APPLICATION OF THE PRINCE2TM METHODOLOGY IN MINING PROJECTS AS AN ELEMENT OF PERFORMANCE MANAGEMENT¹

Abstract: In the case of companies involved in project activities, separation of processes is a fundamental problem to be solved in the initial phase of implementation of Performance Management. A solution supporting the implementation is changing the principles of functioning of the company and basing it on project management methodology. However, development of an internal methodology is a long-term and a very expensive process. For these reasons, Wieliczka Salt Mine (Kopalnia Soli Wieliczka S.A.) has been suggested one of hard project management methodologies – the proven PRINCE2 $^{\text{TM}}$. The chapter deals with the most important aspects of this concept which has been adjusted to the specific nature of mining.

1. Introduction

Project management is an intensively developing field of science. Similarly to the case of project management being separated in management, the need for development of controlling of projects and controlling in companies managed by projects as well as processes appeared in the field of controlling. In companies involved in project activities, proper separation of processes is a fundamental problem to be solved in the initial phase of implementation of controlling. Changing the principles of functioning of the company and basing it on project management methodology can also be a tool assisting the implementation works. On the other hand, development of an internal methodology is a long-term and a very expensive process. Making an error causes perturbations in subsequent stages of an implemented project, therefore achievement of the final objective involves significantly larger costs than the expected ones – prolonged time of implementation or the range being different than the expected one.

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The entity in which empirical verification of the designed project management concept has been implemented was Wieliczka Salt Mine. For economic reasons the mine was suggested the PRINCE2 (Project in Controlled Environment) project management methodology². It was developed on the basis of the experience of a large group of companies and public institutions operating throughout the world. The chapter deals with the most important aspects of this concept which has been adjusted to the specific nature of mining.

2. Essence of projects and their management

The notion of project has its origins in the Latin word *proiectus*, which means a "forward protrusion". Therefore, it should be explained as a term for the description of the solution of a given task or a problem which will made in the future.

The literature on the subject generally presents similar definitions of the notion of project. One of the definitions defines a project as a sequence of unique, complex and interrelated tasks which have a common goal and are intended to be executed in a given time, without exceeding a specified budget, in accordance with accepted requirements³. On the other hand, Project Management Institute (PMI) recognises a project to be temporary operations undertaken in order to generate a unique product, provide a unique service, or achieve a unique result. A project (or an enterprise) is thus an individual process aimed at achievement of a previously set goal within the specific limits of time, expenditures, and resources⁴. The main bond which connects different definitions is the stress on its uniqueness, as well as treating a project as a one-time task.

In practice the vast majority of projects is of repeated and typical nature, with individual features which may give them a certain special character as well as signs of an innovative character. It is the result of the need of development of a model concept concerning the preliminary and the detailed project. Models, scenarios, expert's reports, strategies, forecasts, technical designs of goods, business plans or construction designs – are types of projects which may be developed within a country, a region, a company, a single production plant or a department⁵.

² Managing Successful Projects with PRINCE2, The Stationery Office (TSO), London 2002.

J. Kisielnicki, *Zarządzanie*, PWE, Warsaw 2008, p. 213.

⁴ J. Skalik, *Zarządzanie projektami*, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław 2009, p. 12.

⁵ A. Stabryła, *Zarządzanie projektami ekonomicznymi i organizacyjnymi*, Wydawnictwo Naukowe PWN, Warsaw 2006, p. 30.

The basic feature of each project is paid novelty brought by it. This is a step which is not charged with risk and a great amount of uncertainty. There are no two identical projects, since they will always vary with one or several following aspects: administrative, commercial or material⁶.

The characteristic features of a project include: finite duration, purpose orientation, coordination of activities as well as exceptional and unique action with a controlled course⁷. These characteristics, critical for projects, can be supplemented with a number of other ones, among which attention should be paid to those that reflect its essence⁸:

- various resources are used in the course of a project: financial, human, materials, devices, information or rooms, which are usually limited,
- a project is organisationally separated from other actions executed within a given organisation,
- a project has a characteristic organisational structure,
- a project to be involves many people as well as organisational units,
- a project is defined as a comprehensive as well as complicated enterprise,
- tasks implemented within a project are characterised by innovativeness.

