

DETERMINING THE SUCCESS FACTORS FOR THE INTRODUCTION AND MAINTENANCE OF QUALITY MANAGEMENT IN THE AUSTRIAN FOOD INDUSTRY USING THE ANALYTIC HIERARCHY PROCESS

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Summary: Numerous companies in the Austrian food industry have already been certified in accordance to the ISO 9000 standards. However, the introduction of a quality management system in a company alone does not guarantee continuous improvement as required by the new standard ISO/FDIS 9001: 2000. For the introduction and maintenance of quality management in a company to be successful, a number of important factors must be considered. The success factors are derived from the European Foundation for Quality Management (EFQM) model. The purpose of the EFQM Model for Business Excellence is to support the internal assessment of quality management within a company, and it can be regarded as a motor for internal improvement. For companies planning the introduction of quality management, in particular, it is very useful since lists the factors which have to be taken into account to establish a successful quality management – in accordance to the specifications of the ISO 9000 standards – even before they introduce the system. Basically, the EFQM has defined a specific weighting of the 9 factors in the model. The aim of this study is to determine the validity of this factor weighting for the Austrian food industry.

1 Introduction

Due to increasing globalisation, the European industry has been facing more and more non-European competitors on their local markets during the last decades. To succeed against stronger international competition, quality can be considered as one specific success factor. Here quality is not only determined by the quality of the product but mainly by the quality of the whole process of generating output (N.N., 1996, p. 7). In 1988, 14 leading European companies decided to react to this situation and founded the “European Foundation for Quality Management” (EFQM). The founding members of the EFQM are among others BT PLC (GB), Nestlé AG (CH), Fiat Auto S.p.A. (I), Volkswagen AG (D), KLM Royal Dutch Airlines (NL), Renault (F) etc.

The main task of the organisation is to improve the competitive situation of European companies on the world market. Therefore, quality as a main success factor should be established on a broad basis in the European economy. The EFQM helps European companies to introduce quality management, promotes the idea of quality and tries to increase the acceptance of quality management independent of economic sectors or company size. Actually, more than 550 European companies and scientific institutions from 16 countries have become a member of the EFQM (N.N., 1996, p. 8).



2 EFQM Model for Business Excellence

To reach these goals, EFQM built a special model to help companies by using a so-called self-review to find the strengths and weaknesses of the relevant organisation. The self-review is mandatory if a company wants to take part in the European Quality Award. The main premises of the EFQM model are that: customer satisfaction, satisfaction of the employees and social responsibility/image can be reached through leadership, this enables adequate corporate policy and strategy, an orientation toward the wishes and demands of the employees and management of processes and resources. The results of this “process” is an excellent performance of the company (N.N., 1996, p. 9). The following diagram shows this principle as a graphic model:

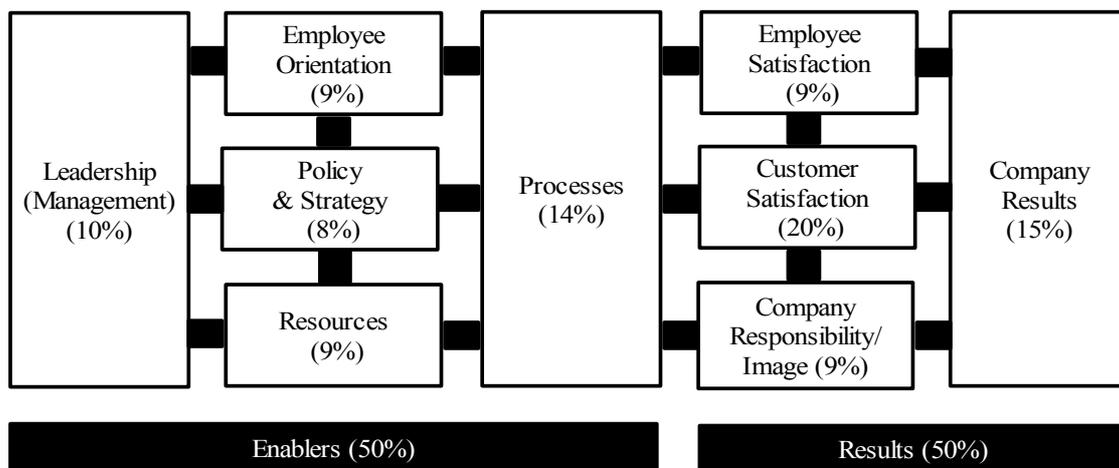


Illustration 1: EFQM Model of Business Excellence

Source: N.N., 1996, p. 9; WILMES and RADTKE, 1998, p. 16; N.N. (1999)

