

Profitability Assessment and Economic Evaluation in Human Resource Management – Guidelines and Tools

St. Pennig, J. Vogt

Research
Project F 2105

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Dortmund/Berlin/Dresden 2008

These Guidelines are the result of the project „Guidelines for the Economic Evaluation of Human Factors, Human Resources and Training Programmes“ carried out on behalf of the European Organisation for the Safety of Air Navigation (EUROCONTROL Project AO/80/HQ/DK04 and the Federal Institute for Occupational Safety and Health (BAuA Project F 2105). The responsibility for the contents of this publication lies with the authors.

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ISBN 978-3-88261-076-5

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Profitability Assessment and Economic Evaluation in Human Resource Management – Guidelines and Tools

Abstract

These Guidelines are the result of a joint project conducted on behalf of the European Organisation for the Safety of Air Navigation, EUROCONTROL, and the Federal Institute for Occupational Safety and Health, BAuA.

The economic evaluation of Human Resources (HR¹) programmes should be understood as an important task of HR and line managers. These Guidelines were written for practitioners in these areas. It offers structuring and planning aids for the operation of economic evaluations in HR. A roadmap was developed which considers in particular four aspects:

- (1) the addressees of evaluation results (HR managers, line managers, chief executive officers, capital investors)
- (2) the structure of data to be included, for example performance, behaviour or process data
- (3) the process of the evaluation
- (4) the timing of the evaluation.

Following this roadmap three kinds of economic evaluation of HR are described. The function-oriented evaluation considers the effects, efficiency, and profitability of single HR interventions on the level of the individual worker (function). The performance-process-oriented evaluation analyses and optimises the value creation chain. Thus, it gives particular consideration to process costs, process quality, and process time. The strategy-oriented evaluation investigates whether the HR work is aligned with the organisational strategy and to what extent it supports strategic success. Therefore, the strategy-oriented evaluation focuses HR effects on an organisational level.

The Guidelines elaborate these three cases and describe in each case how an evaluation should be conducted. The Human Resources Performance Model, which was developed by the authors, offers a structure and process template. At the same time, established instruments like the Balanced Scorecard can also be effectively used for example in the strategy-oriented evaluation.

Beyond the three addressees within the organisation (HR managers, line managers, chief executive officers), capital investors might be interested in economic evaluation results. This case is elaborated in Chapter 6 on "Human Capital Management".

The Guidelines contain tools, further reading, recommendations to practitioners, and a Frequently Asked Questions tool to ensure economic evaluations in HR are conducted efficiently.

Key words:

Assessment, Business Management, Controlling, Efficiency, Evaluation, Human Capital, Human Factors, Human Resources, Profitability, Training

¹ HR is subsequently used as a collective term for all kinds of human factors, human resources, and training activities.

Handlungshilfe zur ökonomischen Evaluation von Personalmaßnahmen – Leitlinien und Werkzeuge

Kurzreferat

Diese Handlungshilfe ist das Ergebnis des Projektes *“Guidelines for the Economic Evaluation of Human Factors, Human Resources and Training Programmes”* im Auftrag der *European Organisation for the Safety of Air Navigation (EUROCONTROL)* und der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA, Projekt F 2105).

Das Thema Wirtschaftlichkeitsbewertung oder ökonomische Evaluation von Personalmaßnahmen wird als Fach- und Führungsaufgabe gesehen. Diese Handlungshilfe wendet sich an Praktiker in diesen Bereichen. Sie bietet Strukturierungs- und Planungshilfen an, wenn eine Wirtschaftlichkeitsbewertung von Personalmaßnahmen geplant und durchgeführt wird. Zur Orientierung wird eine Landkarte zur ökonomischen Evaluation entwickelt, die insbesondere berücksichtigt:

- (1) den Adressatenkreis der Evaluationsergebnisse (Geschäftsführer, Bereichs- und Personalverantwortliche)
- (2) die Struktur der einzubeziehenden Parameter, z. B. Leistungs-, Verhaltens- oder Prozessdaten
- (3) die Prozessgestaltung und Vorgehensweise bei der Evaluation
- (4) den Zeitpunkt der Evaluation.

Ausgehend von dieser Landkarte werden drei Formen der Wirtschaftlichkeitsbewertung im Detail vorgestellt. Die funktionsbezogene Evaluation betrachtet insbesondere die Ebene des einzelnen Mitarbeiters (Funktion). Hier werden Wirkungen, Effektivität und Effizienz von zielgruppenspezifischen Maßnahmen überprüft. Die leistungsprozessbezogene Evaluation analysiert und optimiert die Wertschöpfungsprozesse. Damit betrachtet sie insbesondere Prozesskosten, Prozessqualität und Prozesszeit. Die strategiebezogene Evaluation überprüft, ob die Personalarbeit an der Organisationsstrategie ausgerichtet ist und inwieweit sie zu deren Erfüllung beiträgt. Sie fokussiert damit die Wirkungen der Personalarbeit auf der Organisationsebene. Die Handlungshilfe greift diese drei Fälle auf und beschreibt jeweils, wie vorgegangen werden sollte. Dazu wird das von den Autoren entwickelte *Human Resources Performance Modell* angeboten. Aber auch etablierte Verfahren, wie z. B. die *Balanced Scorecard*, und ihr potenzieller Einsatz etwa bei der strategiebezogenen Evaluation werden beschrieben.

Fragestellungen der ökonomischen Evaluation können darüber hinaus auch interessant sein für Adressaten außerhalb der Organisation, z. B. für Kapitalinvestoren. Für diesen Fall bietet die Handlungshilfe ein eigenes Kapitel *„Human Capital Management“*.

Mit speziell gekennzeichneten *Tools*, weiterführender Literatur, Hinweisen für die Praxis und einem *Frequently Asked Questions* Instrument wird die effiziente Durchführung einer ökonomischen Evaluation von Personalmaßnahmen unterstützt.

Schlagwörter:

Controlling, Effizienz, Evaluation, Humanfaktoren, Humankapital, Humanressourcen, Personalwesen, Steuerung, Wirtschaftlichkeitsbewertung

Foreword

These Guidelines set out profitability assessment or economic evaluation methods which you can use to demonstrate the profitability and utility of Human Resources (HR²) activities and their value for your company. In view of the increasing importance of quality staff for economic success and the growing shortage of HR professionals, this area is becoming ever more significant. A company wishing to meet these challenges needs to target investment in staff, jobs, work organisation, management and culture.

But what kind of investment is appropriate? What HRM programmes are suitable for the company in the short and long term? What methods can be used in this context to evaluate and steer HR?

This last question was addressed in a project which we carried out between December 2004 and December 2006. Our sincere thanks go to Dr Birgit Köper of the Federal Institute for Occupational Safety and Health (BAuA) and Dr Manfred Barbarino of the European Organisation for the Safety of Air Navigation (EUROCONTROL), who initiated the project and provided considerable expert support.

The aim of these Guidelines is to explain the objectives and methods of profitability assessment in HR to a wide target audience in a practical way. The project also produced an overview of literature on existing methods for steering and assessing HR and a brochure designed to allow people to gain a rapid understanding of and familiarisation with this subject. Lastly, three in-house studies on profitability assessment of HR programmes were carried out and are documented in a scientific final report. The Guidelines list further references to these documents.

These documents constitute the outcome of close and successful cooperation with the organisations commissioning the Project, the partners involved in practice and the project managers at the various locations. We are most grateful to all those involved and hope that their investment in our Project will be rewarded by the findings being used in their practical work.

Essen and Copenhagen, November 2006

Stefan Pennig
Joachim Vogt

² HR is subsequently used as a collective term for all kinds of human factors, human resources and training activities.

1 Introduction

1.1 Economic evaluation as a task for HR and line managers

Changes in the economy and society have resulted in the "staff" or "human resources" (HR³) domain being seen increasingly as a competitive factor in terms of global and national competition. Demography and globalisation are intensifying the fight for quality employees⁴, the war for talents. Only those companies which are able to offer their employees an attractive job will be seen as attractive employers. Companies located in Western Europe are able to compete primarily through innovative products, top quality and professional services. This requires competency advantages and committed human capital in the company. This trend is also reflected in major corporate assessment standards and criteria, where HR plays an important role, for example in quality standards such as the EFQM Model. Consequently, in the competition for capital on the share markets or external financing, a company which has a sustained, documented HR management policy will have a competitive edge from the outset.

Accordingly, companies have in recent years made increasing efforts to set up development programmes for in-house talent, to professionalise their HR marketing or to initiate programmes to secure the commitment of key employee groups.

However, in addition to the intensifying competition for human resources between companies, highly professional HR management is increasingly required within a company. HR is having to fight harder for tight budgetary resources with other domains which traditionally operate on the basis of business administration investment accounting. HR has therefore recently been forced to present cost-benefit assessments for its projects and programmes.

Lastly, in the day-to-day activities of an HR manager, line manager, director or entrepreneur, there are many questions which require the systematic planning, assessment or monitoring of HR activities:

1. What HR programmes are necessitated by organisational changes (e.g. following a merger)? What investment does this require? What happens if investment is not forthcoming?
2. What HR development-related activities will ensure the future feasibility of our company? What should we focus on? How do we secure the board's agreement to this investment?
3. Which of several alternative HR development programmes with similar costs would benefit the company more in the short and long term? Where there are differences in the costs, is additional investment worthwhile in view of the fact that the benefits are expected to be even higher?

³ HR is subsequently used as a collective term for all kinds of human factors, human resources and training activities.

⁴ In order to ensure that this document is readable, the masculine form will henceforth be used. Readers should interpret all such expressions as referring also to women.

4. What challenges for management are created by the corporate strategy? How do we evaluate management development needs? How do we ascertain over the next five years whether investment in management has been worthwhile?
5. How do we measure the effects of an HR development programme in production which has been implemented in conjunction with other activities (e.g. introduction of group work or ongoing improvement processes)? What effects can be attributed to the training carried out?
6. What proportion of the total (project) budget should we invest in HR development? What proportion should go to other investment, e.g. new technologies? Can figures be used to demonstrate to what extent capital has been better invested?
7. What effects and significance will decreasing satisfaction and motivation on the part of employees have for the success of our company? Do specific HR development programmes exist to cushion and reverse this trend? Can this also be shown in a rough profitability calculation?
8. Is our HR development strategically oriented? Where do adjustments need to be made? What positive effects can be expected for our company from a more strategically-oriented HR development policy?
9. To what extent would our value added and profitability in the company's core areas be improved by implementing a specific HR development programme?
10. How good is the management in our company and how good is our employee potential (competencies, commitment) compared with our competitors?

However, HR activities need to be assessed before they can be properly planned and steered. For this, companies and managers are dependent on the instincts and know-how of experts, since HR is not immediately open to economic considerations outside the ambit of pure cost management. Decision-makers are generally faced with highly complex issues, which necessitate interdisciplinary know-how from the areas of organisational psychology, work sciences, HR management, conventional business management and management. However, the approaches of the various scientific disciplines involved differ markedly. And it is precisely in HR that the gap between science and practice and between HR development experts and line managers is often substantial. HR policy in practice and corporate management virtually ignore scientific concepts as they do not seem suited to reality at the workplace.

In spite of the considerable requirement and obvious necessity for the full integration of profitability aspects in HR, in the real world of business there is a lack of practicable concepts and tried-and-tested methods for profitability assessment. The purpose of this document is to remedy this. On the one hand, it will help people navigate through the complex area of economic evaluation of HR activities and on the other, it will make available useful tools for practical work. It is intended to be seen as a set of Guidelines.

These Guidelines are the end product of a comprehensive research project of the European Organisation for the Safety of Air Navigation (EUROCONTROL) and the Federal Institute

for Occupational Safety and Health (BAuA). They are referred to as Pennig and Vogt (2006a). Other products are as follows:

- (1) an overview of literature on the subject (referred to as Pennig et al., 2006):
St. Pennig, N. Kremeskötter, T. Nolle, A. Koch, M. Maziul, J. Vogt
Ökonomische Evaluation von Personalressourcen und Personalarbeit
Bremerhaven: Wirtschaftsverlag NW Verlag für neue Wissenschaft GmbH 2006.
Publications of the Federal Institute for Occupational Safety and Health:
Forschungsbericht [research report], Fb 1070
ISBN: 3-86509-511-9, 140 pages
http://www.baua.de/nn_11598/de/Publikationen/Fachbeitraege/F2105,xv=vt.pdf.
- (2) a brochure (referred to as Pennig & Vogt, 2006b) making the subject accessible to a more general public; the brochure will also be accessible on the Internet page given under (1) in German and in English on <http://www.eurocontrol.net>
- (3) three empirical studies on the subject, documented in German and English publications (referred to as Pennig & Vogt, 2006c, and Vogt & Pennig, 2006).
- (4) a computer-assisted tool (Economic Evaluation Selection Tool, EMS) intended to support the selection and use of evaluation methods.

1.2 Objectives and structure of the Guidelines

These Guidelines are intended for HR managers, experts and consultants from HR, operational health promotion, occupational health and safety and for managers and executives in organisations who are responsible for HR and/or wish to optimise HR management and development in their area⁵. They are designed to provide support for the management of HR activities in practice, particularly where the aim is to incorporate profitability aspects in the planning, steering, assessment and/or monitoring of HR programmes. The Guidelines are intended to help broaden traditional behavioural evaluation in HR to include the business management perspective, and allow evaluation to be seen as a joint process of behavioural experts, economists and line managers in companies. To this end, the Guidelines offer the following:

- a roadmap for structuring and systematising the economic evaluation of HR activities,
- a model setting out how to plan, steer, assess and monitor HR, and
- a toolbox with professional instruments for economic evaluation purposes.

The Guidelines thus provide in-depth orientation in this complex area and very specific instructions for selected questions. They are divided into four subject areas (Table 1).

⁵ References in this document to HR and HR management relate to all the individual areas covered (HR services, HR development, operational health promotion, occupational health and safety) which in practice often fall under Human Resources.

Table 1: Layout of Guidelines

Chapter	Content
Chapter 1: Introduction	Chapter 1 introduces the subject and explains how to use the Guidelines and their structure .
Chapter 2: Basic Guidelines for planning and structuring evaluations	Chapter 2 sets out an economic evaluation roadmap . It can be used as a planning tool and to structure the evaluation procedure, regardless of the specific questions involved.
Chapter 3-6: Special Guidelines for selected questions, broken down by evaluation user or user group	Chapters 3-6 provide information and tools for selected objectives in the economic evaluation. Four different evaluation users or user groups are dealt with in the respective chapters. This allows the reader to select the specific sections of the Guidelines he wishes to use.
Chapter 7: Additional information	Chapter 7 contains additional information on the scientific work methodology in the evaluation, e.g. for the design of data collection tools.


In order to allow readers to find their way quickly round the Guidelines, tools and additional literature sources are included at the end of each chapter. The tools are framed with a box and the literature sources are shown in grey. Practical recommendations are highlighted separately with a pointing hand as bullet points.

Tool:

At the end of each chapter, practicable instruments are set out and explained using a uniform structure. This uniform structure should make it easy for the reader to find his way around and quickly gather the information he requires. Each tool is described with six questions:

- What are the objectives of the method?
- What are the main phases in the process?
- What quality standards should be applied?
- Who should be involved?
- How expensive is this method?
- Where can I find more information about this method?

Each chapter contains references (shaded grey) to additional literature sources if the reader wishes to find out more about a subject.

 Practical recommendations are in each case highlighted in the text.

Chapter 2 contains four sections providing guidance on how to plan and structure evaluations. This includes:

- a preliminary clarification of what is understood by profitability assessment in the context of an economic evaluation (Chapter 2.1)
- an introduction to the HPM (Human Resource Performance Model), which provides a roadmap for economic evaluation (Chapter 2.2)

- information about project management methods, which are useful when comprehensive profitability assessment projects are implemented (Chapter 2.3)
- information on how to navigate through this publication, using a typical problem encountered in practice (Chapter 2.4)

2 Structuring and planning of profitability assessments

2.1 Profitability assessments as economic evaluations

In these Guidelines, "profitability assessment" is taken to mean "economic evaluation". An HR evaluation comprises a loop circuit with the following subfunctions (see Rossi, Freeman & Lipsey, 1999; Wottawa & Thierau, 2003; Wittmann, 1985):

- analysis and identification of requirements for HR
- definition of objective and decision regarding specific HR programmes
- planning and design of HR programmes
- organisation and coordination of HR programmes
- implementation of HR programmes
- assessment and evaluation of the results of the HR programmes
- documentation of the results of the HR programmes
- optimisation of the HR programmes.

The evaluation collects and transmits information required by HRM for the targeted and rational design of this subfunction. In this regard, the evaluation is closely linked to the discipline of controlling in business management. In the latter, controlling is seen as a service function in the company supporting the conventional management activities of planning, steering, monitoring and organisation, and providing the management with the corresponding information (Horváth, 2006).

Economic evaluation can therefore be seen as a specific form of evaluation, focussing on the one hand on profitability and on the other necessitating an interdisciplinary research approach which needs to include both social science research methods and business management methods. In HRM, economic evaluation is intended to provide HR managers and line managers with the information they need for the optimal structuring and flexible adaptation (based on up-to-date information) of the entire range of HR management such as training, filling of posts or the design of incentive schemes from the point of view of the economic effects. In this context, an economic evaluation may relate either to an individual intervention or a broad HR programme.

A working definition of economic evaluation in HRM:

Economic evaluation in HRM is an information system. It relates to HR activities and supports the planning, steering, monitoring and organisation of such activities with data on their validity, mechanisms and profitability.

In this respect, looking at HR activities from the profitability perspective is just one option, albeit an increasingly important one. Another important perspective is linked to the concept of work humanisation. With the creation of the former German Federal Ministry of Research and Technology (now the Federal Ministry of Education and Research, BMBF), this has become a political mission. In 1974, through the "Research into the Humanisation of Working Life" action programme, projects were for the first time promoted with a view to improving working conditions for employees (Pöhler, 1980). The Federal Government in power at the

time attempted to open up the potential for economic success in such a way that the design and development of technology would be geared to the needs of people in the work process (BMBF support programme).

According to a more recent definition, humane work design includes all activities designed to protect health at the workplace (e.g. protection from noise, better lighting), to improve work organisation (e.g. less conveyor belt work and more group work, flexible working hours), to enhance the working environment (e.g. better information flows) and to lend substance to codetermination as a recognised criterion (Lexikon der Wirtschaft, 2004).

Humane workplace design generally goes hand in hand with increased investment costs, which should be absorbed by increased productivity or profitability (Kreikebaum & Herbert, 1988). The problem with business management is that traditional profitability analyses of humanisation activities are often inadequate. Broader profitability calculations, on the other hand, also take into account factors such as employee satisfaction, lower staff turnover rates or reduced absenteeism, to name but a few. In the context of globalisation and tertiarisation, it is clear that the factors affecting a company's competitiveness are directly linked to the quality and performance of its employees. Employees generate value added. In this respect, consideration of the economic benefits of humane investment reveal convergences which only materialise in full with the application of new evaluation procedures, such as the human capital scorecard (see Chapter 6.2).

With its focus on HRM, this publication provides Guidelines on how to achieve a greater degree of congruence between humane and economic objectives. The approach advocated thus follows the research tradition of the BMBF support programmes which, taking as an initial reference a view focussed on the design of working conditions, have gradually developed a research focus geared to HR and organisation development.

Economic evaluations require precise planning and preparation. In this area, there are no simple, standard methods and solutions. In many respects, an evaluation has to be customised. Furthermore, such evaluations are generally linked to a large number of decisions, relating for example to the involvement of certain target groups, which need to be properly thought out and prepared, as they also require investment in terms of money and time. Planning and structuring an evaluation conscientiously and prudently will help ensure that it is as far as possible properly targeted and efficiently implemented. This is the purpose of the present Guidelines.

The next section describes the basic structure and the process of an economic evaluation using a new model.

2.2 Economic evaluation roadmap

Three empirical HR programme evaluations were conducted within the Project and are documented in German and English publications (Pennig & Vogt, 2006c; Vogt & Pennig, 2006). They are the empirical basis for these Guidelines. Based on the experience gained from these studies, an economic evaluation roadmap was formulated which constitutes an effective planning and structuring tool for evaluation projects. The roadmap takes account of four factors which are crucial to planning and designing an economic evaluation:

- (1) the addressees of the evaluation results
- (2) the structure of the parameters to be included, e.g. performance, behaviour or process data (structural model)
- (3) the process design and procedure for the evaluation (process model)
- (4) the timing of the evaluation.

These four factors and their relevance for the design of economic evaluations are discussed in detail in the next four sections. By way of conclusion, a compact general economic evaluation model is then extrapolated from this.

2.2.1 Addressees of the evaluation

The addressees of an economic evaluation are very significant for the evaluation's objectives since on account of their responsibilities, the information needs of the various potential addressees in a company vary considerably. A distinction may be made between four groups of addressees or target groups of an economic evaluation of HR programmes (stakeholders):

1. The first group of addressees is the HR managers in the company or other organisational units dealing with human factors (HF), human resources (HR) and training (T). They are responsible for the quality of HR programmes⁶, matching such activities to the needs, the acceptance and utilisation of the services provided and the satisfaction of internal customers with the activities. From their perspective, an economic evaluation should demonstrate that these HR programmes are suitable for the company on account of their quality, high acceptance, broad or specific usefulness and meeting of their needs. Since HR departments are generally run as cost centres, the measurement and assessment of use of resources by HR programmes is also important for this group of addressees. Consequently, an economic evaluation should provide information on the cost structure (type and extent of costs or cost per cost unit) and the cost-benefit ratio of an HR programme.
2. The second group of addressees is the company's operational management, e.g. foremen, team leaders or departmental heads. They are responsible for ensuring that the HR programmes provide in their domain the skills, attitude, motivation, teamwork and working conditions needed to perform the tasks. Consequently, an economic evaluation should provide operational managers with information making it possible to select,

⁶ HR is subsequently used as a collective term for all kinds of human factors, human resources and training activities.

design and assess activities relating to the performance of tasks by the employees. From the perspective of this group of addressees, the purpose of an economic evaluation is therefore to demonstrate the effects of HR programmes on the competence, behaviour and performance of employees and the profitability of the investment in relation to these criteria.

3. The managers responsible for larger domains, such as divisional managers, principal heads of department or departmental heads, constitute the third group of addressees. Unlike operational managers, they manage managers rather than employees. They ensure the efficiency of their organisational domain not so much through direct and personal staff management as through structural development, target agreements and controlling by means of key performance indicators (KPIs). From their perspective, HR needs to ensure that the performance systems and business processes in their domain are functioning properly. The information needs of those who are responsible for and steer structures and processes are also different from those of operational managers managing individual employees as regards the assessment of HR programmes. Consequently, the purpose of an economic evaluation from the perspective of this group of addressees is to demonstrate the effects of HR programmes on the quality and efficiency of the performance system and processes. In this respect, HR programmes need to be planned and implemented in close connection with structural and process-based development, since they complement each other in terms of their validity. Accordingly, the economic evaluation should also tackle and illustrate the links between personnel factors (e.g. employee skills) and structural factors (e.g. responsibilities, technology).
4. The fourth group of addressees is the company's top management, i.e. the board members and directors. They are particularly important addressees of evaluation results since they often view HR only as an administrative unit and cost centre. In the eyes of a top manager, HR programmes are rarely investments which are demonstrably worthwhile. A professional economic evaluation may be able to change this philosophy and secure support for attractive investment. The directors are responsible for the company's ability to survive and the achievement of strategic corporate objectives. Consequently, from the perspective of the top management, the objective of an economic evaluation is to be able to assess from a financial viewpoint the strategic scope for action in HRM and hence decide on the correct "HR line of attack". In addition to staff costs, the primary aim here is to demonstrate the link between wide-ranging HR investment for the company and competitiveness. A company's competitiveness is often expressed in the form of strategic KPIs. These should be included in the economic evaluation for this group of addressees.

Clearly, the purpose of an economic evaluation is closely linked to the group of addressees and the design of the evaluation is therefore largely dependent on the said group of addressees. The Project studies (Pennig & Vogt, 2006c; Vogt & Pennig, 2006) also showed that in certain circumstances, all addressees may be interested in a profitability assessment and that the various information needs then require to be satisfied simultaneously. Consequently, the various information needs were integrated into a comprehensive structural model of economic evaluation which is suitable for all groups of addressees and illustrates the links between the target areas.

2.2.2 Evaluation structure

The economic evaluation structural model has five profitability levels (see Figure 1). Economic evaluation may, but is not obliged to, look at all five levels.

Level	Assessment criteria for evaluation
5. Human capital	Enhancement in the company's long-term competency edge (competency edge, commitment, securing of commitment, attractiveness of company)
4. Organisation	Contribution to implementation of strategy (contributions to margin, staff costs, customer satisfaction, etc.)
3. Process	Contribution to process optimisation (process costs, turn-around times, process quality, productivity)
2. Function	Contribution to individual performance optimisation (competencies, behaviour, performance of target group)
1. Intervention	Contribution to improvement in efficiency of interventions (costs per learning unit, costs per recruitment, etc.)

Figure 1: Economic evaluation structural model

The five levels for assessing profitability are explained below. They are guided by the information needs of the groups of addressees identified.

Level 1: Intervention

In many cases, the (initial) primary aim of a cost-benefit assessment of an HR programme may be to determine and select the cheapest alternative. This approach is based on the assumption that the economic utility effects of the various alternatives are more or less the same in practice. The approach can be found, for example, in Pennig and Vogt (2006c) in relation to an e-learning programme. The analysis here focussed on whether the development and use of e-learning modules is cheaper than the imputed staff costs of training with lecturers.

The level-1 cost-benefit assessment relates exclusively to the activity or intervention itself, not its effects on the organisation's efficiency. The use of resources in connection with the development, implementation and application of the various HR activities is determined and quantified. However, the utility effects are expressed in non-monetary values. Such target values may be, for example, the learning objectives achieved through training, the successful selection of employees through a selection procedure or the number of new recruits over a given period.

