

1st edition, October 2002

*Translation*

# R

## **Guidelines for the execution of customer satisfaction analyses as a basis for international benchmarking**

*Guide pour la réalisation des études sur la satisfaction de la clientèle - Référentiel pour un benchmarking international*

*Leitfaden für die Durchführung von Kundenzufriedenheitsanalysen als Basis für ein internationales Benchmarking*



UNION INTERNATIONALE DES CHEMINS DE FER  
INTERNATIONALER EISENBAHNVERBAND  
INTERNATIONAL UNION OF RAILWAYS

---

**Leaflet to be classified in Volume :**

II - Freight Traffic

**Application :**

With effect from 1 November 2002

All members of the International Union of Railways

**Record of updates**

**1st edition, October 2002**      First issue

*The person responsible for this leaflet is named in the UIC Code*

# Contents

<b>Summary .....</b>	<b>1</b>
<b>1 - Design of customer satisfaction analyses .....</b>	<b>2</b>
<b>2 - Organisational implementation of customer satisfaction surveys .....</b>	<b>4</b>
<b>3 - Recommendations for the organisation of customer satisfaction analyses .....</b>	<b>5</b>
3.1 - Structure and scope of the population .....	5
3.2 - Execution of the survey .....	6
3.3 - Structure and organisation of the questionnaire .....	7
3.3.1 - Procedure for measuring customer satisfaction .....	8
3.3.2 - Feature-based measurement of customer satisfaction .....	8
3.3.2.1 - <i>Selection of features</i> .....	8
3.3.2.2 - <i>Response categories and scales</i> .....	11
3.3.2.3 - <i>Benchmarking with reference to the competition</i> .....	13
3.3.2.4 - <i>Determination of the importance of individual features</i> .....	14
3.3.3 - Recording of "critical incidents" .....	15
3.3.4 - Data confidentiality issues .....	16
3.4 - Selected recommendations for assessing the survey .....	16
3.4.1 - Analysis of mean values of satisfaction indicators .....	16
3.4.2 - Analysis of satisfaction with the competition .....	17
3.4.3 - Determining the importance of satisfaction indicators .....	17
3.4.3.1 - <i>Direct determination of the importance of satisfaction criteria</i> .....	17
3.4.3.2 - <i>Indirect determination of the importance of satisfaction criteria</i> .....	18
3.4.4 - Classification of critical incidents .....	19
3.4.5 - Options for more in-depth analysis .....	19
3.5 - Selected recommendations for communications about the survey .....	19
3.5.1 - Company management .....	19
3.5.2 - Company strategic planning / Cross-sector departments .....	20
3.5.3 - Senior management .....	20
3.5.4 - Sales staff and other staff in direct contact with the customer .....	20
3.5.5 - Staff with predominantly indirect contacts with customers .....	21
3.5.6 - Customers .....	21
3.6 - Need for action .....	21

---

<b>Glossary .....</b>	<b>22</b>
<b>Bibliography .....</b>	<b>25</b>

## Summary

The importance attached to customer satisfaction analyses in both scientific theory and practice has grown in recent years and continues to grow, with customer satisfaction being seen as one of the central drivers of business performance. Satisfied customers are loyal customers that will continue to buy services from the company and even recommend it to others - correlations that have been proven through numerous empirical studies.

A further reason for the increasing focus on customer satisfaction as a topic is linked to the key importance of service quality as a competitive advantage, with service-providers in particular increasingly tending to have their services certified by independent institutions. A key role is played in this connection by the ISO 9000 group of standards published by the International Organisation for Standardisation. The ISO 9000 ff. standards set out a series of requirements to be met by quality management systems and stipulate, on the matter of customer satisfaction measurement, that a company should regularly monitor its customers' perception of the standard of quality offered. The methods by which customers' views are ascertained must also be clearly defined. In this respect, measuring customer satisfaction is essential to railway freight operators in order to conform to the ISO 9000 ff. standards.

What is crucial in this regard is for customer perceptions of service quality to be regularly recorded. In corporate practice there is a wide range of supplier-oriented indicators for measuring service quality, such as internal quality indices. Differences between the standard of quality perceived by the customer - expressed as customer satisfaction - and quality from the supplier's perspective should therefore be investigated by the company. In this process, the supplier's own quality indicators should be subject to critical scrutiny, as in a case like this they may not give an adequate picture of quality from the customer point of view, ultimately the most crucial perspective for a company.

In this context it is clear that regular measurement of customer satisfaction is also of the utmost importance for railway freight operators. Having said that, carrying out customer satisfaction analyses for a complex service like rail transport is not without its problems. These guidelines therefore offer recommendations for the execution of customer satisfaction measurements in the field of freight transport services. Whilst many of the component parts of this concept are applicable whatever the country - criteria like punctuality or transit time, for example, are universally relevant - the proposed concept also leaves room for adjustments in several areas to accommodate the specific features of countries or companies, as cultural differences may for example dictate. From this point of view, these guidelines by no means seek to legislate or impose a unification of the individual national customer satisfaction surveys, but rather seek to pass on the fruit of scientific research and practical experience in the field of customer satisfaction ("recommendation, not regulation"). The idea is to set out a basic model for the measurement of customer satisfaction that can (and indeed must) then be adapted to the needs of each individual company.

Nonetheless it would be beneficial if the recommendations in these guidelines were implemented at least in part by a large number of railway freight companies. By obtaining a **standard core** in this way, it would be possible to carry out international benchmarking on customer satisfaction in the various countries, an exercise that would bring important insights for both the International Union of Railways and the individual companies.

# 1 - Design of customer satisfaction analyses

Table 1 gives a synoptic overview of the steps to be followed in the design of customer satisfaction analyses and indicates the scope for variation from one company to another.

Table 1 : Overview of the recommendations

Topic area	Recommendation	Variable?
<b>Survey design</b>		
Structure and scope of population	Target population: current customers and intermediaries, like forwarders	Choice of target population depends on study objectives
	Sample size	Minimum sizes as per AMA must be adhered to, otherwise the decision depends on the company
	Selection procedure: the quota system is most applicable	Decision for individual companies
Carrying out the survey	Tried and tested method: telephone interviews	Face-to-face interviews are also a possibility, but we advise against anonymous written surveys
	Survey should be carried out on a regular basis (e.g. annually)	Strongly recommended
<b>Structure and organisation of the questionnaire</b>		
Feature-based measurement	Use of a three-level concept: <ul style="list-style-type: none"> <li>- Overall satisfaction</li> <li>- Factor-level satisfaction</li> <li>- Criteria-level satisfaction</li> </ul>	The three-level concept is recommended as the basic approach. The criteria in particular can be adapted to the specific situation of each company
	Response categories and scales: 7-point satisfaction scale	Strongly recommended Otherwise, at least 5 points
	Benchmarking: customers also evaluate satisfaction with the competition	Recommended
	Direct determination of criteria importance: combination of constant sum scales and priority ranking	Recommended
	Indirect determination of criteria importance using regression analysis	Recommended only for internal purposes (discussions among specialists)

Table 1 : Overview of the recommendations

Topic area	Recommendation	Variable?
Recording of critical events	Respondent describes specific incidents	Recommended
Data confidentiality issues	Compliance with specific national regulations and ESOMAR recommendations	Specific to each country
Pre-test	Questionnaire should be subject to preliminary testing	Strongly recommended
<b>Evaluation of the survey and communication</b>		
Assessment of the survey	Standard battery of basic assessments and more in-depth multiple range of evaluations	Basically depends on the company, though the basic assessments should be predefined and repeated for every survey
Communication about the survey	Communication must be tailored to the needs of individual target groups	Decision depends on the company

## 2 - Organisational implementation of customer satisfaction surveys

Right from the preparatory phase it is important to clarify how the execution and findings of a customer satisfaction analysis are to be publicised and implemented within the company - and not just in the marketing branch. Recording customer satisfaction statements cannot be considered an end in itself and only makes sense if the company as a whole can benefit from the exercise. To this end, it is first and foremost essential that the findings of the customer satisfaction survey be disseminated through the whole company, whilst broader implementation within the company can also be beneficial. As the design of the survey concept will depend considerably on the communications and implementation objectives pursued, it is important to devise a strategy addressing these points in advance of the actual study.

