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SOME ESSAYS
ABOUT MANAGEMENT

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CONTENTS

INTRODUCTION

All the essays collected in this book appeared during last year in the course of work on various projects. Some of these essays started as thoughts in a diary, others – as drafts of articles (never published before), some of them resulted from numerous conference reports, some – fixed in the course of organizational-business games, and some represent the guideline for different schemes of training courses.

Despite of they have being created every once in a while and covered different topics, they have one general backbone – they contain thoughts and conclusions related directly, first of all, with «Project management». The reflections just on this subject let, as for us, raise necessary questions and to get interesting, and sometimes unexpected conclusions.

The context where our thoughts appeared and were formed must be rather important: what was an incitement to the reflections, what circumstances pushed us to these conclusions.

«Reflections on management» are answers to possible questions of listeners prepared in the format of a training course on the subject of «Project management». Preparing the plot for training, we had to think of questions our listeners could ask. And there was comprehension of the fact that themes, which are very important for complex understanding of the subject, are often omitted in such courses. As a result, it often turns out, that there are pieces of knowledge hardly connected with each other, and moreover – difficult to apply in our daily life. That is why we started answering these questions in advance and included all of that in our training material.

The essay *«Language creating our reality»* appeared as a result of experience evaluation when introducing a management system in a certain company. We took part in the management structure development, but it turned out in play, that people were not ready for that. And they weren't ready not because the project logic of work is strange, but because all basic terminology, all semantic stuffing of language of the introduced management system were beyond their understanding. At that moment one of the present important conclusions was ripen and reached the point of the necessity of earlier-done shared conceptually-semantic device for subsequent expansion on its base of an information field and communication channels for later smooth transition to a new management system. As a matter of fact, it requires sometimes even more time, than it could be required for the management system itself working out.

One should agree, that it's up and down in our work when we face situations of "we don't understand and are not understood", when people really don't understand what we try to convey during separate conversations. And the shorter the conversation is, the less logic divisions and comments it has and the less

you know the people you communicate with, the more difficult it is to establish conceptual contact which is so necessary for an easy and simple and – as a result – much more productive dialogue.

«Structuring chaos» – reflection of the experience collected in result of participation in several big complex projects. What do we face each time we initiate this or that project or get involved in its realization? We face practically one and the same situation. At the input we always have a set of isolated pieces of information characterizing this or that system, some separate systems and just objects. We see a certain quantity of people (participants of the project, customers, investors, stakeholders) to whom the concept of «group» or «multitude» is not applicable. That is very exactly depicted by the phrase that «we plunge into chaos». When we need the project. When we need the project, as a system, capable to reach the set goals by making its elements move. The goal will become a system-forming factor, relying on which we create a working mechanism, outlining the borders of the project and organizing its participants. At the same time all changes will occur not at the physical level, but at the level of participants' self-perception and - realization as participants of the project. It's like the sky with stars. For the majority it's chaos, for the elected it's a rigid system, for the stars themselves it's the only way of existence.

«About networks, networked and network-centric organizations» is a puzzle which has been put together throughout the whole year. Its first element appeared, when we faced an inner personal need to identify ourselves in our surrounding working space, to answer the questions: «What are we by profession?» and «What are we engaged in for the most of our working hours?». The reflections led us to the conclusion that it's difficult to define the exact name of our profession, but it's clearly possible to single out the category – we are managers. Therefore, it's rather logical that for the most part of our time we organize the working space surrounding us in order to achieve the set goals. The second element of this puzzle was the clear understanding of the fact that quite often we act rather chaotically, without thinking on the logic of the actions themselves, seeing without their possible progress. Not only the progress of separate situations, but also progress of forms, ways and mechanisms of functioning of the whole professional category. The category of managers. That point made us move: we started dreaming. It made us exactly to start doing this, because dreaming future of our profession seemed a little bit unusual to us at that time. The conclusion on the network construction of interaction and organization of working space, as the most progressive direction and the possible scenario of development of the reality, became the third element of the puzzle. These elements made an incomplete picture requiring for some logical finish line. And we couldn't but amplified it with our evaluated vision of the concepts and the content of networks, networked and network-centric organizations.