The diagram also gives an overview over the priorities for each of the containing success factors included in the EFQM model. The success factors are grouped in two main classes:

1. ENABLERS (50%):

- Leadership (Management)
- Policies & Strategy
- Employee Orientation
- Resources
- Processes

2. RESULTS (50%):

- Customer Satisfaction
- Employee Satisfaction
- Company Responsibility/Image
- Company Results

The relative weighting of the success factors were generated by interviewing 300 European managers of leading companies (PEACOCK, 1992, p. 528). Customer satisfaction is the most important criteria with 20% followed by company results. Company responsibility/image is least important (6%). As mentioned above, the weighting has to be taken into account during the self-review. If one does not want to take part in the European Quality Award, the percentages do not need to be considered; it might be even better to generate a specific distribution for the specific company. In the latter case, one should think about the importance of each factor in view of the corporate competitiveness and then generate weighting for each criterion (SEGHEZZI, 1999, p. 113).

The EFQM model is the basis of all certified companies independent of economic sector or company size. The weighting of the success factors is not as clear-cut as it seems to be (MALORNY, 1996, p. 229). For example, WUNDER (1995, p. 1041) criticises that the weighting seems to be quite arbitrary.

Therefore, the main aim of this study is to *test the validity of the relative importance* of the criteria in a special branch in Austria. To generate the priorities, we decided to make use of the Analytic Hierarchy Process (AHP) as it has been empirically shown that the AHP is an excellent tool to answer questions of weightings comparable to this case. The field of this empiric study is the Austrian food processing industry (not containing tobacco industry as it is not comparable to the other fields of food processing).

3 Model Evaluation

3.1 The AHP-Model

The AHP-model for this study has a very simple structure. It contains the 9 elements of the EFQM model and has the following structure within the AHP-Software “Expert Choice”:¹

