiência dos processos e por isso mesmo na rapidez e eficácia na melhoria dos processos.

Este projecto está dividido em cinco categorias distintas nomeadamente a introdução, a revisão da literatura seguida da metodologia utilizada. A visão deste projecto é a seguinte: a primeira parte consiste na descrição da literatura, dividida em duas áreas, os aspectos referentes ao ambiente cultural e a segunda na melhoria da descrição da literatura. Estas teorias foram encontradas na matéria do programa de estudo e a partir da pesquisa online. Os livros utilizados neste projecto foram encontrados no ISCTE (Instituto Universitário de Lisboa, antigo Instituto Superior de Ciências do Trabalho e da Empresa) localizado em Lisboa, Portugal, livros electrónicos e outras fontes literárias.

A segunda parte do projecto e a descricao real do processo de analise e melhoria dos processos na Danzas AEI Emirates LLC, pela aplicacao das medidas "Six Sigma techniques DMAIC+Lean, que faz parte do conceito "First Choice Process Excellence" utilizado pela Deutsche Post DHL Group. Pode ser encontrada informacao na pagina electronica da Deutsche Post DHL Group (www.dhl.com), no entanto a informacao especifica para este projecto foi gentilmente providenciada pela empresa Danzas AEI Emirates LLC. Adicionalmente foram tambem levadas a cabo entrevistas com os responsaveis pela iniciativa e implementacao do plano de melhoria dos processos.

A implementacao do plano de melhoria teve como resultado final uma reducao consideravel no atraso da emissao das facturas, de 17% para 5% no total das facturas do departamento de importacao por via maritima. Essencial para esta melhoria foi tambem a criacao de procedimentos standard e muito claros sobre os processo completo para a facturacao bem como a divulgacao e treinamento de todos os empregados neste processo.

O autor recomenda viavamente que a Danzas AEI Emirates LLC, mantenha esta pratica de inovacao permanente dos seus processos sempre focada na tendencias actual e futura do mercado, como garante da sua permanencia como lider do mercado no Regiao do Golfo.

Introduction

In an era of globalization the question about the best processes used and which strategy to choose inside a company is getting more and more important. Nowadays “*the competition is not only between companies, but in their differences of their supply chains*” (Domingo, 2003). Especially in the logistical sector the competition is high and a company has to have the best offer and service to gain and keep the customers. This is only possible when the processes are smooth, efficient and customer oriented. Best optimized processes are guaranteeing smooth order fulfillments, satisfied customers, empowered employees, which leads to good enterprise reputations, gaining new customers, increasing the revenues and the profit in the end.

Often when talking about optimization a business process the term ‘lean management’ is mentioned. Lean management means ‘create value without waste’, the aim is to optimize all processes in coordination with each other and to eliminate all unnecessary activities (Sherrer-Rathje, Boyle, Deflorin, 2009). For this purpose the system will be analyzed from two perspectives, the customer point of view and the company itself. “First of all, all tasks should be aligned to the customer, and then should the company concentrate on their own strength. Afterwards is the optimization of the business processes, which is also focusing on continuous improvement (kaizen), the empowerment of the employees, including decentralized and customer oriented structures and an open information transfer and feedback process (Kohlstede, 2007:19)”. There are many process improvement approaches available in the literature, but nowadays the focus is on the Six Sigma approach. Six Sigma is a set of tools and strategies for process improvements and was originally developed by Motorola in 1986. One tool of the Six Sigma is the DMAIC concept, which stands for define, measure, analyze, improve and control, also many companies have their own related name for the original DMAIC, such as DRIVE, which would stand for define, review, identify, verify, execute, but in the end they are all seeking to improve the quality of process outputs by identifying and removing the causes of defects in business processes.

Process efficiency is partially influenced by the environmental, international and local culture. Being operative in a host country, the enterprises need to adapt to the local laws and regulations, as well as to the available workforce within a country. These

aspects have an influence on how efficient processes run, but also how fast and effective the processes can be improved.

Danzas AEI Emirates LLC, belongs to the Deutsche Post DHL Group and was opened in 2008 in the Jebel Ali Free Zone in Dubai, United Arab Emirates. Danzas AEI Emirates LLC is a joint venture between the Al Tayer Group LLC and DHL Management Ltd., a subsidiary of Deutsche Post World Net (which integrated with DHL in 2009). In the UAE it is not possible to open a new business without merging with a local company. There is a requirement that no foreign shareholder can hold more than 49 % of the shares, this means that 51 % are mandatory to leave to a UAE national citizen (Homepage: The Emirates Network.com, 2012). This fact is important to consider, as it also influences the processes within the joint venture company.

Danzas (Danzas AEI Emirates LLC) is divided in five main business pillars: Road Freight, Air Freight, Ocean Freight, Contract Logistic and Customs Brokerage.

The purpose of this project is to identify the causes in late invoicing within the import department of Danzas AEI Emirates LLC, in order to optimize and improve the current invoicing process. The project will have its focus on the ocean freight pillar of Danzas and the influence of the enterprise environment on the joint venture between Deutsche Post DHL and Al Tayer and how this influences the processes within Danzas. The productivity of the import process is not optimal developed, an improvement in this process could bring an ease on employees, which leads to employee satisfaction and though to motivation, and also could the company offer a better service to their customer, in being more customer oriented. This project is based on a real case scenario of Danzas AEI Emirates LLC, referring to the process improvement with the Six Sigma technique DMAIC^{+Lean}, which is included in the own Deutsche Post DHL Group “First Choice Process Excellence” concept.

The project is divided in five main parts, starting with the introduction, followed by the literature review which is mainly focusing on the joint venture and the environmental culture, process optimization and the lean management. The following chapter is related to the used methodology. The main part will be the project analysis, including the company profiles. The case will finish with the authors recommendations and the conclusion.

Methodology

This project was conducted in a logistic company, Danzas AEI Emirates LLC, a joint venture between Deutsche Post DHL Group and Al Tayer. The secondary data used are the public materials available on the main homepage of Deutsche Post DHL Group (www.dhl.com) which has been used to support this project. Especially for the purpose of this project Danzas AEI Emirates LLC has provided further relevant material from internal sources (their intranet and other databases). Danzas AEI Emirates LLC provided data sets, reports, handbooks and information on the First Choice Excellence program.

Furthermore, the primary data are based on interviews and conversations which have been deducted with the members of the initiatives in the import department of Danzas AEI Emirates LLC during the time when the initiative took place. First of all have been conversations held with the Import Manager, who has a team of 25 full time employees, and is working for Danzas AEI Emirates LLC since 2000. Afterwards conversations have been held with the Import Supervisor, and the Import Coordinator, who are with the company since several years, and are directly affected by the process improvement. Furthermore, the Pricing Specialist of the Ocean Freight department provided constant input and clarification on unclear topics. Furthermore, in 2012 a telephone interview has been hold with the former Country Manager, who has been employed during the time the initiative has been initiated. The country manager was responsible for approximately 1,000 employees, and has been in his position from 2008-2011.

The initiative owners of the 'First Choice Process Excellence' initiative are two members in senior positions and they are with the company for 2 and 5 years, they have provided the necessary information and data for this project.

1. Chapter I – Literature Review

1.1 DESTEP - Analysis

The DESTEP analysis stands for the demographic, economic, social-cultural, technological, ecological, political analysis of a country and describes a structure of factors that determine the opportunity and risks when entering a new country. Nowadays company are operating global, and mainly knowing their home market very well, and facing issues when they internationalize. It is important for enterprises to understand the major environmental components which are having an effect on the behavior in international markets (Albaum, Duerr, 2008).

1.1.1 Demographic

The Demographic analysis is the statistic of the development of a population (and sub-population). The Demographic analysis is mainly defined in four parts: the theory of fertility (birth rate), the theory of mortality (death rate), the theory of migration (education, immigration), and the theories of the structure of the population. Furthermore does the demographic analysis define the criteria's such as nationality, religion and ethnicity of population or sub-population.

1.1.2 Economic

Economic forces are including the aspects of employment, rate of inflation, rate of interest, fiscal and monetary policies, and changes in the demographic development of a country. Furthermore do Albaum and Duerr add that the economic forces of a country are influenced strongly by the existing infrastructure, including the communications, energy, and transportation facilities. The extent of economic development of a market influences the levels of business which can be carried out in a country. Furthermore are countries categorized in different groups, an approach from the World Bank shows that they are “*divided in low-income economies (GNI per capita < US\$903), lower middle-income economies (GNI per capita US\$906- US\$3595, upper middle-income economies (GNI per capita US\$3596 but < US\$11,116 and the upper-income economies (GNI per capita > US\$11,115)* (Albaum, Duerr, 2008: 129)”.

1.1.3 Culture and socio-cultural environment

The behavior of customers participating in the market is influenced by the culture and socio-culture environment. Furthermore does culture has an influence on the political/legal environment of a country (Albaum, Duerr, 2008). This leads that everything which is not included in the economy or political system is in broad terms of the socio-cultural environment (Wetherly, Otter, 2011). Referring to Wetherly and Otter, they define the socio-culture as the whole range of behaviors and relationships between individuals, including the characteristics of the population (e.g. age, sex, race, etc.), their values and beliefs, and their lifestyle and also their relationships. The culture they are defining as an attribute of groups, weather it is the society as a whole (e.g. national culture), or sub-cultures, which means groups within a society or as trans-national-culture, which are groups of societies and nations. Culture means there are certain values and a way of life shared in one society (Wetherly, Otter, 2011).

“In analyzing the social-cultural environment of business it is important to recognize that society and culture are not homogeneous or fixed. Rather they are diverse and fluid or dynamic (Wetherly, Otter, 2011: 124)”

1.1.3.1 Organizational Culture in International Environment

When talking about culture, it is important to mention Hofstede (1980, 1986), who developed a concept for describing the culture in different countries, it has six dimensions. In 1996 Trompenaar added three new approaches to Hofstedes' concept (Homburg, Krohmer, 2006).

Hofstedes six dimensions are:

Power Distance: This dimension expresses to which degree less powerful members of a society accept and expect that power is distributed unequally. Societies with a low power distance index are expressed with egalitarianism.

Individualism vs. Collectivism: In individualistic societies peoples are expected to take care of themselves, and on the other side in a collectivistic society it is for the

members important to have their social network, and their self-image is defined as “we”, rather than “I”.

Masculinity vs. Femininity: In societies with a high level of masculinity, the members are more competitive, and having the desire for achievement heroism, assertiveness and material reward for success. In femininity societies it is the opposite, these members prefer cooperation, modesty, caring for the weak members of the society and desire quality of life.

Uncertainty Avoidance: The uncertainty avoidance dimension expresses the degree to which degree the members of a society feel comfortable with uncertainty. The base here is how the society deals with the unknown in the future. Societies with low uncertainty avoidance are risk-takers, rather than risk-avoidant.

Long-term Orientation: This dimension was added later in 1991 based on research by Michael Bond. This dimension can be seen as the societies search for virtue. Short-term oriented societies have their values in the traditions, while long-term oriented societies are able and willing to adapt their traditions to change conditions.

Indulgence vs. Restraint: This dimension was added in 2010 based on research by Michael Minkov. This dimension stands for “*a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. On the other side does a Restraint stand for a society that suppresses gratification of needs and regulates it by means of strict social norms* (Homepage of Gerd Hofstede: <http://geert-hofstede.com/dimensions.html>, dd. 20.08.2012)”; (Homburg, Kohmer: 2006; and Homepage of Gerd Hofstede: <http://geert-hofstede.com/dimensions.html>, dd. 20.08.2012).

Trompenaar built on Hofstede’s work in 1996, and created a concept with seven dimensions, while some of them are quite similar to Hofstede’s approach, showing the three following dimensions which are new in their context:

Neutral vs. Emotional: This dimension reflects on how many emotions are shown at the work-place, and on what decisions are based on, either on reports, data and facts or on the other side the decision is made by their gut feelings.

Specific vs. Diffuse: This dimension refers to the relationship between senior management and subordinates. The specific index refers to a work-relationship and the diffuse index is an extend into the social context outside the workplace.

Attitudes toward the environment: This dimension shows the relation of members of a society regarding their relation with nature and the natural environment. Some societies emphasize control and subjugation of environmental forces, where at the other side societies emphasize the need to work with nature and in harmony with the environment (Rugman, Collinson, 2006; and Homburg, Krohmer, 2006).

Furthermore, in 1992 the Global Leadership and Organizational Behavior Effectiveness (GLOBE) project started. It is a similar approach to the concept of Hofstede's and Trompenaar's. The GLOBE concept has nine dimensions, and the research is based on the "*cultural differences for practicing managers and looked at ways to avoid the pitfalls of ignorance and insensitivity*" (Rugman, Collinson, 2006: 138); (Rugman, Collinson, 2006).

Additionally it is important to mention the cultural approach from Hall (1976). His approach includes the High vs. Low Context communication in different countries. In high context societies it is important to interpret the mimic, gestures and tone of the conversation partner, as it is based on indirect conversations. In a low context society is the communication direct and different opinions can be open outspoken (Homburg, Krohmer, 2006).

1.1.4 Technological

The technological analysis includes the research on new products and processes, the product lifecycle and governmental research spending of a country. Furthermore does the technological aspect include the trends, innovations, the know-how and technical issues of a country (Homepage: <http://www.managementtip.nl/>, dd. 20.0.8.2012).

1.1.5 Ecological

The ecological analysis evaluates the impact on environmental processes; it includes the energy, natural resources and the emission analysis of a country (Homepage: Ecological Analysis, <http://clarklabs.org/applications/ecological-analysis.cfm>, dd. 20.08.2012).

1.1.6 Political

“The ideal political climate for a multinational firm is a stable and friendly government (Ghauri, Cateora, 2010: 122)”. Governments are not always friendly and stable, and if they are there is also the chance they will change and a risk will occur. A change can occur due to different events happening in a country, e.g. a radical shift in the government, especially when the philosophy to the prior government differs. (Ghauri, Cateora, 2010).

1.1.6.1 Islamic Law - Shari’ah

For this project it is important to mention the Islamic Law, the Shari’ah. The basis for the interpretation of the Shari’ah is the Koran, and contains all of the laws to be observed and fulfilled in an Islamic society. The Shari’ah is not a collection of laws, but it is a method and methodology behind the law-making. The Islamic law includes the cultic- and ritual regulations. The law ensures that the religious practices of individuals are met with respect to God. Man has to accept Islamic law with its provisions and contradictions without criticism. The search for meaning and the inner logic of the divine laws is only permissible if God show the way he has himself.

Furthermore, the Shari’ah includes issues such as property rights, economic decisions and types of economic freedom. An interesting aspect of the Shari’ah is how they solved the payment issues, as it is prohibited to make excessive interest on payments. The Islamic law is saying that any given transaction should be devoid of riba¹. The Islamic banks developed a system to meet the necessary criteria’s, instead of interest-bearing loan, banks finance trade by buying some of the borrower’s stock, and afterwards are selling back to the company at a higher price. *”The size of the mark-up is determined by the amount and maturity of the loan and the creditworthiness of the borrower – all traditional yardsticks for determining interest rates (Ghauri, Cateora,*

¹“ Riba: the unlawful advantage by way of excess of deferment; that is, excessive interest or usury (Ghauri, Cateora: 2010, 135).

2010: 135).” This example shows the ability of the Islamic law reconciling with laws of non-Islamic legal systems (Ghauri, Cateora, 2010).

1.2 Entry mode

To define the right entry mode for a specific country is important, the entry strategy requires decision about the selection of the product and market, the targets and objectives regarding the target market, then the selection of which entry mode to use, followed by the definition of the marketing plan, and then a control system to measure the performance (Root, 1998). Fig. 1 demonstrates the internal and external factors, which need to be considered for choosing the right entry mode.

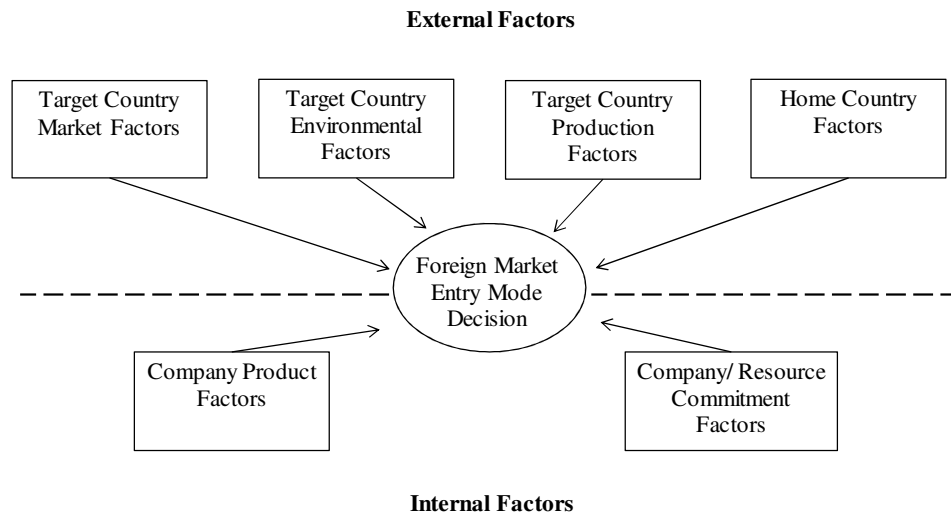


Figure 1: External and Internal Factors for Entry Modes (Based on the Source: Root, 1998)

The entry mode is dependent on the depth of involvement in a foreign market a company desires, how much risk they are able and willing to take, and how much time they have for entering a new market. Variables such as the market size, the distance in geography, language, culture and market characteristics are influencing the decision which entry mode to choose for an internationalization process. Furthermore are admiration and bureaucratic barriers a risk factor. Local risks like the exchange rate (e.g. for transaction) and the political risk (e.g. discrimination, restriction) have to be

considered as well. Fig. 2, provides an overview of the different entry modes and their dependencies.

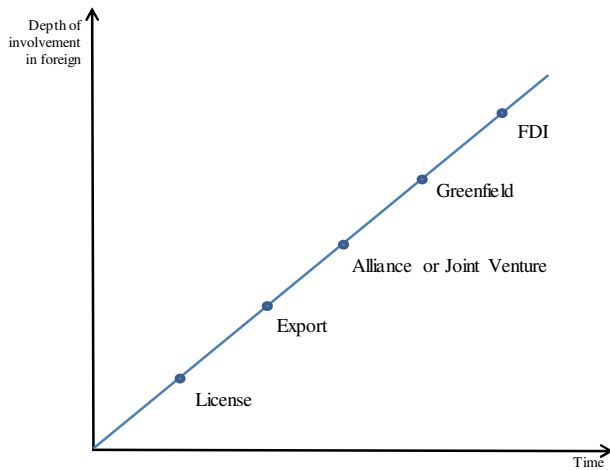


Figure 2: Entry Modes Graph (Based on the Source: Root, 1998)

Licensing is a contractual agreement in which one firm (licensor) provides access to some of its patents, trademarks, or technology to another firm in exchange for a fee or royalty. The economic incentives for the licensor are that it has a reduced time in entering the new market, lower investment expenses, gives access to complementary assets and it is overcoming barriers to trade and investment (Root, 1998).