Particular phases of a project are clearly separate from each other. The character of a project changes along with its phases. The end of a previous phase is affected by the approval and acceptance of its results while any agreements as well as decisions which determine further actions are made at the beginning of the next phase.

Project management is a set of actions that are performed in order to achieve the main and the intermediate objectives set by the project managerial staff within limited time and using certain resources. At present, the project approach has been combined with the activities of the whole organisation as well as processes taking place in it. Larger projects may consist of subprojects, each of which is aimed at the pursuit of a goal associated the primary objective of the whole project. Effective implementation of the whole project is conditioned by the completion of particular subprojects. A project itself is characterised by the following triad of characteristics: scope of the project, time limit for implementation as well as resources (capital, human, material, information, technological) which are necessary during the implementation of a particular project. Usually projects have short implementation periods, giv-

⁶ D. Lock, *Podstawy zarządzania projektami*, PWE, Warsaw 2009, p. 11.

⁷ A. Karbownik, Zarządzanie dużym projektem, "Przegląd Organizacji" 2004, No. 2, p. 17.

M. Pawlak, Zarządzanie projektami, Wydawnictwo Naukowe PWN, Warsaw 2006, pp. 17-18.

⁹ J. Kisielnicki, op. cit., p. 213.

en that the term "short" depends on the industry in which a particular project is implemented. For instance, a technical project may be implemented for several months up to several years, a construction industry project for one year up to few years, while in the nuclear industry even up to ten years.

Relatively simple and minor projects are implemented within organisational structures existing in the company. Projects involving a lot of companies' resources and implemented within a longer period are usually conducted within independent organisational departments (the so-called clean project structure). At that time all employees implementing a given project form a separate organisational unit, managed by the project manager. For the period of conducting the project works they leave their posts in functional cells. In this approach the project manager is burdened with considerable responsibility with regard to the achievement of the objectives of the project, meeting the deadlines and its staying within the set costs. A matrix structure is used when implementation of projects requires involvement of specialists of many domains, and the pursuit of project works is impossible within separated functional divisions. The first dimension of the matrix are functional divisions in which managers are directly subordinate to the chief management of a company. The second dimension are projects (figure 1). Employees implementing a project are partially subordinate to the projects managers, however, remaining in their previous functional cells which have their own managers.

RESEARCH AND DEVELOPMENT SUPPLY PRODUCTION SALES

PROJECT A

PROJECT C

Functional coordination

Figure 1. Matrix structure of a project implementation process

Source: Zarządzanie projektami, M. Trocki (ed.), PWE, Warsaw 2003, p. 86.

The authority of project managers come directly from the company's board of directors due to the fact that each project is a potential centre of

profit¹⁰. If an organisation runs many projects at the same time, it should consider establishment of a special unit, known as the project management office (PMO – Project Management Office), which will be responsible for development of methodology, training, coordination of projects, as well as collection of any documentation associated with implemented projects.

Project management means competent utilisation of available methods and techniques in order to bring a project to the end within the agreed time and within a set budget. Project Management (PM) is a project management process which includes any activities related to preparation and execution of decisions associated with implementation of projects. It is worth emphasising that it does not concern activities directly associated with the problem being solved, but the management of the problem solving process. The essence of project management is identification of a way of conduct which would make it possible to initiate, prepare and implement projects efficiently. It comprises of such management functions as the following: planning, organisation, controlling the activities, as well as motivating the implementers of the project. The project management process is to provide very effective implementation of a given project from the point of view of time, cost, resources, as well as technical requirements. H. Kerzner defines project management as planning, scheduling as well as controlling a sequence of interrelated activities which allow us to achieve the objectives of a project in an effective manner which is also a consistent with the expectations of its stakeholders as possible¹¹.

The quality of project management has been regulated by the ISO 10 006 standard and companies involved in implementation of projects more and more often receive certificates documenting their knowledge in the field of project management. This has significant impact on improved project management. Many companies also expects their employees to pass a relevant exam so as to verify their skills as well as qualifications. Employment of certified project managers increases the competitiveness of a company when pursuing orders.

