

Primljen / Received: 5.12.2021.

Ispravljen / Corrected: 5.8.2022.

Prihvaćen / Accepted: 10.8.2022.

Dostupno online / Available online: 10.10.2022.

Construction project management activity in the Republic of Croatia: analysis of the current situation

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Research Paper - Subject review

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Construction project management activity in the Republic of Croatia: analysis of the current situation

This study analyses the current state of the activities of construction project management in the Republic of Croatia (CPM), which, although in the seventh year of existence, still does not have a uniform approach for public contracting authorities/entities. Limitations and ambiguities in the legal platform for CPM have been identified: inconsistent terminology, mutual inconsistency of regulations, overlap of authority and duties of the supervision/ (FIDIC) Engineer and project manager (PM), insufficient precision of misdemeanour provisions, and lack of timely involvement of PM in the project as a consequence of misunderstanding, by the public contracting authorities/entities, of the importance of the influence of PM on the success of the construction project. However, the presentation of good practices and insight into international standards illustrates the need for additional standardisation of currently certain aspects of uncoordinated and sub-regulated areas, and the simultaneous need for deregulation. In conclusion, this study provides guidelines for the further standardisation of DUPG and harmonisation of existing regulations for sustainable and efficient projects.

Key words:

project management, construction project, standardisation, project manager, regulation

Pregledni rad

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Djelatnost upravljanja projektom gradnje u Republici Hrvatskoj: analiza trenutnog stanja

U radu se analizira stanje područja primjene djelatnosti upravljanja projektom gradnje u RH (DUPG) koje, iako u primjeni već sedmu godinu, još uvijek nije rezultiralo ujednačenim pristupom javnih i sektorskih naručitelja. Identificirana su sljedeća ograničenja i nedorečenosti u zakonskoj platformi za DUPG: neusklađena terminologija, međusobna neusklađenost propisa, preklapanja u ovlastima i dužnostima nadzora/ (FIDIC) inženjera i voditelja projekta (VP), nedovoljno precizne prekršajne odredbe te izostanak pravodobnog uključivanja VP-a u projekt kao posljedica nerazumijevanja njegovog utjecaja na uspješnost graditeljskog projekta od strane javnih i sektorskih naručitelja. Međutim, kroz prikaz dobrih praksi i uvida u međunarodne norme, obrazlaže se način za dodatnim normiranjem zasad neusklađene i u određenim dijelovima podregulirane materije kao i potreba za njezinim dereguliranjem. Zaključno su u radu obrazložene smjernice za daljnje normiranje DUPG-a i usklađivanje postojećih propisa s ciljem održivosti i učinkovitosti projekata.

Ključne riječi:

upravljanje projektom, projekt gradnje, normizacija, voditelj projekta, propis

1. Introduction

Project management was determined to be the most important task of the 21st century [1, 2] according to global predictions 20 years ago, that is, at the end of the last century. Project management is also one of the best tools for delivering goals in temporary and limited organisations within the public sector [3]. The activities of construction project management (CPM) for investors liable for public procurement and provisions of the Act on Tasks and Activities of Physical Planning and Construction (CPM ACT) [4] in the Republic of Croatia (ROC) are determined by the generally accepted definitions of terms related to project management. The most widespread and generally accepted definition of a project is given within the framework of the PMBoK standard, which states that a project is a one-time, unique venture aimed at creating a unique product, service, or other specific result [5]. In the context of this study, a construction project is distinguished because it is executed within a regulated legislative context. In addition, it is executed in stages within a given time frame and consumption or exploitation of various limited available resources [1] with the aim of delivering a quality product, which is acceptable to the customer and end user. Project management is the application of knowledge, skills, and techniques to project activities to achieve project goals [6]. Therefore, the PM is the proprietor of project management activities and, as an operations manager, is responsible for the achievement of the project goals that directly impact the goals of the organisation (i.e. the PM is responsible for planning and organising the project works; communication with senior management (strategic structures in charge of management) and project stakeholders; and managing activities and delivering the completed project to the client within the scope defined by quality, budget, and time) [7]. PMs participate in conception development and implementation of the construction project from the earliest preparatory stage to delivery of the final product [8].

A study conducted in 2010 compared Croatian and world practices, and found differences in the CPM trends and methods [9]. The study concluded that although there have been positive developments in the ROC in defining the legal conditions for performing CPM, further harmonisation with world practices is necessary to prevent limitations in the development and application of organisational solutions in the domestic construction industry. An analysis of the application field of Chapter V CPM ACT [4], which in 2015 replaced the valid Act on Architects and Engineers Tasks and Activities in Physical Planning (ZAIPD) [10] established in 2008, identified that its application over seven years had not resulted the public contracting authority/entity having a uniform approach when engaging with PMs and as a legal category (i.e. a standard of services for CPM) [11]. An analysis of the case studies of the practical application of CPM as a legal category led to the identification of certain issues and limitations resulting from an unharmonised legal platform [12]. The regulations for CPM

are insufficiently regulated and unharmonised in certain areas, and require additional regulation. However, certain areas are over-regulated and these need to be regulated differently or determined by the market, as discussed in this study. Therefore, a basic question in this study is whether the problems and limitations of the application of CPM in practice (as a legal category) can be adequately identified by analysing the state of the field to establish a cause-and-effect relationship between them and the standardisation of CPM as a solution to the problem. That is, whether the existing regulations that make up the legal platform for CPM can be harmonised, and consequently resolve the identified issues and limitations through the creation of an autonomous national standard and source of law.

Most of studies related to PM and standardisation refer to the application of standard methodologies to CPM, without respecting the diversity i.e. the distinction in the approach between private and public projects. This study relies on the similar conclusions of previous studies which state that recognised (standard) tools and methodologies for PM increase efficiency and improve results [54, 61, 64-74]. However, the assumption that all projects are similar enough to justify the application of the same management strategies to different types of projects implies different conclusions, that the application of standards is always a 'double-edged sword'. On the one hand, standardisation normalises project activities and prescribes the proper management of projects. On the other hand, determining the limits of standardisation of project activities and by definition, uniqueness, depends greatly on the type of project and its changing environment. Furthermore, the conclusions drawn from the previous studies were used in this study to determine the possible application of standardisation to CPM (i.e. in the implementation of public sector projects).

The results of the analysis in this study will present the problems identified by entities from the private sector, which provides CPM services as a legal category, and the public sector, which achieves the general goals of the public sector and society, and specific goals of an individual (construction) project through public procurement. By standardising and adopting the national system of CPM standards, prerequisites are created for their codification through special customs. These preconditions help ensure an equal relationship between the entities in their contractual-legal relationship.

The results of the analysis in this study provide the primary work goals, which manifest in the identification of practical application problems of CPM, especially those related to the limitations and inconsistencies of individual regulations forming the CPM platform. These goals apply to public construction projects because they differ in some respects from those that characterise private projects. Namely, in private projects, each private client determines his/her own particular goals, guided by the principle that "the end justifies the means" (i.e. traders are allowed to do anything not prohibited by law or explicitly),

whereas defining the goals of public projects, with a legalistic approach, assumes a high level of ethics and social responsibility.

The secondary objectives of the study is derived from the objectives and principles of the CPM legal platform, which is basically determined by the CPM ACT and Public Procurement Act (PPA) [13]. These objectives are mainly the rational and efficient spending of budget funds [14], realisation of market competition, equal treatment, prohibition of discrimination, mutual recognition, and proportionality of transparency [13]. In the following chapters, a brief overview of world practices and standards applicable to the creation of a national system of standards for CPM will be provided, and the impact of relevant social and legal norms on CPM will be analysed. An overview of the position of PMs and other stakeholders in the construction project will be presented, the state of the field will be analysed and commented on, and the limitations and problems related to the application of CPM as a legal category will be identified.

2. Applicable global standards and autonomous sources of law

Global trends clearly affect CPM, as seen by recognising and identifying the Croatian market as a part of the European union (EU) and global market. Therefore, in the processes of creating a national system of standards and Croatian (national) autonomous sources of law for CPM, it is necessary to look at the best world practices, and current global trends and standards, provided that they are closely compatible with national needs, the existing legislative framework, and development trends of the EU legislative framework.

The most well-known standard (autonomous) form of contracts and tender procedures were created and published by banks, associations, and professional organisations. These mostly refer to contracting works and/or designing, and to a lesser extent consulting services. The identified market analysis forms, applicable in the ROC and which could impact the standardisation of CPM as an autonomous source of law, are Fédération internationale des ingénieurs-conseils [15] (FIDIC), Orgalime [16], practical guide to contract procedures for EU external actions (PRAG) [17], European bank for reconstruction and development (EBRD) procurement policies and rules [18], guidelines selection and employment of consultants under International Bank for Reconstruction and Development (IBRD) loans, International Development Association (IDA) credits and grants by the World Bank Borrowers [19], and the World Bank Group general terms and conditions consulting services [20].

Among these, FIDIC contract terms [21] has special status in the structure of legal regulations and other contractual

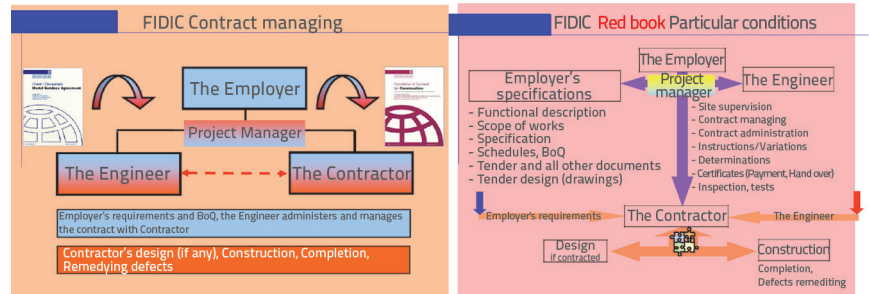


Figure 1. Adjusted FIDIC Red Book model of the relationship between the Employer, engineer, contractor, and PM [12]

bases that regulate contracts and procedures in construction projects in the EU and ROC, especially with the EU (co)financed projects or projects financed by development and commercial banks, even though they are based on the Anglo-Saxon law. These institutions all prefer standardised and verified forms of contracting for objective reasons as they contain standard and known procedures (i.e. detailed instructions and recommendations that can be used as a reference during the preparation and implementation of the project) [22].

Figure 1 shows the characteristic model of the relationship between the PM and client, engineer, and contractor currently used in the ROC based on the FIDIC Red Book.

With respect to the specific application of the FIDIC contracting model, as translated and used in ROC, including the White Book (*Client/Consultant Model Services Agreement*), Red Book (*Conditions of Contract for Construction*), and Yellow Book (*Conditions of Contract for Plant and Design-Build*), and the legal platforms for CPM (ACT and PPA) and identified issues (chapter 5), it is necessary to unambiguously regulate the relations between individual (co)stakeholders of the construction project, namely (FIDIC) supervision/(FIDIC) engineer and PM, through standardisation for CPM. Based on the latest edition of FIDIC (2019), standardisation could determine the so-called 'Golden Principles' [23] essential for the proclaimed goals of the public sector listed in the introduction, which could not be changed by the special conditions of contract (SCC) as an adaptation to the specificities of the project.

