

Nicolai Andler Tools for Project Management,
Workshops and Consulting



Nicolai Andler graduated from the Technical University of Berlin with a combined Masters of Commerce and Masters of Chemical Engineering degree with distinction. The Technical University of Berlin is one of the few universities that have a faculty for systems engineering, which is the science on which this book is partly based. He also holds a Master of Management degree from the French Graduate School of Business in Toulouse (Grande Ecole Supérieure de Commerce de Toulouse – MBA equivalent) with a specialization in ‘management of multinational groups’ and ‘international business strategies.’

Before founding his own company, the Ignite Group, Nicolai Andler was a senior consultant with an IT and CRM consultancy for several years. Prior to working in the IT consulting field, he had freelance experience in management consulting in Europe and several years of management consulting (business transformation projects focusing on business process reengineering and supply chain improvements) with an international management consultancy in South Africa. He has worked with clients in the financial services (retail banking, life insurance, and employee benefit), public sector (education, revenue and customs, government agencies), waste management, chemical and petrochemical industries.

Tools for Project Management, Workshops and Consulting

A must-have compendium of
essential tools and techniques

by Nicolai Andler



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Brief contents/Overview of tools

The author's rating is based on perceived effectiveness and impact versus effort ('added value for time invested').

☺	☺☺	☺☺☺
Advanced experience/ skill required	Average experience/ skill	Easy; just try it!

Purpose of category	Tools or technique name	Page	Ease of use	Effectiveness
Define situation ➤➤➤➤➤	Black box	39	☺☺☺☺	☺☺
	IS – IS NOT	41	☺☺☺☺	☺☺☺☺
	Helicoptering	42	☺☺	☺☺
	Hypothesis	43	☺	☺☺☺☺
	Stakeholder map	44	☺☺☺☺	☺☺
	Stakeholder analysis – Expectation management	48	☺☺	☺☺
	Stakeholder influence matrix	51	☺☺	☺
	Stakeholder accordion	54	☺☺	☺☺
	Stakeholder swapping	55	☺☺	☺☺☺☺
	Context diagram tool	57	☺	☺☺
	Silo view tool	60	☺	☺☺
Mind map	61	☺☺☺☺	☺☺	
Gather information ➤➤➤➤➤	Interview (unstructured)	68	☺	☺☺
	Climate assessment (structured)	70	☺☺☺☺	☺☺
	Tripod (mixed)	73	☺	☺☺☺☺
	Octagon	74	☺☺	☺☺
	Focus groups (unstructured)	75	☺	☺☺☺☺
	Questionnaires (structured)	77	☺☺	☺☺
	Survey/field study	79	☺☺	☺☺
	Direct observation (DIL0 = day in the life of)	81	☺☺☺☺	☺☺
	Delphi or expert panel	83	☺☺	☺
	Desk research/database research	84	☺	☺☺
5 Whys	85	☺☺☺☺	☺☺☺☺	
Creativity ➤➤➤➤➤	Brainstorming	87	☺☺	☺☺
	Cardstorming tool	89	☺☺☺☺	☺☺
	6-3-5 tool	90	☺☺☺☺	☺☺☺☺
	Nyaka (defect analysis)	91	☺☺	☺☺
	Bionic	93	☺☺	☺
	Attribute listing	94	☺☺	☺

