

## DEVELOPMENT AND STAGES OF INVESTMENT PLANNING AND ASSIGNMENT OF CONSTRUCTION IN INVESTMENT BUILDING

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**Abstract:** Process protocol of the implementation of investment building project is characterized by a process access to business, which requires a prior defining of the general process structure of investment building. It can be defined as a manner in which the processes are regulated, which is involved in designing and execution of construction works, in order to achieve efficient, effective and cost-effective design and construction.

**Keywords:** investment building, planning, algorithm.

### 1. INTRODUCTION

The new Law on Planning and Construction formulate the possibility of forming the algorithms of the project's implementation. Provisions of this Law enable the algorithms of methodology and procedure of project's implementation in investment building, this time of the plants for use and disposal of municipal solid waste, from the intention of the investor to the handover of the project.

Main parts of the algorithm are the zones of activities, and the simplified algorithm of the implementation of the project of the plant for use and disposal of municipal solid waste consists of: notification of the possibility of building, conception of the investor's needs, general project, previous study and feasibility study, design project, construction approval, main project, facility construction, facility takeover, use and maintenance of the facility. Planning is a very complex activity, by which it is attempted to turn one uncertainty (the future) into an acceptable risk, on the basis of the certainty (the known past and present). It means that risk and uncertainty from the future cannot be eliminated, but they can, by planning, be reduced to a probability that can successfully be controlled, and therefore implemented.

Such a delicate human activity cannot be left to highly embedded methods, such as: the rule of thumb, of command, of a deadline, political and such, but to modern methods and techniques of operational research, in compliance with scientific and technical progress and with the support of modern computer systems and appropriate software support [1] (Figure 1).

Planning of the communal systems cannot be left to the intuition, which is often the case in practice. Respecting the fact that intuition is based on the experience and knowledge acquired through education, we must also respect the definition that intuition is a subconscious memory and that it is an extremely subjective occurrence,

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which should not be majorized in plans creation because it also entails a more or less expressed subjective mistake of a random character. In addition, such a manner of plan creation is closely limited to a small number of experts, who dispose with reliable data for developing the plans, especially because those plans were not officially published anywhere to have the general character.