The following can be distinguished by analysing world practices and standards for project management: the Project Management Institute (PMI) which publishes the guide 'Project Management Body of Knowledge' (PMBOK) [5], Axelos' 'Projects in Controlled Environments 2' (PRINCE2) [24], ISO 21500:2012 'Guidance on Project Management' [25], European Commission 'Open Project Management Methodology' (OpenPM³) [26], International Project Management Association (IPMA), Individual Competence Baseline (ICB4) [27], and British Standard Institution BS 6079-1:2002 Project Management 'Guide to Project Management' [28]. The differences and similarities between PMBOK, ISO 2150, and PRINCE 2 standards that are important for the possible implementation of CPM standardisation are shown in Figure 2.

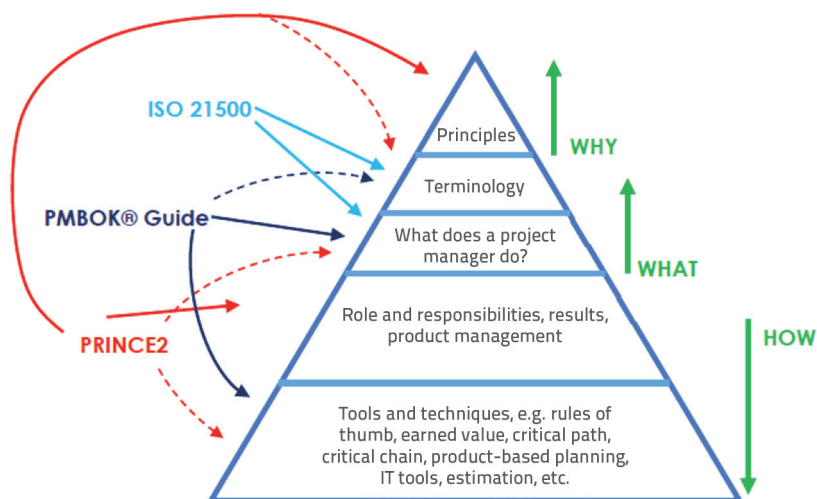


Figure 2. Basic relationships between the approaches of PMBOK, PRINCE2, and ISO 21500 (adapted from Skogmar [29])

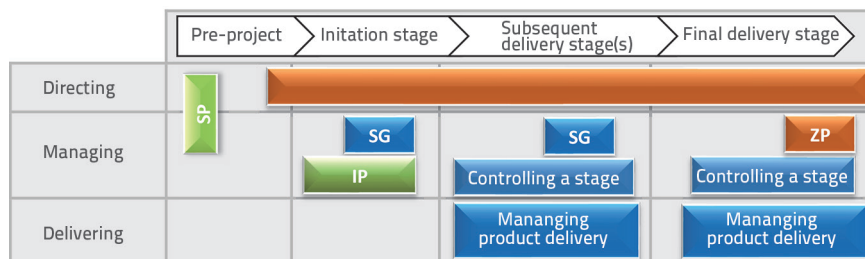


Figure 3. Overview of the PM process diagram according to the PRINCE 2 methodology [30]

Table 1. Project Management Process Map according to PMI PMBOK [5]

	Initiation	Planning	Implementation	Monitoring and control	Closing
Integration management	Concept design drafting	Drafting a project management plan	Project implementation management	Monitoring and control of activities, integral control of changes	Project closing
Scope management		Scope planning and defining, creating WBS		Results control, scope control	
Time management		Defining activities, defining the sequence of activities, estimating resources by activity, estimating the duration of activities, determining the time schedule,		Time schedule control	
Cost management		Cost estimation, budget determination		Cost control	
Quality management		Quality planning	Ensuring the quality of implementation	Quality control	
HR management		HR planning	Forming a project team, developing a project team	Project team management	
Communication management		Communication planning	Information distribution	Performance reporting, stakeholder management	
Risk management		Risk planning, identification and quantitative risk analysis Risk response planning		Risk monitoring and control	
Procurement management		Procurement planning, contracting planning	Demanding offers from suppliers, selection of suppliers	Contracting management	Contract closing

Figure 3. shows a process diagram as a standard process approach for PM according to the PRINCE 2 standard, which provides an easily adaptable and stable method for managing all types of projects. Each process is defined with its key inputs and outputs with specific goals to be achieved and activities to be implemented [24, 30]. An adapted application is also possible in the standardisation of CPM.

PMBOK, as a descriptive process standard, is the most widespread in the world; thus, it has practical applications in ROC. Similar to ICB4, it is an internationally recognised standard for the certification of project management competencies in the ROC [5, 12].

Considering the previously described project stages, importance of PM activities in the development of a construction project from its embryonic beginning, and presented project management activities according to international standards, Table 1 lists their distribution through the stages of project realisation, which could be adapted for use as a CPM standard. Each activities from the first column of Table 1 requires certain competences and

knowledge of the individual activity holder; thus, depending on the stage of the project for which a management service is procured, the team structure must necessarily be arranged, and the competences and knowledge of the PM and individual team members determined.

Reflection on these international standards provides a good basis for understanding the approach to construction and development of an autonomous source of law and national system of standards for CPM. The analysis indicates that, on the one hand, each standard has certain comparative advantages for direct application, whereas, in contrast, because of the specificity of the legal platform for CPM, none could be applied in autonomous standards (i.e. sources of law for CPM without additional adjustments).

As a basis for standardising CPM, a combined approach using the key comparative advantages of the analysed international standards and sources of law is necessary, and applicable to the specificities of the platform for CPM.

3. Construction PM in the ROC as a legal category

Stakeholders in a construction project (investor, designers, contractor(s), supplier(s), supervision, and PM) have different roles and tasks in the realisation of the project. Their organisational cultures and work styles differ, thus one may get the impression that their activities are directed against the need to create a partnership that will ensure the success of the project. However, despite the challenges, construction projects are usually successfully completed [31]. The PM's activity is one of the factors for successfully connecting and organising (co)stakeholders in the construction project toward achieving the unique goal.

Up until 2015, the realisation of construction projects (both in the public and private sector) in ROA included a classic scheme, namely the separate construction model, consisting of basic participants in a construction project: client (investor), designer, supervision, and contractor [9]. Public clients, unlike some private investors and/or engineering organisations (developers), do not exist because of construction projects and must therefore manage the processes independently, create a terms of reference and coordinate all specific processes during the realisation of a project, and coordinate all stakeholders involved in the process. Construction projects in the ROC have become increasingly complex in terms of content and management, the regulations have changed and harmonised with the legislation and applicable EU Directives, and construction companies, suppliers, and design offices have become increasingly specialised [11]. Because of this, the classic scheme of participants in the construction project of investors liable for public procurement no longer exists. The legislator recognised the need to introduce the obligation to manage construction projects at a professional level, and in 2015, with the adoption of CPM ACT, CPM for investors liable for public procurement became a mandatory legal category for public contracting authorities/entities [4].

Figure 4 shows a typical matrix of stakeholders in the realisation of a public construction project in the ROC.

Compared to the previous legislature, the PM now becomes, as of 2015, a new mandatory participant in the process of a construction project that the public contracting authority (as of 1 January 2019 a public contracting entity) is obliged to appoint in certain public construction projects. Therefore, the classic scheme of relations between basic participants in a construction public project is replaced by a new one: contracting authority (investor), PM, designer, supervisor, and contractor. Although the role of the PM was recognised as early as 1998 in context of the project as a venture [32] and in 2000 a significant need for PMs in the ROC in the future was announced in scientific articles [1], the PM as a 'participant in construction' according to the definition from the Building Act (BA) is new [33]. However, BA still does not recognise the PM. Therefore, in public construction projects PMs are actually 'participant/(s) in the construction project'.

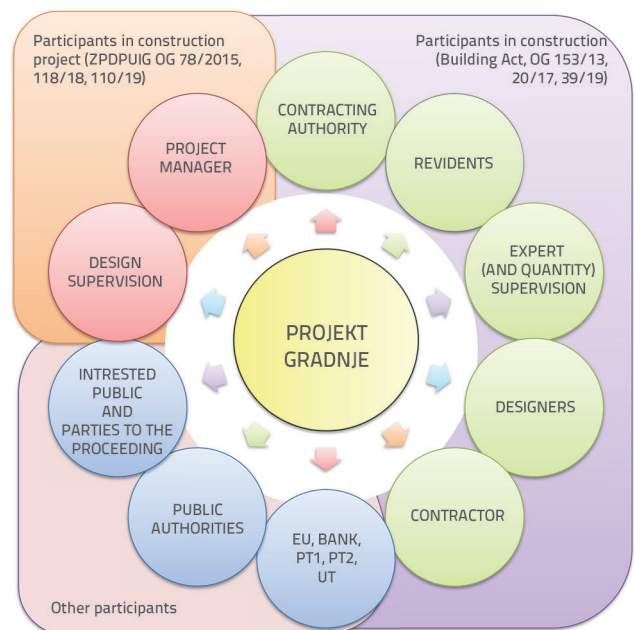


Figure 4. Typical stakeholder matrix of a construction project in the ROC [10]

In Appendix 1, Chart 6 shows the history (i.e. the origins of the legislation) forming the platform for CPM, and Table 3 in Appendix 2 provides an overview and comparison of the work of the PM and supervision in the construction project, pursuant to peremptory regulations as a legal category and dispositive as a contractual category.

4. The influence of social and legal norms on CPM

The impact of the relevant social and legal norms on CPM is determined by the legal framework (i.e. the legal platform within which CPM services are currently provided to investors liable for public procurement in the ROC), and the framework necessary to create an autonomous source of law for CPM.

For CPM and the public sector in general, other (informal) social norms must be respected in addition to the coercive (categorical) applicable regulations, especially those related to ethics as an indispensable component of behavioural social norms in contractual relations. Given that legal norms do not regulate the decision-making process in projects, project procedures with CPM as a legal category are tasked to regulate decisions. Project procedures and decisions are subordinated to the forced nature of decision-making, whereas compliance with moral social norms is expected to be dispositive (or at least that is the perception in society). This is, of course, because responsibility is first according to the law and second according to the customs of society, which differ in weight and importance for different contracting parties (i.e. persons who are in an obligatory relation).