The essay *«The project organization in network-centric logic»* in the very beginning was created as an attempt to describe the key principles which we follow in our work. The main basic principles are to co-operate as much as possible on the terms of partnership and equality, to work, striving to achieve the goal and managing the process, instead of prevailing over it, to communicate mainly horizontally, involving in dialogue the actual executors and persons responsible for these or those questions. As soon as sketches of these formulations appeared, there also the understanding came that such principles are typical for networks and networked organizations. We only had «to ripen a little» to build the basic content of our activity in network architecture – work on various projects. We have made an attempt to aggregate our knowledge in the algorithm of project realization in network-centric logic. The obtained result appeared to be interesting and unexpected even for us ourselves.

In the essay *«Why KommandCore is like this»* in the early beginning we wanted to tell everybody about our product, to describe what we had done. To tell why we are better, more interesting and more useful. But we were pleased that in the course of writing this essay turned out to look more as the result of our reflections. It turned out, that describing KommandCore we actually continued transmitting and describing our ideology, principles, and understanding. And we came to the point, that we shouldn't tell others in what way we are better. We understood that we created another system, which is not similar to the existing ones. And that is exactly what we have been trying to convey in our essay, when we discussed why we are different.

In point of fact, all these notes are the records of the understanding of different environments surrounding us, understanding of life which has been forming the course of our work. Similar questions must have occurred to you, too. This may seem like an old truth to someone, but we did lack for such materials in that time, that's why we had to learn all this on our own knobs, making our own mistakes.

We are grateful to everybody we worked with last year. The written essays are in many respects the merit of our dialogue with you.

We hope you'll find the following reflections useful.

January 2009.

ESSAY 1

REFLECTIONS
ON MANAGEMENT

We hear about project management a lot. Every day in news it's told about the beginning of new projects – big and small, long and short-term, simple and difficult. It may be the building of a large structure, or the beginning of an innovative development, or a social or political project.

We all speak about projects, but not all of us understand, what is hidden behind this simple word «project». And those, who use the term «project» with an appreciation, put here various meanings.

If we start to find out and compare, what is understood by the term «project», not simply giving the learnt definition from «The Standard of Project Management ...», but trying to understand what is implied in this word for our interlocutors, we'll see, that uttering one and the same word – «project», people really speak about different things.

If for one a project is the building of a hydroelectric power station in the southeast of Africa for supplying half an African continent with electric power, for others it's the construction of a kennel on a country site. And, by the way, it's impossible to declare categorically, that one of them is not right. It's only possible to doubt the statements of the third that, for example, one of the small websites created by an IT company recently, is a project too. Perhaps, the closest to the core are the fourth who do not use terminology at all and simply live in the logic of the project, taking both projects and management of them for granted, not demanding special knowledge or immersing into specific and strange terms.

If the majority of people, nevertheless, have formed a certain notion about the term «project», the main bulk of them prefer not to fall to thinking about what «project management» means, what activity is that and what it consists of.

That is exactly what we would like to talk about in more detail. Let's think and try to answer the following questions:

- What project management is, and first of all, what "management» is;
- What is the object of management for us and what we manage with;
- And, at last, how we manage.

The importance and urgency of «project management» activity does not demand any proofs. Today it's an axiom already. There is a great deal of statistical researches which point out that with introduction of the project management system, and if it's available, with increase of professionalism of your project managers or of the «growing» management system, the probability of successful realization of any project races up. What do the studies of «project management» start from? With the study of one of «Standards of project management …». As well as any other activity it's necessary to unify and standardize project management to make this

activity become an art on the verge of craft, i.e. accessible to many. We won't go into details substantiating the requirements of unification and standardization in the field of project management. We'd better consider the logic of training of project managers, who, ideally, should manage projects. The developed practice of training has gone the way of knowledge standardization. The basic hypothesis at its heart implies that it's necessary to train people equally (identical knowledge and common professional language), to develop the competence in equal terms (participation in projects or management of them); only then at the expiration of some time professional project managers come out of it as an output.