If these non-monetary utility values can be converted into quantitative values, the efficiency of the various alternatives can also be determined. The questions to be asked here might include: How many learning units can be provided by an e-learning module per hour compared with conventional tuition? How many candidates need to be tested, and for how long, in procedure A as against procedure B until adequate suitability can be assumed?

Hence when looking at efficiency, the use of resources by one or more HR programmes is assessed in economic terms and compared with an objective not assessed economically.

This examination of profitability is an important and effective decision-making tool where the various alternatives are roughly comparable as regards their potential effects on individual performance or the performance of organisational units and where they differ primarily in terms of method. However, it can be misleading if the utility effects differ and the economic consequences of this are substantial.

The next four levels of the structural model deal with profitability from the viewpoint of the utility effects of HR programmes.

Level 2: Function

At level 2, the utility effects are determined from the viewpoint of the target group of the HR programme in question e.g. the field sales employees, logisticians, production planners or departmental heads. Consideration is given to the area of tasks or behaviour of the target group or function group which is affected by the HR programme or should benefit from it. This is traditionally the area of work and organisational psychology and HR programme evaluation, where the effect of the HR programme on efficiency, behaviour and the performance of individual postholders is examined.

The evaluation process first needs to define precisely which factors determine the efficiency of the target group or function group and which form the focus of the HR programme, e.g. the work environment, tools, skills of the target group, the attitudes and motivation of the employees, their health and fitness, the management behaviour of their superiors, cooperation and teamwork, information provision, work processes, definition of responsibilities or remuneration.

The assessment of utility is based on the improvements in the functional performance system and their economic assessment. Economic evaluation at this level has four main phases:

1. Analysis of the functional performance system
 - ⇒ *What determines optimum performance by the target group?*
 - ⇒ *Which factors are currently creating bottlenecks?*
2. Determination of the parameters affected by the HR programmes (dependent variables⁷)
 - ⇒ *Which functional variables critical to success should be developed or improved?*
3. Definition of dependent performance variables
 - ⇒ *What effects are expected as regards target group performance?*
4. Transposition of effects into economic success factors
 - ⇒ *What is the economic significance of these individual performance effects?*

⁷ The HR programmes are considered the independent variable or manipulation that causes effects on defined dependent variables which are to be measured.

Level 3: Process

At the next level of utility assessment in the economic evaluation, the effects of HR activities on cross-function performance systems are examined: the business processes. Business processes are groups of activities which create value added and generate costs as a function of performance quantity, such as the process of production of a structural component, the process of customer support or provision of services for customers. Criteria for the economic utility assessment are defined at this level on the basis of the business management criteria for optimum processes:

- short turn-around times
- high process stability
- high process quality
- limited amount of reworking and rejects
- low process costs
- high process productivity.

These criteria for optimum performance processes are relevant not only for the traditional value added processes (production processes) for which they were developed, but can also be transposed to administrative processes, service processes or management processes. However, they require the development by the organisation of quality standards and cost accounting for its performance processes, which can be used as a reference for the economic evaluation.

The utility assessment is therefore based in this case on the improvements in the process performance system and their economic assessment. The economic evaluation has four main phases:

1. Analysis of the relevant performance processes
 - ⇒ *What determines an optimum process performance?*
 - ⇒ *Which staff-related factors are currently creating bottlenecks in the process?*
2. Determination of the parameters affected by the HR programme
 - ⇒ *Which staff-related variables critical to success in the process should be developed or improved?*
3. Definition of dependent performance variables
 - ⇒ *What effects are expected on the relevant process characteristics?*
4. Transposition of effects into economic success factors
 - ⇒ *What is the economic significance of these process optimisations?*

Level 4: Organisation

At the fourth level, the utility contribution of the HR programme to the implementation of corporate strategy is assessed. Corporate strategy is derived from an assessment of the company's current and future market, factors affecting competition, customer expectations and the company's existing and potential competitive edge in the market. The strategy covers basic strategic objectives (e.g. profitability, growth in turnover, organisation and product image, target competitive edge, etc.) and strategic areas of action (improvements in the service domain, development of innovative products, creation of a new marketing channel, etc.).

In this case, the degree of effectiveness of an HR programme is determined via its positive influence on the strategic objectives and areas of action. In order to illustrate this influence and hence demonstrate the profitability of an HR programme at organisation level, corporate strategy indicators need to be created.

Without a defined organisation strategy, it is not possible to assess the significance of an HR programme for the organisation. If such a programme is planned and evaluated without reference to the organisation strategy, the significance of behaviour-related and monetary effects for the company remains unclear. Regardless of whether cost savings, product improvements or competency developments are involved, any change is either beneficial, neutral or harmful for an organisation only if looked at from the strategic viewpoint.

The utility assessment is therefore based here on the improvements in the competitiveness of the company and the economic assessment of this. The economic evaluation has four main phases:

1. Analysis of the relevant factors affecting competition
 - ⇒ *What determines an optimum competitive position?*
 - ⇒ *Which staff-related factors are currently creating bottlenecks in competition?*
2. Determination of the parameters affected by the HR programme
 - ⇒ *Which competition and staff-related variables should be developed or improved?*
3. Definition of dependent performance variables
 - ⇒ *What are the effects expected on the strategic corporate objectives and success factors?*
4. Transposition of effects into economic success factors
 - ⇒ *What financial effects will this have for the company?*

Level 5: Human capital

The final level of the utility assessment focuses on the company's human capital. Human capital comprises all the human "assets" available to the company. These consist primarily of the competencies brought to the company by its employees, employee commitment to the company, the degree of their integration and the willingness to develop further. Current trends increasingly indicate that the enhancement of human capital will become a stand-alone target criterion for HR management, and will also be used to assess HR programmes. Human capital is also implicitly contained in the three other levels in various forms insofar as it finds expression in strategic target values, process KPIs or individual competency characteristics. However, an in-depth assessment of human capital in the company goes further than this. Human capital therefore constitutes a stand-alone utility value for an economic evaluation of HR programmes.

The fifth-level utility assessment requires a thorough definition and measurement of human capital. The economic evaluation thus comprises the following phases:

1. Analysis of the critical human capital factors at the company
 - ⇒ *Where should the human resources available at the company be expanded, used more intensively or bound to the company?*
 - ⇒ *Which HR risks should we prevent?*
2. Determination of the human capital factors affected by HR programmes
 - ⇒ *Which human capital factors should be developed or improved?*
3. Clarification of relationship with performance variables
 - ⇒ *Which effects in relation to the company's efficiency are associated with this?*
4. Transposition of effects into economic success factors
 - ⇒ *What financial effects will this have for the company?*

The structural model is a key element of the economic evaluation roadmap developed in the studies (Pennig & Vogt, 2006c; Vogt & Pennig, 2006) in that it contains all the significant target levels of a profitability assessment discussed in practice and in the literature and integrates them in the evaluation from the viewpoint of the addressees. The addressees can essentially be allocated to the target levels as follows:

Level	Evaluation addressees
5. Human capital	⇒ Top management ⇒ HR managers
4. Organisation	⇒ Top management
3. Process	⇒ Departmental managers
2. Function	⇒ Operational managers
1. Intervention	⇒ HR managers

Figure 2: Economic evaluation levels and addressees

A third important factor for the economic evaluation roadmap is the design of the process. The Pennig and Vogt (2006c; Vogt & Pennig, 2006) studies were used to develop a process model. This model is presented in the following section.

2.2.3 Economic evaluation process model

Irrespective of the group of addressees and the costs and utility aspects taken into account in the evaluation, in the light of experience with the Pennig and Vogt (2006c; Vogt & Pennig, 2006) studies the following basic process would appear to be effective in the economic evaluation.

1. Modelling of parameters, links and success factors

The evaluation process should begin with a detailed analysis of the factors to be taken into account and their potential operational relationships. The structural model can serve here as a starting point and guide for modelling. Examples of this can be found in Pennig and Vogt (2006c). At this starting point in the evaluation process, the interventions to be evaluated should first be precisely described and consideration should be given to their

potential effects on the performance system as a whole, i.e. the various levels of effects. In particular, the success factors and bottlenecks in the performance system should be identified. Modelling may be based for example on interviews with experts in the organisation and the use of existing documents describing the interventions in question (e.g. training manuals). An interdisciplinary approach has proved effective here, whereby experts from various specialist fields (e.g. HR, controlling, line managers) are asked to participate. Examples of this can be found in Pennig and Vogt (2006c; Vogt & Pennig, 2006).

2. Planning and design of data collection for the evaluation

Building on this, in the second phase an investigation design needs to be produced which can be used to reliably and validly ascertain the effects of the interventions. The factors to be taken into account need to be made operational and the measuring instruments have to be designed. In this respect, all of the processes discussed in the context of evaluation research can in principle be used, i.e. for example before/after comparisons, experimental and control groups or time series analyses (see references in Chapter 8.2). The before/after comparison can for example be used to ascertain whether an employee's performance has increased following an HR programme. Together with the experimental and control group, the before/after comparison is the evaluation design most often used. Experimental and control group means that only one group of employees is involved in the HR programme (experimental group). If their performance increases compared with that of the employees not participating (control group), this proves the HR programme's effectiveness, although only if both groups differ solely as regards participation in the HR programme. Selection of the evaluation design is in practice determined by de facto and ethical possibilities; for example, an appropriate control group may often not be available in practice, or for instance for ethical reasons a decision may be taken not to deprive any one employee of stress management training.

Key methodological questions for the evaluation design planning are as follows:

- How can the effects be ascertained reliably and accurately?
- How can the effects be demonstrably attributed to the HR programme?
- How can the links between competencies, behaviour and performance be illustrated?

3. Data collection and evaluation

The third phase comprises the organisation and implementation of data collection and the statistical evaluation of the data. In this phase, the basic methods and quality criteria of empirical social research can initially be used as a reference point (Bortz, 1999).

A particular challenge for evaluation arises from the interdisciplinary working environment of the economic evaluation and the difficulty in expressing the effects in monetary terms. As a rule, subjective and objective and behaviour science and business management data files are collected and combined in the evaluation. It is therefore important to make all data compatible to the extent that an analysis of the various levels of effects and a combination of behavioural data and economic KPIs are possible in the evaluation. In a study carried out in the framework of the Project, postholders in the air traffic control (ATC) domain (controllers) were, for example, asked about both behavioural aspects and economic process characteristics in order to allow direct links to

be made between the functional and process levels. This study is available in both German (Pennig & Vogt, 2006c) and English (Vogt & Pennig, 2006).

The more comprehensive the related structural model, the more important it is in the evaluation of data not only to work out result KPIs but to look at the structural model again in the framework of a path analysis or correlation analysis and illustrate the chain of effects.

4. Data feedback and interpretation of results with the experts

An important phase for effective evaluation is the final feedback of findings to the experts and managers and the joint interpretation of the data. This can be a crucial factor in the success of the evaluation project, since it enables the various disciplines in the company to attribute their own significance to the results and to verify the relevant links in detail.

The structural model and its use for this specific application form the basis for all four process phases in the evaluation. Which of the five levels are relevant or more important in an evaluation study depends on the study's objectives and on which areas of management are interested in the results of the evaluation.

Another important factor in the economic evaluation roadmap is the timing of the evaluation, which is often closely linked to its objectives. This is explained below.

2.2.4 Timing of the economic evaluation

There are in principle three options for the timing of the evaluation. An evaluation prior to a decision being taken on an HR programme, a progressive evaluation during the period of application in order to optimise the HR programme continuously and verify whether it is appropriate, and a post-facto cost-benefit assessment for documentation purposes. The time selected determines a number of application details in the evaluation process and structure.

1. Evaluation prior to a decision (prognostic evaluation)

An economic evaluation prior to a decision on one or more HR programmes requires a prognosis of costs and utility effects. This may be made, for example, in the form of a pilot study (Vogt, Leonhardt, Köper & Pennig, 2004), where the effect is investigated using a random sample or in benchmarking analyses, where the effects at other organisations are looked at. It is also possible to simulate the effects under laboratory conditions or use scenario methods, where the sensitivity of economic KPIs at the company is tested for changes in behaviour in the target group selected. In this case, the evaluation process corresponds to the four phases specified, with the various alternative HR programmes and their potential effects on the performance system having to be sketched out in the modelling phase. As a rule, the collection of data is less comprehensive and detailed in a pilot or feasibility study than in a progressive evaluation. Moreover, it is precisely this form of evaluation which needs to be carried out with special care and with due regard to all effects phases, since prognostic evaluation helps to avoid serious investment errors, whereas in a progressive evaluation, by comparison, minor adaptations are possible if an HR programme has already been

initiated. In a prognostic evaluation, the detailed planning and implementation of HR programmes does not occur until after phase 4 of the evaluation process (feedback and interpretation of results with the company's experts). However, a prognostic evaluation may be followed by a progressive evaluation.

2. Evaluation during implementation (progressive evaluation)

Progressive evaluation is probably by far the commonest form of profitability assessment and corresponds to the three studies in this Project (Pennig & Vogt, 2006c). As a rule, the objective is to optimise the ongoing HR programme or the profitability documentation for the management and other potential users. The use of the structural model depends on the objectives of those bearing responsibility as addressees of the evaluation. The process corresponds to the process model illustrated. The more completely the structural model is applied, the greater the importance of process modelling and interpretation of the data with the experts and managers. Intensive modelling, involvement of experts in the process and discussion of the significance of the data with managers may therefore be the actual factors determining the success of the evaluation study.

3. Evaluation after completion of the HR programme (evaluation for documentation purposes)

Evaluation after completion of an HR programme is useful if the profitability of major investment has to be documented for management, if the effectiveness of an intervention has to be scientifically proved and presented to experts or if implications for associated future HR programmes have to be illustrated. Depending on the objectives and group of addressees, the various levels of the structural model and the four working phases should be designed appropriately.

The four factors described and their design possibilities characterise the key action areas in the economic evaluation. The two central design factors (structure and process) are linked in the HPM (Human Resource Performance Model, see Figure 3).

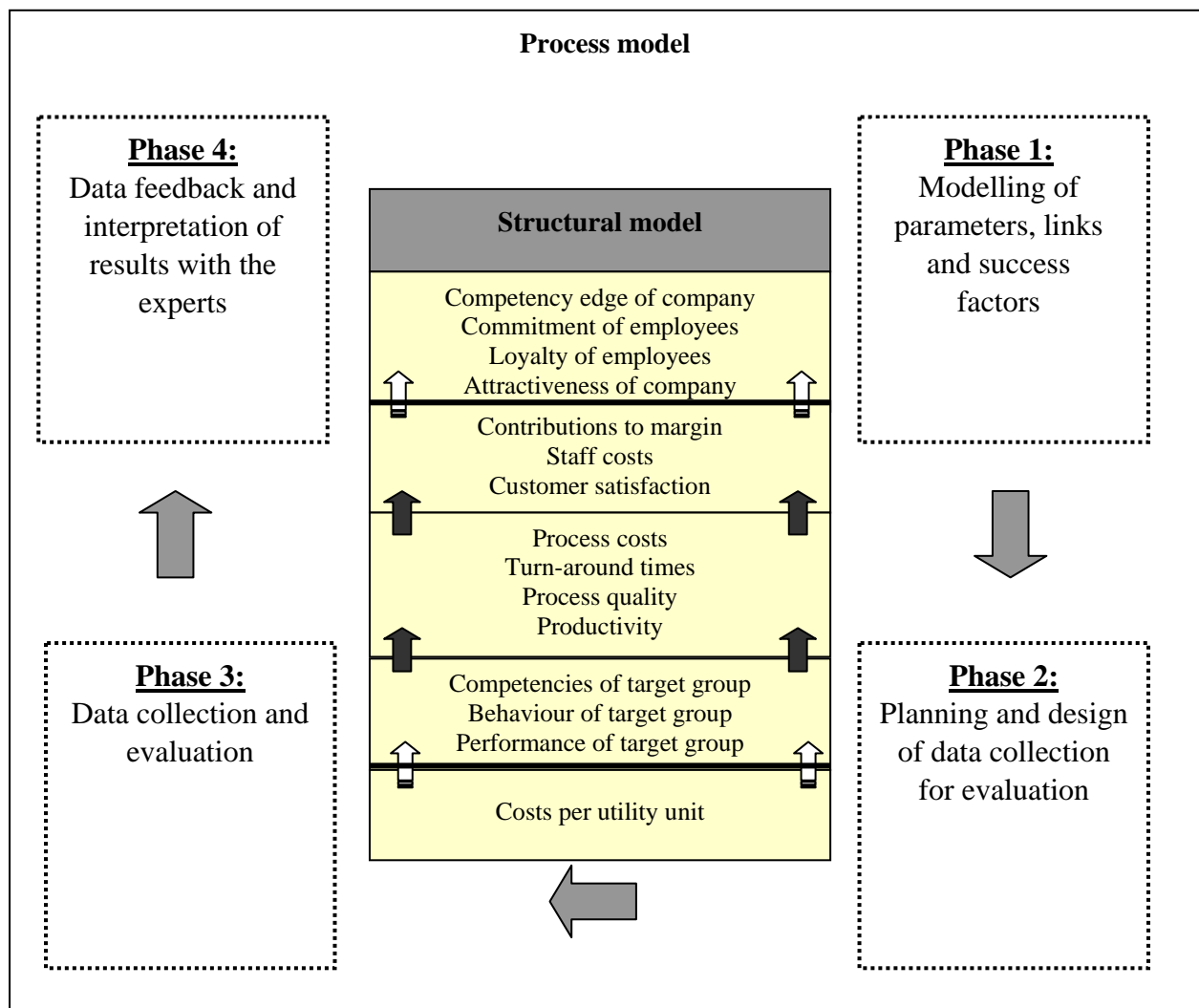


Figure 3: The Human Resource Performance Model (HPM) as an economic evaluation roadmap

The HPM can be seen as a basic economic evaluation roadmap which demarcates the content-related design domains and working phases of the profitability assessment. The roadmap provides a working template which can be used irrespective of the time and purpose of the evaluation target. The four utility levels in the HPM's structural model (centre of Figure 3) correspond to four approaches to profitability assessment, explained in detail in Chapters 3-6:

- function-based evaluation (see Chapter 3)
- performance process-based evaluation (see Chapter 4)
- strategy-based evaluation (see Chapter 5)
- human capital management (see Chapter 6).

The next section is devoted to the methods needed in the planning of a comprehensive evaluation.

2.3 Project management in evaluations

A planned profitability assessment in HRM can be seen as a project, since it generally has the typical characteristics of a project:

- complexity, since account has to be taken of a large number of varied and interconnected things
- innovative crossover activities
- demarcability in terms of time and content.

It would therefore seem worthwhile to use the basic project management standards and instruments in the planning and implementation of evaluations. These include:

- clarification of the task at the start of the evaluation
- structural planning
- process planning.

As a rule, projects are successful only if the first project phase has been approached with circumspection. Right at the start of an evaluation, clarification is needed of what precisely is involved. The assumption is that there is a client and addressees. Detailed discussions are required with the client and addressees at the start of the evaluation process. The evaluation remit should be determined and agreed in writing. Clarity is also required as to the purpose of the evaluation, the scope of the work needed and the resources available. This is all agreed in writing in the "project contract". A contract ensures inter alia that the objective is transparent and that the task is clearly demarcated and that boundaries are not transgressed during the evaluation. The key elements of a project contract are:

1. Client: Who is responsible for achieving the project objectives and making available the staff and time required?
2. Project Manager: who is responsible for ensuring that the project is systematically structured and steered internally and externally, that the agreed milestones are achieved and that the client is notified in good time of risks and bottlenecks?
3. Project team: Who commits to the project and takes on the operational activities?
4. Problem definition: What is the context for the evaluation's implementation? What problem is it intended to resolve?
5. Objective: What will exist and in what form once the project has been completed? What happens to the project results?
6. Formulation of results: Which individual parts of the project are being implemented? How are they being documented and communicated?
7. Deadlines, milestones: What are the key partial results? When should they be achieved?
8. Resources (people, equipment, financial and time): How many people from which areas are working on the project and with which timescales? What material resources are available? What financial support is being given to the project, e.g. for external consultants?
9. Participation and communication: Who should be involved and when? Who should be informed by whom and when? Who is the information contact point for the project and who needs to be involved on an ad hoc basis?

Following clarification of the task, detailed project planning is required. The first step is structural planning, which brings together and systematises all the main content of the project. The Project Structure Plan (PSP) forms the basis of all subsequent planning and steering

activities in the project. The overall task is broken down into individual phases and work packages (see Figure 4).

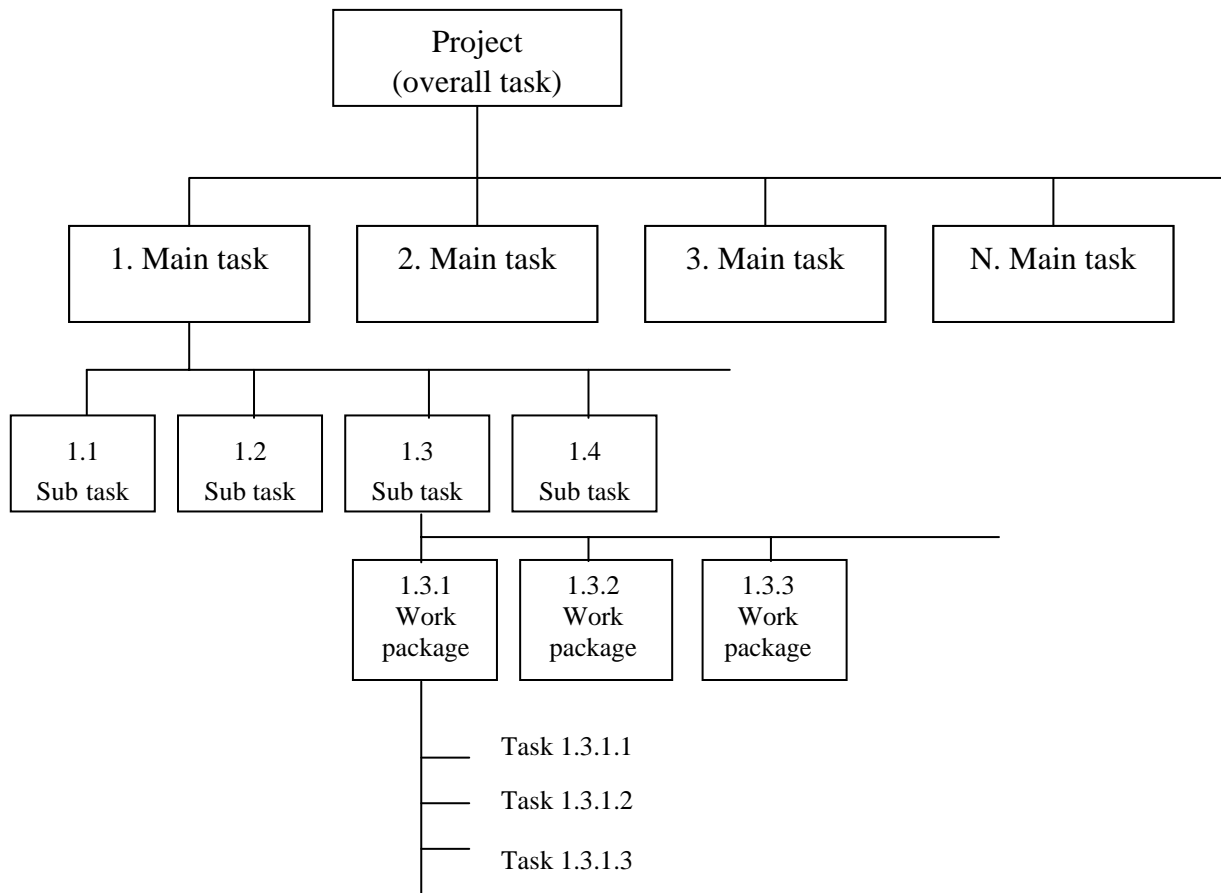


Figure 4: A Project Structure Plan for an evaluation

An economic evaluation may in principle be broken down into the following five main tasks, with their respective subtasks:

- (1) Organisational tasks: planning, project controlling, organisation of people, time and space
- (2) Communication tasks at the company: provision and obtaining of information, organisation of involvement
- (3) Design tasks: research, data structure, evaluation design, data collection instruments
- (4) Data-based tasks: collection, inputting, evaluation, interpretation
- (5) Documentation tasks: documentation of interim results, preparation for presentations, reports, publications.

These tasks should be integrated and specified in the PSP. Each work package (WP) is allocated to a person, who produces a work package description (performance description). Each work package is then looked at in terms of its scope and hence how easily it can be steered as regards results, deadline, costs and capacity.

