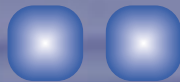
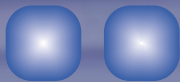


[www.hermes.admin.ch](http://www.hermes.admin.ch)



# *Hermes*

Management and Execution of  
projects in Information and Communication  
Technologies (ICT)

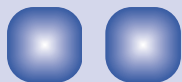
Foundations

2003 Edition

# mes



Swiss Federal Strategy Unit for IT FSUIT  
Informatikstrategieorgan Bund ISB  
Unité de stratégie informatique de la Confédération USIC  
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### **Gender Language Equality:**

The handbook uses role descriptions, which are independent of a person's gender and positions in an organisation. The roles can be fulfilled by either men or women as the responsible person for fulfilling a role.



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## 1. Introduction

### 1.1 Purpose of the handbook

The current handbook introduces the HERMES method for the **management and execution of projects** in the area of Information and Communication Technologies (ICT).

By following concrete steps with a description of anticipated results, phases, activities and the appropriate roles for developing and executing the project, HERMES should bring about an improvement in project transparency, as well as in the planning and Project Execution.

### 1.2 Target audience

HERMES applies to **all project participants**, on the **purchaser** side as well as the **supplier**.

As a project guidance method, it is particularly targeted at project leaders, and at all management staff who intend to be involved either in the implementation or through their participation.

For other project participants, HERMES offers a multi-faceted support for their successful involvement in the project.

HERMES supports the development and execution of ICT projects in the public administration (Confederation, cantons and communes) as well as in enterprises.

### 1.3 Objectives and concept of HERMES

Successful projects require target-oriented management, execution and controlling. The purpose of HERMES is to offer support to all those involved in this complex challenge in the management of their particular tasks.

HERMES proposes goal and results oriented project procedures. Accordingly, it takes into consideration those interests and tasks of the purchaser and project manager, as well as those of the project collaborator. It thus creates the right conditions for successful coordination between all participants.

HERMES structures the development and execution of a project by specifying **project results and phases**, from which the required **project activities** and **responsibilities** are derived. The methods name and describe phase-specific activities and their nature, as well overlapping and concomitant tasks required for the guaranteeing of the project's success, as summed up in the sub-models (such as project management, quality assurance and risk management).

The application of HERMES improves project transparency. It facilitates the monitoring of the project's progress and enables more rapid and targeted corrections to be made during the course of the project, if the need should arise.



Changed and increased requirements for project guidance methods since the last revision of HERMES in 1995, have been essentially met by HERMES introducing the following:

- HERMES as a Global Solution for the standardisation and support in conducting projects with the components of:
  - the HERMES handbook as the core of the Global Solution
  - aid supports with detailed specifications of results, phases, activities and role responsibilities
  - HERMES website [www.hermes.admin.ch](http://www.hermes.admin.ch)
  - HERMES information presentations («HERMES events», organised by the Swiss Federal Strategy Unit for Information Technology, where themes such as: information on HERMES for Management, exchange of experience by HERMES users, planned further developments in HERMES and so on, are presented.
- the two-part structure of the handbook makes for easier application of HERMES (Part I «Foundations» and Part II «Project Execution»)
- separate editions of Part II «Project Execution» for various project types; the unique sub-model SD forms the basis for the project type «system development»
- the adoption of further sub-models for better combinations of overlapping tasks in conducting a project; the five fundamental sub-models of the new edition of HERMES are:
  - Project management
  - Quality assurance
  - Configuration management
  - Risk management (new)
  - Project marketing (new)
- improved integration of information security and data protection in project procedures
- improved definition and delineation of tasks, responsibilities and roles of all project participants
- incorporation of extensive experience from previous projects («*best practices*»)

As a project guidance method HERMES has already existed since 1975 (with extensive revisions in the years 1986 and 1995) in public administration in Switzerland and in numerous enterprises.

The constantly increasing usage of HERMES, also outside the federal administration, has borne fruit and shown that the content of HERMES is largely formulated as «federal administration-neutral» and that references specific to an area, or abbreviations and the like coming from the federal administration environment, are avoided as far as possible.

## 1.4 Contents of the handbook

The HERMES **handbook** consists fundamentally of two parts:

- HERMES Part I: «Foundations»
- HERMES Part II: «Project Execution»

The contents of **Part I**, «Foundations» covers the following topics in particular:

- the foundational basis of HERMES
  - basic information on the HERMES project guidance method
  - features of successful projects
- application of HERMES

For issues particularly relevant to conducting a project, Part II deals with the questions of **«what?»** and **«why?»** thereby laying the foundation for successful project work.

In particular, it is valid to make all project participants aware of the factors which are essentially responsible for the success or non-success of a project. One can thereby achieve a broad understanding of the project mentality and the success factors, as well as improving the climate of the project. Greater consciousness in conducting a project helps all participants towards greater success.

A concluding section of Part I deals with the adaptation («tailoring») of HERMES for application in one's own projects (or organisation) and provides guidance for support possibilities for the application of HERMES in practice.

**Part II**, «Project Execution», deals with the contents and the project procedures for each specific project type accordingly. Part II is available in different editions e.g. for the project type «system development» or «migration» and covers the following topics in particular:

- definition of relevant **results**
- procedures for **phases** and phase-independent **sub-models**
- **roles** of responsibility assigned to specific work parts
- **work techniques**: HERMES describes various work techniques which provide information and explanations for use in the application of HERMES
- diverse attachments provide further information on HERMES

Moreover, there is a **Work-Breakdown Structure** available on the HERMES website for each HERMES project type, which contains all results, activities and work steps, as well as the corresponding roles of responsibility for the project type.

HERMES Part II edition is based on the following structure:

Chapter	Contents
1	Introduction
2	Overview of the project type (results, phases, roles)
3	Individual phases of the project type in detail
4	Sub-models of the project type
5	All results of the project type
6	Roles in the project type
7	Work techniques
Annexes	Information on selected topics, suggestions for further reading
Index	Glossary

Diagram 1: Structure of HERMES Part II on Project Execution

The specifications of concrete procedures for the different project types - accordingly with detailed phase results, the relevant project activities and the roles of responsibility and parties involved together with the work techniques - complete the basis for a **goal-oriented, reliable and efficient monitoring and implementation of projects**.

The following graphical overview shows the structure of the handbook as well as its place in the HERMES Global Solution.

## HERMES 2003 Global Solution

### The handbook as the core of the solution

#### HERMES Part I Foundations

- basic information
- successful projects
- applications of HERMES

#### HERMES Part II Project execution

- overview of the project type
- phases in detail
- sub-models
- results
- roles
- work techniques

Project type  
«**system development**»

Project type  
«**migration**»

Project type  
...