Purpose of category	Tools or technique name	Page	Ease of use	Effectiveness
	Morphological matrix	95	😊😊	😊
	Merlin technique/Osborn checklist	96	😊😊	😊😊😊
	Force field	99	😊😊	😊😊
	Introduction to alternative creativity tools	102	–	–
	Affinity diagram tool	103	😊😊	😊😊😊
	Venn diagram	105	😊😊	😊
	Fishbone or cause-effect	106	😊😊	😊😊
	Pareto	109	😊😊	😊😊😊
	ABC tool	111	😊	😊😊😊
Goal setting ▶▶▶▶▶	Goal catalogue	115	😊😊	😊😊
	SMART goals	117	😊😊😊	😊😊
	Well-defined outcomes	119	😊😊	😊😊
	3 P statements	120	😊😊😊	😊😊😊
	Goal hierarchy	122	😊😊	😊😊😊
	Goal grid	125	😊😊😊	😊😊
	Charter	126	😊😊	😊😊😊
	SNAP	128	😊😊	😊😊
Org. analysis ▶▶▶▶▶	Organisational structure	133	😊😊	😊😊😊
	Span of control	137	😊😊	😊😊😊
	Org structure versus process	139	😊😊	😊😊😊
	Organisational assessment	141	😊	😊😊
	Powergram	142	😊😊😊	😊😊
Technical analysis ▶▶▶▶▶	Architectural decomposition view	145	😊	😊😊
	Functional decomposition	146	😊	😊😊
	Process analysis	148	😊😊	😊😊😊
	Entity relationship diagram	152	😊😊	😊😊😊
	Logical data relationship	153	😊	😊😊
	Technology and systems landscape	155	😊	😊😊😊
	Requirements catalogue	157	😊😊	😊😊😊
	Logical and functional system modelling	160	😊😊😊	😊😊
Strategic analysis ▶▶▶▶▶	Value chain analysis	163	😊😊	😊😊😊
	Critical success factor (CSF)	167	😊	😊😊
	SWOT and TOWS	170	😊😊	😊😊
	Life cycle	176	😊😊😊	😊
	5 Forces	181	😊	😊😊
	Competitor analysis	186	😊	😊😊
	Environmental analysis (PEST)	189	😊	😊😊
	Strategic market group	192	😊😊	😊😊
	Customer segmentation	196	😊	😊😊😊
	Business matrix	200	😊😊	😊😊
	Product/market mix	204	😊😊	😊
	Strategic development options	208	😊😊	😊😊😊
	Strategy matrix	212	😊😊	😊😊

Purpose of category	Tools or technique name	Page	Ease of use	Effectiveness
Decision making ➤➤➤➤➤	Decision tree	220	☺☺	☺☺
	Perspectives ³	222	☺☺	☺☺
	Argument balance	223	☺☺☺	☺☺☺
	Cross of beliefs	224	☺☺	☺☺
	Polarities tool	226	☺☺	☺☺
	Utility analysis	227	☺	☺☺☺
	Nominal group tool	229	☺☺☺	☺☺☺
	100 Points	231	☺☺☺	☺☺☺
	Cartesian coordinates	232	☺☺	☺☺
	Vroom Yetton	234	☺☺	☺☺
	Risk analysis	236	☺	☺☺
	Prioritisation	232	☺☺☺	☺☺
Project Management ➤➤➤➤➤	Project management skills radar	248	☺☺	☺☺
	Expectation review tool	250	☺☺☺	☺☺☺
	Roadmap	252	☺☺	☺☺☺
	Gantt chart	253	☺☺☺	☺☺☺
	Work breakdown structure (WBS)	255	☺☺	☺☺☺
	Action steps and reviews	258	☺☺☺	☺☺☺
	Project management roles and responsibilities	259	☺☺	☺☺
	Accountability matrix (CIDA)	262	☺☺	☺☺
	Project structure	264	☺	☺☺
	Project communication plan	266	☺	☺☺
	Workshop guideline	270	☺☺	☺☺
	De Bono thinking hats (6 hats)	272	☺☺	☺☺
Booz ball evaluation	273	☺☺☺	☺☺☺	
Checklists and questions	Check questions for a project start	275	☺☺☺	☺☺☺
	Check questions to define the current situation	276	☺☺☺	☺☺☺
	Check questions to define goals and objectives	277	☺☺☺	☺☺☺
	Check questions during an analysis	277	☺☺☺	☺☺☺
	Check questions during decision making	278	☺☺☺	☺☺☺
Scenarios ('shopping list' of tools)	Feasibility study	280	☺☺☺	☺☺☺
	System development	281	☺☺	☺☺
	Organisational restructuring	282	☺☺☺	☺☺☺
	Strategy workshop	282	☺☺	☺☺
	Business process improvements	283	☺☺☺	☺☺☺
	Project definition/scope	284	☺☺	☺☺☺

2 The concept and application of this book

The basic concept on this book is to provide a compendium of tools and techniques typically used in a project management, consulting or workshop environment. A problem solving process is used as a framework around which all categories of tools and techniques are grouped, in order to be able to deal with all issues or problems in every domain of your business life. This book brings together tools and techniques to enhance your methodological competency while focusing on the interdisciplinary areas of strategy, organisational structure, information systems, and project management.

The underlying concept of this book is a universal problem solving process consisting of four steps (diagnosis, goal setting, analysis and decision making). This problem solving process is applicable to any type of problem and situation. Tools and techniques, which have a similar purpose are grouped into the same category.