By nature projects are atypical enterprises with a significant extent of uncertainty. Organizations implementing projects usually break down their projects into many phases so as to be able to control them better as well as provide proper connection with the current activities of the organisation. Typical phases of a project are referred to as the project life cycle. For each of the phases of a project a result or a set of results to be achieved in it is defined. As a result it is also possible to control the effectiveness of the managers' work. The names of subsequent phases of the life of a project usually overlap with the name of the results of the work achieved in them. At the end of each phase there is

¹⁰ M. Pawlak, op. cit., pp. 168-174.

H. Kerzner, Advanced Project Management, Helion, Gliwice 2005, p. 18.

a review of its effects as well as work efficiency intended to determine whether the project should be continued in the next phase as well as detect and correct mistakes. At that time any client's decisions which guarantee that they are able to perform the assigned decision-making function during the implementation of the project are made. As a result, they can prevent potential errors, which can result in exceeding the costs or the deadline for completion of the project¹².

3. The PRINCE2TM concept is a standard among project management methodologies

The PRINCE2TM (Project In a Controlled Environment) methodology originates in the PROMPT (Project Resource Organisation Management Planning Technique) concept methodology of conduct of IT projects developed in the 1970s by Simpact Systems Limited. Part of the standard under the name PROMPT II was introduced the units of the UK governmental administration in 1983. After LBMS had bought the rights to the PROMPT methodology, in 1989 a British government agenda Central Computer and Telecommunications Agency (CCTA) published the standard under a new name - PRINCE and stated it was a set of best practices in IT project management. PRINCE2 was published for the first time in 1996 as a general method of project management independent of the business field of a given application¹³. The most recent changes in the methodology were introduced in 2009. PRINCE2™ rapidly gained popularity and became the de facto standard in the UK. Currently it has been gaining a more widespread recognition worldwide, being the main alternative to the PMBoK (Project Management Body of Knowledge) methodology¹⁴ developed by the PMI institute. This methodology has been adapted by many companies all over the world, among others, Barclays, British Government Departments, British Telecom, EDS, GlaxoSmithKline, HSBC, Phillips, Siemens, Tesco and Vodafone. In Poland the main populariser of the PRINCE2TM methodology is the Centre of Managerial Solutions, which has developed the Polish version of the training materials of SPOCE Ltd, accredited by the APM Group, and has been using it in training courses carried out by it¹⁵.

¹² M. Pawlak, op. cit., pp. 69-70.

D. Haughey, *An Introduction to PRINCE2*, http://www.projectsmart.co.uk/introduction-to-prince2.html [Accessed: 2012.03.22].

¹⁴ A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Project Management Institute, Philadelphia 1987.

WEB CRM S.A., http://www.crm.com.pl [Accessed: 2012.03.22].

The PRINCE2TM methodology determines "what" to do and "why". It can be used in various projects and programmes as well as project issues present in relationships between the client and the product supplier. This methodology focuses its attention on the business aspects of a project, starting from the reasons for which the project has been established and ending on its completion. The basic properties of the PRINCE2TM methodology include the following:

- focus on assessments made according to business criteria,
- process approach to team management as well as quality control,
- a precisely defined organisational structure of the project management team,
- planning product-oriented activities,
- breakdown of projects into management stages,
- active risk management,
- agreed procedures of conduct and a precise documentation system,
- flexibility allowing application to various types of projects.

The PRINCE2TM methodology provides projects managers, directors, team members as well as organisations with measurable benefits which allow to manage resources in an organised and effective manner. Thanks to formal mechanisms of determination of the scope of responsibility and competences as well as a permanent reference to the business substantiation of a given project, the whole attention will be focused on what is supposed to be done, why, how, when, by whom as well as what the cost will be. The following three main groups of elements are used to carry out projects according to the PRINCE2TM methodology: processes, components as well as techniques. The concept of the PRINCE2TM methodology has been presented in figure 2.