To this end, we suggest that an interdisciplinary Customer Satisfaction Steering Group be established, to be responsible for overseeing execution of the study and in particular drawing lessons from the analysis for the company as a whole. This Steering Group should pay particular attention to questions like **how to communicate about the results, how to enshrine customer satisfaction in the company and how to ensure systematic customer orientation.**

In the field of communications, care must be taken to ensure that the study findings are made accessible to all relevant **target groups** both within and outside the company. These target groups are:

- the company management,
- company strategic planning / cross-sector departments,
- senior management, e.g. branch directors,
- sales staff and other staff in direct contact with customers,
- staff with predominantly indirect contacts with customers, e.g. in the production sector,
- (possibly) customers of the company.

Discussions on how to organise communications around the findings should be held with the individual target groups in advance of the analysis. The results themselves should then be prepared for each individual target group, and depending on the target groups, further divided into customer groups or individual customers.

The Steering Group should also draw up measures to ensure that customer satisfaction as a subject is built into the company **incentive systems** and becomes enshrined in **corporate culture**. Here it is advisable for each member of the interdisciplinary Steering Group to try, each in his/her own organisational sector, to have customer satisfaction data integrated into the incentive system (performance-related pay, for example). Furthermore, the customer satisfaction results can be used at both department and company level for the purposes of staff motivation, by rewarding an employee or a group of staff that, according to customers, were especially instrumental in boosting their satisfaction.

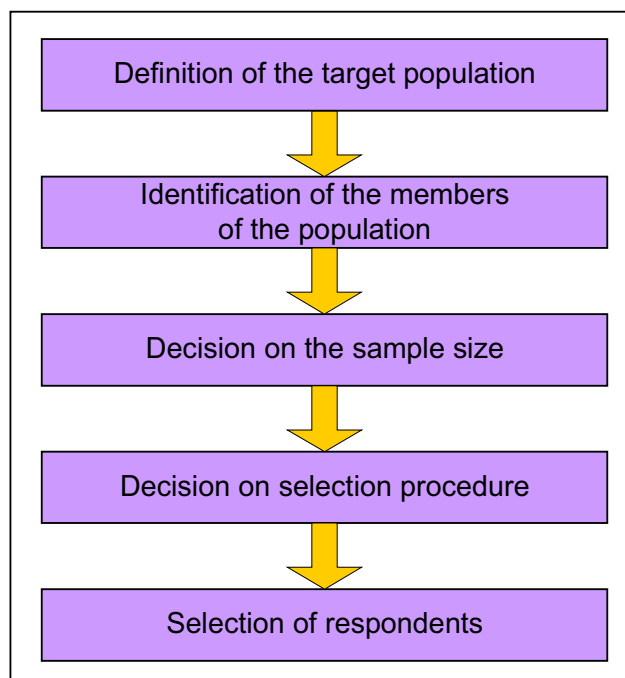
Lastly, it is important for the implementation of customer satisfaction to be **monitored** in the company. This will involve checking whether the satisfaction targets set have been attained through measures taken. Where this is not the case, further batteries of measures must be launched.



### 3 - Recommendations for the organisation of customer satisfaction analyses

#### 3.1 - Structure and scope of the population

The first thing to decide in a customer satisfaction analysis is who is to be surveyed. The process of identifying the final sample can be broken down into five steps as follows:



*Fig. 1 - Stages in the selection of a sample*

Basically, the **target population** can be made up of several groups of persons. The customer satisfaction study can for example cover existing customers, latent or former customers, and can also include intermediaries. Since it is what existing customers have to say that is of greatest significance to the company, this group is an obvious choice for the target population. However, it is important for intermediaries (like forwarders, for example) to be included as well. Ultimately, the choice of population to be surveyed will depend primarily on the objective of the customer satisfaction study and/or the groups of existing or potential customers about which information is sought.

Another question to be answered when defining the target population is how many people should be surveyed in a given company. For railway freight companies, as for many companies in the "business to business" sector, it is important to recognise that the choice of partner for a transport operation is often not made by a single person but frequently by a **buying centre** made up of several persons. Collegial procurement decisions of this kind are to be found especially in major firms, for example when one person in the company takes the basic decision on which company the contract is to go to and the operational responsibility for the transport operation is in the hands of someone else. Establishing the satisfaction of both of these parties is important for railway freight companies, which is why it is vital to check whether more than one person in the firm should be surveyed when a buying centre exists.

The basis for **identifying the members of the target population** will generally be customer listings or databases. To decide on who precisely should be surveyed, sales staff and/or members of the customer service organisation can be brought in to assist. It is useful for customers to be classified, for example in turnover groups (A, B, C).

To give a robust indication of customer satisfaction, the scope of the sample should be as large as possible. Even so, it can be interesting to set a **minimum sample size** for a robust result. The American Marketing Association (AMA) makes the following recommendations in this regard:

Table 2 : AMA-recommended sample sizes

Size of target population	Recommended minimum sample size
> 2000	385
1001 - 2000	323
501 - 1000	278
251 - 500	218
< 250	152

*Source: Marr, S.L., Crosby, L.A., Customer Satisfaction Measurement, 1993*

For populations comprising fewer than 152 people, the American Marketing Association recommends that the satisfaction rating of all respondents should be surveyed if possible. Care should also be taken to ensure that a certain minimum number of data records are available for more in-depth statistical analysis, such as regression, variance, cluster, causal or discriminatory analysis. As a rule of thumb, more than 100 respondents should be interviewed for assessments of this type, though depending on the number of variables, other minima may also be applicable.

Alongside the **random choice method** for selecting the sample, the **quota system** is often used in customer satisfaction surveys. This is a way of guaranteeing that the structure of the group of people whose satisfaction rating is ultimately taken into account does not stray too far from the structure of the total population surveyed. Furthermore, it can be helpful to focus particularly on category A and B customers. This too can be taken on board when a quota system is used. Quotas can be established by taking the target value for the sample size and calculating the number of customers with specific features that are to be interviewed (e.g. x customers that are A customers and can be assigned to the chemicals sector). For face-to-face and telephone interviews in particular, the practical application of quotas is quite straightforward.

### 3.2 - Execution of the survey

A survey can be carried out in various ways - **in writing, face-to-face or by telephone** - and can be partially **computer-assisted** (CATI). In a written survey, respondents are sent the questionnaire and asked to return their reply by post. The biggest drawback of this system is the generally low return rate. It is also impossible to check whether the questionnaire was really filled out by the actual person to which it was addressed.

In face-to-face interviews, the survey is conducted by an interviewer at the respondent's premises. The disadvantage of this procedure, alongside the high cost, is the risk that the interviewer may influence the thrust of the answers. At the same time, there is the clear advantage of a comparatively high return rate.

For business to business surveys, the **telephone** interview method is tried and tested. Here, respondents are contacted by telephone and questioned directly. This method is commonly preferred by the respondents themselves and offers a number of advantages for railway freight operators:

- it gives the guarantee that the questions are being answered by the intended person and not a representative standing in for them,
- the railway freight company can keep track of the survey by listening in to individual interviews and monitor progress by asking how many interviews have been conducted,
- a direct, personal approach will often deliver a substantially higher return rate than for written surveys,
- this type of interview is cheaper than the face-to-face interview.

A special type of telephone interview that is already widely used is the so-called **Computer-Assisted Telephone Interview (CATI)**. In this variant, the interviewer reads out to the respondent the questions that appear on the screen and enters the answers directly into the computer. The advantage of this system lies in the immediate input of data, which means that the information gathered can be analysed rapidly. This can be useful for example in order to call up interim results. The CATI software also offers a broad range of survey support options, including sample management, input controls and data record administration.

To make sure the telephone interview goes smoothly, the questionnaire should be **sent out** to the respondent **in advance**. Experience has shown that the survey proceeds better as a result, especially in terms of the time taken. A covering letter from the railway freight company can also make it clear that the survey is **officially authorised** at corporate level. Care should be taken to ensure that the interview does not take up too much of the respondent's time: an interview lasting between 20 and (maximum) 30 minutes would seem most suitable.