Ethics is a concept closely related to socially responsible business practices; therefore, in the case of public companies and construction projects, the premises of socially responsible businesses are understood to be a given, without the possibility of deviation according to the principle 'the trader is allowed everything that is not expressly prohibited' (i.e. 'the goal justifies the means') [34]. Accordingly, CPM for investors liable for public procurement as a public service, should be ethically and socially responsible because these services are procured through public procurement processes, and as public procurement is a field of interaction between the public and private sectors, there are always certain risks and obstacles to fulfil these principles. The hierarchy of commercial law sources [35, 36] is as follows:

1. A contract not violating the constitution of the ROC, mandatory regulations and morals of society including general business conditions if incorporated into the contract or referred to in the contract, trade clauses or terms if incorporated into the contract, and practices developed between the contracting parties, consisting of:
 - special usages/customs
 - special trade customs
 - general trade customs
2. Dispositive regulations
3. Court and arbitration practices
4. Legal science (indirectly)

The application of law to contracts, including those related to CPM, generally follow the hierarchy. At the same time, for CPM standardisation, an emphasis on the position of general business conditions and special usages is important with regards to the creation of autonomous national standards (i.e. sources of law for CPM and their eventual codification).

The hierarchy scale of legal regulations, first includes the constitution and international treaties and thereafter morality. Unlike private construction projects, in which (as in public projects) all stakeholders must comply with the regulations (i.e. the legal norms of the applicable laws of public law), public projects emphasise some other social norms related to ethics and morality. In the context of this study, which deals with PM as a legal category or segment of public

procurement and the realisation of public construction projects, these norms must be accepted as a default form of conduct.

To oblige the investor, who is liable for public procurement, and provider of the CMP service to apply the basic principles of ethical behaviour as contractual parties, in addition to the strict application of the compulsory regulations of the ROC, a code of ethics must be introduced into the standardised behavioural patterns of the autonomous source of law for CPM as a determinant of the direction and importance of CPM social activity on the community with a wider ethical aspect. This will ascertain that CPM relations and procedures are in accordance with the business ethics characteristic of the public sector. This must be an uncompromisingly parameter for contractual relations because of the principle of public procurement.

Corporate socially responsibility (CSR) and the application of the code of ethics are necessary in all stages of project implementation [37]: a CSR plan should be established in the initiation stage; the previously established CSR plan is possibly corrected and adjusted in accordance with technical requirements in the design stage, the adopted CSR strategy (i.e. CSR plan is applied), control and monitoring, and its application is checked in the execution stage, and all CSR documentation is checked at the final meeting and a report is created for the owners (i.e. investors) in the closing stage of the project. This provides knowledge for the next project.

To create an autonomous national source of law for CPM, the legal norms are social norms by which the state, through the adoption of the Building Law, regulates behavioural patterns (i.e. ensures the application of legal regulations by force). To ensure the application of legal norms, the state prescribes prohibited sanctions for the non-observance thereof. Therefore, all legal and social norms, and the hypothesis predicting and describing a behavioural event in a typical way, has two basic elements: disposition and sanction.

A disposition, as a normative part of a legal norm, is not a legal norm but becomes one only when a sanction is granted to it. Although a sanction, as a secondary rule of conduct, can also be positive, is most often a sanction in the form of a punishment, where the components (elements) of each legal norm consist of hypotheses (prediction and description of an event/behaviour), dispositions (denotes a request under which the addressees must or are allowed to conduct), and sanctions (the coercion of the state authorities should the addressee fail to act according to the disposition) [38], as shown in Figure 5.

Special customs (e.g. construction) are, by their very nature, codified (announced) as one of the sources of commercial law, that is, a proven norm that is applied [39]. Therefore, the autonomous source of law for CPM can be analogously concluded through codification into special customs, and would become a codified norm that should be applied to CPM according to the objective (categorical) concept of application. This type of deduction also implies the adjustment of the provision of Article 219 of the PPA related to the application of terms [13]. This would eliminate the inconsistency in the application of

HIPOTHESIS describes an event/behaviour	REQUEST for certain behaviours	SANCTION as a consequence of disobeying the law
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Figure 5. Elements of legal norm

special provisions dependent on whether it is a public procurement contracting authority/entity or private contracting entity (trader), because a public procurement contracting authority/entity can also be a trader. Some entities liable for public procurement are essentially, and according to the definition, in the Companies Act (CA) [40] of traders, and the current PPA foresees the application of business customs (i.e. special customs according to the subjective concept) in accordance with the old Civil Obligations Act (COA) of 1978, which was not in accordance with the international sources of law, primarily the UN Convention on Contracts for the International Sale of Goods (i.e. the Vienna Convention) [41] and other contemporary legal orders [13, 39].

Contracts, which are in accordance with the constitution, morality, and coercive regulations, act as a law between the contracting parties, emphasising the principle of autonomy of the will of the contracting parties according to which they are free to arrange binding relationships [35, 36]. The contract, as a law between the contracting parties, and the mandatory application of peremptory legal norms, enables the application of disjunctive legal norms which can be dispositive subsidiary and alternative by choice [36, 38].

Contracts for CPM and professional supervision services are actually contracts for the provision of consulting services, which are not 'named contracts' in the COA, but are subject to the provisions of the COA relating to the 'Mandate Order contract' [36].

Significantly, when these regulations are an integral part of a contract in the ROC to which Croatian law is applied and standard forms of contracting such as the General Conditions of Contract (GCC) according to FIDIC are applied, from the point of view of the application of the Croatian legislation, then the corresponding provisions of the COA [22] also apply to these a contractual relationships [22].

5. Analysis of the state of CPM application

In this section, the current state of the field and practical application of Chapter V of CPM ACT will be analysed by presenting the identified problems and limitations related to services, that is, CPM.

Some of the problems, illogicalities, or limitations of the practical application of Chapter V of CPM ACT have been identified in case studies [12], and these will be further analysed to propose, in principle, a harmonising of the existing regulations:

Inconsistent terminology and definitions of relevant terms

Although the terms and definitions in each law making up the platform for CPM are given exclusively for the purposes of interpretation and implementation of that particular law, the potential problem of a mismatched platform can easily be seen from the definitions of some of the relevant terms in different laws. However, even though the definitions are written pertaining to a specific law and for the purposes of implementing that law, certain terms must be universal and make sense at the fundamental level of public law that regulates the administrative area of spatial planning and construction (Physical Planning Act PPA [42], BA) and special subordinated laws. Starting with the definition from BA, which states that 'construction' includes the design and construction

work stages, where 'construction works' means the execution of construction and other works [33], the question is whether the name 'construction project management' essentially corresponds to the CPM job description, given that certain CPM activities relate to the stages before and after actual construction [4], which according to the definitions from BA, begin with design and end with permit use [33]. For standard creation, it is important to consider that each project has its own life cycle. Therefore, the term 'life cycle of a construction project' is important to introduce as one of the basic concepts of project management, because it unites all stages of project realisation and as such is a good basis for the conceptual alignment of CPM, that is, CPM ACT with the basic laws governing the field of physical planning and construction (BA, PPA). In point 2, the life cycle of the construction project is presented in more detail. Therefore, the matter in question needs additional regulation to introduce all necessary definitions for the conceptual harmonisation of laws forming the CPM platform.

Timely involvement of the PM

Regardless of the amendments to CPM ACT (Article 33), which recognised the need for a PM to be involved in the early stages, there is still a misunderstanding of the majority of investors liable for public procurement who continue to ignore these clear provisions, that is, the PM is only involved in the construction works, probably as a consequence of the lack of clear misdemeanour provisions of CPM ACT. To understand the importance of involving the PM in the early stages of implementation, relevant literature and international standards indicating the relationship between project stages and the possible influence of the correlation with costs and risks were analysed. The early stages of the project where the participation of the PM is essential are [43]:

- Conceptualisation (conception)
- Project planning

Figure 6 shows that in the initial stages of the project, good planning can rationalise the project and prevent risks occurring in the later stages of the project implementation with less effort and lower costs. The initial stage (i.e. the initiation stage) is usually characterised by low costs and a small number of people in the project team. As the project develops, the costs and number of people working on the project increase drastically. Finally, in the closing stage of the project, these figures decrease again.

The project success is uncertain at commencement. As the project progresses, from stage to stage in the life cycle, the chances of a successful outcome increase [44].

The risk is highest at the beginning of the project and generally decreases as the project comes to an end. In addition, project stakeholders have the greatest influence on a project and the characteristics of the final product during the first stages of the project life cycle, and their influence decreases as the project progresses [43]. The implementation of the project according to the governance schemes for major public investment projects [43] is presented as three characteristic stages, originally called 'Front-end', 'Implementation', and 'Operation', as shown in Chart 4a. The early stages, where the project exists only conceptually, are contained

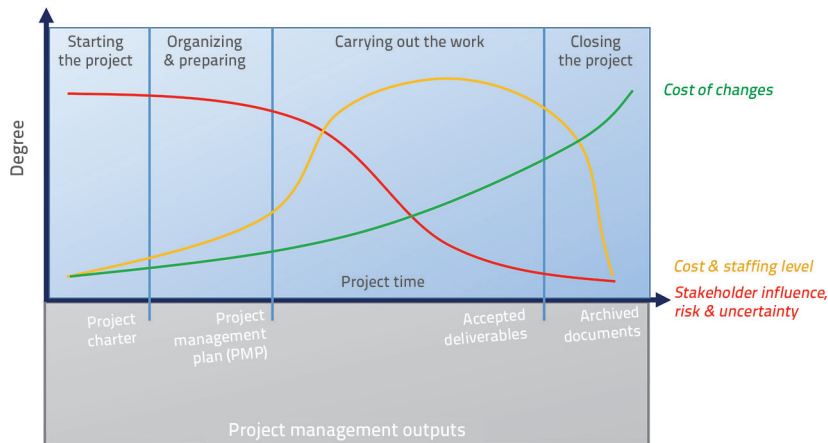


Figure 6. The relationship between project stages and the possible influence of the correlation with costs and risks [44]

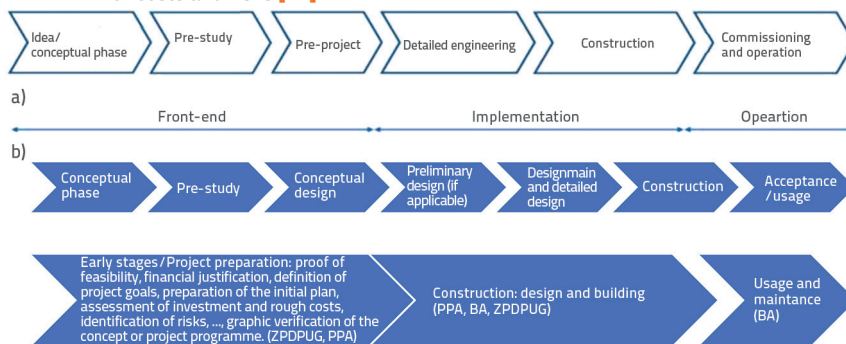


Figure 7. Characteristic phases of project realisation [4, 33, 42, 43]

in the "Front-end" stage which precedes design, that is, before the project is operational. This covers all activities from the conceived idea to the final implementation decisions. According to this concept, there is a difference between concept development and planning. The concept development is based on the assessment of the general framework conditions to clarify the most suitable project strategy, and thus the key premises on which the project is based, and its characteristics and goals.