The PRINCE2TM methodology consists of 8 main processes, each of which is composed of several subprocesses. The main processes are¹⁶:

- 1. Preparation of the project is a pre-project process in which necessary information is collected in order to commence the project,
- 2. Initiation of the project is a process of planning the whole project, the primary goal of which is to provide understanding of the key decision-makers.
- 3. Strategic project management is a process in which the decision-makers of the control committee make decisions concerning a given project.
- 4. Stage control is a process of current management as well as controlling of a given project.

¹⁶ J. Skalik, op. cit., pp. 65-66.

5. Product manufacturing management is a process focusing solely on creation, modification as well as receipt of the products of a project taking account of required quality criteria.

- 6. Stage scope management is a process of inventory-taking of the current condition of the project and serves as preparation for its next part.
- 7. Closing the project is a process the goal of which is to ensure the completion of a given project, which means accurate preparation of the project for being closed, determination of follow-up activities as well as a review evaluating the project.
- 8. Planning is a process the goal of which is to guarantee the success of a given project. This process is used by the remaining processes.

ORGANIZATIONAL METHODS AND STANDARDS BUSINESS STANDARDS AND ETHICS QUALITY MANAGEMENT SYSTEM **TECHNIQUES** COMPONENTS PROCESSES PP - project preparation Business justification Product-based planning Organization IP - initiation of the project Quality review Plans SZP - strategic project management Approach to control of changes Control elements SE - stage control Risk management ZWP product manufacturing management Quality in the Project environment ZZE - stage scope management Configuration ZP - project closing management Controlling changes PL - planning GUIDELINES, AD VICE AND EXPERIENCE FROM OTHER PROJECTS

Figure 2. Concept of PRINCE2TM methodology

Source: prepared by the author

The PRINCE2TM methodology makes available 8 components used in particular processes, namely¹⁷:

1. Business justification – a description of the justification for establishment as well as continuation of the project.

¹⁷ K. Bradley, *Podstawy metodyki PRINCE 2*, Centrum Rozwiązań Menedżerskich CRM, Warsaw 2002, pp. 20-25.

- 2. Organisation which provides information on the organisational structure of the project along with the descriptions of the roles in the project. The descriptions of the roles include clearly defined responsibilities, the scope of responsibility as well as the requirements for particular roles in the project.
- 3. Plans this component is used by all processes.
- 4. Control elements this component is used by all processes. Control elements are used for regular as well as formal monitoring of the actual progress in relation to the plan.
- 5. Risk management this component includes the following: identification of risk, its assessment, determination of the type of reaction to the possibility of its occurrence, appointment of a person monitoring the risk as well as risk management.
- 6. Quality in project environment allows to satisfy the customer's quality requirements.
- 7. Configuration management this component refers to protection of the products of a project as well as their management using utility software.
- Change control consists in detection as well as evaluation of reported project issues, which results in relevant actions being undertaken.

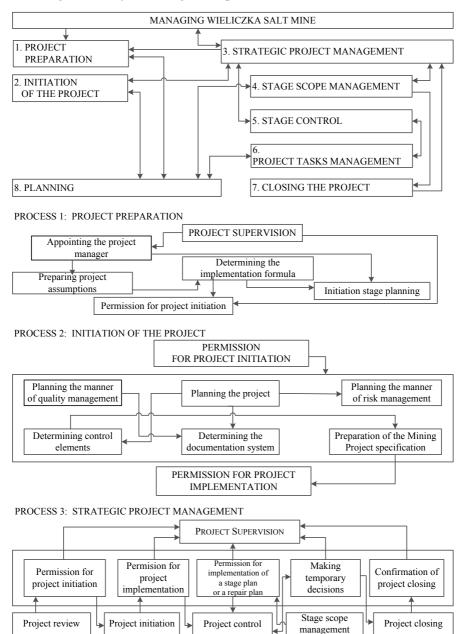
The last group of elements of the PRINCE2TM methodology consists of techniques used in particular processes.

- 1. Planning based on products is oriented solely on products. This means that the project does not permit activities which would not result in generation of any product.
- 2. The quality review is used to assess the product in terms of verification of its compliance with the agreed standards.
- 3. The approach to change control allows to introduce changes to the project. Proposed, suggested, or necessary changes must be examined as project issues.

