LOGISTICS – QUALITY – CUSTOMERS

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CONTENTS

INTRODUCTION

Logistics and quality are very important together in a logistic chain.

The book tries to add some extra information to the book of Basic Logistics in Practice (author Gál, József, 2017), which is a teaching and learning material at the University of Szeged Faculty of Economics and Business Administration and Faculty of Engineering in English. This book does not negotiate mathematical, theoretic aspects of economics, but tries to help readers to learn more about logistics to understand it and help how to use it in practice. This book is partly an adaptation of Logisztika és minőségmenedzsment (authors Illés, B., Glistau, E., Coello Machado, N. I.) with copyright permission.

I recommend this book for everybody, either starters to introduce logistics, or advanced readers who would like to refresh their knowledge and enrich their theoretical and practical skills.

Authors

GUIDELINES FOR READERS AND USERS

This book can be read by anybody who is interested in logistics and would like to study independently, and learn more about logistics. The text should therefore be loosely structured; learning and understanding-friendly with illustrated figures and largely ignoring complex mathematical formulas. It may be helpful for those who are learning a framework of logistics training and would like to organize their knowledge.

The most important parts and definitions are highlighted in **bold**.

■ To facilitate the self-test, questions can be found at the end of each chapter. The icon is located on the edge of the plate place to call your attention to these tasks, and solve them. It is an interactive book, so you can click and jump (Ctrl & click on <u>underlined</u> text) among different parts of the book.

I wish you great success in discovering the world of logistics!

UNIT 1 CUSTOMER NEEDS – THE MEASURE FOR THINGS!

Skills of an economist studying in the Business Administration and Management BSc programme in Logistics

a) regarding knowledge, the student
- knows and keeps the rules and ethical norms of cooperation and leadership as part of a project, a team and a work organisation;
- has a clear idea of the the basic concepts and methods of founding institutions along with managing and altering their structure and organisational behavior;
- is familiar with the concepts and methods of controlling, organising and performing economic processes along with the methodology of analysing said processes, preparing and supporting decisions;
- is familiar with the basic principles of other professional fields connected to his/her own field (engineering, law, environmental protection, quality control, etc.);
- possesses the know-how required to complete basic leadership and organisation related tasks and is capable of preparing, launching and leading small to medium sized projects and enterprises;
- Has mastered the professional and effective usage of written and oral communication along with the presentation of data using charts and graphs;
- Has a good command of the basic linguistic terms used in economics both in his/her mother tongue and at least one foreign language.

b) regarding skills, the student
- is capable of planning, organising, leading and overseeing economic activities, projects, minor enterprises and economic organisations;
- can uncover facts and basic connections, can arrange and analyse data systematically, can draw conclusions and make critical observations along with preparatory suggestions using the theories and methods learned. The student can make informed decisions in connection with routine and partially unfamiliar issues both in domestic and international settings;
- Follows and understands business processes on the level of international and world economy along with the changes in the relevant economic policies and laws and their effect. The student considers the above when conducting analyses, making suggestions and proposing decisions;
- Can employ techniques and methods of solving economic problems with regard to their application requirements and limits;
- Can cooperate with others representing different professional fields;
- Assumes the role of leader and organiser in project- and group work after acquiring the necessary practical know-how and experience while also carrying out assessment and evaluation tasks;

- Is capable of leading small and medium sized enterprises or an organisational unit within an economic institution after acquiring the necessary practical knowledge and experience;
- Can present conceptually and theoretically professional suggestions and opinions well both in written and oral form in Hungarian or in a foreign language according to the rules of professional communication.

c) regarding attitude, the student
- Behaves in a proactive, problem oriented way to facilitate quality work. As part of a project or group work the student is constructive, cooperative and initiative.
- Is open to new information, new professional knowledge and new methodologies. The student is also open to take on task demanding responsibility in connection with both solitary and cooperative tasks. The student strives to expand his/her knowledge and to develop his/her work relationships in cooperation with his/her colleagues.
- Keeps the principles of lifelong learning inside and outside the world of labour.

d) regarding autonomy and responsibility, the student
- Conducts the tasks defined in his/her job description independently under general professional supervision;
- Takes responsibility for his/her analyses, conclusions and decisions;
- Takes responsibility for his/her work and behaviour from all professional, legal and ethical aspects in connection with keeping the accepted norms and rules;
- Completes his/her tasks independently and responsibly as a member of certain projects, team tasks and organisational units.