So, the overarching framework is the problem solving process, which is discussed in the next section (chapter 2.1). The tools and techniques ‘rank beneath’ the problem solving framework in nine different categories.

2.1 Problem solving

When solving a problem, we normally want to achieve more than just getting rid of some unacceptable situation. More often we are also trying to achieve some other more desirable state. Theoretically speaking, we’re trying to move from the problem state to the solved state (see figure 5). We do so by crossing what is called ‘the solution path’. It seems obvious that if we do not focus some of our attention on the solved state, the likelihood of attaining it is diminished. Unfortunately, the problem state is what often attracts most of our attention.



Figure 5 Problem solving and the solution path

This book enhances the ‘solution path’ by providing all the required tools for the job on hand, but this is only the preparation for the implementation. It is important to avoid falling into the analysis paralysis trap – the operational work starts with the implementation and not with the completion of the planning and analysis.

How do we typically address problems in organisations and management? We try to make them go away – quickly. But there are many options available, even though we rarely consider them. ‘There are three ways of dealing with problems: they can be resolved, solved and dissolved.

- To *resolve* a problem is to find a means that satisfies it well enough.
- To *solve* a problem is to find the optimal means.
- To *dissolve* a problem is to redesign the relevant system or its environment so that the problem is removed.

Dissolution requires more creativity than solution, and solution more than resolution.’ (Ziegenfuss 2002). This ‘dissolution’ refers to a more fundamental deep rooted (root cause) approach, which is in line with the approach being taken in this book and the reason for the tool category ‘creativity’.

Ultimately, the aim of problem solving is action, and solving problems requires action steps as well as investigation beforehand. That means to engage in problem solving is to search for a solution. To actually solve a problem is to implement the solution that has been found and to demonstrate that it works.

2.1.1 Different problem solving processes and approaches

Problems must be considered in terms of their linear or iterative nature. There is a certain level of linearity required in solving all problems. However, given the nature of modern science, business and society, problems are not necessarily solved in a linear fashion only. The complexity of the context in which a problem exists may require constant feedback and acknowledgement of a variety of influences simultaneously impacting on the problem. It may therefore be necessary to integrate an iterative approach or process, to maximise feedback from the environment.

There are probably hundreds of problem solving processes, but most of the approaches are very similar, regardless of the technical field of origination. Typically problem solving approaches or models vary in the number of steps and terminology, but the basic intention is mostly the one displayed in figure 6:

- What is wrong? Identify the problem.
- How should it be? Determine the ‘ideal’ situation.
- What can I do and how best to do it? Determine the preferred solution (and establish an action plan).

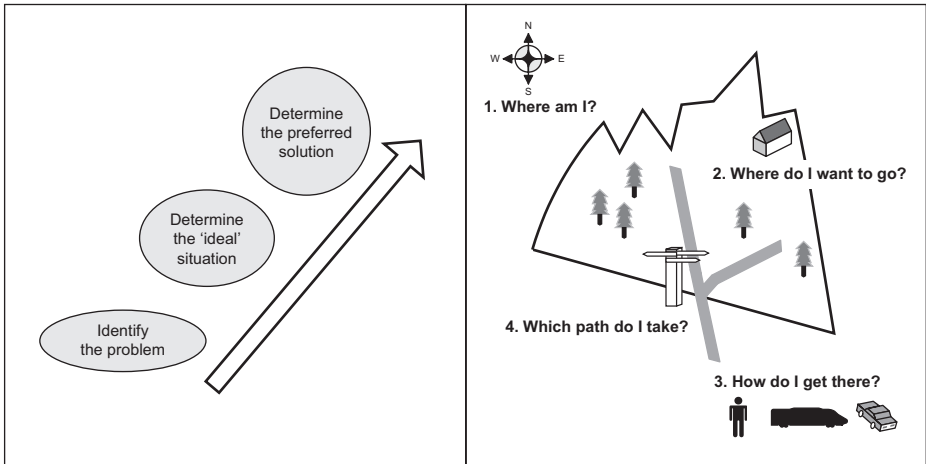


Figure 6 Fundamental problem solving approach

The picture on the right in figure 6 uses the metaphor of a journey to represent the basic problem solving approach following no. 1 to no. 4.