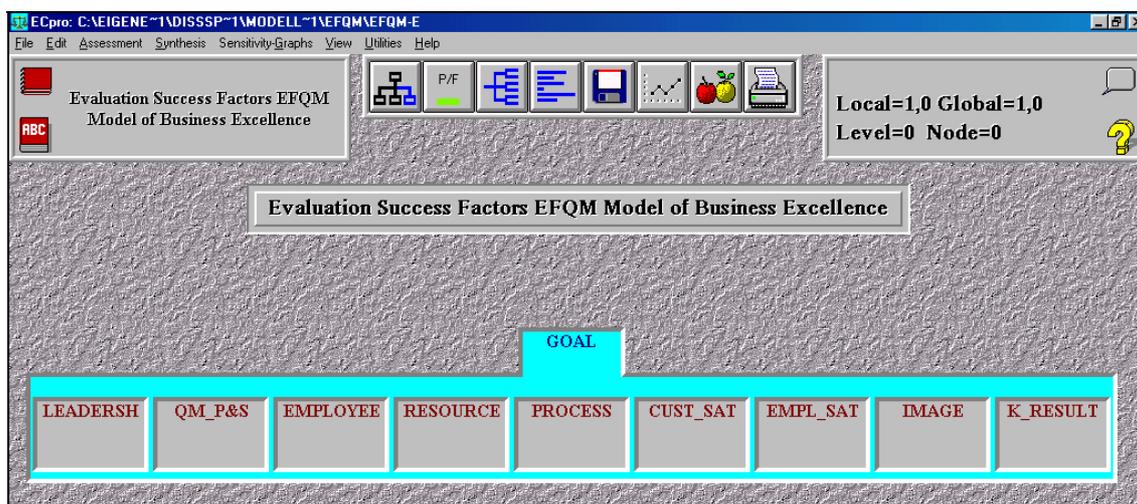


Illustration 2: AHP-Model for evaluation of the EFQM-success factors

[CUST_SAT]	.....	Customer Satisfaction
[EMPLOYEE]	.....	Employee Orientation
[EMPL_SAT]	.....	Employee Satisfaction
[IMAGE]	.....	Company Responsibility/Image
[K_RESULT]	.....	(Key) Company Results
[LEADERSH]	.....	Leadership (Management)
[QM_P&S]	.....	(Quality Management) Politics & Strategy
[PROCESS]	.....	Processes
[RESSOURC]	.....	Resources

To be able to calculate the relative weight of the success factors, the interviewed quality managers of the Austrian companies were asked to make pairwise comparisons between all elements of the EFQM model (36 pairwise comparisons in total). The pairwise comparisons are the basis for the calculation of the weightings of the EFQM success factors.

3.2 Pairwise Comparisons

The interviewed (they are quality managers of the included companies) were asked to select their relative weights using paper & pencil. They filled out a questionnaire where all necessary pairwise comparisons (36) were listed with a special scale between two criteria. The quality managers selected their preference to either side of the scale.

¹ For all necessary calculations concerning AHP we used EC Pro 9.5.

Usually, the AHP requires a scale from 1 (equal important) to 9 (absolutely dominant). During the pretest of the questionnaire containing this scale, we realised that this scale is too large and makes excessive demands on the quality managers as a 9-point-scale has 17 data points in total. Therefore, we decided to reduce the scale to 6 data points on each side, i.e. 11 data points in total.

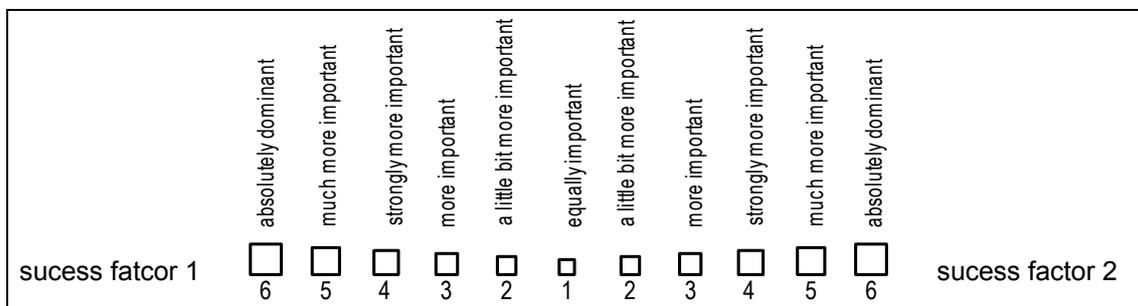


Illustration 3: Scale for pairwise comparison

The picture below shows an example: the filled-out questionnaire of quality manager no. 14. Out of these pairwise comparisons, the weightings for the 9 criteria can be calculated. Of course, the original values of the survey (1-6) had to be transferred into the basic AHP scale (values 1-9), whereby the value 6 represents the end-point 9 in the AHP scale.

	6	5	4	3	2	1	2	3	4	5	6	
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Politics & Strategy
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Orientation
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Resources
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Processes
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customer Satisfaction
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Satisfaction
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Company Responsibility/Image
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Company Results
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Orientation
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Resources
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Processes
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customer Satisfaction
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Satisfaction
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Responsibility/Image
Politics & Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Results
Employee Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Resources
Employee Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Processes
Employee Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customer Satisfaction
Employee Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Satisfaction
Employee Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Company Responsibility/Image
Employee Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Results
Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Processes
Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customer Satisfaction
Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Satisfaction
Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Responsibility/Image
Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Results
Processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customer Satisfaction
Processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Satisfaction
Processes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Company Responsibility/Image
Processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Results
Customer Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employee Satisfaction
Customer Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Responsibility/Image
Customer Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Company Results
Employee Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	Company Responsibility/Image
Employee Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Results
Company Responsibility/Image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Company Results

Illustration 4: Evaluation by Quality Manager No. 14

In total, 53 companies participated in our study. 49 quality managers filled out the questionnaire (see above) while 4 quality managers rejected answering the questionnaire. 2 questionnaires contained only the value 1 (equal important). Therefore, the sample decreased to 47 cases. However, before the weighting of the success factors of the EFQM model can be calculated (according to the arithmetics of the AHP), the consistency ratio (CR) has to be taken into account.