Export is divided into direct and indirect export. The indirect export has low capital investment, low set-up costs and bears a low risk. The direct export can be through agents, sales representatives and marketing subsidiaries, which give a better control over the international marketing, thus provide better and faster information flow over the target market (Root, 1998).

Alliance is an agreement between two or more competitive multinational enterprises for the purpose of serving a global market. This gives the advantage of investing into a foreign market but maintain 100 % ownership, it creates a strategic partnership, an alliance saves money for each enterprise and saves time, it reduces risk by risk sharing and it gives a collective advantage (Root, 1998).

Joint Venture is an agreement between two or more partners to own and control an overseas business. A typical international joint venture is between a multinational

parent company (with its technology and capital) and a local parent company (with the local knowledge). The purpose of a joint venture is to reconcile the objectives from objectives and strategies from the foreign partner together with the local partner. Both parties have their own contributions to each other, the local partner gives the knowledge of the environment, their personal contacts with local customer, suppliers and others, be able to influence the host government and they may have local prestige, and also may own already facilities. The foreign company contributes with capital and management, production and marketing skills.

The ownership can be majority (foreign partner), minority (foreign partner), or a fifty-fifty share is possible (Root, 1998).

As the Joint Venture is relevant for this project, it will be explained deeper than the other entry modes. Moving on, to create a successful joint venture the necessity of honest, trust and commitment from both parties are important, while focusing what is the best for the joint venture rather than the individual objectives. Referring to Beamish and Lupton (2009), an international joint venture makes up a substantial proportion of the entry mode options. Beamish and Lupton also mention that parent companies often hold as little as 5 % equity stake, although in many countries a minimum of 20 % is required. One of the reasons why international joint ventures are so popular are also the governmental encouragements and legislation which been designed to attract foreign investors, and another reason is the need for local knowledge of the markets (Rugman, Collinson, 2006). An international joint venture can also be affected by the difference in cultures, which affects the communication, decision making and managing employees between the parties (Beamish, Lupton: 2009). To understand the local culture better, the concepts of Hofstede and Trompenaar, as discussed in *1.3.1 Organizational Culture in International Environment*, can be considered. Also can the local partner help to understand the local culture and political system to the foreign party (Rugman, Collinson, 2006). The Fig. 3 (Beamish, Lupton, 2009) provides an overview how to start thinking about a joint venture, from the assessing, to selecting a partner, negotiating the joint venture between the parties and finally the implementation and management agreements of the new joint venture. Rugman and Collinson (2006: 241) describing a joint venture as “*a result of two or more companies identifying the*

potential for ‘synergies’, wherein each partner brings to the venture what the other partner needs but is lacking in.”

Assessing Strategic Rationale	Selecting a Partner	Negotiating Terms	Implementation and Management
<ul style="list-style-type: none"> ❖ What are our objectives? ❖ What sort of resources do we need to achieve our objectives? ❖ Do we want to access or acquire these resources? ❖ Are we in this for the long or short term? ❖ Is a JV our best option? 	<ul style="list-style-type: none"> ❖ Does the partner have the resources we need? ❖ Will they provide us access to the resources we need? ❖ What are their goals? ❖ Are their goals congruent with ours? ❖ What are their motives? ❖ Are we compatible? ❖ Do they have experience in managing JVs? 	<ul style="list-style-type: none"> ❖ Is our management in full support of the JV? ❖ What is best for the JV? ❖ What is the relative importance of each of our requirements? ❖ What are the typical practices in the industry/country in which the JV is located? ❖ How should the performance of the JV be assessed? ❖ Is each party aware of the other's assumptions? ❖ What level of equity is appropriate? ❖ Who will be responsible for managing the JV? ❖ Are there any unresolved issues? 	<ul style="list-style-type: none"> ❖ How do we handle disputes that may arise? ❖ Are we learning from our JV? ❖ How do we renegotiate terms if one or more partners think it necessary? ❖ Are we capturing and codifying any JV management capabilities? ❖ If the JV does not perform as anticipated, how do we turn it around? ❖ Under what conditions should we terminate the JV?

Sources: Four phases adapted from Kelly and Schaan (2005). Decisions adapted from Beamish (2008).

Figure 3: Joint Venture Decision Chart (Source: Beamish, Lupton, 2009)

It is important to mention that many international joint ventures fail, due to the desire of the foreign company to have to control the local operations, which leads to poor decision making and conflicts between the parties (Rugman, Collinson, 2006).

Foreign Direct Investment (FDI) is an equity fund invested in other nations. FDI can be either an entire production line in a host country and is selling products over there or even export them back to the home country. FDI is generally the last step of a company to enter a market, only after they already generated sufficient knowledge about the host country. Main goals of FDI are the access to the market and production factors, production efficiency, knowledge in a host country and political safety (Root, 1998).

To finalize the entry modes, Fig. 4 gives a comparable overview of the entry modes mentioned above.

Entry Mode	Operations Control	Resources Commitment	Advantage/ Loss Risk	Control Cost	Potential to Exploit a Growth Option
Exporting	High	Low/ Medium	Low	Low/ Medium	Low
Licensing	Low	Medium	Medium/ High	Medium	Low
Joint Venture	Medium	Medium	High	High	Medium
FDI	High	High	Low	Low	High

Figure 4: Entry Modes Comparison (Based on the Source: Root, 1998)

1.3 Process

“There is no product and/ or service without a process. Likewise, there is no process with a product or service (Harrington, 1991: 9)”.

The Authors Spect et al. (2005) of the book ‘Market- and result oriented Management (german)’ define a process as: A sequence of connected activities, which together fulfill a result for a common purpose. Furthermore Yu (1994: 548-565) *“separates office processes from processes executed by machines; the latter are simply a progression of tasks whereas office workflows are about actors in social systems collaborating to achieve a goal”*. Garvin (1998) even defines processes into three categories, work processes, the behavioral processes and change processes. Work processes are about to accomplish tasks and is divided in the production of products and/ or services which is called the operational process (for redesign and restructuring of processes), and on the other side those that support them, called administrative process. To reach an optimum result, both processes (operational and administrative) should be improved. The behavioral process focuses on behavioral patterns across the organization; the patterns are decision making, communication and learning processes. The change process describes how individuals, groups, and organizations act, develop and grow over time (Parast, 2010). *“To get best of process improvement initiatives, organizations need to look at the interaction and interconnectedness among these three types of the processes (Parast, 2010: 48)”*.

1.3.1 Process Management

Process management is the analysis of what a company does and then manages the lifecycle of process improvement and optimizations. Process management is either to adopt the best practice for efficiency in the industry or to pursue competitive differentiation. Process management is the collaboration between departments or companies (Smith, Fingar, 2003).

1.3.2 Process Optimization

Process optimization is more than only the application of a technique; implementing it correctly it will lead to better results. Referring to Rummler and Brache (Specht *et al.*, 2005: 80-84) there are eleven steps of process optimization:

1. Identify Critical Business Issues

The first step is to recognize critical aspects in the tasks of a company.

2. Select Critical Processes

This point is the analysis of the reasons for the occurring issues inside the company, and to identify and select the processes which are the roots of these problems. Afterwards is the focus on the selected processes for the optimization process.

3. Select Process Team Leader and Members

After the processes are identified which occurring the issues, the team leader must be selected and the members of the process which need to be optimized.

4. Train the Team

Are the members of the process identified is the next step to train them regarding the process optimization. The team should be able to organize themselves and taking over the responsibilities for their own tasks afterwards. These self-organizing teams, so called “self-direct team” are an important basis for the success of the reorganized process.

Mention by Ed Lawler in his ‘The Ultimate Advantage’ (referred by Specht *et al.*, 2005) Main characteristics for the “self-directed work teams” are:

- Work flow of a task is complete and convenient
- Responsibility for a clear input and output
- Affiliation: all members are – but not necessary – in one premises
- Decision: all important decisions, how the tasks will be completed, are defined by the team
- Broad technical and interpersonal training
- Meetings are frequently
- Possible supervision through a coordinator, trainer or mentor during the first two years
- Bonuses are generally bonded to skills/achievement
- Team members are individuals, who request complex work with changing tasks

5. Develop a “What is Map”

This step includes the processes which need optimization illustrated in a process chart. The knowledge of the first two points, identify critical business issues and select critical processes, having an important role, as they are part of the actual-analysis. The aim of the development of a process chart is the recognition of partly tasks in the process and to show the work flow.

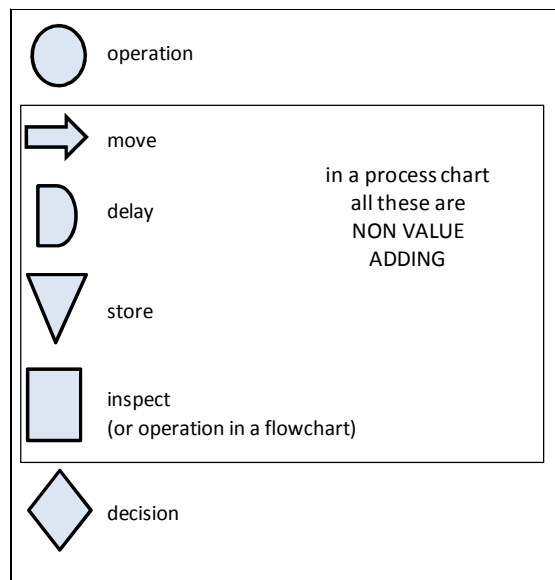


Figure 5: Standard Symbols in a Flow Chart (Based on the Source: referred by Specht *et al.*, 2005)

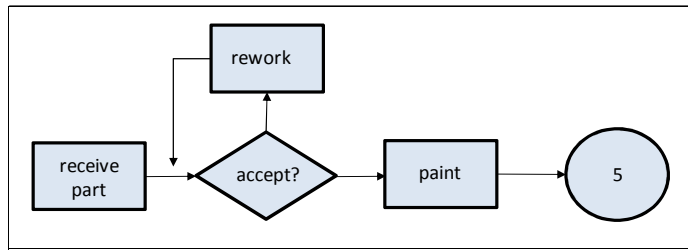


Figure 6: Flowchart (Based on the Source: referred by Specht *et al.*, 2005)

Standard symbols and Flowchart

To have a high transparency of the chart it is recommendable to use the standard symbols. The flow chart illustrates the process' weak points, and is the first step towards the process optimization.

6. Identify “Disconnects”

This step is using the flow chart from point five and identifies the missing, not logical and decrease efficiency between the connecting points of the process steps. A technique supporting this task is the “Time Charting and Analysis” (Stalk, Hout, 1990). The base is the flowchart with an added timeline and the used resources. Referring to Stalk (1990) the “essential sequences” need to be identified, through analyzing the flow chart and reducing/ optimizing the time for the tasks, and also analyzing which steps are increasing the value.

7. Analyze “ Disconnects”

This point refers to point six, after identify the connecting points they will be analyzed with the “Time charting Analysis”

8. Develop “Should be map”

Is similar to the “What is map” and is a flow chart, showing a vision how the process should be including the prior analyzed factor.

9. Establish Measures

In this part the criteria for measurement the performance of the new process must be defined. First of all it will be measured on its own objectives, but also on time, quality and costs. Benchmarking is a good option for the comparison.

Concrete criteria's are for example, break even time, time to market, speed and decision finding, and more.

10. Plan and present the Changes

The two last steps describing the changes, which are necessary, to realize, plan and present the process.

11. Implement the Changes

From point 10 necessary changes are going to implement. It depends on the company on the period of time needed for this step and if it brings more or less big problems with it. After the implementation it is a good option to create a new chart, to verify that the implemented process is lossless realized.

Many companies are having their own specific concept for process improvements, which is generally no reinvention; many are based on existing concepts such as from Rummler and Brache. Deviating from the ideal mentioned concepts is common during the real implementation. Is the focus too much on the ideal concept it could happen that in some cases no real improvement would occur. Due to this the concept should be seen as a guideline.

1.4 Six Sigma

“First, what is it not. It is not a secret society, a slogan or cliché. Six Sigma is a highly disciplined process that helps us focus on developing and delivering near-perfect products and services” was said by General Electric in 2009 (Gassman, 2012: 85).

In 1979 the idea of Six Sigma was created by Motorola, which made them aware that an increase in quality will not necessary lead to higher overall costs, contra wise it will even lead to reduces in costs (Harry, Schroeder, 2000). Motorola had the goal 3.4 defects out of one million, to reach a so called six sigma, which would be equivalent to a quality level of 99.9997 % (Schroeder et al., 2008). The Six Sigma represents the level needed for the customer satisfaction, also see Figure 7 (Homepage: i Six Sigma, <http://www.isixsigma.com/new-to-six-sigma/statistical-six-sigma-definition/>, dd. 22.08.2012).

Sigma level	Error rate	Defects per million opportunities
1 σ	69.0 %	691,462
2 σ	31.0 %	308,538
3 σ	6.7 %	66,807
4 σ	0.62 %	6,210
5 σ	0.023 %	233
6 σ	0.00034%	3,4
7 σ	0.0000019 %	0,019

Figure 7: Sigma levels (Based on the Source: Homepage i Six Sigma, <http://www.isixsigma.com/new-to-six-sigma/statistical-six-sigma-definition/>, dd. 22.08.2012)

Nowadays Six Sigma is known as a statistical method for higher quality and also is Six Sigma a process optimization method. The management initiative Six Sigma became well-known outside the USA only in 1995, after Jack Welch used it as a core idea in his business strategy plan for General Electric and was able to reduce the overall costs, year in and year out (Gassmann, 2012). It is estimated that the Six Sigma implementation at General Electric had benefits on the order of \$10 billion during the first five years (Homepage: i Six Sigma, <http://www.isixsigma.com/new-to-six-sigma/getting-started/what-six-sigma/>, dd. 22.08.2012).

The literature offers many definitions about Six Sigma, Gamweger (2009) gives the statement: Six Sigma is a strict top-down process optimization concept, which uses selected experts in a structured approach and adding the use of methods and techniques, it is possible to implement financially measurable improvement initiatives (Gassmann, 2012). Included in Six Sigma is the DMAIC (define, measure, analyze, improve and control) model, which supports solutions to problems with statistical tools, Fig. 8 shows an overview of this method:

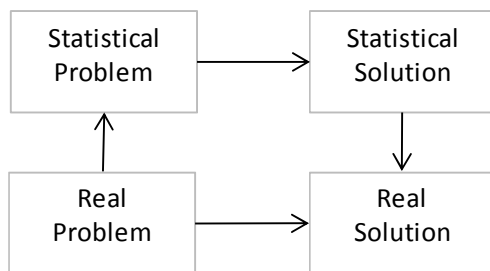


Figure 8: Problem-flow Chart Six Sigma (Based on the Source: Gassmann, 2012)

The fundamental objective of the Six Sigma methodology is the measurement-based strategy for process improvements, which can be accomplished by the use of DMAIC.

1.4.1 Different Roles in Process Management

In Six Sigma initiatives the implementation, operation and control are not by external work force, it comes from within the company. For every initiative the responsibilities and individual rolls will be dedicated, the following table shows an overview of the responsibility distribution in a DMAIC initiative (Gassmann, 2012).

Sponsor	Champion	Process Owner	Controller
<ul style="list-style-type: none"> ▪ Executive Manager ▪ Provides resources ▪ Eliminates barriers ▪ Follow-ups on milestones and approve next phase-steps 	<ul style="list-style-type: none"> ▪ Member of the board of management ▪ Establishes the Six Sigma vision ▪ Defines the Six Sigma implementation strategy 	<ul style="list-style-type: none"> ▪ Responsible for (part-) processes ▪ Assures the sustainability of the initiative 	<ul style="list-style-type: none"> ▪ Supports the financial calculation ▪ Controls the financial outcome

Process Owner	Master Black Belt	Black Belt	Green Belt
<ul style="list-style-type: none"> ▪ Implementation, coordination and management of the initiative ▪ Selects the members for key positions 	<ul style="list-style-type: none"> ▪ Full-time member of the initiative ▪ Trains Black Belts and Green Belts ▪ Coaches Black Belts 	<ul style="list-style-type: none"> ▪ Full-time member of the initiative ▪ Manages Six Sigma projects ▪ Trains project teams and coaches Green Belts 	<ul style="list-style-type: none"> ▪ Part-time member of the initiative ▪ Project member ▪ Manages small Six Sigma projects

Figure 9: Rolls in Six Sigma Initiatives (Based on the Source: Gassmann, 2012)

For the operational implementation of the Six Sigma initiative are the master black belt and the black belts responsible. They also are full-time involved in the initiative and are having the part as coach and trainer. The green belts are supporting the initiative with 20 – 50 % of their working time. In some companies there are also yellow and white belts, which are below the green belt and supporting the green belts with taking-over of little administrative tasks (Gassmann, 2012).

1.4.2 DMAIC

Including in the Six Sigma tool kit is the DMAIC method, DMAIC stands for define, measure, analyze, improve and control, and the objective is to drive costly variation from business processes, and creates a reduction in quality costs in the long-run (Homepage: DMAIC Tools, <http://www.dmaictools.com/>, dd. 23.08.2012). Fig. 10 shows the related questions which need to be answered for each of the phases.