A customer satisfaction study will be most effective if it is repeated at regular intervals in time, and insofar as possible with the same **panel** of respondents. **An interval of one year** between successive surveys seems a good compromise, as respondents can find more frequent solicitations irritating. If a higher frequency of customer satisfaction measurement is required, then one solution is to use a **partial sample**, with different partial samples from the customer base being approached in succession. If the survey interval exceeds one year, they may not pick up on certain problems and cases of dissatisfaction. Generally speaking, it is worthwhile rewarding the customer's willingness to cooperate through some form of **incentive**.

### 3.3 - Structure and organisation of the questionnaire

The most important decision to be taken in connection with a customer satisfaction analysis concerns the content and structure of the questionnaire. This is all the more true for the fact that any change to the basic questionnaire for a regularly-conducted survey can jeopardise the comparability of results over time. With this in mind, it is important to ensure that the pattern of the questionnaire - in terms of both the criteria surveyed and the scales used - remains constant over time. For this reason, particular care should be taken when preparing the questionnaire and extensive **pre-tests** carried out ahead of the actual exercise. These guidelines set out a basic design for such a questionnaire. However, the ultimate product will need to be properly suited to the individual features of the company in question.

### 3.3.1 - Procedure for measuring customer satisfaction

There are basically two different ways of ascertaining customer satisfaction. In a **feature-based** system, customers indicate their satisfaction with a service using a pre-defined catalogue of criteria. The assessment can then take place at a global level ("overall satisfaction") or refer to a range of specific features of the service to be assessed. With this method, it is possible to determine an explicit level of satisfaction, the development of which can be observed over time. However, it does not generally speaking ensure full coverage of all aspects of service for every customer. There is a particular risk that customers will have difficulty matching a specific incident in their business relations to a specific criterion. In the **incident-based** method, on the other hand, no explicit level of satisfaction is stipulated. Rather, the focus is on individual customer experiences that are liable to influence satisfaction with a service. A method of this type can therefore yield up valuable indications as to the processes in the company that need to be changed in order to **boost quality**.

This group of methods includes three possible alternatives:

- **Complaints analysis**, in which conclusions are drawn as to the level of customer satisfaction from an analysis of customer complaints.
- The **sequential incident method**, in which the customer recaps on the various phases of the service without assistance, the aim being to identify which aspects of service provision are of importance to the customer.
- The **Critical Incident Technique**, in which customers are asked to describe unusual incidents that have had a particularly positive or negative influence on their satisfaction. This is the most commonly used method.

This method does have one major disadvantage in that it does not allow an actual level of satisfaction to be measured. However, it offers the advantage of being extremely flexible and can therefore capture all the relevant facets of a service. Furthermore, customers often feel the need to be able to talk to the service-provider about all the problems that have occurred, and that is something that this type of method, especially the **Critical Incident Technique**, can cater to.

In the light of these considerations, a **combination** of these methods will generally make most sense. Satisfaction with individual performance criteria is surveyed in the first part of the questionnaire, following which customers are asked to review specific **critical incidents** that have arisen in conjunction with the service.

### 3.3.2 - Feature-based measurement of customer satisfaction

#### 3.3.2.1 - Selection of features

It is recommended that customer satisfaction be surveyed at several levels. Since recommendations for action to improve customer satisfaction can best be generated from judgments on the smallest possible part-dimensions, a catalogue of features at the lowest level ("**criteria level**") should be drawn up in a pre-test phase and then submitted for survey, bearing in mind that the scope is limited by respondents' ability to concentrate and willingness to cooperate, both of which decrease with time. The satisfaction assessments of the various criteria can then be scrutinised systematically in greater depth. **At factor level**, the satisfaction should be surveyed using larger part-dimensions of the freight transport service, and **at global level** it is overall customer satisfaction that is sought. By explicitly directing questions at each level of satisfaction, it is possible to overcome the problem of breaking down the overall satisfaction declaration into assessments of individual criteria (especially when it

comes to weighting those criteria). Additionally, an indirect determination of criteria weightings is then possible using regression analysis.

#### 3.3.2.1.1 - Indicators of overall satisfaction

In addition to the compulsory question "What is your judgment on the service of the railway freight transport provider as a whole?", a range of other questions can be asked to provide insights into satisfaction at the **global level**. Respondents can for example be asked to appraise the company's **image**. It is also interesting to see how customers feel their **satisfaction has evolved** - over the past six months, say - and what consequences in terms of **increased or reduced volumes of business** can be drawn from the declaration of satisfaction.

#### 3.3.2.1.2 - Satisfaction at factor level

When it comes to satisfaction with a freight transport service, customers are not just interested in the price and performance aspects of the actual transport operation, but also in the **interactive attitude** of your staff. For this reason, we recommend that the freight transport service be broken down into **four sub-sections**:

- Satisfaction with the **interactive attitude** of the contact partner: a judgment of the quality of customer care offered by the contact partner, especially during the transport operation itself.
- Satisfaction with **transport-related features**: this factor looks at satisfaction with the transport service proper.
- Satisfaction with the **processing of the transport order and invoicing**: an appraisal in particular of the information processes during and after the transport operation.
- Satisfaction with the **price**: since for many reasons "price" as a factor has a special role to play in satisfaction<sup>1</sup>, it is advisable to deal with this feature as a separate factor.

#### 3.3.2.1.3 - Satisfaction at criteria level

The factor-level satisfaction determined above needs to be complemented by a further sub-division of the factors into criteria. At this stage, it is important to ensure that the catalogue of criteria does not become too long, so as not to over-tax respondents' willingness to provide the information. Criteria like speed, reliability, punctuality, provision of information about the condition and location of the load and price are generally among the standard criteria for a customer satisfaction analysis in the field of railway freight transport services. Even so, the list of criteria must be adjusted to the company in question, to adapt for example to the way customer contacts are organised there. Differences in the questionnaire designs for two companies can also result from a different product being offered - e.g. supplementary logistics services. Against this background, the list of criteria presented here should simply be seen as a starting point for the creation of your own individual criteria.

---

1. Many respondents for example consider price to be such an important aspect that this feature would become overpowering if included in a given category. Bear in mind also that satisfaction with price should be assessed differently from satisfaction with performance-related aspects. Even if a company is charging prices that are perfectly in line with the market and service offered, customers will mostly not be satisfied because he/she would like it to be even cheaper.

As already indicated above, the **interactive attitude of staff** is a significant factor. With this in mind, satisfaction could for example be surveyed using the following criteria:

- support from contact persons in the search for a transport solution (this is designed to establish how satisfied customers are with the assistance provided by transport company staff in drawing up an individually-tailored transport solution),
- speed and reliability of the service proposal,
- know-how of contact partners (customers are asked to indicate their level of satisfaction with the transport-related knowledge of staff),
- reachability of contact partners,
- effectiveness of contact partners within their own firm (this is intended to ascertain customer satisfaction with the representation and defence of their interests by staff in the company).

The following criteria are proposed for inclusion under the factor headed "**transport-related features**":

- transit time,
- punctuality,
- quality of transport equipment (i.e. quality of rolling stock),
- adaptability to specific transport needs (to establish customer satisfaction with the company's ability to be flexible in accommodating specific customer requirements - from an objective point of view),
- short-term availability of transport services tailored to requirements (meaning how satisfied is the customer with the company's scheduling flexibility, i.e. is it possible to arrange a consignment at short notice),
- provision of wagons (satisfaction with the wagons provided, in terms of their number and sequence, as well as satisfaction with the arrangements made for empty wagons),
- additional logistics services (satisfaction with potential extra logistics services, like storage management, packing or stock controls),
- advice on loading/unloading and/or the securing of loads (to establish customer satisfaction with assistance from the company in connection with the loading of goods),
- service attitude of field staff involved in the service,
- handling of dangerous goods shipments (general customer satisfaction with the way dangerous goods are dealt with during the transport operation).