3.3 Consistency Ratio

It was not possible to aggregate the weightings of all 47 cases to calculate the overall weighting of the EFQM model. This is due to the fact that some of the responses of the quality managers were quite inconsistent. SAATY (1995) suggests, that weighting with a CR > 0,1 should be redone. In general pairwise comparisons and weightings within the AHP methodology are performed using a software, such as “Expert Choice”. In this case, it is quite simple to review the pairwise comparisons if CR exceeds 0,1. However, the weighting in our study was made using paper & pencil. Thus it was not possible to immediately calculate the CR and redo the weighting if the CR exceeded 0,1. It could be said, that CR > 0,1 is too narrow for our purpose. Therefore, the questionnaires of quality managers were rejected if the CR exceeded 0,2.

21 cases had a CR > 0,2 and were excluded from the calculation of relative weights. The remaining 26 cases were aggregated according to the requirements of the AHP. Usually, the geometric mean is taken to compile pairwise comparisons of different interviewed persons into one evaluation matrix.

3.4 Aggregation of Pairwise Comparisons

The reason for taking the geometric mean and not the arithmetic one is – simply spoken – that only in the first case reciprocal values can be transferred into the original values. This has a lot to do with matrix arithmetics. In our case (i.e. group decision of autonomous quality managers) the calculation of geometric means gives the picture below:

	Leadership	Politics & Strategy	Employee Orientation	Resources	Processes	Customer Satisfaction	Employee Satisfaction	Company Responsibility/Image	Company Results
Leadership	1,0	1,8	0,9	0,9	0,6	0,3	0,5	0,7	0,4
Politics & Strategy	0,6	1,0	0,8	0,6	0,5	0,3	0,5	0,9	0,3
Employee Orientation	1,1	1,3	1,0	1,1	0,7	0,3	0,9	1,0	0,3
Resources	1,1	1,7	0,9	1,0	0,8	0,3	0,6	0,9	0,3
Processes	1,7	1,8	1,4	1,3	1,0	0,3	0,7	1,1	0,3
Customer Satisfaction	3,6	3,7	3,3	3,6	3,4	1,0	2,8	2,8	1,0
Employee Satisfaction	1,9	2,0	1,1	1,6	1,3	0,4	1,0	1,3	0,4
Company Responsibility/Image	1,5	1,1	1,0	1,1	0,9	0,4	0,8	1,0	0,3
Company Results	2,8	3,6	3,3	3,7	3,4	1,0	2,7	3,2	1,0

Illustration 5: Aggregated Evaluation Matrix

The grey values represent the aggregated pairwise comparisons of the quality managers; the diagonal values always have the value 1 for “equal important” (pairwise comparison of one element with itself); the remaining left triangle of the matrix represent the reciprocal values of the upper right triangle of the matrix. These matrix contains the input data for the AHP software solution “Expert Choice”. Values below 1 have to be taken as reciprocal values and converted as it is not possible to put in values below 1 within “Expert Choice” (see figure below).

The screenshot shows the 'Matrix' tab of the Expert Choice software. The main display area shows a comparison: 'With respect to GOAL, LEADERSH: Führung is 2,1 times (EQUALLY to MODERATELY) more PREFERABLE than QM_PS: QM-Politik und QM-Strategie'. Below this is a comparison matrix table. The table has columns for 'Best Fit', 'QM_P&S', 'EMPLOYEE', 'RESOURCE', 'PROCESS', 'CUST_SAT', 'EMPL_SAT', 'IMAGE', and 'K_RESULT'. The row for 'LEADERSH' has a value of 2.1 in the 'QM_P&S' column. Below the table is a scale from 1 (Equal) to 9 (Extreme) with intermediate labels: 2* (Moderate), 4* (Strong), 6* (V. Strong), 8* (Extreme). At the bottom are buttons for 'Calculate', 'Abandon', 'Invert', 'Enter', and checkboxes for 'Product', 'Structure', and 'Link Elem'.