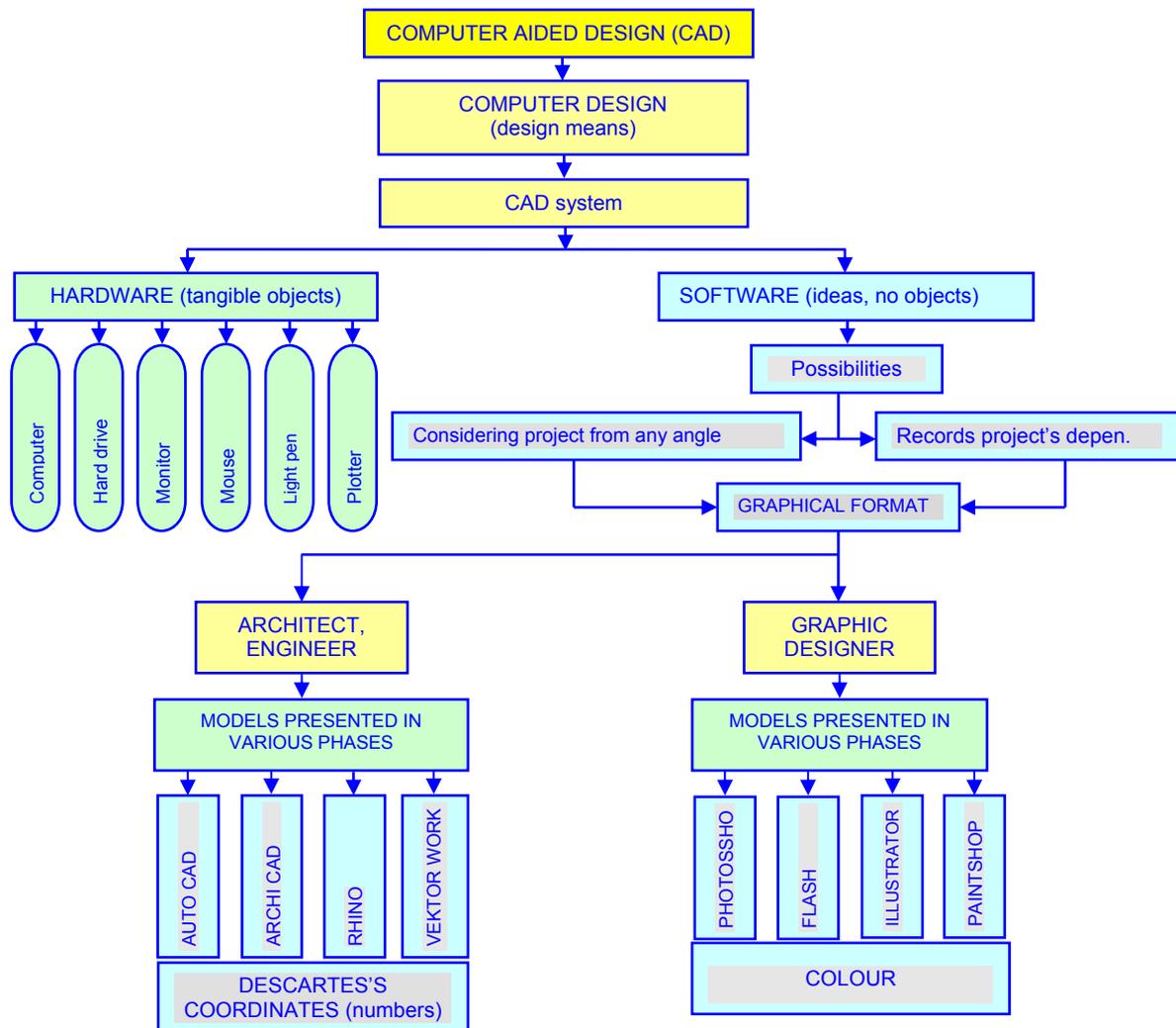


Fig. 1. Software support in investment activities planning [1, 2].

In that way, the utility systems planning, as a typical scientific discipline, was degraded into the skill of individuals, and the dynamic plans, graphically presented, most frequently served only for the decoration of walls or a proof of someone's great, but useless work.

The fact that, in practice, the planning of investment project's implementation is traditionally linked to the talent, skill and long experience of the individuals who have obtained the reputation of experts for implementation of investment projects is not encouraging, because the memories of some similar, recently or long ago, implemented projects, even if it is done by experts, are not always a good visa for the future.

In the focus of modern project management it is not how much is built, but building "just in time", which is characterized by the construction that is implemented neither sooner nor before the agreed deadline, but exactly on time, and it implies the construction with minimum costs and without the lack in quality.

## 2. PHASES OF PLANNING DEVELOPMENT

On the basis of the existing professional literature and practice, planning in investment building of investment companies has mostly gone through the following development phases [1]:

[1] Basic financial planning: when the leadership of a company approaches only to financial planning and only when it is required to propose the budget for the next year. The projects are implemented and proposed on the basis of very modest analyses, mainly on the basis of intuition, experiences and professional feelings and information, which come from the company itself. It is mostly disposed with very little fresh information on the surroundings, and thus in most cases it is transformed into planning for a longer period.

In the attempt to make the proposed budget, all the other planning activities are usually neglected because the period for such planning lasts for a year;

[2] Planning on the basis of prognoses: when planning of the annual budgets is not an adequate alternative, for whose realization it is necessary to have more than one year, then the stimulation to the long-term planning is attempted. The period of plan is usually three to five years. Collection of information is usually done in the company, from the external environment – usually ad hoc and the values of the current works are analyzed. This phase takes a lot of time and it usually involves a control month in order to ensure that all budgets are in accordance;

Unfortunately, this process becomes political, because the managers of individual sectors start fighting each other for as bigger funds. Numerous meetings are held in order to evaluate the proposals, which is not favourable for the plan's quality;

[3] Externally oriented planning: politicized, probably the unsuccessful long-term plan, "top management" takes over the control of the planning process giving a slight emphasis to strategic planning. The company, tending to increase the impact on the changeable market and competition, chooses "strategic thinking". Planning is taken over from operations managers and a team for planning is formed, whose task is to develop a strategic plan of a company. Then the plans are developed, with the help of professional consultants engaged out of that society and with little or no consultations with operations managers from the company itself. Consultants frequently bring new methods and techniques, which the team uses for planning for data processing and predicting the future funds. Special teams for collecting data from the environment are also formed.