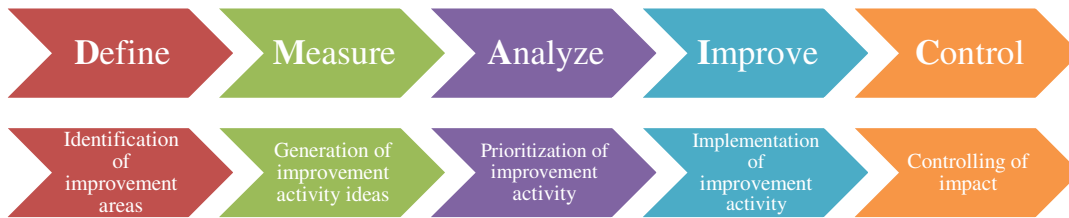


Figure 10: DMAIC Definition (Based on the Source: Homepage DMAIC Tools, <http://www.dmaictools.com/>, dd. 23.08.2012)

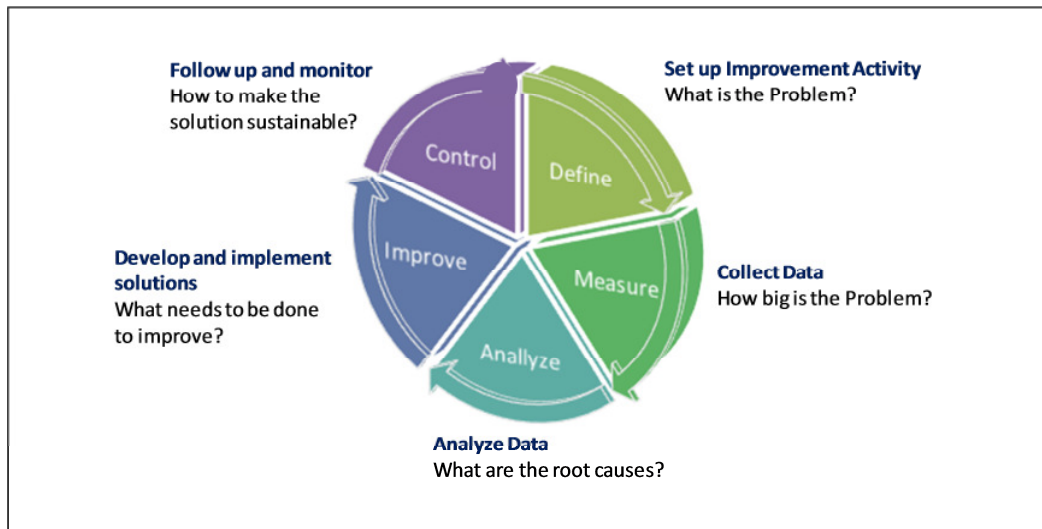


Figure 11: DMAIC Cycle (Based on the Source: Deutsche Post DHL brochure: First Choice Process Excellence, 2010)

Referring to Fig. 8 (problem-flow chart six sigma), it can be adapted to the DMAIC directly, as shown in Fig. 12.

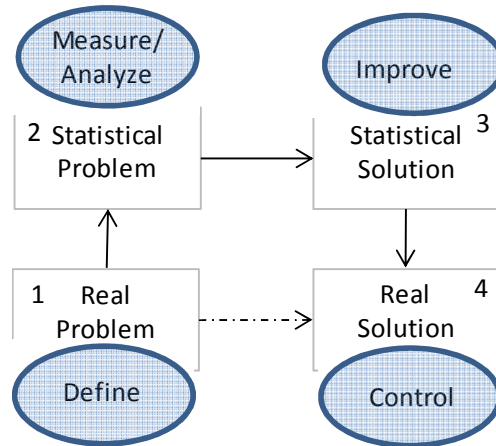


Figure 12: Problem-flow of Six Sigma initiatives (Based on the Source: Gassmann, 2012)

1.4.2.1 Define

In the Define phase the kick-off of the initiative is planned and carried out. The task in this phase is among others the selection of team members and the coaches. Each initiative begins with the description of the problem the goals which are attached to it (Toepfer, 2009). The initiative onboarding meeting is a meeting with the initiative team members, in which the objectives are defined, roles and responsibilities are assigned and a schedule is fixed. At such initiatives the following questions are being asked:

- What is the goal of the initiative? What is the actual state? How big is the Delta between the both statuses?
- Since when are the problems occurring? When do they appear, and when not? How often do they appear?
- What are the consequences at the internal cutting points, and to the customer?
- How will be the future improvements recognized and measured?

Description of the actual status

The gained information's are written down in a charter (see Fig. 13) and supported by SIPOC (Supplier, Input, Process, Output and Customer) which is a summarized process overview, see also Fig. 14 (Toutenberg, Knoefel, 2009). The initiative charter defines the core problem and also the limitations of the initiative. In addition, the charter includes a detailed work-plan with the desired goal and the responsibilities for each

team member. There is a clear path through the Define phase and at the end the answers for the following question should be clear: “What is the Problem?” and “What is important to the customer?”

Starting with the first task the creation of an initiative charter, this should ensure that the improvements are institutionalized and standardized to ensure that other departments could make use of it. The initiative document is the know-how, which is gained during the initiative, and is transparent and accessible to others. With this procedure the best-practice standards can be developed and used in-house and brings the opportunity to easily transfer to other similar processes. The charter should include:

- Problem statement
- Business case
- Goals
- Scope
- Resources/ roles
- Time

Project Charter																																																																														
Business Case - Case explanation	Project Scope - What is the scope of the initiative?																																																																													
Problem Statement - What is the current issue?	Team Roles - Master Black Belt - Green Belt - ...																																																																													
Goal Statement - What is the goal?	Milestones <table border="1"> <thead> <tr> <th></th> <th colspan="10">2007</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>Define</td> <td>■</td> <td>■</td> <td>■</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Measure</td> <td></td> <td></td> <td>■</td> <td>■</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Analyze</td> <td></td> <td></td> <td></td> <td>■</td> <td>■</td> <td>■</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Improve</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>■</td> <td>■</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Control</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>■</td> <td>■</td> <td></td> <td></td> </tr> </tbody> </table>		2007											1	2	3	4	5	6	7	8	9	10	Define	■	■	■								Measure			■	■							Analyze				■	■	■					Improve						■	■				Control							■	■		
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Figure 13: Example of a Project Charter (Source: Deutsche Post DHL brochure: First Choice Process Excellence, 2010)

Each problem which needs an improvement should be written down as a single set-complete with verbs and nouns without any abbreviations, unless they are understood by each member involved, e.g. phrases such as “quality” or “too many mistakes” are not acceptable. Moreover, it is not allowed to use the cause- and effect chain, e.g. “we have too many errors, because our people are lazy”. These kinds of statements presume the answer to the question, which excludes other answer possibilities. Also often the

presumed answers are incorrect. The charter should be discussed with all relevant team members to ensure the buy-in, and also is the support of the strong and important stakeholders necessary.

Process Overview

Moving on to the SIPOC, by applying this method it is possible to gain a quick high-level overview of the main elements of the process; SIPOC is a simple, yet effective method.

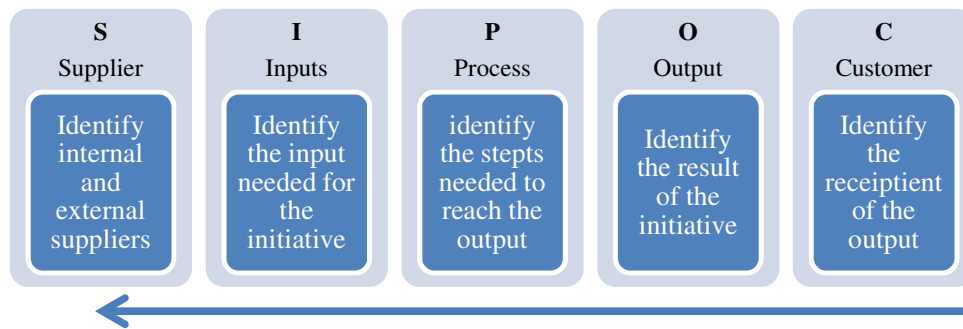


Figure 14: SIPOC analysis (Base on the Source: Toutenberg, Knoefel, 2009)

Usually SIPOC is used in the COPIS sequence, to emphasize the customer needs. The first step is to identify the output from a customer point of view. Afterwards is to determine the recipient of the output, together with the analysis of the suppliers and their input (Toutenberg, Knoefel, 2009).

Voice of the customer

The next step is the voice of the customer (VOC), first of all it is important to identify the real customer for the initiative, which could also be an internal recipient of the process output. In this step the focus is on the understanding of the customer point of view of the process, and what does he needs to fulfill his own processes. This is vital, as the company sees the process from an external view and do get a good overall overview. Furthermore it is necessary to collect the VOC's, this can be through questionnaires, market analysis and others, a good complaint management system also can have its advantages here. The VOC's will be translated into specific and measurable output criteria's, which are called 'critical to quality' (CTQ), (Toutenberg, Knoefel, 2009).

Issuing project order

The last step in the define phase is the issuing of the project order for the process improvement. This one includes the collected information's, the actual situation status and the goal of the project, furthermore it defines the budget, time and performance planning (Wappis, Jung, 2008).

Results of the Define Phase

The overall result should be the signed project order, defined customer requirement and an overview of the initiative.

1.4.2.2 Measure

In the phase Measure of the DMAIC cycle all necessary information will be gathered which are needed for the next phase of the cycle (Analyze). The material which is necessary to understand the process and the core problem of the initiative will be collected in this phase. This helps to find possible causes and also to avoid them. The measure phase includes:

- Itemization of the process
- Interpretation of existing data
- Collection and analyzing of data

Itemization of the process

The pre-defined process is now investigated, and in- and outputs will be added. In addition to the SIPOC model, process operations can be presented in flow charts to have a more detailed overview. As not all members of the imitative are familiar with the entire process at the beginning of the project, this is a useful tool to involve every member (Homepage: DMAIC Tools, <http://www.dmaictools.com/dmaic-measure>, dd. 24.08.2012). The cause-and effect (fishbone diagram) is also another possibility to show a clear overview of the process. The process-specific categories or the categories according to the 7 M (method, material, machine, measure, management, milieu and men), are defined in the fishbone diagram, within these categories the causes are added and will be break-down to its details. The created diagram looks like a fish bone, which gave the chart its name. Possible reasons for deviation are shown in this diagram, which

can be identified in a later phase for approval or elimination purposes (Magnusson et al., 2004).

Interpretation of existing Data

In this part it is tried to collect as many useful information's as possible from existing data. In general there is often a plurality of values, but it is not always known how these data have been identified and if they are complete. Although a critical examination of these data are mandatory to proof the plausibility, but these data have often a high value for the process improvement of a six sigma initiative. There are a large number of possible methods to optimize processes in the literature, the following showing just an extraction:

- Time Series Plot
- Individual Chart
- Run Chart
- Box Plots
- Pareto Analysis
- Histogram
- Pie Chart

Collection and analyzing of data

After the existing data have been analyzed and interpreted, potential causes can be seen, and it is necessary to collect new data. The new data collection extends the previous analysis and should be focused on the criteria's which are important and necessary for moving further in the project. (Pan, Ryu, Baik, 2007). Some of the criteria's can be derived from the previous defined CTQ's.

Results of the Measure Phase

The result of the measure phase is the comprehension of the improvement initiative based on data and facts, the delimitation of the improvement situation and it includes the measured influencing variable and output quantity.

1.4.2.3 Analyze

In the analyzing phase is characterized by the question: What are the core causes for the problem? The main goal in this phase is to identify these relevant causes. Furthermore, the hypotheses from the previous phases are being proofed in this phase. The data from the measurement phase are relevant for the analyze phase, the collected data are getting

structured, analyzed and evaluate, for this purpose are mathematic and statistical methods used. Besides the data analysis to find the core causes, it is a good option to also analyze the run of the process, to not oversee any other potential causes.

The goal in the analyze phase should be to identify out of the amount of influencing causes, the ones which are relevant for the improvement (Jochem, Geers, Giebel, 2011).

Result of the Analyze Phase

The result of the analyze phase shows the proven relation between cause and effect.

1.4.2.4 Improve

The improve phase is the actual implementation of the improvement initiative, and is characterized with the question: What is the best solution to eliminate the problem? Therefore is the main goal in the improve phase, based on the results from the analyze phase, the development, and also the testing for a suitable solution (Jochem, Geers, Giebel, 2011).

Options and alternatives need to be considered and highlighted, in terms of the requirements of the customer (VOC) and the critics to quality (CTQ). It is important to pay attention that the possible solutions are based on the issues indicated in the define phase. It must show a clear path from the define phase to the analyze phase, as a solution not based on the identified core issues are useless at this point. This shows the importance of a comprehensible and transparency documentation of the first phases (Bergbauer, 2008).

Generate solutions, evaluate and select

As a requirement there is a clear line from the define phase, to measure phase and to analyze phase to be able to find solutions. The voice of the customer (VOC) and the critics to quality (CTQ) are known together with its targets. The best method to visualize the initiative is the use of a Flip Chart, which should be available and shown to all initiative project members (Bergbauer, 2008).

There are plenty of tools available to generate solutions, but there are not specific tools given by Six Sigma. However, examples for common tools for solution generating are:

- Brainstorming: Is a process for generating creative ideas and solutions through intensive and freewheeling group discussion. Every member should be encouraged to think aloud and suggest as many ideas as possible, and it does not matter how outlandish or bizarre they seem. To analysis, to discuss, or to criticize of the aired ideas is allowed only when the brainstorming session is over. Then the evaluation session begins (Homepage: Business Dictionary, <http://www.businessdictionary.com/definition/brainstorming.html>, dd. 27.08.2012).
- 6-3-5 method: Is a variation of the brainstorming process, which is more structured and enhances the view of the team members' inherece to challenge. 6-3-5 method is a quiet and high efficient method. A team with 6 members needs to write 3 ideas in 5 minutes on a paper. In a second round these papers are forwarded to another team and again, this team adds 3 ideas in 5 minutes, this goes on until every team had each paper. In a team with six – no bigger- are on six papers, 18 ideas generated. This process forces the members of a team to accept the view and opinion of others and build up ideas on the given (Bergbauer, 2008).
- Six thinking hats: This method is also known by its developer De Bono (1986). In this method the team members accepting the position of the given hat. It requires that depending on the hat color information's and facts are collected, expression of feelings and premonitions, concerns are expressed, risks are highlighted, advantages and positive impacts are collected, additional ideas and alternatives are developed, and as last but not least the summarizing and course of action are reviewed. It gives not only data and facts, but also feelings and premonitions, which gives a broad picture (Bergbauer, 2008).
- And others.

The selected solutions should be tested and implemented through an action plan (Jochem, Geers, Giebel, 2011).

Results of the Improve Phase

The result of the improve phase includes the optimized solutions, proved and tested solutions, as well as the approval for implementation of solution.

1.4.2.5 Control

The last phase in the DMAIC cycle is the control phase. This phase is characterized through the question: How can be a sustainable of the improvement guaranteed? The focus is on the implementation as well as the validation of the optimized solution. This phase has two goals: the continuous monitoring of the process results, to ensure the sustainability and the achievement of the new implemented process. This can be controlled through detailed documentation of process sequences, with the use of key data and also with the use of a reaction plan, to be able to intervene in the right time as prevention. For this purpose a control system is needed, which shows the trends towards discrepancy of the new defined process, specification and the monitoring, to be able to recognize in time and react with a correction action. A second goal is, to use the gained knowledge of the phase results and use them as a starting point for user Six Sigma initiatives. Building Six Sigma initiatives upon each other, a continuous whole improved process can be created. In addition to the control phase a lesson-learned phase can be added, to exchange the gained knowledge and experience during the DMAIC cycle and uses this knowledge for future projects (Jochem, Geers, Giebel, 2011).

Results of the Control Phase:

The result of the control phase should ensure an improved situation, the evaluation of the reduction of costs, and the improvement initiative is formally concluded.

1.5 DMAIC^{+Lean}

DMAIC^{+Lean} is a combination of lean management and six sigma. Using lean management in six sigma initiatives, it requires a well-structured project selection process, which clearly defines which issue will be solved with which approach. After a process streamlining and elimination of waste through lean management as a basis improvement, certain issues can be solved with a lean DMAIC cycle, which is applicable in a short time. To clarify the lean management approach added into the Six

Sigma initiatives to create the DMAIC^{+Lean} Cycle , the following Fig.15 can help to understand the concept better (Toepfer, 2009).

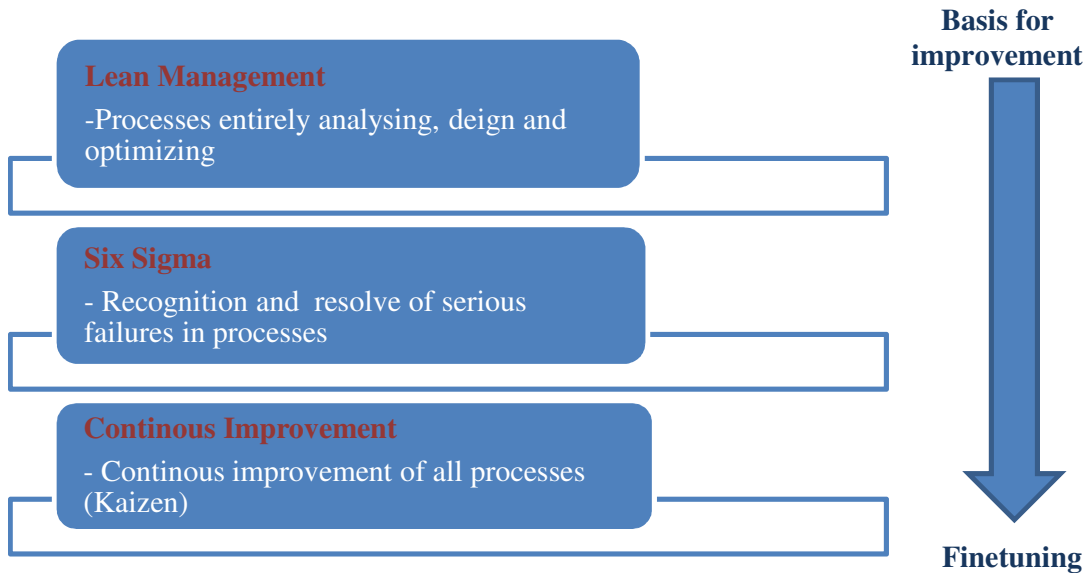


Figure 15: Improvement in three steps (Based on the Source: Toepfer, 2009)

The use of lean management with the Six Sigma DMAIC cycle has the aim of making the process lean (Gassman, 2012). Guenther and Garzinsky (2009) are saying that this process have a run time of 5 days. As a consequence, the authors are eliminating every method of the regular DMAIC cycle, which a lot method-know-how requires, but relatively less problem-related know-how provides. The eliminated methods are mainly the statistical methods for the data analysis, which is substituted to a certain level by the process analysis. The process analysis permits the derivation of measures for the reorganization/ streamlining (lean), (Gassman, 2012). The focus of DMAIC^{+Lean} is on the phases: measure, analyze and improve. The concentration is therefore on the value-added process of the optimization (Toepfer, 2009). Fig. 16 shows an example for a DMAIC^{+Lean} cycle.