For the "**processing of transport orders and invoicing**" factor, satisfaction with the following criteria can be surveyed:

- acceptance and processing of transport orders,

- provision of information on shipments (this is intended to establish customer satisfaction with the information provided during the transport operation itself, including for example up-to-date information about the status of a given consignment),
- problem-solving in the event of disruptions in the transport operation (how satisfied are customers with the trouble-shooting capabilities of company staff - in terms of both the speed and the quality of their problem-solving),
- accuracy and traceability of invoices,
- handling of complaints and claims (this criterion seeks to ascertain customer satisfaction with the way complaints are managed by the company, and covers both the mechanisms by which complaints are received and the reaction from the company).

With the inclusion of the "price" factor as a further criterion, the questionnaire structure could look something like this:

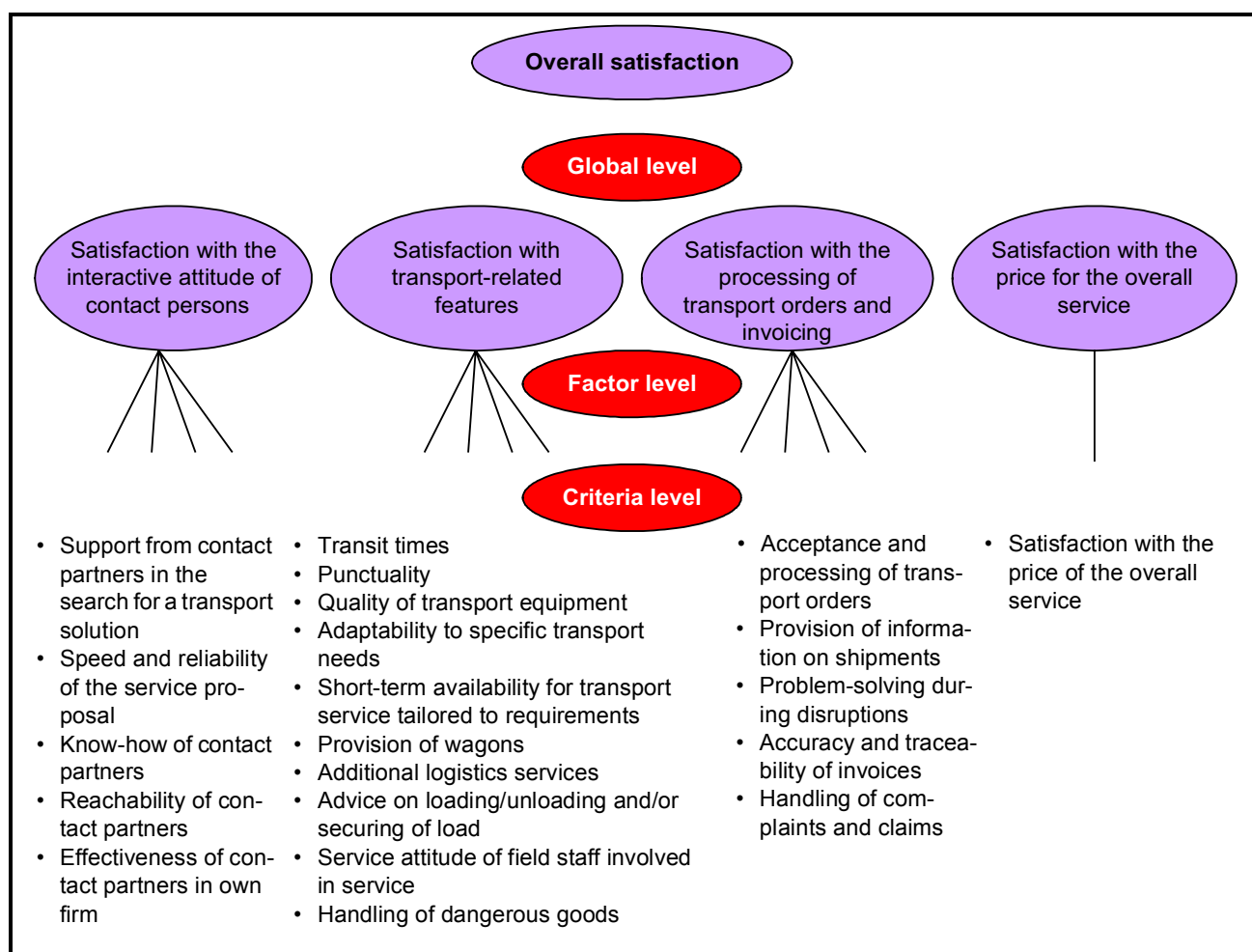


Fig. 2 - Possible questionnaire structure

### 3.3.2.2 - Response categories and scales

The system of **rating scales** has proven itself in practice as a means of obtaining graduated responses. A range of different types of scale are used to gauge customer satisfaction. One possible

option is a **performance scale**, where customers are asked to assess the quality of performance (e.g. from "very good" to "very bad"). Another possibility is to use **disconfirmation scales**, where customers indicate to what extent their expectations were fulfilled by the service provided (e.g. "much worse than expected" through to "much better than expected"). A third possibility is the use of **satisfaction scales**, by which respondents express their satisfaction with the service explicitly (e.g. appraisals going from "fully satisfied" to "completely unsatisfied"). Because of their close relationship with the satisfaction construct, these satisfaction scales are widely used in practice and empirically they are closely linked to decisions on whether or not to buy again. In this connection, the use of satisfaction scales is recommended.

When deciding on the number of points to be used on the scale, particular account should be taken of the following considerations:

- Data that can be recorded using rating scales are simply **ordinally scaled** in terms of their structure, in other words they give an indication of the order in which the assessments are to be placed but not about the intervals between the points on the scale. To permit more far-reaching statistical assessments, the features should at least be recorded using **interval-based scales**. Interval-scaled features are different in that conclusions can also be drawn about the distance between the points on the scale. A transposition from ordinally-scaled to interval-scaled data is therefore not actually possible. However, in empirical social research, data that was originally ordinally-scaled is often under certain conditions interpreted as if it was interval-scaled. To make this interpretation possible, there should be at least 5 points on the scales used for assessing the various features.
- If the number of points is too great, however, the effect may be **overtaxing** on the respondent. Empirical research has shown that if the scale is extended to up to 7 points, the scope for differentiation is exploited by respondents to the full. If this is further extended to 9 points, this no longer applies. Quite to the contrary, this rather tends to foster uncertainty and an inclination to adopt extreme positions.
- Scales, that contain a **central point** - i.e. those that consist of an uneven number of graduations - tend to prove their validity better in empirical research than scales without a central point.

With this in mind, the recommendation - shared among others by the American Marketing Association - is to use a **7-point scale**, as on the one hand this caters for the possibility of more far-reaching statistical analysis and on the other hand allows respondents to make full use of the 7 graduations to express their level of satisfaction.

At the same time, there are also **cultural aspects** to be considered when deciding on what scale to use. In some countries, some of the most widely-used scales are based on the school marking system: in France, for example, a 10- or 20-point scale is often used. Scales like these do however have the drawbacks referred to above, and empirical research confirms that by using a single 7-point scale (i.e. different from the national marking system) the results will tend to be **free from distortion**.

Based on these considerations, the scale recommended for use in these guidelines is the **7-point scale**. If in spite of this companies wish to use a different scale, then it should have at least 5 points. Also, during the pre-test phase, it should be clearly established whether the scale delivers reliable and valid results or not.

A further conclusion drawn from empirical research into the choice of response categories is that data quality can be improved by offering respondents the option of **not answering**, in addition to the 7 assessment categories mentioned. In connection with the issue (addressed below) of direct recording of the respective importance of various criteria, respondents should be left the option to indicate that



a given question is "not relevant to our shipments", as well as a category headed "Don't know / no comment".