„Top management“ meets once a year in order to evaluate and possibly further develop strategic plans with the help of the key experts from the team for planning. Such planning "top-down" emphasizes formal strategic formulation, and the issue of the implementation of plans is left to the lower levels of leadership – operations management;

[4] Strategic management: realizing that even the best strategic plans do not have the expected value without the proper information and active participation of operations managers, top management forms a group for planning, which involves operations managers and key employees at different levels and from various departments and work groups in the company.

Figure 2 shows the detailed knowledge of the tasks for the execution of works and the view of the algorithm of the phases of planning, grouping and dividing the facilities with specification of needs in the labour, mechanization, material etc.

Complex five-year plans were replaced by strategic thinking and planning at all the levels during the whole year. Strategic information, previously available only to the top management; in strategic planning, they are available to all the employees in the company through the information network. Planning is now, instead "top-down", interactive through levels.

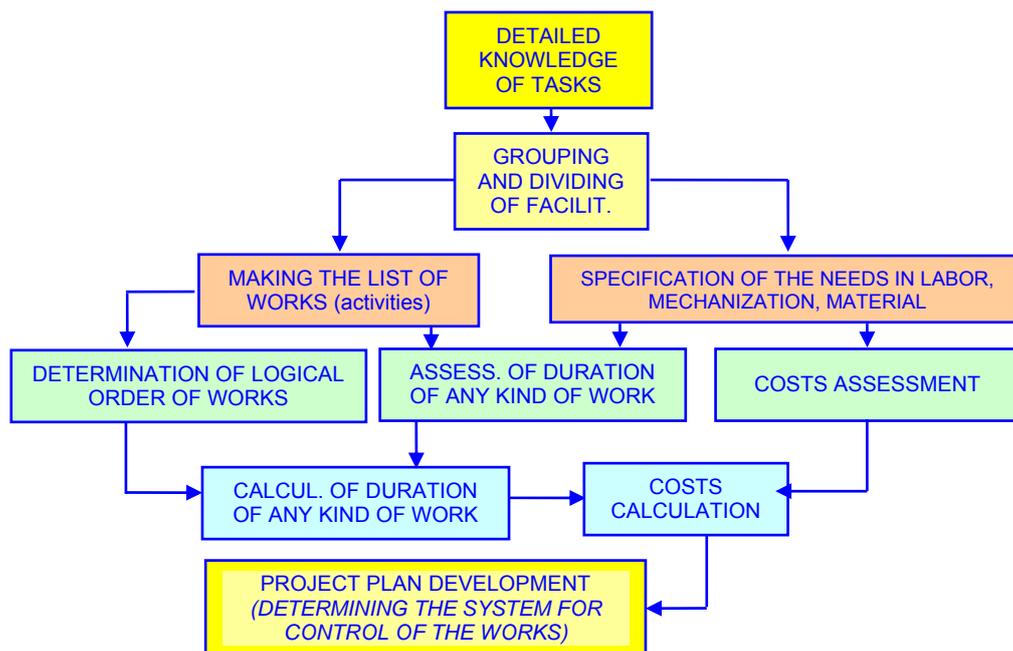


Fig. 2. Algorithm of the planning phase and detailed knowledge of the tasks [1].

### 3. INVESTMENT OPERATIONS

Under investment operations we imply the entire complex of the jobs of the plant for use and disposal of solid municipal waste, from the design, to the implementation of the project, i.e. construction of investment facility, in which the investor participates as the orderer, the project organization as a designer and construction company with co-operators as the contractor. The entire activity is covered by the Law on Planning and Construction [1-8].