A project time schedule is then drawn up on this basis. This places the work packages in a time sequence with specific deadlines. A time schedule in the economic evaluation at the start of a project might look like this (Figure 5):

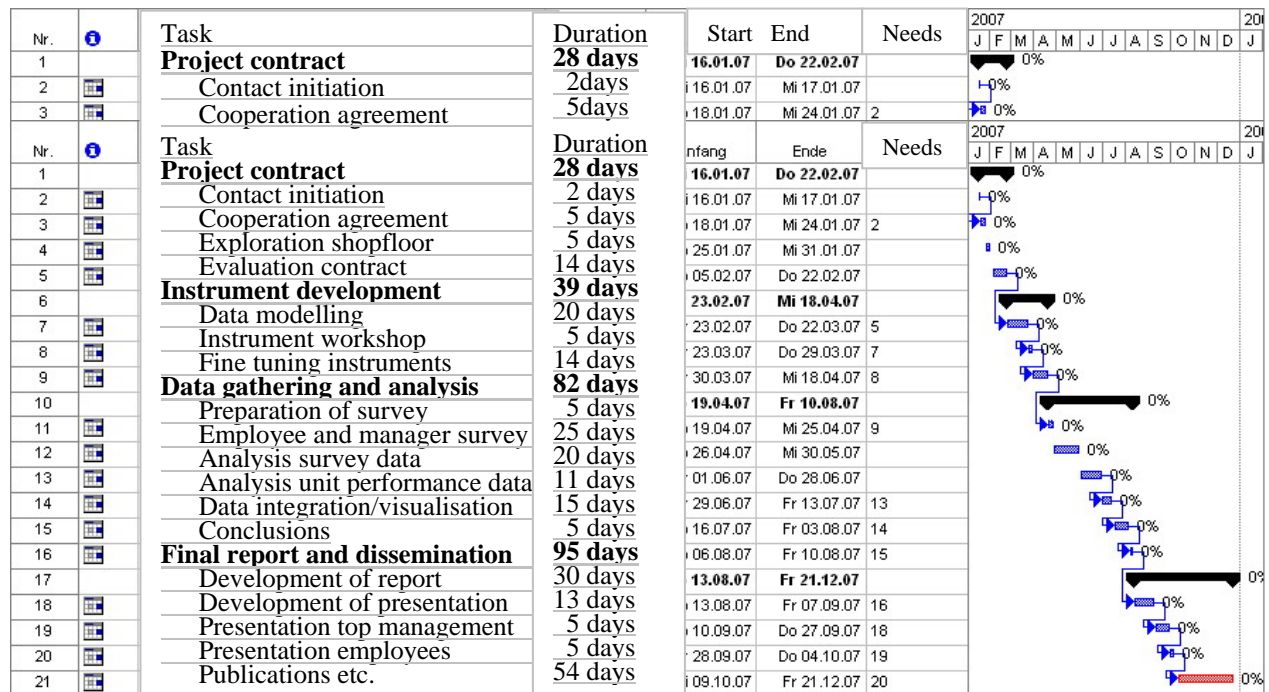


Figure 5: Project time schedule for an economic evaluation

The schedule is monitored as the project progresses and is regularly updated and in each case specified for subsequent work phases.

The next chapters present the four basic HRM evaluation applications on the different levels:

1. the individual level (Function-based evaluation, Chapter 3)
2. the process level (Evaluation based on performance processes, Chapter 4)
3. the organisational level (Strategy-based evaluation, Chapter 5)
4. the meta-organisational level (Human Capital Management, Chapter 6).

The next section illustrates how evaluations on these different levels can be used in a specific case.

2.4 Example illustrating how specific use can be made of the Guidelines

Use of these Guidelines for an economic evaluation will be illustrated taking the example of a profitability assessment of an e-learning module: an air traffic service (ATS) provider is considering developing an e-learning module to provide basic and further training to air traffic controllers (ATCOs) on what they need to take into account when handing/taking over at the end of a shift. The e-learning module is entitled Handover Takeover (HO-TO). The provider first wishes to ascertain whether the investment in HO-TO is worthwhile. Highly varied perspectives can be taken into account in the HO-TO profitability analysis. When designing the evaluation, it is important to ascertain which perspective interests the evaluation addressees, who are generally the decision-makers. This depends primarily on which consequences the decision-makers are responsible for. Figure 6 shows the five possible questions or levels of the profitability assessment to be considered as a function of the consequences taken into account.

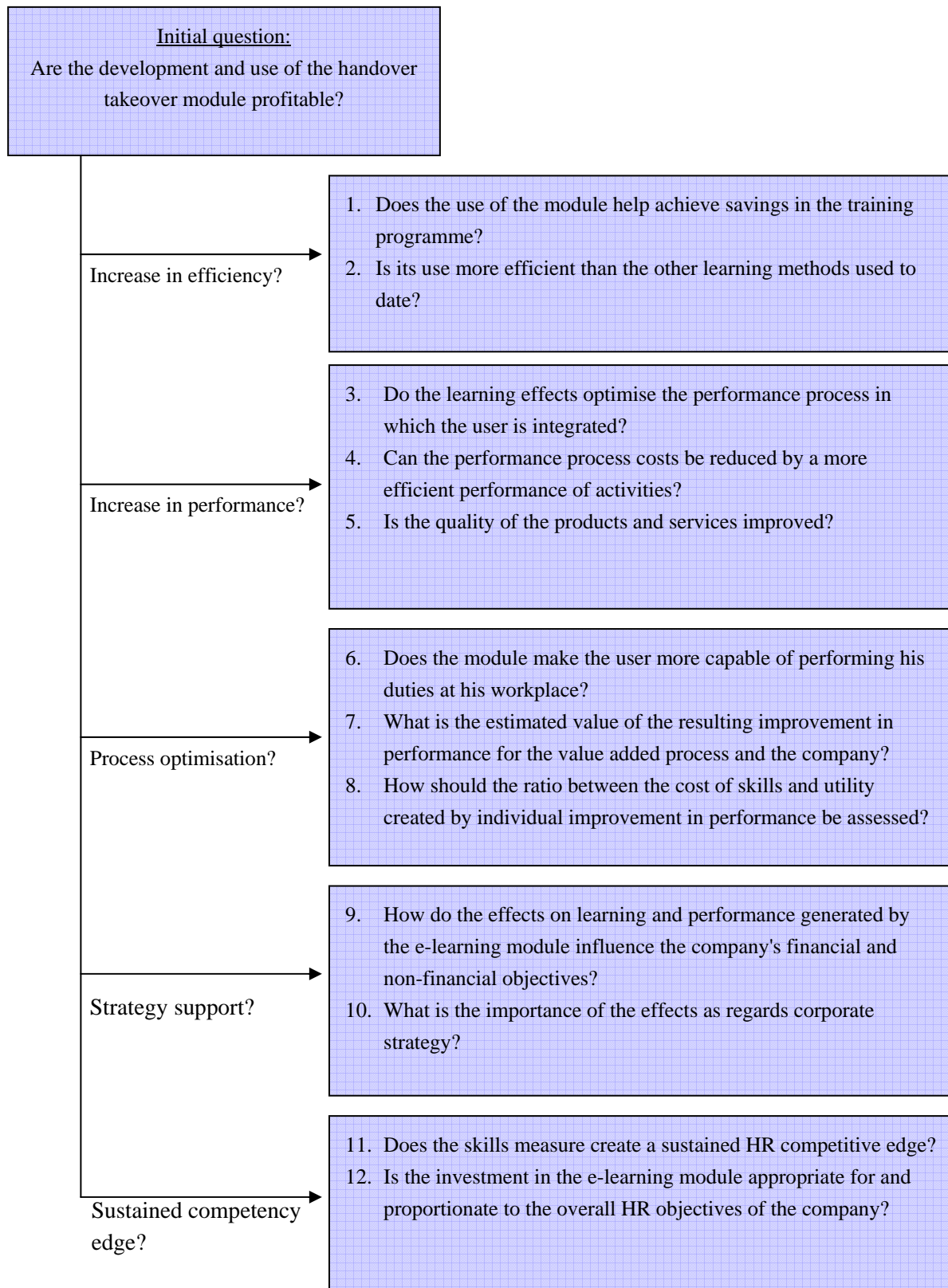


Figure 6: Economic evaluation planning questions

The five profitability questions will be explained using the "HO-TO profitability for an ATS provider" example:

Level 1: Increase in the efficiency of the HR programme

If the sole purpose is to ascertain whether HO-TO is in the long term cheaper than imparting the same knowledge through training or on-the-job briefing, the economic evaluation is restricted to the efficiency of the HR programme itself. The (only) action taken is to compare the various HR programmes as regards efficiency of learning, without looking at the effects of learning from the economic perspective.

This type of efficiency evaluation includes the following:

- the costs of the various options (development costs, application costs, adaptation costs, etc.); options in this example may include classroom tuition, simulator training, on-the-job briefing and e-learning
- the learning progress (per unit time) which makes each option possible
- the actual use made of the various learning methods offered by the users.

Ultimately, the aim here is to ascertain which method offers the best ratio between learning success, learning expenditure and costs per learning unit. The significance and utility of the learning success are not looked at, although it may conceivably be highly uneconomic to pursue the learning objective where high expenditure is involved because for various reasons, enhanced capacities have very little effect on a day-to-day basis or are of very little significance for the company. The economic significance of the effects of HO-TO is not taken into account until levels 2-5 described below. In this connection, the efficiency of the HR programmes may also continue to be assessed, i.e. examination of efficiency may be supplemented by examination of effectiveness.

Pennig and Vogt (2006c) look in greater detail at the question of whether HO-TO is cheaper in the long term than the transmission of the same knowledge by other means. However, the Guidelines do not look in greater detail at this approach based solely on cost analysis, since it reduces HRM to an expenditure item. Nevertheless, one of the key functions of the profitability assessment is precisely seen as promoting an understanding of human capital as a value added factor.

Level 2: Increase in performance of the target group

If the aim is also to ascertain whether the investment in HO-TO is worthwhile for users on a day-to-day basis as regards the expected learning effects and improvements in performance, the module's effect on work behaviour is additionally examined. This can be very important in the profitability assessment of an e-learning module in order to ascertain in particular the effectiveness of transfer, i.e. the actual transposition of what has been learned to everyday activities.

At this second level, an assessment is made of the effects of the learning success on and its importance for the performance of activities and completion of tasks by the user group or all function groups at the company using HO-TO: is the investment in HO-TO worthwhile in relation to the economic significance of the performance effects thus achievable for the target group? As regards the evaluation of HO-TO, this question means that specific consideration needs to be given to the performance characteristics of a controller at the end of a shift – the intention is to improve these by means of better handovers between shifts. Such characteristics may include improved recognition and analysis of the current traffic picture

and a corresponding improvement in traffic planning. The economic utility of these performance effects then needs to be assessed.

Chapter 3 describes models and methods for the economic assessment of such individual improvements in performance resulting from HR programmes.

Level 3: Optimisation of performance processes

However, in many cases the economic assessment of individual performance and the improvement in an individual employee's performance is not sufficiently justified or worthwhile for a company. For example, in the case of HO-TO it might be argued that the economic value of an improved recognition of the current traffic picture and subsequent improvement in traffic planning by the controller taking over the shift cannot be reliably calculated.

In many companies, economic analyses and optimisations are carried out not at individual employee level, but at the higher level of performance or business processes. Production processes, development processes or sales processes actually generate the value added. These key performance processes have to create the basis for a competitive edge in the market. Accordingly, many companies have defined clear criteria for optimum process design, e.g. in the form of turn-around times, process costs, productivity rates or quality KPIs. These are therefore important criteria for measuring the profitability of HR programmes.

Such criteria also exist in the ATS domain. They relate, for example, to the optimisation of traffic flows as a contribution to flight punctuality and productivity in ATS processes. Productivity here is the number of flight minutes processed in relation to the number of controllers employed. In the case of the HO-TO e-learning module, these would be process-based success criteria. The evaluation should demonstrate, by way of example, that HO-TO helps to optimise traffic flows by improving handover behaviour.

Chapter 4 describes how it is possible to assess the utility of HR programmes by reference to process KPIs.

Level 4: Contribution to corporate strategy

Recently, companies have been investing in HR programmes in order to make it easier to achieve their objectives. An economic evaluation can take up this idea and look at the company's strategic objectives as evaluation criteria. These are often specific financial objectives, e.g. profit or profitability, but may also be non-financial, such as image or customer satisfaction. At this fourth level, the utility of the HR programme for the implementation of corporate strategy is examined.

In the case of HO-TO, this would mean that the strategic objectives of the ATS provider would have to be looked at in the evaluation. In the ATS domain, the safety of air traffic is the primary objective. One of the aims would therefore be to demonstrate whether HO-TO improves shift handovers and in so doing increases flight safety.

Chapter 5 presents an approach and a tool for creating a relationship between the effects of an HR programme and a company's strategic objectives.

Level 5: Creation of a long-term competitive edge in terms of staff

Another benefit of HR programmes may lie in the creation of human resources available on a long-term basis. This may be useful if the HR department or management wish to document what human resources the company can rely on, what specific HR skills are available to it or what HR assets have been created by effective HR development in recent years.

These HR assets in the ATS domain may include the practice of professional cross-shift cooperation. HO-TO could play a useful part in this respect, in that it introduces even at the training stage the basis for an effective shift handover routine.

Chapter 6 (Human Capital Management) presents an assessment and steering model which is designed to provide an in-depth evaluation of a company's human resources. HR programmes should help to expand such human resources with an eye to the future. In this respect, this is an exciting evaluation approach.

In this way, these Guidelines contain specific models and tools for every perspective incorporating the effectiveness of an HR programme in the evaluation. The reader is able to select individual chapters because the models are not based on one another, but comprise varying approaches to the evaluation. However, for a complete overview of the entire field of economic evaluation, it is recommended that the Guidelines be read chronologically and that other sources be consulted if required.

Further reading:

Caracelli, V. & Stufflebeam, D.L. (2001). *Evaluation Models: New Directions for Evaluation*. San Francisco: Jossey-Bass.

Edwards, J. E., Scott, J. C. & Raju, N. S. (Eds) (2004). *The Human Resources Program-Evaluation Handbook*. London: Sage Publications.

Franklin, J. L. & Trasher, J. H. (1976). *An introduction to program evaluation*. New York: Wiley.

Rossi, P.H., Freeman, H.E. & Lipsey, M.W. (1999). *Evaluation: A systematic approach*. Thousand Oaks: Sage.

Chapters 3-6 discuss the analysis levels shown in Figure 3 on page 25 from the bottom up, beginning with function-based analysis. This is based on the examination of the profitability of individual HR programmes. Function-based analysis is dealt with first because it constitutes the commonest scenario in practice and contains only some of the analysis phases of the HPM.

3 Function-based evaluation

In the function-based economic evaluation, the effects and effectiveness of target group-specific HR programmes are assessed. These include, for example, improved selection by an assessment centre for field sales employees, a training programme for customer relations staff at a bank and management training for production foremen.

What is specific to the function-based evaluation is the examination of cost-benefit aspects in relation to individual effects on behaviour and performance. Target levels 3-5 (process, company and human capital) are not examined and are therefore greyed out in Figure 7 below.

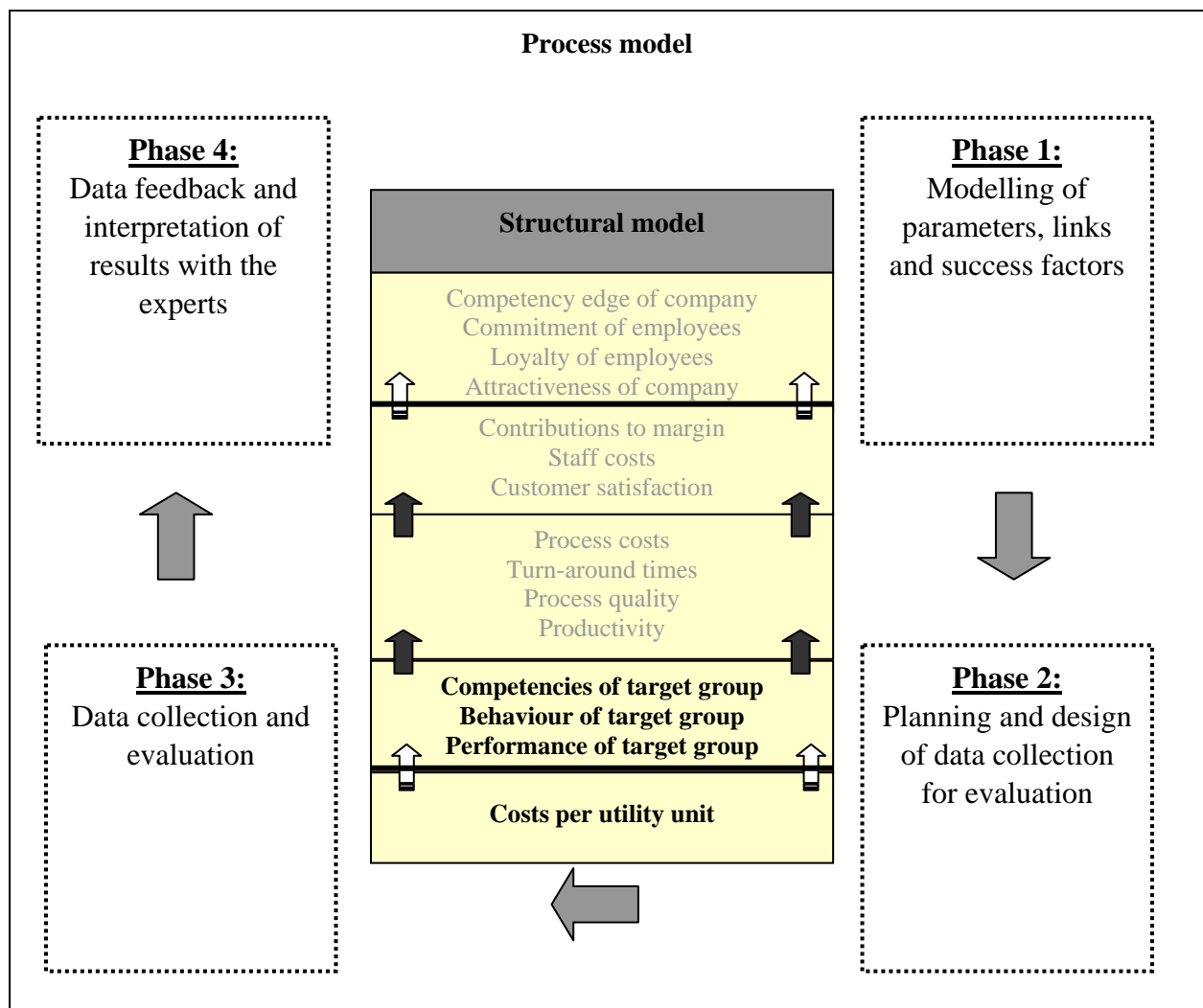


Figure 7: Target levels in the function-based evaluation

The following three functional effect factors are focussed on:

- individual competencies (knowledge, abilities, skills⁸, health and fitness, attitudes and values) and motivation

⁸ A skill is a capacity developed on the basis of abilities through learning, practice and experience. Whereas abilities are often seen as innate personal characteristics, skills are concrete actions which are defined by content, can be learned and are often automated.

- individual behaviour at the workplace (quality of performance of the relevant activities at the workplace)
- individual performance (quantity and quality of the results achieved).

A prerequisite for a comprehensive evaluation at function level is a requirements analysis, where the evaluation criteria are determined (see Chapter 3.1). The economic assessment of HR programmes will therefore include the analysis of the mode of operation (see Chapter 3.2) as regards these requirements. The actual economic assessment at function level is the utility measurement (see Chapter 3.3). By way of conclusion, Chapter 3.4 contains for interested readers a more detailed scientific examination of the utility measurement.

3.1 Analysis of tasks and requirements

The requirements analysis forms part of the classic repertoire in work and organisational psychology and is an important element of qualitative HR planning. It is used to establish ideal standards at function level, i.e. to describe performance criteria, behavioural criteria and competency profiles. Requirements categories constitute the target system in the assessment and utility analysis of an HR programme in the framework of conventional evaluation.

A large number of requirements analysis methods are described in the literature and may be suitable depending on the objectives, framework conditions and characteristics of the target group. Requirements analysis methodology is based on questionnaires, interviews, diaries or behavioural observations. A classic and flexible interview method (critical incident technique after Flanagan, 1954) is described in more detail in the toolbox.

Essentially, a distinction may be made between three types of requirements categories, similar to the three levels of effects:

- (1) competency profiles, where the individual performance criteria are described. These performance criteria relate to the employees' knowledge, abilities, skills and attitudes.
- (2) activity profiles, where the behaviour expected at the workplace is described. Structure and content are defined on the basis of the employees' respective tasks.
- (3) performance profiles, where the work results to be achieved by a function group are defined.

For the profitability assessment, an assessment of effects by requirements category still needs to be transposed into economic utility criteria. The tools and processes used to do this will be described below. They allow an economic assessment of HR programmes at functional level. The processes for this are as follows:

- presentation and assessment of the links in the effects between the functional requirements characteristics and economic criteria (path modelling of effects)
- estimation or measurement of functional monetary utility characteristics (utility measurement)
- confirmation of effects at functional level via evaluation design (confirmation of effects).

3.2 Path modelling of effects

An important element in the profitability assessment of HR programmes is the evaluation of the effects chain used as a basis. A number of questions arise as regards the mode of operation of an HR programme:

- At what point is the HR programme initiated? What primary effects are expected?
- What is the HR programme intended to achieve as regards behaviour?
- What effects on performance at the workplace are expected?
- What framework conditions are needed to make the HR programme effective?
- Which supporting activities should encourage the effect?
- Which environmental factors might limit effectiveness?

Figure 8 provides an overview of the influence and effect factors of function-based HR programmes. The following assumptions (shown in Figure 8) are made:

- (1) Individual performance depends on individual behaviour (quality of activities carried out) and external working conditions. Working conditions must be designed so that optimum behaviour by employees leads to the objective and is not ineffective. What is important in this respect is effective organisation of the interfaces with other employees, efficient work organisation and ergonomically-designed workstations and tools. Good performance is possible only if employee behaviour and processes are effective and efficient.
- (2) The precondition for optimum performance of activities is in turn function-based competency and the willingness of employees to commit. However, here too performance of activities is the product of the interaction of willingness and competency with external working conditions. The external factors which need to be designed in interaction with willingness and competency include quality of information, management behaviour, teamwork and workplace facilities. These ensure that competency and motivation are transposed into effective, purposive behaviour. Context management is a key task of HRM. It is intended to ensure that the work context as a whole, from organisation structure to management, promotes behaviour and performance. Outside the HR department, there are of course other HR and line managers in the company who are responsible for this and with whom the context factors need to be jointly designed.

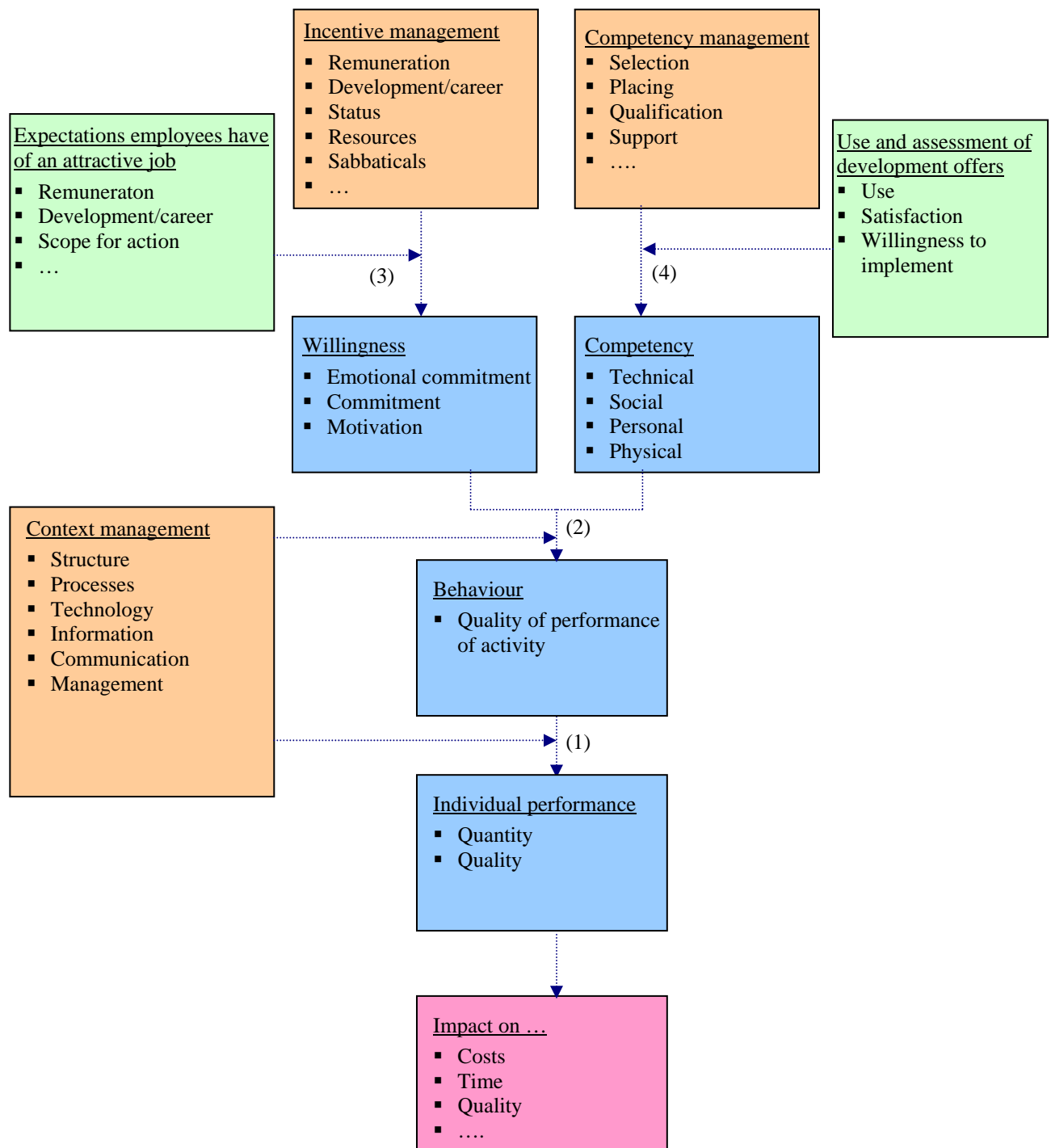


Figure 8: Effects path of function-based HR programmes

- (3) The willingness factor covers aspects such as the motivation of employees, their emotional commitment to the company or their commitment to the company's objectives. This is determined by the expectations employees have of an attractive employer and an attractive job and the extent to which they see these as being met in their function. It is HRM's task to design the incentives to maximise the requisite willingness of employees to perform their functions. Employees are valuable for the company only if they are to a

large extent prepared to make available their competencies to generate value added. Designing incentives is a key task of HRM. Development incentives are established, e.g. via an attractive programme for encouraging talent, project work and teamwork, which expand the scope for action and promote task switching. Performance-related pay provides an incentive to achieve challenging goals.