It can be supervised at small streams of staff but when the scope of the staff engaged in this activity is big and moreover, when constant shifting of project managers between companies takes place, the basic hypothesis becomes shaky and turns into the hope, that the hired project manager trained in a certain logic, will carry out the set tasks. The only thing you can be assured of, is that, having received corresponding knowledge according to «The Standard of project management …», the new hired project manager can explain to you intelligibly, why they failed to realize the project or why the terms, cost or quality were broken. But for all that you will get no guarantee of result, guarantee of its achievement. Yes, indeed, he has experience of participation in projects and management of them, but what kind of and in what conditions? Yes, he talks to you in the same common language of project management, and you can «connect» him like a new computer, knowing, that he will be connected to the general system. But what do we need? Do we need a process or result? We employ people and include them in projects for getting results. The preliminary guarantee of result is necessary for us. And now we understand that the existing practice of project managers training cannot give us such a guarantee.

The principal cause of that is hidden in practically all standards professing us «project management» with one curious feature: they say in different words and terms that it's necessary to manage a project, including contents, terms, costs, risks etc. But we have not met any standard yet which would point to «how» to do that.

The second reason is that in the process of management not only a project manager takes an active part, but also those who determine the project objective, the project management team with its hierarchy, structure, the project team, carrying out the tasks set in the project. It means that people who share management have different levels of problems and power regarding management, and standards offer a complex picture which is clear, first of all, to project managers with sufficient experience of management. This notwithstanding, management at different levels and of different subject domains has a considerable number of nuances.

The question arises: what should other participants of the management process do? How can they manage in their positions? Should they study in accordance with the unified standard? And if they are not ready yet and, first of all, are not ready for integration of different fields of knowledge? Probably, it'd be better to take knowledge apart. What for should people be given what they cannot not only master, but even understand, regarding what is being spoken about? It's natural that to write standards for all potential role positions in a project management team is not real. But at the same time – to divide them into management levels – two, three levels are possible and useful. The development would go step by step and in the course of this development there would be no superfluous information.

We have a feeling, that standardization of knowledge gives no proper level of quality assurance in the «cultivation» of project managers and members of project management teams. As consequence, there is no guarantee of achievement of the ultimate result from our projects. In this case all depends on personal qualities of the project manager. If he possesses a sufficient set of personal qualities he can manage the project well and with quality, besides, the fact that his training according to any standard hardly influences his professional success.

What is the decision? As a variant, to standardize the process, i.e. describe steps which any employee can make, without any requirements to his qualification. As a matter of fact, it's necessary to explain in simple words and step by step "how» we'll manage the project. And to part these steps to according management levels. It's the matter not of regulations and instructions, but of tools, simple and clear, which people use in their daily activity and with help of whichhelp them to manage effectively and efficiently.

We consider, that it's important to know not «what for» we manage projects (in fact, less questions arise here), but «how» we manage them.

Is it necessary to manage terms and costs in the project? We agree, just explain us in simple words how we should do it. Is it necessary to manage risks? It's good, how should they be managed? The standards of project management offer, as a rule, a widespread enough set of typical possible risks, standard variants of reaction to them and rather standard mechanisms of their management. Unfortunately, there are no enough living examples with non-standard risks given there. Usually the ordinary situations comparable to the following are successfully analyzed.

You are a manager of the project on building of a small apartment house. There is a risk of untimely delivery of one of the extremely necessary building materials. What should be done in such kind of situation? And further a detailed analysis of management in this most complicated situation follows. And how, for example, to behave, if we manage the building of a separate runway of the space launching site intended for launching and landing of a unique huge spaceship which should

rescue an endangered lunar colony of people in three months after the beginning of the construction and, besides, if there is the same risk of delay in delivery of innovative concrete?

Another example. There is a decision on the building of one of the most powerful hydroelectric power stations on the river Limpopo in the southeast of Africa. You are appointed the manager of this project.

On detecting of all potential risks, as one of the most probable is the risk of a meteorite hit into the dam of your hydroelectric power station under construction in three years or so after the beginning at the moment of passing through the atmosphere of the Earth of a coming nearer comet tail. Unimaginative mould schemes and ordinary decisions with no answer to the question "how to manage it?" will start to fail already at defining of even possible variants of reaction to such kind of risk.