Figure 3 shows business communication in investment building.

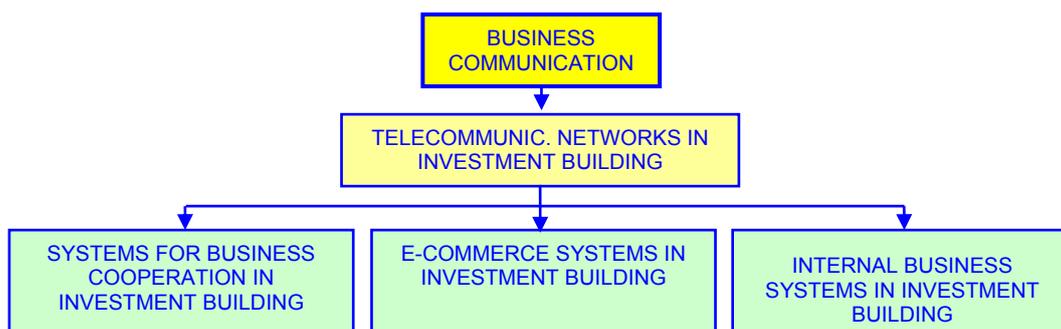


Fig. 3. Business communication in investment building [1].

Elements of the investment operations according to the current regulations are the following [1-8]:

- Investment programme;
- Technical documentation;
- Assignment of the facility construction;
- Construction and construction management;
- Administrative supervision.

Figure 4 shows the scheme of the investment operations of investment building.

