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## The Origin and Types of Controlling in Project Management

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### ABSTRACT

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The aim of the article is to present the views of domestic and foreign authors on the genesis of project controlling and importance of that idea for the success of implemented projects, as well as its evolution in relation to project management and the attempt to classify it from the point of view of accepted analysis criteria.

Controlling as a business management tool in Europe gained in importance scarcely in the second half of the twentieth century, although its beginnings fall on the medieval period. Authors of numerous studies in this field point to various sources of controlling and controller concepts, mainly due to the cultural, economic and historical conditions of shaping the role and scope of information use for project management. In the initial period of use, controlling was primarily focused on the objectives of ongoing project management, but nowadays interest in controlling oriented towards the needs of strategic (long-term) management is becoming more and more noticeable. Nowadays, the idea of project controlling is recommended for implementation both in large, medium-sized and small business entities as well as public institutions. In relation to project management, it may include comparative activities of planned and actual values in current operations as well as undertaking activities of regulation, management, control or other related to information needs of the senior management and key project stakeholders.

**Keywords:** controlling, projects, project management

**JEL Classification Codes:** M10, M42, O22

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## 1. Introduction

Controlling is one of the cross-cutting phases of a project's life cycle, including in its scope defining, planning, implementation and completion of work and the issues related to it are becoming increasingly important in the implementation of projects. The reason is i.a. the growing pressure to use coherent ways of collecting information about the implementation of projects, not only in relation to their financial dimension but also in other aspects, such as resources, schedule or defined scope of work. In each of these perspectives, new approaches are being sought that can provide the project manager with even more accurate information on the tasks being performed and their impact on the degree of meeting the expectations of key project stakeholders.

Despite its importance, project controlling is a problem relatively poorly described in the worldwide professional literature. At the same time, attempts are made to transfer the concepts of controlling the current activity of an organization to the area of project management, which raises a number of ambiguities and misunderstandings, because the implementation of projects usually does not coincide with the company's process (recurrent) activities. Because, in the author's belief, controlling plays an important role in relation to the scale of success and the degree of achieving the goals set before the implemented projects, which is why he considered the analysis of this issue as scientifically important and practically valuable.

In the author's intention, the article is a contribution to the discussion on the sources of project controlling origin and its importance for the assessment of the success of implemented projects. The specific objective was to present the evolution of this concept in relation to project management and an attempt to classify it from the point of view of accepted analysis criteria.

Due to the nature of the subject matter discussed, the article should be treated as a descriptive and reviewable one. The research methods adopted in the article were based on the analysis of the existing data based on the desk research approach and the critical analysis of Polish- and foreign-language literature, focusing on the subject of project controlling.

## 2. Controlling: the concept and origins in enterprises

The concept of controlling as the theory supporting management has been described in European economic literature (mainly in the German-speaking area) since the 1950s [Bukłaha, 2011, pp. 451–452]. In Poland the notion appeared for the first time at the beginning of the 1990s, although its origins – as observed by some researchers specialising in controlling such as D. Kahn or J. Weber – can be traced back already to the Middle Ages. Authors of numerous studies point out to different sources of the terms *controlling* and *controller*, depending on the cultural, economic, and historical factors determining the role and scope of information used for the purpose of managing organisations. In the Polish literature of

the subject, project controlling is often equated with management accounting of projects. However, specialists in project management point out to the key cultural difference between these two: whereas the term *controlling* is characteristic for German literature, the notion of management accounting is prevalent in the English-speaking world (mostly in the United States) [Łada and Kozarkiewicz, 2007, pp. 25–26].