#### Utilities

- templates
- electronic Work-Breakdown Structure (WBS) for tailoring
- HERMES Manager

#### Knowledge

- HERMES website  
[www.hermes.admin.ch](http://www.hermes.admin.ch)
- presentations/events
- training

Diagram 2: Structure of the HERMES Global Solution

HERMES Part II series on Project Execution can be continued using further project types.



## 2. The basic foundation of HERMES

This chapter contains basic knowledge about HERMES and on tasks involved in conducting a project. The purpose is to heighten the sensibility of all project participants to the significance of various factors necessary for the project's success. It should be possible to create a common understanding which represents a prerequisite for an efficient usage of the HERMES project guidance method.

For more detailed information one is referred to the relevant literature or to the special themes dealt with in HERMES Part II.

### 2.1 The concept of a project

The implementation of complex tasks requires particular organisational forms depending on the necessary participation from each of the different authorities.

A **project** is a planned undertaking which is marked by the following criteria:

- temporal delimitation
- defined goal
- uniqueness and a one-off
- organisational overlapping and interdisciplinary work
- presence of a certain amount of risk

In contrast to a project, there are often ongoing tasks in a linear organisation, which display general objectives, and are focussed on the organisational unit and show a certain degree of predictability. The element of risk is less and dispersed.

### 2.2 Project types

Project types are defined for providing more precise specifications on projects which present similar problems and for which similar results can be expected.

For a particular **project type** the following are characteristic («typical»):

- the type of project result
- the interim result of a project
- the procedures for generating the results, and as the case may be.
- project participants

The standardised Work-Breakdown Structure (WBS), individualised for each project type, serves as the central theme for the procedures to follow for a certain project type. For **example**, «system development» or «migration». Further HERMES project types can be developed according to need.

The size of a project does not enter into the definition of a project type.

The effects of the project's scope on Project Execution is a subject for tailoring and is, as the case may be, taken into account through allocation to a particular project category.

### 2.3 Project categories

Project categories are defined in order to guarantee that the outlay for a project corresponds to the significance of that project. In descending order of importance, HERMES envisages the three project categories «A», «B» and «C».

Independent of the typical features of a project type (problem, type of result, procedures and roles) which determine the concrete activities required, a project is assigned to one of the project categories as follows using the help of «project characteristics»

- importance,
- size,
- risk.

### 2.4 HERMES as a method of process support

In the process world of organisations and enterprises, development processes often take a prominent position. Great demands are placed on those responsible for the processes accordingly and for their implementation, not only because of the importance of the solutions to be created here, but also due to the often very complex steps leading to the development

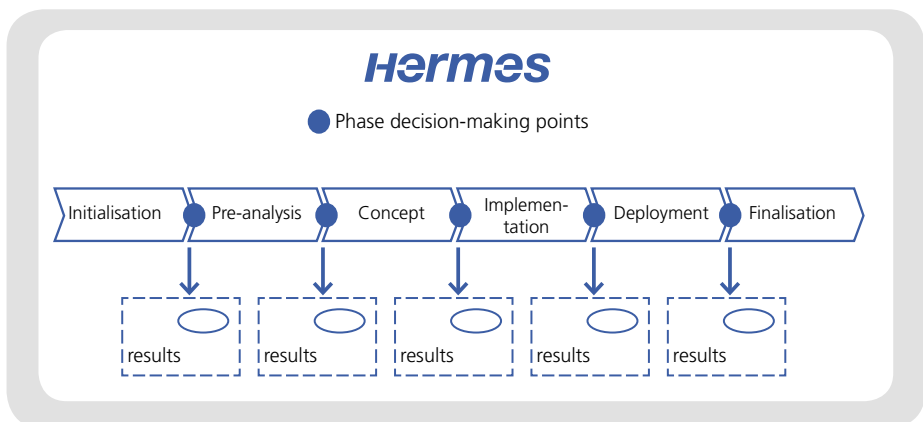


Diagram 3: HERMES as a method for the execution of a project

of solutions. For the mastery of such processes, methodical procedures, such as HERMES, are essential.

Diagram 3 depicts the structure of a project through the HERMES method. The project phases are adapted to the individual features of each project type. In the diagram, they correspond to those of the project type «system development». The results given at the end of each phase are apt for synchronisation of the project state with the solution development process.

Project work is in most cases marked by a complex project environment, which includes the surrounding processes. Depending on the existing process environment in which HERMES is to be integrated and applied as a process method, HERMES can also serve the purpose of acting as an interface with surrounding processes, for example, for sourcing, management and others.

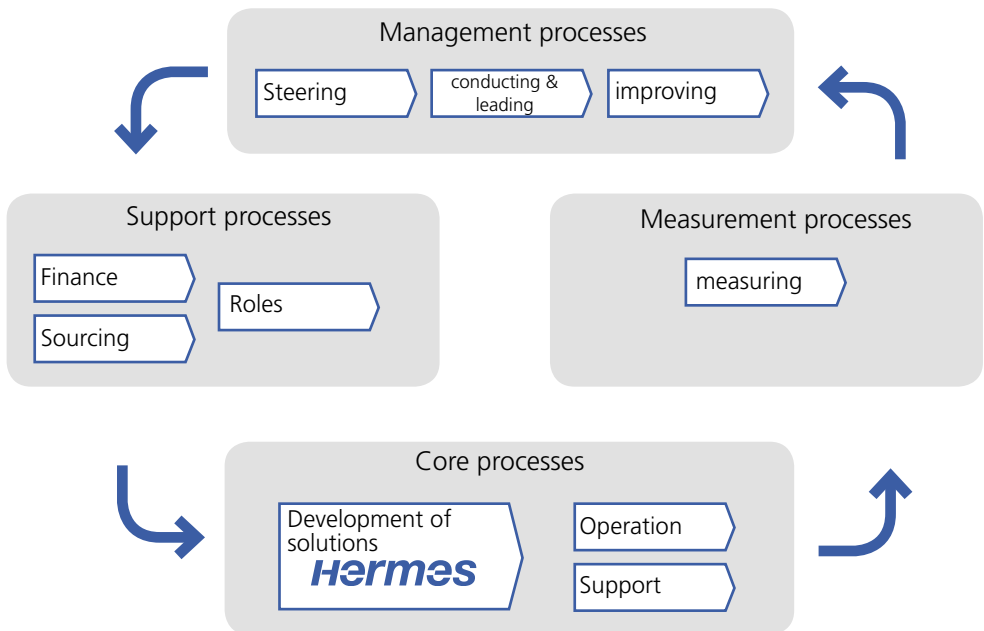


Diagram 4: HERMES in an IT process environment



It depends on who assumes the various tasks, whether the management and support processes make possible or support successful project work at all.

In the course of ongoing improvements, measurement processes take on particular significance. In order to shape these effectively, it is particularly important that the project makes necessary information available during the course of reporting for the controlling and auditing authorities, as well as further standard project documentation.