▪ *Aim: To organize customer needs at the company to enhance the customer satisfaction and loyalty, also to rise profitability (see [WIK05])*

Having defined quality it has been concluded that **quality can be measured** by customer expectation. That is why dealing with the customer is very important for a company. A company can be successful in the long run if it knows its customers and their wishes well, and also if it organizes the products, processes and systems in a way that they can meet these requirements effectively and efficiently. In this respect, **Customer Relationship Management** (shortly: CRM) is an efficient method.

Today, a lot of companies use a special software to keep and manage a record of their customers' data. The main purpose of CRM-systems like this is to achieve the expected profit in order to ensure the company's success. In case of a CRM software variability is fairly big. It includes everything from a simple customer database through working processes aiming at the automatic distribution of information to the means of data mining useful for generating new correlations from the given customer data. In general, the functional role of a CRM system can be divided into three fields of application (Figure 1).

Customer is the king

| Customer Service |
| Standardized sales processes |
| ERP-connection |
| Campaign management |
| Managing Commercial Promotion |

Customer Relationship Management

CRM

Collaborative CRM

Data mining
Data repository

- Customer segmentation
- Customer story
- Customer behaviour
- Buying probability
- Purchase forecasts
- Purchasing power
- Sales potentials

| Face-to-Face | Call-Center | Letter / Fax / Web / Mail |

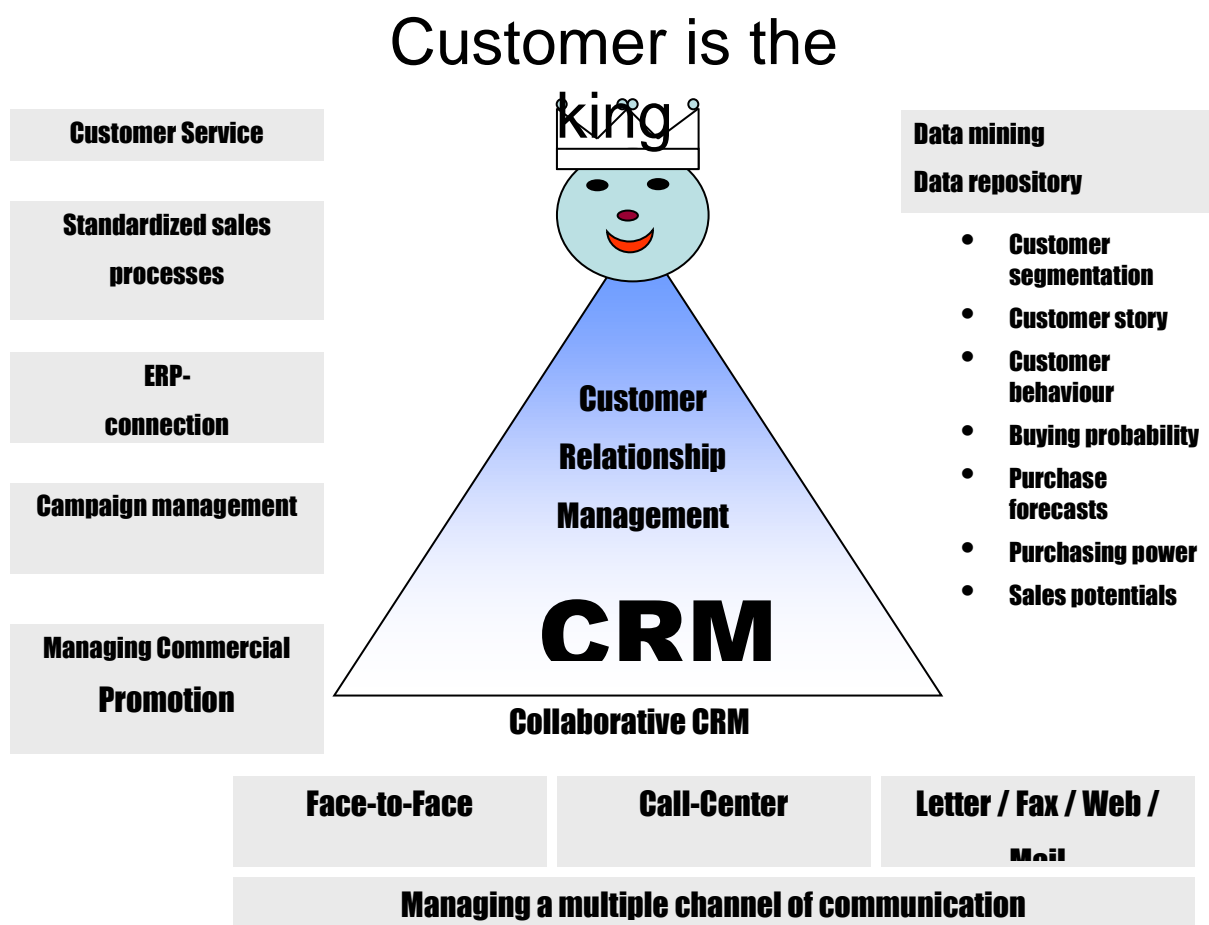**Managing a multiple channel of communication**