Best Fit	QM_P&S	EMPLOYEE	RESOURCE	PROCESS	CUST_SAT	EMPL_SAT	IMAGE	K_RESULT
LEADERSH	← 2.1	1.0	1.1	1.7	3.2	1.5	1.2	3.0
QM_P&S		1.7	2.0	2.4	4.6	2.6	1.2	5.4
EMPLOYEE			1.1	1.7	3.1	1.2	1.1	3.5
RESOURCE				1.5	4.0	1.3	1.1	4.1
PROCESS					3.4	1.1	1.1	3.8
CUST_SAT						3.0	2.6	1.1
EMPL_SAT							1.1	3.0
IMAGE								3.6

Illustration 6: Input of Pairwise Comparisons within Expert Choice

3.5 Calculation of EFQM Model Priorities for the Austrian Food Processing Industry

These aggregated pairwise comparisons are the basis for the final priorities calculated below.

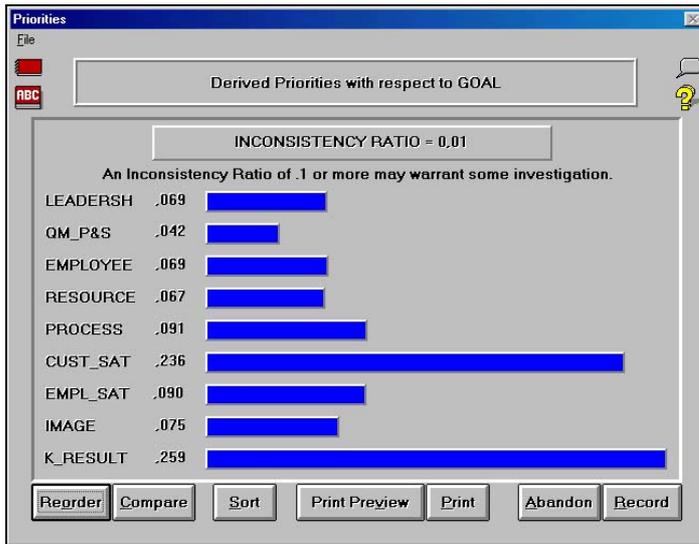


Illustration 7: Evaluated Success Factors

Compared to the original EFQM model, Criterion “Company Results” is most important (25,9%) followed by “Customer Satisfaction” with 23,6%. All other factors are weighted under 10%:

- criteria “Processes” and “Employee Satisfaction” are weighted with about 9%;
- criteria “Leadership”, “Employee Orientation”, “Resources” and “Company Responsibility/Image” are weighted with about 7%;
- criterion “Policies & Strategy” is least important with 4%.

This group decision is almost consistent, with a CR of 0,01. The evaluated model hierarchy is represented in the following illustration:

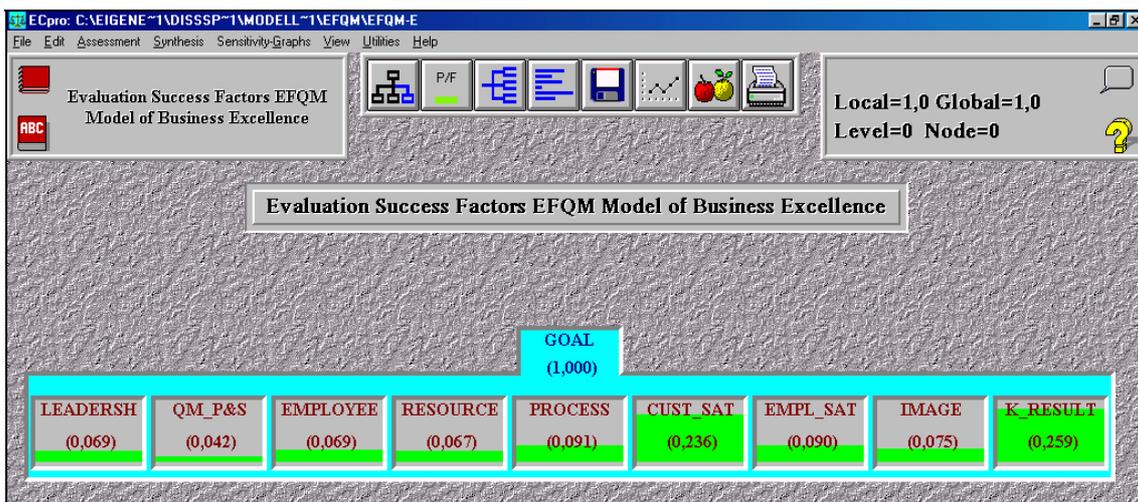


Illustration 8: Evaluated EFQM Model for the Austrian Food Processing Industry

According to the EFQM model, the 9 success factors can be summed up to two different groups: enablers and results.

1. ENABLERS

- Leadership
 - Politics & Strategy
 - Employee Orientation
 - Resources
 - Processes
- } 34 %
2. RESULTS
- Customer Satisfaction
 - Employee Satisfaction
 - Company Responsibility/Image
 - Company Results
- } 66 %

Illustration 9: Enablers and Results

For the evaluated companies, “Results” are much more important than “Enablers” compared to the theoretical EFQM model. Probably the specific situation of the Austrian food processing industry could be a reason for this weighting. Indeed this sector is in a period of restructuring. Food scandals, concentration process in the Austrian food trade, over-capacities, etc. require modified strategies. The increasing competition in the food sector as well as new foreign competitors on home markets which Austrian producers have been facing since 1995 (with the accession to EU) are certainly forcing companies to make more efforts in view of the output. Considering the trends mentioned previously, results must indeed be more important than enablers. As this developments are affecting the whole Austrian food processing industry, it can be assumed that the modified EFQM model is valid for the whole economic sector, too (and not only for the 26 companies).

The final evaluated EFQM Model of Business Excellence for the Austrian food processing industry is represented in the following illustration:

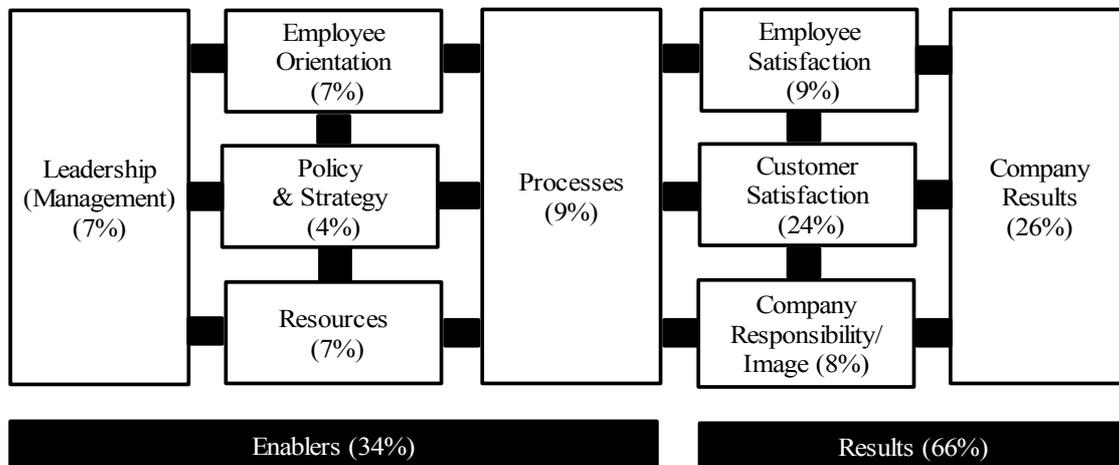


Illustration 10: EFQM Model of Business Excellence for the Austrian Food Processing Industry

4 Comparison between Theoretical EFQM Model and EFQM Model for the Austrian Food Processing Industry

The figure below shows the differences between the theoretical EFQM model and the evaluated EFQM model for the Austrian food processing industry. The largest deviation can be found for “Company Results”, whereas the deviations for all other success factors are much lower.