A comprehensive technical solution and various conceptual alternatives are thus provided. Figure 7 shows the adaptation of the model according to construction projects implemented in the ROC (Chart 4b) [43].

In addition to being present in the early stages, PM participation in the executive stages (design and construction) is of utmost importance. As a rule, what is designed will be built, and correcting errors during the construction stage is expensive or impossible. In addition, during the design stage, the relationship between investment (capex) and operational (opex) costs planned in the early stages are typically balanced in detail. This is important for public facilities, especially for those whose capex is (co)financed by grants. In contrast, opex is usually financed by public funds. In practice, this active PM participation in the design and cost balancing stage is usually 'skipped' because the implementation of CPM ACT is not clearly defined, and there is a lack of awareness among individual public and sectoral contracting authorities concerning

the importance of risk reduction. A project should be managed in such a way that the detailed designs are completed before procurement of public works, except when they are the responsibility of the contractor (i.e. sufficiently preceding construction commencement when risks arising from possible errors in the designs can still be avoided).

Therefore, additional regulation it is necessary, that is, a standard methodology and process should be defined according to which the PM role in the early and executive stages of the project will continuously enable the PM to influence the decision-making of the public and sector clients in the early stages of the project and in the project stage. This would enable the realisation of the planned works, that is, the general and specific goals of the project.

Project management activity

Although project management as a legal category is a regulated activity and the service provider must meet all legal requirements (i.e. have legal and business (professional) abilities), be registered for the applicable activities, and employ a PM. However, amendments to CPM ACT article 38 (2) from 2019 provides an exception to

the regulation according to which investors who are not registered to perform CPM activities can appoint an employee as the PM [4, 12]. The asymmetries and inconsistencies of such a case are necessary to reconsider and analyse the effect considering the existence of numerous studies that indicate shortcomings in such an approach [75].

Certification

In accordance with the regulations [45], internationally recognised systems of certification of project management capabilities have been established as two equivalent internationally recognised systems: IPMA (global system) [27] and PMI (American standard based on the ANSI standard) [5]. The IPMA system is based on certification of competences (i.e. proven and applied knowledge in practice) in project management, whereas the PMI system is based on project management processes. Both systems develop the PM's knowledge, define global standards based on the previous mentioned certification i.e. processes and certifies the PM's ability based on knowledge verification. In addition to IPMA, other competency standards exist, such as the Association for Project Management (APM, United Kingdom) and Australian Institute of Project Management (AIPM, Australia). The system chosen is a matter of personal preference, that is, the preference of a specific organisation, and must necessarily consider the possible future expansion of recognition and other equivalent systems of

certification of project management ability. Furthermore, according to the current regulations [45], instead of these certifications, knowledge can be proved through European Credit Transfer and Accumulation System (ECTS) credits earned on courses in the project management field. We believe that this condition should be deregulated and possibly left to specialist postgraduate education.

Extended professional supervision

There is a problem of overlapping and 'parallel tracks' when contracting the 'extended' supervision pursuant to the existing Rulebook, Article 11, paragraph 1, on the method of conducting expert construction supervision regarding the form, conditions and method of keeping a construction diary, and the content of the final report of the supervising engineer (Rulebook) [46]. These include technical consulting, control of the contractor's fulfilment of contractual obligations toward the client and taking appropriate measures for the realisation of these obligations, and calculation of performed works ('cost accounting supervision'), which are contracted as contractual categories as a part of the professional supervision services. As a mandatory regulation of public law, it applies to all construction (building) projects, both private and public, whereas Chapter V CPM ACT, which governs CPM, applies only to certain categories of public projects [4] (Table 3 of Annex 1). This matter needs additional regulation through the harmonisation of regulations, specifically CPM ACT and the Rulebook so that the national standard (i.e. an autonomous source of law for CPM), which would act as a special regulation in relation to the Rulebook, determines the allocation of activities of the CPM with regards to the obligation to appoint a PM as a legal category.

Parallel tracks of responsibility in projects

In principle, the FIDIC Engineer does not have, nor should have, the role of a supervising engineer or perform professional supervision over construction according to the law (i.e. BA). In addition, the Engineer (according to the contract), supervising engineer (by law), and PM (by law) should in principle not have overlapping responsibilities. However, in practice the role and tasks of individual project roles/functions of a construction project are often misunderstood. By contracting the function of The Engineer (i.e. the Employer's Representative (when applying FIDIC or a similar contract model) as a part of expert supervision services (by law), certain activities essentially belonging to standard project management are allocated to the Engineer. This creates parallel decision-making tracks and the dispersion of responsibilities, and project management by the law is reduced to technical assistance. As FIDIC and similar autonomous sources of law 'do not know' the Croatian regulations, when applied in practice in the ROC, the Engineer becomes a supervising engineer by law (who according to the law has public powers). This can potentially create a conflict of interest because the Engineer, as a contractual category represents the interests of the Client (as well as the PM). However, the supervising engineer by law, performs activities of public interest in accordance with Article 11, paragraph 2 of the Rulebook, and may not perform tasks that are contractual and not exclusively a legal category in a way that would threaten his independence and impartiality in fulfilling his obligations, or

otherwise threaten or make impossible the fulfilment of those obligations [45].

Typical activities, according to the principle of 'parallel tracks' as a contractual category of 'extended' project management by law (i.e. 'extended' supervision by law), and activities prescribed by law, allocated by the contract to the PM and chief supervising engineer by law (GNI) (i.e. to the Engineer in the case of FIDIC contracts), include: technical consulting of the client, administration and managing of contracts with contractor(s), request and claim management, financial and term planning and control, etc. [4, 46, 47], as listed in Table 3 in Annex 2. This matter needs to be resolved by harmonising the regulations, deregulating the part of the regulations that contradict each other, and supplement the part of the matter that is not regulated with additional regulations (i.e. clearly define the tasks and responsibilities of each of project stakeholder in such a way that there is no overlap or 'conflict')

Defining the services of the PM

Unclear provisions of CPM ACT on the manner in which the PM provides financial, legal, and technical consulting pertaining to the design, construction, use, and removal of construction works [4]. The interpretation and application of this provision is understood and applies differently in practice. The question arises as to whether the PM provides these services independently and is an 'unlicensed practice of law' (i.e. the illegal provision of legal assistance, a service provided by persons who do not have the appropriate education or professional qualification), or whether the PM must have a lawyer and financial expert on the team while the PM is responsible for the interpretation of their opinions and implementation in the CPM process [12]. This matter needs to be further regulated.

PM activities

Activities for CPM specified in Article 33 of CPM ACT do not contain activities which essentially belong to project management according to international standards and practices. Table 2 indicates the disparity; the left column lists the scope of project management tasks by law for CPM, and the right column lists the general project management tasks and related functional fields according to international standards.

Given that these activities by law (CPM ACT) mostly relate to consulting public clients and administrative affairs, whereas the international standards relate to the actual management of processes, the matter needs to be properly regulated, particularly where not compliant with international practices and standards, while respecting the specificities driven by the broader CPM legal platform. By standardising CPM, that is, by transposing applicable good practices and international standards into national standards for CPM, prerequisites can be created for higher efficiency and sustainability of the application of CPM in the ROC as a legal category.

Time of engagement the PM

Unclear provisions related to hiring a PM 'prior to making an investment decision and planning budget funds' [4]. The actual project stages that the legislator is referring to are unclear; therefore, the application of this provision is understood differently

Table 2. The CPM activities pursuant to CPM ACT vs international standards

Activity of construction project management by law includes the following tasks [4]:	Construction project management activities/processes according to international standards [1, 5, 9, 63]
<ul style="list-style-type: none"> - financial, legal, and technical counselling, preparation, and planning of tasks related to design, construction, use, and removal of construction works; - financial, legal, and technical preparation and planning of tasks pertaining to building and monitoring the implementation of this plan; - programming and planning in the project conception phase, which includes data collection, development of the project programme, and monitoring of execution of that programme; - selection of designer, design auditor, supervising engineer, certified geodesic engineer, and other persons performing tasks related to the construction of construction works and counselling regarding contracting tasks with these persons; - connecting and harmonising the work of the parties involved in construction to protect the client's rights and interests; - obtaining the design documentation and of other documents necessary for obtaining acts approving construction; - obtaining acts, analyses, studies, expert reports, and other documents necessary for the development of conceptual, main, and detailed designs, and a design for the removal of construction works; - conclusion of all legal transactions necessary for the construction of construction works and performance of actions which the client shall perform during the construction of the construction work; - development of the project control system, monitoring, and implementation control, which includes the creation and presentation of the planned execution time with committed resources, updating the initial plan in relation to project implementation, dynamic risk analysis throughout the project's life cycle, reporting on the quality control of the implementation of investments, proposals for solutions to current or anticipated problems in terms of time, technology, and cost. 	<p>The main tasks of a PM of the construction project [9] through five process stages used for project management are [1,5]:</p> <ol style="list-style-type: none"> 1. Initiating (preparation of conceptual solution, preparation of preliminary report). 2. Planning (preparation of a project management plan, scope planning definition, creation of Work Breakdown Structure (WBS) diagrams, time and cost estimations, budgeting, quality planning, human resources, communication, risk management, risk identification, qualitative and quantitative risk analyses, risk response planning, procurement planning, and contracting). 3. Executing (project implementation management, quality assurance, project team formation, project team development, information distribution, requesting responses from suppliers, and supplier selection). 4. Monitoring and Controlling (monitoring and control of project activities; integrated change control; control of results, scope, time plan, costs, and quality; project team management; performance reporting; stakeholder management; risk monitoring; and control and contracting management). 5. Closing (closing the project and contract). <p>The process can be classified into nine functional areas of project management [63]:</p> <ul style="list-style-type: none"> - Integration management - Scope management - Time management - Cost management - Quality control - Resource management - Communications management - Risk management - Contracting/procurement management

by the public contracting authority/entity. It is not clear whether this refers to the preparation of cost estimates in the project initiation stages, that is, preparing feasibility studies, or whether it applies to the construction cost estimates in the design stage. If it means the investment decision made after the design and cost estimate is complete (i.e. not in the feasibility study or business plan adoption stages), then the legislator should clearly define what is meant by the term 'prior to the investment decision' because budget resources must be planned for drafting design documentation, especially the main design wherein only an estimate of construction costs is given [12]. Additional regulation of this matter needs is required.

Obligation to consult

The illogicality of misdemeanour provisions related to the fulfilment of Article 33 of the CPM ACT according to which there is no penalty if the client does not enable the PM to comply with Article 33 (i.e. there is no obligation for the client to ask for advice or instructions from the PM) or an activity in Article 33 cannot be executed because the stage in which the PM is involved does not include this activity. Therefore, according to the current situation, there is no (public) client obligations to request technical, legal, and financial consulting, or to adopt them. This matter needs additional regulation through the introduction of additional misdemeanour provisions.