Figure 1: CRM – system components (see [COM05])

Operative CRM (oCRM)

The operative CRM involves each function which supports the enterprise's direct relations with its customers. In this case, it is called **Front-Office function.** For example, within the framework of oCRM, it is necessary to accomplish activities of

advertising and service or to manage complaints. Besides the dialogue between the company and the customers, it is essential to optimize the business processes necessary for them. **Back-Office processes** (eg. forwarding complaints automatically by means of a defined business process) provide crucial information for a purposeful dialogue with customers. To avoid separated solutions it is indispensable to create interfaces of high performance between the CRM system and ERP (**Enterprise Resource Planning**) system of the company.

Examples for oCRM:

- ☐ **Service planning** (Planning use, deadline and resources, managing return shipment, feedbacks, contracts, etc.)
- ☐ **Complaint management** (Quick management of complaints, including testing warranty claims, recording return shipment, distribution of credit entries, etc.)
- ☐ **Trade Promotion Management** (Planning and executing trade promotions in harmony with the foreign service and trade)
- ☐ **Offer, order, settlement** (Making and keeping a record of offers, contracts, including customer-specific prices, conditions, information on existing contracts, etc.).

Collaborative CRM (cCRM)

Functions of cCRM include controlling, supporting and synchronizing each communication channel towards customers. They include visits, office hours, telephone, fax, internet, e-mail, activities of foreign service, etc. An effective communication between customers and the enterprise can be made possible by any of them. Generally, it is the customer who chooses the way of communication. Irrespective of the way of communication, it is necessary to have consistent data and information available everywhere.

Examples for cCRM:

- ☐ **Activity and relations management** (Co-ordination of each deadline and activity regarding the customer)
- ☐ **Case Management** (Keeping an electronic file with every information on service cases regarding the customer)

Analytical CRM (aCRM)

The customer data are assessed in an application-oriented way by means of the **Analytical CMR** (shortly aCRM). For this, first it is fundamental to collect them in the data repository. Knowledge gained from the analysis is used for the constant improvement of business processes connected to the customer.

It, for example, makes customer segmentation or the effective campaign formation possible. Later, standard business processes can be developed for the identified customer segments.

Examples for aCRM:

- ☐ **Marketing analysis** (Assessment of the effectiveness of marketing campaigns)
- ☐ **Service analysis** (Assessment of product quality, service costs, profitability, reactivity, customer satisfaction, etc.)
- ☐ **Knowledge management** (Solution-database for the employees with the frequently asked questions (FAQ)).

CRM- LINK COLLECTIONS AND PRODUCTS

The CRM-software market changes very quickly. Table 1 gives an overview about the recommended CRM-softwares.

Table 1: Examples for CRM-softwares (see [CRM05])

Product	Firm	Link
CAS	CAS Software AG	http://www.cas.de/
WinCard CRM	Team Brendel AG	www.team-brendel.com/
ACT! SalesLOGIX	Sage CRM Solutions	http://www.sagecrm.com/DE/
Orgasales	Pro Team GmbH	http://www.proteam.de/
WICE 3.0	Wise GmbH	http://www.wice.de/
iAVENUE	Saratoga Systems	http://www.saratogasystems.com/crm/
Enterprise Professional Team Edition	Salesforce.com	http://www.salesforce.com/
mySAP Customer Relationship Management	SAP AG	http://www.sap.com/germany/solutions/busuite/crm/index.aspx
Siebel 7.7	Siebel System	http://www.siebel.com/

Interesting reviews, market mirrors and link collections can be found in the following websites:

- www.crm-EXPO.de,
- www.acquisa-crm-expo.de,
- www.competence-site.de/crm.nsf,
- www.crm-expert-site.de,
- www.crmguru.com.