The etymological analysis of *controlling* as a notion traces its origins back to Latin *contra* (opposite) and *rotulus* (paper roll). In French they developed into *contre-rolle* (control), and in English into *countrolleroullour* – the name of profession pursued by people running control-inventory checks, in order to verify the accuracy of records in the original books (12<sup>th</sup> century) [see more in e.g. Kuepper et al., 2013, pp. 3–4; Schultz, 2015, pp. 15–21]. A different semantic interpretation of the term – in the 16<sup>th</sup> century – gave birth to the term *comptroller* (deriving from *compter* – count, calculate). Thus, both terms have been preserved up till now. **The word *controlling*, or *controller* (*comptroller*) has over 50 meanings in the English language**, while German *Kontrolle* (supervision, oversight, scrutiny) – and the word *Kountrolleur* alike were borrowed in the 18<sup>th</sup> century from the French *contre-rolle* [Tyrała and Steplewski, 2004, p. 45]. At the earliest stage, controlling was used more often by public administration than by private enterprises. First public administration controllers were instituted in England and the United States. Already in the 15<sup>th</sup> century the English Royal Court employed a *controller* responsible for recording the revenue and financial spending as well as those related to royal estates. Early posts related to controlling of public finances [Nesterak, 2002, p. 74] in the US date back to the mid 17<sup>th</sup> century – then the role of the ‘*comptrollers*’ was to supervise the budgetary control of the state finances. Initially, controlling was related to accounting and financial control only, yet the role of controllers in organisations began to grow in importance back in the 1920s. The development of controlling concept resulted from the world crisis, when American companies faced an urgent need to introduce more efficient methods, techniques and instruments of management. Between 1925 and 1940 the idea of steering, originally referring only to a controller’s tasks, was transformed into a complex set of institutional solutions, aimed at comprehensive support to enterprise management. Alongside, the tasks of controllers were evolving – from simple accounting and control to long-term planning of enterprise development and overall improvement of the company’s performance [Surmacz et. al., 2010, p. 7].

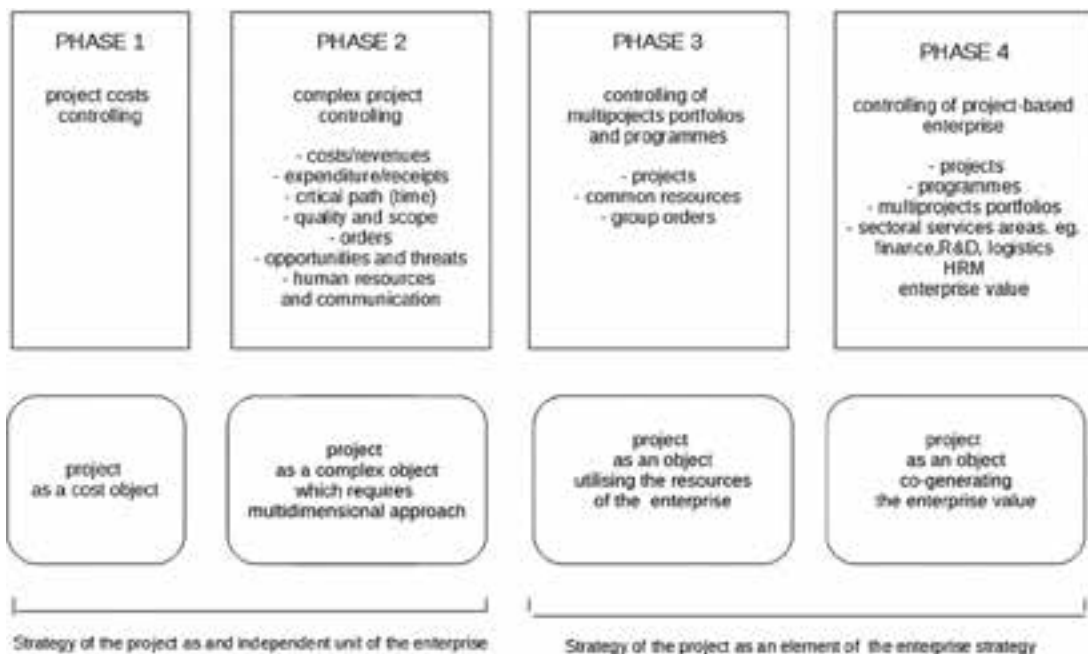
A company pursuing efficiently the basic controlling tasks should be well on its track to meeting the assumed targets, both the long- and short-term ones. In its traditional understanding, controlling is most often associated with the financial reporting system located within the organisational structure of an enterprise. However, the modern approach considers controlling equivalent to the instrument of management system composed of planning, steering, control (measuring parameters of progress against the assumed targets) as well as analysis and interpretation of collected information (deviation causes). A crucial objective of controlling is also to merge individual control tasks together to form a coherent whole. This makes controlling different from control processes, often performed by autonomous units in an organisation and usually addressing only part of its activity.