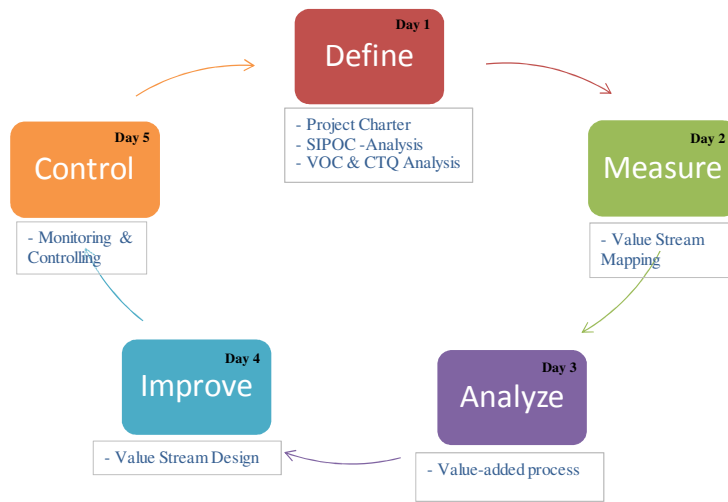


Figure 16: DMAIC+Lean Cycle (Based on the Source: Toepfer, 2009)

2. Chapter II - Project: Process Optimization on Danzas AEI Emirates LLC

As a result of the continuous global economic integration, more and more companies are forced to transform itself radically to be able to be and to stay competitive in the global market. Although the awareness exists and companies are ready to change, there is often the open question how to constructively deal and how to approach with the change management.

2.1 Target market Dubai

In 2008 the Dubai market was more than ready for the logistical sector to arrive. Inviting with an infrastructure and the service level conform on highest international standards. Other benefits are 100 percent profit- and capital repatriation, customs exemptions due to free trade zones and no currency restrictions². There is no corporate tax for a guaranteed period between 15 and 50 years with renewal option and the labor and energy costs are very low³. The UAE is a world-trade area and has no trade barriers, almost no import fees and the currency (Dirham) is bounded to the U.S. dollar. A great advantage is also the taxation treaties with many countries with a current tax rate of zero percent. A disadvantage is the law that no foreign company can hold the whole shares of a company, 51 % must be in UAE nationals hands⁴.

Furthermore in 2008 the market was booming, new constructions were popping of out of the ground every day and the material needed to be transported, also did the world trade increase and it was easily to foresee that Dubai will become a big and important hub in the Gulf Region. Dubai is positioned, with access not just to Europe, Africa and Asia, but also to the fast developing Indian subcontinent and its huge manufacturing output. Also in 2008 it was foreseen that in the future benefits of operating from the only free zone in the world to be located between an airport and a seaport could have a big impact.

² Homepage: Why Dubai, <http://www.dubaided.gov.ae/PublishingImages/Dubai%20FDI%20Why%20Dubai%20report.pdf> , dd.19.03.2013

³ Homepage: Why Dubai, <http://www.dubaided.gov.ae/PublishingImages/Dubai%20FDI%20Why%20Dubai%20report.pdf> , dd.19.03.2013

⁴ Homepage: <http://www.internationallawoffice.com/newsletters/detail.aspx?g=ac282bd3-0ed6-4df9-a761-1a6ce7d001de>, dd. 19.03.2013

2.1.1 Demographic⁵

The UAE has 5.3 million inhabitants (in 2012), over three-quarters of the residents are foreign workers and have no citizenship. Most foreigners come from Egypt, Yemen, Palestine, India, Iran, Bangladesh and Pakistan.

Due to the influx of guest workers the population growth rate is 3.2 %, only a small part is based on natural growth. The life expectancy is 76 years. The UAE has a current average age of 30.2 years (men 32.1 years and women 25 years). The birth rate is 15.8 births per 1,000 women. 20.5 % of the population is under 14 years, 78.5 percent between 15 and 64 and only 3 percent is above 65 years. It is necessary to mention that 73.9 percent of the population is between 15 and 64 and are foreigners.

2.1.2 Religion

Islam is the religion most abundant in the UAE. Officially are 96% Muslims, and from this 16% Shia, other religions among Christen and Hindus only count 4% (Homepage: CIA Factbook).

Some of the most beautiful mosques stand next to modern architecture. Amidst the hectic life, five times a day the call to pray is noticeable. There is a coexistence of the old culture in a modern Islamic society. But also other cultures and religions are able to find their place in the UAE. There are quite a few churches and other religions are accepted.

2.1.3 Language

The official language is Arabic, but English, Urdu and Hindi are commonly used as well. Although Arabic is the proper business language, it is very common to communicate in English. Many street and shop signs, restaurant signs, menus, etc. are in both languages.

2.1.4 Trends in economic policy, employment and infrastructure

The United Arab Emirates is a dynamic business location, almost all the indicators are at the highest level. The most important sector in the UAE is the oil sector, crude oil and natural gas. The UAE has about ten percent of the world's proven oil reserves and thus

⁵ All data used in this section are from CIA Factbook <<https://www.cia.gov/library/publications/the-world-factbook/geos/ae.html>> [dd. 19.03.2013]

makes the UAE ranking sixth place in the world rank list and it is the fifth largest in gas reserves . The export of raw materials and the products produced by them represents almost 80 percent of the total export volume. In the current discharge flow the reserves of oil and natural gas will be exhausted in 100 years.

In the recent past years more jobs were created and investments were made in infrastructure improvements and there is also an increase in private investments.

The non-oil sector employs about 15 percent of the work force, this area makes 71 percent of the gross domestic product (GDP)⁶. To dependence themselves from the raw oil, other areas get supported by the political leadership such as the metal producing and metal processing industry, development of trade, tourism and financial services.

Agriculturally usable is only 3 percent of the country, which is plant with crops, fruits and vegetables. The livestock and fisheries contribution only meets the needs of the population.

The main trading partners of the UAE are Japan, South Korea and Thailand. For imported goods such as machinery, vehicles, chemicals and food are the United States, China, India and Japan the main suppliers.

The UAE has a very good road network, it connects the major cities, but there is no railway line. The country has five international airports.

In UAE is the currency the Dirham (AED or Dh.). One dirham is divided into 100 fils. The dirham is bounded to the U.S. dollar and the exchange rate is at 3.67 dirhams to 1 U.S. Dollar⁷. Dirhams are available in notes: 500, 200, 100, 50, 10 and 5 and the Coins are separated in 1 dirham, 50 and 25 fils.

⁶ (Homepage, German Embassy in UAE < http://www.abudhabi.diplo.de/Vertretung/abudhabi/de/06__Wirtschaft/01-Wirtschaftsbeziehungen_20-20Deutschland_20und_20die_20VAE/seite__wirtschaftssituation-vae__2010.html> dd. 19.03.2013)

⁷ (Homepage, Gulf Bank <http://www.e-gulfbank.com/eng/personal/bankingPackages/forexRates.jsp?pageSource=mostpopular&pageTitle=Banking%20Packages&siteSection=personal> , dd. 19.03.2013)

2.1.5 Economic Environment

The UAE has announced that they have overcome the international financial- and economic crisis in mid-2011. The following data are the most up to date data available. The real growth rate over the years (till 2008) was 5-7 per cent. Thus make the UAE the second largest economy after Saudi Arabia in the Arab world. The per capita income is 40,000 U.S. dollars⁸. For 2011 in the UAE, depending on the development of the oil price, the German department of foreign affairs expects a growth of three to four percent (2010: UAE officially 1.4 percent)⁹, for 2012 a growth of 5 percent is expected¹⁰. In 2010 the foreign direct investment in the UAE amounted 13 billion U.S. dollars and therefore the IMF said that there is an expected economic upturn in 2011¹¹.

The rapidly rising oil price in the world market helped the recovery, which is likely to enhance the revenue and balance sheet positions of the UAE in 2011 well above average. With one of the highest per capita income of 40,000 U.S. Dollars the UAE are among the richest states and also having financially strong investors.

2.1.6 Development of International Trade¹²

The following data are the most up to date data available. Even in the United Arab Emirates after several years of continuous growth they had a decrease in export trades. Exports dropped by 16.8 percent in 2009, but already by 2010 the growth was back by 19 % (see also Figure 18 Exports UAE). Figure 19 Imports UAE shows the pattern of imports with a decline of 6.4 percent in 2009, but also with a quick recovery in 2010 by 7 %. Figure 17 shows UAE's trade balance, recorded a surplus amounted to 10.4 billion U.S. dollars in 2009, with Europe a deficit of -26.5 billion dollars were recorded, and

⁸ Deutsche Botschaft in den VAE <http://www.abu-dhabi.diplo.de/Vertretung/abudhabi/de/06__Wirtschaft/01-Wirtschaftsbeziehungen_20-20Deutschland_20und_20die_20VAE/seite__wirtschaftssituation-vae__2010.html> [dd. 19.03.2013]

⁹ Auswärtiges Amt <http://www.auswaertiges-amt.de/DE/Aussenpolitik/Laender/Laenderinfos/VereinigteArabischeEmirate/Wirtschaft_node.html>[dd. 16.02.2013]

¹⁰ Auswärtiges Amt <http://www.auswaertiges-amt.de/DE/Aussenpolitik/Laender/Laenderinfos/VereinigteArabischeEmirate/Wirtschaft_node.html>[dd. 16.02.2013]

¹¹ Auswärtiges Amt <http://www.auswaertiges-amt.de/DE/Aussenpolitik/Laender/Laenderinfos/VereinigteArabischeEmirate/Wirtschaft_node.html>[dd. 16.02.2013]

¹²All figures are from D_Statis <<http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/Internationales/InternationaleStatistik/Thema/Aussenhandel/Aussenhandel,templateId=renderPrint.psm>>[dd 17.08.2012]

North America -10.7 bn U.S. dollars and Asia shows -9.0 bn U.S. dollars. However, the trade with East Asia recorded a large surplus with +23.4 bn U.S. dollars. 80 percent of exports are among five countries, and imports were distributed over 15 import partners.

Graph 1: Total imports, exports and trade balance
(Bln US\$ by year)

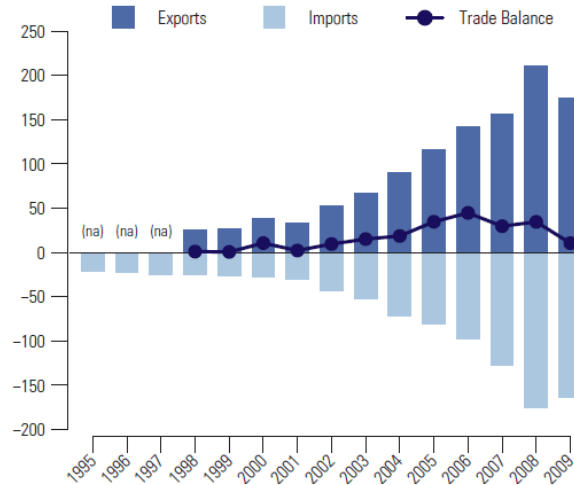


Figure 17: Trade Balance UAE (Source: Homepage D_Statis)

SITC	2009	Avg. Growth rates (%)		2009 share
		2005-2009	2008-2009	
Total	174725.0	10.9	-16.8	100.0
0+1	3586.1	14.4	8.5	2.1
2+4	1322.9	15.9	-28.0	0.8
3	64560.0	5.8	-37.5	36.9
5	2756.5	13.5	-10.6	1.6
6	14699.7	13.7	-24.5	8.4
7	16595.1	11.9	4.9	9.5
8	6585.1	16.7	-9.1	3.8
9	64619.6	15.3	15.5	37.0

SITC	2009	Avg. Growth rates (%)		2009 share
		2005-2009	2008-2009	
Total	164251.0	19.4	-6.4	100.0
0+1	9061.6	16.4	-4.6	5.5
2+4	2782.2	14.7	-23.2	1.7
3	1788.6	35.8	3.8	1.1
5	7516.9	15.1	-15.7	4.6
6	25833.4	12.0	-40.7	15.7
7	44837.5	16.6	-17.9	27.3
8	14960.9	13.2	-13.2	9.1
9	57469.9	30.8	58.5	35.0

Figure 18: Export UAE (Source: Homepage D_Statis)

Figure 19: Import UAE (Source: Homepage D_Statis)

2.1.7 Organizational Culture in International Environment¹³

To get an understanding of the unique culture in the United Arab Emirates, Hofstede's five dimensions provide an overview.

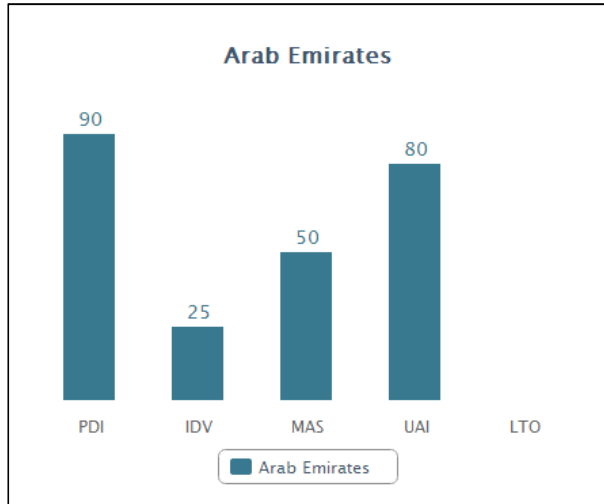


Figure 20 Geert Hofstede 5 Dimension for the UAE (Source: Homepage: <http://geert-hofstede.com/arab-emirates.html>)

In the power distance index, the UAE scored high with 90, this is an indicator that people accept hierarchical order. Furthermore it reflects the acceptance of inequalities between the populations.

Individualism states if people belong to groups or taking care of themselves. The UAE index is 25, which refers to a collectivistic society. Loyalty is important, as well as long-term commitments to family, the extended family and extended relationships. This is also show in hiring and promotion, 'group members' will be preferred. *"In collectivistic societies offence leads to shame and loss of face"* (Geert Hofstede, Homepage: <http://geert-hofstede.com/arab-emirates.html>, 19.03.2013).

In the masculinity index the UAE scored 50, which will indicate them as a masculinity society. In these societies the emphasis is on equity, competition and performance. People 'live to work' and managers are expected to be decisive and assertive.

¹³ Homepage: Geert Hofstede, <http://geert-hofstede.com/arab-emirates.html>, dd. 19.03.2013

The uncertainty avoidance index states 80, which emphasis on avoiding uncertainty. *“Countries exhibiting high uncertainty avoidance maintain rigid codes of belief and behaviour and are intolerant of unorthodox behaviour and ideas”* (Geert Hofstede, Homepage: <http://geert-hofstede.com/arab-emirates.html>, 19.03.2013). This is reflected by the UAE population; people are working hard, and following the attitude ‘time is money’, as well as they feel the need for security.

For the long term orientation index are no scores available for the United Arab Emirates.

2.1.8 Technological

As the section 2.1.1. Demographic confirms, has the UAE a very young population, which indicates to highly technological knowledgeable professionals. The IT software industries and internet usage in the gulf region is double the rate of Europe. The UAE population has also the largest users of internet, satellite and mobile phone within the Middle East (Cateora and Graham 2007).

2.1.9 Political and Legal Environment

After the retreat of the British in 1971, seven independent Sheikdoms formed the United Arab Emirates, in this year the provisional constitution was created, which was codified in 1996 as a permanent constitution. The capital is Abu Dhabi, one of the most modern cities in the world. Dubai is the most vibrant city in the Gulf region. The northern emirates of Dubai are Sharjah, Umm Al-Quwain and Ras Al-Khaimah, and Fujairah in the east.

The head of the state is the president, since 2004 it is Sheikh Khalifa bin Zayed Al Nahayan. He is one of the sheikhs of the seven Emirates; who sits in the "Supreme Council of Rulers" choose a president from among its own ranks. The largest and wealthiest emirates, Abu Dhabi and Dubai, have a veto in the upper council. Vice President and head of government has traditionally been the emir of Dubai, since 2006 Mohammed bin Rashid Al Maktoum. A purely advisory role has the National Federal Council with 40 members, one half is appointed every two years by the emirs, and the

second half is a selected cross-section of the population, which is selected by the emirs. In the UAE there are no political parties or trade unions.

The state religion is the Islam, so the Islamic law (Shar'ia) is to obtain (in detail in chapter I, 1.1.6.1 Islamic Law).

2.2 Company Profiles

To be able to understand the project better, the companies will be introduced first; there are three main parties, the Deutsche Post DHL Group, a German company, with its subsidiary called Danzas AEI Emirates LLC in a joint venture with a local company called Al Tayer, from the United Arab Emirates (UAE). The case takes place in Danzas AEI Emirates LLC in the Jebel Ali Free Zone in Dubai, UAE. It is about the process improvement of invoicing in the ocean freight import department, using the “First Choice Process Excellence” concept of Deutsche Post DHL.

2.2.1 History of Danzas

Danzas, a logistic company was founded in the year 1815 in Basel, Switzerland, by Louis Danzas. Since 1901 is Danzas also present in Germany and in 1919 a Danzas GmbH, based in Mainz was founded. Only a year later this position was relocated to Mannheim and 1949 to Frankfurt am Main. Danzas was merged with Air Express International LLC (AEI), which was formed in 1992, to form Danzas Intercontinental.

In 1999, the Deutsche Post AG acquired the majority of the shares of the listed Danzas holding. It was the acquisition of the German Post AG using the brand name German Post World Net.

As part of a re-branding, the three brands: DHL, Danzas and Euro Express German Post have been combined into a global brand DHL. The brand Danzas was used until January 2006, especially for the air and sea freight division, combined as *DHL Danzas Air & Ocean*, after all it renamed to DHL Global Forwarding.

2.2.2 Joint Venture Partner Al Tayer

The joint venture partner Al Tayer Group was founded in the United Arab Emirates in 1979. It is a private, diversified company located in 12 countries in the Middle East and beyond. Al Tayer's headquartered is in Dubai, UAE and employs over 7,800 employees from 95 different nationalities.

The Al Tayer Group is a leading company in Dubai. The Al Tayer Group represents some of the world's most renowned brands in:

- Automobile
- Fashion
- Jewelry
- Perfume & Cosmetics
- Publishing
- Business & Service industries

The portfolio includes some of the world's leading brands such as Armani, Bulgari, Banana Republic, Ford, Ferrari, Gucci, Gap, Harvey Nichols and Maserati. Al Tayer operates over 180 stores in several markets in the Middle East. In addition, Al Tayer Group has investments in commercial real estate, supply chain management, manufacturing and precision tools and travel agencies.