UNIT 2 QFD – A METHOD TO FULFIL CUSTOMER EXPECTATIONS

THE CONCEPT AND CONTENT OF QFD

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- Takes responsibility for his/her work and behaviour from all professional, legal and ethical aspects in connection with keeping the accepted norms and rules;
- Completes his/her tasks independently and responsibly as a member of certain projects, team tasks and organisational units.

▪ *Aim: To recognize customer requirements and then to purposefully transform them into technical or organizational solutions*

QFD is the abbreviation for **Quality Function Deployment**. The starting point of QFD is the customer requirements. The basic concept of QFD is that it is not enough to recognize these requirements, but they have to be consistently accomplished as well.

The QFD-method has a systematic, multiple-stage course of action. Firstly, the performance demands made on the company (products, services) are deduced from customer requirements, then the necessary company processes from them. Generally saying, by means of QFD the question of „**WHAT** has to be done?" is transformed into „**HOW** it should be done?".

The QFD comes from Japan and its first appearance is dated back to 1966. The name of QFD in Japanese is Hin Shitsu, Ki No, Ten Kai, which means „Presentation of typical functions". The founder of QFD is Yoji Akao, whose book on QFD was published in Japan in 1978 (see [QFD01]), then it first came out in German in 1992 (see [AKA92]).

QFD aims at the consistency of purpose and integrity. That is why it is best to work in teams including all the parties involved. For example, when developing a new product: marketing, construction, preparing the work, production, maintenance and service. The use of QFD in logistics means marketing, logistics planning and the logistics fields involved together with controlling.

In the specialized literature (see [QFD01]) three starting points are distinguished in case of QFD:

- the extended start according to AKAO (comprehensive QFD)
- the 4-phase model according to the American Supplier Institute (ASI) and
- King's matrix of matrices [KIN94].

Table 2: Pros and cons of QFD [QFD01]

Pros	Cons
☐ ensures the general customer-orientation at the company	☐ too time consuming
☐ preventive action	☐ personal share
☐ industry-related	☐ besides quality assurance, it is a less-known method
☐ a systematic, tested procedure	☐ its results depend on the competence and co-operative ability of the people involved
☐ applicable in many ways	☐ requires a special knowledge of method to use it purposefully
☐ interactions, correlations are examined consciously	☐ requires a partly high degree of abstraction
☐ demands team work and cross-field communication	☐ reduces examination to few, significant parameters

We do not intend to compare these diverse approaches now. Leave them to the experts of quality engineering. Table 2 summarizes the pros and cons of QFD independently from the three approaches.

In the following parts the 4-phase model will be presented, which is frequently used in the industry, which is why it seems to be especially suitable to apply in the field of logistics, too.

THE GENERAL COURSE OF ACTION WITHIN QFD

The name of each phase of the **4-phase model**, its input parameters and results are shown in Table 3.

Table 3: The 4-phase model [QFD01]

Phase	Name of the phase	INPUT = WHAT	OUTPUT = HOW
Phase 1	Product planning	Customer demands	Product parameters (performance list)
Phase 2	Component planning	product parameters	Component parameters (the product itself)
Phase 3	Process planning	components parameters	Production specifications (process data)
Phase 4	Production planning	process data	Manufacturing instruction (work and control instructions)

As it is shown in Table 3, the most important output parameters of each phase are also the input parameters of the successive phases. That is how the continuous flow of arrows is created.

For the clear-cut documentation the use of a work sheet turned out to be very practical. It is also called the „House of Quality" on the basis of its form. The „House of Quality" provides a suitable basis for the systematic development, assessment and documentation. The work sheet contains all the relevant information in a very compact and clear form. All in all, the QFD-method can be applied well due to the concentration on critical parameters.

To sum everything up, the QFD offers systematic instructions of action. However, conceptions of phases and work sheets do not provide a formal narrowing but only a sample solution. The four phases and the work sheet can be easily altered to suit different demands both in content and in form with respect to the questions.

That is why nothing can hinder the creative use of QFD for the typical logistics tasks.

AN EXAMPLE FOR THE APPLICATION OF QFD

The course of action of QFD is shown through an example and the interpretation of a course of action. For distribution purposes a new device of transportation should be developed for a centre of goods in the downtown to supply shops under the slogan: „Citysprinter".