### 3.3.2.3 - Benchmarking with reference to the competition

A customer satisfaction analysis must not necessarily be confined to satisfaction with the performance of your own company. It is advisable to extend the concept to encompass **your position in relation to the competition**. According to the **Confirmation/Disconfirmation (C/D) paradigm**, customer satisfaction or dissatisfaction develops from a **process of comparison** between a comparative standard imagined prior to delivery of the service and the actual standard of service provided. If the advance expectations are exceeded, then customer satisfaction is the result, whilst non-fulfilment of expectations leads to dissatisfaction. As the expectations attached to a service are also conditioned to a great extent by experience with the competition, it is important to know the customer's assessment of how the corresponding service aspects are performed by the competition. A company can then work out in which parts of the service it has the biggest competitive edge or disadvantage in relation to its rivals. This analysis can then serve as a basis for finding suitable measures to increase customer satisfaction and cut down on the **"satisfaction gap"** that may have emerged in relation to the competition.

The following approach is recommended for this benchmarking component of the exercise:

- At the start of the survey, customers are asked to indicate which mode of transport they consider to be the best alternative to the railway freight company (lorry, inland waterway, another railway operator). This ensures that when carrying out their assessment, customers will have the performance of a specific competitor in mind. For some companies, it may be the case that several alternative suppliers are available depending on the routes used and the goods carried. Where this is the case, respondents should indicate the alternative transport mode that is the best candidate for the majority of the goods carried.
- Customers are asked, in addition to assessing the performance of the railway freight company, to appraise the services of the competition. This means, for example, that for the "punctuality" feature, they are requested to indicate their satisfaction with both the railway company and with the competition. Here the appreciation of the gap between the railway freight company and the best competitor can vary from one route to another. Consequently, the customer should name a specific route for the purposes of the comparison.

How satisfied are you with...	...railway freight transport company							...alternative transport mode							not relevant to our shipments	no comment
	totally dissatisfied			fully satisfied				totally dissatisfied			fully satisfied					
Transit time	1	2	3	4	5	6	7	1	2	3	4	5	6	7	<input type="checkbox"/>	<input type="checkbox"/>
Punctuality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality of transport equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adaptability to specific transport needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short-term availability of transport services tailored to requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 3 - Example of a questionnaire excerpt

### 3.3.2.4 - Determination of the importance of individual features

When conducting customer satisfaction analyses, it is generally important not just to survey satisfaction with the individual component parts of a freight transport service, but it can also be of interest to establish which parts of the service customers consider to be of particular importance. Once armed with the weightings for individual service components, the railway freight transport provider will be in a position to take action to boost satisfaction by targeting measures at the "right" criteria. The methods used to calculate these weightings can be divided into **direct** and **indirect** methods.

In the **direct** method, the customer is asked to indicate the importance of each feature in the questionnaire itself. One option is to adopt a **two component approach**, where, in addition to the satisfaction assessment, the importance of each criterion is surveyed on a rating scale. The problem with this procedure is that customers often tend to **inflate the importance of the criteria** by assigning almost all of them the label "important" or "very important". Another possibility is to give the respondent, say, 100 points to share out among the different criteria in accordance with their importance: this is the **constant sum method**. Here, respondents are forced to differentiate in their appraisal of relative importance and weigh up different criteria. The downside of this method is that the number of criteria which it can successfully accommodate is limited, as too great a number of criteria can tend to overtax the respondent. A third way of ascertaining individual criteria weightings directly is to ask for a **priority ranking**. Here, respondents are asked to arrange a certain number of criteria in order of importance. The advantages of this method lie in its ease of understanding and its compatibility with even large numbers of criteria. Its drawbacks include the fact that it gives a less differentiated picture of the weightings of individual criteria than the constant sum method.

In the light of these considerations, the use of a **hybrid approach** is recommended, combining the constant sum and the priority ranking methods:

- Using a **constant sum scale**, the importance attached by respondents to the four factors can first be ascertained.

Please share out 100 points among the four main factors to indicate their respective importance in your eyes:	
Interactive attitude of contact partner	<input type="text"/> points
Transport-related features	<input type="text"/> points
Processing of transport orders and invoicing	<input type="text"/> points
Price	<input type="text"/> points
<b>100</b>	

*Fig. 4 - Surveying factor weightings using a constant sum scale*

- For three of the four factors (the "price" factor consists of a single criterion only), respondents are asked to **place the individual criteria in order of priority**, i.e. to indicate the most important, the second most important, and so on, from among the criteria listed under that factor. To save time, it is recommended that respondents be spared having to prioritise all the criteria. For the category "transport-related features", for example, it is suggested that perhaps the four most important criteria be placed in order, whilst in the other two categories an indication of the two most important criteria should be sufficient.

The **indirect** method for determining weightings does not involve direct questions about the importance of individual criteria. Instead, statistical methods such as correlation, regression or causal analysis are used to draw conclusions as to the importance of individual criteria. The most commonly-used method is **regression analysis**. Here, it is assumed that the overall satisfaction of a respondent is basically made up of their weighted satisfactions with the individual criteria. A regression equation can be used to estimate the weightings, with the individual satisfaction values as independent variables and the overall satisfaction as a dependent variable:

$$\text{Overall satisfaction} = b_0 + b_1 * EZ_1 + b_2 * EZ_2 + b_3 * EZ_3 + \dots + b_n * EZ_n$$

where *EZ* = individual satisfaction

The regression coefficients  $b_j$  can be taken as the importance weightings corresponding to the individual satisfaction  $EZ_j$ . The advantage of this method is the higher validity that is assumed when importance weightings are calculated indirectly. Drawbacks include the problems that can arise with the application of the method, particularly when certain values are missing, which can lead to a distortion of the results. On this basis it is recommended that the indirect method for calculating importance weightings be simply used **in addition** to the direct method and for company-internal purposes only.

### 3.3.3 - Recording of "critical incidents"

The central objective of the **Critical Incident Technique** is a structured recording and classification of positive and negative incidents that are of relevance to the satisfaction process. Critical incidents are especially important to industrial business relations between a transport provider and a shipper. This is because on the one hand such relations generally comprise **several different transactions** and are of a **long-term nature**, which means that a single critical incident can have a long-term impact on customer satisfaction - this again has been proven from an empirical point of view. On the other hand, the service itself is typically **highly complex** and subject to a **high degree of individualisation**. This in turn tends to be conducive to the emergence of critical incidents. It is therefore important for a company to know where such incidents have occurred (i.e. which customers have experienced them). From the company point of view, a critical incident can also serve as an impetus for dialogue with the customers in question, a dialogue that can help to improve the substance of their business relationship.

The following procedure is proposed for the **recording** of critical incidents: respondents are asked to describe one or more events that have been instrumental in shaping their (dis)satisfaction. Here, respondents should be given the opportunity of covering both positive events, that have helped to boost satisfaction, and negative events that have brought dissatisfaction. To ensure that respondents do not quote critical events from the distant past that may even have been already covered in the customer satisfaction survey for the preceding period, only those incidents that occurred within the past few weeks or months should be recorded.

When recording critical incidents, it is important to achieve as **high a degree of specificity** as possible. This is the only way of ensuring that the company can trace back the event from what the customer says and take corresponding measures. Similarly, it is important to bear in mind that incidents must be recorded as comprehensively as possible. Individual critical incidents should also be kept distinct from one another, as this makes subsequent assessment and classification much easier. Interviewers should therefore seek to ensure that descriptions are as specific and complete as possible by following up points where necessary.

For additional information in areas that experience suggests are particularly prone to a large number of critical incidents, **problem-solving indices** can be formed. To begin with, customers are asked to state how many problems have arisen in connection with the topic area in question (provision of wagons, for example) in recent weeks or months. They then indicate for how many of these problems a solution was offered and the figure obtained by dividing this number by the number of problems that arose will constitute the problem-solving frequency index. The final step is to ask customers what proportion of the solutions offered were satisfactory from their point of view: the resulting figure will be a measure of problem-solving effectiveness. The problem-solving index can then be obtained from the ratio of satisfactorily resolved problems to the total number of problems arising.