## 2.5 The three angles of a project

An essential feature of HERMES is the **result-orientation**.

Based on broad goals given by the project type, project results (final and interim) are defined which should, when a professional approach is followed, emerge during the course of a project.

The result-orientation of HERMES avoids activities which are either unnecessary or not oriented towards the results and provides an important contribution to efficient project development and execution.

From the results of the individual project types the corresponding procedures and the roles of responsibility are derived.

Accordingly a project is to be viewed from several angles.:

- view to the obtained **results**
- view to **procedures**
- view to the various **roles**

These angles are linked together and are inter-dependent. A thorough project management therefore constantly considers all perspectives.

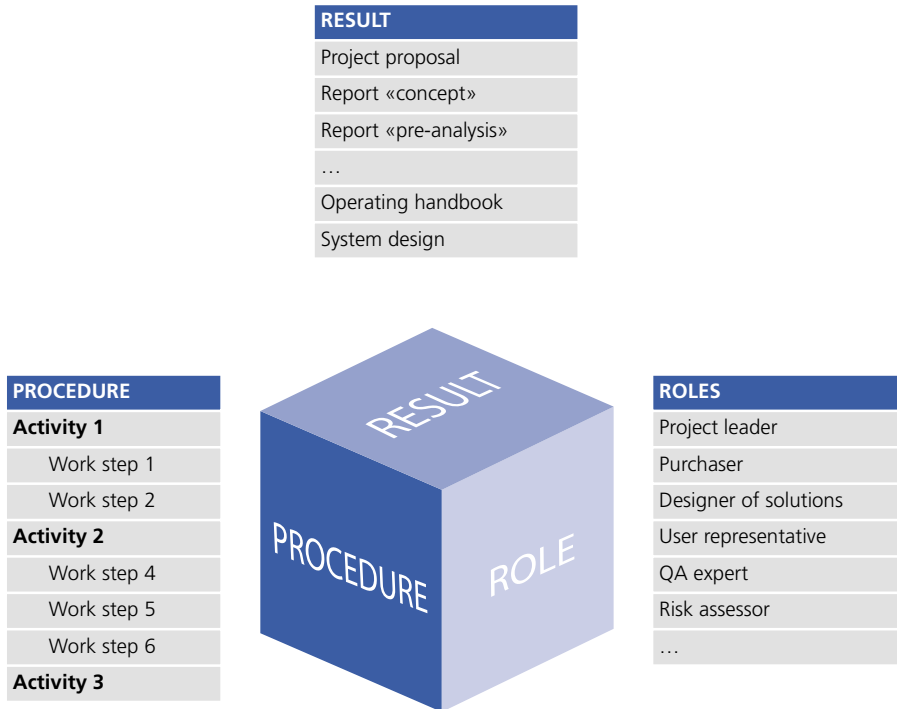


Diagram 5: Project angles

Starting with an «*input*» (e.g. a project mandate for removing a problem) results are generated in progressive work steps, which lead to the desired «*output*» (problem-solving).

The activities and work steps are moulded into the shape of the so-called Work-Breakdown Structure. This WBS combines all three angles and must provide the following:

- definition of a procedure (i.e. the work structure)
- overview of the results constructed in the manner of a checklist
- allocation of resources and roles

This information forms the basic foundation for reliable procedural planning for problem solving.

## 2.6 HERMES phase model

The contents and timing of running a project is in many cases marked by a great degree of complexity.

In order to enable reliable planning and monitoring activity to take place, it is necessary to adopt several basic measures:

- the subdividing of the project into several parts, the so-called **phases**
- the creation of distinct decision points where clearly defined results are presented for decision-making
- the generation of a decision-making and procedural dynamic which can be adapted to the problem to be solved according to the situation
- the construction of a project organisation with clearly established roles and responsibilities

For this purpose, HERMES defines a phase-oriented procedure for different project types.

Here HERMES sets out the project phases to be gone through for each project type accordingly. The project phases orientate themselves around the results to be created and around the **decision-making points of a phase** to emerge from them, where the results of every phase run together. Accordingly, the progression of a project is structured by way of the decision-making points of a phase; this means that at the end of a phase it is decided to release the next phase in which the results of the results will be judged, or not to release it.

Not only the number of phases, but also their content depend on the requirements of the respective project type. On top of this, further decision-making points are defined, which determine important decisions within a phase specific to a project type and which are correspondingly firmly footed in a proposed hierarchy of procedures.

The basic HERMES phase model comprises six phases. The most important phase results, for example for the project type «system development», look like the following:

Phase	Important phase result
Initialisation	defined starting point
Pre-analysis	fundamental solution options
Concept	thorough and assessed concept
Implementation	constructed system
Deployment	system installed and used
Finalisation	documented project experience

Diagram 6: HERMES phase breakdown

## 2.7 HERMES sub-models

The activities that belong to conducting a project, cover all overlapping tasks that should ensure the successful and goal-oriented planning and implementation of the activities.

For individual «disciplines» in the task of conducting a project, results that belong together by virtue of their content, together with their appropriate activities and roles of responsibility, are summarised in the so-called sub-models.

The number of sub-models that exist can depend on the individual project type. The five basic sub-models of HERMES, which can also be applied to the project type «system development», are:

- project management
- risk management
- quality assurance
- configuration management
- project marketing

For each project type, HERMES describes the sub-model specific project results, as well as the appropriate activities and responsibilities and roles that belong to them. The activities of the sub-models are integrated into the Work-Breakdown Structure (WBS).

## 2.8 Integration of procedure models

The purpose of the procedure model is the problem-focussed orientation and the detailing of the project's procedures.

Starting with the phase model of a project type, together with the phase results, activities and roles that belong to it as a basis for conducting the project, the project procedures are then fine-tuned with the help of specific procedure models. Special technological aspects can, thereby, also be taken into account (e.g. the application of object-oriented development methods in the case of system development).

Using the example of system construction, a linkage is required to be made between the different specific procedure models (depending on the type of system to be developed – that is, depending on whether the system being set up is to have a **commercial** or a **scientific-technical application**, whether it is for **office automation**, or, for an Information and Communication Technology –ICT– infrastructure, as the case may be).

**Commercial applications** are mostly databank oriented information systems for the processing of structured data. Here business processes and data management are of prime significance. If the system being developed is treating technical-scientific data, e.g. in simulations or statistical applications, one speaks of a **technical-scientific application**.



**Office automation systems** (as is the case with **government business administration systems**) support work processes, which principally process information, which is poorly structured. Arranging the communications and work processes, as well as the saving of large quantities of poorly structured data, or data not structured at all, is one of the central tasks to be dealt with.

If the system displays the character of an **Information and Communication Technology (ICT) infrastructure**, then, as a rule, the creation and integration of finished products (hardware, software) is of prime importance. An example here is the creation and installation of communication networks, operating systems or data saving equipment.