### 3. Application of controlling to the project management domain

The term project controlling is used in organizations to describe a coordinated set of methods and techniques that assist the project management process by supplying relevant information, necessary at each stage of project management (defining, planning, implementation, finalisation) in order to make rational decisions at all decision-making levels of a project [Bukłaha, 2016a, p. 104]. Originally, the project controlling concept was less developed than today and regarded primarily the financial aspects of individual projects. Later on, it covered entire project programmes, as well as project-based enterprises. Based on the conducted research, the subsequent sequence of phases of controlling evolution within the project management domain were put forward by E. Głodziński and S. Marciniak [2016, p. 142]. Thus, the four phases – proposed in a chronological sequence – are as follows:

- 1) project costs controlling;
- 2) comprehensive project controlling (includes financial and non-financial aspects);
- 3) programme and multi-project controlling;
- 4) controlling of project-based organisation.

**Figure 1. Evolution of controlling within project management domain**



Source: Głodziński and Marciniak, 2016, p. 142.

Applied to the projects domain, controlling consists in the provision of up-to-date and clear information needed to undertake remedial measures in order to avoid or reduce costs and time deviations, as well as to optimise utilisation of available resources. The most common areas, in which controlling is applied in projects are:

- budget, costs and financial liquidity;
- time schedule, duration of work and milestones;
- planned and actual scope of work;
- business rationale behind a project;
- availability of resources and resource-intensity of work;
- project risk management, in particular at implementation stages;
- change management in the project;
- quality of semi-finished products and end products of the project.<sup>1</sup>

It should be stressed as well that due to the inconclusive definition of controlling, the literature on the subject often tends to interchangeably use several terms related to controlling, namely project auditing, evaluation, control and monitoring. Despite some similarities all these, however, concern slightly different issues.

Project audit refers to the assessment of project results compliance with original assumptions in the desired project perspectives (e.g. budget and finances, resources or compliance of the final product with clients' expectations). It is conducted in order to verify the accuracy and credibility of information, as well as to assess the internal control system. Its aim may be also to check whether the project team acts according to the adopted standards, status or project practices.<sup>2</sup> Audit is performed by an auditing team, independent from the project's structures.

Evaluation means the assessment of effectiveness, efficiency, impact, sustainability and compliance of a project in the context of the assumed objectives of the project and its final results. In the project area we can distinguish between the following types of evaluation:

- ex-ante evaluation – which aims at the identification of needs and justification of the project, thus constituting the basis for the *project business case*;
- mid-term evaluation – conducted during the lifetime of the project, after subsequent milestones have been reached. It consists in the analysis of the implementation process, identification of its hitherto effects and – if major deviations are identified – formulation of corrections and remedial actions;
- ex-post evaluation – carried out after the project completion and meant to assess the results and long-term impact of the project. It constitutes the basis for the analysis of the need to implement similar projects in the future. It attempts to see the project and its management in a wider context and perspective.

The aim of project control is primarily to identify the actual state of affairs in the desired assessment perspectives, to compare the actual situation with the base plans in order to detect

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<sup>1</sup> Own elaboration based on: Kendrick, 2012, p. 2.

<sup>2</sup> Own elaboration based on: <http://www.fuda.com.pl/ewaluacja-m/terminy-pokrewne-ewaluacja-m.html>, [accessed 18.10.2017].

potential deviations and undertake corrective actions, if justified. It serves to establish the efficiency standards vis-à-vis planned objectives, in the form of recommendations (the so-called best practices) worked out by other entities, identify deviations and measure their significance, as well as to undertake all actions necessary to exploit the resources of the entity implementing the project in question to the fullest.<sup>3</sup> Semantically, project control is often identified with project auditing, yet the two differ because project controls are carried out within a project's structure, whereas auditing is conducted by services remaining outside the project.

Project monitoring refers to the process of systematic collection (registration) and analysis of quantitative and qualitative information on the implemented project, performed mostly at the impact level of project managers and project teams. This process is to provide information on hitherto progress of the project and to enable taking rational decisions as to the forthcoming stages of project work, in particular those referring to the scope, timing and directions of subsequent activities. The aim is to ensure compliance of ongoing work with the key assumptions and objectives, agreed upon in the base documentation of the project. It consists in, among others, verification of the current value of project parameters against the adopted plans, project obligations, risks, data management as well as involvement of stakeholders according to the baseline project scenario adopted.