Registration of PMs

Although the amendment to CPM ACT (Official Gazette 118/18) provided that the PM has the right to be registered in the records of PMs maintained by the competent ministry (now the Ministry of Physical Planning, Construction, and State Assets), these records still do not exist even though there is a form for submitting applications. Previously, the records were kept by the Croatian Chamber of Civil Engineers (HKIG), but regardless of this, it is stipulated that the request shall be resubmitted to the competent ministry, regardless of the previous entry in the records with the HKIG. Records should be introduced at the competent ministry and access standardised, or record-keeping should be left to one of the PM associations, such as the Croatian Association for Project Management (HUUP).

Tax regulations

Incompatibility of regulations related to the VAT Reverse Charge (VRC) pursuant to the law [48] and ordinance [49] on the value added tax. The opinions of the Ministry of Finance and individual tax administrations [50] are that VRC is impossible for some CPM activities even though they are related to construction (i.e. building, legal, and financial consulting; services prior to the construction stage). Therefore, the tax regulations concerning CPM must be harmonised.

Unnecessarily, and completely contrary to the principles and instructions of the Government of the ROC for the greatest possible absorption of EU funds [51], the calculation and billing of project management services is tied to tender provisions (i.e. the contract for services) as a percentage of the contracted value in proportion to the percentage of the value of performed works. This bypasses clear legal provisions, namely, the tax regulations stipulate that a taxable event (i.e. the obligation to pay VAT) occurred when goods are delivered or services performed (regardless of the issuing of invoices), and for continuous performance of services, such as project management, at the end of each taxation period, regardless of whether the service was charged or not [49, 50].

In addition, Article 11, section 1 of the Act on Financial Operations and Pre-Bankruptcy Settlement [52] defines the obligation to fulfil a financial obligation in such a way that in business transactions between entrepreneurs, a deadline for fulfilling the financial obligation can be agreed upon up to 60 days. If in the contract between entrepreneurs does not include a deadline for fulfilment of the financial obligation, the debtor is obliged, without the need for the creditor to call him to do so, to fulfil the financial obligation within 30 days. The matter needs to be regulated and the regulations harmonised.

Stakeholders in project implementation

Unlike the previous CPM ACT (Official Gazette 78/15), which clearly stipulated in Article 36 that neither a legal nor natural person, tradesman performing CPM, or employee, can perform design tasks and professional supervision of construction of a building, the amendments to the Act (Official Gazette 118/19) and current law (Official Gazette 110/19) do not clearly stipulate whether a legal entity managing a construction project can perform design tasks and expert construction supervision tasks on the same project. If the logical interpretation of the provisions of the law and rule of inference from the opposite (lat. "argumentum a contrario") are applied, according to which a categorical and precise conclusion is derived from the second conclusion contrary to the first one, it is clear that, according to the current CPM ACT, the legal entity that manages the construction project could provide supervision and design services on the same project [4].

However, in reality the competent ministry has responded to inquiries related to this matter in public procurement procedures stating that a legal entity cannot simultaneously (i.e. on the same construction project) provide professional supervision and construction project management services, thereby creating legal uncertainty [53]. This matter needs to be clearly regulated by clearly determining the powers, positions, and hierarchy between individual (co)stakeholders in a construction project, considering the problems of potential conflicts of interest. A possible return to the provisions of the initial CPM ACT (Official Gazette 78/15), wherein these were precisely and correctly regulated, is a possible solution.

Additional questions are raised for further research based on the analysis of the state of the field, and identified problems and limitations for CPM: Is CPM standardisation possible and will the creation of national standards and an autonomous source of law

for CPM harmonise the existing regulations and solve identified problems and limitations?

Standardisation for some experts means a form of project management that suits everyone for all project sizes and types; however, studies show different results related to the application of a uniform approach to project management [54]. Although the temporary nature of the project means that each project has a precisely defined beginning and end, its uniqueness is reflected in the results and implementation of the project, which differ every time [5]. This is illustrated by studies related to the application of standards conducted over a wide range of 30 years which essentially reached the same conclusions, namely, that the use of recognised standard tools and methodologies for PM increases efficiency and improves results [54, 61, 64-74]. However, despite the existence of numerous standard tools and methodologies, and their proven effect on the results, their practical application in construction projects is often absent, precisely because there is no specific legal regulation that would specify their application.

Therefore, the dilemma arises as to whether public construction projects are sufficiently similar so that the management strategy and process could and should be standardised in such a way that standardisation positively affects their efficiency, that is, the achievement of their goals. Likewise, the study raises the question as to whether it is necessary to standardise all processes for the effectiveness of public construction projects to achieve a sufficient degree of transparency, or whether it is necessary to distinguish between different areas be standardised (i.e. regulated) and determine what is impractical or impossible to standardise (i.e. what can be regulated and what should be left to the market).

Based on the analogical application of the study results related to the relationship between the benefits and costs of standardisation (Figure 8, [62]), it is evident that the initial implementation of CPM standardisation causes certain costs. We assumed that the prices of project management services will initially be higher because of the introduction of new methodologies and work techniques. However, after their establishment, should these become a standard and 'take root' in practice, they will have a positive effect on the drop in costs. Qualified and competent PMs should then provide a standard service that will have an approximately market (preferably and approximately similar standard) price for a standard service. Thus, CPM achieves its goals (i.e. has benefits for the public and construction sectors in general, and also for the society on the whole).

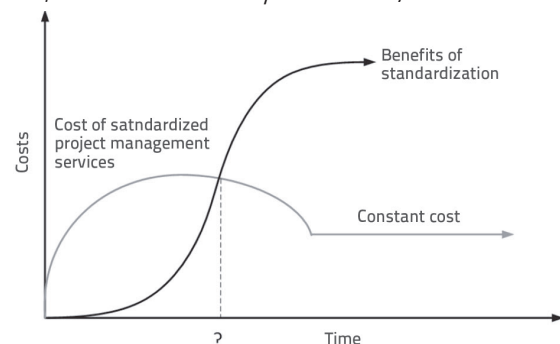


Figure 8. Modified cost-benefit chart in project management [62] to standardised project management services

The process coordinator (i.e. CPM) is the PM by law. Therefore, the question arises as to whether for the sustainability and efficiency of CPM services and the achievement of the aforementioned goals is essential to determine the position and behaviour of the PM as one of the (co)stakeholders in the realisation of the construction project. The connection between the PM and public contracting authority/entity can be observed through the standardisation of CPM (through standardised procedures, methods, and techniques and a clear standardised PM role) with the establishment of trust between the contracting authority, public procurement obligations, and project management service provider, which minimises communication asymmetry and risks arising from the potential opportunistic behaviour of the PM.

By analogously applying the conducted study [55–59] to the relationships between the PM and public client, the connection between the standardisation of CPM (through standardised procedures, methods, and techniques and a clear standardised PM role) and establishment of trust between the client, liable for public procurement, and project management service provider can be observed to minimise the communication asymmetry and risks arising from potential opportunistic behaviour of the PM.

6. Conclusion

The current legal system in the ROC recognises the function of a PM, and has defined it admirably. Public contracting authorities/entities reap great benefits from the obligation to appoint a PM through the implementation of good practices by competent PMs. The current CPM ACT established the obligation to appoint a PM in the early stages of a project, which is recommended and in line with good management principles, but also inevitable in the executive stages (design and construction) where the role of the PM is of exceptional importance. This situation has increased the capacity of the client to use resources and achieve results in public projects, in general and in the construction sector. However, by analysing the state of the CPM application field, it can be concluded that, although in its seventh year as a legal category, the approach of public contracting authorities/entities is inconsistent. In contrast with regulations that unambiguously regulate the design performance and/or the construction expert supervision activities in detail, the legal nature of CPM in the ROC is defined by diverse legal features that result from diverse legal regulations that are not harmonised. Therefore, misunderstandings occur, applications are challenging, and even incorrect applications of the regulations that form the platform for CPM and affect most stakeholders occur. Accordingly, in future it is necessary move toward an improved system to increase the efficiency and sustainability of CPM. This step is a logical successor of the transition period and identified shortcomings from the practical CPM applications, and should be used to improve the well-conceived system.

Studies not taking into account the distinction between the public and private sectors show the necessity of using different management strategies for different types of projects. However, this study shows that public projects, unlike private ones, are sufficiently similar because of the defaults arising from the principles and rules of the CPM legal platform, and in accordance with the results of numerous studies, the higher project management standardisation levels were concluded to be able to achieve higher project efficiency [54].

CPM standardisation can have a positive effect on PM behaviour and position as the executor of the process activities defined by CPM ACT, because the appointment of the PM affects the established lines of authority set by public contracting authorities/entities, and standardisation disrupts the established informal lines of communication and is limited or minimised by possible opportunistic behaviours of the PM. The analysis of the state of CPM application in practice points to certain shortcomings of the current CPM system, such as the non-harmonised terminology and definitions related to CPM, inconsistency of the regulations that form the legal platform for CPM, overlaps in the powers and duties of supervision/(FIDIC) Engineer and PM allocated by the law, insufficiently precise misdemeanour provisions of CPM ACT related to the application of CPM, absence of early inclusion of the PM by public contracting authorities/entities in the project as a result of misunderstanding the importance, and disparity of tasks defined by CPM ACT in relation to good world practices. The identified problems affect all construction project stakeholders.

Because existing regulations that make up the CPM platform are insufficiently harmonised and do not achieve the desired goals, and the legislator may have foreseen that most areas under or over-regulated in CPM ACT are left to the market for self-regulation, the analysis of the state of the application of Chapter V of CPM ACT over the past seven years indicates the necessity of regulation harmonisation and the additional regulation of CPM ACT. Therefore, the intervention of the legislator in the regulations governing CPM and the role of the PM must be adequate to achieve the goals according to law. CPM is neither administration nor bureaucracy, but an engineering consulting service performed by a competent management team led by a PM, that is, a function that has the task of planning, directing, deciding, and controlling. The main conclusions of this study are as follows:

- Based on applicable world practices and standards for PMs, a national standard and autonomous source of law for CPM should be created which, with the application of the 'golden rules' can simultaneously be agile enough to take into account all the specificities of an individual project and contracting authority.
- Standardisation will prevent identified poor practices, and vague and inconsistent regulations for CPM as legal categories, which in most cases is not the type of project management as foreseen by globally accepted standards,

but rather a reduced alternative project management (consulting, administration, and technical assistance). In practice, the client, who is liable for public procurement from the range of standard project management activities, arbitrarily selects those he considers necessary, and when he contracts the PM, optionally selects the activities he wants the PM to provide. In this way, as a rule, he arbitrarily determines the method and time frame he prefers for himself and the project.