Further project types alongside the project type «system development» can also be defined for the purpose of marking characteristics such as those specific to systems development.

The basic steps for the project procedures are already contained in the phase activities of the project type.

Detailing through problem-oriented procedure models requires the following individual steps:

- concretisation and fine tuning of the results required by the project phases with the results structure of the procedure model
- matching the procedure model with the decision-making points in the project phases
- adding to (and fine tuning, as the case may be) project roles, in particular based on further roles required by the procedure model to be integrated
- formulation of conditions for project-specific tailoring, with emphasis on the results and activities of the procedure model providing completion
- the completion of results and activities as guidance for the special procedures, work techniques and tools to be adopted

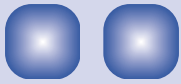
The consequences of this detailing are documented in the project handbook and form the basis for the **Work-Breakdown Structure** of the project.

## 2.9 Work-Breakdown Structure (WBS)

For the project development and execution, depending on the required project results, HERMES envisages, on the one hand (main focus), activities involved in conducting a project, and on the other, the actual activities contained therein, according to the respective project type.

For project planning, monitoring and controlling support, all the activities required for and contained in a project type, as well as the sub-model activities, are integrated into a WBS and presented together in a logical order.

The diagram below shows the interplay of the contents and the activities involved in conducting a project:



Work-Breakdown Structure (WBS)

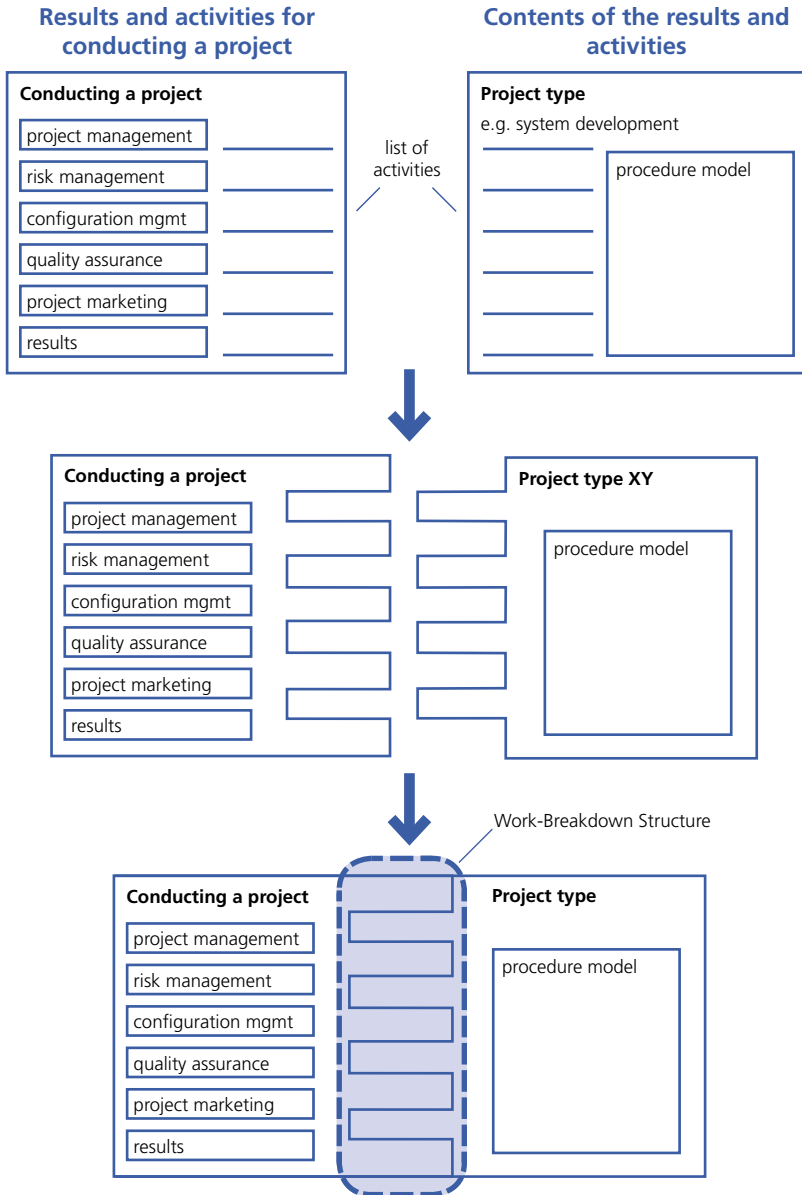


Diagram 7: Composition of the Work-Breakdown Structure



## Work-Breakdown Structure (WBS)

For each project type HERMES provides a Work-Breakdown Structure as a basis for project planning and monitoring.

As HERMES in the first instance is conceived as a method for guiding and conducting projects, it will be necessary to expand the WBS to reflect new activities, work techniques and tools of a specific procedure model, according to the demands of a project. These amendments are carried out by the project manager:

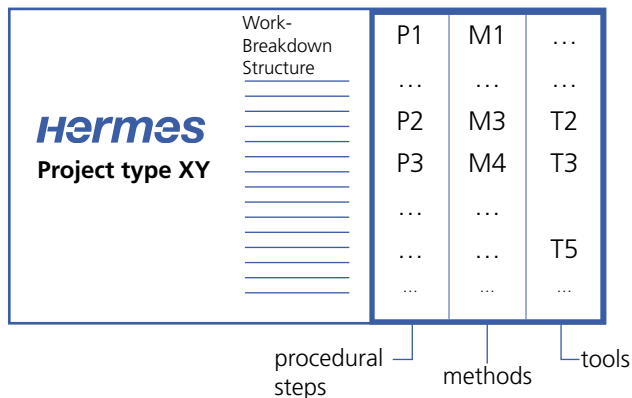


Diagram 8: Expanding the WBS of a project

## 2.10 Successful projects

The purpose of incorporating individual topics in this section is their particular relevance for successfully conducting projects.

### Project success – four dimensions

Project work orientates itself towards achieving the pre-determined project objectives, on which the **success strived for by a project team** ultimately depends.

Always in the foreground one encounters the four **dimensions of success**

- scope of the solution
- quality
- outlay
- deadlines



which must constantly be kept in mind by all project participants.

With a view to the project's success and the mastery of the four dimensions introduced above, the following factors are of great significance:

- project management
- pre-conditions for conducting a project
- project environment
- starting point, basis for project
- project organisation
- finance
- risk management
- communication
- quality assurance
- information security and data protection
- configuration management
- ecology.

The treatment of these factors will be given due attention in the following sections.

### Project management (PM)

Projects require a particular type of management. Project management is used as an instrument, in order to successfully realise particular plans, i.e. projects.

Project management should ensure that all four dimensions of success (scope of solution, quality, outlay, deadlines) are tied harmoniously together in order to achieve the project objectives.