Definitions thus formulated suggest that a project may be monitored, but not necessarily controlled. A well-controlled project needs to be monitored. In turn, evaluation constitutes an activity which is relatively independent from control and monitoring, yet high-quality control and monitoring greatly facilitate a precise and accurate evaluation of a project.<sup>4</sup> In this context, controlling should be perceived as a coherent system of the above activities and procedures combining them together into a complete whole. This complexity is of key significance from the point of view of appropriate information needs of decision-makers at all levels of project management in relation to management decisions they undertake. Therefore, controlling is the term bearing the widest meaning and – as the author believes – one should refer to controlling as a coherent system for collecting, analysing and processing of information about the project across every dimension of its impact and not as a management tool or technique solely.

## 4. Types of controlling in project management

Among the most frequently cited concepts of project controlling we can find:

- **Controlling as a project's information system**

In this approach, the role of controlling is to supply and update information for project managers in order to avoid undesired incidents. Information generation and processing

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<sup>3</sup> own elaboration, based on: <http://www.fuda.com.pl/ewaluacja-m/terminy-pokrewne-ewaluacja-m.html>, [accessed 18.10.2017].

<sup>4</sup> <http://zarzadzanieprojektami.it/25.html>, [accessed 19.10.2017].

by project controlling supplements the demand for information on the progress, costs, time and scope of the implementation of the undertaking in question seen from the organisation's perspective.

– **Controlling as a mode of project management**

Controlling as a mode of project management is meant to support management via planning and control of accuracy of project implementation. Understood in this way, controlling serves to supervise the performance of the entire enterprise, which is the resultant of all results of projects run by the company.

– **Controlling as a system that coordinates project management and resource management systems of an organisation**

According to this concept the role of controlling is to optimise the use of all resources remaining at the company's disposal, as well as to coordinate other projects with the project at hand. Similarly to the previous model, this concept utilizes the interdependence between planning and control.

– **Controlling as a concept of steering the financial result of the portfolio, programme and project.**

This concept assumes the primacy of the targets of the entire project-based organisation over the goals of a single project. Therefore, the role of controlling here is to maximise the long-term profits at each level of the enterprise, which may occur at the expense of the short-term deterioration of the project result.

An important supplement to the above catalogue is the coordinating function. Coordination refers to basic systems of the controlling domain, that is the system of information supply and the planning-control system.

By analogy to the repetitive operations in an organisation, taking into account the planning time-span of project operations, the subject-matter literature introduces a distinction between **strategic** (long-term) controlling and **operative** (operational, ongoing) **controlling**. In relation to the latter it should be stressed that in the literature the following terms are used interchangeably:

- 'operative controlling' is used mostly by the authors in the German-speaking world<sup>5</sup>;
- 'operational' or 'ongoing controlling' is present in the works by, e.g., American and Polish authors.<sup>6</sup>

**Strategic project controlling** provides an assessment of the strengths and weaknesses of projects in relation to the current development strategy of the organisation. It examines the preliminary feasibility of projects, their cost-effectiveness and efficiency from the point of view of the adopted guidelines. Strategic controlling also builds up rankings of projects and undertakes to analyse the convergence of their goals with the strategic objectives of the organisation. In the case of strategic controlling the following tools are applied:

<sup>5</sup> See, e.g.: Fiedler, 2016; Hubert, 2016; Kuepper et. al., 2013; Preißner, 2003; Schultz, 2015; Vollmuth, 2007.

<sup>6</sup> See, e.g.: Brass, 2016; Kerzner, 2015; Łada and Kozarkiewicz, 2007; Cabała, 2006; Bukłaha, 2016b.