### 3.3.4 - Data confidentiality issues

Finally, account must be taken of **data confidentiality considerations** in the design of the questionnaire. Whilst these provisions differ from country to country, ESOMAR has nonetheless issued general rules for the execution of customer satisfaction analyses. ESOMAR makes the distinction between a "research situation" in which the data analysis does not involve assessments relating to specific individuals and a "non-research situation" in which personal data are used for direct marketing activities, for example. During the communications phase of a customer satisfaction analysis, both customers and company often express the wish to use the assessments, especially those that reflect dissatisfaction, as a basis for further discussion. As such, the assessments also often tend to focus on individuals or specific companies, so that the "non-research situation" is obtained. Where this is the case, ESOMAR recommends that respondents be informed as to the study objectives and the planned treatment of their data and be asked to agree that the data be released for further use. Alongside these voluntary ESOMAR recommendations, however, national data confidentiality legislation must also be complied with.

## 3.4 - Selected recommendations for assessing the survey

Fundamentally, a customer satisfaction analysis can be assessed at **individual level** (per respondent or buying centre) or at **aggregate level**. Aggregated assessments will generally offer a wider range of potential uses, for example by providing key figures as input for strategic management. The recommendations that follow therefore concentrate on the possible assessments to be made at aggregate level. It is recommended that a statistical program such as **SPSS** be used to analyse customer satisfaction data, as programs of this kind can accommodate both the **basic assessments** and the **more detailed evaluations** based on multivariate analysis methods.

### 3.4.1 - Analysis of mean values of satisfaction indicators

The assessment is based on the **mean values** obtained for the **satisfaction indicators**, both at criteria level and at the higher levels. In addition to the direct information supplied by respondents, the three-level concept recommended in these guidelines makes it possible to obtain an indication of satisfaction at the higher levels by **grouping together individual criteria assessments** to form a **satisfaction index**. In this way, factor-level satisfactions can be calculated as an index from the criteria-level satisfactions and the overall satisfaction from the factor- and criteria-level satisfactions. One option is to use the unweighted average from the criteria and/or factors to form the index, a method which assumes that all criteria and/or factors hold the same importance. It is also possible, however, to apply a weighting system to the individual criteria and/or factors, for example using the importance values obtained previously. However, indices of this type should be reserved for internal use, for a further check on the questionnaire and the consistency of the answers. For communications purposes, it is the **directly surveyed** satisfaction values for each level that should be used.

Highly informative insights into customer satisfaction can be obtained by studying trends in the satisfaction indicators over time. Mean values for the satisfaction indicators can be derived both for all the respondents taken together and for sub-groups. This is particularly useful if different groups of respondents (classified according to the type of goods carried) are cared for by different organisational units within the company. In the analysis, it may also be of interest to know whether there are significant differences in the satisfaction of different sub-groups (e.g. whether the satisfaction of retailers or forwarders differs from that of shippers). An instrument that can be used to ascertain differences of this kind is **variance analysis**. This analysis method can serve to establish whether the differences between the mean values of the satisfaction indicators for individual groups are significant from a statistical point of view.

### 3.4.2 - Analysis of satisfaction with the competition

As an additional indication of customer satisfaction it is possible to include respondents' opinion of the competition. This could for example show whether a low level of satisfaction with a given satisfaction indicator is specific to railway freight transport or whether that low level of satisfaction is prevalent in all transport systems. In the approach presented, the customer's judgment of the competition is also recorded for the satisfaction indicators in question. The difference between the respective appraisals will indicate the size of the "**satisfaction gap**" between the railway freight operator and the competition. This satisfaction gap can then be used to determine which parts of the railway freight service are in particular need of attention, in order to reduce the edge enjoyed by the competition, and with which parts of the railway freight service the customer is just as satisfied as with the competition, or more so.

### 3.4.3 - Determining the importance of satisfaction indicators

#### 3.4.3.1 - Direct determination of the importance of satisfaction criteria

As part of the process of **direct** determination of the importance of individual criteria, a count can be made of how often customers have given a specific feature in the survey a priority ranking of 1, 2 or other for a specific factor. This figure is then divided by the total number of values assigned in this sector, to establish how often a given satisfaction indicator is quoted in percentage terms. To reflect the order in which the values are quoted, they can again be **weighted** (e.g. priority 1 double, priority 2 single, etc.). The result obtained is the percentage importance of the satisfaction criteria for a given sector. The sum of the importance values for all the satisfaction indicators in a given area will be 100%. To establish the importance of a given satisfaction criterion overall - i.e. in relation to all satisfaction criteria - the importance value calculated above is multiplied by the importance of the factor to which the criterion belongs (this being measured using a **constant sum scale**). The sum of the importance values for all the satisfaction criteria calculated in this manner will be 100%.

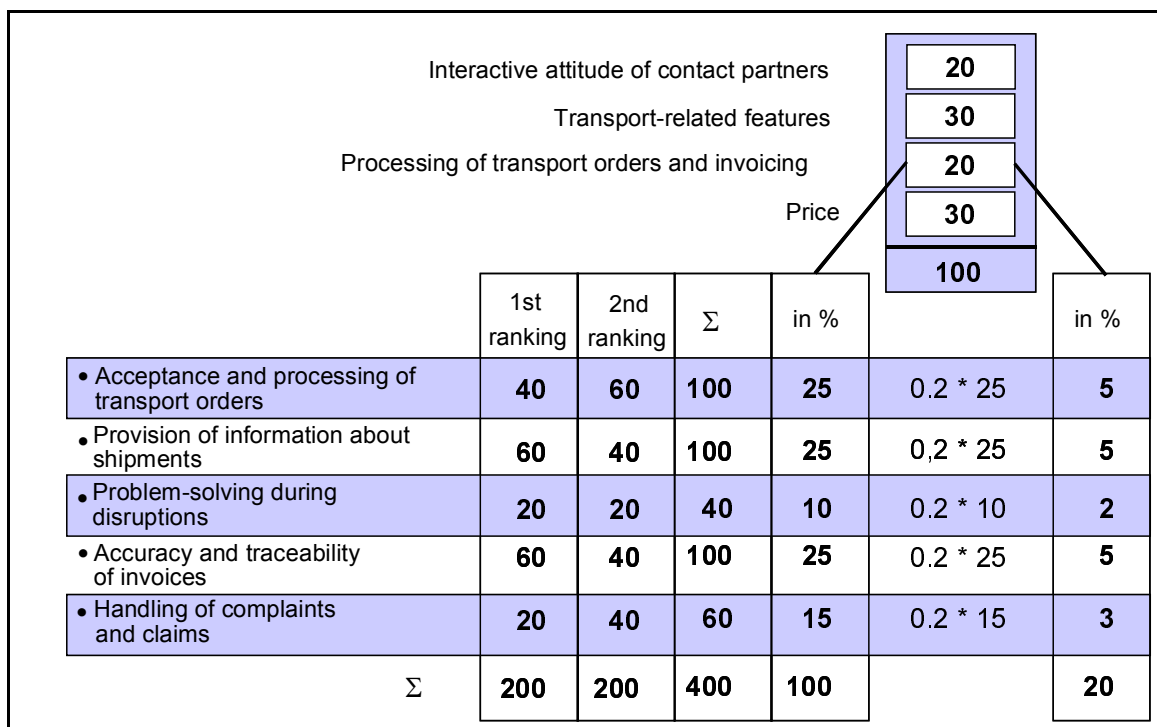


Fig. 5 - Direct determination of criteria importance values

### 3.4.3.2 - Indirect determination of the importance of satisfaction criteria

As well as calculating the importance of the satisfaction criteria directly, the same operation can be done **indirectly** using regression analysis. This method assumes that the overall satisfaction of a customer is made up of the weighted customer satisfaction values. Here, the overall satisfaction is taken as a dependent variable and the independent variables are formed by the criteria-level satisfaction values. The standardised  $\beta$  coefficients in the regression equation indicate the importance of a specific satisfaction criterion. Criteria with a high  $\beta$  value are assigned a comparatively high weighting in the regression equation and therefore have a correspondingly large influence on overall satisfaction. By **dividing** the  $\beta$  coefficient of a satisfaction criterion by the sum of all  $\beta$  values, the importance of that specific satisfaction criterion for overall satisfaction can be expressed in **percentage terms**.