- Create a prerequisite for the (FIDIC) Engineer or Employer's Representative in context of FIDIC or a similar form of contract, integrated into the project management team, that is, contracted as a part of the CPM services. His role (except for work of expert supervision by law) can be taken over by the PM on a case-by-case basis.
- By harmonising the regulations that make up the CPM legal platform, expert provision, and (quantities measurement) supervision services, overlaps in the powers and obligations of PM and supervising engineers can be resolved.
- By additional regulation of CPM ACT (i.e. additional standardisation through misdemeanour provisions), the problems and negative consequences arising from non-inclusion of the PM in the early stages of the project or before the construction phase (i.e. design phase) can be resolved.
- National standards and sources of law for CPM can be expressed as a project management methodology

consisting of standardised practices [57, 58], and the standardisation in this context refers to the degree of non-existence of variations in the implementation of these practices [9] with the aim of achieving transparency in the public sector.

Finally, by standardising and creating a (national) autonomous standard and source of law for CPM, based on the best world practices and applicable standards, existing regulations that make up the CPM legal platform can be harmonised. Standardising CPM within the specific context of public procurement could, in the first step, as an auxiliary tool for determining legal rules, without negating the obligation to apply legal regulations, act as a 'power of persuasion' as an indirect source of law. This would eliminate doubts arising from non-harmonised regulations. Identified problems (i.e. 'holes' in the legal regulations that form the platform for CPM) could be replaced by interpretation through standards as an indirect source of law.

In this way, a uniform and transparent approach of investors liable for public procurement in the application of the CPM will be achieved and entropy will be removed, which is a limiting factor in achieving the goals of CPM ACT and PPA as the basic platform for CPM. At the same time, prerequisites will be created for higher efficiency and sustainability of CPM application in the ROC.

REFERENCES

- [1] Radujković, M.: Voditelj projekta, Građevinar, 52 (2000) 3, pp. 143-151.
- [2] Stewart, T.: Project manager No 1 career of the Future, Fortune Magazine August, 1999.
- [3] David W. Wirick: Public-sector project management : meeting the challenges i achieving results, PMP, CMA John Wiley & Sons, New Jersey, 2009.
- [4] Zakon o poslovima i djelatnostima prostornog uređenja i gradnje, NN 78/15, 118/18, 110/19. Dostupno na: <https://www.zakon.hr/z/800/Zakon-o-poslovima-i-djelatnostima-prostornog-ure%C4%91enja-i-gradnje>
- [5] Project Management Institute The PMBOK: A Guide to the Project Management Body of Knowledge, 6. Izdanje, Newtown Square; 2017.
- [6] Kerzner, H.: Project Management case studies, John Wiley i Sons, New York; 2009.
- [7] Omazić, M., Baljkas S.: Projektni menadžment, Sinergija nakladništvo, Zagreb; 2005.
- [8] Kerzner, H.: Project Management. A System Approach to planning, Scheduling i Controlling, 8th Edition; 2003.
- [9] Radujković, M., Vukomanović, M., Bezak, S.: Pristup voditeljima građevinskih projekata, Građevinar 62, 2010.
- [10] Zakon o arhitektonskim i inženjerskim poslovima i djelatnostima u prostornom uređenju i gradnji, NN 152/08, 124/09, 49/11, 25/13. Dostupno na: <https://www.zakon.hr/z/228/Zakon-o-arhitektonskim-i-in%C5%BEenjerskim-poslovima-i-djelatnostima-u-prostornom-ure%C4%91enju-i-gradnji>
- [11] Perić, R.: Standardiziranje usluga upravljanja projektima gradnje investitorima obveznicima javne nabave u Republici Hrvatskoj, Simpozij doktorskog studija građevinarstva, Građevinski fakultet, Zagreb, 2020.
- [12] Perić, R.: Smjernice za standardiziranje uvjeta ugovora o upravljanju projektima gradnje financiranim javnim sredstvima u RH, Završni specijalistički rad MBACon, Građevinski fakultet Sveučilišta u Zagrebu, 2019.
- [13] Zakon o javnoj nabavi, NN 120/16. Dostupno na: <https://www.zakon.hr/z/223/Zakon-o-javnoj-nabavi>
- [14] Ministarstvo gospodarstva : Javna nabava – Mini vodič za poslovnu zajednicu, Dostupno na: <https://www.mingo.hr/public/Poduzetnistvo/93-vodic-javna-nabava-lowresfinalweb.pdf>
- [15] International Federation of Consulting Engineers: The FIDIC Suite of Contracts, Available from: https://fidic.org/sites/default/files/FIDIC_Suite_of_Contracts_0.pdf
- [16] Orignalime: General conditions for the supply i erection of mechanical, electrical i electronic products, Brussels, 2001, Dostupno na: https://library.e.abb.com/public/7178208bb7ae1a89c12571df0051280f/orgalime_se_092001_en.pdf
- [17] EuropeAid: Practical Guide to Contract procedures for EC external actions (PRAG), 2011, Dostupno na: http://84.39.218.255/wp-content/uploads/2015/09/Broshura_%20Practical_%20Guide%20EC%20external%20actions%20HR_29.1.2010.pdf
- [18] European Bank for Reconstruction i Development: Procurement Policies i Rules, London, 2017. Dostupno na : <file:///C:/Users/rperic/Downloads/procurement-policy-rules-2017-english.pdf>

- [19] World bank: Guidelines selection i employment of consultants under IBRD loans i ida credits & grants by World bank borrowers, 2014. Dostupno na: <https://documents1.worldbank.org/curated/en/796061468126898713/pdf/956640PUB0Box3010Revised0July102014.pdf>
- [20] The International Bank for Reconstruction i Development or International Finance Corporation: The World Bank Group General Terms i Conditions consulting services, Washington, 2019. Dostupno na: https://thedocs.worldbank.org/en/doc/532171487799508525-0180022017/original/Consulting_Services_TCEnglish.pdf
- [21] International Federation of Consulting Engineers : FIDIC's selection of contracts i agreements, 1999. Dostupno na: <http://fidic.org/books/latest-edition-contracts-and-agreements-collection-english>
- [22] Vukmir, B.: Ugovori o građenju i uslugama savjetodavnih inženjera", RRiF, 2009.
- [23] International Federation of Consulting Engineers (FIDIC): The FIDIC Golden principles, Geneva, 2019. Dostupno na: https://fidic.org/sites/default/files/_golden_principles_1_2.pdf
- [24] AXELOS: Managing Successful Projects with PRINCE2® 5. Izdanje, TSO, 2009.
- [25] ISO 21500:2012, Smjernice za upravljanje projektima - Međunarodni standard, Guidance on project management, International Organization for Standardization (ISO), 2012.
- [26] „The PM² Project Management Methodology Guide 3.0“, Publications Office of the European Union, 2018.
- [27] IPMA International Project Management Association. Dostupno na: <https://www.ipma.world/about-us/ipma-international/>
- [28] BS 6079-1:2002 Project management. Guide to project management. Dostupno na: <https://www.thenbs.com/PublicationIndex/documents/details?Pub=BSI&DocID=257099>
- [29] Skogmar K.: Wite paper: "PRINCE2®, the PMBOK® Guide i ISO 21500:2012", 2015. Dostupno na: <https://www.projectmanager.com/blog/history-project-management>
- [30] <https://www.prince2.com/eur/prince2-processes>
- [31] Gould, F., Joice, N.: Construction project management, Fourth edition, Pearson, 2014.
- [32] Statut komore arhitekata i inženjera u graditeljstvu, NN 40/1999. Hrvatska komora arhitekata i inženjera u graditeljstvu, 1998. Available from: https://narodne-novine.nn.hr/clanci/sluzbeni/1999_04_40_813.html
- [33] Zakon o gradnji, NN 153/13, 20/17, 39/19, 125/19. Dostupno na: <https://www.zakon.hr/z/690/Zakon-o-gradnji>
- [34] Barbić, J., Čolaković, E., Parać, B., Vujić, V.: Korporativno upravljanje - osnove dobre prakse vođenja društva kapitala, HUP-Croma, Zagreb, 2008.
- [35] Barbić, J.: Sklapanje ugovora po Zakonu o obveznim odnosima (suglasnost volja), Informator, Zagreb, 1980
- [36] Zakon o obveznim odnosima, NN 35/05, 41/08, 125/11, 78/15, 29/18. Dostupno na: <https://www.zakon.hr/z/75/Zakon-o-obveznim-odnosima>
- [37] Bryant, P.: Corporate Social responsibility for Engineers, Contractors i Architects, CreateSpace Independent Publishing Platform, 2013.
- [38] Preložnjak, B: Pravna norma. Dostupno na: https://www.pravo.unizg.hr/_download/repository/Pravna_norma.pdf
- [39] Barbić J.: Primjena običaja u hrvatskom trgovačkom pravu, HAZU, 2005. Dostupno na: <http://www.hazu.hr/~azrniceRad492/Rad492Barbic.pdf>
- [40] Zakon o trgovačkim društvima (NN 111/93, 34/99, 121/99, 52/00, 118/03, 107/07, 146/08, 137/09, 125/11, 152/11, 111/12, 68/13, 110/15, 40/19). Dostupno na: <https://www.zakon.hr/z/546/Zakon-o-trgova%C4%8Dkim-dru%C5%A1tvima>
- [41] United nations: United Nations Convention on Contracts for the International Sale of Goods, Beč, 2010. Dostupno na: https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/19-09951_e_ebook.pdf
- [42] Zakon o prostornom uređenju NN 153/13, 65/17, 114/18, 39/19, 98/19. Dostupno na : <https://www.zakon.hr/z/689/Zakon-o-prostornom-ure%C4%91enju>
- [43] Samset, F.K., Volden, G.H., Olson, N., Kvalheim, E.V.: Governance Schemes for major Public Investment Projects, Norwegian University of science i Tehnology, Trondheim, 2016
- [44] PMBOK: Project Life Cycle i Organization, 2008.
- [45] Pravilnik o potrebnim znanjima iz područja upravljanja projektima, NN 85/15. Dostupno na: https://narodne-novine.nn.hr/clanci/sluzbeni/2015_08_85_1662.html
- [46] Pravilnik o načinu provedbe stručnog nadzora građenja, obrascu, uvjetima i načinu vođenja građevinskog dnevnika te o sadržaju završnog izvješća nadzornog inženjera, NN 111/14. Dostupno na: https://narodne-novine.nn.hr/clanci/sluzbeni/2014_09_111_2135.html
- [47] Elektronički oglasnik javne nabave Republike Hrvatske, EOJN, Narodne novine. Dostupno na: <https://eojn.nn.hr/Oglasnik/>
- [48] Zakon o porezu na dodanu vrijednost, NN 73/13. Dostupno na: https://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_73_1451.html
- [49] Pravilnik o porezu na dodanu vrijednost, NN 79/13. Dostupno na: https://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_79_1633.html
- [50] Republika Hrvatska, Ministarstvo financija, PU Zagreb: Obračun PDV-a, Klasa: 410-01/2014-001/744, UrBroj:513-07-24-01/15-2, Zagreb, 2015.
- [51] Hina/Vlada RH, Dostupno na: <https://vlada.gov.hr/>
- [52] Zakon o financijskom poslovanju i predstečajnoj nagodbi, NN 108/12, 144/12, 81/13, 112/13, 71/15, 78/15. Dostupno na: <https://www.zakon.hr/z/543/Zakon-o-financijskom-poslovanju-i-predste%C4%8Dajnoj-nagodbi>
- [53] Republika Hrvatska, Ministarstvo graditeljstva i prostornog uređenja, Klasa 360-01/19-02/387, Urbr 531-04-2-1-1-19-2, 2019. Mišljenje HKIG. Dostupno na: <https://www.hkig.hr/HKIG/FAQ/HKIG/>
- [54] Milošević, D., Patanakul, P.: The impact of standardized project management, Paper presented at PMI® Research Conference 2002. Dostupno na: <https://www.pmi.org/learning/library/impact-standardized-project-management-contingency-1944>
- [55] Tipurić, D.: Korporativno upravljanje, Sinergija, Zagreb, 2008.
- [56] Igrec, M.: Master thesis: Agencijska teorija u sustavu korporativnog upravljanja, RRiF College of Financial Management, 2018. Dostupno na: <https://repozitorij.rvs.hr/en/islandora/object/rvs%3A95>
- [57] Cerić, A.: The Principal-Agent Theory i the Role of Project Managers in Construction: Guidelines for Future Research, 2013.
- [58] Arrow, K.J.: Information Structure of the Firm, American Economic Review, 1985.
- [59] Muth, M., Donaldson, L., Stewardship Theory i Board Structure: a contingency approach, Scholarly research i theory papers, 1998.
- [60] Toney, F., Powers, R.: Best Practices of Project Management Groups In Large Functional Organizations. Upper Darby, PA:Project Management Institute; 1997.
- [61] Kerzner, H.: Applied Project Management, John Wiley i Sons, New York; 2000.
- [62] Kerzner, H.: Project Management Best Practices: Achieving Global Excellence, John Wiley & Sons, New Jersey, 2006.
- [63] Heldman, K.: Project Management Professional, Wiley Publishing, New Jersey, 2005.