2.2.3 The Joint Venture: Danzas AEI Emirates LLC

Reasons for DHL to expand to Dubai

Deutsche Post DHL main objective for expanding to Dubai was the efficiency seeking. *"An increasing number of companies from diverse industries including Lifescience, Automotive and Technology have chosen Dubai as an attractive production and logistics location. As the market leading global logistics Group we have anticipated our customers' wishes and have made continuous investments into one of the most dynamic regions in the world. We remain committed to giving our customers in the expanding Middle East, the best possible service to help support their growth aspirations. This is what drives our commitment to invest in new infrastructure,"* commented Hermann Ude, CEO DHL Global Forwarding, Freight.

Deutsche Post DHL Group aimed for a Joint Venture with the Al Tayer Group. A joint venture is the creation of a new legally independent business unit of the founding companies, in this case, Deutsche Post DHL and Al Tayer, both parties are involved with their own capital. A Joint Venture provides a less risky way to enter markets that pose legal and cultural barriers but in the UAE another barrier is to overcome. In the United Arab Emirates, it is not possible to create a new company without merging with a local company. It is a rule that no foreign shareholder may hold more than 49 % of the shares, means that 51 % are mandatory to leave to an UAE national. A Joint venture between the Al Tayer Group and Deutsche Post DHL resulted in Danzas AEI Emirates LLC.

In 2008 a US \$ 50 million logistics center in Dubai's Jebel Ali Free Zone was opened. A press release on Arabiansupplychain.com in 2009 said: "Dubai is a state that has decided to build up and invest in a whole new logistics infrastructure. There is nowhere else in the world, except perhaps in China, where such a ground-breaking development is taking place" said Meincke (senior vice president of sales and marketing, Kuehne + Nagel), [...] "Mid-term, Dubai has the potential to become an extremely dominant logistics hub," he stated" (Homepage: Arabian supply chain, http://www.arabiansupplychain.com/article-2201-kuehne_nagel_loyal_to_dubai_mega_project/, dd. 24.02.2012). This is the operational office of Danzas AEI Emirates LLC and the base of this project. Danzas is divided in five pillars: road freight, air freight, ocean freight, contract logistics and customs brokerage. To its customer belonging major companies such as 3M, Emirates Airlines, Canon, Dell, Xerox, Nokia, Boeing and many more. Danzas has four stations in Dubai: Dubai Cargo Village, Dubai Airport Free Zone, Jebel Ali Free Zone and Sharjah. Danzas employs 1,029 people and has an annual turnover of 847 million AED and an annual profit of 223 million AED. ¹⁴

The Chairman of Danzas, Ahmed Al Tayer said that the investments in the new high-tech facilities are the confirmation of the importance of Dubai as a global economic center.

¹⁴ Due to business secret, it is not possible to give any references.

2.3 The Project

Danzas is operating successfully since 2008 in Dubai. The economically growth in the Gulf region in the last year, increased also the operational volume for Danzas. This fact, as well as a changes in customer behavior, technological changes (for example: first a telefax was used and nowadays the papers and documents can be scanned and sent on an electronic way) and changes in trade lanes made Danzas AEI Emirates LLC faces the need for change, and the urge for a process improvement in its ocean freight import department. Analyzing the 'as it' status made it clear that actions are needed, as the invoicing process shows a significant delay in invoicing the customer. Invoices should be issued in the time period of 3 days after the delivery date or the port of destination date. The data available from the database for the period of October 2010 till January 2011 showed a result of 4476 invoices issued to customers in the ocean freight import department and 773 invoices were issued late, which makes a percentage of 17 %. Customers would be satisfied to receive the invoices at the time of execution of the shipment, to do their costing of shipment as it is delivered to them, and so that they are able to plan their cash flow accordingly. The delay in invoicing the customer is affecting the customer satisfaction, but also the workload within the department, as a current follow-up is needed, asking the shipping lines for the own invoices and adding them to the invoice to the end customer. This needs unnecessary extra time inside the process, and also reduces the cash-flow, as the customer receive their invoices late, they also will settle the payment later. This faulty process costs time and money, which can be reduced, and at the same time it can increase customer satisfaction.

For this purpose to improve the faulty process does Deutsche Post DHL have the "First Choice Process Excellence" concept, which is leaned on the Six Sigma approach. This initiative will have a nature of benefit that the cash flow will be improved and bad debts will be reduced.

2.3.1 Organizational integration of the ocean freight import department at Danzas AEI Emirates LLC

The ocean freight department is one of the main business pillars of Danzas AEI Emirates LLC. The department is divided in 5 pillars: import, export, hub management,

ocean freight sales and pricing & vendor management (see Fig. 20). The import department makes the major part of the whole ocean freight department.

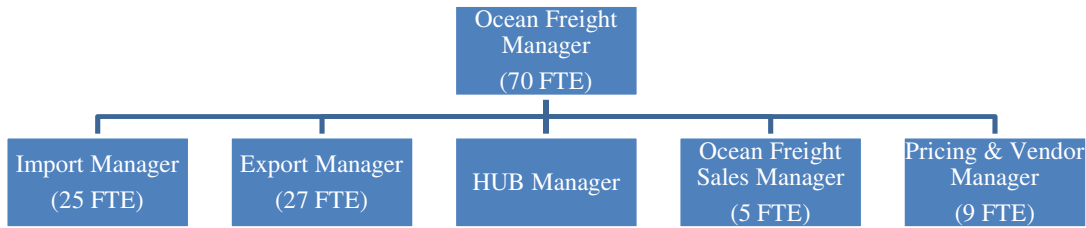


Figure 21: Ocean Freight Department (Based on the Source: Deutsche Post DHL brochure: First Choice Process Excellence, 2010)

*FTE: Full Time Employees

The import department is divided into six segments: import clearance & delivery, import Asia-pacific, import America-north & Europe, operation clerk for delivery orders, general operation clerk and a dispatch clerk.

2.3.1.1 The power distribution inside the Joint Venture

Referring to the interview (09.07.2012) with the former country manager Stefan Fallet (Appendix 1), who was the active country manager during the initiative of this case; he provided relevant information about the joint venture management. Al Tayer is an active joint venture partner, and the chairman of the joint venture is Ahmed Al Tayer, from the Al Tayer Group. Al Tayer receives a part of the profit and is regulating the human resource and finance sector of Danazs AEI Emirates LLC. There is a competence catalogue, which regulates which parts need approval by AL Tayer, and which parts can be individually chosen.

Regarding the processes, the finance processes, such as credit approvals and budget approvals are coming from the Al Tayer side; the operational side, including the ocean freight, airfreight, road freight and other operational departments, comes from Deutsche Post DHL and are adapted to local regulations.

To change the ocean freight import process, needs no approval from Al Tayer, as it is an optimization of the process and not a total change of the process. If there would be an

investment necessary for the optimization, which is not the case, it would need the approval by the joint venture partner Al Tayer.

2.3.2 “First Choice Process Excellence”

Deutsche Post DHL has its own concept for process improvement, which is included into their ‘First Choice’ concept¹⁵. The First Choice concept comes from the manufacturing industry and it has been adjusted to the needs of the service sector. The process improvement of First Choice initiatives are run with the DMAIC^{+Lean} concept. First Choice defines its DMAIC process as¹⁶:

Define: Identification of improvement areas

Measure: Generation of improvement activity ideas

Analyze: Prioritization of improvement activity

Improve: Implementation of improvement activity

Control: Controlling of impact

2.3.2.1 Define Phase

2.3.2.1.1 Ideal theoretical procedure according to DMAIC^{+Lean} of the “First Choice Process Excellence” concept¹⁷

In the Define phase the kick-off of the initiative is planned and carried out. The task in this phase is among others the selection of team members and the coaches. Each initiative begins with the description of the problem the goals which are attached to it. The gained information are written down in a charter and supported by SIPOC (Supplier, Input, Process, Output and Customer), which is a summarized process overview. Anything not covered by the charter or SIPOC is outside the frame. The initiative onboarding meeting is a meeting with the initiative team members within Danzas AEI Emirates LLC, in which the objectives are defined, roles and responsibilities are be assigned and a schedule is fixed. The voice of the customer will be collected, and with the VOC-CTC matrix translated into measurable quantities.

¹⁵ Deutsche Post DHL Corporate Intranet (2010): PDF “General Information First Choice”

¹⁶ Homepage: http://www.dp-dhl.com/de/ueber_uns/first_choice/potenzial_entfalten.html, 02.08.2012

¹⁷ Deutsche Post DHL Corporate Intranet (2010): PDF “Define Overview”, “Define Roadmap”, “Define Charter”

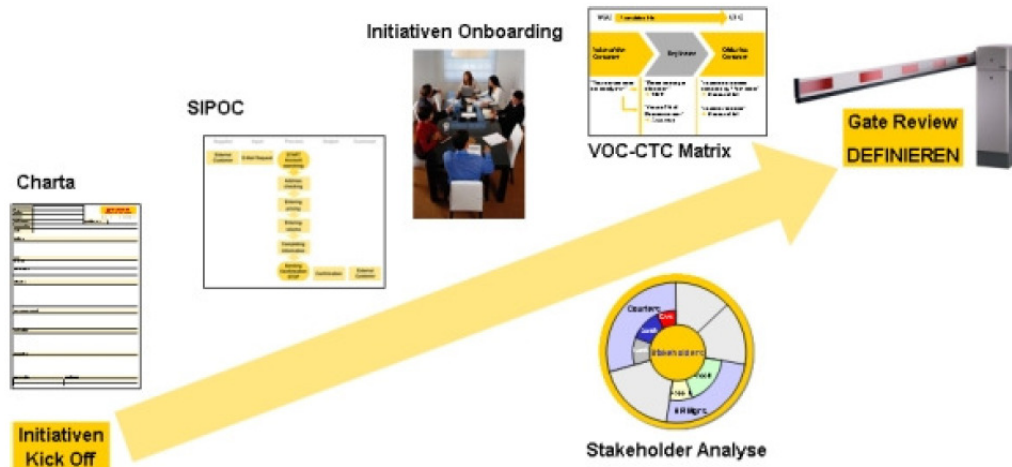


Figure 22: Overview Define Phase (Source: Deutsche Post DHL brochure: First Choice Process Excellence, 2010)

The initiative charter defines the core problem and also the limitations of the initiative. In addition, the charter includes a detailed work-plan with the desired goal and the responsibilities for each team member. There is a clear path through the Define phase and at the end the answers for the following question should be clear: “What is the Problem?” and “What is important to the customer?” Starting with the first task the creation of an initiative charter, this should ensure that the improvements are institutionalized and standardized to ensure that other departments could make use of it. The initiative document is the know-how, which is gained during the initiative, and is transparent and accessible to others. With this procedure the best-practice standards can be developed and used in-house and brings the opportunity to easily transfer to other similar processes. The charter should include:

- Problem statement
- Business case
- Goals
- Scope
- Resources/ roles
- Time

Each problem which needs an improvement should be written down as a single set-complete with verbs and nouns without any abbreviations, unless they are understood

by each member involved, e.g. phrases such as “quality” or “too many mistakes” are not acceptable. Moreover, it is not allowed to use the cause- and effect chain, e.g. “we have too many errors, because our people are lazy”. These kinds of statements presume the answer to the question, which excludes other answer possibilities. Also often the presumed answers are incorrect. The charter should be discussed with all relevant team members to ensure the buy-in, and also is the support of the strong and important stakeholders necessary. The last step for the charter is to proof if it is “SMART”: Specific, Measureable, Agreed upon, Realistic and Time bound.

Moving on to the SIPOC, by applying this method it is possible to gain a quick high-level overview of the main elements of process; SIPOC is a simple, yet effective method. Usually SIPOC is used in the POCIS sequence. The initiative onboarding part is the meeting with the team members, to identify and group stakeholders to reduce the resistance to change.

The next step is the Voice of the customer (VOC), the key issues will be determined and one to three main critical points to the customer/ business (CTC/ CTB) is collected. The final step in the Define phase is the gate review, to ensure the commitment and support, and to ensure nothing is overlooked and that it has been well communicated. The key questions in Define for the gate review are:

- Charter completed and signed off?
- SIPOC and VOC / CTC completed?
- Team onboarding meeting held?
- Stakeholder Management initiated?

2.3.2.1.2 Real practical procedure

Existing process

The invoicing process in the import department of Danzas AEI Emirates LLC is regulated by key performance indicators (KPI), and invoices should be issued to the customer within 3 days of the delivery date or date when the goods are at the port of destination. The process of the invoicing is handled by four responsible employees, it starts with the office of origin, who are sending the information about the shipment arrival (in short LOT) via the ‘Logis Ocean’ system, the so called LOT-Desk in Dubai is downloading the job files and sending the pre-arrival not to the customer before

handing the file over to the supervisor, who then segregate and distribute the file to the Coordinator. The Coordinator, the fourth person in the process, has the main task of the invoicing process, he needs to check the invoice received by the shipping line, request the quotation and check them afterwards, afterwards he is sending out the arrival note to the customer, and updates the system with the relevant information's. It depends if the customer requests the clearance of the goods, if not the coordinator raises the invoice and hand over the file to the delivery order counter. If the customer request the clearance also, the coordinator takes care if the clearance and delivery, follow-up the receipts and raises then the supplementary invoice.

Core issues of the existing process

The core issue of the invoicing process is the delay in issuing the invoice. The corporate parameter of Danzas AEI Emirates LLS says that the invoice should be raise in the time of 3 days after the delivery date or the port of destination date. The key performance indicators showed a significant delay of this task, for the period of October 2010 till January 2011 it showed a result of 4476 invoices issued to customers in the ocean freight import department and 773 invoices were issued late, which makes a percentage of 17 %.

Goal

The goal is to optimize the process regarding the late invoice issuing, and reaching a percentage of less than 5 % of all invoices issued by the ocean freight import department by March 1st 2011.

List of risks and dependencies

Relevant risks which can put the initiative in danger are late receipt of the station invoices, no availably on agreed rates and disputes with the shipping line invoices.

What makes the initiative work is a proactive communication internally and with the customers. Also it is important to pre-check the invoices received regarding the request of quotation (RFQ) and the agreed rates.

Team

The team for this initiative exists of eight members, the ocean freight manager, who has the role as process owner, and is up to 50 % available for this initiative, the senior advisor with 70 % availability, the process improvement advisor with 90 % availability,

four team members, the import manager, import team leader, and two import supervisors who are available up to 90 % as well, the last member of the initiative is a subject matter expert with 10 % availability.

SIPOC

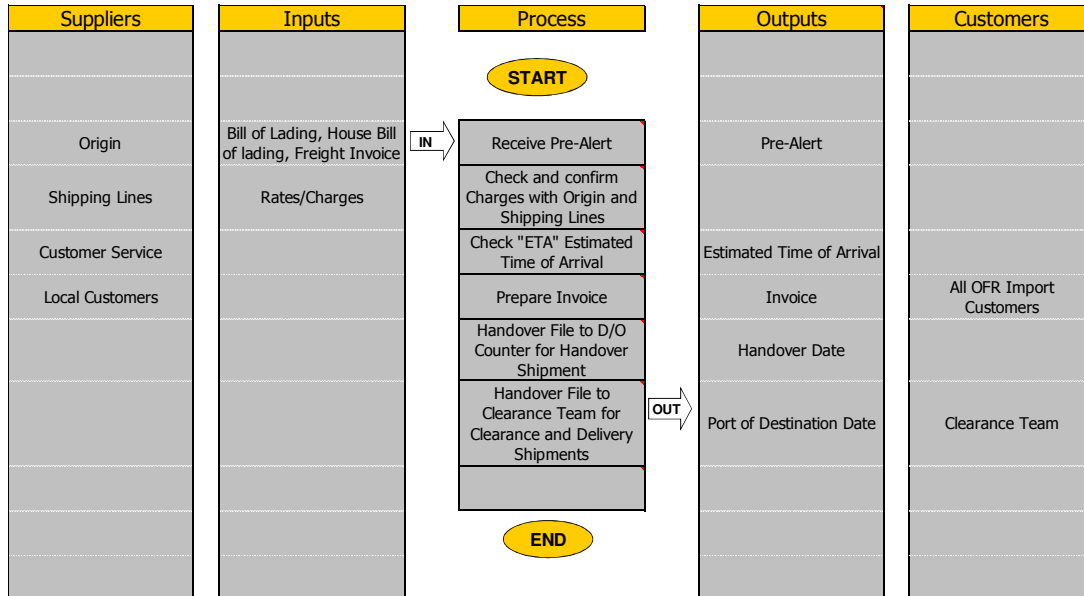


Figure 23: SIPOC-Case (Source: internal data from Danzas AEI Emirates LLC)

The SIPOC analysis will be read in a POCSI sequence. As Fig.22 is showing the process includes the description of the internal procedure (in detail in 4.3.2.3 “As is” process map) from the start to the end of each file. The output includes the relevant data, such as the pre-alert given to the customer, the knowledge about the estimated time of arrival, the invoice issued for the customer, the handover date and also the port of destination data for the customer information. The customers are the entire ocean freight import customer, and the clearance department of Danzas AEI Emirates LLC, as they will receive the file at the end if the customer wishes for clearance services. Moving on to the suppliers, they are the origin office from where the process starts, the shipping lines who are transporting the goods and issuing their invoice to the OFR IMP department, the customer service department of Danzas AEI Emirates LLC as they also receiving in some cases the information from the origin office and forwarding these information’s to the OFR IMP department and the local customers who are the actual importers. The input is given from the (house) bill of ladings and freight invoices

receiving from the shipping lines and rates and charges which have been agreed for a certain time period.

VOC-CTC Matrix

The voice of the customer says that they are receiving the invoices late, which has as the key driver the timeliness. Critical to the customer (CTC) and critical to business (CTB) says, that each shipment should have an invoice within 0-3 days from the time of delivery date or date of arrival at the port of destination.