PHASE 1: PRODUCT PLANNING

Customer demands ☐ Product prameters (Pflichtenheft)

Phase 1, Step 1: Recording the customer wishes

The customer wishes mean the first „WHAT". First of all, this „WHAT" includes the customer requirements. A lot of important information can be gained from the CRM-system. Basically, previously collected data is stored here but it is also necessary to consider the actual trends. They include the unpronounced wishes of the customer, new technological developments, modifications according to the current taste, etc. It is possible to have conversations with the customer in this phase. The data and information gained should be representative. All further steps are built on the customer wishes, the results of QFD are reliable only as much as the customer demands are known.

Some essential questions to record customer wishes:
☐ Who are my customers?
☐ How important these customers are for my company?
☐ What wishes, demands, requirements do my customers have?

☐ How significant these wishes and demands are for my customers?

For our example the marketing department analyzed the customer wishes and gave the QFD team the following result. The future buyer of the „Citysprinter" would like a vehicle supplied with parameters shown in Table 4.

Table 4: Customer demands for the Citysprinter [QFD01]

Parameter	How it is expressed
Great safety	☐ safety for the driver ☐ safety for the load (cooling, stealing, protection against damages)
Very good driving features	☐ < 3 m radius of turning round
Good acceleration	☐ from 0 to 100 km/h under 10 s
Low operating costs	☐ less than 3.500 EUR / year
Lower purchase price	☐ less than 25.000 EUR
Simple freight	☐ additional frieght to 1500 kg ☐ loading/unloading should be possible from three sides

Phase 1, Step 2: Assessment of customer demands according to KANO

Customer demands are first assessed by the triple division introduced by the KANO [KAN84].

KANO [KAN84] distinguishes

☐ the basic customer demands (basic demands)
☐ function demands of the customer (performance demands)
☐ innovation features (animating demands).

Here, it is the last one that is the key demand from the point of purchase. The basic needs are obvious and irrelevant for QFD.

Table 5 clearly shows that most customer demands are demands pronounced directly by the customer. We will not deal with safety because according to experts it belongs to the standards of each vehicle. It can be seen that there are no

innovative features mentioned. Under such conditions „our citysprinter" has no chance to become a customer's hit.

˙ Actually, a new turn should be inserted here to generate innovative features that customers will accept! Results of a benchmarking analysis could help us.

Table 5: Description of customer demands according to KANO [QFD01]

Parameter	Expression	Basic demand	Functional demand	Innovative feature
Safety	Safety for the driver Safety for the load (cooling, stealing, protection against damages)	X		
Driving feature	Radius of turning round < 3 m		X	
Acceleration	From 0 to 100 km/h under 10 s		X	
Operating costs	Less than 3.500 EUR / year		X	
Purchase prise	Less than 25.000 EUR		X	
Freight	Additional frieght to 1500 kg Loading/unloading should be possible from three sides		X	

Phase 1, Step 3: Weighing customer demands

Not every customer demand is equally important, it is necessary to weigh them against each other. Any known weighing process is good for this purpose. In our example we are using the paired comparison as a weighing process. (It is also known as the pairwise comparison matrix process.) (see Table 6) In this case we are always comparing two features with each other. If one of them is more important than the other, it gets 2 points, while the other gets 0 points. If, for example, we compare safety with purchase price, we value safety better, so it gets

2 points, and the purchase price gets 0 points in this comparison. If both features are equally important, they both get 1 point each. As the next step, we calculate the sum of the figures for each feature. Safety gets 5 points as the sum of figures.

Table 6: Weighing customer demands with paired comparison and then normalization to 10 [QFD01]

Pairwise comparison matrix 2 – more important 1 – equally important 0 – unimportant	Driving features	Acceleration	Operating costs	Purchase prise	Freight	Total	Normalization to 10
Driving features		1	0	2	2	5	7,1
Acceleration	1		0	1	1	3	4,3
Operating costs	2	2		2	1	7	10,0
Purchase price	0	1	0		0	1	1,4
Freight	0	1	1	2		4	5,7

This is then followed by normalization to the highest value of 10 points (Table 6). For this we calculate the weighing factor (10 x the sum of figures) / the value of the highest total. It means that the feature with the highest total gets the weighing factor 10. As it can be seen in Table 6, the feature of „the low operating costs" is the most important, which scores 10 points.