The use of regression analysis to calculate importance weightings is however not without its problems. Regression analysis for example assumes that the independent variables are **independent** of one another, i.e. that there are **no correlations** between the individual satisfaction criteria. In such a complex construct as customer satisfaction, involving many factors that can also influence one another mutually, it is difficult to vouch for the independence of the individual criteria. Before carrying out the regression analysis, therefore, a **correlation analysis** should be conducted in all cases. If significant correlations are detected ( $> 0,4$  as a rule) then the results of a standard regression analysis need to be considered with caution. In cases like these, the regression methods used should be able to accommodate **multicollinearities** (e.g. the Rust/Donthu method). A further problem area with the indirect calculation of importance is **missing values** in customer data. Many customers give only incomplete information about their satisfaction: they may for example feel unable to assess a certain satisfaction criterion if they do not use that part of the service package (e.g. additional logistics services or handling of dangerous goods). During the regression analysis, cases such as these should be completely left out. In this way, the number of cases included can be reduced quite substantially. There is also the risk that the analysis will cover only a relatively limited group of customers.

To be sure to obtain a sufficient stock of data for a regression analysis, criteria such as these can be left out of the picture. To assist with the **elimination** of such variables, use can be made of the set of customers who did not reply because they considered the criterion in question was not relevant for their transport operations. If these customers represent a high proportion of the total, then it can be assumed that the criterion in question plays only a minor role or is only of importance for certain customers.

#### 3.4.4 - Classification of critical incidents

Alongside the feature-based approach, the questionnaire system under consideration makes use of the **Critical Incident Technique**, in which respondents are asked to indicate without assistance whether particular positive or negative events have occurred in recent weeks. When the survey is being assessed, it is important for these critical incidents to be **classified**, in other words classes need to be created to which the critical incidents can be assigned. This will help to highlight those service features which are most prone to critical incident occurrences. In the classification system, there must therefore be absolute clarity about what each class means, so that each critical incident can be assigned as unequivocally as possible to a given class. Very big or very small classes will tend to be inefficient for the purposes of more in-depth analysis. It can also prove advantageous to form the classes in such a way that they reflect the **organisational structure** of the railway freight company, so that a given category of critical events can be assigned to a specific organisational unit. An arrangement of this type will allow conclusions to be drawn as to where in the organisation there is **potential for improvement**.

#### 3.4.5 - Options for more in-depth analysis

In addition to the assessment methods outlined above, which are very much part of the standard evaluation techniques used for customer satisfaction analysis, other, more in-depth methods are conceivable. For example, with the use of a **Buying Centre Concept**, regression or causal analysis can help to gauge the influence of various individuals in the Buying Centre with respect to the choice of transport mode. **Cluster analysis** can also be used to segment the population of all respondents according to certain criteria. A useful instrument for reviewing the delimitations between different segments is **discriminatory analysis**. Where customers did not participate in the survey but the requisite information is available, discriminatory analysis can also be used to assign them to one of the segments defined.

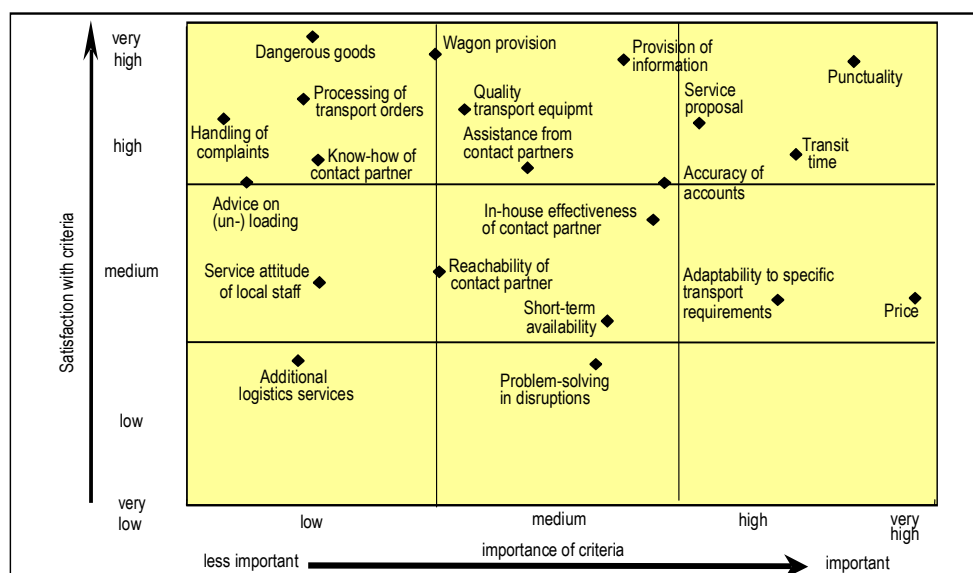
### 3.5 - Selected recommendations for communications about the survey

#### 3.5.1 - Company management

The results that are prepared for the company management should concentrate on **more general, aggregate** assessments about all customers, as this target group is looking at the development of the company as a whole and is not concerned with the detailed aspects of a survey. Care should be taken to ensure that the core results presented are an accurate reflection of the basic thrust of the survey findings. The figures and illustrations used should wherever possible show a maximum of results "at a glance", so that ideally those areas where action is required are immediately apparent.

**Example :**

For a presentation of the results at the highest level of the company, the kind of portfolio given below as an example is best suited. The diagram summarises the state of satisfaction with the individual criteria and their respective importance and the criteria requiring attention are immediately identifiable.



### 3.5.2 - Company strategic planning / Cross-sector departments

The information requirements of this target group are very often similar in essence to those of the company management, though in most cases a greater degree of detail is called for in the assessment. For this group, an aggregate presentation is therefore also recommended, i.e. not down to the level of individual customers, but taking all customers together. Furthermore, this is generally speaking the target group for more in-depth assessments, like the combined application of cluster and discriminatory analyses.

### 3.5.3 - Senior management

For a senior manager, who is responsible for a specific branch or group of customers, aggregate analyses covering all respondents will not generally contain all the information needed. Analyses **specific to customer groups** are of more interest here. With this in mind and to make the results of a customer satisfaction analysis directly accessible to this target group, it is recommended that in addition to analyses covering all the respondents, assessments be conducted into the customer group that corresponds to the field of responsibility of the manager in question. If the manager is responsible for certain specific parts of the service, such as for example the execution of a transport order or the sale of transport services, then this should be reflected in the assessment. This will help the manager obtain deeper insights into the critical incidents that have occurred in his/her organisational unit and can also be of use in conjunction with the recognition and analysis of problems.

### 3.5.4 - Sales staff and other staff in direct contact with the customer

This target group is in direct contact with the customer and therefore has in its charge the interface between customer and company. For this reason alone, this group is highly important. Here again, aggregate assessments will in most cases not contain all the information of relevance to the group,



which is why the assessments should be prepared for **specific customer groups**, and if possible even **specific customers**.

If during the course of the survey a customer has expressed interest in using the opportunity offered by the results of the survey to improve its business relations with the company, then every effort must be made to ensure that this contact actually takes place. For the purposes of this type of discussion, **customer-specific** assessments need to be prepared, with particular attention being paid to the critical incidents that the customer has reported, as these can be particularly instructive in this context. Staff should also receive guidance as to how to conduct customer meetings of this kind: discussion of the appraisal of individual criteria, for example, will not generally prove productive.

### 3.5.5 - Staff with predominantly indirect contacts with customers

This target group will need to see a handful of aggregate figures as well as a large number of others in **direct relation to their organisational sector**. For this group, a list of critical incidents in the relevant event classes can help with the recognition and analysis of problems, in addition to the assessment of criteria that are illustrative of the level of satisfaction with their sector.

### 3.5.6 - Customers

Since individual customers will have already formed their own opinions about how satisfied they are, if only during the survey itself, they will generally have neither the time nor the interest to hear about the results of a customer satisfaction analysis. As such, they do not constitute a classic target group when it comes to communicating the results. Having said that, as a group they must be given due consideration. For example, it is important to let customers know that the time they invested in the survey was worthwhile. In this connection, a **feedback letter**, which might be combined with an **incentive** to reward participation in the survey, can prove constructive. A short article on the survey findings in a customer journal will help to show customers that their information has been put to good use in the company and is **servicing to bring about an improvement in service**. It is also very important to react to the data provided by customers. If during the survey a customer indicates that he/she is happy to submit data with a view to establishing further contacts with the company, then that appointment must be sure to be made soon after the survey itself. These things are also important as a means of motivating customers for any other future survey exercises.