- strategic evaluation of the project (multi-faceted assessment of the effectiveness of the project, taking into account external and internal conditions);
- analysis of the project value for the customer (used to determine the final price of the project according to the “market” method);
- final cost estimation of the project (specifying the scope, quality and timing of the project based on the cost of the project and its target price);
- life-cycle cost estimation of the project (project cost analysis, which, besides the implementation phase, includes the use of project products);
- analysis of costs in the project value chain (i.e. the value and costs at all phases of project development, occurring both within and outside of the organisation);
- project portfolio analysis (value and cost analysis, in which projects are considered parts of the complete portfolio of interrelated projects);
- measurement of project performance, by, e.g. *Balanced Scorecard*, in order to assess – during the project implementation – whether the project produces expected benefits.<sup>7</sup>

These tools allow for better development of the implemented projects portfolio, understanding actual expectations of clients as to the scope, quality and costs of undertakings, determining the power of influence of stakeholders, risk analysis, etc. The tools and techniques used in strategic controlling both in the case of projects and in repetitive operations of organisations are expected to enable the increase in capabilities and opportunities for the long-term and sustainable existence of organisations and making accurate decisions of strategic nature.

**Operative (operational, ongoing) project controlling** is oriented to regulate the implementation of projects in short time frames (up to one year). It focuses on planning, execution and control of projects selected for implementation at the stage of strategic controlling. It is based on the cost-revenues-profit relation, as well as that between revenues and expenditures. Among the tools most appropriate for operational controlling of projects we can name the following:

- planning the course and costs of the project (determining the expected financial impact resulting directly from the implementation of the project);
- evaluating financial performance of the project (analysis of the costs and financial benefits of the project);
- reporting for decision-making purposes (a set of information to assist in taking decisions about the acquisition and allocation of resources to the project);
- recording and accounting of project costs (systematic measurement of the actual financial effects of executed projects);
- budgeting and budget implementation controls (analysis of actual financial results of the project against the baseline budget);

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<sup>7</sup> Based on: Łada and Kozarkiewicz, 2007, pp. 32–33.



- follow-up analysis of the project (the so-called post-audit, analysis of actual costs and benefits of the implementation of the project, both financial and non-financial ones; gathering post-project experience).<sup>8</sup>

It should be noted that operational project planning is a continuation of the strategic planning process. It refers to the project implementation phase, providing a starting point for the implementation of projects' operational plans, remaining in line with the strategic objectives of the organisation. It focuses not on a project's effectiveness but on its implementation (feasibility) consistent with strategic objectives and taking into account the internal and external constraints (stakeholder and risk analysis, etc.). Whereas guidelines for strategic controlling lie primarily within the remit of the organisation's management or authorised departments, those for operational controlling remain in the hands of project managers or (less often) members of project teams. It is worth noting as well that both strategic and operational controlling of a project in the financial dimension are to a great extent based on the strategic and operational budgeting process of the organisation.

## 5. Summary

The notion of project controlling constantly evolves alongside the transformation occurring in organisations, forced mainly by ongoing changes in business environment. Therefore, controlling is most often regarded as a concept of situational nature, whose specificity depends on the type of enterprise, its size, organisational structure, type of activity and its environment [Pocztowski, 1994]. This enables focusing the management system on reacting promptly to the changes taking place in the project environment. By shaping a credible system of information on implemented actions and effects generated by projects in an organisation, it supports the managers and other control-supervisory bodies in making rational decisions.

With the long-established genesis, controlling in its current understanding most often covers comparing the planned values with the actual ones related to current operations, as well as undertaking regulative, steering or other activities related to the information demands of the high-level management, both in terms of projects and the routine-type operations. Initially, when applied to projects, controlling used to focus on operational (ongoing) management targets, yet nowadays we observe growing interest in controlling focusing on the needs of strategic (long-term) management and benefits of the interrelation between these two.

Due to its significant role in planning and control of the progress of work at the stages of planning, implementation and after completion, controlling also constitutes an important interface between project management and the management of the entire organisation. It should be noted, however, that as a comprehensive process merging together planning, management, control, regulatory, steering and coordination activities, controlling does not replace

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<sup>8</sup> Based on: Łada and Kozarkiewicz, 2007, pp. 32–33.

management, but serves to increase the rationality of decisions by its analytical, interpretative and assistance–coordination functions. Since to date no universal model of controlling applicable to every enterprise, business model and type of project has been developed, therefore, while designing the controlling system, one should take into account the specificity of the organisation, the type and scope of the activity in question, the nature of the project or even specific expectations of its strategic stakeholders.

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