- (4) The competency factor covers all specialist and non-specialist employee skills. These are laid down in requirements profiles. Competency management is the second key task of HRM. It is responsible for ensuring that the competitive edge sought by the company is supported by corresponding employee competencies. The key areas of action in competency management are selection (filling of positions), placing (deployment), skills (training, education) and support (coaching, supervision, advice). In this respect, the success of competency management is dependent on the HR programme matching requirements and being welcomed, accepted and used by the employees.

Using these links as a basis, a specific effects chain can be established for each function-based HR programme. This will be explained using the example of a communication training programme for call centre agents. This example is also based on an empirical study (Pennig & Vogt, 2006c).

The training is intended to explain to employees how a conversation can be guided by questions, how to listen actively, how to deal with complaints and how to demonstrate to the caller that one understands his/her perspective. This HR programme is therefore part of competency management. The other target areas to be looked at are as follows:

- What effect does the HR programme have on behaviour when talking to customers?
- How does this change the quality and efficiency of the support provided?
- What effects does this have on customer satisfaction and the imputed cost and benefit effects of customer support?

This results in the following effects path (see Figure 9). Each phase in the effects chain can be taken into account in the evaluation, with the economic evaluation focussing in particular on the assessment of economic effects. The first four phases correspond to the evaluation levels traditionally studied in the literature and in practice (satisfaction, success, transferred behaviour, performance). Here, there are a correspondingly large number of proposals on measurement and measurement techniques (questionnaires, observation, tests; see further sources of literature). The next section describes utility measurement approaches and techniques as a core part of profitability assessment at function level.

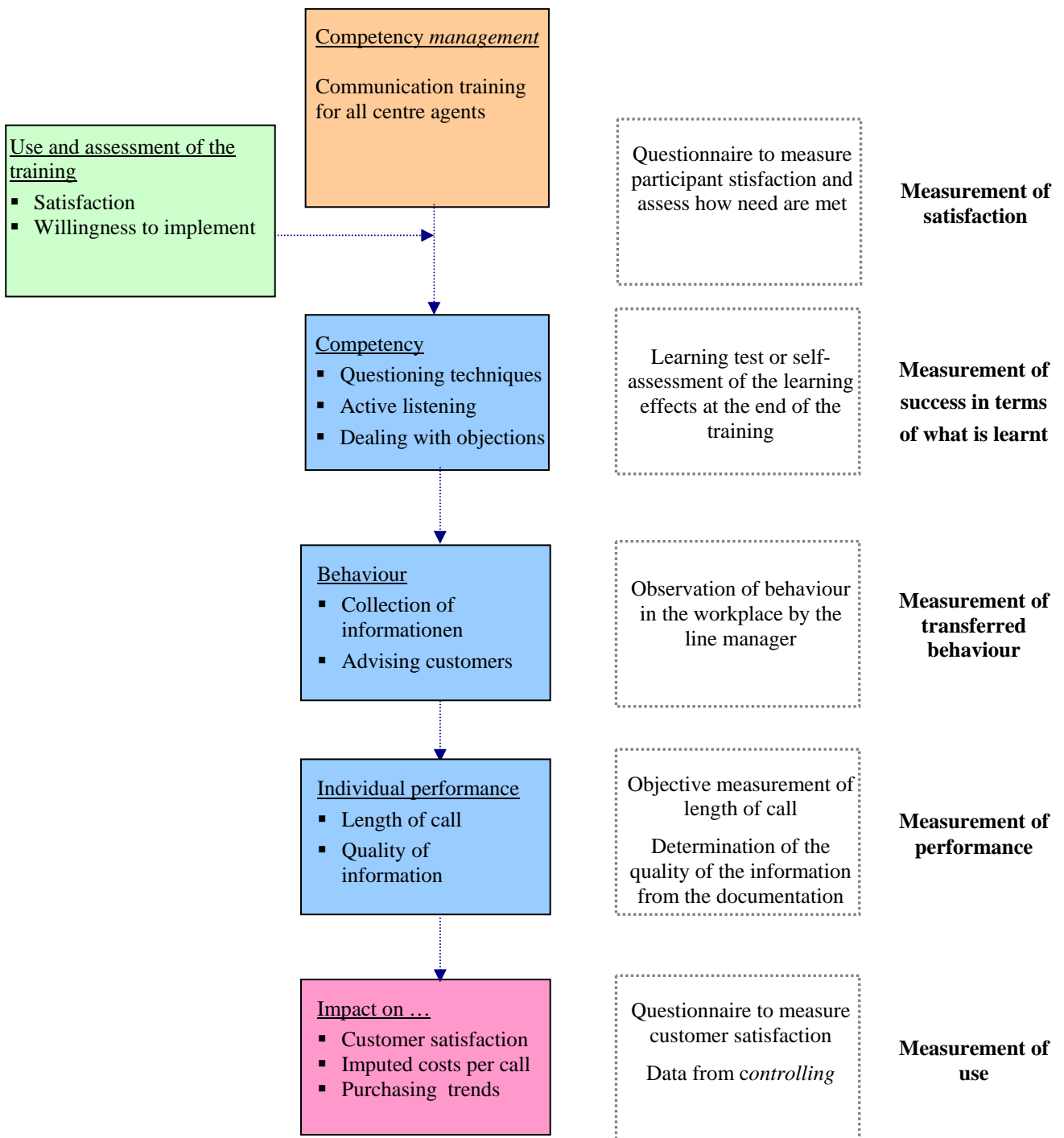


Figure 9: Effects chain for the evaluation of communication training for call centre agents

3.3 Utility measurement

In the utility measurement described below, the aim is to assess the effects and consequences of an HR programme for the company. From the company's viewpoint, a distinction may be made between the following utility aspects:

1. Monetary utility effects: utility can be expressed in monetary units, e.g. costs, sales revenue or contributions to margin.
As regards monetary utility effects, the following subdivision may be made:
 - reduction in costs, e.g. costs in respect of a product or service
 - increase in sales revenue as a result of price or quantity effects
 - behaviour KPIs of monetary utility and costs, e.g. return on investment or contribution to margin
2. Intangible utility effects which cannot be expressed in monetary units, e.g. better customer commitment, image as employer, better product quality.

As regards the measurement of utility effects and their allocation to an HR programme, the following is of crucial importance:

- a. whether the utility effect can be measured directly and allocated to the function (individual level), or
- b. whether the link between economic utility effects and HR programmes can be constructed or has to be estimated.

Direct measurement of utility is possible if the function (the employee) is measured against the sales revenue generated. This applies, for example, to marketing functions. Here, sales income (sales volumes) or lapse ratios are as a rule documented continuously. They indicate the economic success of a sales employee. Consequently, if an employee's success is expressed in economic KPIs, direct measurement of utility is possible.

Another form of direct measurement of utility is the imputation of cost savings achieved by the HR programme. This is an informative criterion if, for example, a function is characterised by a large number of standardised and recurring activities, to which (time-) proportionate costs can be allocated. The utility of an HR programme can thus be measured by the more efficient, i.e. faster performance of certain activities. In certain circumstances, utility can also be ascertained from the reduction in use of resources (material) or reduced costs on account of a lower rate of reworking or rejects. Hence, if the economic success of a function is assessed on the basis of certain types of costs, direct measurement of utility is also possible in this case.

In both cases, the profitability assessment is dependent on the quality of operational controlling, which has to collect, process and make available this data.

However, in many cases direct measurement of utility is not possible because the corresponding data is not available and/or the successful performance of various activities cannot be assessed using economic KPIs. Economic evaluation then has to rely on systematic estimation methods in order to demonstrate the economic effects of the HR programme on performance of activities and individual performance. Examples of questions in this connection are:

- What is the value of improved customer relations?
- What is the value of improved management behaviour for the company?

- What is the economic effect of team cooperation?
- Will there be a return on the investment in a comprehensive promotion programme for new HR recruits?

These questions highlight the difficult task of expressing human factors such as attitudes, behaviour or potential in monetary terms. Science has been looking at this question for many decades. A large number of models and techniques have been developed to deal with this question under the designation utility analysis (see further literature sources at the end of the chapter).

The calculation of utility values in the utility analysis requires the following actions:

1. The activities of the (employee's) function first need to be ascertained. The various requirements analysis techniques (Chapter 3.1) can be used here.
2. The valence of each activity next needs to be established. This may for example consist of the valence and timescale of the activities. Both are estimated on a scale of, for example, 1 to 10 and then multiplied together. This provides the activity's value. However, other assessment aspects, e.g. the frequency of an activity, may apply.
3. In this case, the relative value of each activity is ascertained, with the individual values being divided by the sum of all the values. This relative value is thus independent of the previously selected scale of e.g. 1 to 10.
4. In the many utility analysis models, there are various methods for estimating the monetary value of each activity. In each case, the relative value is multiplied by a monetary value. Monetary multipliers are proposed which are relatively simple to determine and which are assumed to approximate relatively closely to the actual monetary value of performance. Where doubt exists, a conservative estimate is made of the performance value expressed in monetary terms, since it is better to be on the safe side and underestimate rather than overestimate the utility of the HR programme. Examples are the annual salary for the function, the full cost of the function or the market value (average annual salary for the function across all sectors). Such figures are underestimates, since they do not include ancillary wage costs and the cost of making a job available.
5. The effect of the HR programme on the performance of activities is established using a performance assessment in all categories of activities. This assessment is then multiplied by the monetary values for each activity. The sum of all values constitutes the overall performance in monetary units. In this case, performance can be assessed by, for example, an employee's line manager. However, the scale selected will be important here since it influences the monetary value calculated. A Cascio and Ramos scale (1986) was tested here, where minimum performance is graded 0, maximum performance 200 and average performance 100. This assumes that the best employee will perform approximately twice as well in monetary terms as an average employee. This assumption was broadly confirmed in a series of tests, but is obviously dependent on the type of activity.
6. In order to calculate the added usefulness value, all costs in respect of the HR programme then need to be added together: development costs of the HR programme, staff and material costs of the implementation, royalties, etc. Pro rata temporis costing is in each case based on the full cost rate for the employee groups involved in the HR programme

(participants, trainers, consultants, management). The difference between utility value and costs constitutes added usefulness value. Dividing this value by costs gives the return on investment of the HR programme.

7. A systematic calculation also necessitates the accrual/deferral of the effects. This means that assumptions have to be made regarding the period over which added performance is expected from the HR programme. The time component is an important multiplier for the overall utility. Temporal effects should be reviewed in a follow-up evaluation at a later stage.
8. In order to be able to reliably demonstrate the effects of an HR programme on this added usefulness value, either a group not affected by the HR programme must be available for comparative purposes (control group, Chapter 8.2) or a performance assessment must have been carried out prior to the HR programme (for a before/after comparison, Chapter 8.2). Value added can then also be confirmed statistically.

For each of the work phases described above, there are also the following important variants in the utility analysis:

- the monetary value of the performance can be estimated not only via individual activities, but also overall, e.g. through the opinions of experts or line managers.
- In order to allow statistical confirmation, the standard deviation⁹ of the monetary value of the performance is also estimated. Two scientifically tested methods have become established here. Either line managers in turn estimate the standard deviation (Schmidt et al., 1979) or the assumption is made that the standard deviation is 40% of the annual salary (Schmidt & Hunter, 1983).

Both methods, however, necessitate a scientific design, either with a control group or with before/after testing (Chapter 8.2). If neither suitable control groups nor performance values are available prior to the HR programme, the change resulting from the HR programme may also be studied *ex post facto*. This requires realistic and honest assessment by the employees, plus a good memory. Here too, the effect of the HR programme is expressed as the ratio of the performance values after the HR programme to those prior to the HR programme (baseline), although in the latter case these are not ascertained until after the HR programme, i.e. retrospectively. However, this is meaningful only if the effects of the HR programme are limited in time and if the employees are able to recall the situation prior to the HR programme.

More recent scientific studies (Köper, Pennig & Vogt, 2003; Pennig & Leonhardt, 2005; Pennig & Vogt, 2005; Pennig, 2006; Vogt, Leonhardt, Köper & Pennig, 2004; Vogt & Pennig, 2006) have looked at a combined approach of objective criteria and subjective utility estimates. Here, in a first step, the economic performance parameters of a function, e.g. productivity per unit time, are determined. This is then estimated e.g. by the function owners or line managers. In this case, the subjective estimates were reliable indicators of the true monetary performance.

⁹ The mean value and standard deviation are the values most often used for the statistical description of a set of measurement values, in this case employee performance. The mean value is the sum of all values divided by their number, and is the focal point of the set of measurement values. The standard deviation is a criterion for the scatter of values. This is the root of the mean squared deviation of the measurement values of the mean value, with greater deviations being weighted more than smaller deviations on account of the squaring.

The utility analysis presented is a scientific approach which also allows a precise calculation of utility values. The derivation and structure of this calculation are discussed in the next section.

3.4 Scientific utility calculation

The utility analysis (UA) was developed more than 50 years ago from approaches to decision theory and conventional test theory in scientific psychology. These research traditions are concerned primarily with the selection of the right employees for certain functions. Accordingly, the utility analysis was used for a considerable period of time to evaluate the economic utility of HR selection processes. It is only over the last ten years that it has been developed further to evaluate the utility of training and other HR programmes (Boudreau & Ramstad, 2003). The utility analysis was designed to estimate the utility of an HR programme in advance and to use this as a basis for an economic investment decision.

In conventional test theory (Taylor & Russel, 1939), the utility of an HR programme is determined by the validity coefficients, the base rate (true proportion of suitable applicants) and the selection rate (percentage of applicants selected). The utility of an HR programme results from the difference between the proportion of suitable applicants selected via a specific selection method and the proportion of suitable applicants determined using an alternative or random selection (corresponds to base rate). Taking this fundamental test theory model as a basis, Brodgen (1949) and Cronbach and Gleser (1965) developed the BCG model for the calculation of the utility of selection methods, which quickly became the model for further developments. The authors take account of objective aspects (number of participants, time intervals, etc.), subjective aspects (monetary evaluation of criteria) and costs. The value of a selection programme is determined by the following formula:

$$\Delta U = N_e \cdot T \cdot SD_y \cdot r_{xy} \cdot z_x - C \cdot N_B$$

where:

ΔU = added usefulness value generated by the method (in monetary units)

N_e = number of applicants selected

T = time interval taken into account

SD_y = standard deviation of performance (in monetary units)

r_{xy} = validity coefficient (= quality of selection method)

z_x = mean standardised test value of those selected

C = costs per applicant

N_B = number of applicants

At the core of the utility model is the term $SD_y \cdot r_{xy} \cdot z_x$.

This expresses the following: SD_y is the performance scatter in monetary units (in simple terms, what is the difference in income between a good and a poor employee?) SD_y is high if the performance of the employees varies substantially and such variations are also significant in monetary terms. SD_y would, for example, be high if:

- sales employees were recruited using the selection method
- sales performance varied substantially
- differences in performance also meant substantial financial income for the company.

r_{xy} is high if the selection method has a high hit rate, i.e. if the right applicants are selected. z_x is high if the selected applicants perform well in the selection procedure. Accordingly, a selection method is very useful for the company if all three values are high. The other variables are pure quantitative and cost values, which complete the precise calculation of the monetary added usefulness value achieved via the selection method compared with the random selection.

SD_y is calculated in line with the method described in Chapter 3.3 for the calculation of performance in monetary units. r_{xy} is the validity coefficient of the selection method. For standardised selection methods, e.g. certain intelligence tests, assessment centre or structured interviews, validity coefficients are available from a wide range of studies. The quality of the method used can thus often be quantified on the basis of scientific results. z_x is the mean standard value of the applicants in the selection procedure.

The term $r_{xy} \cdot z_x$ was replaced by the variable d when the utility models were transposed to development programmes (e.g. training). d stands for the effect size (effectiveness or power) of a programme and can be ascertained using statistical test methods. The power shows, for example, the proportion of an improvement in performance which can be traced back to a specific programme. However, this requires a scientific study, e.g. with a control group.

Further reading:

Boudreau, J.W. (1991). Utility analysis for decisions in human resource management. In M.D. Dunnette & L.M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (Vol. 2, pp. 621-745). Palo Alto, CA: Consulting Psychologists Press.

Cascio, W. (2000). *Costing Human Resources: The financial impact of behaviour in organizations*. 4th ed. Cincinnati: South-Western College Publication.

Holling, H. (1998) Utility analysis of personnel selection – an overview and empirical study based on objective performance measures. In: *Methods of Psychological Research Online*, Vol. 3, No. 1. S. 5-24.

Phillips, J. J. (2003). *Return on Investment in Training and Performance Improvement Programs*. Oxford: Butterworth-Heinemann.

Tool: Requirement analysis

What does the method seek to achieve?

The term requirement analysis refers to the procedure for creating a requirement profile. The purpose of a requirement profile is to describe as accurately as possible the performance criteria for a specific function or homogeneous target group of company staff.

What are the main process steps?

There is a wide range of procedures for creating requirement profiles, which differ in the way in which they identify, structure and weight the requirement characteristics. The basic process steps are generally as follows:

- Gathering all relevant documents on the target positions.
- Searching for similar requirement profiles in the literature.
- Compiling a provisional categorisation system.
- Developing a survey procedure (interviewing guidelines, questionnaires) on current and future requirements in the target group.
- Questioning the target group, their superiors and, if necessary, other possible sources of information (customers, management, colleagues).
- Evaluating the data and making the categories operational (which might involve reworking the provisional categorisation system)
- Defining the final categories and describing the behaviour associated with the individual characteristics of each category (what should the target group be able to do?).

What quality standards should be applied?

An assessment of staff performance and thus an assessment of the utility of HR programmes can only be as accurate as the perception of how to differentiate between suitable staff and less suitable staff. The quality of the utility calculation and economic evaluation is therefore highly dependent on the quality of the requirement profile. A requirement profile should in any case map the actual performance criteria as precisely as possible (validity) and describe them clearly and concretely so that all parties have the same understanding of them (reliability). This requires a systematic survey and evaluation process, which records all relevant information objectively and precisely and allows the various perspectives to be compared.

Who should be involved?

A requirement analysis requires the participation of competent providers of information. Generally speaking, these are the superiors who make the appraisals, colleagues, clients, fellow workers and the target persons themselves. Each target group contributes a fresh and relevant perspective. It can be useful, when taking decisions and considering strategically relevant requirements, to consult others from the HR domain or line management.

How expensive is this method?

The cost depends greatly on the work methodology selected. The cost can be limited if the categories are preconfigured by experts and participation is limited to leadership perspectives.

Where can I find more information about this method?

Fleishman, E.A. & Reilly, M.E. (1992). Handbook of Human Abilities. Definitions, Measurements and Job Task Requirements. Palo Alto: Consulting Psychologists Press.

Tool: Performance appraisal using the 270° procedure

What does the method seek to achieve?

The 270° competency and performance appraisal method is an evaluation, feedback and development tool. This method supplements the traditional appraisal by the line manager by incorporating peer evaluations and self-evaluations in a global appraisal. The only difference between this and the full 360° appraisal is that it does not incorporate the perspective of subordinates. The three evaluations making up the 270° competency and performance appraisal complement each other to give a full picture, since they each provide a different perspective. The competency indicators derived in this way can be used within the framework of human capital management to analyse, assess and steer the competency edge of the company.

What are the main process steps?

The following steps are the minimum required for developing and implementing a 270° procedure:

- Defining core competencies at employee level.
- Operationalising specific competencies for areas, departments or functions.
- Developing a standardised evaluation tool (preferably online).
- Defining the evaluation and feedback process and devising supporting tools (e.g. design for feedback workshops and interviewing guidelines).
- Testing the tool on a selected target group.
- Statistically analysing and reworking the tool.
- Informing staff about the objectives of and processes involved in the procedure.
- Informing and training line managers on how to handle the procedure.
- Conducting the initial survey of data for evaluation.
- Evaluating the data at company level.
- Arranging for the feedback process to be implemented by line managers.

What quality standards should be applied?

The strategic competitive edge in the competency profiles should be mapped precisely in order to make use of the competency data from the 270° procedure for human capital management. This means that this item needs to be deeply rooted in the corporate strategy. The appraisal should be scaled up in order to generate quantitative data on, and indicators of, the company's strengths and weaknesses. Once the procedure has been completed for the first time (baseline), it should if possible be repeated annually in the same form for benchmarking and steering purposes.

Who should be involved?

The procedure concerns all company employees, relies heavily on the commitment of line managers, and should be developed and implemented in close consultation with management. Line managers and their staff should be prepared either by means of information meetings, or ideally through specialised training.

How expensive is this method?

Initial one-off construction costs are high. The annual survey process will, however, be efficient if introduced online.

Where can I find more information about this method?

Bracken, D.W., Timmreck, C.W. & Church, A.H. (Eds) (2001). *The Handbook of Multisource Feedback*. San Francisco: Jossey-Bass.

In Chapter 4 below, the perspective of the economic evaluation is expanded. The section presents the economic evaluation of HR programmes in terms of their impact on the performance processes in the company in which several functions (employees) are involved. The process-oriented evaluation falls back on assessment approaches which are different to the function-oriented assessment described above. The process-based evaluation focuses on process costs and process quality, viewed essentially from the perspective of business management. A profitability assessment from the point of view of the corporate processes focuses primarily on the people responsible for processes within the company, e.g. Heads of Department.

4 Evaluation based on performance processes

Companies are increasingly organising their work on the basis of processes. A process is a chain of activities designed to achieve a deliverable. The deliverable is designed to meet the needs and requirements of an internal or external customer.

"Processes are the route to results and so to success in the customer economy" (Hammer, 2001, page 57). The advantage of this process-based perspective and process orientation is a constant focus on customers and on the quality, time and cost factors. Process management and process optimisation are today near-synonyms for survival in a competitive environment epitomised by the following three questions:

- Is anyone better in terms of quality?
- Is anyone quicker and more flexible?
- Is anyone cheaper?

Process management requires a constant focus of all activities on a deliverable. It requires an efficient process chain as well as constant process optimisation in terms of the three fundamental competition-related questions.

Business-process-oriented HR programmes should support the optimisation of business processes.

The economic evaluation of HR programmes at process level must be structured in line with the three process criteria of process costs, process time and process quality.

Thus, in the HPM, a process evaluation focuses on the third structural level (see Figure 10). Process transparency and process modelling are pre-requisites for process optimisation and process-oriented evaluations.

Process modelling

Processes should first be portrayed in the form of a process hierarchy. This makes it possible to clearly structure and delineate all relevant processes in a given business area. First the process groups are defined in the process hierarchy for a given area, such as production, distribution or administration. Each process group covers the business processes, the component main processes, their subprocesses and the activities associated with the subprocesses. The number of hierarchical levels depends on the scale and complexity of the processes to be mapped. A process is defined by the specific task and the scope of the process. Different sequences or differences regarding the resources required for the various procedures thus need to be differentiated by means of different processes. As far as possible, the activities of a department or cost centre are consolidated in subprocesses, so that the necessary resources can be allocated to these organisational units.

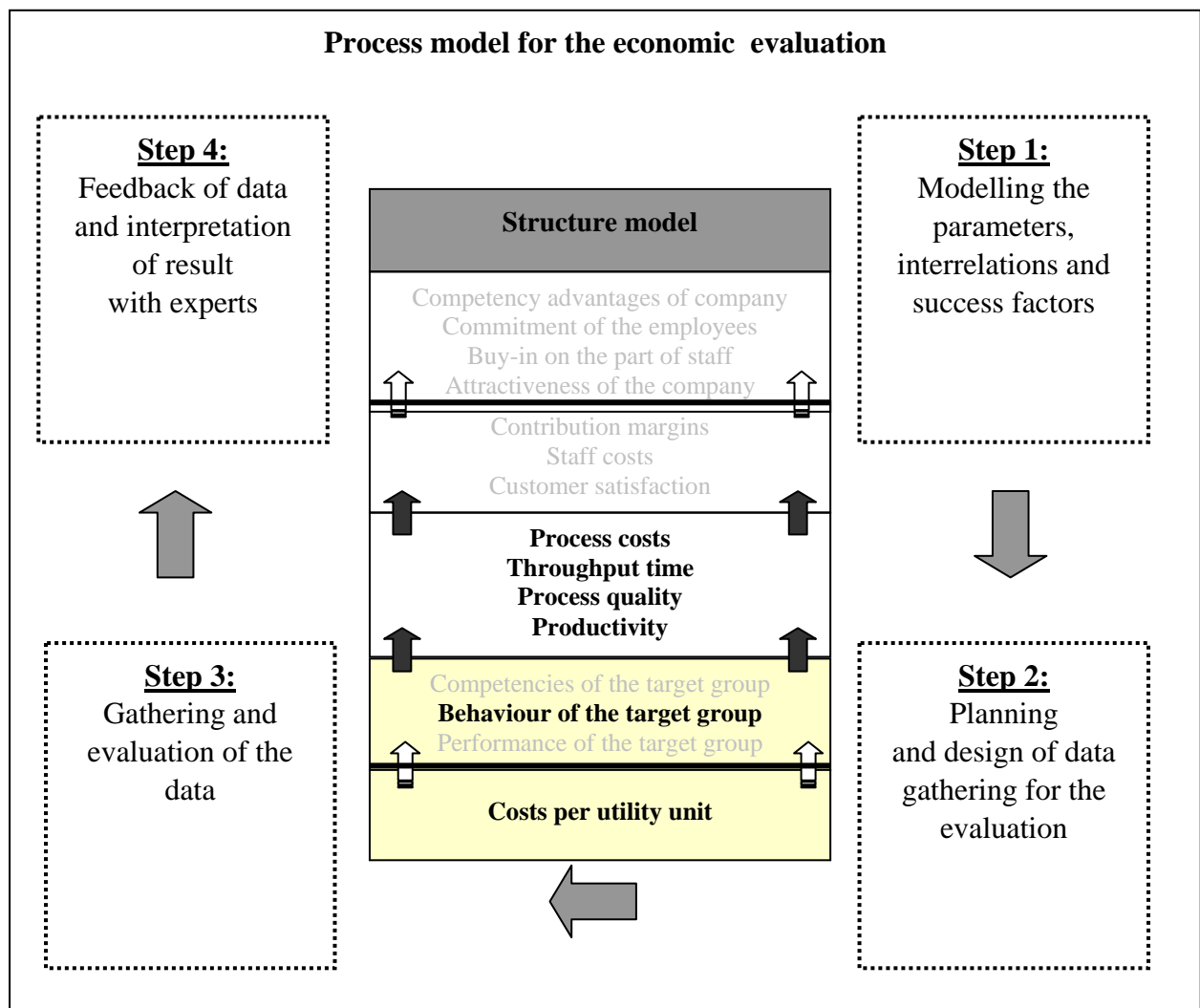


Figure 10: Target levels in the process-based evaluation

For the purposes of process optimisation and economic evaluation, the hierarchical process description must be supplemented by a representation of the process as a cycle in relation to the subprocesses and activities. For process modelling, and thus presentation of the process as a cycle, use can be made of reference models from the literature which define typical process elements and milestones for various business processes (see end of chapter for further references).