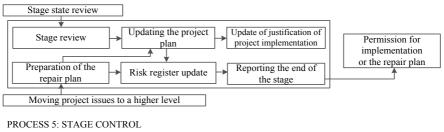
4. Course of main PRINCE2TM processes in Wieliczka Salt Mine

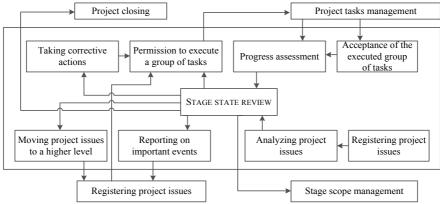
A fundamental solution in project management is the process approach, which introduces considerable clarity and makes it easy to control works being performed in the company. In the case of Wieliczka Salt Mine the PRINCE2TM methodology has indicated 8 main processes, which have been presented in detail in figure 3.

Figure 3. Project management processes in Wieliczka Salt Mine

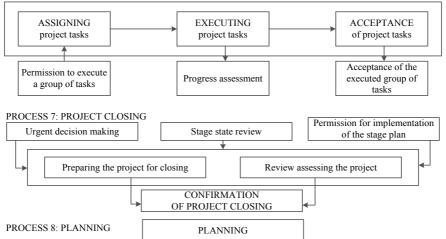


PROCESS 4: STAGE SCOPE MANAGEMENT





PROCESS 6: PROJECT TASKS MANAGEMENT



Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

In Wieliczka Salt Mine projects have been placed within the Long-term Programme. The project preparation process is the result of operations of many cells, including the following: Planning and Control Department, Project Manager as well as Project Supervision. Currently there is no unit which has been clearly assigned the responsibility for the Long-term Programme. One of the most important elements of project preparation is identification of the assumptions of the project and the implementation formula. The assumptions of the project include the goal and the implementation formula specifies the way the project is to be carried out. There are two possible methods of implementation of projects: works performed with own effort (departments of the Mine) as well as ordering the works to an external company (external services). The implementation formula is a part of project specification which will the main management document.

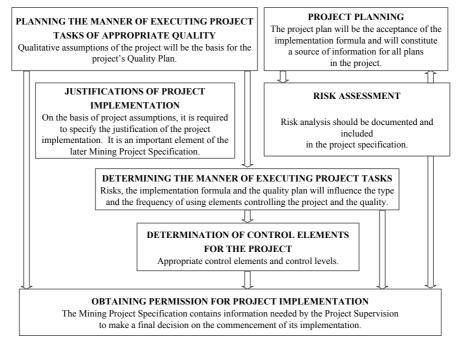
The purpose of the project initiation process is to prepare the Mining Project Specification (SPG), which will be the basic document during the implementation of the project. It should always include: project assumptions, implementation formula, its organisational structure, scopes of responsibility, project plans as well as quality and risk management, project documentation structure, system of communication between the cells involved in the implementation of the project as well as project control elements. The method of initiation of a given project significantly affects its final result. Devoted time, effort as well as resources invested at this stage will yield results during the implementation of the project. Another very important effect of this process is understanding that by participating in a project the individuals from the project management team (Project Manager as well as Managers of Technical Departments) along with the members of the Project Supervision will gain knowledge of the nature, the scope and the problems the project may encounter (figure 4).

The *strategic project management process*, present at all stages of a given project is carried out by the Project Supervision, which makes decisions based on the documents provided by the Managers and the Projects Office. This process includes:

- controlling the initiation of a given project so as to ensure it starts out as fine as possible,
- permission for implementation of the project, by involving relevant units of the company in its positive result,
- permission for continuation of a project when significant deviations from the approved plans occur,
- controlling the stage scope as well as granting new and additional resources, as the project approaches its ultimate completion,

 immediate decision making and deciding on the project strategy, monitoring the progress and providing advice and guidelines when necessary.

Figure 4. Course of the process: Initiation of the project



Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

The strategic project management process does not include everyday management, since it is carried out by the Project Managers. Information is presented to the Project Supervision in many ways, ranging from formal reports and documents, such as SPG, Final Reports on Stages or Reports on important events. Making decisions about involvement of additional resources in the event of any problems also constitute important elements of this process (figure 5).