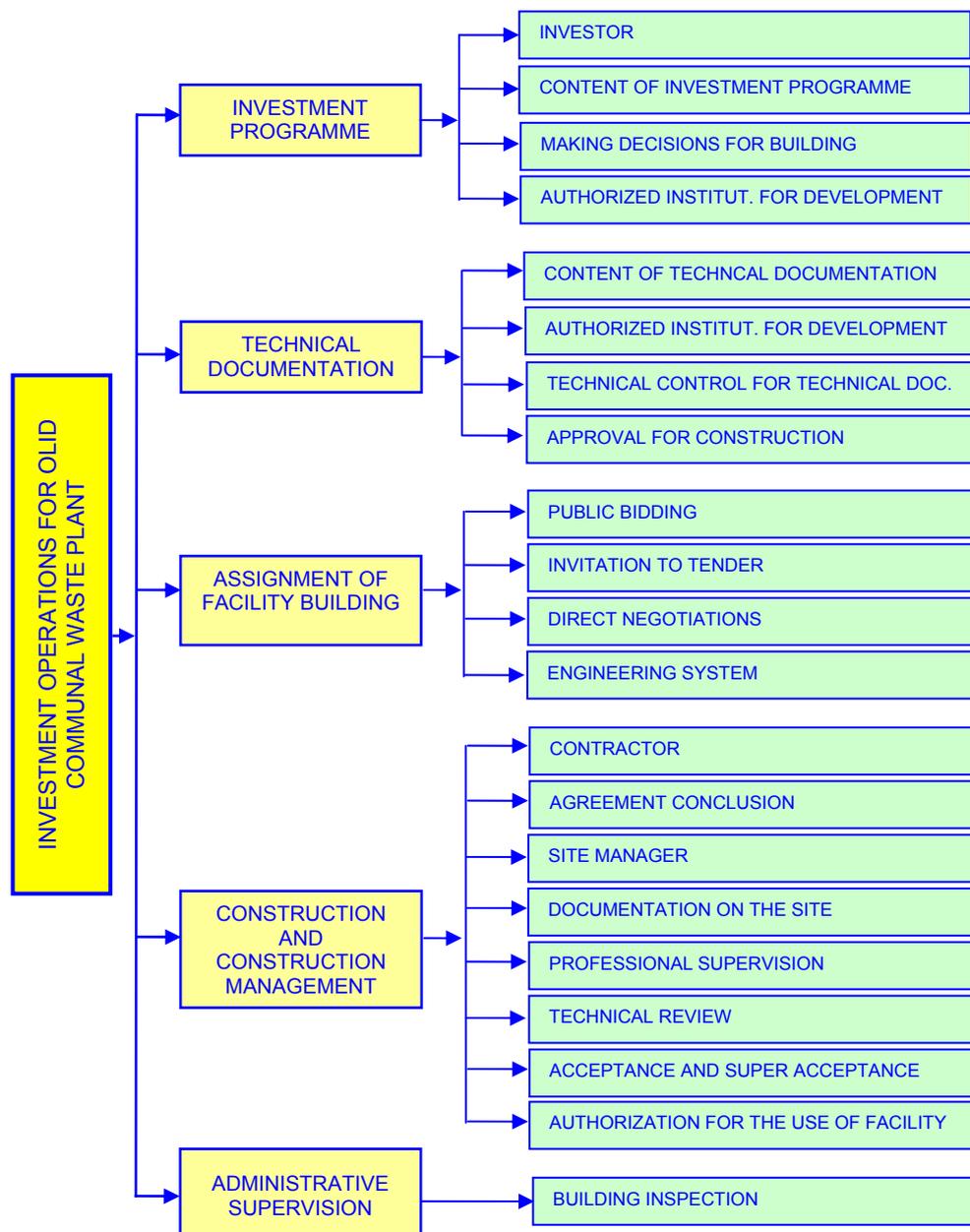


Fig. 4. Scheme of investment operations of investment building [1].

#### 4. ASSIGNMENT OF FACILITIES CONSTRUCTION

Tender (or Offer, German *Angebot*) is the bid at the public auction that is submitted in particular form, on the basis of „invitation to tender“, and it consists of three parts: commercial conditions of the bidder, technical documentation and bank guarantee. The announcer of the auction announces – through media or otherwise – the intention of concluding a contract with the most favourable bidder of deliveries, i.e. the execution of works and by the ad, it also specifies the conditions and the latest term for the reception of bids. Among those conditions, there frequently is the giving of bid bond by the bidders, i.e. their banks. Depending on the national regulations, the bid process can be regulated or unregulated.

Offer (Engl. *Supply*, German *Angebot*) is the amount of some good or service that the producers want and that they are able to sell in a certain period at the specified price and in particular market. When we analyze the offer

from temporal aspect, it can be daily, weekly, monthly or yearly, i.e. permanent or seasonal. From the aspect of the market, the offer can be local, national, regional or global. The formation of offer is influenced by numerous factors, from which the most important are the following (we call them the determinants of offer): availability and price of resources (raw materials, energy, work, capital), technology, prices of alternative products, manufacturer's expectations regarding the future market conditions, number of offerers in the market, the objectives related to the profit, and finally the policy of the state, linked to the taxes. Market analysis, as a rule, examines the movement of supply, in the amount and prices, and it is graphically presented as a supply curve. In marketing research, the offer is investigated much deeper (through secondary and primary sources of information), and we call it the competition research. It needs to be mentioned that the term offer has another meaning in the process of selling: emissions of the bid documents (oferte), by which the potential buyer is offered a particular product or service under specific conditions (selling conditions). Those conditions usually entail the offered amount of goods, quality, price, place of delivery (ex warehouse) and the deadlines of the given conditions' validity.

Construction contract (*German Bauvertrag*) is an agreement by which the contractor agrees to build the specified building, within the agreed deadline and according to the particular project, on a particular land or to perform on such a land, i.e. the existing object, any other construction work, and the orderer (investor) is agreed to pay the particular price for those works. Construction contract has to be concluded in the written form.

Development of technical documentation and construction are assigned through public auction or direct negotiation.

The investor decides on the manner of assigning the development of technical documentation and facility's construction.

Building the investment facility, the plant for use and disposal of solid municipal waste, is assigned to construction company – the contractor, which has acquired a right to construct after the assignment of construction. Assignment of facility construction can be realized in one of the four ways: public auction (bidding), collection of offers, direct negotiation and by the „engineering“ system.

Figures 5 and 6 show the way in which the agreement with the contractor is concluded, after obtaining the building permit, i.e. the diagram of considering the construction contract [1-8].