The process cycle can, for example, be presented in table form (process matrix) or in a diagram. In recent years a whole range of process modelling programs have been developed which offer the appropriate levels of formalisation and flexibility (Staud, 2001). Table 2 shows how a process can be presented as a process matrix.

Table 2: Description of the process cycle in the process matrix

Process cycle		Organisational unit: department, cost centre				
Consec. no.	Subprocess designation	A	B	C	D	E
1	Subprocess 12	●				
2	Subprocess 16			●		
3	Subprocess 21		●			
4	Subprocess 11					●
5	Subprocess 14				●	
6	Subprocess 09	●				
7	Subprocess 16				●	
8	Subprocess 17		●			

Figure 11 shows how a performance process can be presented in the form of a flow diagram, using operative planning in a hospital as an example.

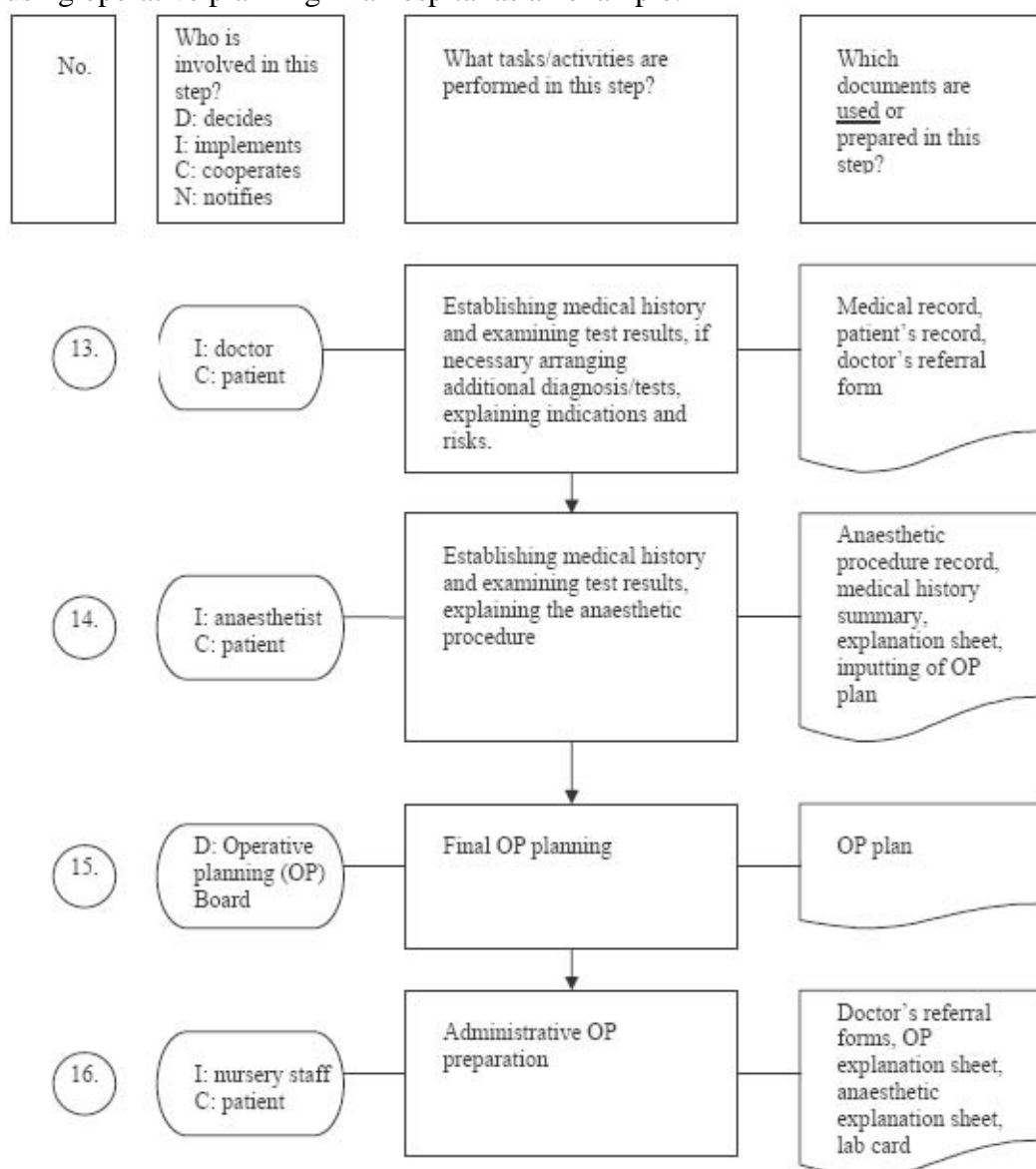


Figure 11: Description of a process cycle in a flow chart, using the example of operation planning in a hospital

In the process analysis, the modelled processes are assessed in terms of cost, time and quality criteria. This is why the indicators needed for the subprocesses are determined:

- Capacities (what is the pure processing time in minutes?)
- Process costs (what does each subprocess cost?)
- Cycle times (what is the total time between the beginning and end of the subprocess, including stocking and transportation times?)

A quality assessment is also made of the activity carried out and the partial results. Table 3 shows an example of how the process matrix in Table 2 is supplemented after process analysis.

Table 3: Process analysis in the process matrix

Consec. no.	Subprocess description	Cost centre	Cost centre costs/hr	Capacity (mins)	Process costs per unit	Cycle time (days)	Quality deficiencies
1	Subprocess 12	A	12	20	3.5	0.7	
2	Subprocess 16	C	5	15	8	0.5	Waiting period for examination
3	Subprocess 21	B	34	8	2.5	0.15	
4	Subprocess 11	E	9	32	2.1	1.2	
5	Subprocess 14	D	21	30	7.7	1.1	High variability
6	Subprocess 09	A	14	6	9.3	0.2	
7	Subprocess 16	D	20	18	4.5	0.6	Poor communication flow
8	Subprocess 17	B	13	21	3.2	0.65	

In the following sections this process-based perspective is transferred to the economic evaluation of HR programmes. First, Chapter 4.1 illustrates how process costs can be computed. Chapter 0 then goes on to demonstrate how process costs can be influenced by HR programmes and how this can be demonstrated. Lastly, Chapter 4.3 deals with process quality as an evaluation criterion.

4.1 Process costs as an evaluation criterion

Process costs are a key evaluation criterion for performance processes. They are determined in activity-based costing. Activity-based costing apportions the resources used by the relevant organisational unit to the processes or subprocesses. This includes costs proportional to performance, i.e. costs which depend on the time and frequency of execution (personnel costs, equipment costs), as well as fixed, one-off costs which must be allocated proportionally to the

process (e.g. licences, depreciation, occupancy costs). The process steps in activity-based costing can be broken down as follows:

1. The employee capacity required for each subprocess must be determined before the costs which are proportional to the performance can be apportioned to the subprocesses and activities; this might for example be the period required for each processing phase.
2. The cost driver must then be established. This is usually the number of outputs produced.
3. Multiplying the cost drivers (CD = number of performances per year) by the time taken for each procedure gives the total employee capacity required per procedure.
4. The capacity proportion can be obtained for each procedure from the ratio of total process-related capacity to staff capacity in the organisational unit concerned.
5. The organisational unit's total proportional costs can then be apportioned to the procedures on the basis of their respective proportion of capacity. This corresponds to the performance-related process cost rate.
6. Lastly, in a second stage the fixed costs are assigned to the subprocesses or activities in proportion to the amount of this process cost rate. This then gives the total process cost rate. Differentiating the proportional and total process cost rate is important for the economic evaluation, since the effectiveness of HR programmes, which exclusively affect the proportional costs, need to be measured solely with respect to the performance-related process cost rate.

Activity-based costing can again be represented in the process matrix (see Table 4).

Table 4: Process cost computation; CD = cost driver, number of performances per year

Total capacity: 26,200 minutes						
Total proportional costs: 80.000,- €						
Consec. no.	Subprocess description	Capacity (mins)	Number of CDs	Capacity x CD	% capacity	Proportional process cost rate
1	Subprocess 12	20	200	4000	15.27%	12,214 €
2	Subprocess 16	15	200	3000	11.45%	9,160 €
3	Subprocess 21	8	400	3200	12.21%	9,771 €
4	Subprocess 11	32	50	1600	6.11%	4,885 €
5	Subprocess 14	30	200	6000	22.90%	18,321 €
6	Subprocess 09	6	100	600	2.29%	1,832 €
7	Subprocess 16	18	200	3600	13.74%	10,992 €
8	Subprocess 17	21	200	4200	16.03%	12,824 €

4.2 Economic evaluation on the basis of process costs

In order to organise processes effectively and efficiently, systematic and constant business process optimisation has for many years been pursued in industrial domains, particularly in view of the high cost pressures on the market. The primary objective is to reduce production costs by means of optimal utilisation rate, i.e. with lower capacities. Business process optimisation is above all associated with improvements in how the cycle is organised and the use of modern technologies. At the same time, considerable investments are made to select and train both staff and management, so that these processes can also be implemented (e.g. training, selection of suitable specialists, team development programmes, training of foremen). Furthermore, in service processes and shared-services units¹⁰, there has in recent years been a greater emphasis on process perspectives, process optimisation and appropriate cost and quality measurement.

A process-cost approach is both possible and advisable when evaluating such process-oriented HR programmes. If process efficiency is highly important, HR programmes (e.g. technical training, teamwork training) should be aimed at promoting the efficiency of the subprocesses. Table 5 takes up the example in Table 4 and shows a computation of process cost effects with improved implementation of subprocesses.

Table 5: Impact of more efficient subprocesses on process costs

Consec. No.	Subprocess description	Previous capacity (mins)	Previous % capacity	Proportional process cost rate	Subsequent capacity (mins)	Subsequent % capacity	Proportional process cost rate
1	Subprocess 12	20	15.27%	12,214 €	13	9.92%	7,939 €
	Activity 1	10	7.63%	6,107 €	6	4.58%	3,664 €
	Activity 2	3	2.29%	1,832 €	3	2.29%	1,832 €
	Activity 3	2	1.53%	1,221 €	2	1.53%	1,221 €
	Activity 4	5	3.82%	3,053 €	2	1.53%	1,221 €
5	Subprocess 14	30	22.90%	18,321 €	24	18.32%	14,656 €
	Activity 1	6	4.58%	3,664 €	6	4.58%	3,664 €
	Activity 2	8	6.11%	4,885 €	5	3.82%	3,053 €
	Activity 3	4	3.05%	2,443 €	4	3.05%	2,443 €
	Activity 4	5	3.82%	3,053 €	3	2.29%	1,832 €
	Activity 5	7	5.34%	4,275 €	6	4.58%	3,664 €
8	Subprocess 17	21	16.03%	12,824 €	16	12.21%	9,771 €
	Activity 1	4	3.05%	2,443 €	4	3.05%	2,443 €
	Activity 2	10	7.63%	6,107 €	7	5.34%	4,275 €
	Activity 3	7	5.34%	4,275 €	5	3.82%	3,053 €
	Total		54.20%	43,359 €		40.46%	32,366 €
	Saving						10,992 €

¹⁰ Shared services units are departments within an organisation which work for several units within the organisation, e.g. the staff development unit.

In this example the HR programme has an impact on how efficiently the activity is performed in seven process-relevant activities (shaded grey in Table 5). The percentage capacity and process cost rate are reduced accordingly. The total saving brought by the HR programme amounts in this case to €10,992. As with the function-based evaluation, the cost of the HR programme must also be calculated here so as to be able to calculate the added usefulness value and return on investment.

4.3 Economic evaluation on the basis of process quality

The process perspective allows evaluations to be made on the basis not only of the efficiency of the subprocesses but also of the process quality factor. The concept of standardised processes thus means error-free performance of the activities. Errors give rise to rejects, rework or defective products and/or services. In the process perspective, the effects of such quality shortfalls are first linked back to the costs. Thus, it is now standard practise in most industrial processes for the costs associated with testing, rework and rejects to be systematically measured and economically evaluated. In many cases, the objective is zero errors. The move to achieve the zero-error mark is above all driven by constant process optimisation with appropriate individual and team-based qualification initiatives (along the lines of the Japanese "Kaizen" principles or continuous improvement processes (CIPs)). Kaizen and CIP are concepts which are now common in production, offices, and service processes.

Any evaluation of process-oriented HR programmes should therefore also consider as economic criteria the costs incurred by defective work. This can be achieved by calculating additional personnel expenditure in respect of checking, reworking or remanufacture. Defective work can also have consequences and add costs for other business processes, e.g. in the area of logistics.

It is, however, also important to consider the non-cost-related impact of improved process quality through HR programmes: quicker delivery, high product quality from the point of view of the customer, more flexible adaptation of product characteristics to customer requirements or the acquisition of new customers through quick innovation processes. Such quality factors can be measured within the company, while the related impact evaluation has to be performed in the marketplace and via the (internal or external) customers. An economic evaluation in this area is therefore tricky. It can be based only on estimates, which are in turn based on customer surveys or market research. Process-quality improvements as non-financial criteria are, however, also important, commercially relevant dependent variables of HR initiatives.

Further reading:

Jeston, J. & Nelis, J. (2006). *Business Process Management. Practical Guidelines to Successful Implementations*. Oxford: Butterworth-Heinemann.

Krajewski, L.J., Ritzman, L.P. & Malhotra, M.K. (2006). *Operations Management. Processes and Value Chains*. Amsterdam: Addison-Wesley.

Smith, R.F. (2006). *Business Process Management and the Balanced Scorecard. Focusing Processes as Strategic Drivers: Using Processes as Strategic Drivers*. New York: Wiley & Sons.

Tool: Definition of performance processes

What does the method seek to achieve?

An important prerequisite for profitability assessments of HR programmes with regard to process costs and process quality is a clear process definition. This involves delimiting and defining a performance process on the basis of uniform systematics. Processes frequently overlap to form a "process landscape", so that delimiting subprocesses should allow targeted steering, despite the complexity of the interactions. Defining processes in terms of the same characteristics is a prerequisite for process analysis, the establishment of process performance indicators, process optimisation and the evaluation of process improvements as part of an evaluation.

What are the main steps?

Processes can be delimited and described by applying the following steps (based on the example of an ideal design for the "reminders" performance process in a hospital):

- **Establish the purpose of the process:** What is the process seeking to achieve and what added value does it bring?
e.g. securing the claim and liquidity
- **Clarification of customer expectations:** Who are the customers and what do they expect from the process?
e.g. cost units: complete documentation, contact persons, further information
- **Definition of the output:** What data, documents, services should be "produced"?
e.g. performance data, reminder dates (amounts, periods), instalment agreements
- **Definition of the input:** What data, documents and services are required?
e.g. patient data, treatment data, bill (outstanding debit)
- **Establishment of the first process step:** What initiates the process?
e.g. activation of the automatic reminder procedure
- **Establishment of the last process step:** When does the process end?
e.g. expiry of deadline in the second reminder stage: referral for enforced recovery
- **Definition of the interfaces:** What additional connections are there to other processes?
e.g. to the accounting system in SAP
- **Clarification of resources:** What operating resources and aids are necessary?
e.g. functioning reminder program
- **Designation of success factors:** What are the pre-requisites for customer satisfaction?
e.g. prompt billing
- **Description of the documents:** What instructions or check lists are required?
e.g. contractual conditions, open post list

What quality standards should be observed?

The process definition should be documented in a standard form.

Who should be involved in this?

The process definition should be worked on by a "process team", which should if possible comprise all relevant technical groups. Further sources of information (e.g. interfaces) should be commissioned as required.

How expensive is this method?

Process definition along these lines is possible with around 2-3 project meetings.

Where can I find out more about the method?

Jeston, J. & Nelis, J. (2006). Business Process Management. Practical Guidelines to Successful Implementations. Oxford: Butterworth-Heinemann.

Tool: Determination of process performance indicators

What does the method seek to achieve?

The indicators and dependent variables of process performance are defined on the basis of process performance indicators. These are necessary for objective-related process steering and are used in profitability assessments as variables for the effectiveness of HR programmes at process level.

What are the main steps?

Process performance indicators can be established by means of the following steps:

- Determination of the process objectives:

The process objectives should be determined from two complementary perspectives. Firstly, they are an operationalisation of the strategic business objectives and must be derived from these in terms of their content and logic. Central competitive goals in relation to costs and quality must be achieved in the processes. It is essential here to clarify what contribution the performance process under examination should make to the business objectives as well as what constraints are placed on the process by the strategic perspective. Secondly, knowledge of the processes and the factors creating process bottlenecks should produce meaningful objectives. An analysis has to be made of how the processes can best be organised and what objectives they can be measured against. The three traditional types of objective in processes are: time, costs, quality.

- Determination of the dependent variables and measurement procedures:

In a second stage, dependent variables, measuring procedures and performance indicators should be developed for each objective. The dependent variables are expressed either as a figure representing a direct target (e.g. cycle times in minutes) or as indicators which do not directly set a target, but represent a target to be achieved (e.g. minutes spent in reworking as an indicator for the number and type of manufacturing errors). The dependent variables are also dependent on the measuring procedure defined. Dependent variables can be derived by such methods as observation, surveys, automatic recording and product testing. The procedure should be standardised, workable and valid. The dependent variables should be as quantitative as possible to enable performance indicators to be defined. Performance indicators are combined or allocated dependent variables. The aim is it to measure the costs and quality of a performance process with as few performance indicators as possible. Performance indicators can also be presented in a so-called performance indicator tree, which also presents the original dependent variables included in the performance indicator.

What quality standards should be observed?

Dependent variables, performance indicators and measurement procedures should be planned carefully, taking full account of reliability and validity. The quality and workability of the performance indicators are, however, also highly dependent on a quality management approach based on performance indicators, which ensures that the strategy and process environment are well mapped and that the people in charge use them for steering purposes.

Who should be involved in this?

The formulation of performance indicators requires both a thorough knowledge of the underlying processes and a good technical knowledge of measurement procedures and the development of performance indicators. Assistance should therefore be sought from the appropriate process and method experts.

How expensive is this method?

If a process is well defined, performance indicators can be devised in just a few project meetings. The need for data gathering and maintenance, however, means that there must be clear responsibility for performance indicators in the controlling domain.

Where can I find out more about the method?

Horváth & Partners (Eds.) (2005). Implementing Process Management. Increasing sales and lowering costs through sustained process performance. Stuttgart: Schäffer-Poeschel.

Chapter 5 below further develops this perspective by considering the profitability of HR programmes at company level. The contribution HR programmes make to individual increases in performance and the optimisation of performance processes should ultimately help to achieve the strategic business objectives. The following chapter demonstrates how this link can be established. A profitability assessment from the point of view of the company as a whole is primarily directed at management, which is also responsible for ensuring the long-term availability of the staff resources the company strategy requires.

5 Strategy-based evaluation

A company's strategy determines its long-term orientation. A business strategy primarily focuses on the product or service market. It involves the following questions:

- Which markets do we want to be active in?
- What are the competition conditions and dynamics of those markets?
- What competitive edge do we want to achieve?
- How do we achieve and consolidate such a competitive edge?

All activities of the company, including HR work, should focus on this strategy. HR work should support the competitive edge sought. The effectiveness of HR programmes must therefore be measured against the strategic objectives.

However, anyone seeking to link the effectiveness of HR programmes to the development of strategic objectives has one more bridge to cross. It is rare that direct links can be established, as for example in the case of the reduction of staffing levels and its impact on the company's personnel costs. Despite, or perhaps because of, the various indirect and systemic effects, the quantity and quality of staff is crucial in many companies to achieving a competitive edge and implementing strategy.

The balanced scorecard (BSC) is a tool, already implemented in many companies, which can establish a connection between investments in the HR domain and business success. The BSC is a strategic steering approach, which sees human factors as constituting a competitive edge and incorporates them in the strategy process. The BSC approach is thus an excellent basis for a strategy-based evaluation of HR programmes. The following sections present the BSC (Chapter 5.1) and its natural extension, the strategy map (Chapter 5.2) and their potential applications for HRM economic evaluation (Chapter 5.3).

5.1 The balanced scorecard

The balanced scorecard (BSC) was developed by Kaplan and Norton in 1996. It was designed to supplement traditional company steering with financial performance indicators, since financial values alone cannot satisfactorily portray the central value drivers and sustainable values of a company.

The balanced scorecard therefore addresses a company's potential, such as brands, quality and performance process efficiency or the know-how it has available in the form of registered patents. These areas of potential are incorporated into strategic management as factors which are given the same weight as traditional business administration performance indicators.

It reflects the strategy of a company in no more than four dimensions with the following contents (see Table 6).

- (1) Financial perspective: The performance indicators for the financial perspective illustrate the financial success of the company. They are very similar to the performance indicators for traditional bookkeeping and commercial accounting. Examples of performance indicators in this area are: profit, cost-effectiveness, cash flow and contribution margin.
- (2) Customer perspective: The customer perspective shows the customers' view of the company. The performance indicators used here are mainly qualitative rather than financial. In many cases these performance indicators have to be developed only in the long term. Examples are: customer satisfaction, customer retention, market position and

brand name.

- (3) **Business process perspective:** In this perspective, performance indicators are defined for internal processes and production objectives. The performance indicators relate to such areas as logistics, value creation chains, turn-around times and quality indicators.
- (4) **Learning and growth perspective:** This perspective is to map the extent to which the long-term survival objectives of the organisation are being achieved. In addition to performance indicators for innovation, research and development (R&D), this perspective above all includes objectives in the area of staff qualifications and abilities and staff turnover. Thus, in a company's BSC, staff performance indicators are used as part of the learning and growth perspective and are set in the context of the organisation's success in meeting its objectives. This is how a connection is made and developed between HR programmes in the company and strategic success.

Table 6: The four perspectives of the BSC

1 Finances	2 Customers	3 Business processes	4 Learning and growth
<ul style="list-style-type: none"> ▪ Profit ▪ Cash flow ▪ Return on investment 	<ul style="list-style-type: none"> ▪ Satisfaction ▪ Market share ▪ Brand image 	<ul style="list-style-type: none"> ▪ Process costs ▪ Process quality 	<ul style="list-style-type: none"> ▪ Competencies ▪ Motivation ▪ Buy-in

A company's business success is defined on the basis of performance indicators in all four areas. A clear company strategy needs to be defined before these performance indicators can be determined. Critical success factors are then identified for the individual areas on the basis of this strategy. Accordingly, performance indicators must be determined which reflect these success factors. The performance indicators then reflect the extent to which a company has already implemented its strategy and the areas where action is needed in the coming years. Constantly examining objective deployment in all areas makes it possible to estimate performance and potential within the organisation.

The process of developing strategy, objective criteria, performance indicators and measurement methods is an integral and major part of the BSC concept. The overall development process of the BSC serves not only to define measurement criteria but also promotes the clarity of the objectives for the company's business. Transparency and acceptance of objectives, performance indicators, achievement of objectives and measurement methods strengthen synergies and support strategic action on the part of all staff and managers.

When the learning and growth perspective is included as a fourth dimension of strategic management, the importance of HRM for the long-term success of the company will be better acknowledged.

The BSC thus provides the architecture for strategic steering of the company and HRM. The strategy development and implementation process, incorporating the employee perspective (growth and learning), has the effect of making HRM strategy-oriented. The definition and measurement of performance indicators at all levels provides data which can also be used for the economic evaluation of HR programmes. This presupposes that interactions can be demonstrated between specific HR programmes and performance indicators.

The four perspectives correspond to the levels in the HPM (see Chapter 2.2), i.e.:

- HPM organisational level: BSC finance and customer perspectives
- HPM process level: BSC business process perspective
- HPM function level: BSC learning and growth perspective.

A strategic evaluation of HR programmes should thus build on the function-oriented and process-oriented evaluation methods and expand them to include financial and customer-oriented perspectives or organisational levels. However, an evaluation along these lines which cascades through the three levels involves examining the interactions between the various levels.

5.2 The strategy map

Kaplan und Norton (2004) took up the aspect of the interconnections between their BSC concept and the concept of the strategy map. The aim of the strategy map is not it to map all relations of cause and effect between the various levels, but to build a visual presentation of the success factors and their fundamental interactions. This is essentially why it is a highly suitable tool for the systematic formulation, communication and operationalisation of strategy. Strategy maps should inter alia:

- clarify strategy for the staff, associating their activities with the overarching company objectives and
- give organisational units a strategic orientation and focus management processes.

The map must then be operationalised in relation to the company. The constructs chosen must be defined in the next step and verified with performance indicators. The assumed correlational patterns are then formulated verbally so that they are clear for line managers and staff alike.