2.3.2.2 Measure Phase

2.3.2.2.1 Ideal theoretical procedure according to DMAIC+Lean of the “First Choice Process Excellence” concept¹⁸

In the phase Measure of the DMAIC cycle all necessary information will be gathered which are needed for the next phase of the cycle (Analyze). All material which is necessary to understand the process and the core problem of the initiative will be collected in this phase. This helps to find possible causes and also to avoid them. An important aspect in the measurement phase is the determination of the process, which means it will answer the question: “What can be achieved in the process of the initiative?” Output data will be measured to understand the earning power of the process. The data collection consists of four steps:

1. What?
 - a. Relevant measures (what is reflecting the need of the customer / VOC?)
2. How?
 - a. Operational Definition
 - b. Data Sources
 - c. Data Types (Discrete: categories, count; Continuous: measured on scale)
 - d. Statistical Key Figures (minimum/ maximum)
 - e. Sampling
 - f. Measurement System Analysis (Quality of data collection)
3. Collect
 - a. What: Measurement

¹⁸ Deutsche Post DHL Corporate Intranet (2010): PDF “Measure Overview”

- b. How: Operational Definition
 - c. When: Date time
 - d. Where: Department side
4. Secure Consistency
- a. Monitoring
 - b. Process Variation

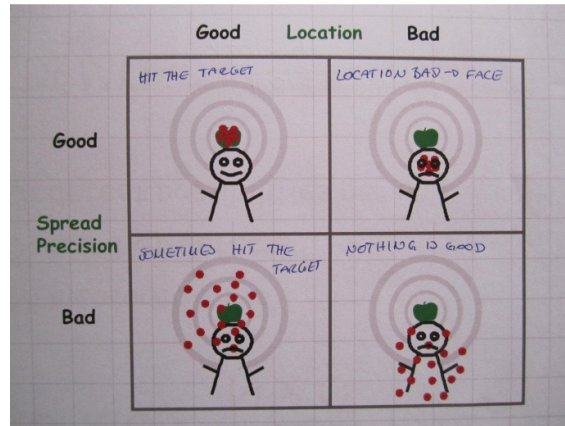


Figure 24: Process Variation (Source: Deutsche Post DHL brochure: First Choice Process Excellence, 2010)

This figure shows that it's a fact that all work is a process and that variation exists in each process. There is the common cause variation of "normal" and "expected", and the special cause variation of "unexpected" and "unique".

- c. Process Capability

Compares processes on the level of defects per million opportunities (DMPO):

$$DMPO = \frac{D}{N \times O} \times 10^6$$

N: measured units

D: count of defects

O: defect possibilities per unit

The Graphical representation of the collected data can be shown in various options:

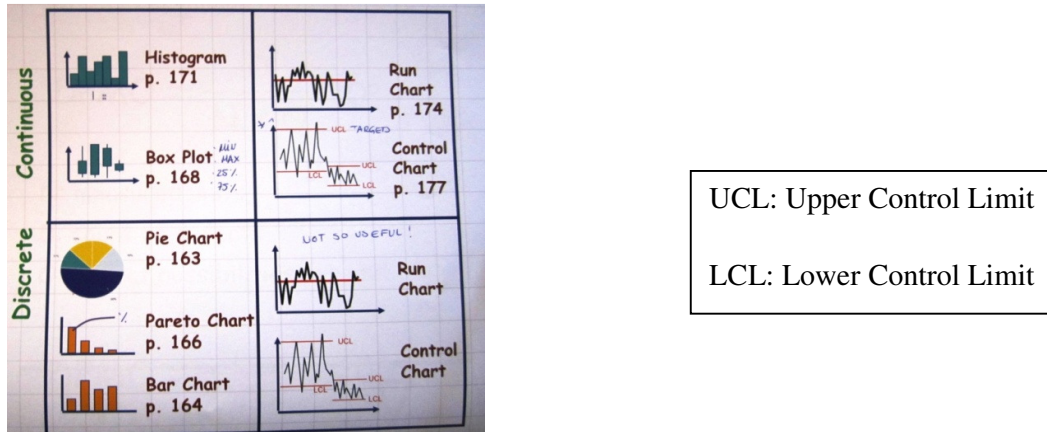


Figure 25: Diagram-options (Source: Deutsche Post DHL brochure: First Choice Process Excellence, 2010)

To finalize the Measure phase the gate review is taken place. The key questions for this phase must be answered:

- Relevant output measures identified
- Data collection plan completed
- Measurement System Analysis (is it repeatable, would the same result occur?)
- Visualization and interpretation of data (graphs)
- Process Capability (DPMO)
- Initiative Charter checked (if needed – adjust)

After the measuring, the initiative can be stopped if it does not make sense to continue.

2.3.2.2.2 Real practical procedure

Existing Data

The data needed for this initiative are the amount of invoices handled and the amount of late issuing of invoices. These data are available through the system “Logis Ocean”. The result is that between of October 2010 till January 2011 4476 invoices have been issued to customers and 773 invoices were issued late, which makes a percentage of 17 %.

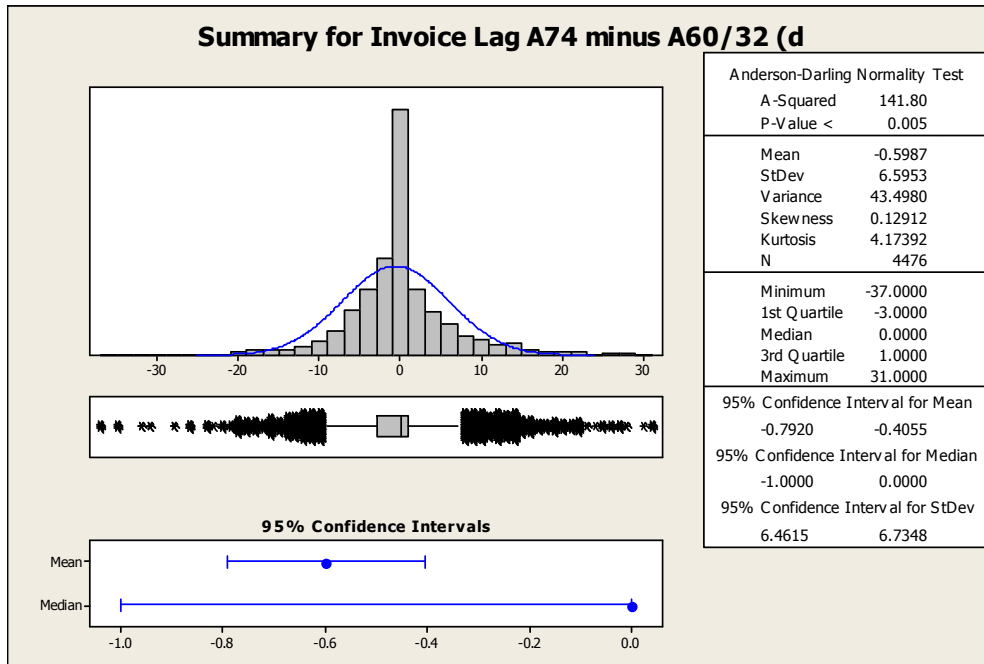


Figure 26: Data late invoices (Based on the Source: internal data from Danzas AEI Emirates LLC)

The Fig. 20 above shows the graph with the distribution, it shows clearly that the majority of invoices is issued in time but also shows a clear discrepancy that invoices are issued too late.

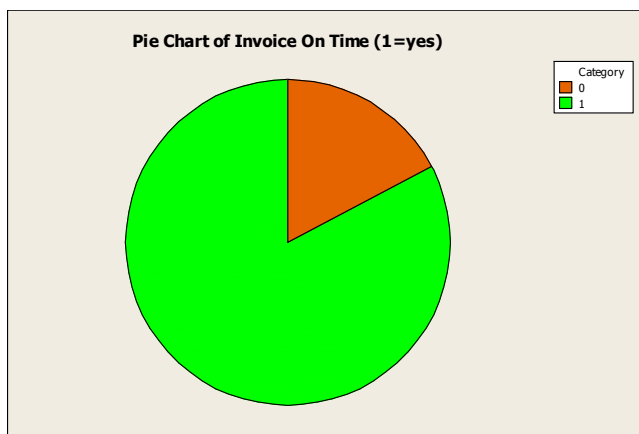


Figure 27: Pie chart late invoices (Based on the Source: internal data from Danzas AEI Emirates LLC)

The Pie Chart also shows clearly the relatively high amount of late invoicing.

Process Capability – DPMO

The process capability compares processes on the level of defects per million opportunities (DMPO):

$$DMPO = \frac{D}{N \times O} 10^6$$

N: measured units; *D*: count of defects; *O*: defect possibilities per unit

A defect in this case is when the invoice is not printed three days after the POD date.

1.	Determine number of defect opportunities per unit	O =	1	DPMO = 172.699
2.	Determine number of units processed (Total Parts)	N =	4.476	
3.	Determine total number of defects made (includes defects made and later fixed)	D =	773	
4.	Calculate Defects Per Opportunity	DPO = $D / (N \times O)$ =	0,17270	
5.	Calculate Yield	Yield = $(1 - DPO) \times 100$ =	82,7%	
6.	Look up Sigma in the Process Sigma Table	Process Sigma =	2,44	

Figure 28: DMPO (Based on the Source: internal data from Danzas AEI Emirates LLC)

The table above shows clearly that the defect rate is too high; the yield rate is only at 82.7 %. Which should be at a higher level than 95 %.

2.3.2.3 Analyze Phase

2.3.2.3.1 Ideal theoretical procedure according to DMAIC^{+Lean} of the “First Choice Process Excellence” concept¹⁹

In this phase it is important to identify the root causes to verify the previous speculations. The analyzing phase includes the question “what is the core problem” and what is the company doing wrong in the point of view of the customer. The main tools for the analyzing are the following:

¹⁹ Deutsche Post DHL Corporate Intranet (2010): PDF “Analyze Overview”, “Analyze important tools”

- Root Cause Analysis
 - What is the company doing wrong, and why are mistakes occurring, need for collection of possible causes (cause-effect diagram)
- Process Mapping
 - Identifying the steps that are involved in the process at the initiative level, and then proof the potential causes (process mapping and analysis)
 - Value stream map and waste determination
 - Where are the problems in the existing process?
 - Which activities need the most time?
 - Are all activities necessary to the customer?
 - Identify possible causes for the defects in the process
- Data Analysis
 - Detailed examination of the data, proof or discard the hypotheses with statistical methods
 - Identify and measure the main variables (input and process measurement variables)
 - Relation of the output measured variables with the measurement matrix (cause related measurement matrix)
- Graphical Analysis
 - Illustration of the data in different ways, in order to see a trend, and recognizable information's (correlation and regression)
 - Decode the data to whether see if significant factors have been identified that contributes to the issue

And also in this phase it is important to summarize the results for the gate review.

2.3.2.3.2 Real Procedure

Root-Cause Diagram

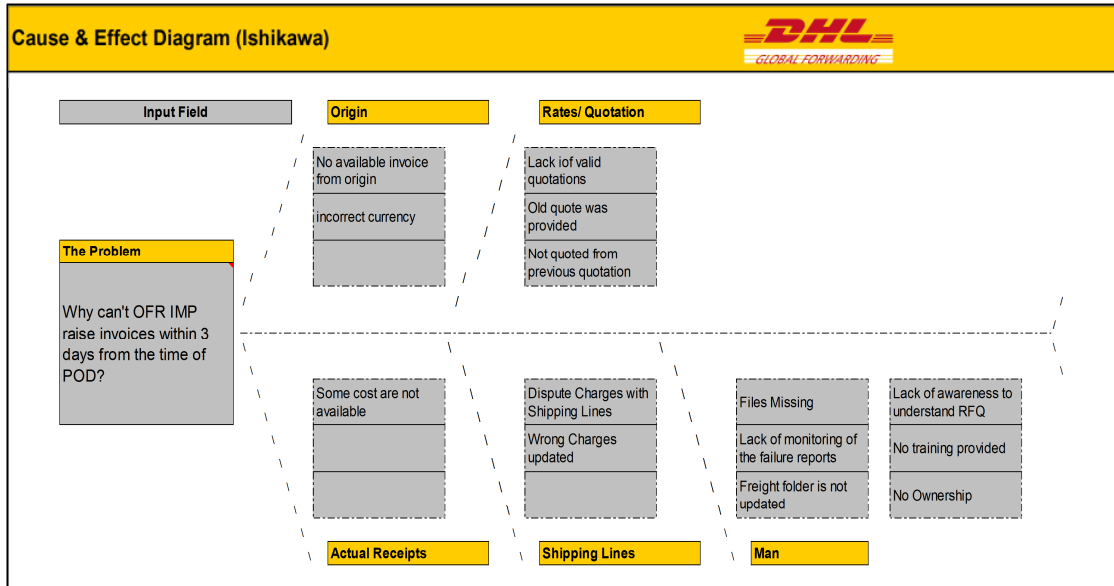


Figure 29: Root-Cause Diagram (Source: internal data from Danzas AEI Emirates LLC)

The root-cause diagram is the fishbone diagram and shows the core issue “Why can’t the OFR IMP department raise the invoices within three days of POD?” The main causes are divided in five main pillars: origin, rates/quotations, actual receipts, shipping line and man. The import department collects the causes that the invoices are not always available from the origin, and also that the origin sometimes used the incorrect currency, this leads to delays in the internal process, as invoices needs to be corrected by the origin. In general does the import department already have pricelist from carriers, but the import department has a lack of valid quotation, that old quote were provided, or it was not quoted from the previous quotation, all these needs extra time and follow-up with the carriers, for revising the faulty quotation, and also asking for up to date quotations. From the Shipping Lines are the delays in issuing the invoices as there are depute charges with shipping lines appearing, or wrong charges been updated, this also needs a clearer structure, to not delay the process further. The last one are the men itself who are occurring delays in the process, files are missing, there is a lack in monitoring the failure reports, the freight folder is not updated, there is a lack of understanding of the RFQ (request for quotation), there is no training provided and also no ownership of process parts.

Output Measurement Matrix

The output matrix shows the points which are critical to the customers/ business, in this case it is that each shipment should have been invoiced within 0-3 days from time of POD, the output measure is the timestamp in the database 'Logis Ocean', the time between the shipment delivery and the invoicing timestamp.


Output Measurement Matrix (Tool 2)	
	
(English Mandatory)	
	Output Measure
Critical to Customer (CTCs) Critical to Business (CTBs)	Time taken from Shipment Delivery to Invoicing (A74 minus A63/32 Timestamp)
Each shipment should have an invoice within 0-3 days from the time of POD / Handover updation in Logis.	

Figure 30: Output Measurement Matrix (Source: internal data from Danzas AEI Emirates LLC)

“As is” process map

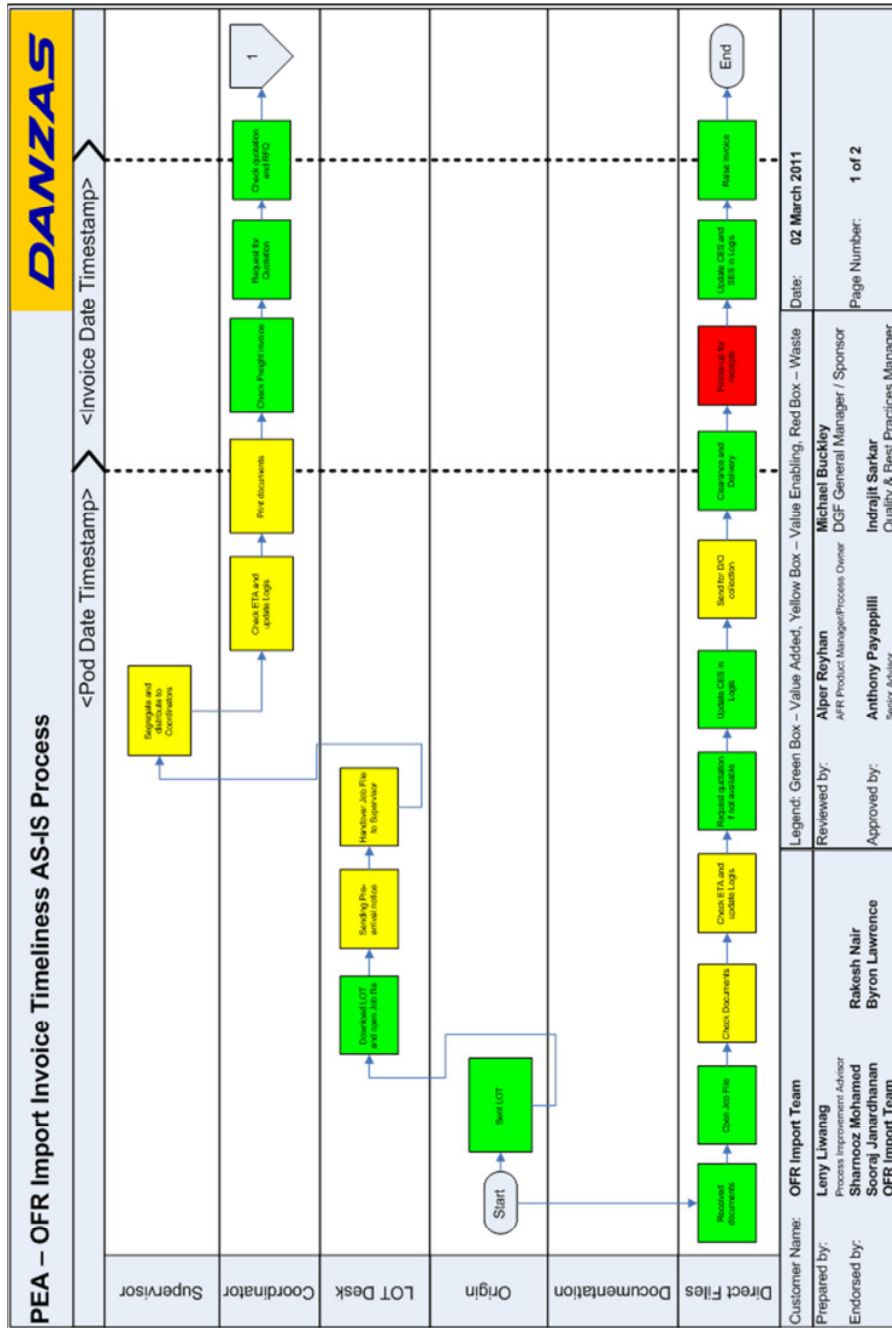


Figure 31: “As is” process map, part 1 (Source: internal data from Danzas AEI Emirates LLC)