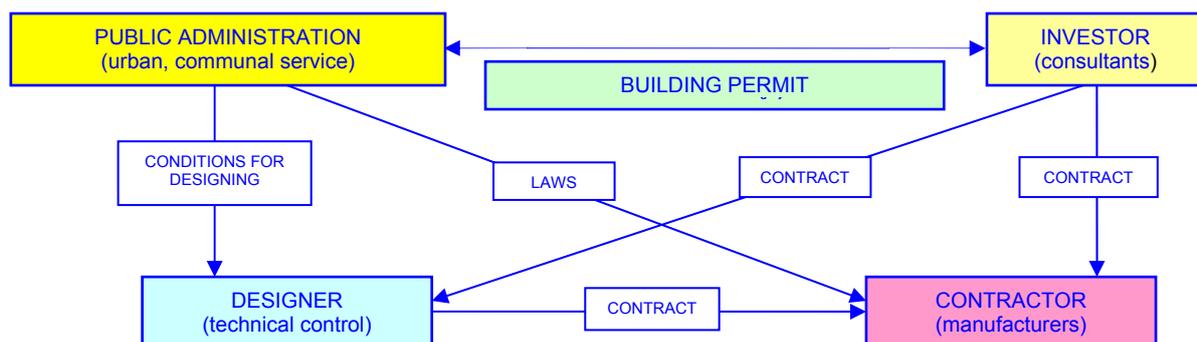


Fig. 5. The way of obtaining the contract with the contractor after the building permit [7].

Assignment of facility construction through public auction (bidding)

Public auction is done by collecting and opening the written offers of the construction companies – participants in bidding, on the basis of the announcement of the public auction, which is announced by the investor. Public bidding is administered by the commission, which is formed by the investor and his decisions, and which functions on the basis of the rules, by which the following is defined [1-8]:

- Manner of conducting public bidding;
- Duties and authorizations of the commission;
- Manner of notification (advertising), collection and opening of offers;

- Manner of knowing potential contractors with materials;
- Relevant criteria for assignment;
- Manner of resolving the complaints etc.