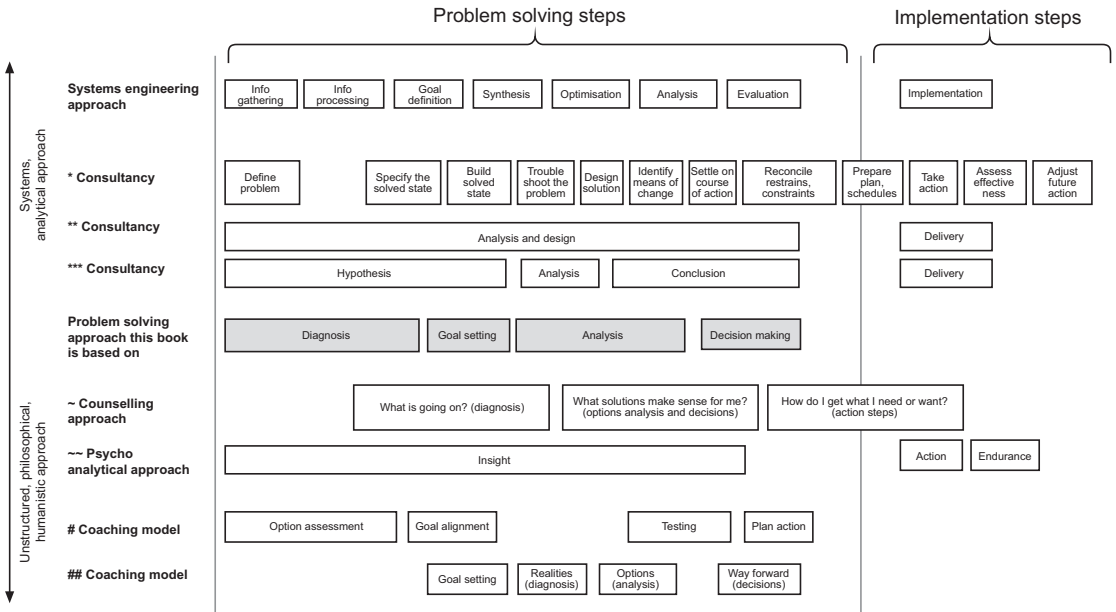
Comparison of different problem solving approaches (excursion)

The following excursion is intended to provide an overview of different problem solving approaches from different disciplines and areas although they all follow the same basic principal.

Figure 7 starts from the top with a systems engineering approach with its typical steps of problem solving followed by implementation (Haberfellner, Nagel et al, 1994). Depicted below are different approaches typically used by consulting companies. The three examples represent a combination of problem solving approaches together with project life cycle approaches. Further down are more humanistic and ‘people-orientated’ approaches typically used in psychology, therapy, counselling, change management and coaching.

2.1.2 The problem solving process used in this book

Multiple problem solving process approaches, including the typical tools from various disciplines, have been amalgamated into *the one* used in this book and highlighted by the grey shaded process step boxes in figure 7. This means the approach includes tools, e.g. from counselling, in the change management section and in the goal setting section; or coaching tools in the decision making sections; IT and business analysis tools in the systems analysis section, etc. In addition, elements of a humanistic problem solving approach were combined with a systems engineering approach and merged into *the specific* problem solving process used in this book.



* Distance Consulting (Fred Nickols), ** Gemini Consulting, *** Bossard Consulting, # Togaine (The Foundation), ## Whitworth's Grow model, - G. Egan, -- C.G Jung

Figure 7 Overview of different problem solving approaches

As displayed in figure 8, there are four basic problem solving process steps. It is important to understand the different purposes of each of the steps to become familiar with the underlying logic of why a certain category is associated with a specific process step. The following section defines the four problem solving process steps and their purposes.

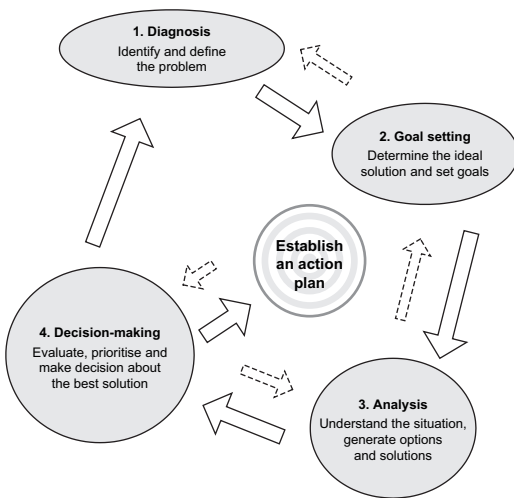


Figure 8 The book's problem solving process that displays the iterative aspect of the process

1. Diagnosis – Understand the problem

Has the problem been formulated, defined and properly understood? At the outset of the problem solving process it is important to define or formulate the problem. The problem may be complex and vague. Thus, the specific problem to be addressed must be clearly understood.