Essential elements of project management are:

- the project mandate
- conducting the project
- cost of the project
- auditing the project
- marketing the project

Project management

- solves particular tasks
- requires particular processes
- needs a special type of organisation
- has special structures at its disposal
- counts on particular skills
- cultivates a particular way of thinking
- creates its own particular culture
- requires a particular mandate agreement

### **Pre-conditions for developing and executing projects**

Successful projects require that various types of pre-conditions exist for their development and execution, or that project-specific conditions must be established. The following pre-conditions, in particular, apply for conducting and executing projects:

- support from management; that is, line management fully and utterly supports the project objectives to be pursued, and the purchaser stands totally behind the project mandate issued, as well as standing behind the project head, to whom he guarantees the provision of the necessary competent persons
- project roles should be filled by the best possible experienced staff available, as many projects in the ICT area fail because the participants wrongly judge the technological possibilities and feasibilities, or because «technical» and «non-technical» people do not speak the same language and therefore elude each other
- common understanding between the purchaser and the head of the project, as well as common understanding on the project scope and on other further project characteristics which are vital in determining the HERMES project type and the HERMES project category
- realistic estimate of the setting of tasks to be dealt with, with respect to limited factors such as time, money, scope and quality as a basis for project planning
- clarity with respect to the resources that can be deployed for the project, or eventual limitations in the availability of such resources in the course of a project
- confidence regarding the question of whether a project is really the most appropriate mode of implementation for the realisation of a given plan
- putting in place a goal-oriented, functional and planned process for the creation of those results which all come together in the achievement of the project objective. This means:

**a project management method like HERMES.**

## Project environment

For the success of projects the consideration and incorporation of the project environment is of great significance. Here project environment indicates the enterprise or administration (with their respective structure and procedures) in whose area of influence a given project is run.

Through an appropriate information policy on the part of the purchaser and those «affected» by the individual project results (e.g. the user of a future system), a great deal of trust can be generated, thereby creating a greater degree of acceptance of the project results.

Each project in Information and Communication Technologies takes place today in the context of organisations whose «ICT climate» usually already exists as a rule, comprised of various types of systems. Accordingly in most cases there will be positions in the organisation which have created overlapping architecture and standards and these are implemented in the same way as other specifications (for example the use of process methods and tools). For this reason it is important in all ICT projects to recognize and incorporate such framework conditions at an early stage.

Nonetheless, the controlling area must be furnished with the required project information in order to be able to fulfil its tasks (reporting). In order to guarantee the auditability of a project, further appropriate information on the project should be made available.

Often training of project participants is necessary. This should be drawn from the project environment (training facilities).

The required technical and organisational infrastructure is of great significance for Project Execution as successful Project Execution is substantially dependent on this. The relevant initiatives and measures are already encountered at the beginning of a project and at the beginning of a respective project phase.

## Starting point and project foundation

Much confusion and turbulence in projects is due to the fact that one sets out from the start with an unclear set of prerequisites, one just literally «stumbles into it», so to speak. The following issues are to be dealt with so that one can recognize and redress early enough the weak spots of the project's foundations:

- identification of the problem and its immediate cause
- setting objectives and performance expectations
- consistent, clear demands
- inter-dependence and networking
- reasons for the «status quo»
- those affected and interested
- restrictions and taboos
- affected business areas



The requirements of the purchaser form the basis for all activities in a project. The project type can be determined following the requirements and particular characteristics of the affected area of the enterprise, and the first guidelines emerge for tailoring project-specific procedures.

There are various **project triggers**. The need for implementing a project is set down in the strategic management of the organisation and analysed in studies, as the case may be. New demands on Information and Communication Technologies come from the company itself (e.g. from an IT monitoring process). IT, as an integral support part of the company's management, can be monitored separately as a part-strategy in strategic IT planning.

The company's management must steer a number of projects together in the same desired direction by use of a project portfolio and must monitor the quality of the results in their entirety. The announcement of a project requires the introduction of the plans into a project portfolio. Budget and personnel capacities are included. For the realisation of a plan several projects may be necessary in the end. The release of a project, the management of the project portfolio and the controlling of projects are dealt with in management processes outside of HERMES. The launching of a project comes with the project announcement.

## Project organisation

The organisation of a project is created for a specific plan in a limited time-frame. This requires on the one hand overlapping the linear organisation and on the other hand, must be clearly anchored within it. By so doing, this produces risks and opportunities. As each organisation has its own interests, these may stand in contradiction to one another.

A clear set of rules on areas of jurisdiction is essential and dialogue must be arranged, or, if necessary, even forced. Misguided consideration for others, or the avoidance of conflicts at the outset of a project, will be punished at a later date with incomparably higher costs or indeed, even with failure.

Starting with the tasks and areas of responsibilities, the delimitation of jurisdictions must be laid down, resources distributed and the framework established. From this, a management structure emerges with «instructions and decision pointers» or «reporting paths».

Following this, staffing is to be dealt with. Also here, no compromises should be made, **as staffing is the single most important success factor of a project**. The key positions are: the purchaser, the head of the project with his or her sub-project leaders or working group leaders, and those responsible for the project in the units involved (internal and external).



With the setting up of project committees, one guarantees the integration of all those units necessary for its success.

At the level of the purchaser, a project committee must be formed in which those responsible are represented at the appropriate level. The purchaser thereby gets a committee in order to be able to exercise expert supervision of the project work (represented by the head of the project), to find broad support for decisions made and to be able to guarantee implementation.

At the level of the project management, a comparable committee must be created (e.g. a core project team) in order that the head of the project can exercise management and controlling tasks efficiently.

Staffing of the committees should, in the best case, be established at the beginning of a project, in order that all parties know to expect something in their direction. Concrete staffing measures can then be proposed at each phase and determined accordingly.

## Finance

An enterprise must always be focussed on its business success, which means that all operational activities must guarantee commercial, as well as client satisfaction, in the end.

Applied to project work, this means that a satisfactory derived profitability must be secured with an effective and efficient use of resources available. That is why projects must be started from a basis of profitable calculations. This applies over the whole lifespan of a project and for all of the project results.

The following participants play an important role in project management in relation to financial controlling:

- project sponsor (the purchaser)
- project manager (the head of the project)
- resource owner (line management resources)

An ongoing project controlling helps those people fulfilling the abovementioned roles to identify cost deviations at an early stage and to take appropriate measures for correction. Important elements of project controlling are:

- controlling of project costs
- deadline controlling (decision-making points, milestones)
- controlling of personnel resources
- changes to the project



## **Risk management (RM)**

Risks, which could endanger the success of a project, must be systematically recognized and dealt with in a project. Project success can be considered to be a situation in which the success dimensions, namely, of scope of the solution, deadlines, outlay and quality fall into the agreed parameters.