Phase 1, Step 4: Deduction from technical needs (HOW)

In this step the customer needs for the „Citysprinter" product (WHAT) are turned to HOW, where „How" means the desired product features. Our QDF-logistics team, after a long discussion, concluded that the product should perform the top technical requirements in categories of vehicle size, motorization, hybrid engine, manufacturing costs and payload. We filled in the QFD form partly. We enumerated the customer demands under WHAT. The importance shows the results of our

„paired comparison" which were formed by weighing these demands. Under HOW the labels contain the technical requirements which our QFD team lays to the „Citysprinter". HOWs should be expressed quantitatively, so they have to be precisely measurable. It makes comparisons in competitions, then recording values specified for the requirements of development and quality assurance easier.

Phase 1, Step 5: Quantitative expression of technical demands (HOW MUCH)

Targets adjusted to our technical demands can be defined but it is more advantageous to assess technical importance and competitiveness first.

Phase 1, Step 6: Completion of HOW matrix to WHAT, evaluation

The matrix „How and to what" has a key-position in the work sheet. Relations between product features (HOW) and customer demands (WHAT) are written there. It is asked there how much each product criteria effects satisfaction of customer demands (correlation). The strength of the relation between HOW and WHAT is evaluated with a pre-recorded scale.

Table 7: Evaluations within QFD – matrix [QFD01]

Indicator	Examination / interpretation
Line – empty or less completed	At least one HOW is missing which would satisfy this customer demand (WHAT)
Line – well -completed	There is a lot of HOWs which satisfy this customer demand. Is every HOW really needed? (Chance to reduce costs!)
Column – empty or less completed	Perhaps it is not a real feature (HOW). Is this feature (HOW) new and unknown?
Column – well-completed	It is key-feature which involves a lot of customer demands.
Lines or columns with the same pattern / structure	Are they similar features which can possibly be drawn together?

In our example the evaluation is carried out in four steps.

0 – no relation

1 – weak relation

2 – medium relation

3 – strong relation

Evaluating the matrix the features which influence customer demands most will manifest themselves. Besides, other evaluations are worthwhile [QFD01] too which we summarized in Table 7.

Phase 1, Step 7: Calculation of the technical interpretation of HOWs

For the technical interpretation we calculate the total sum from importance and suitable demand. On the basis of the values, we define the priorty of the features of our technical solution to the „Citysprinter".

In our example these are the priorities:

1 – motorization has the highest priority here,

2 – manufacturing costs have the second priority,

3 – the hybrid engine has the third priority,

4 – the vehicle size has the fourth priority,

5 – payload has the lowest priority.

Phase 1, Step 8: Comparison with competing products (WHAT-comparison)

Now, it is time to compare our own product to the competing products. For this, it is necessary to define and list the own product and the similar products of the competitors.

In the right side of the matrix the evaluation gets visualized. It documents the customer image of the own product and the competing products, also it shows the reputation of each product for each customer demand. A scale from 1 (very bad) to 5 (very good) is applied for the evaluation. Data which the evaluation is based on should be either made specifically or should be provided by the sales studying the market.

Phase 1, Step 9: Examination of feature correlation (correlation of HOW to HOW) and the input of the direction of optimization

We fill in the „roof" of the Houses of Quality. It is where the paired comparison of HOWs is done, so the study of correlation of features. Either symbols (circles, crosses, plus, minus, etc.) can be used to designate correlations. It is necessary to distinguish here whether the features mutually support each other (positive correlation) or weaken each other (negative correlation).

The evaluation reveals the critical constellations which have to be solved. It can be done, for example, by modification of the prescribed values („how much"). Conflicts can be seen here which need compromise. (Figure 2)

		Explanation:
2 very positive 1 positive -1 negative -2 very megative	↑ ↓ ⬯	This typical value has to be increased. This typical value has to be reduced. This typical value does not have to be changed.

Figure 2: Completion of the „roof" and decision on changes to achieve

The direction of optimization represented with arrows shows whether the feature value increases, lessens or stays the same.

Phase 1, Step 10 Difficulties at implementation and technical comparison for the competition

In the next step we assess how difficult it is to achieve the HOWs. For this we use a scale 1-5 again where 1 means very difficult and 5 very easy (problem free).

Attention: 1 is often used as problem free, while 5 as very difficult.

Assessment involves, for example, statistics, tests, plans, experiences regarding correction, complaints, warranty performances, waste disposal clauses, legal requirements and their realization.