- [64] Pinto, J.K., Govin, J.G.: Critical factors in project implementation: a comparison of construction and R&D projects, 1989. Technovation. Available from: <https://www.sciencedirect.com/science/article/abs/pii/0166497289900400?via%3Dihub>
- [65] Balachandra, R., Friar, J.H.: Factors for success in R&D project and new product innovation: A contextual framework, IEEE Transactions on Engineering Management, 44 (1997) 3.
- [66] Shenhar, A.J.: From theory to practice: Toward a typology of project-management styles. IEEE Transactions on Engineering Management 45 (198) 1, Available from: https://www.researchgate.net/publication/3076461_From_theory_to_practice_Toward_a_typology_of_project-management_styles
- [67] Shenhar, A.J.: One size does not fit all projects: Exploring classical contingency domains. Management Science, 47 (2001) 3, Available from: https://www.researchgate.net/publication/3076461_From_theory_to_practice_Toward_a_typology_of_project-management_styles
- [68] Yap, C.M., Souder, W.E.: Factors influencing new product success and failure in small entrepreneurial high-technology electronics firm. Journal of Product Innovation Management, 11 (1994), Available from: <https://www.sciencedirect.com/science/article/abs/pii/0737678294900302>
- [69] Eisenhardt, K.M., Tabrizi, B.N.: Accelerating adaptive processes: Product innovation in the global computer industry. Administrative Science Quarterly 40, 1995, Available from: <http://sjbae.pbworks.com/w/file/etch/48210913/Accelerating%20Adaptive%20Process.pdf>
- [70] Brown, S.L., Eisenhardt, K.M.: The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. Administrative Science Quarterly 42, Sage Publications, Inc., 1997. Available from: <https://www.jstor.org/stable/2393807>
- [71] Song, X.M., Souder, E.Wm., Dyer, B.: A casual model of the impact of skills, synergy, and design sensitivity on new product performance. Journal of Innovation Management, 14 (2003), Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/1540-5885.1420088>
- [72] oslin, R., Müller, R.: The impact of project methodologies on project success in different project environments International Journal of Managing Projects in Business, 9 (2016).
- [73] Patanakul, P., Srivannaboon, S., Milosevic, D.: Standardized Methodologies: We do not need standard methodology, Case Studies in Project, Program, and Organizational Project Management, John Wiley & Sons, 2010. Available from: <https://onlinelibrary.wiley.com/doi/10.1002/9780470549179.ch20>
- [74] Belassi, W., Kondra, A.Z., Tukul, O.I.: New Product Development Projects: The Effects of Organizational Culture, Project Management Journal, 2007. Available from: <https://journals.sagepub.com/doi/10.1002/pmj.20017>
- [75] Wagner, R.F., Radujković, M.: Effects of lagging projectification in the public sector on realizing infrastructure projects, Organization, Technology and Management in Construction, 2022.

Attachment 1

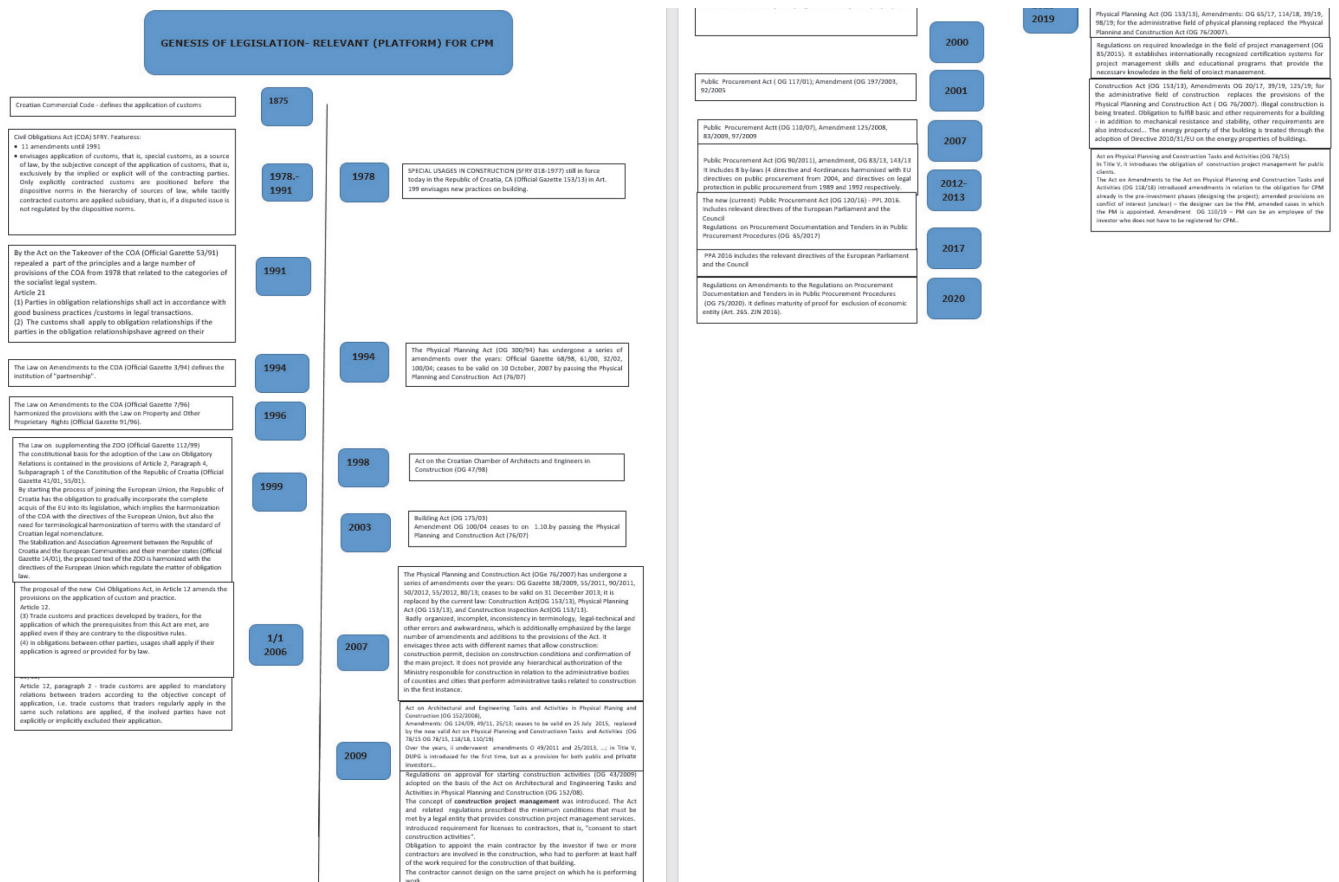


Figure 9. Genesis of relevant legislation (platform) for CPM

Attachment 2

Table 3. Distribution of activities and responsibilities in accordance with current regulations and FIDIC [4, 15, 21-23,33, 46, 47]