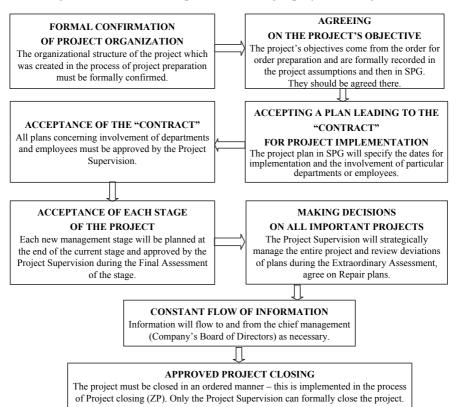


Figure 5. Course of the process: Strategic project management

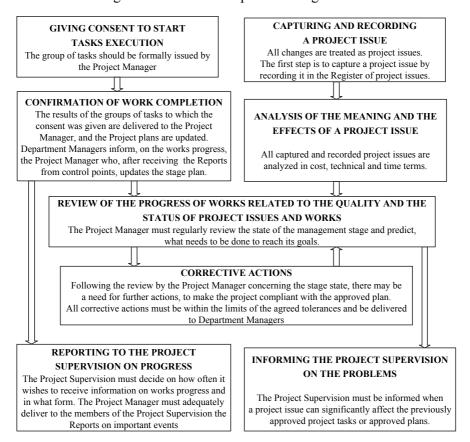
Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

The Project Supervision greenlights the implementation of the subsequent stage of the project. The decision is made on the basis of the report on the implementation of the previous stage and the plan of the subsequent stage. The **stage control process** is the main part of the Project Manager's work associated with project management and provides guidelines with regard to management of a given stage and the whole project (figure 6). A continuing cycle, which consists of the following, should be implemented throughout the whole stage:

- assignment of project tasks to individual departments and their receipt,
- collection of information on progress in the project works,
- observation of changes in relation to the adopted plan, management of all formally suggested changes with regard to the project and making decisions about introduction of favourable changes,

- assuming they will not result in exceeding the tolerances specified in the stage plans,
- assessment of the situation in terms of the impact on the stage and the whole project,
- submission of reports to the Project Supervision,
- approval and initiation of any necessary corrective actions.

Figure 6. Course of the process: Stage control



Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

It can be expected that many events within the management stage will proceed in accordance with a regular and predictable pattern. However, the personal characteristics of the Project Manager and project management skills are necessary to provide response in situations which do not run according to the plan and in such cases he/she must use his/her knowledge as well as personal skills to bring the project back to the right track. The

process of management of project tasks focuses on the relationship between the Project Manager and the Department Manager. He/she is supposed to guarantee smooth work compliant with the adopted scope, agreed dates and approved budget (figure 7).

SPECIFICATION OF PROJECT TASKS POSSIBLE ADDITIONAL CONSULTATIONS The Managers should know the scope of the task WITH THE DEPARTMENT MANAGER If the Project Task Specification raises doubts the entrusted to them. The Project Manager prepares the Project Task Specification. Department Manager consults the Project Manager . BUDGETING PROJECT TASKS Department Managers prepare material budgets for tasks which are further processed into financial budgets. Department Managers are accountable for the material budget. Ţ SUPERVISION OVER TASKS EXECUTION REPORTING ON THE QUALITY AND THE PROGRESS OF TASKS The Project Manager should provide the Department Managers with proper Flow Reports from control points are supposed to inform of information e.g. delay in execution the Project Manager on the progress of the works. of an interdependent task. The Project Manager The frequency of submitting the reports from also organizes independent reviews of the quality control points depends on the specific character of of tasks' execution. performed tasks. OBTAINING APPROVAL FOR PERFORMED WORKS The works have to be checked by the Project Manager for compliance

Figure 7. Course of the process: Project task management

Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

with the quality criteria contained in the Project Task Specification.

This process includes the following:

- making sure that the tasks have been specified, discussed, agreed and that the permission to carry them out has been issued and also that they have been approved by the Departments Managers,
- preparation of budgets for project tasks,
- ensuring that all works are performed according to the arrangements,
- ensuring that the progress of the works as well as the estimated time and labour outlays necessary to complete them are regularly assessed.
- checking whether all completed works meet the agreed quality criteria,
- receiving approval of completed works.