During the first process step (diagnosis), the objective is to identify the problem clearly to avoid generating solutions to issues peripheral to the real problem. Considerable time and effort can otherwise be spent in addressing a particular symptom of a problem rather than the problem (root cause) itself. Thus, in the critical first step of the problem solving process, it is necessary for the problem to be properly defined and clearly understood in terms of boundaries, characteristics, functions, and limitations. The tool categories 'information gathering', 'creativity' and 'define the situation' empower you to do exactly that. See the introduction to chapter 3 for more details.

2. Goal setting – Determine the ideal outcome and set goals

Once the problem has been understood, diagnosed and defined, the second step (goal setting) of the problem solving process can start, during which the intended outcome is outlined and described. It is not necessary to stick to this sequence, although the quality of the goal setting will improve due to more insight derived from the previous process step. Different terms, e.g. 'to-be, target, blue-sky, objectives, desired state, goals, etc.' are used to describe basically 'where we want to go and how it should look'.

3. Analysis – Understand and analyse the situation, generate options and develop solutions

Once goals have been defined, the third step of the problem solving process can start, during which alternative solutions to the problem are generated. This stage is complete once you have generated and developed appropriate solutions and recommendations that resolve the problem and meet the expectation regarding the goals that have been set.

4. Decision making – Evaluate, prioritise and make a decision

The purpose of the fourth step of the problem solving process is to help you with all aspects of evaluating, ranking, rating, prioritising, risk evaluating and comparing in order to make a decision and to implement the best solution. The stage is complete when an appropriate solution has been selected and agreed upon.

Implementation – Establish an action plan and do it

This aspect, which seldom receives sufficient attention, consists of the implementation plan and the action steps needed to achieve the selected solution.





This is a very important part of the process, often requiring a return to a previous stage and a revision of initial ideas and intentions. In completing the problem solving process it is necessary to ensure that aspects covered during the previous stages are addressed in the implementation plan. Tools associated with the preparation of recommendations, action plans, Gantt charts, and other implementation preparation are mostly covered in the project management/project governance tools section.

Although the process in figure 6 may appear to be somehow linear and sequential, any of the four steps can – or even should be – returned to and readdressed if new information or opportunities become available during a later stage, as is shown in figure 8.

Another important aspect to consider during the course of a problem solving exercise is the type of thinking that should be applied depending on the problem solving phase (see table 1). The analysis phase requires a divergent type of thinking: explore different directions for many (im)possible solutions, accept all ideas and alternatives, defer judgement or evaluation, then discuss, combine, and improve ideas, and when exhausted move to a convergent thinking style. With convergent thinking, you establish categories of alternatives, develop evaluation criteria and, avoid premature closure and keep your eyes on the objective, list strengths and weaknesses and select the best alternative or idea (this sums up the decision making process).

Table 1

Be aware of the required 'type of thinking' for the current problem solving phase (Glass, 1996, Management Masterclass, amended by author)

Problem solving process step	Type of thinking	Warning – Most common pitfalls ☹
Diagnosis	Integrative 	Taking a narrow, functional view or being too broad to generate effective responses.
Goal setting	Visionary and pragmatic 	Only top-down or bottom-up thinking – no coordination and agreement between top-management and operational level on realistic objectives.
Analysis	Divergent 	Starting out looking for the ONE correct answer/solution. Shooting down solutions that appear logical.
Decision making	Convergent 	Allowing politics, ego and emotions rather than logic to decide the outcome. Continuing to be creative, without applying sufficient analysis and judgement.

This book is about tools and techniques. Why spend all this time on problem solving? The problem solving process is the *overall framework* or skeleton. Each stage of the problem solving process usually requires specific types of tools or techniques. Therefore similar tools are grouped into the same category. This category is assigned to the problem solving process step where its tools are usually required.

To provide further clarity, a symbol (figure 9) is used to indicate during which process step the tool is usually required or recommended. In the example below, the dark shade of the first box represents the first process step 'diagnosis'.



Figure 9 Symbol for categories, this one is for the first step 'diagnosis'

2.2 Categories of tools

As displayed in figure 10, tools and techniques have been assigned to one of the nine different categories according to their purpose.