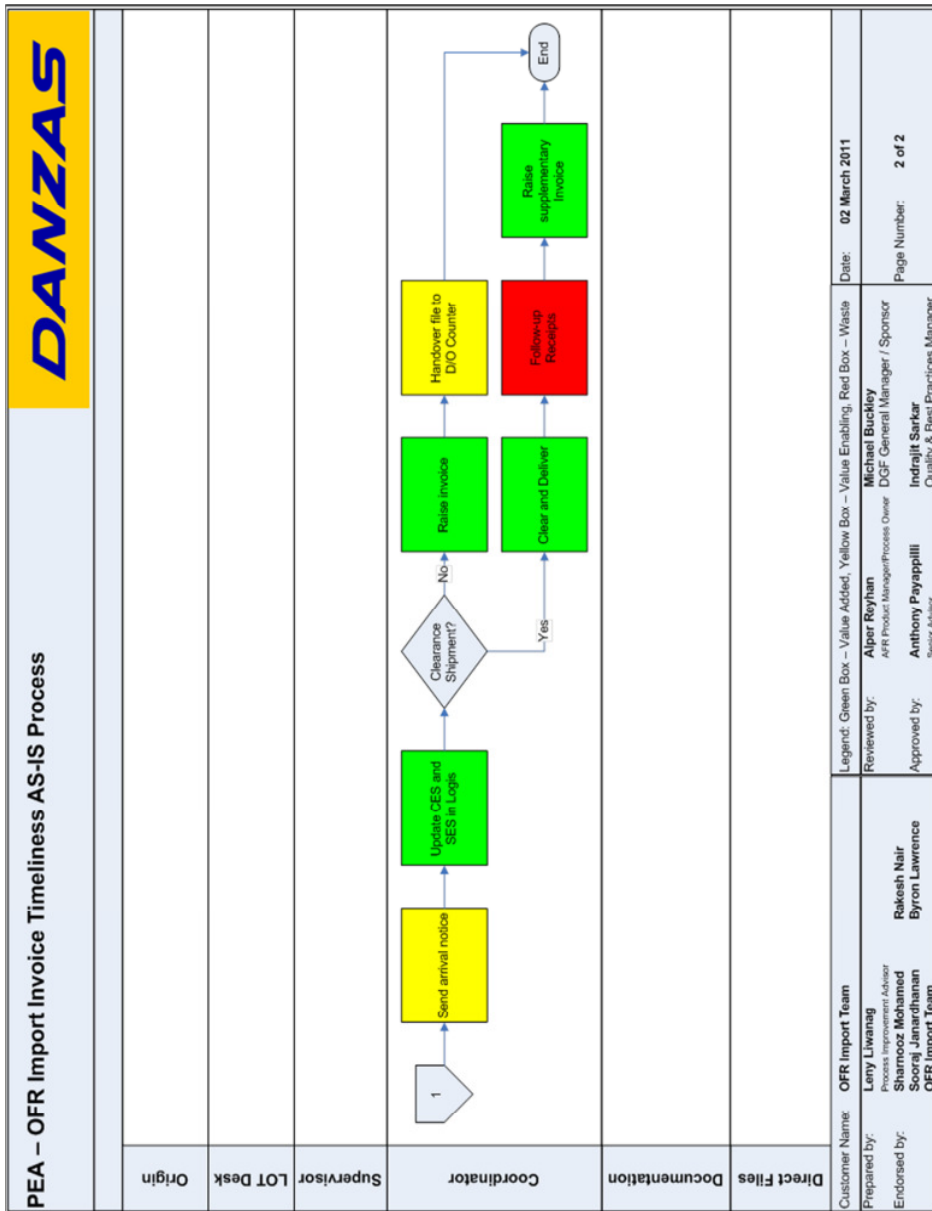


Figure 32: “As is” process map, part 2 (Source: internal data from Danzas AEI Emirates LLC)

Analyze Closure Matrix

The analyze closure matrix report is the result of the analyze phase, and determines the causes for a not optimal invoice process. These results are based on the root-cause diagram.

The issues in delaying the issuing of invoices to the customer come from last minute booking and the failure of sending the routing order from the origin market. Another cause appears at the origin market side, they use the incorrect currency code, and the agreed charges have not been billed through to miscommunication. Also an issue is that some quotes validity getting expired and leading to delays in the overall process.

Regarding the quotations and rates, the process gets delayed cause of acceptance of the new rate from the customer.

Furthermore, a cause is that receipts are with the Supplier or Service provider, and original documents are necessary for the issuing of invoices. Shipping Lines do charge sometimes the wrong charges, which appears in delaying again because it needs revised invoices from the Shipping Line, before charging the end customer.

A main cause is the man area within Danas AEI Emirates LLC, the issue is based in not provided training and no direct ownership of files/ customer, therefore nobody takes the full responsibility of an own account, an through this it also happens that files are missing. An important point is also the lack of monitoring the failure reports.

2.3.2.4 Improve Phase

2.3.2.4.1 Ideal theoretical procedure according to DMAIC^{+Lean} of the “First Choice Process Excellence” concept²⁰

The analyze phase had discovered the few main causes for the problem of the initiative. In the improve phase is the development of a solution the key point. After ideas have been collected, and solutions options have been filtered out, the optimal solution will be tested in a pilot project. The main questions are “how can the problem be solved?” and

²⁰ Deutsche Post DHL Corporate Intranet (2010): PDF “Improve Overview”, “Improve important tools”

“what needs to be done to increase customer satisfaction?” The main tools for this phase are:

- Creativity Techniques (see also 4.2.4 *Improve* in Part A)
 - Should help the team to think unconventionally about ideas for the solution, which could make the customer happy
- Prioritization tools
 - Allows the team to choose the idea, which could maximize the benefits for the company and the customer
- Asses Risks
 - Measures the risks which could be associated with the solution
 - Examines how the solution could be fail-proof
 - The pilot project test the solution, to ensure it would function
- Implementation planning
 - Which changes are necessary for the implementation of the option?
 - How long does it take to implement and how much will it cost?
 - What needs to be done to ensure a sustainable change?

2.3.2.4.2 Real Procedure

Demonstration of the “To be” process

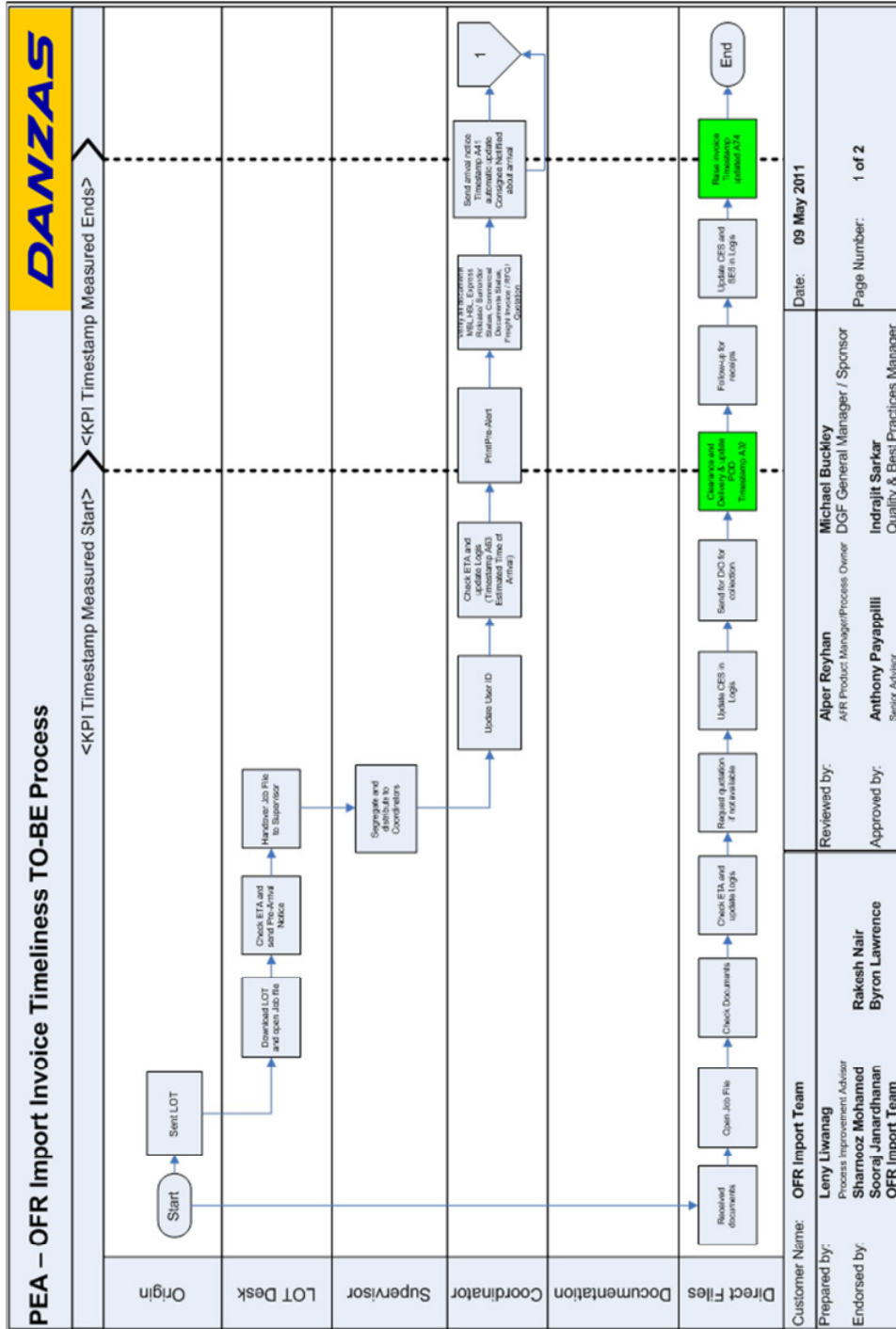


Figure 33: “To be” process map, part 1 (Source: internal data from Danzas AEI Emirates LLC)

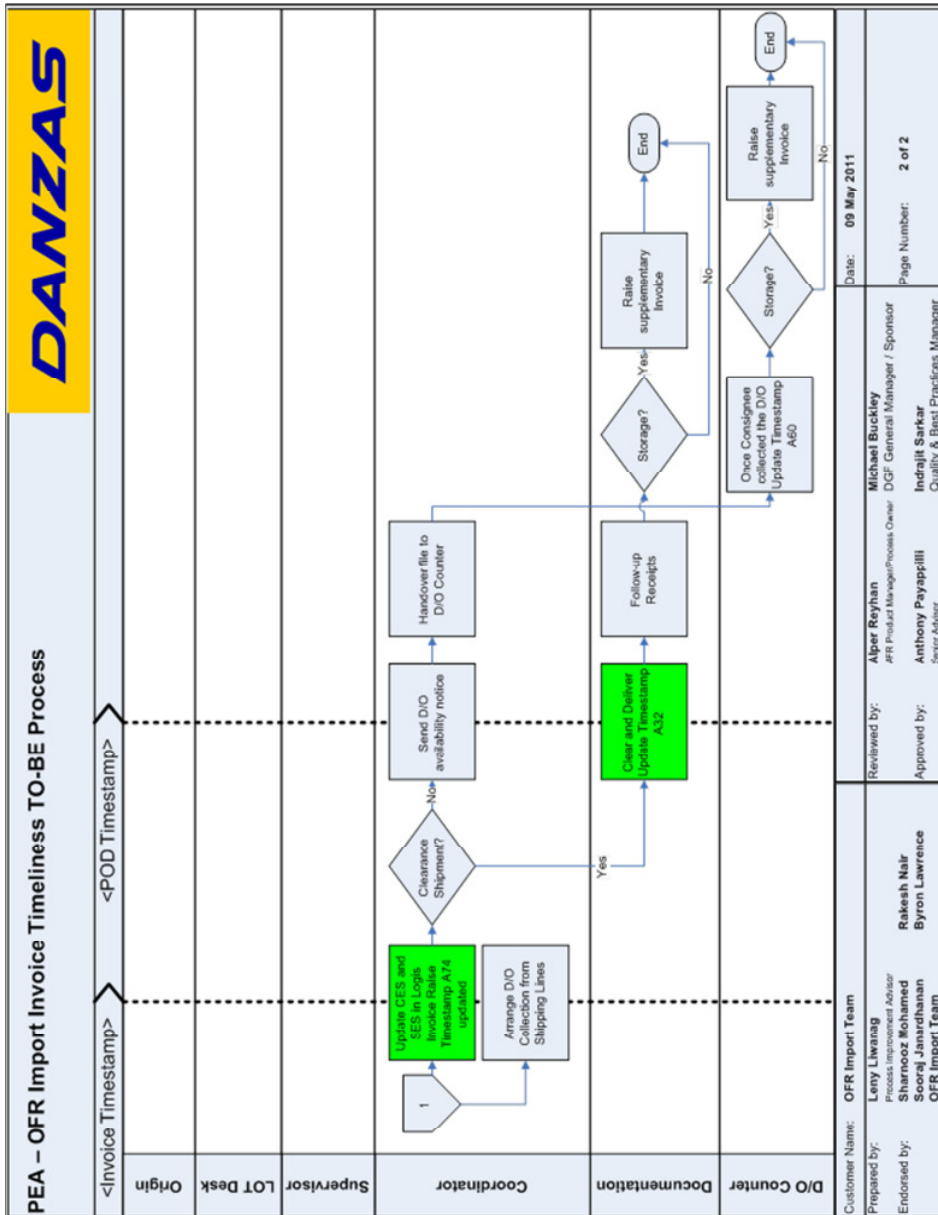


Figure 34: “To be” process map, part 2 (Source: internal data from Danzas AEI Emirates LLC)

Implementation Plan

The implementation Plan is the overall result of the initiative, and how to resolve the issues. This initiative implementation plan is based on 24 steps, including the solution and its task description, by which member, as well as start and due date of each solution. For the overall implementation are the team members responsible, each solution has a implementation period between 3 and 12 days.

1. Precise shipping instruction thru emails by the sales department; this requires the communication with Sales and Customer Service on the shipping instructions (7days)
2. Proper Maintenance management by customer Service, through communication to the Customer Service Department (7 days)
3. Better data management and proper control over customer booking, through communication to the Customer Service Department (7 days)
4. The coordinator position should do the invoicing as per quotation and subsequently follow-up with origin for the correct currency code , this should be ensured by informing all coordinators to bill as per the quotation (7 days)
5. Check the freight invoice upon receipt; in case of mistakes advice origin and get the correct freight invoice, the coordinators have to be informed to check these invoices (7 days)
6. Maintain a common tracker by single point of contact and alert the owner in advance to validate (7days)
7. The pricing and customer service departments must have better control and monitoring, they need to communicate with the pricing ocean freight department the quotation validity (7 days)
8. Standard operation procedures handover forms should be used, the coordinators have to be informed (2 days)
9. Continue to monitor and analyze the reasons and address failures of not giving rates on time to the department involve, therefore daily reports should be pulled from the database “Logis” (0 days)

10. Customer service and coordinator get advance approval from customer, this need to be communicated to customer service and coordinator to get advance approval from customers (3 days)
11. Set-up process whereby Danzas receives receipt without follow-up in time, needed for this task is a meeting with the service provider to get receipts on time (7 days)
12. More use of macro while invoicing which will make the job fast, therefor a training session is needed on how to use macro in in invoicing (12 days)
13. Bill as per quotation, informing all coordinator to do (7 days)
14. OFR Import department can request from relevant departments to arrange training session to be able to understand RFQ's better (7 days)
15. Start giving positive and possibilities for improvement points to coordinators for better performance (3 days)
16. Coordinators should take ownership on updating the shared folder and Supervisor to monitor (7 days)
17. Identify contracted customers who's quotation are not currently available and ask concerned business to provide the same (12 days)
18. To bill the standard charges before the delivery and if any additional charges to bill as a supplementary invoice (12 days)
19. Communication to the Team that Direct Files are measured (0 days)
20. Auditing files every 5 days by Supervisor (Sunday), therefore a daily report from Logis will be pulled and monitored (3 days)
21. Weekly report to be pulled out and share with staff the progress of the KPI (17 days)
22. Ensure failures are monitored even if KPI's are achieved, through monitoring failure report (17 days)
23. Highlight weekend and holidays in Middle East which should not be included in the calculations (4 days)

24. Identify staff that consistently missing files but it's in their table. Discuss to the staff and find the root cause of missing file.

2.3.2.5 Control Phase

2.3.2.5.1 Ideal theoretical procedure according to DMAIC+Lean of the “First Choice Process Excellence” concept²¹

The control phase is important to ensure that the initiative will be sustainable, and not only for a short period of time. This phase includes the creation of a reaction plan, and a final report. This ensures that the initiative will continuously run smooth, and allows a constant satisfaction of the customer which is the goal of each “First Choice” initiative. The questions for this phase are: “How can we ensure the sustainability of the improvement?” and “How can we satisfy the customer constantly?” The main tools for this phase are:

- Process Management Chart
 - Visualize the improved process flow
 - Documents continuously the process of measurement and control
- Monitoring and Control
 - A control chart, for the continuous monitoring of the process and/ or KPI
 - Provides an early warning system, if the process does not run smoothly anymore and leads to customer dissatisfaction
- Documentation
 - Documentation how the process should be carried out and controlled
- Initiative completion
 - Documentation of lesson learned
 - Completion of the initiative file
 - Identify areas inside Deutsche Post DHL for transferring the improvement

²¹ Deutsche Post DHL Corporate Intranet (2010): PDF “Control Overview”, “Control important tools”

2.3.2.5.2 Real Procedure

Process Management Diagram


Process Management Diagram			
Monitoring Sustainability		Response Plan	
Measurements Input/Process/Output	Target/ Specs	Methods for data collection (Who? When? How often? How?)	Immediate actions (What? Who? When?)
Invoice Print-out	3days	Who: KPI Owner When: From POD Date to Invoice Date How Often: Monthly How: SPR Report	What: Invoice Timeliness is below 95% Who: KPI Owner When: After release of SPR Report

Figure 35: Process Management Diagram (Source: internal data from Danzas AEI Emirates LLC)

Control Chart

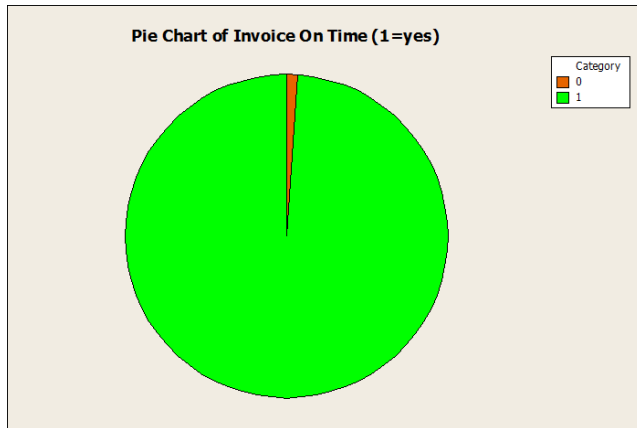


Figure 36: Control Pie Chart (Based on the Source: internal data from Danzas AEI Emirates LLC)

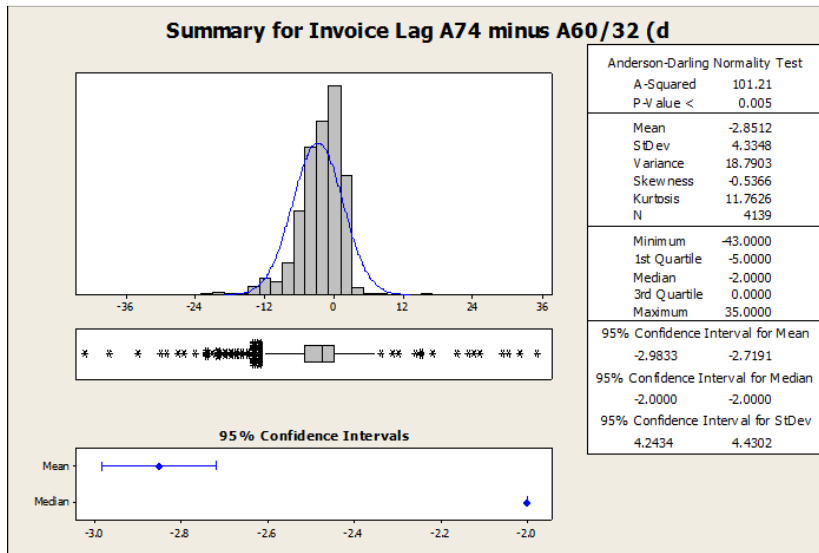


Figure 37: Control Chart (Source: internal data from Danzas AEI Emirates LLC)

Closure Report

What has been achieved in this project is stated in a closure report. This initiative reduced the late invoicing from 17 % to 5 % of all invoices issued by the ocean freight import department from 01 March 2011. The KPI performance is improved. Before the DPMO was 17%, with the help of the DMAIC initiative it went down to 1%. The defect rate was too high and the yield rate was only at 82.7 %, which has been improved with the initiative up to 99.01 %. Clearer standard operation procedures and work instruction are distributed within the ocean freight import department.