Following the standards, you will, probably, refuse to build the hydroelectric power station, or (what is more probable) distribute the risk between all the project participants, detain the beginning of the building for damage minimization, will check the probability of a direct hit of a meteorite additionally, until one of the numerous participants of project management team will admit sooner or later a small inaccuracy in calculations – and then the risk will be recognized as insignificant. As a result, the meteorite gets into the dam, the southeast of Africa is flooded, the power supply system of several states suffers a wreck, you call a meeting on development of variants of reaction to the consequences of the risk event occurrence.

There is also another picture of adequate management of this risk. After insignificant, but necessary verification over calculation accuracy of similar risks probability, you start to look for the people in your country's establishment who may be interested in progress and effect of the hydroelectric power station building, and include into the budget for the next year deployment the wide biennial international «Program on protection of the population of the Earth against space threat» [in the form of meteorites, of course], by means of «establishmen». As a result of the «Program ...» realization in two years a satellite with the installation catching and destroying any objects menacing to the planet is launched into the orbit. The meteorite is destroyed even before the entry into the dense layers of atmosphere. You continue to build the hydroelectric power station the largest in the world.

The professional language attesting the necessity of project management is necessary and useful, but when it ceases to keep in touch with reality, difficult language and logic constructions come as substitute for simple and clear things, it becomes difficult to understand even the simplest things.

Once again – how should we manage a project?

What do we set these questions for? Just because, when we studied project management, we learnt much about what «project» was, but we were not given a word even about what management was itself, especially «project management». It was spoken about management hurry-scurry – a project manager should know the general theory of management which, as we understand, should teach him to manage. It's funny, we were taught to manage projects, but we were not taught to manage. It's comparable to the detailed analysis at the school of project management on example with erected doghouse and appointment of the person after graduating as the project manager of our hydroelectric power station to be built on the river Limpopo. But the difference is not only in the scale. The difference is that the theory of project management studies does not mean the ability to manage projects.

So, what is «project management» and how to manage projects?

The best way to understand the sense of any question is to begin from the meaning of the word or the term describing the arisen situation. It's necessary to understand, what we speak about, what to reflect on, in general. What frameworks and borders restrain us by the term itself; what should we work with?

For this purpose we'd better analyze the etymology of the term «management» and the essence of the term itself a little. The verb «manage» originates from Italian «*maneggiare*» (to address, cope - especially with a horse) which in its turn originates from Latin «manus» (hand), an Lat. «manu agere» («to point with a hand»). The French word «mesnagement» (later ménagement) also caused the change in the meaning of the English word «management» in 17th and 18th centuries.

Mary Parker Follet (1868-1933) working in this sphere in the beginning of the twentieth century, defined management as an «art of achievement of the objective by means of people». It's also possible to think of management from the point of view of its practical value, that is, as of action of quantity regularly measurement and adjustment to some initial plan; or as of the action undertaken for achievement of the planned objective. Also, the definition is true even in cases when planning is not applied. According to Henry Fajolja, the French by birth, management includes six functions:

1. Planning
2. Organization
3. Administration
4. Coordination
5. Control
6. Personnel selection

It's also possible to give some other definitions of the term «management»:

Management is a conscious purposeful influence shed from subjects, directing bodies on people and economic objects, aiming to direct their actions and to receive expected results. Management – is the action of the subject directed for alteration and manipulation of actual objects and subjects according to the conformed program. In economics, management is control of an economic system, an operational administration at an enterprise. We think that the term «management» is the clearest and the most convenient for further use in description of the general theory of systems.

> **Small lyrical digression**
> On the whole, the general theory of systems is a very curious and interesting subject. Many people use the terminology from the theory of systems (system, system thinking, subjects and objects, management, interaction etc.), but not many of them know, how these terms are interconnected with each other, what they mean in the aggregate, what an interesting picture of the world they can give if operate this language. When I studied this discipline, I already received existing answers to my questions which I tried to solve one my own earlier, I had to make up, invent, project something. It turned out, that if in due time I had given enough attention to the general theory of systems studies, I would have saved a lot of my own time as well as of others'.

But let's return to the term «management» and its interpretation in the general theory of systems. It's natural, that at once we'll try to link the given term to our theme – «project management».