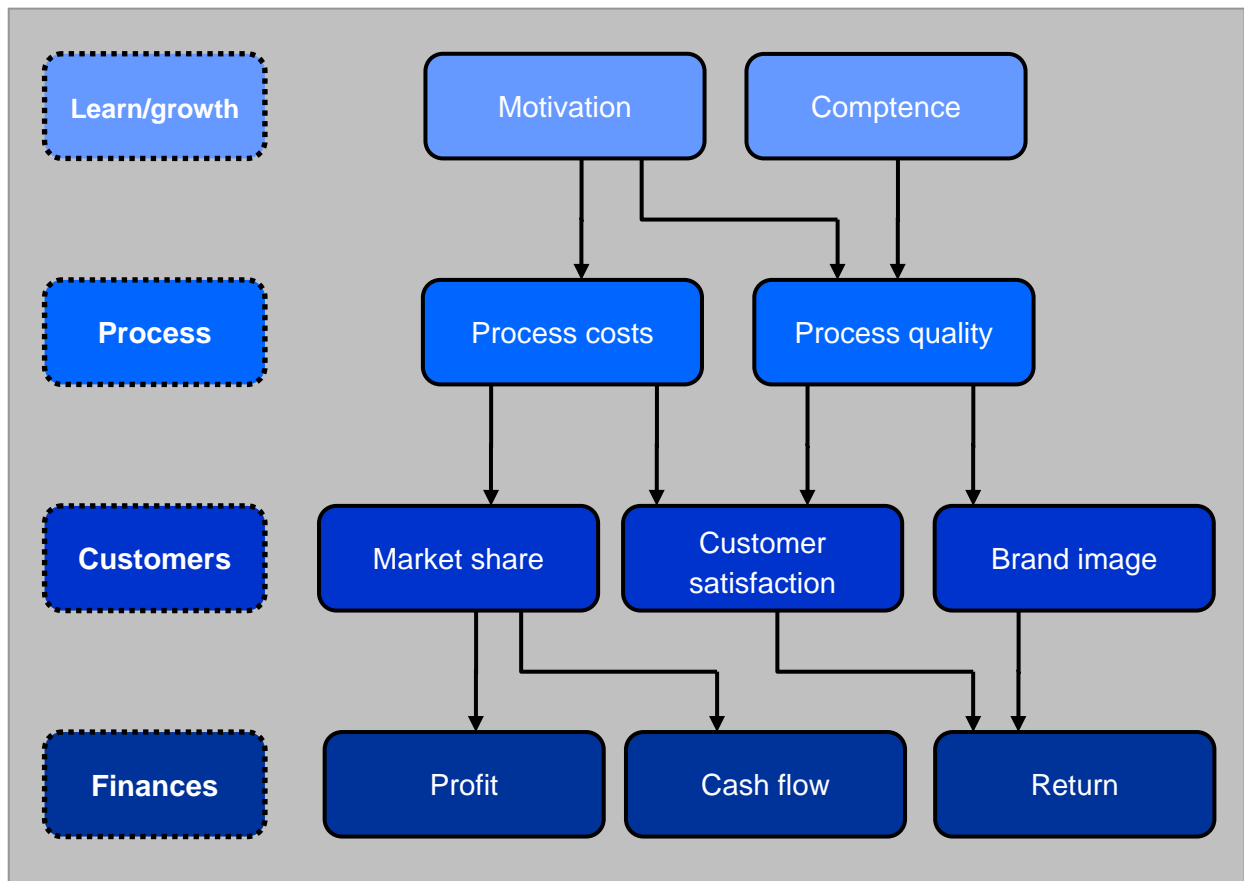


Figure 12: Basic structure of a strategy map

The concept of the strategy map as an extension of the BSC approach offers a workable structure for a strategic evaluation of HR programmes, since in this area the effect chain of the human factors in the learning and growth perspective has an impact via the competitive edge in the process and customer perspective even as far as the strategic target values in the finance perspective.

5.3 Evaluation of HR programmes with the strategy map

The specific effects of HR programmes must be measured, since strategic HRM evaluation seeks to bridge the gap between human investments and strategic business success. This is not achieved by the performance indicators for the BSC, which are typically highly abstract. A company's BSC is therefore usually too non-specific for an evaluation of specific HR programmes.

The criteria and dependent variables which are meaningful for the evaluation are determined as part of an analysis of the relevant performance processes (see Chapter 4) and the relevant functions (see Chapter 3). These are the processes and functions which are affected by HR programmes. The criteria and performance indicators, together with the strategic performance indicators, make up the specific strategy map. These can also be reduced to just levels 2-4 of the HPM: the functional, process and organisational levels. This results in the following evaluation structure:

- (1) Evaluation on the basis of the functional effect chain (this gives concrete form to the learning and growth perspective of the BSC)
- (2) Evaluation on the basis of the cost and quality criteria from the process description (BSC and HPM perspective processes)
- (3) Evaluation on the basis of the strategic characteristics at organisational level (this includes both the BSC customer perspective and the BSC financial perspective).

Figure 13 shows this fundamental evaluation structure for the strategy-based evaluation of HR programmes with the help of a strategy map on the basis of the HPM or BSC.

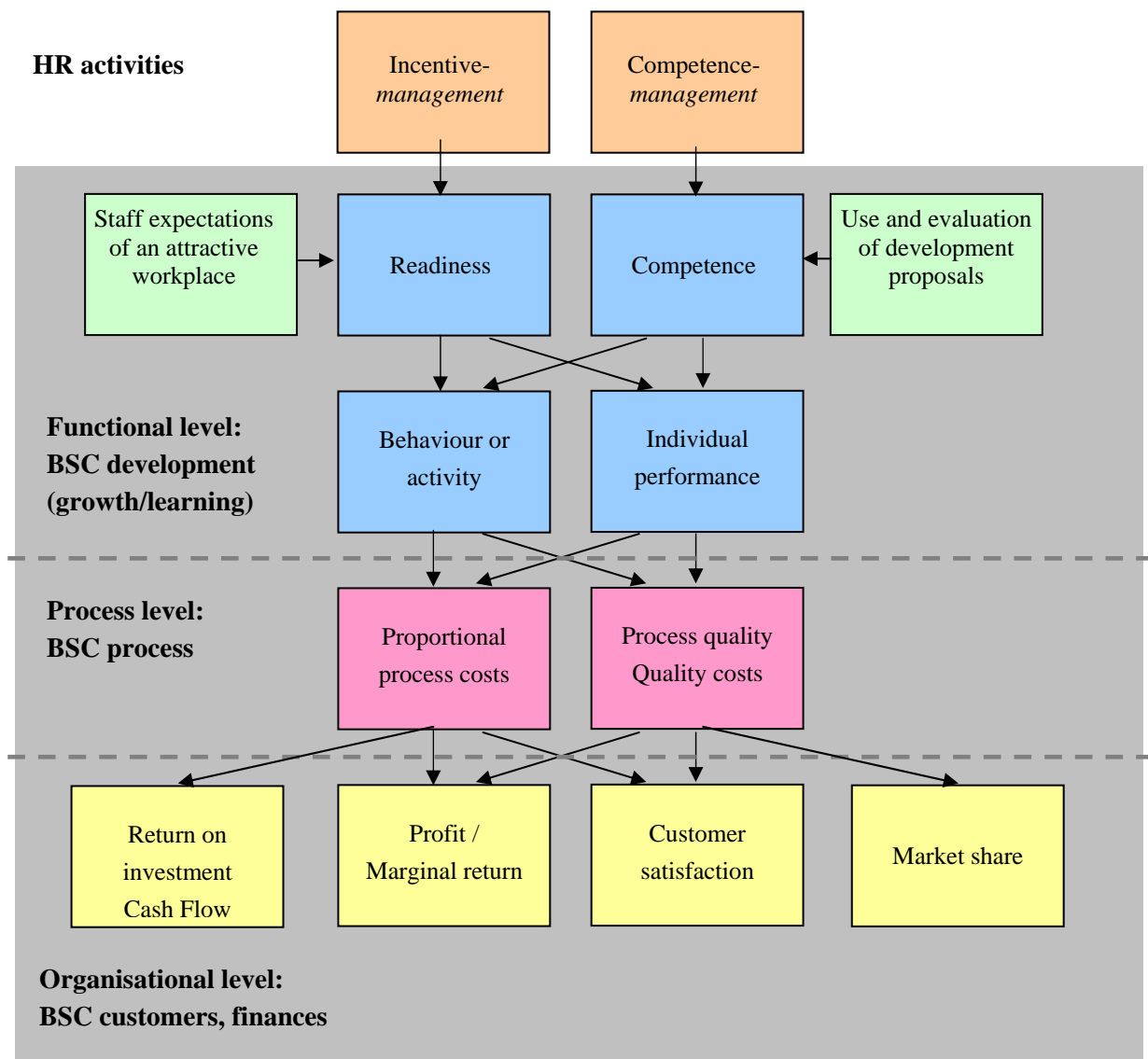


Figure 13: Strategy map in the economic evaluation of HR programmes; the levels of the HPM and of the Balanced Scorecard are shaded grey

Most importantly, the strategy map also establishes tangible connections between the three levels. This is illustrated in the following sections.

Linking the functional level to the process level:

If these two levels are to be interconnected, the function-based requirement profile has to be incorporated into the process model. This is achieved by means of the activity profile. Clear decisions must be taken as to which function-based activities should be allocated to which subprocesses and what activities they correspond to (see Table 7). Ideally, the requirement categories which correspond to the activities and subprocess steps should already be determined in the course of the requirement analysis.

Table 7: Connection between functional level and process level in the strategy map; the fields highlighted in grey show the process improvements from Table 5

Function A	Process				
	Con sec. No.	Subprocess designation	Subsequent % capacity	Proportional process unit cost	Quality improvements
Activity 1	1	Subprocess 12	9.92%	7,939 €	
Activity 2		Activity 1	4.58%	3,664 €	
Activity 3		Activity 2	2.29%	1,832 €	
Activity 4		Activity 3	1.53%	1,221 €	
Activity 5		Activity 4	1.53%	1,221 €	
Activity 6	5	Subprocess 14	18.32%	14,656 €	
Activity 7		Activity 1	4.58%	3,664 €	x
Activity 8		Activity 2	3.82%	3,053 €	
Activity 9		Activity 3	3.05%	2,443 €	
Activity 10		Activity 4	2.29%	1,832 €	
Activity 11		Activity 5	4.58%	3,664 €	
Activity 12	8	Subprocess 17	12.21%	9,771 €	
Activity 13		Activity 1	3.05%	2,443 €	x
Activity 14		Activity 2	5.34%	4,275 €	
Activity 15		Activity 3	3.82%	3,053 €	x
Activity 16		Total	40.46%	32,366 €	
Activity 17		Saving		10,992 €	

Once function-based activities have been translated into subprocesses and activities, the quality of performance of the activity can also be expressed in terms of process-based indicators (time, quality, costs).

Linking the process level to the organisational level:

Assuming that the business process under consideration has a direct or indirect impact on competitiveness, the process-cost effects calculated at process level must be aggregated at organisational level. This means extrapolating the impact of all quantifiable changes on

overarching performance indicators, for example

- influence on overall staff capacity
- influence on total personnel costs
- influence on the contribution margin of the overarching organisational units
- influence on the cash flow of the company
- influence on total profit.

Such a calculation is not possible with qualitative performance indicators. It should, however, be possible to demonstrate the importance for the strategic objectives of improving product or service quality in a quantifiable and verifiable manner. Improved product characteristics can for example be identified in a customer satisfaction analysis. The importance of quicker innovation processes can be evaluated by means of strategic performance indicators (number of new developments per year). The more closely the performance processes in the company are aligned to strategy, the more visible such interconnections become, even if they cannot be translated into strictly financial terms.

The strategic evaluation requires not only a strategy focus for the organisation, but also a cooperative process of the parties involved at all three levels, ensuring that the process managers, the operational managers (lowest level of management) and the HR managers construct their interfaces in a professional manner.

Further reading:

Becker, B.E., Huselid, M.A. & David, U. (2001). *The HR Scorecard: Linking People, Strategy and Performance*. Boston: Harvard Business School.

Kaplan, R.S., Norton, D.P. (2004). *Strategy maps: Converting Intangible Assets into Tangible Outcomes*. Boston: Harvard Business School.

Kaplan, R.S. & Norton, D.P. (1997). *Balanced Scorecard – Translating Strategy into Action*. Stuttgart: Schäfer-Poeschel

Tool: Strategy workshops in the HR domain

What does the method seek to achieve?

Profitability assessments and economic evaluations of HR programmes are made in the context of the company's objectives. The business objectives should usually be based on a defined company strategy, which determines the main lines of attack for the next 2-5 years. The business strategy is made tangible by means of strategic business objectives. These objectives, which constitute the framework for HRM, should be translated into an appropriate HR strategy. Strategy workshops are an effective way of erecting the cornerstones of an HR strategy, which defines the context for evaluating the profitability of HR programmes.

What are the main steps?

A strategy workshop along these lines in the field of HR involves the following steps (the methodology is transferable to any other specialist area):

- Introductory statement from the Chairman: The meeting begins with an ice-breaker by the Chairman. It will involve setting out the reason for the workshop, as well as its fundamental objective and scope. The statement also serves to kick off the "strategy" theme.
- Workshop objectives: The beginning of the workshop should be for an exchange of individual expectations, interests and concerns with a view to defining common objectives for the workshop and the further strategy work, for which all the parties are responsible.
- Requirements of our customers: Then all participants turn their attention to the "world of the customers". Discussing these in conjunction with the business requirements ensures that the outside world and the associated own value creation remain in focus when strategy is being developed.
- The future of HR work from a technical point of view: The Chairman, moderator or a participant outlines current HR trends and developments as well as perspectives and opportunities for the future of HR management. This is to open out horizons as regards possible ways of organising the services.
- Scenario work: The participants develop various scenarios, which demonstrate the range of possible development strands for matters identified as shaping the future. Scenarios reveal certainties, uncertainties and the fact that relations change. Confronting the future in this way reveals which key issues and decisions the field will soon be faced with. This also helps to differentiate between the factors that can be controlled and those which cannot. From the scenarios defined, the group develops strategic lines of attack and recommended actions for HR business. These are ultimately translated into strategic objectives which are independent of the scenarios.
- Strategic action areas: In the last two steps, key actions and activities are specified for the coming months. First the various opportunities and options presenting themselves in the course of the year are highlighted and discussed ("the strategic window is opened."). These options are evaluated and action areas are prioritised on the basis of the strategic objectives. In order to make a realistic feasibility assessment and clarify the need for change, an examination is made of the personnel and structural resources for the prioritised action areas.
- Further procedures: At the end of the workshop, tangible responsibilities and interim objectives are agreed for the coming months. In addition, further strategy work is organised and the overarching business strategy is visualised.

What quality standards should be observed?

The strategy workshop should be prepared and led by a moderator, since the manager responsible (e.g. Head of Human Resources) is already tied up in his own role. Preparations should include clarifying the actual situation and setting objectives for the participants as well as presenting the tasks to be accomplished (perhaps by means of a specialised lecture by a participant or line manager).

Who should be involved in this?

The strategy workshop should be carried out within the service team (e.g. all HR managers).

How expensive is this method?

A well planned workshop is a very efficient way of carrying out strategy work. It is, however, essential for the requisite work on strategic themes to be carried out after the first workshop in the form of further workshops and in regular service meetings.

Where can I find out more about the method?

Albers, O. (2000). Gekonnt moderieren: Zukunftswerkstatt und Szenariotechnik. Schnell und innovativ die Unternehmenszukunft gestalten. [Knowing how to moderate: future workshop and scenario technology. How to shape the future of your company quickly and innovatively] Regensburg: Metropol.

Tool: Development of a strategy map

What does the method seek to achieve?

Strategy maps involve developing a system of performance indicators to provide management with target values to help them steer organisational units (the whole company, parts of the company, HR field). Strategy maps also highlight the relations of cause and effect between these target values. This makes it possible to steer the so-called "value drivers" which have a significant impact on the company. Examples of such value drivers are investment in research and development, staff development measures and the efficiency of selected business processes. All target values are defined and dependent variables and measurement procedures are ascribed. Strategy maps establish data architectures for the strategic evaluation of HR programmes.

What are the main steps?

The development of a strategy map (here we have taken the HR domain as an example) requires the following steps:

- Clarification of the objectives of the strategy map with HR management
- Establishment of the addressees and users of the instrument within the company
- Design of the basic structure (e.g. similar to the balanced scorecard; Kaplan & Norton, 1996)
- Definition of the strategic and operational objectives in the HR domain as well as the main action areas programmed in the field of HR
- Determination of the relevant data areas for defining the business objectives in HR domain (compliance with the budget, efficiency objectives, quality objectives), staff programmes (e.g. increasing the qualifications of a certain target group, efficiency improvements in a certain area, reducing staff turnover in a certain area) and the extent and quality of the HR programmes planned, through interviews with those responsible
- Definition of objectives for all data areas and formulation of impact hypotheses
- Design of data acquisition methods for regular measurement of all target values
- Initial collection of data and evaluation (development of performance indicators and impact analyses)
- Interpretation and evaluation of the data and how they impact on each other (involving all relevant people of the evaluation team and all data owners in the organisation)
- Definition of HR action areas
- Optimisation of the data acquisition procedure for regular deployment.

What quality standards should be observed?

The quality of the strategy map depends on the quality of the data and interconnections established. Here it is essential to produce robust assessment procedures for the "soft data areas" and incorporate as much objective data as possible (e.g. from business controlling), which exist independently of the strategy map.

Who should be involved in this?

The strategy map should be developed with the participation of the managers of each area and the operational specialists (e.g. staff developers), in order to gain a comprehensive picture of the objectives and fields of action and to determine the right performance indicators.

How expensive is this method?

Devising a strategy map is a comprehensive development project. Its operation and use must be anchored in day-to-day procedures.

Where can I find out more about the method?

Kaplan, R.S., Norton, D.P. (2004). Strategy maps: Converting Intangible Assets into Tangible Outcomes. Boston: Harvard Business School.

Chapters 3-5 set out the various evaluation approaches, depending on the objectives and the addressees of the economic evaluation. However, the HR services are themselves also users of such profitability assessments, since they can improve their own work through systematic planning, organisation and evaluation. HR staff and all specialists who are responsible for HR programmes are thus also important recipients of the economic evaluation results. Chapter 6 shows a new evaluation approach, designed to generate information for strategic staff management. Human Capital Management involves selecting both a concept and a perspective as a basis which has not to date been used in evaluation approaches, but which has very great potential for the future professionalisation of HR work in the field of strategic competition.

6 Human Capital Management

In this chapter, economic evaluation is presented as an instrument of professional HR work. HR work is professional if it recognises the need for human-oriented presentation at levels 2-4 of the HPM (organisation, process, function), tackles the issue with line management and introduces programmes to increase the competitiveness of the company. HR is thus increasingly seen as a business partner.

Within the framework of the business partnership, HR work should first focus on the strategic objectives defined in conjunction with line management, as covered in the previous chapters. The economic evaluation of HR work is, depending on the business partner, strategy-oriented (top management), process-oriented (domain management) or function-oriented (team or department managers). HR can work in line with the procedures set out in Chapters 3, 4 and 5.

If we understand HR work to be not only a business partnership but also an independent contribution by HRM to the competitiveness of the company, the concept of human capital comes into play (Level 5). This concept involves the idea that the work force is a significant, perhaps even the most important characteristic of a company, which it needs to foster, develop, activate and unite. However, unlike technical facilities, human capital is not directly available to a company in the long term, but must constantly be won over through HR programmes which make the workplace an attractive place to be and which promote good performance. This involves both winning over new employees and winning over the current workforce to the objectives of the company and securing their commitment to the tasks ahead. The employees themselves own their capital, which they bring to the work process.

The human capital (HC) of the company can be described as

- the knowledge, abilities and attitudes, which
- the employees make available to their company and
- which are important for the future competitiveness of the company.

From this perspective, HR work has a wider task going beyond the business partnership: human capital management (HCM). The following sections set out the main principles of HCM (Chapter 6.1), outline the human capital scorecard as an HCM steering concept (Chapter 6.2) and then move on to the economic evaluation of HR programmes on this level (Chapter 6.3).

6.1 Human capital as a competition factor

Strategic management of human capital is increasingly becoming a competition factor for companies, since competitive edges in many markets are based on skill advantages and the market for highly-qualified specialists is becoming increasingly competitive. Furthermore, social changes in Europe (e.g. demographic change) and worldwide (e.g. mobility of employees) are contributing to the shortage of this resource. In competing for capital on the stock markets or for external financing, companies which have set in place a durable, well-documented HR management system are already acquiring an edge for the future. Thus, in the medium term a competitive edge is acquired by those companies which,

- offer attractive incentives to the human capital,
- develop it with a view to future skill advantages and

- regularly demonstrate and document the resulting human potential.

A pre-requisite is systematic and durable human capital management (HCM), which in some respects is clearly different from conventional personnel management. It is characterised by the following points:

- (1) HC is perceived as a competition factor on the various markets and the competitive edges to be achieved are defined.
- (2) The (economic) value and utility of the competitive edges to be achieved are evaluated.
- (3) Investment in HC is a priority in order to achieve this competitive edge.
- (4) Costs/investments and utility/competitive edges are set against each other in a kind of human capital balance sheet.
- (5) Investment decisions are made within the framework of a business plan and are safeguarded by profitability analyses.
- (6) All management staff in the company take responsibility for the HC as part of the competition strategy, are measured against it and are provided with the appropriate tools and information.
- (7) HC management is thus the joint responsibility of all management staff and HR staff.
- (8) Thus, Human Resources are tasked with overarching HC steering as well as operational and strategic personnel work. Such overarching steering requires economic evaluation as an integral part of HC management. Only through evaluation can the correct investment decisions be made and monitored in the field of HC. Evaluation here should be understood as the controlling required for steering.

HC management offers the chance for a thorough professionalisation of HR management, close linkage of HR work to business issues and the unification of all HR staff and management behind the company HR strategy. Investments in the employees are steered in such a way that there is a direct, measurable and verifiable link to the company strategy. The management at all times has an overview of HR strengths and risks in the company and of the effectiveness and profitability of HR expenditure.

The remainder of the section presents the human capital scorecard, an overarching steering tool for human capital.

6.2 Human capital scorecard

The human capital scorecard

- defines and evaluates the human capital,
- makes the nature and scope of the investments in human capital transparent, and
- measures the impact of human capital on business success.

In addition, the HC scorecard should contain data which indicates what requirements should be placed on future investments in human capital (HR programmes). These are above all the resources and competencies required for the future in the area of HR. This results in an HC scorecard developed along the lines of the standard BSC. The HC scorecard (see Fitz-Enz,

2000) contains descriptions and data which define human capital, the factors which influence it and its impact in four fields (see Table 8):

Table 8: The human capital scorecard

1 <i>Human capital impact</i>	2 <i>Human capital</i>	3 <i>Human capital investment</i>	4 <i>Human capital management competencies</i>
<ul style="list-style-type: none"> ▪ Market shares ▪ Customer satisfaction ▪ Customer retention ▪ Brand image ▪ Process costs and process quality ▪ Profit, cash flow, return on investment 	<ul style="list-style-type: none"> ▪ Competencies ▪ Potentials ▪ Motivation ▪ Commitment ▪ Health ▪ Buy-in ▪ Cooperation ▪ Management ▪ Culture 	<ul style="list-style-type: none"> ▪ HR marketing and recruitment ▪ Skill management ▪ Talent management ▪ Leadership development ▪ Commitment management ▪ Performance management ▪ Promotion of occupational health 	<ul style="list-style-type: none"> ▪ Resources in HR work ▪ Existing HR competencies ▪ Existing standards ▪ Positioning in the company ▪ Planning processes ▪ Evaluation processes

The four fields in Table 8 mean, from left to right:

Field 1: Human capital impact

The first field contains the data which describes the impact of the human capital.

- Financial performance indicators for business success: profit and marginal income, sales revenue, HR costs, process costs.
- Qualitative performance indicators which define competitive edges: brand image, customer retention, customer satisfaction.

Field 2: Human capital

The second field illustrates the human capital within the company. This includes:

- Competencies: type and scope of the skills, expertise and attitudes available within the company which are required for it to operate successfully as a company.
- Potential: The abilities, values and attitudes of staff (over and above the required competencies), which form the basis for training in the competencies required for the future.
- Commitment: extent to which staff are willing to commit to the company by applying and further developing their competencies.
- Health: level of medical health and well-being in the workplace, which are enablers for the ability and readiness of staff to perform.
- Buy-in: extent of employee buy-in to the company through identification with the

company and satisfaction with the workplace and the development prospects.

- Cooperation: the quality of team cooperation, within and across the company areas.
- Management: the quality of management actions, measured on the basis of management requirements.
- Culture: the values and basic attitudes present in the company which differentiate the company from other companies and which persist even if the people involved are replaced; the organisational culture only changes slowly and dictates the behaviour and social induction of new employees. The decisive factor is whether the existing organisational culture supports or obstructs the current and future behavioural requirements.

Field 3: Human capital investments

The third field describes HR programmes and expenditure on the basis of action areas. These action areas are generally:

- HR marketing and recruitment: making targeted searches to recruit new employees, selling the company to them and making the selection.
- Competency management: qualification and development programmes for individual employee groups, equipping them with the necessary competencies.
- Talent management: programmes for the recognition, promotion and buy-in of performance and potential drivers within the company.
- Leadership development: programmes for the development and support of the company's managers.
- Commitment management: investments and activities to promote staff commitment to the company, including the remuneration policy or the promotion of empowerment and participation.
- Performance management: initiatives to align the employee objectives with the business objectives.
- Occupational health promotion: Any activity which reduces harmful influences in the workplace as far as possible and which also supports the health-promoting potential of the workers.