Project manager		(FIDIC 1999) Engineer
Activities/responsibilities pursuant to Act on physical planning and construction tasks and activities (by the law) [4]	Activities/responsibilities in practice /applicable (contractual category) [47]	Activities/responsibilities pursuant to FIDIC model 1999 (contractual category) [15, 21, 22, 23]
<ul style="list-style-type: none"> - Providing financial, legal and technical consulting pertaining to the design, construction, use and removal of construction works; - financial, legal and technical preparations and the planning of tasks pertaining to building and the monitoring of the implementation of this plan; - programming and planning in the project conception phase, which includes data collection, development of the project programme and monitoring of execution of that program; <p>(FIDIC 1999) Engineer/Engineer's representative /Client's representative consulting, selecting and contracting tasks for designers, design auditors, supervising engineers, contractors, certified geodetic engineers and other persons performing tasks pertaining to the building of construction works and consulting in contracting tasks with these persons;</p> <ul style="list-style-type: none"> - linking and coordinating the work of designers, design auditors, supervising engineers, contractors, certified geodetic engineers and other persons participating in building and the supervision of their work for the purpose of protecting the rights and interests of the investor; 	<p>In addition to the activities, i.e. rights and obligations in accordance with the ZPDPUG, the following activities performed by the Project manager's team are also contracted:</p> <ul style="list-style-type: none"> - technical assistance/consulting services for the client when preparing tenders for works and/or design, professional supervision, - development and monitoring of the project implementation plan, which contains: project budget, time schedule of activities, monitoring and control of project budget implementation, financial planning and monitoring of cash flows, determination and monitoring of certain key project indicators), - risk management (risk management planning, risk identification, risk analysis, risk response preparation, risk management supervision and risk control, documenting and archiving of experience, risk register), - coordinating third parties - administering the Project, - participation in monitoring during the warranty period, preparation of periodic reports on the performed inspection during the period for eliminating defects,... - support for preparation of the client's report as part of the project to competent authorities, 	<p>The engineer as a legal or physical person is appointed by client through a contract assigning him the rights and obligations from the contract.</p> <p>The engineer's staff includes the engagement of suitably qualified and competent engineer and other professionals who are competent to perform these duties.</p> <p>In implementing obligations /duties or when exercising his powers in accordance with the contract, it shall be considered that the engineer is acting for and in favor of the client (FIDIC 2017 defines that when performing his duties in accordance with the contract, the engineer is obliged to act neutrally between the parties and is not considered he acting on behalf of the client),</p> <p>In the implementation of obligations/duties or when exercising authority in accordance with the contract, the Engineer must be considered to be acting for and in favor of the Client (FIDIC 2017 defines that when performing his duties in accordance with the contract, the Engineer is obliged to act neutrally between the parties and is not considered to be acting on behalf of client)</p> <p>The engineer's role in contract administration is broad; it covers a wide range of tasks, which is divided into two categories:</p> <ul style="list-style-type: none"> - administrative roles such as issuing instructions for variations.
Project manager		(FIDIC 1999) Engineer
Activities/responsibilities pursuant to Act on physical planning and building tasks and activities (by the law)	Activities/responsibilities in practice /applicable (contractual category)	Activities/responsibilities pursuant to FIDIC contracting terms (contractual category)
<ul style="list-style-type: none"> - obtaining acts, analyses, studies, reports and other documents necessary for the creation of the conceptual, main and detailed design and the building removal project, - obtaining all documents and concluding all legal affairs necessary for the issuance of acts for the implementation of spatial plans, construction, use and/or removal of buildings and obtaining these acts, - obtaining all documents and concluding all legal affairs necessary for the construction of the building and performing the actions that the investor is obliged to perform during the construction of the building, - development of the project control system and monitoring and control of the realization, which includes the creation and presentation of the planned time execution with committed resources, updating the initially planned in relation to the project realization, dynamic risks analysis of throughout the entire project life, reports on the quality control of the investment realization, proposals for solutions of current or anticipated problems in terms of time, technology and cost aspects of implementation, <p>The project manager is responsible to the investor for the legal and proper performance of the tasks stipulated in ZPDPUG.</p>	<ul style="list-style-type: none"> - support during audits and/or controls, - project accounting, - tax consulting services, - support in business planning, - implementation of documenting and monitoring of costs of works contracts, - support during audits and/or controls, - project accounting, - tax consulting services, - support in business planning, - implementation of documentation and monitoring of costs of works contracts, - administering the contract with the contractor, supervision, designer,...., - management of contracts with contractor, supervision, designer,... - human resources management, - organization of the quality assurance system, - processing and giving opinions related to the contractor's requests, - control of submitted guarantees and insurance policies, - participation in regular construction site meetings - convening and conducting status and other similar meetings and coordination, - construction site tours, - establishment and activities related to QA/QC, ... - review and verification of accounts and the situation of other stakeholders - convening and conducting status and other similar meetings and coordination, - construction site visits, - introduction and activities related to QA/QC, ... - review and verification of accounts of other stakeholder 	<ul style="list-style-type: none"> - deciding on the issues between the client and the contractor, for example, related to the contractor's claims concerning time and costs and determination of costs. <p>In all the roles he performs, the scope of the Engineer's duties is derived from the contract.</p> <p>Basic role of the engineer:</p> <ul style="list-style-type: none"> - construction supervision which is not "professional supervision" according to ZOG, - management of the contract with contractor, - contract administration, - instructions / variations, - determination, - confirmations (payment / handover,) - inspections, tests, - reviewing and approving design and other technical documentation of contracting party /contractor, - various approvals and supervision of fulfillment of the contractor's contractual obligations, - management, including instructions and variations, - evaluation and certification

/Engineer's representative /Client's representative	(Chief) Supervising engineer	
Activities/responsibilities in practice /applicable (contractual category) [47]	Activities/responsibilities pursuant to BA and Rulebook on the method of carrying out expert construction supervision, the form, conditions and method of keeping a construction diary and on the content of the final report of the supervising engineer (by the law) [33, 46]	AActivities/responsibilities in practice /applicable (contractual category) [47]
<p>In addition to the activities, i.e. the rights and obligations according to the FIDIC general conditions of contract, the following activities performed by the engineer or the engineer's staff are also contracted (often through the special conditions of the contract with the contractor):</p> <ul style="list-style-type: none"> – professional supervision of construction activities / responsibilities according to ZOG and the Regulations on the method of implementing professional supervision of construction...) – function of chief supervising engineer, – function of professional technical supervision, – supervision team manager – operational and administrative management of the contract between the client and the contractor, – processing the contractor's request, review of the contractor's documentation, arbitration, ... 	<ul style="list-style-type: none"> – supervision of the construction in relation to the compliance of the construction with the building permit, the main design, the standard design for which the Ministry of Construction and Physical Planning issued a decision on the standard design (hereinafter referred to as the standard design), the Construction Act, special regulations and rules of the profession, – determines whether each of contractors with whom the investor concluded a construction contract meets the conditions defined by a special law, – determines whether the responsible person who leads the construction or certain works meets the conditions prescribed by a special law, – determines whether the staking of a building was performed by a person authorized to perform such work according to a special law by reviewing the decision of the State Geodetic Administration that issued a consent to an authorized person to perform the activity of staking the buildings, – determines the implementation of control tests or other control procedures related to the properties of certain parts of the building or the building as a whole for the purpose of checking or proving the fulfillment of the basic requirements for the building and/ or other requirements or conditions provided for in the main project or in the report on the completed project control and obligations checks regarding construction products, 	<p>In addition to the activities, that is, the rights and obligations in accordance with the ZOG and the Ordinance and Regulations the following activities performed by the supervision team are also contracted as part of the supervision services:</p> <ul style="list-style-type: none"> – services of the II occupational safety/ZNR coordinator – introducing the contractor to job – daily monitoring the dynamics of the execution of works, if necessary and outside working hours if the conditions on the construction site require it, keeps records of weekly coordination, reports to the client in writing, through daily, weekly, monthly and special reports on the state of works / equipment and all deficiencies and irregularities that are observed during construction, – provides a statement of the supervising engineer of geodesy that the building is located according to the staking plan in accordance with the Construction Act (Official Gazette 153/13) – monitoring the project and submitting monthly reports on the progress of the contractor's contract with regard to the construction schedule and financial plan along with proposed measures
/Engineer's representative /Client's representative	(Chief) Supervising engineer	
Activities/responsibilities in practice /applicable (contractual category)	Activities/responsibilities pursuant to BA and Rulebook on the method of carrying out expert construction supervision, the form, conditions and method of keeping (by the law)	Activities/responsibilities in practice /applicable (contractual category)
	<ul style="list-style-type: none"> – informs the investor with a written notice of all deficiencies or irregularities that he observes in the main design and during construction, – informs the investor and the construction inspection and other inspections of the measures taken from Articles 8, 9 and 10 of this Regulations and enters these measures in the construction diary, – fulfills obligations regarding the preparation of the final report, – determines the method of eliminating defects, i.e. irregularities in the construction of the building, if the documentation on testing of certain parts of the building for the purpose of checking, i.e. proving the fulfillment of the basic requirements for the building and/or other requirements, i.e. the conditions provided for in the main design or the report on the completed design control and the documentation on the obligation to check construction products, the conformity, i.e. the quality of the built-in buildings, their parts, products, equipment and/or plants, has not been proven, 	<ul style="list-style-type: none"> – described engineer tasks (FIDIC), – described tasks of project manager, – accounting supervision (review and verification of the construction ledger, review and verification of accounting (monthly), temporary and final payment certificate, invoices, which must correspond to the performed scope of works and the construction contract, – prepares a proposal for final payment certificate (payment) with participation in the work of the commission for the final payment certificate, – processing of price analysis and requests for arranging subsequent works, for possible necessary works that are not contracted, that is, that are not included in the specification for the execution of works (works due to force majeure or extraordinary situations), – participation and professional cooperation in the performance of other tasks according to special regulations, which arise from the works in question and must be in compliance with legal regulations (construction, environmental protection, occupational safety, fire protection and waste management),

Table 3. Distribution of activities and responsibilities in accordance with current regulations and FIDIC [4, 15, 21-23,33, 46, 47] - continuation

Project manager		(FIDIC 1999) Engineer
Activities/responsibilities pursuant to Act on physical planning and building tasks and activities (by the law)	Activities/responsibilities in practice /applicable) (contractual category)	Activities/responsibilities pursuant to FIDIC contracting terms (contractual category)
	<ul style="list-style-type: none"> - implementation of monitoring of the progress of the project (reporting to the client about the details of any factor that may threaten the progress of the works as well as the possible implications that such factors may have on the originally planned completion time of the works or the originally planned costs of the works); - preparation of measures to overcome the mentioned factors; - monitoring the implementation of the measures adopted to overcome the mentioned factors; - checking and verification of temporary and final payment certificate, invoices and other documentation - keeping records on the procedures for amendments and adjustments in relation to construction contracts; - monitoring the implementation of the planned environmental protection and occupational safety measures; - management of contracts with the contractor, supervision, designer,... - implementation of procedures for taking over works or phases and procedures that condition and precede the issuance of a use permit, - preparation and management of correspondence related to construction contracts; - procedures of handover and final payment certificate,... - monitoring and reporting within the warranty period,... 	<ul style="list-style-type: none"> - ispostavljanje zahtjeva naručitelja prema ugovaratelju/ izvođaču,...

/Engineer's representative /Client's representative	(Chief) Supervising engineer	
Activities/responsibilities in practice /applicable (contractual category)	Activities/responsibilities pursuant to ZOG and Rulebook on the method of carrying out expert construction supervision, the form.... (by the law)	Activities/responsibilities in practice /applicable (contractual category)
	<ul style="list-style-type: none"> – for the purpose of removing defects or construction irregularities, prohibits the execution or continuation of the works if the contractor does not meet the conditions prescribed by a special law, – prohibits the management of construction, i.e. the management of certain works if the responsible person does not meet the conditions prescribed by a special law, – for the purpose of removing defects or construction irregularities, prohibits the execution or continuation of works in the event that the staking of the building has not been carried out or that the staking of the building has not been carried out by a person authorized to perform such work according to a special law, – writes/signs the construction diary. By signature and seal of the authorized architect or authorized engineer on each page, they certify the accuracy of the entries in the construction diary, – prepares the final report. <p>In addition to performing professional supervision, the supervising engineer may also perform other tasks entrusted to him by the investor in the contract (technical consulting tasks, control of the contractor's fulfillment of contractual obligations towards the client and taking appropriate measures for the realization of these obligations, accounting tasks for the performed works, etc.).</p>	<ul style="list-style-type: none"> – evaluation of the contractor's proposal with the aim of solving the problem in a timely manner and with improvement measures, – coordination and cooperation with the client's expert services, – monitoring of all tests defined by project documentation and legal regulations, including for works that have already been carried out with the first contractor who left the construction site – control of the draft of the as-built state and instructions for the maintenance of constructed buildings from the contractor, – performing an inspection of possible defects arising during the performance of expert supervision, which are reported by the investor or user within the warranty period, – carrying out control inspections of the constructed building during the warranty period, drawing up periodic reports on the inspection carried out during the period for the elimination of defects,...