Management of project tasks is a key process in Wieliczka Salt Mine and the cost, the scope and the time frame of the implementation of the whole project depends in the greatest extent on its effectiveness.

Another process of the PRINCE2TM methodology is effective stage scope management (figure 8). In order to ensure a project yields satisfactory results it is advised to break it down into smaller parts so as to allow the project team to focus on specific project works. For most projects the duration of a stage in the Mine is 1 year, which results from the specific nature Wieliczka Salt Mine is financed. By controlling the start and the end of each stage special attention can be paid to whether the project tasks have been completed in accordance with the agreed quality criteria as well as whether the project has lost its justification.

Figure 8. Course of the process: Stage scope management

ANALYSIS OF THE RESULT OF THE CURRENT STAGE

The Project Manager must submit, to the Project Supervision, a report on executing a stage (annual) which is close to an end. It is therefore necessary to confirm execution of all tasks and the costs sustained as compared to the approved budget.

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PLANNING THE NEXT STAGE AND UPDATE OF THE PLAN, THE PROJECT

When the current stage is close to an end, the plan for the next stage must be prepared.

It will be prepared on the basis of the technical specification contained in SPG.

Then the plan for the next stage is created, the Project plan must be updated to include the current situation.

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CHECKING FOR CHANGES IN THE JUSTIFICATION FOR PROJECT IMPLEMENTATION AND THE RISK

Justification of the project implementation is the driving force of the project managed according to PRINCE 2 and must be constantly reviewed. Similar actions should be taken in relation to the Risk analysis, which is strictly related to the Justification of project implementation.

PREPARING THE REPORT BY THE PROJECT MANAGER WITH THE AID FROM THE PROJECT OFFICE

The final report of the stage contains all the information needed by the Project Supervision for the decision on implementation of the next stage, taken during the Final Assessment of the stage. In addition, Final reports are used to prepare a report for the needs of the financing institution.

Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

The purpose of this process is to:

- confirm that all project tasks planned for a current stage have been completed and met the quality criteria defined for them,
- provide information on the schedule, technical results and the budget, necessary for the Project Supervision to assess whether the justification of the implementation of the project is still right and whether the expected benefits may be achieved at an acceptable risk,

 provide information on the condition of a current stage and the whole project allowing the Project Supervision to make a decision on ending the current stage, permitting to start another one and signing under the whole project,

- develop a mechanism of establishment of tolerances to deviations of threshold values for the deadline and the costs, beyond which the Project Manager may not lead the project without the permission of the Project Supervision,
- record all information or experiences acquired in the course of the implementation of the project which can affect the subsequent stages of the project or the whole company.

The process has iterative nature when the project passes from one stage to another. Controlling the moments in which stages begin and end is a basic process for the Project Manager as well as the Project Supervision and covers all basic aspects of strategic project management.

At the end the project should be closed in an ordered manner. A project may end when all planned project tasks are completed and approved as meeting the quality criteria specified in the specification of tasks. Possibly a decision on premature termination of a project can be made due to a change in requirements, withdrawal of resources or an unacceptable exceeding a set time limit, work expenditure or costs. Most of the works within this process consist in preparation of information for the Project Supervision which will allow it to make an decision on closing a given project (figure 9).

This process forms a structure supporting decision making and is intended to:

- confirm that the goals included in SPG have been achieved,
- receive formal approval of project tasks,
- ensure that relevant protections will be introduced in areas where further support, improvement and maintenance is necessary,
- determination of all recommendations with regard to follow-up activities and documentation of them,
- collecting experiences gathered in the course of the project and publishing them in the form of a report relevant for the Project Supervision,
- preparation of a final project report for approval of the Project Supervision,
- notification on the intention of closing the project.

Figure 9. Course of the process: Closing a project

CONTROL OF CONDUCTED PROJECT TASKS

The project tasks must be checked and approved during project implementation.

This is done by checking the compliance with the acceptance criteria contained in the approved SPG.

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DOCUMENTING ALL DECISIONS TAKING AT CLOSING THE PROJECT

The project results must be suitable for efficient maintenance and use.