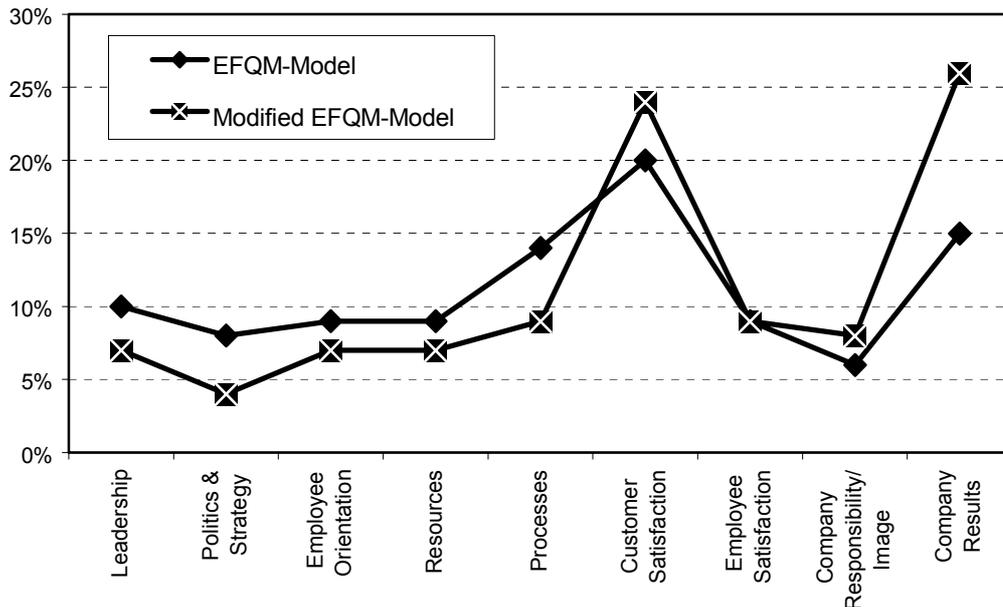


Illustration 11: Comparison between Theoretical and Evaluated EFQM Model

The main tendency of the weightings are similar with the original EFQM model. Nevertheless, there are some major differences between the original EFQM model and the weightings generated by this survey: First, results are much more important than enablers. Second, two factors, customer satisfaction and company results, can be considered as key factors for the Austrian food processing industry. Compared to all other elements of the EFQM model, these two factors account for almost 50% of relative importance.

5 Conclusion

These differences allow the following interpretation:

- For several companies, some of the “Enablers” are perhaps not considered to be very important; they are rather random factors. I.e. the results are not directly connected to a process. However, to ensure long-term success, it is necessary to control the results via “Enablers”.
- It is probably not possible to present *one* EFQM model for all fields of economic activity. Market conditions, competitive intensity and market rules are too different and depend mainly on the relevant branch, market size and international conditions. Therefore, it seems to depend on each branch – perhaps also on each company – which priorities can be calculated for the 9 success factors of the EFQM model.

Considering this, it is not necessary to discuss the basic validity of the EFQM model. It is a very useful tool to give companies ideas how to improve their competitiveness and the quality of their economic efforts. What should be discussed is the usefulness of pre-defining weightings without considering the specific situation of a given business field. It is obvious that each business field has its own requirements; indeed, each company acts under specific constraints and conditions. Business models should therefore be flexible enough to meet these specific requirements.

Concerning the methodology of this study, AHP has shown to be a useful tool to generate weightings and priorities. Also, individual choices can easily be aggregated. However, one main problem of this study concerns data collection. If it is not possible to make pairwise comparisons using special software – for what reasons ever – it can happen (as in this study) that not all evaluations be used in the aggregation process because the weightings do not fulfil the criterion consistency. Therefore, it is wise to make use of computer technology whenever the AHP and the related evaluations are used.

References

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