In risk management the following should be guaranteed:

- recognition of risks
- analysis of risks (causes, effects)
- risk appraisal, with respect to their effects
- reduce, or if possible, eliminate the risks
- planning for likelihood of residual risks
- supervision of residual risks, or of the effects of measures introduced
- setting up of reserves for residual risks

For the project's success, it must be possible to constantly reduce overall risk throughout the project's progress.

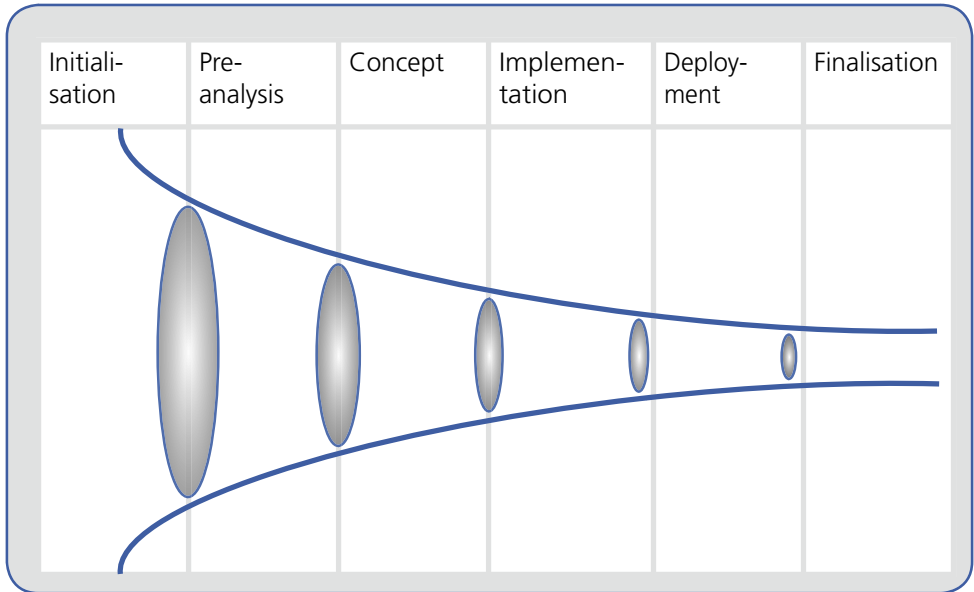


Diagram 9: Course of risk in the project's progress

As illustrated in the diagram, by the end of each project phase at the latest, as part of the application, a systematic assessment must be undertaken. Major risks must be specifically supervised during a project phase as the case may be, however, exceptional situations must lead automatically to a risk assessment (e.g. if a service provider or supplier falls behind, or if a key person drops out).

In the setting up of reserves, two types must be differentiated:

- general reserves which are contained in the project plan and are set up for the so-called «known unknowns». For example: one knows that there will be a certain amount of revision of results; one therefore envisages a certain percentage of the expenditure as a reserve for this. These reserves are administered in the project plan and can be deployed by the project manager
- management reserves which are set up for the identified risks. This should, however, be managed accordingly (as part of the risk assessment) and can only be released by the purchaser.



## Communication

We now consider communication internal to a project.

The project's success depends decisively on whether or not the project participants can work relatively autonomously towards a common goal. For this purpose, relevant information must be made available to them.

In small projects with few participants this is easy and can take place informally (although it must also be ensured that the essential information is indeed exchanged). In the case of larger projects, measures for formal communication must be planned so that an objective-oriented documentation and reporting practice is put in place.

Within a project it is important that all the participants are not only familiar with the mandate and the planning, but that they also comprehend them. This can be best achieved through periodic planning workshops.

In order to be able to transform criticism, thoughts, «bad feelings» and so on, into positive reactions which promote the project's progress, it is recommended that «reflection workshops» be held. In these workshops self-criticism should take place and something should be learnt from them without accusations being made.

Communication external to a project can be described as **project marketing**.

In project marketing the project idea should be sustainable and should be firmly anchored towards the outside world (and partly internally) for the duration of the project.

Here three target groups are to be distinguished:

- the purchaser (including the decision-making authority)
- users, operators
- project team

The decisive roles are up to the head of the project:

- he or she must ensure that the purchaser is confident that the project is «on course»
- users must be convinced of the advantages of the project and be able to recognize their own ideas in the problem solving
- the operator must have confidence in the quality of the solution
- the project team is openly informed as to the intentions, plans and actual situation and has the feeling that they are successful



## Quality assurance (QA)

The task of **quality assurance (QA)** in a project is to guarantee that the project results, i.e. the documented demands, correspond to the required level of quality.

**QA** is a component of **total quality management (TQM)**, to which belong all those activities that relate to the establishment and implementation of **quality planning, quality monitoring and quality assurance**. Total quality management also covers the description of all processes and results of an organisation and the guaranteeing of the quality of those processes and results.

TQM is a task for management which forms the framework for the meaningful deployment of QA in a project.

**QA in projects** guarantees that all the necessary audits and tests are planned, prepared, effectively and comprehensibly carried out and adequately documented, based on the specifications of the TQM, or quality management system as the case may be. Beyond this, reporting on the implementation of QA activities and their results and trends, also belongs to the tasks of QA.

A foundation for planning QA is provided by the project planning. The necessary audits and tests required for the assurance of quality will have been planned and agreed upon in the project planning, keeping in alignment with the scheduled termination deadlines of the final and interim results, as well as with the **quality objectives** of the project.

Role responsibilities, the procedures for audits or tests (e.g. review of documentation, black-box test in the case of software tests), the audit and test criteria to be applied, deadlines, resources and other further organisational details are to be established each time. The purpose of the audits and tests is to demonstrate that demands are met, or to reveal possible deviations from the target specifications. In order to avoid a conflict of interests, the task of «design of a result» and «examination of the same result» must absolutely be taken on by different persons.

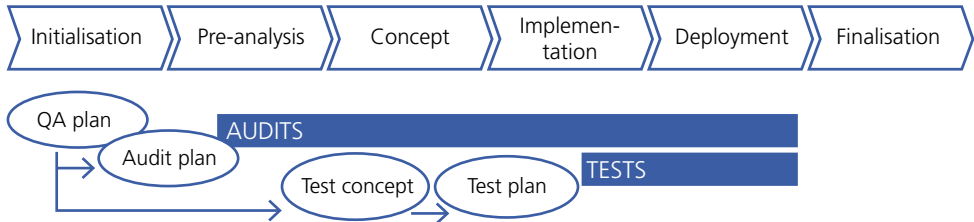


Diagram 10: Quality assurance in projects

**Tests** serve the purpose of verification of the quality (requirements, shortcomings) of the products, or results, as the case may be. **Audits** serve the purpose of the supervision and maintenance of the quality requirements in the project process, in order to achieve the quality of product or result.