Field 4: HCM competencies

The fourth field describes the resources present within the company (above all in Human Resources) in order to fill and implement the action areas competently, including:

- Resources in personnel management: type and scope of human resources, e.g. HR departments and units.
- Existing HR competencies: the quality of the competencies available in HR which are necessary to deal with the action areas.
- Existing standards: type and scope of the tools developed for HR work and the extent to which they have been implemented, e.g. established assessment centre as a selection procedure or induction procedure for trainees.
- Positioning in the company: Scope of the responsibilities and HR's influence on

important decision-making processes in the company; form of cooperation with line management and the company areas.

- Planning processes: system of qualitative and quantitative staff planning processes within the company.
- Evaluation processes: scope and system of evaluation and progress monitoring in respect of HR programmes. The quality of the existing data on the effectiveness of HR programmes.

The human capital scorecard is both a planning and a controlling tool. If data is collected on all four fields, the HC scorecard documents the scope and quality of HR work and above all evaluates human capital as a key competition factor. The factors included under human capital are, like in the other three fields, company-specific. The evaluation of human capital must always be made in relation to company strategy, for example under the question:

"What competencies do we need to acquire in order to realise our strategy?"

An investment plan can then be drawn up on the basis of the description and evaluation of HR work. The strategic and operational objectives are specified for each field and the planned investments are defined for each action area in Field 3 of Table 8.

The quality of the human capital scorecard depends on the data available within the company. If no objective data are available, there is a possible variant involving simply a descriptive presentation of each field. The aim of human capital management is, however, to develop a database containing objective data on all relevant aspects, based on standardised and reliable measuring tools. With this database, HR programmes in the various action areas can be continuously steered through economic evaluation.

6.3 Economic evaluation with the human capital scorecard

An evaluation with the HC scorecard is based on professional measurement procedures and objective data in all four fields. The following HC scorecard shows the most important measurement procedures for gathering data in the four fields (see Table 9):

Table 9: Data acquisition with the human capital scorecard

1 Human capital impact	2 Human capital	3 Human capital investment	4 Human capital management competencies
(1) Strategic business controlling (2) Process cost computation (3) Quality management (4) Measurement of customer satisfaction (5) Market research	(6) Staff appraisal: e.g. 270° or 360° feedback (7) Potential analysis: Assessment centre or in-depth interviews (8) Staff survey (9) Management audit (10) Questionnaire on cultural analysis	(11) Descriptive documentation on the tools in the action areas (12) Budgeting (13) Cost accounting (14) Investment accounting	(15) Descriptive documentation of the HR processes (16) Employee assessment of HR (17) HR audit

The measurement procedures in detail:

- (1) Strategic business controlling provides the performance indicators which represent the financial situation of the company and the business areas.
- (2) The efficiency of the individual business processes can be steered in a tangible manner with the help of activity-based costing (see Chapter 4.1).
- (3) Quality management complements this by adding the perspective of process quality, which is defined by standards, monitored via performance indicators and which as a rule is continuously documented.
- (4) A regular customer satisfaction assessment provides information on the expectations of the target groups in the market and their evaluation of product quality, price and service.
- (5) The market study also provides data on product familiarity and product/company image as well as on market share.

The five tools shown are now an integral part of the controlling process in many companies. Such data are useful for human capital management (HCM), since they measure the actual impacts for the assessment of human capital and flag strategic development requirements which have an impact on the action areas of the HCM. Investments in human capital can have

a short-term impact, but are sometimes felt years later in such strategic performance indicators. The assessment therefore requires standardised data collection over several years.

The key dependent variables for human capital are set out in Field 2 of Table 9. The most important measurement procedures here are:

- (6) The staff assessment of their competencies. This involves the need for a requirement profile, laying particular emphasis on the competency edges which are relevant for competitiveness and are frequently also referred to as strategic core competencies. They can be measured by means of the traditional appraisal by superiors, or the more meaningful albeit more expensive 270° or 360° feedback tools. Here employees are assessed by superiors, colleagues, customers and themselves. Line management are also appraised by their staff. The aim is to obtain a comprehensive picture of staff competencies. The strengths/weaknesses profiles can be aggregated to area and company profiles and evaluated in the light of the required competency edges. The competency profiles are used as a basis of competency management, involving the planning and implementation of investments in employee qualification.
- (7) The potential analysis should be used for a targeted assessment of which of the human resources the company requires for the future does it already have at its disposal. The future performance drivers to which the company is committed should be recognised and promoted. The potential analysis measures the basic values and attitudes of selected employees who are seen as talents. Typical procedures in this respect are the assessment centre and in-depth interviews. The recognition and promotion of potential drivers constitutes talent management. The company can, with HCM, prepare potential data in staff portfolios to allow an overview of the quantity and quality of the potential drivers in the various company areas.
- (8) The human capital in the company is only worth as much as the employees invest in terms of the business objectives and tasks. This can be measured by staff surveys and the various factors affecting loyalty, commitment and buy-in. These include empowerment, the design of and facilities at the workplace, healthy working conditions, involvement in the decision-making process, and presence of individual perspectives in the company, social integration, and pride in the company, appreciation and support from line management. If a combined evaluation is made with competency and potential data, as well as the data from performance management (target agreements and performance assessments), the interrelations between motivation, competency and performance can be represented. The results of the staff survey are used as a basis for incentive management by planning investments designed to increase the attractiveness of the company for human capital.
- (9) Another important appraisal procedure in HCM is the management audit, which generates data on the quality of leadership and management in the company. Management audits can be performed in the form of written assessments, interviews or assessment centres.
- (10) Human capital measurement is set into context by assessing the company culture as a competition factor. The organisational culture can be understood as the values which define the identity of the company. This includes the values covering cooperation,

information procedures, the team and management culture, customer orientation and the way in which changes in the company are communicated and implemented. The organisational culture can for example be diagnosed through a staff survey.

The third field involves measuring and planning all human-capital-related investments, broken down according to the action areas presented in Table 8. It is useful here to draw up a systematic description of the HR programmes and tools in the individual action areas. A further possibility here is to draw up a business plan which sets out the budgets in the action areas. By launching a longitudinal study, it becomes clear how the investments in human capital have had an effect on the competency, potential, commitment, health, buy-in, cooperation, management and culture factors.

- (11) Descriptive documentation of the tools in the various action areas should demonstrate what is done and how systematically the action areas are worked on. HR programmes should be bundled per target group in order to achieve a better overview. The objectives and time investment should then be documented for each package of activities.
- (12) Budgeting for the various action areas is an important part of HCM. This ensures that planning and evaluation can incorporate a cost/benefit analysis. This supports the rationality and transparency of decision-making in HR work in conjunction with strategic management (Board of Directors, Heads of Department). Here, total staff expenditure is allocated to a utility function. This includes such elements as pay and benefits. This necessitates a detailed examination and discussion of what is offered, for example in terms of pay and benefits, over and above the market level in terms of incentives or staff buy-in. These expectations can then be examined by measuring a cross-section of human capital.
- (13) Cost accounting can be used to measure whether budgets are met, exceeded or under-utilised. This enables the continuous steering of investments.
- (14) An investment computation can also be made when planning a large number of programmes. The expected effects are then assessed in financial terms, converted into cash flows and depreciated at a given date. This is a traditional commercial method for calculating the profitability of larger investments. For an explanation of how to estimate future cost and utility effects, refer to Chapters 3.3 and 4.3.

Lastly, the fourth field is for making a comprehensive evaluation of the competencies and resources responsible for the human capital action areas. The aim is to consider what is feasible when planning future investments and to recognise necessary investments in professional human capital management. Lastly, the quality of HCM depends above all on the possibilities afforded to HR staff, in particular in terms of resources and the professionalism of the HR domain.

- (15) If the competency, professionalism and objective-orientation of HR work is to be monitored, all important performance processes in the HR domain should be documented. This includes the processes which are internally customer-related, e.g. consultancy processes, staff planning processes, the process of analysing development requirements or staff controlling. But even internal processes, such as notification and decision-making processes in the HR domain should be taken into account here. The

process descriptions can then be evaluated to establish the extent to which they are objective-oriented and efficient for dealing professionally with the action areas and to determine where improvements are needed.

- (16) Similar to the competency assessment for the company as a whole, an employee assessment should also be made regularly in the HR field, specifically documenting the competencies in the action areas and serving as a basis for competency management in the HR domain.
- (17) The HR audit constitutes an analysis of the professionalism of HR work. This should be done by external experts. It should involve an examination of the quality and standardisation of the services and internal planning, implementation and evaluation processes. It also highlights the role and positioning of the HR domain in the company, which are crucial to the HCM's capacity to influence and dictate events.

Overall, the human capital scorecard, with its data areas and description/measurement procedures represents an idealised concept which can also be used in part independently of the importance of the factors and the initial situation in HRM. With human capital management, a system is in each case developed within the company which makes a major contribution to implementing a targeted economic evaluation of selected HR programmes. HCM successively defines the relevant independent variables (Fields 3 and 4), which must be designed, as well as the relevant dependent variables (Fields 1 and 2), which must be improved through design of independent variables (the HR programmes). The latest performance indicators can be recycled for the economic evaluation.

From the HR point of view, this is professionalisation way in excess of the evaluation approaches set out in Chapters 3 to 4.3, since human capital is defined as a separate, central value driver and HR programmes can be planned and monitored as investments based on highly rational decisions. The HC scorecard works as a document and tool for the vitality of the company in the field of HR.

Further reading:

Andriessen, D. & Tissen, R. (2000). *Weightless wealth. Finding your real value in a future of intangible assets.* London: Prentice-Hall.

Fitz-Enz, J. (2000). *The ROI of Human Capital. Measuring the economic value of employee performance.* New York: American Management Association.

Stewart, T.A. (1997). *Intellectual Capital. The new wealth of organizations.* London: Brealey.

Tool: Staff survey

What are the objectives of the method?

Staff surveys provide information on the attitudes, expectations, needs of and changes proposed by staff, thus enabling the business strengths and weaknesses to be recognised and allowing concrete change processes to be initiated in a dialogue between staff and line management. The information gleaned from staff surveys is also important data as regards human capital (commitment, buy-in).

What are the main steps?

A staff survey involves at least the following steps:

- precise clarifying and agreeing of objectives with company management
- identifying "best practice" as regards the content and methods
- informing employees about the aims and form of the survey
- designing the questionnaire
- testing the comprehensibility and design of the questionnaire
- carrying out the survey and making the statistical evaluation
- evaluating the data at company level
- reporting the findings back to line managers and staff
- clarifying problem and action areas at all levels
- drawing up action plans

What quality standards should be applied?

Staff surveys are a scientific method of empirical social research. Important quality criteria attach to the design of the questionnaire and methodological validation. The aim is to obtain highly reliable and accurate results while at the same time taking account of commercial realities and practical considerations. In each case a data model should be devised to illustrate which aspects (also referred to as constructs, e.g. work motivation) and which areas the survey should concentrate on. For these purposes, the relevant literature should first be consulted for an overview of the relevant constructs and the extent to which they can be measured and can predict trends. When designing the questionnaire it is essential to incorporate the requirements for "a good question" and a tried and tested rating system for closed questions (Chapter 8.1)

Who should be involved?

The objectives, content and period of the survey should be discussed with management and staff representatives. A project team should be formed to design the questionnaire and conduct the survey. It is also necessary for staff to be kept informed in order to ensure a high response rate and obtain continued support for the change procedure. It is important to make a joint evaluation of the results with line managers and their staff.

How expensive is this method?

Staff surveys are a major organisational development project. They are worthwhile only if conducted in a robust, professional manner. If this is not the case, the entire credibility of the exercise is compromised. At least 6-9 months should be scheduled for the planning, design, execution and evaluation of the first survey.

Where can I find more information about this method?

Connolly, P.M. & Groll-Connolly, K. (2006). Employee Survey Question Guidebook. Old Saybrook CT: Performance Programs Inc.

7 Conclusion and outlook

In comparison with other areas of application of profitability analysis, for example in the acquisition of capital assets, economic evaluation is still in its infancy in the human resources domain, because there are no binding standards, and HR staff and managers do not yet have a great deal of experience in using the process. These Guidelines have for the first time laid out a comprehensive roadmap and inventory of methods on the subject of profitability assessment in HRM, and are aimed at providing users with specific expertise in this field.

The described approaches and procedures must now be put into practice and be further developed in the field. It is important that results and experience gained in practice be documented, and that best practices be exchanged between various fields of application and sectors.

These Guidelines also tie in with the long-term vision that the human resources or human capital field should be managed jointly by the HR staff and managers of a company with a high level of target rationality. Staff will then be regarded not so much as a cost factor but rather as drivers of value creation. In particular, line managers will in this way be measured more consistently in terms of what they achieve for the competition factor "staff". The tools presented in this document will then be established as a comprehensive information system which supports and safeguards management decisions and is incorporated in target agreements.

In the meantime, various initiatives are required in order to demonstrate that there are decisive tangible advantages for companies which build up corresponding control and management systems, because in the final analysis, those for whom the profitability assessment is intended must be convinced of the opportunities offered by and the need for such an assessment. The question of feasibility will then be pushed increasingly into the background.

8 Annex: Information and sources for the methodology of data collection and evaluation

An economic evaluation uses specific procedures and methods in order to allow a profitability assessment of the complex sphere of activity of HR programmes. These procedures are generally based on standard social science and business administration methods used in data collection and evaluation. The following section briefly describes the most important basic methods of economic evaluation, their objectives, and the standards forming the basis for them (more detailed explanations can be found for example in Edwards et al., 2004). These methods include the construction of questionnaires, the design of interviews and interviewing guidelines, and the planning of the data evaluation design.

8.1 Data collection by means of questionnaires and interviews

In the design of questionnaires and interviews, the following basic principles of scientific diagnostics should in all cases be followed:

- **Objectivity:** The diagnostic tool should be independent of the persons asked and those asking the questions.
- **Reliability:** The diagnostic tool should allow data acquisition independent of person, time and situation; the measured parameter should be measured accurately.
- **Validity:** The recorded characteristics should present a full and valid picture of the relevant work habits and required performance; the parameter to be measured should also genuinely be measured (criterion validity) and no crucial aspect should be missing (content validity).
- **Practicability:** As regards the total expenditure, the collection procedure should be justifiable in design, time and financial terms.
- **Comprehensibility:** The tool should be organisationally relevant. All involved should have the same understanding of the content of the questions.
- **Acceptance:** Those asked the questions should support the form of the collection procedure.

The validity and accuracy of the collection procedure used in questionnaires and interviews is jeopardised above all by so-called response bias. The term refers to systematic aspects of the response behaviour of those asked the questions which are not as a whole attributable to the content of the questions but to their format or formulation. This includes for example socially desirable responses. In these cases, false answers are given in order to "make a good impression". Other examples of response bias to be taken into account are yes bias or affirmation/acquiescence bias, no bias, mid-scale response bias, extreme response bias, order effects and formal response stereotypes (response patterns).

In order to ensure that these forms of bias do not substantially reduce the quality of the data, a set of design principles were drawn up for the construction of questionnaires and the design of interviewing guidelines, and these principles should be taken into account in the design of the

collection procedure. The design elements include the contents of the questions, the format of the questions, and the verbal formulation of the questions.

Principles for the design of the content of questions

In terms of question content, a distinction should be made between three types of question:

- (1) Substantive or content questions: These ask for information which is of interest in terms of content for economic evaluation purposes.
- (2) Correlation questions: These are important in order to allow a better interpretation of the content questions.
- (3) Instrumental questions: These fulfil specific tasks in the questionnaire, e.g. control, filtering or introduction.

The contents of substantive questions can be:

- Facts: "How old are you?"/"What are your educational qualifications?"
- Knowledge: "What is the name of the German Federal Minister for Foreign Affairs?"
- Judgments, assessments, opinions, attitudes: "What do you think of discussions between staff and their line managers?"
- Conduct or action: "How do you react to criticism from your line manager?"/"How do you prepare for a new task?"
- Motives: "Why are you opposed to appraisal procedures?"

The important thing is for the question to ask only for facts, an assessment or a motive. Questions should be one-dimensional in order to allow as objective as possible an evaluation of the information. With multidimensional questions, the answers cannot be clearly interpreted. Take for example the following question: "Is your work varied, and can you put into practice your own ideas?" In this example, variety of requirements and responsibility for putting into practice are not differentiated from one another.

Principles for the formulation of questions

Questions can be formulated in open or closed form. Closed questions are useful in cases where the possible answers are known and are to be given. They allow a direct statistical and quantitative assessment, which is important for economic evaluation. Multiple-choice answers for closed questions should be as exhaustive as possible and clearly distinguishable from one another, should avoid the danger of social desirability bias, and should in certain cases contain residual categories in order to avoid the artificial selection of answers.

One particular type of closed questions are scaled questions. These offer various categories of answer which represent a metric scale, i.e. there are deemed to be even spaces between the answers. This is a requirement in order to be able to obtain meaningful mean values. If they meet additional requirements, such as normal distribution and uniform dispersion within the groups (e.g. the control group and the participating group, see page 89), metric scales also allow advanced statistical evaluation procedures to be carried out, such as variance analyses, factor analyses or product-moment correlations (Bortz, 1999). Furthermore, for profitability assessment purposes, indicators can also be determined.

A situation can alternatively be formulated as a question or as a statement with a request for an opinion:

Question: How would you assess your involvement in decision-making?

very high high average low very low

Statement: I am adequately involved in decision-making.

not at all true not really true neither true nor untrue fairly true very true

As regards the method of scaling, the five-point scale has proved itself scientifically sound. Different publications deal with the topics of equal distances and distribution of five-point scales in different languages (Rohrmann, 1978; Fields et al., 2001). Equal distance of scale points means that the answer levels are considered by those setting the questions to be more or less evenly separated from one another. As stated above, this is the requirement for simple (mean value) and more extensive statistical analyses.

Principles for the verbal formulation of questions

In addition to content and form, the verbal formulation of the questions is important for the accuracy, comprehensibility and acceptance of the data collection procedure. In this connection, the following aspects should be taken into account:

- (1) The questions should be formulated in the colloquial language of the average of the target group.
- (2) Short words and clear terms should be used as far as possible.
- (3) Only words familiar to the target group should be used; foreign words and abstract terms should be avoided.
- (4) Terms which have unnecessarily emotive significance should be avoided as far as possible.
- (5) The sentence structure should be kept simple, i.e. involved sentence structures should not be used.
- (6) All questions should if possible be formulated in a single tense.
- (7) Questions should be formulated in the active rather than the passive mood.
- (8) The statements or questions should not contain double negatives.
- (9) Taking into account content, purpose and comprehensibility, sentence length should be kept as short as possible.
- (10) Under no circumstances should leading questions be used, such as "So you too are of the opinion that ...".
- (11) Questions should also not contain implicit value judgments, such as "What are your opinions on the dangers of on-screen work?"

8.2 Evaluation design

Planning an economic evaluation also includes evaluation design. The key quality criteria for designing designs for research are internal and external validity (Campbell & Stanley, 1966). An evaluation is internally valid if the results can be unambiguously attributed to the HR programmes researched; it is externally valid if the results can be generalised beyond the subject of the research.

Factors which jeopardise internal validity are uncontrolled influences outside the HR programmes researched, effects of the measurement itself on what is being measured, or unreliability of the measuring tool (Bortz & Döring, 1995). Field studies typically have difficulty establishing a high level of internal validity, because the multiple influences in a complex field situation are difficult to control. These factors can be attenuated or controlled by scientific research plans (e.g. control group plans or before-and-after comparisons).

Examples of factors which could limit the generalisability of research results are unreliability of the measuring tools and non-representative samples (Bortz & Döring, 1995). The validity of the data collection tools is established if the scales used directly and fully represent the characteristics to be recorded (high content validity) or if standardised assessment procedures are used which have high criterion validity or high construct validity. High criterion validity means that there is a high level of correlation between the recorded characteristics and the criterion variables assessed, such as target group performance. Construct validity means that a specific construct, such as work motivation, is genuinely recorded by the questionnaire.

To ensure an appropriate choice of sample, it should be verified to what extent the results are generalisable. The sample should then be selected so as to correspond to the represented population in terms of essential characteristics (age, sex, qualifications, etc.).

Further reading on the design of data collection procedures and research design can be found in the appropriate specialist literature on empirical social research:

Further reading

Campbell, D. T. & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.

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10 FAQs on economic evaluation

- (1) What exactly is the term "evaluation" used to mean in the human resources (HR) domain? What are its purposes and functions?

Evaluation in the broadest sense means any sort of determination of the value of an object. In the narrower sense, evaluation is a systematic, targeted assessment process using scientific research methods, which serves to support planning and decision-making. Various activities are ascribed to evaluation:

- guidance and optimisation;
- assessment and appraisal;
- supervision and disciplining.

With these activities, evaluation approximates to operational "controlling". Controlling is generally understood to mean a service function in a company, supporting the conventional management activities of planning, guidance, supervision and organisation, and providing the management with the corresponding information. Evaluation in the HR domain correspondingly entails a systematic assessment of HR programmes. If guidance or optimisation is to be associated with the evaluation exercise, it also covers the planning of, and decision-making processes involved in, HR activities, or supports these activities by providing information on their mode of operation and effectiveness.

Evaluation in the human factors and human resources domain can therefore be seen as a service function, providing information for the planning, guidance, assessment and supervision of HR programmes.

- (2) What is the specific role of economic evaluation in this domain?

Economic evaluation provides decision-makers with information about the profitability of HR activities. In this regard, economic criteria can be quantitative or qualitative. Quantitative data are the traditional business administration performance indicators, e.g. costs, sales revenue, contribution margin, profit or return, which characterise business success. In business administration, these are determined in the context of cost accounting.

Qualitative data are those which illustrate economic success, but cannot be assessed in monetary terms or only with difficulty. These include quality of performance, customer satisfaction or company and brand image.

The particular challenge in an economic evaluation is to create a link between economic effect sizes and social science explanatory variables, such as for example changes in behaviour in the context of a training programme. This requires an interdisciplinary approach combining social science evaluation concepts in the HR domain, which focus on behaviour and performance, with business controlling, which produces cost and performance indicators for organisational units, business processes or products/services.

- (3) When is economic evaluation possible and useful?

In principle, evaluations can be carried out at three different stages. A predictive evaluation is carried out before a decision is taken on an HR programme. One or more HR programmes are assessed in terms of the costs and benefits to be expected, in order for example to select the most profitable alternative or basically to clarify feasibility and utility, with a view to avoiding serious investment errors. An accompanying evaluation assesses an HR programme which is already in

place during the implementation period, which can run to several years in the case of HR programmes, generally in order to adapt or optimise them. Lastly, it is also possible to carry out a retrospective evaluation, which records and documents the effects of an HR programme. This can be significant for follow-on investments or serve as an important document for experts.

(4) What possibilities do economic evaluations offer and what are their limitations?

Evaluations of HR programmes are often not carried out because of four stubbornly held myths (Edwards et al., 2004) which are described and dispelled below.

1. It is impossible to measure accurately. These Guidelines and the results of other projects (literature overview, scientific final report) have demonstrated that it is indeed possible to measure the effectiveness and profitability of HR activities. It is particularly challenging but not impossible.
2. There are too many explanatory variables to be controlled. This is one of the challenges in evaluating HR programmes. The explanatory variables first need to be divided into independent and intervening variables. The independent variables are the HR activities whose effects on the success (the dependent variable) are to be demonstrated. All other significant explanatory variables are designated intervening variables. Their relative impact on the success factors can be estimated by means of surveys or other research methods. One simple possibility would be to let the staff themselves estimate what percentage of their improved performance (dependent variable) they attribute to the HR programme (independent variable) and what percentage to other intervening variables (e.g. new technology, reorganisation, etc.).
3. Nobody asked for one. This myth is easily dispelled. It is highly probable that in future somebody will ask for an evaluation, namely the person responsible for the investment in the HR programme. In the unlikely event that even that person does not ask for one, it is often useful to use the results of an evaluation for further development of the HR programme or for the benefit of the organisation, even if not requested to do so.
4. Negative results could adversely affect an HR programme. On the contrary, negative results help uncover and improve the weaknesses of an HR programme. It is also unlikely that only negative results will emerge, since the HR programme was not introduced without some good reason. A profile of strengths and weaknesses highlighted by the evaluation allows targeted promotion using the strengths, and targeted work on the weaknesses. Only failure to evaluate an HR programme and its unknown consequences can have any real adverse effect on the HR programme.

To summarise, the results of evaluations support investment decisions, optimisation of HR programmes, documentation, marketing, formation of hypotheses about functional chains, assessment of use of resources by an HR programme, and economic thinking in the behavioural domain. The limitations of economic evaluations lie in the illustration of precise cash flows. This is not possible, or only at great expense.

(5) Is a sound, economic evaluation not more costly than the HR programme itself?

An important principle of an economic evaluation is a reasonable cost-benefit ratio. An evaluation is particularly useful if the profitability analysis is carried out before programme implementation and the scale of the planned investment or the ensuing follow-up costs justify a corresponding audit. These may be major

restructuring programmes involving single HR programmes or a package of activities for an HR marketing campaign.

The cost of an economic evaluation basically depends on what relevant data a company has at its disposal and above all on what know-how is available for the planning and implementation of an evaluation. This is comparable with business controlling. Not until controlling was established in companies could the quality and constant availability of controlling data be guaranteed, as is nowadays almost the rule. If controlling were to be developed and used only sporadically and on a case-by-case basis, the cost would be enormous. The same applies to profitability analyses of HR programmes. In order to achieve high quality and practicability, companies must continually develop corresponding information systems and expertise. Important elements in this regard are standardised requirement criteria and performance appraisal systems, a process quality management system, a company performance indicator system, and regular benchmarking in the HR domain.

Viewed from this perspective, the cost of an economic evaluation depends on how prepared a company is to develop it long term as a competence factor. Science will in future also be contributing towards making the knowledge and the corresponding methodology available for practicable evaluation systems.

- (6) What requirements in terms of scientific design (control groups, before-and-after comparison) are essential in an evaluation? Do practicable alternatives exist?