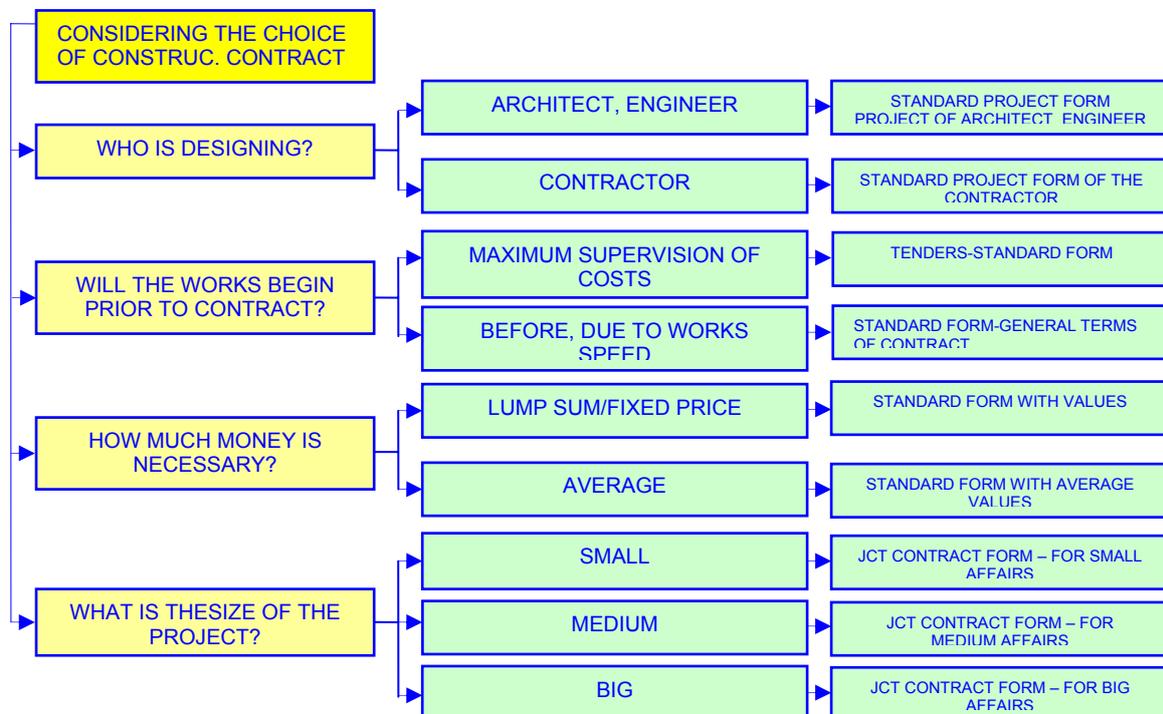


Fig. 6. Diagram of considering the choice of investment contract [1].

The announcement of the public bidding should contain the information about the facility, construction site – location, type of work and approximate value of works, deadline for finishing the works, conditions that refer to the contractor, deadline for submitting the offers etc. Public auction is considered a success if at least three contractors submit the offer. Commission chooses the best contractors on the basis of the relevant criteria:

- Price offered;
- Construction deadlines;
- References;
- Building technology;
- Mechanization;
- Personnel;
- Financial indicators of the business etc.

Investor independently decides on the best contractor, to whom it will assign the construction of investment facility and he informs all the participants about it, after which he concludes a contract.

The assignment of facilities construction through collecting the offers

Assignment of building of some specific objects is done by collecting written offers from the contractors, by the free choice of the investors:

- Roads;
- Bridges;
- Dams;
- Subways etc.

On the basis of the offers collected, the investor independently decides to which contractor he will assign the construction and he formulates the Act of acceptance of the offer and informs all the contractors from whom he had asked for the offers (Figure 7). The company to whom the construction is assigned, i.e. whose offer is accepted with the reasons for accepting, is specifically stated in the Act.

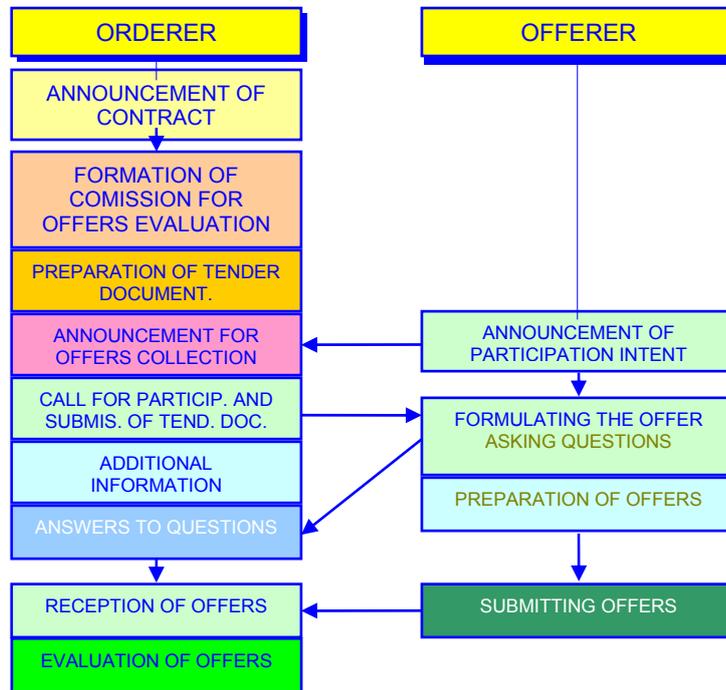


Fig. 7. Model of assigning and evaluating the construction through submitting the offers and contracting [1].

Assignment of facility construction through direct negotiation

Assignment of facility construction through direct negotiation can be done in case of the following [1-8]:

- Construction of small investment facilities;
- Performing the emergency works before or after the natural disasters;
- Reconstruction and rehabilitation of the facilities;
- In case that repeated public bidding and offer collection is not a success.

Figure 8 shows the review of the control of the entire project for each phase separately.