## 3.6 - Need for action

In closing it is important to reiterate that analysing customer satisfaction should not be an end in itself. It is vital that the survey and observations made by customers should serve to draw conclusions for the company, as a means of improving service quality and, in so doing, boosting customer satisfaction. For this reason it is essential to define **measures** to increase customer satisfaction, to be taken right across the company. It is not just the marketing department that should feel duty-bound to be customer-oriented, but **the whole company** that should give customer satisfaction a firm place among its objectives.

## Glossary

<b>Buying Centre</b>	A conceptual group formed by all those involved in the buying process
<b>C/D paradigm</b>	According to the Confirmation/Disconfirmation (C/D) paradigm, customer satisfaction or dissatisfaction results from a process of comparison between the standard of service imagined prior to delivery and the actual standard perceived
<b>CATI interview</b>	Computer-Assisted Telephone Interview A special form of telephone interview, in which the interviewer reads out to the respondent the questions that appear on the screen and enters the respondent's answer directly into the computer
<b>Causal analysis</b>	Statistical method using which theoretically established relationships can be verified through empirically measured connections
<b>Cluster analysis</b>	A statistical method by which a number of objects are arranged into a structure of different groups or classes according to their similarities
<b>Constant sum method</b>	Direct method used to establish importance Respondents are asked to share out e.g. 100 points among given criteria or factors according to their importance
<b>Correlation analysis</b>	A method used to investigate the relationships between variables. The correlation coefficient reflects the strength and direction of the connection between variables
<b>Criteria-level satisfaction</b>	Survey of satisfaction based on appraisal of specific service components like punctuality or transit time
<b>Critical incidents</b>	Unusual events occurring in business relations that have a particularly positive or negative impact on customer satisfaction
<b>Critical Incident Technique</b>	Incident-based method for measuring customer satisfaction, in which customers are asked to describe unusually critical events that have had a strongly positive or negative influence on their degree of satisfaction
<b>DIN ISO 9000 ff.</b>	Group of standards published by the International Standards Organisation for the purposes of certification. They set out a series of requirements to be met by an effective quality management system
<b>Direct methods of calculating importance</b>	Respondents are asked to indicate what importance they attach to individual features directly in the questionnaire
<b>Discriminatory analysis</b>	Multivariate method of analysing differences between groups against a wide range of variables
<b>Disconfirmation scale</b>	Scale on which respondents indicate to what extent their individual expectations were met by a service (e.g. "considerably worse than expected" through to "much better than expected")

<b>ESOMAR</b>	World Association of Opinion and Marketing Research Professionals
<b>Face-to-face survey</b>	Survey conducted orally by the interviewer in the physical presence of the respondent
<b>Factor-level satisfaction</b>	Survey of satisfaction through an appraisal of certain high-level service categories (e.g. transport-related features)
<b>Feature-based method</b>	Customers assess their satisfaction with a service against a prescribed list of criteria
<b>Incentives</b>	Small presents or tokens used to reward respondents for their participation in the survey and encourage them to agree to further surveys subsequently
<b>Incident-based method</b>	Method in which individual events experienced by the customer during delivery of the service and which impact on the satisfaction of the customer are recorded and analysed
<b>Indirect methods of determining importance</b>	With the help of statistical procedures, conclusions are drawn as to the importance of individual criteria
<b>Interval scaled data</b>	Data for which the differences between two measured objects can be determined exactly using units of measurement
<b>Ordinally scaled data</b>	On the basis of measured values, study objects are classified as "greater than", "less than" or "equal to" one another for a given feature
<b>Overall satisfaction</b>	Customer satisfaction with the railway freight transport company or competitor as a whole
<b>Panel</b>	A specific, constant set of study units (persons, companies, etc.) which are subject to recurrent surveys on the same subject at regular intervals
<b>Partial sample</b>	In successive surveys, a range of different partial samples of the customer base are contacted, to allow customer satisfaction surveys to be carried out more frequently without overtaxing customers
<b>Performance scale</b>	A scale on which respondents give a direct judgment of service quality (e.g. from "very good" to "very bad")
<b>Pre-test</b>	Advance test conducted on the questionnaire using several interviews (generally face-to-face and/or telephone interviews) with a selection of respondents
<b>Priority ranking</b>	Direct method for establishing importance. Respondents are asked to place a certain number of criteria in order according to their importance
<b>Problem-solving index</b>	Indication of what proportion of satisfactory solutions have been provided in relation to the total number of problems arising

<b>Quota selection method</b>	Based on a selection of features relevant to the survey (e.g. type of goods carried) a representative sample is formed in which the distribution of those features reflects that of the total population
<b>Random selection</b>	Selection of respondents using a random method
<b>Rating scale</b>	Respondents are asked to assign a value to the study object using a prescribed response scale
<b>Regression analysis</b>	Statistical method in which the relationship between one dependent variable and one or more independent variables is analysed, for example in order to identify and explain connections between the variables or estimate the values of the dependent variables
<b>SPSS</b>	Statistical Product and Service Solutions Statistical software that can be used to conduct both basic statistical assessments and more in-depth multivariate assessments.
<b>Sample</b>	Set of people to be surveyed in the study
<b>Satisfaction gap</b>	Difference between satisfaction with the railway freight transport company and satisfaction with an alternative competitor
<b>Satisfaction scale</b>	Scale on which respondents indicate their satisfaction with a service directly (e.g. judgments from "fully satisfied" to "completely unsatisfied")
<b>Target population</b>	Total population of persons to be considered
<b>Telephone survey</b>	Respondents are contacted and questioned by telephone
<b>Two component approach</b>	In addition to satisfaction appraisals the importance of each individual criterion is surveyed on a rating scale
<b>Variance analysis</b>	Statistical method in which the relationship between one or more metrically dependent and one or more nominally-scaled independent variables is analysed. A typical example of its use is in confirming group differences
<b>Written survey</b>	Respondents are sent the questionnaire and asked to return their replies by post

# Bibliography

## 1. European standards

### **ESOMAR**

*Draft guideline on customer satisfaction research, 2001*

### **AFNOR - Association Française de Normalisation**

*Management de la qualité - Enquête de satisfaction des clients, Paris, 1999 (FD X50-172)*

## 2. Other

### **Backhaus, K. and al.**

*Multivariate Analysemethoden, Berlin, 2000*

### **Bauer, M.**

*Kundenzufriedenheit in industriellen Geschäftsbeziehungen, Wiesbaden, 2000*

### **Böcker, Franz**

*Scale Forms and their Impact on Ratings' Reliability and Validity, Journal of Business Research Nr. 17, pp. 15-26, August 1988*

### **Meffert, H.**

*Marketingforschung und Käuferverhalten, 2. Auflage, Wiesbaden, 1992*

### **Sheree, L. M. and Crosby, L.A.**

*Customer Satisfaction Measurement - A Management Information System for Total Quality, Chicago, 1993*

### **Warning**

No part of this publication may be copied, reproduced or distributed by any means whatsoever, including electronic, except for private and individual use, without the express permission of the International Union of Railways (UIC). The same applies for translation, adaptation or transformation, arrangement or reproduction by any method or procedure whatsoever. The sole exceptions - noting the author's name and the source - are "analyses and brief quotations justified by the critical, argumentative, educational, scientific or informative nature of the publication into which they are incorporated".

(Articles L 122-4 and L122-5 of the French Intellectual Property Code).

© International Union of Railways (UIC) - Paris, 2002

Printed by the International Union of Railways (UIC)  
16, rue Jean Rey 75015 Paris - France, October 2002  
Dépôt Légal October 2002

ISBN 2-7461-0514-4 (French version)  
ISBN 2-7461-0515-2 (German version)  
ISBN 2-7461-0516-0 (English version)