SPM: Systematic Project Management

Main Features

- Multi-team and multi-site capability
- Application and customer-specific notation
- Classification of planning elements
- Detailed planning through consideration of internals of work packages
- Integrated support of human and technical resources, skills, load of resources, costs, activities, work package outputs, milestones and their dependencies
- Inherent and automated dependencies between all planning elements through meta-model
- Formal verifiability of planning
- Automatic identification of incorrect and missing elements and dependencies
- Provision of correction instructions by the tool
- Presentation of original and derived information through multiple views and through tables and graphics
- Cash-flow reporting (payments, expenses, mean balance) by day
- Automatic version comparison
- Impact analyses (What-if)
- Automatic reporting
- Integratable in existing infrastructure
- Supported interfaces to conventional planning tools (e.g. MS-Project™)

Benefits

- Goal-oriented management in capturing all planning details
- Minimised risks through consideration of dependencies below the level of work packages
- Automatic identification of all dependencies
- Higher efficiency through guidance (faster, cheaper)
- Particularly efficient with (highly) complex project strucutres
- Inherently verified and validated planning contents
- Multiple views on all planning aspects in supporting validation
- Permanent control of "Zero Defect"
- Quantifiable assessments through metrics

BSSE System and Software Engineering

SPM: Planning, without risk of missing constraints

efficient – user-centric – verifying – risk-minimizing

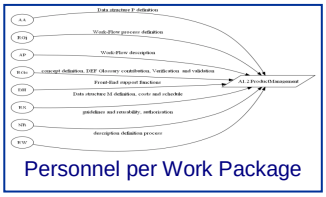
Immediate correction instructions from method and tool
Quantitative and objective plan assessment
No late problems due to missed constraints at all
Support of all relevant planning contents and dependencies
Automatic reporting (Multi View)
Visualisation of all contents and relations

Systematic Project Management (SPM) reduces the risks of planning by requiring and rigorously checking all planning information and visualization of the results and impacts. The systematic capability implies an immediate verifiability and guidance of the user aimed at resilient, i.e. complete and high-quality planning without any contradictions.

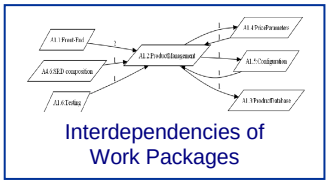
With an iterative approach and incremental refinement of the plan checks can be carried out after every step and errors can be immediately corrected. The ultimate goal, which can be achieved with SPM, is the "Zero Defect" status of the requirements.

Approach

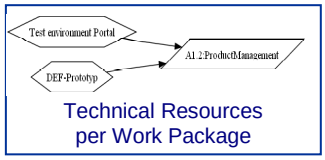
- **Planning-specific orientation:**
- All planning elements are classified and implicitly linked. They can be captured using either predefined or custom entry forms.
- **Guided Planning:** the user utilises the forms and the methodology feedback to identify the required planning contents.
- **High Granularity:** Planning may be refined and checked down to internals of a work package like activities, dependencies through input/output and due dates.
- **Derived Information:** SPM automatically derives further implicit planning information about the project and work packages, respectively, from the primary planning elements as defined by the user.
- **Reports:** the user defines the content of the reports from a list of documentation modules for text and graphics. Two principal reports are generated: planning and error report.
- **Checking / verification:** SPM checks the provided requirements against the rules and identifies errors.
- **Checking / validation:** SPM visualises original and derived planning information, enabling the user to assess the result of planning in the total context from different perspectives and to compare them with the intended goals. The user must identify deviations between desired intentions and actual situation.
- **Iterative:** errors are corrected or requirements are modified.
- **Incremental:** the planning is refined through a top-down process and the amount of planning information grows.



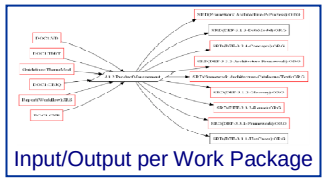
Personnel per Work Package



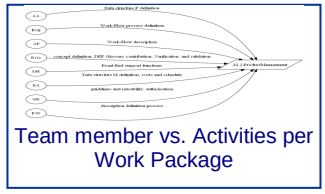
Interdependencies of Work Packages



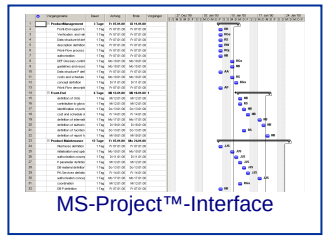
Technical Resources per Work Package



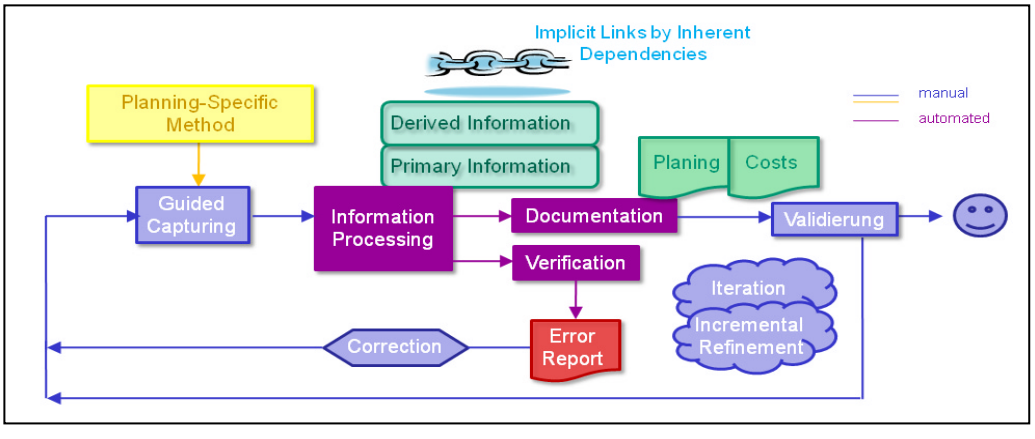
Input/Output per Work Package



Team member vs. Activities per Work Package



MS-Project™-Interface



SPM: Systematic Project Management

Team Characterisation

The dependencies between the team and work packages regarding elements of the planning are always accessable:

- **skill** vs. actually assigned tasks
- **workload** from assigned activities
- **assigned effort**
- **allocated costs**

MA	ORG -Unit	Qualification	Involved into Role
AA	ORG	P Expert	Technology manager
AP	ORG	SAP Expert Workflow expert	Process Designer Test Manager
DH	ORG	PS-Experte	Process Designer

Skills and AssignedTasks

Actionee	# Activities
HB	46
JJS	20
NB	8
RGS	10
RGs	15
TK	10
WW	15
GESAMT	146

Team Loads

High Granularity of Planinng

SPM considers and requests internal activities (tasks) of work packages when establishing the planning and assesses dependencies to ensure and to prove feasibility of the planning:

- **activities** with assigned personnel, allocated effort, due dates, required skills, input / output,
- **technical resources** with utilisation period, quantities
- **explicit dependencies** on other activities
- **explicitly excluded activities**
- **constraints**

Integration in existing Infrastructure

Interfaces to existing infrastructure and other tools can be set up or already exist..

- **MS-Project™** for planning
- **Adapters** to other planning tools on request
- **Information transfer** via specific or standard formats such as XML and XMI

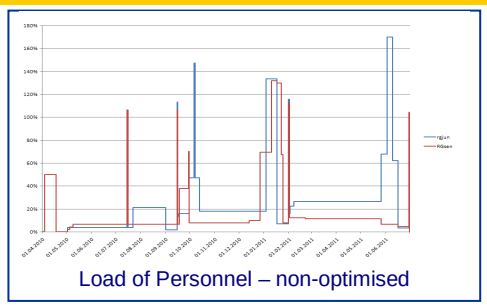
Work Package Dependencies

The dependencies of work packages from planning elements is always accessable and trackable:

- **Personnel** (human resources)
- **Technical resources** like computers, test facilitiies, but also meeting rooms
- **Documents** or other information and facilities required for a project
- **other work packages**
- **Due dates and milestones**

Arbeitspaket	Titel	Startpunkt	Endpunkt
A1.1	Front-End	10.03.00	30.04.00
A1.2	ProductManagement	10.03.00	30.04.00
A1.3	ProductDatabase	10.03.00	30.04.00
A1.4	PriceParameters	10.03.00	30.04.00

Work Packages vs. Due Dates



Load of Personnel – non-optimised

Multi-team and multi-site capability

Work packages may be defined and maintained independently, and will be merged by SPM automatically while verifying.

- **Working in teams:** teams can be assigned precisely defined work packages for elaboration
- **Dependencies** are clearly maintained and documented via interfaces
- **Work at different sites:** minimising dependencies as with multi-team; the user's existing infrastructure can be used for shared access to information and data.

Cash-Flow Analysis

Through implicit correlation of effort, rates of personnel and technical resources with the schedule the cash-flow can be derived down to the granularity of a day. Cumulated costs and customer's payments can be compared and payment milestones be optimized. The mean balance helps creating a fair payment plan.

In Summary and in Detail

The collected original / primary and the derived information on the planning is presented in graphics and tables to provide an immediate feedback on the current state.

- **Summary information** allows to consider the status within a larger context
- **Detailed information** supports a deeper analysis of the context

Impact- / What-if Analysis

From a list of planning elements those elements affected by a change to the former are identified and marked in the document.

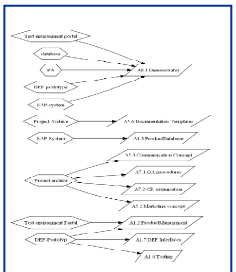
Version comparison

- Two sets of planning information related by modifications (basic quantity and modification) are compared.
- **Differences** in planning elements are marked in modified document.
- **Markings:** the standard process of RTF is used for showing changes.

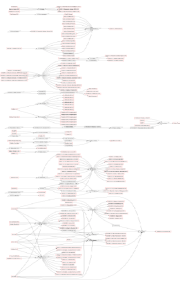
Inherent linkage minimises effort and costs

The classification enables automatic and inherent linkage of planning elements and constraints through:

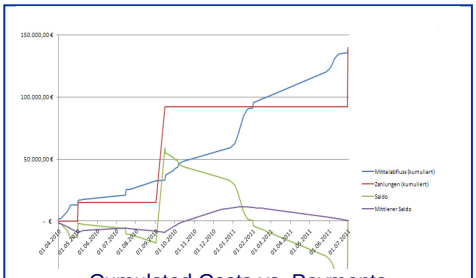
- **References** between work packages, documents, team members and technical resources, and
- **Derivation** of additional information from original / primary information



Technical Resources vs. Work Packages



Dokuments vs. Work Packages



Cumulated Costs vs. Payments

SPM

Based on the open Eclipse platform.

Integration with other applications possible on request

Documentation

Reports are automatically generated in RTF format. Errors are marked in the input sheets.

Further methods and tools

- Generation of executable code from requirements at the touch of a button including test environment(s) set up (ISG).
- Systematical Requirements Management (SRM)
- Fully automated testing (Ada, C) DARTT and DCRTT

BSSE Services:

- **Support** in the collection of planning information
- **Training** for the practical use of the methodology
- **Transformation** of planning information from prose into a verifyable form.
- **Quality analysis** and quantitative assessment of traditional planning information
- **Early risk identification** through using SPM

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