3. Recommendations

Process optimization is more than only the application of a technique; implementing it correctly it will lead to better results. The results of the initiative indicate that constant control of KPIs are important to keep processes in line, and to be able to see the variation instantly, thus highlighting the crucial need for process improvement tools within an enterprise.

As one import file is handled within different departments within the Deutsche Post DHL Group, there is a greater need for effective interaction and collaboration between the departments to ensure the process has been followed and resulting in satisfied customer. Also the high competitive market increases the importance of inter-functional coordination within the Deutsche Post DHL Group. In a high competitive logistic market, such as Dubai, thus emphasizes for more communication and collaboration among the departments to enhance the Danzas AEI Emirates LLC responsiveness and capability of meeting its customer needs. With this engagement Danzas AEI Emirates LLC is able to gain competitive superiority over its rivals.

In order to improve the needed enhancement in communication and information transfer internally, it is advisable to consult the concept of Hofstede. As Danzas AEI Emirates LLC has a highly diverse culture of employees, it is important to understand the employees, but also it is important to understand the culture of the operating market – the United Arab Emirates. Hofstede's concept indicates the UAE as a masculinity society. In these societies the emphasis is on equity, competition and performance. People 'live to work' and managers are expected to be decisive and assertive. Furthermore, the UAE emphasizes on uncertainty avoidance, as well as they are a collectivistic society, this results in loyalty and long-term commitments. These facts are important to consider, especially for Danzas Management while improving processes.

In addition the author recommends training on the job for the involved employees. As the case showed was one of the causes of late invoicing the unclear task structure within the department, therefore a clear task structure is needed within the import department at Danzas AEI Emirates LLC, to clarify each role more in detail, and to fairly distribute the workload. It is also important that each employee fully understands his own job, as well as the whole process. For this purpose the author would recommend job

shadowing, which will provide each employee with a high overview about the process from opening the file till closing the file. In addition, database system training should be offered to familiarize the employees further with their daily tool. Furthermore, it is needed to have up to date quotations from the Shipping Lines, which should be requested on a defined timetable, to ensure to have valid quotes at all times; which was a significant factor for delays in invoicing.

To satisfy the customer, the author would recommend to only have one customer contact person within the import department, defined by customers or regions, in cases the customer have requests or complaints he has one contact person within a company, and will not be forwarded between the different internal departments. To have only one point of contact for the customer will increase the customer satisfaction, which requisite a flawless communication line within the department at Danzas AEI Emirates LLC.

It is also advisable to have a written process document, in case of vacation or leaves another person is able to take over the tasks. Improving these factors will lead to an increase in productivity of the company, which will affect the company's overall financial results in a positive way.

Moreover, Dubai's economy is flourishing, and the competition is still increasing in the region, therefore it is recommendable to also analyze all processes within Danzas, in order to find variations, and to update the processes accordingly. It is essential to have processes in place to be superior to the rivals. Also could the process improvement of Danzas AEI Emirates LLC import department be a best practice example to other outlets of the Deutsche Post DHL Group.

4. Conclusion

Deutsche Post DHL choose Dubai for their internationalization step cause it was time to enter the market and gaining the market shares as long as they are available. Deutsche Post DHL main objective for expanding to Dubai was the efficiency seeking, Dubai was a booming market, many companies started to open their business as well as many construction companies and these goods need to be moved from A to B. Being one of the first movers gives the company a special status and they had the benefit of control and coordination, as well as they were able to uniform their global image. Seeing the option and the need of the market, DHL was aware and awake to open the logistic center in the right time, when Dubai was booming and became a central Hub in this region and an important logistical destination.

They choose the Joint Venture as this was the only option they had to enter the market, and also is a Joint Venture helpful in foreign markets with its rules and regulations. They found a great partner with Al Tayer, as it is a leading and well-known local company. The chances of success are high, from a viewpoint from 2008 this was only the beginning of the market, as Asia, especially China and India were booming and growing countries that a central Hub in Dubai was already out of question. Seeing it from today's perspective it is proven that entering the Dubai market was a success, showing in increase revenues and expanding facilities.

Carefully planning is the basis of each initiative and is such an important factor; just the right planning can bring a company to success. The planning sets the future goals, they are challenging but achievable. Through the analysis and the results of late invoicing process, Danzas AEI Emirates LLC recognized the need for improving this factor, in order to increase customer satisfaction. Furthermore brings the improvement in this process an ease on employees, which leads to employee satisfaction and though to motivation and employer loyalty. To have a team in-house which is responsible for improvement processes and is trained for DMAIC initiatives makes it easier to realize such initiatives and a timely manner. The initiative shows that know-how is important as well the information transfer to improve processes in the fastest and practical way.

A successful initiative remains also out of teamwork. All team members have to work together to reach the goal. The management team, the customer service as well as the ocean freight import department teams are all responsible for the successfully improved

invoicing process. Of course there are moments of stress and disagreement, of missing motivation and ambition, but then the coordinator has to step in, clearing the miscommunication and teach them to focus on the goal. Learning out of mistakes and how to work efficient together will help to work successful in teams in the future. If Danzas continues like this, being innovative and seeing the current and in the near future trend, they will remain as the market leader in the Gulf Region.

Bibliography

Books & Articles:

Albaum, Gerald and Duerr, Edwin (2008), *International Marketing and Export Management*. Essex, England, IV.: Prentice Hall, 113-162.

Beamish, Paul W. and Lupton, Nathan C. (2009), *Managing Joint Ventures*, Academy of Management Perspectives, 75-94.

Berbauer, Axel K. (2008), *Six Sigma in der Praxis, Das Programm fuer nachhaltige Prozessverbesserungen und Ertragsteigerung*, Renningen, Germany, III.: Expert Verlag, 17-75.

Cateora, Philip R. and Graham, John L. (2007), *International Marketing*, Boston, 13th.: Open Access Publishers.

Deutsche Post DHL Group (2008). Danzas opens doors to its largest logistics facility in Middle East, <http://www.dhl-dgf.com/press/2008/1105.html>

Gassman, René (2012), *Six Sigma und BPN – Integriertes Prozessmanagement*, Hamburg, Germany: Diplomica Verlag GmbH, 85-101.

Garvin, D.A. (1998), *The processes of organization and management*, MIT Sloan Management Review 39 (4), 34–50.

Ghuri, Pervez N. and Cateora, Philip (2010), *International Marketing*. Berkshire, United Kingdom, III.: McGraw-Hill, 122.

Harrington, James H. (1991), *Business Process Improvement – The Breakthrough strategy for total quality, productivity, and competitiveness*. USA.: McGraw-Hill, 9.

Harry, Mikel J. and Schroeder, Richard (2000), *Six Sigma: Prozesse optimieren, Null-Fehler-Qualitaet schaffen, Rendite radikal steigern*. Germany: Campus Verlag, 24.

Homburg, Christian and Krohmer, Harley (2006), *Marketingmanagement – Strategie – Instrumente – Umsetzung – Unternehmensführung*. Wiesbaden, Germany, II.: GWV Fachverlag GmbH, 1091-1095.

Jochem, Roland and Geers, Dennis and Giebel, Michael (2011), *Six Sigma leicht gemacht- Ein Lehrbuch mit Musterprojekt für den Praxiserfolg*. Duesseldorf, Germany: Symposio Publishing GmbH, 48.

Kohlstedt, Markus (2007), *Kaizen, Lean Management und Prozessmanagement – eine Erfolgsstory?*. Norderstedt, Germany.: Grin Verlag, 19.

Magnusson, Kjell and Kroslid, Dag and Bergman, Bo (2004), *Six Sigma umsetzen – Die neue Qualitätsstrategie fuer Unternehmen*. Muenchen, Germany, II.: Carl Hanser Verlag, 119.

- Pan, Zhedan and Ryu, Hoyeon and Baik, Jongmoon (2007), *A case study: CRM Adaptation Success factor analysis and six sigma DMAIC Application*, Fifth International Conference on Software Engineering Research, Management and Applications; 831.
- Parast, Mahour Mellat (2010), *The effect of Six Sigma projects on innovation and firm performance*, International Journal of Project Management 29 (2011), 45-55.
- Root, Franklin S. (1998), *Entry Strategies for International Markets*, San Francisco, USA: Jossey-Bass, 6-25.
- Rugman, Alan M. and Collinson, Simon (2006), *International Business*. Essex, England, IV.: McGraw-Hill, 134-138.
- Schroeder, Roger G. and Linderman, Kevin and Liedtke, Charles and Choo, Adrian S. (2008), *Six Sigma: Definition and underlying theory*, Journal of Management 26, 1-19.
- Sherrer-Rathje, Maike and Boyle, Todd A. and Deflorin, Patricia (2009), *Lean, take two! Reflections from the second attempt at lean implementation*, University of St. Gallen and Francis Xavier University, 79-88.
- Smith, Howard and Fingar, Peter (2003), *Business Process Management: The Third Wave*, Meghan-Niffer Press, 2-11.
- Specht, Olaf and Schweer, Hartmut and Ceyp, Michael (2005), *Unternehmensführung für Ingenieure und Informatiker*. Oldenbourg Germany, VI.: Oldenbourg Wissenschaftsverlag GmbH, 76-84.
- Stalk, George and Hout, Thomas (1990), *Competing against time – how time-based competition is reshaping global markets*. New York, USA: Free Press.
- Toepfer, Armin (2009), *Lean Six Sigma, Erfolgreiche Kombination von Lean Management, Six Sigma und Design for Six Sigma*, Berlin, Heidelberg, Germany: Springer Verlag, 50-60, 120-122.
- Toutenburg, Helge and Knoefel, Philip (2009), *Six Sigma – Methoden und Statistiken fuer die Praxis*. Berlin, Heildeberg, Germany, II.: Springer Verlag, 36-72.
- Wappis, Johann and Jung, Berndt (2008), *Taschenbuch Null-Fehler-Management, Umsetzung von Six Sigma*. Munich, Germany, II.: Carl Hanser Verlag, 7, 79-80.
- Wetherly, Paul and Otter, Dorron (2011), *The Business Environment – Themes and Issues*. Oxford, United Kingdom, II. : Oxford University Press Inc. York, 123-124.
- Yu, E., and Mylopoulos, J. (1994), *E-r to A-R modelling strategic actor relationships for business process reengineering*, Proceedings of Conference on Entity Relationship Approaches ER, 548-565.

Unpublished references taken from the internet:

Arabian supply chain)2012), http://www.arabiansupplychain.com/article-2201-kuehne_nagel_loyal_to_dubai_mega_project/

Business Dictionary, Brainstorming,
<http://www.businessdictionary.com/definition/brainstorming.html>

Clark Labs, Ecological Analysis (2012), <http://clarklabs.org/applications/ecological-analysis.cfm>

Deutsche Post DHL (2012), http://www.dp-dhl.com/en/investors/investor_news/financial_news_archive/2008/dhl_frachtzentrum_mittleren_osten_nimmt_betrieb_auf.html

DMAIC Tools (2012), DMAIC – The Six Sigma Tool Kit, <http://www.dmaictools.com/>, and <http://www.dmaictools.com/dmaic-measure>

Domingo, Rene T. (2003), Achieving competitiveness through supply chain management, <http://www.rtdonline.com/BMA/GM/3.html>

German Embassy UAE (2013) http://www.abudhabi.diplo.de/Vertretung/abudhabi/de/06__Wirtschaft/01-Wirtschaftsbeziehungen_20_20Deutschland_20und_20die_20VAE/seite__wirtschaftssituation-vae__2010.html

Hofstede, Geert, National Culture Dimensions, <http://geert-hofstede.com/national-culture.html>

International Law Office (2009)
<http://www.internationallawoffice.com/newsletters/detail.aspx?g=ac282bd3-0ed6-4df9-a761-1a6ce7d001de>

I Six Sigma (2000-2012), <http://www.isixsigma.com/new-to-six-sigma/getting-started/what-six-sigma/>

Management Tip (2009-2012), <http://www.managementtip.nl/>

The Emirates Network (2012), Home: Living Here: Starting up your Business in the UAE, <http://guide.theemiratesnetwork.com/living/business.php>

Why Dubai (2012)
<http://www.dubaied.gov.ae/PublishingImages/Dubai%20FDI%20Why%20Dubai%20report.pdf>

Company references - Intranet:

Remark: The sources of the following references were given by Danzas AEI Emirates LLC.

Deutsche Post DHL brochure (2010): First Choice Process Excellence

Deutsche Post DHL Corporate Intranet (2010): PDF “Define Charter”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Define Overview”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Define Roadmap”.

Deutsche Post DHL Corporate Intranet (2010): PDF “General Information First Choice”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Measure Overview”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Analyze Overview”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Analyze important tools”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Improve Overview”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Improve important tools”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Control Overview”.

Deutsche Post DHL Corporate Intranet (2010): PDF “Control important tools”.

Appendix 1: Interview Stefan Fallet

Telephone Interview

Interview Partner: Stefan Fallet, Former Country Manager at Danzas AEI Emirates LLC

Date: 09.07.2012

Time: 18.30-18.45

1. Is the Joint venture Partner Al Tayer and active or non-active partner?

Al Tayer is an active joint venture partner, they receiving a part from the profit and regulating the human resource and finance sectors, also is the CEO presented by Al Tayer.

2. Where the process comes from Al Tayer or DHL?

The Finance aspects such as credit approvals and budget approval come from Al Tayer, the operational side is from DHL adapted to local regulations.

3. What influence does the Joint Venture have on Danzas AEI Emirates LLC?

It is regulated in the competence catalogue, which parts needs approval from Al Tayer and which parts can be individually be chosen. The joint venture can have influences on processes, as it is a networking product based on basic conditions which is closed to the franchise system in this case.

4. Are you aware that the process is not optimal and could be optimized?

Yes, I was aware of the situation, but process optimization needs time and processes need adaptation as they are dynamic and dependent on outside influences, such changes in customer behavior, changes in the trade lanes, and many new regulations especially after September 11th. Also does the technology changed over the years, back than we used the Telefax nowadays the papers and documents can be scanned and sent on an electronic way. Furthermore does the Business portfolio, has an impact on the processes as well.

5. Which factors outside the company are influencing the process as well?

The political environment with its changing regulations, and also are companies aiming for economies of scales and aiming for growths.

6. Does the process optimization in the import process needs the approval by the Al Tayer Group?

Generally not, as it is an optimization process and not a total change in the process. If there is an optimization also in the system, like an investment in IT than the approval by the joint venture partner is needed.

7. Does the culture have an impact on the process?

Generally not, as the culture is not changing in short term, as they are in cycles (approx.. 10 years).

Recommendations from Stefan Fallet:

Think about what changed and changes local and globally, does this have an influence on the process? And which part you think does Al Tayer want to control and which not, in case of not missing out on the financial advantages for them.

Appendix 2: Interview Question for the employees

Interview Partner: Import Manager, Import Supervisor, Import Coordinator

1. What is the core issue of the import process?
2. Why do you think Danzas AEI Emirates LLC Import department is late in invoicing the customer?
3. Is there an influence of the Joint Venture Partner Al Tayer on the import invoicing process?
4. Do you have any suggestion on how to improve the invoicing process?
5. Do you think that the differences in nationalities and culture within the import department are affecting the import process?
6. Do you think that the company's environment affects the import process?

Appendix 3: Analyze Closure Matrix

Analyze Closure Matrix					
(English Mandatory)					
Tip: move cursor on the red triangle at the top right corner of the cell where available					
Problem	Potential Cause	Type (C/N/X)	Verification Strategy	Input Field	
				Key Root Cause	Quantify Opportunity
Origin	No available invoice from Origin				
	Origin missed out to send Invoice				
	Shipment moved without agreed rate				
	Because of urgency of the shipment				
	Last minute booking and failure to send Routing Order	X	Walk the Process	X	
Origin	Dispute Charges with Origin				
	Incorrect currency code used	X		X	
	Agreed Charges not billed -Miscommunication	X	Interview	X	
	Quote Validity getting expired	X	Walk the Process	X	
Rates / Quotation	Lack of valid quotation				
	Old quote was provided				
	Shipment move after validity				
	Acceptance of new rate from Customer	X	Interview	X	
	No rates available / quotation not available on time				
	Agreed rates not available from Customer Service, Sales, Pricing Team	X	Interview	X	
	Non-acceptance of certain charges by consignee				
	Not quoted from previous quotation				
	No approval receive for exceptions demurrage /storage	X	Walk the Process	X	
Actual Receipts	Some cost are not available				
	Receipts are with Supplier or Service provider	X	Interview	X	
Shipping Lines	Disputed charges with Shipping Lines				
	Wrong charges updated	X	Interview	X	
Man	Lack of awareness to understand RFQ				
	No training provided	X	Interview	X	
	Freight Folder is not updated				
	No Ownership	X	Interview	X	
	Not aware that Direct Files are measured	X	Data Analysis	X	
	Lack of monitoring of the failure reports	X	Interview	X	
	Files missing	X	Interview	X	