In order to isolate the effects of an HR programme, there has to be a reference value against which the change brought about by the HR programme can be evaluated. On the one hand, this reference value can be obtained from a control group, which unlike the group participating in the HR programme (the experimental group) has not taken part in the HR programme. On the other hand, the situation prior to the HR programme can be used as a reference for comparison purposes (before-and-after comparison). If the performance of an employee improves in comparison with that of a non-participating colleague (control group) or in comparison with his/her performance prior to the HR programme (before-and-after comparison), the effectiveness of the HR programme is proven, but only if all that distinguishes the groups or points in time from one another is participation in the HR programme. Selection of the evaluation design is in practice determined by de facto and ethical possibilities. For example an appropriate control group may often not be available in practice, or for instance for ethical reasons a decision may be taken not to deprive any one employee of stress management training. These and other limitations on scientific work in business practice require alternative pragmatic solutions. It is for example possible to survey prior values after the event. In such cases, various viewpoints, e.g. those of staff and management, should be taken into account in order to monitor memory effects. If several HR programmes have been implemented, one should not omit to assess the relative contribution of each individual HR programme to each individual success criterion. In the case of control groups which differ from the experimental group in other ways apart from the HR programme, one must be able to assess to what extent these other differences may have had an effect.

- (7) Are there conditions and obligations which must be taken into account in evaluations in companies?

The *Deutsche Gesellschaft für Evaluation* [German Evaluation Society] (<http://www.degeval.de/>) has laid down standards to be observed. The purpose of

these so-called fairness standards is to ensure that the individuals and groups involved in evaluations are treated respectfully and fairly.

1 Formal agreements

The obligations of the parties involved in an evaluation (what is to be done, how, by whom, when, and what is it used for) should be set down in writing, whereby the parties are obliged either to comply with the conditions of the agreement or to negotiate a new agreement.

2 Protection of the rights of the individual

Evaluations should be planned and carried out in such a way as to ensure that the safety, dignity and rights of those involved are protected.

3 Full and fair examination

Evaluations should examine and illustrate the strengths and weaknesses of the subject-matter (in this case the HR programme) as fully and fairly as possible, so that the strengths can be further developed and the weaknesses dealt with.

4 Unbiased implementation and reporting

An evaluation should take into account the various viewpoints of those taking part in and those affected by the HR programme and the results of the evaluation. Reports should reflect the unbiased position of the evaluation team, as should the entire evaluation process. Assessments should be carried out fairly and if possible be free from any personal feelings.

5 Publication of the results

The results should be made accessible to all who took part in and all affected by the evaluation.

(8) Can anyone carry out an economic evaluation? What qualifications are required to carry out an economic evaluation?

The requirements for carrying out an economic evaluation are based on the central content and activities of the profitability assessment, namely planning, design, implementation and evaluation of a data collection, as well as behavioural science and business administration perspectives. This in any event calls for an interdisciplinary understanding, competence in empirical social research methods, and good project management.

It is helpful to put together an appropriate evaluation team, including inter alia the various specialist disciplines (above all controlling and human resources) and experts in the methodology. Large-scale and innovative evaluations should be carried out as projects. This concerns the management of activities, time and resources, and internal communication. In addition to expertise in the methodology, the project leader should ideally also have a comprehensive understanding of organisational theory and process management. If the aim is to develop evaluation competence in HR, the project leader should come from the HR domain.

In order to guarantee the principle of neutrality in an evaluation, the person responsible for the HR programme should under no circumstances be the evaluation project leader. However, the person responsible for the HR programme (programme manager) is an important data owner and must be part of the evaluation team or be consulted with respect to original programme goals, pre-implementation conditions, implementation, and development of the programme.

(9) Who has to be involved in an evaluation in a company?

The participation of various groups of staff may be advisable, above all for two reasons, namely in the capacity of experts or advisers or in the capacity of addressees of the evaluation. Since an economic evaluation is an interdisciplinary exercise, experts from HR, controlling and performance management domains should be involved. The addressees will depend on the object of the evaluation. Who is interested in the results? Who are the relevant decision-makers? Who is to be targeted by the evaluation?

If the experts (e.g. the HR staff) regard themselves as business partners of the management and staff of the company, they need to be involved accordingly. The level of management included depends on the level at which the HR programmes to be evaluated are designed to take effect. In the case of strategic HR programmes, top management should in particular be informed. In this connection, early involvement is effective if the evaluation project is planned and its objectives are defined. This ensures that the information requirements of management and the relevance of the evaluation for decision-making processes can be clarified in advance, thereby enabling the role of the addressees in the evaluation to be assessed and ensuring that the results fall on fertile ground.

- (10) Which methods have proven practicable for carrying out evaluations?

In principle, a scientific design with a survey of the situation prior to the HR programme or with a control group is preferable (see question 6). The situation prior to the HR programme can, however, alternatively be ascertained after the event, and a control group can likewise be dispensed with, if objective data (such as sickness figures or quality data) are included in addition to subjective survey data. Objective data can also be replaced by quasi-objective observations, for example if, in addition to the employees themselves, HR staff or managers are also questioned about employees' training progress. By using various (subjective, quasi-objective, objective) data sources, mutual validation is possible. If the objective data and/or quasi-objective external assessments of the HR staff and/or line managers tally with the employees' self-assessments, subjective bias can be ruled out.

- (11) Are there any guidelines for carrying out an economic evaluation in the HR domain?

A basic process model (Chapter 2.2.3) has proved practicable and effective for planning and carrying out economic evaluations, and it is helpful irrespective of the actual questions asked. It divides the procedure into four stages. These are described in detail in these Guidelines. Furthermore, these Guidelines propose a model for organising data collection and evaluation which differentiates between five areas of data (Chapter 2.2.2). This enables evaluations to be efficiently planned and the objectives of the evaluation project to be transparently explained and communicated. The two models together constitute the HPM (Chapter 2.2) - a roadmap for economic evaluation.

- (12) What are the parameters for the profitability of an HR programme?

The profitability of an HR programme should be determined on the basis of traditional business administration assessment criteria. In business administration, there are various assessment systems.

1. Assessment at the level of the operating result in cost accounting. This compares costs with payments, both expressed in value terms. Values are recorded irrespective of whether and when movements of funds took place,

since the purpose is to ascertain information of relevance for decision-making. Purely costing-based figures may be included in this process.

2. Assessment at the level of the balance-sheet result. In profit and loss accounts, expenditure is compared with income. The calculation is based on balance-sheet standards, and in this regard the timing of the expenditure and income is also particularly important for a profit and loss account. An assessment for purely costing-based reasons, in order to take a justified decision, is not possible by this means.
3. Assessment at the level of the finances. In this case, income and outgo or receipts and payments are compared, for example for liquidity planning purposes.

For an economic evaluation, which is designed above all to provide information of relevance for decision-making, business cost-accounting performance indicators need to be used as a basis. On the costs side, these include costs broken down by cost type (e.g. administrative overheads), costs broken down by cost centre (e.g. research and development department) and costs broken down by cost unit (e.g. a training or selection procedure). In particular, a distinction is also made between the unit variable costs (hence the costs incurred for one additional service unit) and the fixed costs, which are independent of the quantity. Cost accounting determines the value of the services provided by a company, on the basis of the sales revenue, the increase in stocks and the in-house proceeds. The operating result is calculated from the difference between payments and costs. The difference between the unit sales revenue (revenue per product or service unit) and the unit variable costs is the so-called unit contribution margin.

Financial benefit analysis (in euros) in the economic evaluation of HR programmes can thus be geared to two different criteria, namely reducing costs and increasing sales revenue. Furthermore, business administration also makes use of non-financial parameters such as customer satisfaction, market share, product image or service quality, which can be employed for an economic evaluation.

- (13) Can the economic evaluation method be used to calculate the value of the total human capital for a company (in market testing)?

An economic evaluation serves to calculate the profitability of HR programmes. An overall assessment of a company's HR is not the purpose of an economic evaluation. That is the aim of various human capital management or human resources accounting models and approaches. The object of these approaches is to assess in a balance-sheet-type manner and to document the human capital of a company, which does not appear in a traditional balance sheet but which is important for the economic situation and competitiveness of the company. Comparable with traditional business administration approaches, attempts were made in the past to determine the value of the staff on the basis of procurement costs, replacement costs or prevailing market salaries. A more recent approach is the Saarbrücken model, which provides a formula for calculating the total human capital (<https://www.saarbruecker-formel.net/>). These approaches have not been widely used for practical purposes, because on the one hand the calculation is not fully evidence-based and on the other hand the abstract models do not provide much concrete information for strategic HRM purposes.

More promising and workable in practice in this respect are the indicator models, in which human capital is not expressed in terms of monetary values but in terms of a number of different dependent variables which reflect the motivation,

performance and potential of employees. These models are also helpful for economic evaluation, since the indicators can also be yardsticks for successful HR programmes.

Human capital management and human resources accounting approaches, and also indicator models have been included in the overview of literature drawn up for this project (Pennig et al., 2006).

- (14) Can economic evaluation be used to determine how effectively the line management and senior management of a company are working?

An economic evaluation can also relate to the line management and senior management domain. The aim here might for example be to develop an attractive management development programme which is also profitable. For this purpose, utility effects would need to be measured in the behaviour and performance of line managers and senior managers. Accordingly, the following would be required:

1. clear performance criteria for management (provided for example by a requirements analysis);
2. transparent performance measurement (for example by means of an external management audit);
3. deliberations on the importance of sound as opposed to poor management performance for the company (by means of a scenario technique, interviews with experts or workshops).

It will probably be difficult to define management performance and the importance of a management development programme in precise economic terms. Nevertheless, it is possible to measure the behavioural impact of development programmes and to illustrate economic effects by means of case studies. This, however, presupposes that the senior management in a company are prepared to look at their own work with a critical eye, and on the basis of such objective assessments to adopt an interested and constructive approach.

- (15) Can the profitability of the HR work in a company be evaluated?

There are now a large number of evaluation systems to measure the quality of HR work in a company (see literature overview of Pennig et al., 2006). The most crucial point is whether the work is strategically well organised and operationally professional and effective.

The question of profitability, however, is rather one for individual HR activities, less so for HR work as a whole, since this work fulfils many system-critical functions, such as payroll accounting. Furthermore, the overall performance of the HR domains for a company is heavily dependent on the support of the senior management and line management and thus cannot be evaluated independently.

This being so, only specific HR activities and their design should be considered from an economic viewpoint (with the exception of the question of how certain activities can be carried out in the most cost-effective possible manner). For the reasons given, the profitability of HR work should be measured in a targeted manner for selected activities.

The HR domains can benefit from an examination of the profitability of organisational HR work if this leads to the introduction of measurement of the utility of HR activity in a company. This might enable the HR domains to expand beyond its current role as a cost centre.

- (16) How can one identify what HR programmes a company needs in order to be well equipped for the future?

This is a question of strategic HR development. On this subject too there are a large number of planning models in the literature. The most well known is Kaplan and Norton's Balanced Scorecard (BSC) (1996), which is not just a system of performance indicators (although it is known as such) but above all systematises the strategic planning process taking into account HR. Nevertheless, the BSC is rather a planning tool for the strategic management of companies, in which the HR domains is regarded as an important value driver alongside all the others in a company. A planning model which focuses more sharply on HR development is for example Boudreau and Ramstad's HC Bridge (2003). Other related concepts and tools are to be found in Becker (2004).

The planning of HR programmes in a company can be supported by an economic evaluation, with comments on economic effects of alternative activities being incorporated into the planning. Strategic HR planning is, however, a separate, central function of HRM, established independently of economic evaluation in a company.

- (17) Can the monetary benefits of HR programmes for a company seriously be demonstrated given their complexity and long-term nature?

Precise determination of utility values in monetary terms is possible only in cases in which the changes caused by an HR programme in the behaviour of employees or in company processes are directly related to sales revenue. In all other cases, the relationship between effects on performance and revenue must be estimated. For this, plausible cause-and-effect models are required. For the validity of a financial benefit analysis, however, the accuracy of the figures is not necessarily crucial. Fluctuation margins are also justifiable if the relationships can be comprehensibly demonstrated with scientifically sound methods (reliable tools, scientific design, see question 6). Furthermore, the assumptions on which the calculations are based must be explicitly disclosed. This is also the procedure in business administration investment accounting, which is used for example to calculate the profitability of fixed investment. Here too, monetary values are calculated which are not based on cash flows which can be precisely determined in the future but which nevertheless serve as a basis for decision-making.

- (18) Can calculations be made with regard to decisions relating to HR programmes in the same way as for investment on fixed assets?

Profitability calculations for investment on fixed assets are made by means of business administration investment accounting. For this purpose, the capital investment is compared with the financial returns discounted to the time of acquisition resulting from the commissioning of the plant, machine or technology. This enables us to calculate for example how much interest investment on fixed assets yield over the years in comparison with an average capital investment.

Forecasting of financial returns is based on assumptions regarding the efficiency of the utilisation of plant or technology, for example potential savings in terms of staff. Such assumptions can be supported by studies or simulations. Ultimately, however, such forecasting, just like assessment of the effectiveness of HR programmes, is also subject to uncertainty as to how employees will put this into practice and what future framework conditions, such as product sales figures, will apply. Viewed from this angle, calculations of fixed assets in business administration investment accounting are only seemingly more accurate. In any event, the tools available in investment accounting can usefully be employed in the case of large-scale HRM investments. These include behavioural simulations, assumptions regarding changes in behaviour and their effects on the efficiency of

service provision, scenario techniques, and work with cash flows over lengthy timescales.

- (19) In the context of economic evaluation, can returns also be calculated for HR activities in the health, safety and protection at work domains?

The calculation of returns presupposes that, as with the purchase of a machine in the fixed assets, a capital investment is made at a specific point in time with the aim of achieving improvements in the health, safety or protection at work domain. As a rule, however, HR activities in these domains are implemented on a continuous basis and do not involve one-off isolable capital investments. Also, unlike technical investments, such HR activities do not generate any specific cash flows, for example where the level of absenteeism due to illness can be reduced.

Costing-based figures from business cost-accounting are more relevant in this connection, if costing-based cost savings can be achieved by means of operational health promotion. The aim should be to compare these cost savings with the costs of operational health promotion in order to demonstrate profitability.

Proof of cost savings in the health, safety or protection at work domain can be measured in terms of two parameters. On the one hand, in terms of a reduction in or prevention of absenteeism due to illness, which impacts on HRM costs, since a higher level of absenteeism due to illness requires a higher staffing capacity. On the other hand one can measure in terms of a reduction in presenteeism. Presenteeism is where employees, rather than stay away, come in to work but underperform. The reasons for this may lie in physical or psychological health problems, which although they do not result in sick leave nevertheless adversely affect productivity. Alternatively, lack of motivation, poor management or insufficient corporate commitment may be the reason for presenteeism. In this case, assessments must be made to compare health, performance potential, actual performance, and productivity with one another, and demonstrate correlations and economic effects.

- (20) How can the HR programmes in a company be targeted at value creation?

Companies can describe their value-creation chain in the form of business processes. These for example include manufacture, distribution or research and development. The business processes are in turn visualised in individual sub-processes. Sub-processes constitute the key tasks of the various business processes. For each sub-process, hence for example individual manufacturing domains, the sequence of the value-creating activities is then defined. Each sub-process can be characterised by means of performance indicators. Such indicators relate for example to turn-around times, the quality criteria of each individual sub-process stage or the process costs.

HR programmes should contribute to optimising process quality, turn-around time and process costs. Thus, for example, qualifying programmes contribute to ensuring that individual activities are carried out more carefully or more efficiently. If the planning of HR programmes for individual business domains is preceded by a process analysis clarifying the optimisation requirement for processes and the HR factors critical for success, the development requirement can be linked to clear value-creation targets.

- (21) How can the need for HR investments in comparison with other investments, such as those in new technologies, be demonstrated on the basis of concrete business requirements?

This requires a holistic analysis of a performance system, in which the various performance drivers are examined in association with one another. Investments in new technologies are generally made with the aim of optimising the quality, stability or productivity of business processes. In this regard, HR investments can be planned as alternative or supplementary projects. Planning and predictive economic evaluation of alternative HR investments, as described in these Guidelines, can demonstrate that it is possible to achieve the same economic objectives at lower cost if, instead of investment on fixed assets, personal development programmes are taken. For this purpose, it must be demonstrated that HR factors constitute significant bottlenecks in the existing performance process and that their improvement will result in the desired process optimisation. What is required here is a business case, which compares the utility effects of the HR activity with those of investment on fixed assets.

HR investments can, however, also be useful or necessary to supplement investment on fixed assets, if for example technological changes result in new demands on the staff. In such cases, there must be close coordination with the technical planning, in order to highlight these new demands and predict the cost of insufficient HR activities or the economic utility of additional HR initiatives. If new acquisitions are planned in the technological domain, behavioural studies (for example in the form of simulations) should be included in the planning process, in order to allow the consequences of behavioural variability to be highlighted.

- (22) Can the impact on and importance for business success of staff satisfaction and motivation be demonstrated?

Levering and Moskowitz' "Great Place to Work" studies (2000, 2001) repeatedly showed that companies listed on the stock exchange achieve better returns with higher levels of staff satisfaction than the average in the Standard and Poors 500 Index. In 2001, share price growth in these companies in the last three, five and ten years was two to three times the average.

German studies, such as for example those by Müller-Gethmann et al. (2003) were able to demonstrate that employees, in addition to organisation, communication and management, criticised in particular the inadequate recognition of psychological factors at their workplace, with corresponding repercussions on creativity, productivity and other performance characteristics.

The great importance of staff satisfaction and motivation for business success can thus be clearly demonstrated.

- (23) How is the profitability of a training programme or selection procedure calculated?

On the subject of calculating the profitability of selection procedures, there are a number of documented case studies in the specialist literature. For this purpose, the utility analysis model is used, based on the traditional psychological test theory. In the traditional test theory (Taylor & Russell, 1939), the utility of an HR activity is determined on the basis of three performance indicators (Chapter 3.4):

1. the validity coefficient: correlation of performance in the selection procedure with occupational performance at work - a measure of the validity of the selection procedure.
2. the base rate: the "true" proportion of suitable applicants;
3. the selection ratio: the percentage proportion of applicants selected.

The utility of a selection programme is determined by the difference between the proportion of suitable applicants selected via a specific selection method and the proportion of suitable applicants determined using an alternative or random selection (corresponds to the base rate). The characteristics which are fed into this equation must be estimated or scientifically determined. For many widely used selection procedures such as employment interviews, assessment centres or biographical interviews, validity coefficients were in the past determined in empirical studies.

Subsequently, decision-making models were developed from the test theory model, in order to determine the economic utility of selection procedures. These include as a further characteristic the performance spread expressed in monetary terms, hence the heterogeneity of the performance value in the target group. The more heterogeneous the performance within the target group, the more profitable the use of a selection procedure may be, since it prevents poor applicants from being selected and subsequently making far less profit for the company. In order to estimate this spread, which must be specifically determined for each target group, procedures have also been developed.

Utility analysis has also been applied in a modified form to training programmes. Instead of the validity coefficient, the effect size - a statistical parameter for the profitability of an activity - is in this case incorporated in a training group in comparison with a control group (see question 6).

Utility analysis is a very formalised and sophisticated procedure for assessing profitability. In order to increase practicability, various simplified methods of calculating the utility value have at different times been examined (see example in Vogt et al., 2004).

- (24) How can an evaluation be used to adapt HR work even better to demand?

Ideally, an evaluation begins right at the planning stage for HR activities and thus at the assessment of requirements. An economic evaluation can in particular contribute to the planning of specific areas for action and HR activities from the viewpoint of profitability. This helps HR work to be orientated very closely in line with the economic requirements of a company. These economic demands can be determined at the level of individual target groups within the company, selected business processes and/or with a view to the implementation of strategy in the company. On the basis of the structural model presented in these Guidelines, assessments of requirements specific to particular HR activities can be made in the context of a diagnostic evaluation: how should specific HR programmes be designed in order to achieve positive economic effects. Furthermore, comprehensive assessments of requirements are also supported by the structural model: what HR activities are required by the current economic position of the company?

- (25) How can an economic evaluation be used to provide a clearer picture of the importance of HR work within a company and to secure the management's interest in the results of an evaluation?

An economic evaluation links the technical perspective with the economic perspective as regards HR. The technical perspective examines questions such as how a professional and high-quality service can be guaranteed in HR work, whilst the economic perspective examines how HR work can be brought to promote the competitiveness of a company. The latter requires HR work to be orientated very closely in line with the business requirements and organisational themes within a

company. The assessment criteria in an economic evaluation should be adapted to the criteria for company success. Those carrying out an evaluation will deal with the business themes in a company and examine the importance of HR activities from the viewpoint of line management and senior management. It is best if close communication is planned and implemented from the outset between HR and management staff. An evaluation can be used to give all involved and the addressees of the evaluation an understanding of the links between HR and business success, and not just with regard to the effectiveness of individual HR activities.

All in all, economic evaluations are also in communications terms sophisticated and fascinating projects. In all phases of an evaluation, dialogue should be sought with the management of a company, because an evaluation is not a question of patting oneself on the back but of highlighting the importance of HR in specific business areas of the company. To this end, HR staff must also change their viewpoints with regard to HR themes and understand the objectives, problems and organisational aspects of the value-creation processes of the company. HR work will be deemed important where it is regarded as a committed contribution to value creation and increased efficiency and can prove that this is the case by means of an evaluation. Economic evaluation will get attention if it recognises and takes up the viewpoints of its addressees. Furthermore, a committed and self-confident communication strategy vis-à-vis the company management is required. This needs to be well prepared and accompanied by an interdisciplinary working group in order to be familiar with the current themes within the company.

- (26) Where can I find more detailed literature on the subject of economic evaluation of HR?

The Federal Institute for Occupational Safety and Health (BAuA), which was also one of the parties which commissioned these Guidelines, has in recent years carried out several projects on the subject of economic evaluation of HR. An overview of literature has also been drawn up (Pennig et al., 2006). This can be requested from the BAuA or consulted at <http://www.baua.de/de/Publikationen/Fachbeitraege/F2105.html>.

German and English publications (Pennig & Vogt, 2006c; Vogt & Pennig, 2006) on the project, in connection with which these Guidelines were also drawn up, contain three practical examples of economic evaluations in the HR domains.

The BAuA is promoting two further projects dealing with this subject. In the first project, under the auspices of the International Performance Research Institute in Stuttgart, an evaluation of occupational health promotion is being carried out with the aid of the Balanced Scorecard (www.kopenhagener-modell.de). In the second project, HR promotion indicators are being developed (HUMIND Project, Glaser et al., 2005). On the basis of objective financial performance indicators such as ROI or earnings per share (EPS), can a company which invests strongly in its staff be deemed to be more successful?

In recent years, several books in English have appeared on the Anglo-American market dealing with the subject of the evaluation of HR activities (inter alia Edwards et al., 2004; Phillips, 2003). Unlike the above-mentioned works, however, they do not concentrate on the profitability of HR activities but on their effectiveness in general. They nevertheless provide background knowledge which is also useful for economic evaluation. The introductory chapter of the 600-page work produced by Edwards et al. in 2004 contains a good introduction to the question of evaluation. The widespread prejudices against evaluations in the HR

domains are addressed and counter-arguments presented. The quality criteria (benchmarks) of an evaluation, which must be carried out on sound scientific bases and at the same time appear plausible and feasible to management, are described. In the subsequent chapters, various areas of HR work such as recruiting, selection, training, coaching, etc. are examined by experts from an evaluation viewpoint. Every chapter contains further valuable literature references.

(27) Who can provide support, if possible specifically in the region of my company?

First of all we will list persons and organisations which deal specifically with the subject of economic evaluation of HR.

In Germany

1. Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA; Federal Institute for Occupational Safety and Health, BAuA), Dr. phil. Birgit Köper, Gruppe 1.2. soziale und wirtschaftliche Rahmenbedingungen [Group 1.2 - Social and Economic Affairs, Monitoring Working Conditions], Friedrich-Henkel-Weg 1-25, 44149 Dortmund
2. context, Leadership.Performance.Consulting, Dipl.-Psych. Dipl.-Kfm. Stefan Pennig, Am Stadtwald 26, 45219 Essen-Kettwig
3. Human-Capital-Club e.V., c/o. Dipl.-Psych. Peter Friederichs, Vorsitzender des Vorstandes [Chairman of the Board], Alfonsstr. 1, 85551 Kirchheim
4. IPRI - International Performance Research Institute gGmbH, PD Dr. Klaus Möller, Rotebühlstr. 121, 70178 Stuttgart
5. LearnVision, Dipl.-Ing. Frank C. Schirmer, Fritz-Vomfelde-Str. 34, 40547 Düsseldorf
6. Technische Universität München, Lehrstuhl für Psychologie, PD Dr. Juergen Glaser, Arcisstraße 21, 80333 München
7. Universität Dortmund, Lehrstuhl für Grundlagen und Theorien der Organisationspsychologie [Dortmund University, Chair of Organisational Psychology Basis and Theory], Univ.-Prof. Dr. Dr. Michael Kastner, Martin-Schmeisser-Weg 13, 44225 Dortmund

In further Europe

8. University of Copenhagen, Associate Professor Joachim Vogt, Department of Psychology, Østerfarimagsgade 5A, DK-1353 Copenhagen K

In the USA

9. International Society for Performance Improvement, 1400 Spring Street, Suite 260, Silver Spring, Maryland USA 20910, <http://www.ispi.org>
- 10.ROI-Institute, Dr. Jack J. Phillips, <http://www.roiinstitute.net>

In addition to the organisations, research institutes and consultancy firms listed above, all of which have know-how in the economic evaluation domain, those bodies which can offer HR programmes are also competent contact persons on the subject of evaluation. In the health, safety and protection at work domain, the competent contact persons are for example the professional associations and the sickness and accident insurance companies.