Key aids for quality assurance in projects are

- the QA plan, in which the quality assurance for the concrete project is defined (with regards to the project results to be examined, guaranteeing adequate audit methods and so on.)
- the audit plan, which contains the planning dates for the individual audits together with the relevant details on implementation
- the test concept which contains the technical framework and the test procedures
- the test plan which provides the organisational and timeframe of the tests
- the audit and test notes and records that form the documentation on the implementation and results of the auditing and testing

### Information security and data protection

Current and consistent information is of great importance for the seamless functioning of processes of all types. Furthermore, in using Information and Communication Technologies the respecting of legal obligations and the requirements of secure processing, saving and transmission of data, play an important role. The notion that security costs money but generates no direct utility, together with the «ostrich/head-in-the-sand» mentality and the hope that no security infringements will occur, leaves many projects close to a precipice without anyone suspecting it.

The goal of information security is to recognize and protect data and service providers according to their value to a task, with respect to **confidentiality, integrity and availability**. For determining such requirements a security policy can give guidance. Tasks are for example:

- ascertainment of security requirements
- development and maintenance of a security consciousness



- implementation of security measures
- review of the effectiveness of the security measures
- continual improvement of the security theme in projects
- information dissemination to management and to the project team

Using defined **measurement categories** projects can become more efficient and more effective also in the area of security matters. Such parameters could contain the following themes:

- degree of coverage of the recognized risks
- revealed security loopholes
- revealed security infringements (viruses, penetration attempts, password usage and so on.)
- degree of effectiveness of the measures introduced after discovery of security loopholes and infringements

The advanced state of today's Information and Communication Technologies offers a wide variety of increasingly powerful possibilities for data management and utilisation. This conceals a particular danger for natural persons or legal entities relating to data on specific or non-specific persons. For this reason, it is necessary to give due attention to the issue of **data protection** already at the project conception of future ICT solutions.

Data protection legislation lays down the permissible dealings concerning personal data, regardless of the means applied and the procedures, in particular with respect to the creation, retention, application, alteration, release, filing or deletion of data. This should accordingly be kept in mind in project work.

At the same time, the coverage of information concerning persons plays a decisive role in the building up of a data collection.

**Personal data**, which gives information on

- religious viewpoint, world view, political or trade union views and activities
- the health, the private sphere or the person's race
- social security claims
- administrative or punitive legal sanctions or pursuit

is, together with the **personal profile**, to be particularly protected.

If it can be established that the personal data is not sensitive, but rather the intended use or the data processing context is, protection measures are nonetheless to be applied.



In considering rules for handling data protection, from a technical viewpoint, one can differentiate between the following four levels which should be kept in mind in data protection:

- application (ICT procedures)
- transmission
- data collection
- operating system and hardware

The deepest level in the data protection measures is to be aimed for in order to guarantee uniformity, integrity and effectiveness.

### **Configuration management (CM)**

In configuration management a value added for projects and organisations is aimed for in which actual and secure data is available and can be applied at all times. Moreover, through systematic registration, a meaningfully constructed configuration management substantially contributes to the task of coping with the wide range of project results or with the components of ICT solutions in operation. Unnecessary expenditure and effort is thereby avoided.

Configuration management offers the following further assistance in the daily preparation of operational data:

- support in licence management
- change management
- advice in the development or consolidation of data sources
- preparation of ad-hoc evaluations on available data stocks
- evaluations on the reduction of complexity of the productive surroundings
- support in the case of elaborations to the configuration management for new technology, new products or services and project set-ups

A task of configuration management is to constantly check available data, to carefully release new data stock, and to introduce any necessary corrective measures.

Identified needs for information are captured in a data registry and in an information model. Procedures that are based on this foundation thereby directly protect the integrity of business data, of the system, of processes and of project data.

In the life of a project one always encounters reference points. HERMES calls these «decision-making points».



What must now be defined is, on what foundation of secured databases (the so-called **baselines**), a configuration can be changed or constructed.

As a rule, at each decision-making point (also known as «milestones»), the configuration should be checked, adapted and documented.

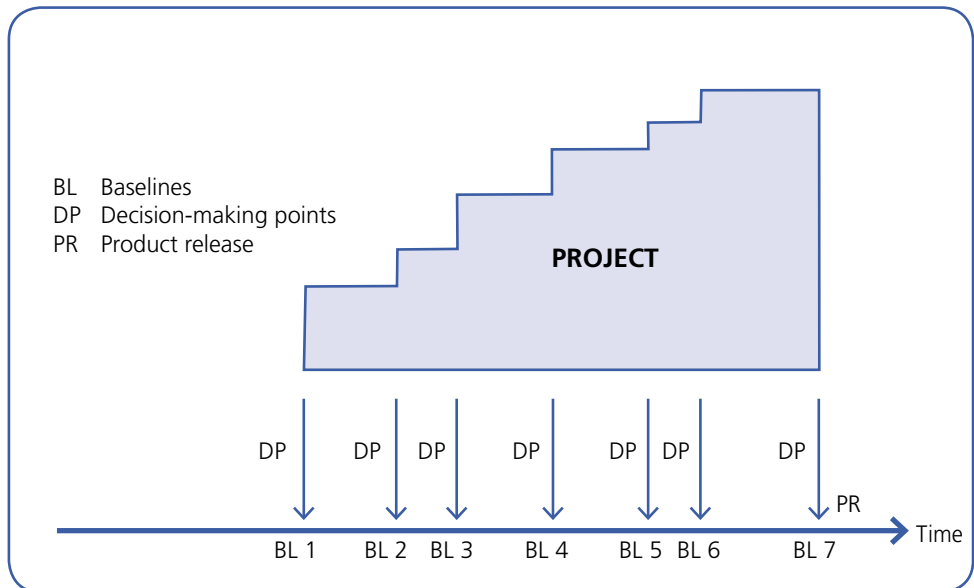


Diagram 11: Decision-making points and baselines in the life of a project



## Ecology

Each project must be individually examined for its environmental legislative requirements. Environmental requirements and their potential for making improvements must be recognized and utilized today in each and every core business.

Environmental risks must be established and minimised. Should compliance with environmental legislation be infringed upon in any phase of a project, this can possibly lead to serious ramifications in the core business of a company. Checklists can help a project manager to better carry out an appraisal of environmental aspects and criteria.

The project manager and the purchaser should consider jointly, at the time of the project planning, whether **environmental legislative requirements** must be taken into consideration. Should legislative requirements be relevant, their impact on the project must be considered or taken into account in the project planning, as the case may be. Commercial advantages can also in fact emerge from these considerations. These are however, to be worked out for specific cases.

During the project planning stage a project manager should already determine, or estimate, the expected **environmental impact** of carrying out the project, as well as the impact post-implementation.