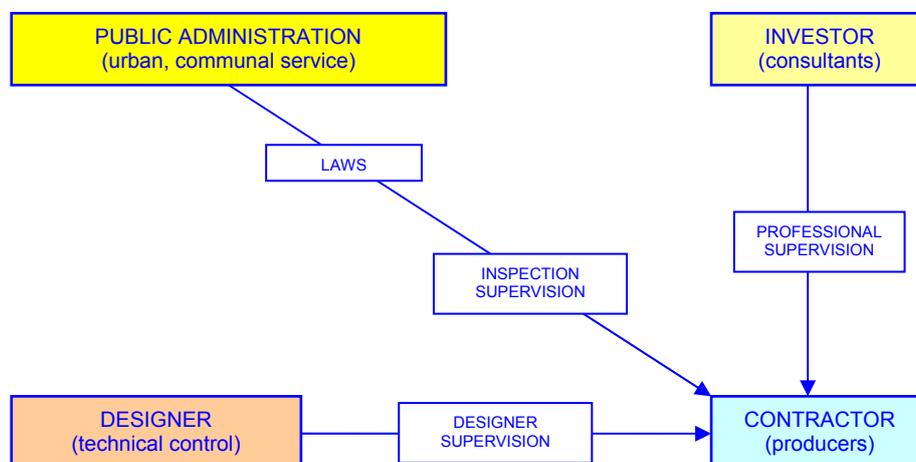


Fig. 8. Control of the entire project and each phase separately [1].

### Assignment of the construction by the engineering system

If the investor checks all the tasks related to the construction of investment facility in one company, starting from the development of technical documentation from building, equipping and releasing the facility into exploitation, then we speak about assigning the construction works according to engineering system. The companies that are engaged in this kind of activity need to be professionally and technically equipped for these kind of tasks [1-8].

Engineering Contract, (*German Engineeringsvertrag*); 1. A contract whereby a person, whose activity is based on knowledge and skill in a particular profession („engineer“), is obliged to provide advisory services, and the orderer (investor) is obliged to pay the compensation. It is usually about a legal entity, which entails relevant experts, but it can also engage other experts; 2. As a rule, the other services that refer to the works on a particular facility are also contracted by the engineering contract with advisory services.

Figure 9 shows the assignment of the construction works by the engineering system.

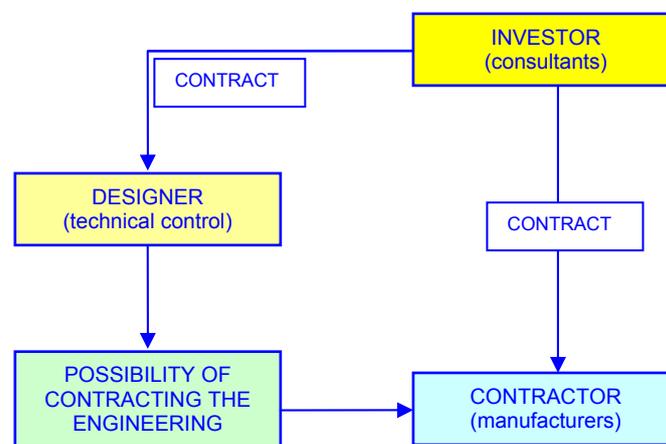


Fig. 9. Possibility of contracting by the engineering system [1].

## 5. CONCLUSIONS

Modern investment manufacturing shows that it is productive, rational and cost-effective. Success guarantee is supported by modern manufacturing capacities, software support, good technical documentation, good equipment and well-developed project of construction organization. Basic goal is for the manufacturing to develop with as little as possible delays and interruptions, and that requires a prior observation and anticipation of all the circumstances, conditions under which the construction will take place and finding the adequate solutions for possible problems and obstacles [1].

Investment facility, the plants for use and disposal of solid communal waste, have such a character that they will by their existence, use or activity, which will be performed in it, inflict damage to the environment, so it is necessary to anticipate the construction of technical devices within investment programme, by which that damage will be prevented completely or, if that is not possible, reduced to the least impact.

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