All non-examined project issues should be examined in terms of improvement and enhancement of the final result of the project.

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ASSESSMENT OF REACHING THE ASSUMED GOALS

Justification of the project implementation, containing the goals of the project, is a driving force for the project managed according to PRINCE. After the operation period, the result of the project should be measured to determine whether the assumed goals have been reached.

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SUBMITTING THE REPORT ON THE PROJECT'S RESULTS

The report on how the project was managed and on the experience gained during project implementation should be prepared for the Project Supervision

Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

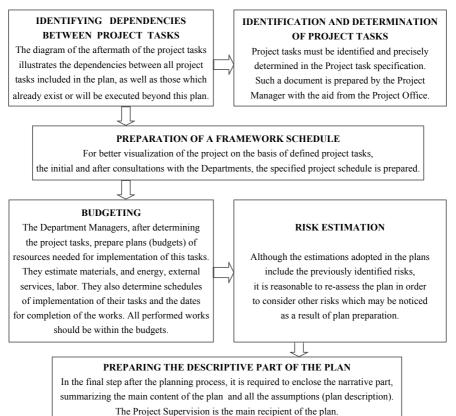
Closing a project in an ordered manner is difficult, if the expectations and the criteria for the implementation and the closure of the project have not been agreed at the beginning. After final evaluation every management stage must be formally approved and closed in a final report on the stage by the members of the Project Supervision.

Planning combines PRINCE2™ components, processes and techniques and is an activity performed continuously throughout the whole project. Project tasks and possible problems become more understandable when planning a project and its stages. A project can be controlled in as much detail as the project plan allows to. In all projects planning should be preferably done using an IT system, since the time saved in this way will return the initial outlays with a surplus, especially when there are complicated interrelations between the tasks (figure 10).

The planning concept in PRINCE2™ is based on the following assumptions:

- plans are developed by setting out the project objectives and the goals of project tasks,
- designs and project tasks are defined and determined by drawing up technical specifications,
- actions and related resources must be precisely defined, analysed in detail and consistent with the requirements resulting from the needs of control specified in the Mining Project Specification (SPG).

Figure 10. Course of the process: Planning



Source: own study on the basis of implementation materials of Wieliczka Salt Mine.

The following steps should be taken after a plan is developed in Wieliczka Salt Mine:

- Step 1 Definition of projects and project tasks.
- Step 2 Determination of a sequence in which projects and project tasks should be performed.
- Step 3 Preparation of a preliminary project schedule
- Step 4 Material budgeting (materials, external services and labour outlays), particularisation of the schedule, setting the schedule of deliveries of resources needed for implementation of project tasks
- Step 5 Analysis of risks related to implementation of project tasks as well as planning budgetary reserves.

- Step 6 Specification of the entire project and preparation of the Mining Project Specification.
- Step 7 Approval of the plan by the Project Supervision.

5. Conclusion

The effects of adaptation or development of one's own PRINCE2TM project management methodology in Wieliczka Salt Mine can be examined on many levels. Practice teaches that resistance on the part of employees of the mine who will rather be associating the project management methodology with additional accounting than measurable benefits should be expected over a short period. At this point it should be noted that projects are full of traps and the source of many of them are not always the people implementing a given project. The sources of problems in Wieliczka Salt Mine may be as follows:

- Organisational factors which are, to a significant extent, a consequence of the lack of direct project manager's control over the majority of undertaken activities. The project manager should be aware of that his/her role consists, above all, in coordination and motivation, rather than management in the traditional meaning.
- Cultural differences between the people participating in the project.
- Incorrect definition of the needs of the internal customer as well as technical requirements of projects.
- Incorrect planning and control, which are frequent causes of failures.
- Lack of the ability of effective implementation of plans, which requires the ability to solve problems.

However, in the long run the benefits resulting from systematic management based on the PRINCE2TM methodology cannot be undervalued. The most important monuments are:

- precise determination of responsibilities within the "Project Supervision Project Manager Department Manager" structure,
- regular analysis of budget deviations in terms of costs, time and scope,
- ordered project documentation,
- systematic risk and quality management,
- better use of resources and precise control over expenses.

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