The following extract from legislative edicts in the area of ecology provide a glance at the wide variety of possible environmental requirements:

- Environmental Management Act
- Ordinance on Substances
- Federal Act on Poisons
- Ordinance on Poisons
- Technical Ordinance on Waste
- Ordinance on Movements of Special Wastes
- Resolution on Energy Use
- Ordinance on Energy Use

### 3. Application of HERMES

#### 3.1 Tailoring - Adaptation of HERMES to projects

For the respective project type HERMES contains specifications on the results to be drawn up, on the decision-making points to be passed and on the activities to be carried out.

The adaptation of these specifications to the project-specific issue is described as «tailoring».

The main purpose of tailoring is to guarantee for each project that the outlay applied is commensurate with the project objectives, or that it is useful, and that, by focussing on the setting of tasks, only necessary concrete results are drafted and thereby only the activities necessary for achieving them, are carried out.

One should avoid

- an excessive flood of paper
- documents that make no sense, and
- leaving out important documents

Tailoring is an ongoing task of project management. Tailoring takes on particular significance at the outset of the project and at the beginning of most of the respective project phases.

The basis for tailoring is the selected project type, such as «system development» or «migration» or, to a greater degree of differentiation by using the help of project categories («A», «B» or «C»). As a basis for concrete project-specific steps, HERMES suggests a number of basic required results for each of the individual project types contained in Part II.

Based on the provisions of the selected project type (in keeping with the concrete setting of tasks and boundaries of a project), in tailoring one

- crosses out irrelevant activities and results from the pre-selection of project types offered by HERMES
- adapts the remaining activities and results to the concrete project situation
- incorporates additional results and activities, and
- documents the establishment of the project-specific approach

The result of tailoring is documented in a key place of the project (e.g. project handbook) as an indication of agreement amongst all project participants, and the results are to be taken into consideration in the preparation of all planning documents, such as the project plan, QA plan, RM plan and CM plan.

The project categories («A», «B» or «C») come from the following table. The highest rating of one of the three characteristics of size, importance, and risk determines the category of the project accordingly.

Category	Importance	Size	Risk
A	high	large	high
B	medium	medium	medium
C	low	small	low

Diagram 12: Project categories

For ranking in relation to **size** the following values can be used. Decisive is the highest ranking of one of the characteristics of namely, outlay (in terms of man-days), size of the project team or the amount of the investment.

Size	Outlay	Size of project team	Investment amount
large	> 1000 man-days	> 5 persons	> CHF 2 million
medium	≤ 1000 man-days	≤ 5 persons	≤ CHF 2 million
small	≤ 100 man-days	≤ 2 persons	≤ CHF 0.2 million

Diagram 13: Size of a project

In rating **importance**, the significance of a project in relation to how it is perceived plays a role; i.e. the visibility of the project in the public arena or within one's own organisation. Points of view to take into account here could be:

- the strategic significance of the project: are we talking about new products or new markets which are to be tapped with the project?  
does the project, as part of a larger overriding plan, have a particular significance?
- political explosiveness: is the public reaction to cost or deadline overshooting a major factor?
- how critical is the project? Or how critical are the project results? Ramifications or damage caused in the case of faulty project results.

Rating the **assessment of risk** emerges from answers to the following questions:

- which risks endanger the achievement of the project objectives and with that the success of the project?
- how probable is it that individual risks will be encountered?

A high degree of risk can result from the complexity and the level of difficulty in particular, in the setting of tasks of a project.

## Tools and rules for tailoring

As a support to **tailoring**, one can find on the HERMES website [www.hermes.admin.ch](http://www.hermes.admin.ch) for each HERMES project type a **Work-Breakdown Structure**, which contains the entire results, the activities and the work steps, as well as the appropriate roles of responsibility.

In the procedure for system development and in the sub-models, special tailoring rules have been established as a guideline for the project-specific adaptation. For the problem-specific procedure models, project types and procedure-specific tailoring rules must be established for the sake of completion.

The following rules apply for tailoring:

Theme	General tailoring rules
Results	<p>A result must not be drafted if</p> <ul style="list-style-type: none"> <li>• external requirements or existing results match in form and in content the output demanded</li> <li>• it has no effect on the project execution and on the substance of the project work</li> <li>• it not necessary for regulations stipulated documentation</li> </ul> <p>In terms of contents a result should only be elaborated to the extent necessary for</p> <ul style="list-style-type: none"> <li>• the decision</li> <li>• documentation stipulated by regulations, or</li> <li>• current project work</li> </ul> <p>The results «project proposal» and «project handbook» can never be omitted</p>
Decision-making points	<p>The decision-making points at the end of the phase basically cannot be omitted by using tailoring. An exception can be provided by the combination of the phases «pre-analysis» and «concept» (for the project type «system development»).</p> <p>Additional decision-making points and results should be included in the plans according to the requirements of the project</p>

Theme	General tailoring rules
Phase combination	<p>The phases «pre-analysis» and «concept» may only be combined when</p> <ul style="list-style-type: none"> <li>• the decision on the selection of solutions has previously been removed due to external requirements or constraints, or</li> <li>• it concerns a project in Category C and there is only a narrow risk of a rupture beyond the decision-making point of «solution selection»</li> </ul>
Impact of tailoring	Can the required quality be achieved and audited?
	Can the project and system objectives be achieved?
	Are the external requirements documented and valid?
	Is the transparency of the decision making process guaranteed?
	Can one guarantee a documentation compliant with regulations together with the project?
	Is the economic efficiency of the project execution guaranteed?
	Are the project risks reasonable and bearable?

Diagram 14: General tailoring rules

### 3.2 Application support in HERMES

In order to guarantee the practically oriented application of HERMES, it is necessary to thoroughly train the project participants (in particular the project manager and other representatives of the side of the purchaser as well as on the side of the supplier) and to support them in the practical application through situation-specific coaching.

The objective of the coaching is to reduce the outlay required by the project activities and to avoid mistakes in the project execution, through the integration of comprehensive experience.

Moreover the preparation of project documents can be facilitated through the use of already prepared document specimens which, for example, preparation of the textual structure and provision of explanatory texts and tips on individual contents to be incorporated in the document model.

Furthermore, information which can be accessed on the HERMES website can be incorporated by the HERMES user for support.



### 3.3 Company-specific adaptations of HERMES

For the successful use of HERMES in a company the givens that should be taken into consideration play an important role. Accordingly, certain prescribed terminology in the project procedures (e.g. description of results and roles) and existing process forms require adaptations in HERMES.

For this purpose, one should grasp the procedures and rules used up until now and analyse them. Tried and tested company-specific rules should be retained and integrated as a company-specific adaptation into the elements of the HERMES method.

The basic foundation for company-specific adaptations can be found on the HERMES website [www.hermes.admin.ch](http://www.hermes.admin.ch), as well as the

- Work-Breakdown Structure (WBS) of all available project types
- method-related and technical documentation (HERMES meta-model, templates and so on).



*Heri*