Situation definition (section 3.1)

The purpose of the tools in the category 'situation definition' is to describe and characterise the current situation, context and environment. It often overlaps with the beginning of a project or initiative in terms of setting boundaries and understanding the 'as-is'.

Information gathering (section 3.2) – tools from this category can be used in the process steps 1 (Diagnosis) and 3 (Analysis)

The purpose of the tools in the category 'information gathering' is the vital preparation for most other activities. Having sourced relevant information enables us to broaden our horizon; invites new points of views and is the basis for the analysis step.

Creativity (section 3.3) – tools from this category can be used in the process steps 1 (Diagnosis) and 3 (Analysis)

The purpose of the tools in the category 'creativity' is to 'think outside the box', discover different ways of thinking and new ideas and potential solutions; in particular during the 'to-be' activities of the analysis phase, when innovative thinking to find better solutions is required.

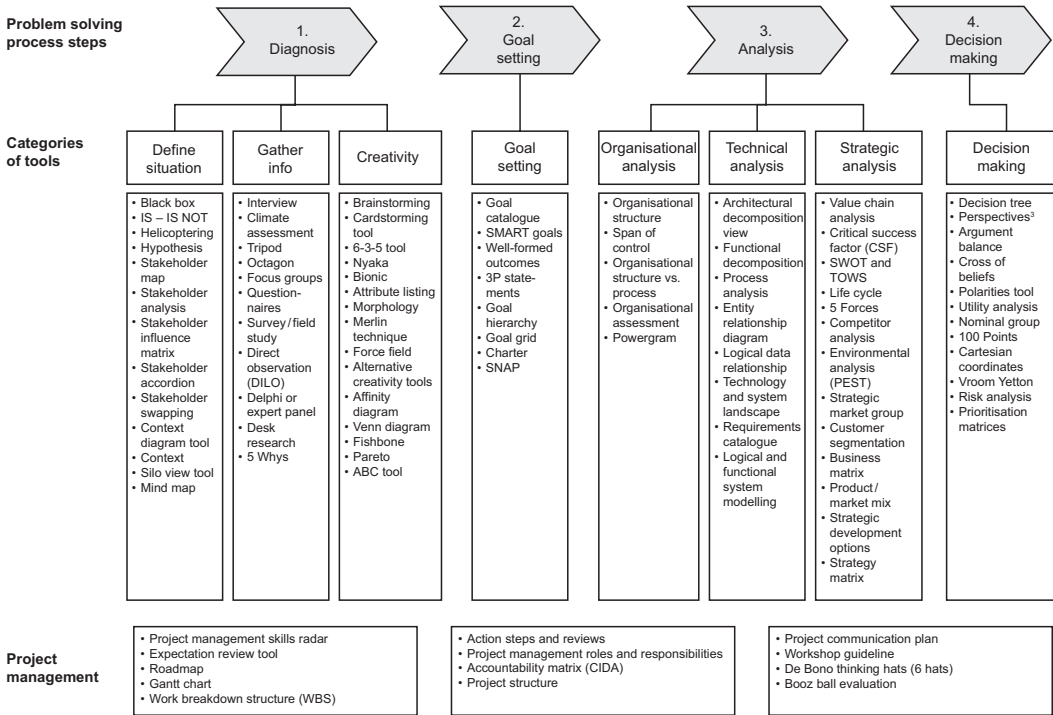


Figure 10 Overview of the problem solving process steps and the relevant categories of tools

Goal setting (chapter 4)

The purpose of the tools in the category ‘goal setting’ is to define the future and desired end state, once everything is accomplished as planned. These tools (and the activities of applying the tools) are crucial for the success of the whole exercise, because goal setting provides direction and hopefully a measurable improvement (‘before-after difference’). Goal setting is about ‘where do we want to be and what should it look like’.

Analysis (chapter 5)

An analysis is an investigation of the components of a whole and their relations in making up the whole. The purpose of the tools in the category ‘analysis’ is to investigate the current situation, use the information gathered, and to draw a conclusion in order to develop a solution that improves the situation and enables you to achieve the set goal. The ability to investigate and develop appropriate solutions is dependant on a certain level of interdisciplinary competency.

The category ‘analysis’ has a special function. It is based on the fact that each type of analysis is of a special nature and requires therefore a special set of tools and techniques. As a result, the analysis category has been divided into 11 inter-