As the example shows very well, the „House of Quality" provides very good support both for the work sheet and for the documentation. It includes the QFD-matrices, assessment tables, also it can be supplemented with comments.

For the development of our „Citysprinter" there should be at least three more „Houses of Quality". The first one is necessary for the features of the actual product, the second one for the manufacturing specifications, and the third one for the process instructions (services, supervision etc.).

The basic principle is that every calculated solution parameter should be put in the House of Quality. That is how we can see the links, connections. The connections of the House create a linkage or net thus ensuring the customer-oriented, goal-oriented, comprehensive, integrated and continuous attitude.

PHASE 2: COMPONENT MATRIX

In the component matrix we define and specify the critical components of the product.

From Phase 1
- ☐ the selected product features („How")
- ☐ their importance (vertical) and
- ☐ the prescribed values („How much")

are taken to Phase 2 and put into a new „House of Quality" (component matrix).

Here, „Hows" mean the features of fittings. „How expensive" is separately dealt in this phase. We set up a distinct matrix for each product (own product and every competing product). We fill it in vertically (so to say as „What") with the functions of the product, like maintenance, driving etc., and then complete them with other aspects, like transportation, sale and delivery. Horizontally, we write the product fittings and other aspects as „How", like order, accounts and transportation. Additionally, we number the estimated costs for each fitting. For the „From what to how" the function costs for each fitting are given in percentages so that we can have a view over the cost structure and its distribution. It can be seen then if eg. the competing products can satisfy these functions with less fitting.

Guide: Alternative solutions for the functions of components, namely the less problematic, safe and cheaper sructure components are the most important tools to ensure competitiveness!

The plan costs can be calculated from the matrix, and then compared to the goal costs in the „House of Quality". Some further decisions can be concluded from it.

PHASE 3: PROCESS MATRIX

In the third phase the processes are harmonized, the optimal values of the critical process elements and process parameters, costs and reliability, together with the critical process values are converted to follow them in the QFD. The process should be defined in process planning so that the component specification can be observed and reproduced in manufacturing. By means of process optimization (eg. statistical experimental methodology), real corrections can often be reached without investing a lot into it.

From component planning the „How" critical values with their „How much" prescribed values and standardized importance (vertical „importance", assessed from 1 to 5, where 5 means the most important) are taken to the process matrix as a new „What", „Why" and horizontal „importance". Thus, a new „House of Quality" is built. Boundary conditions (eg. fixed suppliers, degree of automation) can be written additionally, as „How much good" and „How to make it good".

As „Technical quality / requirements" we assess technical difficulties, clauses, waste disposal and others, the assessment is accomplished from 1 (no problem) to 5 (a lot of dificculties).

The „Hows" represent the processes. They are separated on the basis of their function features which can be taken out from the process diagram and used as alternatives. The costs, reliability and process ability are applied to analyse and compare these alternatives.

„How much", „From What How" are evaluated from „How" and „Importance" (vertical importance), similar to the first phase (product matrix).

Evaluation of the process matrix results in the critical process parameters and specifications of their setting which should absolutely be checked during production.

PHASE 4: PRODUCTION MATRIX

From the process planning (Process matrix) the critical process settings („How"s) with their prescribed values („How much from the How") and the standardized (vertical) „Importance" as a new „What", „Why" and horizontal „Importance" are taken to a new „House of Quality" again.

Here, „How" is the structures of control and management measures, like eg. special planning charts (SPC), instructions, maintenance plans.

Evaluation of the matrix („From What How", „Technical Quality / Requirements", the vertical „Importance", etc.) is done like in Phase 3.

As a result, we can get the product features, which can be checked on the finished product, so that the delivered product can satisfy customer needs as much as possible.

The QFD is a general course of actions at a company to ensure constant customer-orientation. It can be easily applied to a new task, a special company and a given sector. It is possible to use it within logistics, too.

QUESTIONS AND EXCERCISES (UNIT 1-2)   ▪

1. What does Customer Relationship Management (shortly: CRM) mean?
2. What does Operative CRM (oCRM) mean?
3. What does Enterprise Resource Planning) mean?
4. How does Enterprise Resource Planning (QFD) work?
5. Mention, please, the mots important question to QFD!
6. What does 4-phase model mean?
7. „House of Quality" – What is that?
8. Follow „House of Quality" case study!
9. Look at Phase 1!
10. Look at Phase 2!
11. Look at Phase 3!
12. Look at Phase 4!

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