Management is usually understood as influence on the organization (system) for the purpose to achieve its execution of some program providing the achievement of a definite objective. If we go into details, first of all, about the term «influence», management is understood as development and realization of purposeful managerial influences on the organization (system) for definite objective achievement.

We offer the following terms for
understanding of the term «project management»:
Project management is development and realization of purposeful managerial influences on the project as a system for achievement of the project objectives.

The project as system is a set (hierarchy) of all project participants[1] and stake-holders[2] and interrelations between them.

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1. **Participants** – persons and organizations, for example, customer, investors, executive company, subcontractors etc., who actively take part in the project.

2. **Stakeholders** – persons or organizations whose interests can be concerned while project realization or its termination, or who can influence the project and its results.

So, *project management* is a development and realization of purposeful managerial influences on all project participants and stakeholders (and interrelations between them) for achievement of the project objectives.

That is how we understand the essence of «project management». Managing the project, we influence all who take part there, if possible, all stakeholders. Moreover, it's important to influence not only people, but also interrelations between them, first of all, creating new and destroying or replacing «superfluous» ones.

Let's consider it in more detail, because, in our understanding, for comprehension it's the most important part of «project management". Not having realized these things, it's difficult to go further.

So, in any organization, project, system the process/function of «management» itself, first of all, implies two components – the subject of management and object of management. That is – *who manages* and also *who is managed*.

Accordingly for that who manages, «management» is performed as work with an object of management. Besides, the object of management frequently represents another system (an organization, a department, a design team etc.) and frequently is a difficult system (at least, it can be distributed in several organizations).

As for the subject of management it's more or less clear – in our case it's a project manager and a project management team whose key function according to the term «management» are development, acceptance and realization of administrative decisions which turn into instructions for action regarding an object of management (a plan, an instruction, an order etc.).

As for the object of management it's more difficult.

It's said often that the object of management is a project. Here occurs the first gap. If we come back to the term «project» – «… a temporal enterprise …» and consider the sense of this phrase in the context of an enterprise as a certain group of people it seems to be correct. But further for some reason the story is not about the one *whom we manage*, but about project management process groups and subject domains of knowledge. And there is no word about the one whom we manage.

In our opinion, here is a substitution for concepts, and the accent is displaced from true object of management – people, to a certain structure of knowledge about the project, presented in temporal logic (project management process groups) and the knowledge distributed in subject domains. We are sure that it's possible to manage only people. And in the project the object of management is people. The people who take part in the project, those who do not take part,

but can have an impact, the people organized in some hierarchy and structure, necessary for project realization. It's clear, that all of them can work in various companies, directly or indirectly obeying other people (entering other systems), but it only means, we somehow should manage their chiefs, too, manage them as stakeholders all tools which are available for us.

It's impossible to manage the project, as impersonalized object of management. We say it once again – the object of management is people who are occupied with project realization, they take part in the project, influence it or may affect somehow. The project itself is the subject of dialogue with people, defining borders and frameworks of our management, the format and the contents of the documents formed for full-scale representation of the sides of the project.

We manage people! It's very important to understand. We achieve the project result through management of people engaged in the project. It's not important if they work for us or for a contractor, work in the same department or in the different, for us all of them are a complicated, but unified object of management, managing which, we go step by step towards the aim of the project.

And exactly here it is — a very important distinction lying between activities of the manager and the specialist. The specialist must necessarily understand the subject domain very well, otherwise he cannot work. The manager must not necessarily understand the project content; he should manage people who understand it substantially. Besides, in our opinion, an attempt to make a synthesis of the specialist and the manager – the specialist in project management, frequently leads to occurrence of a certain robotic substance with a set of patterns. Such a specialist is only capable of applying these patterns in certain — even unique — situations, and at maximum to fix expenses for closing necessary number of standard hours of work in existing computer programs on project management. Involvement of such specialists to difficult and unique projects of considerable duration with a considerable number of participants and diverse variants of realization can lead to the failure, exactly because of the approach to its management. Probably, everyone can mind cases when sample management, frankly speaking, did not promote qualitative realization.

Let's return to our example for a short while. Is it necessary for the manager in the HYDROELECTRIC POWER STATION construction on the Limpopo-river to be a leading specialist in this area? It's our deeply held belief that it will only prevent us from focusing attention on management of the whole building as a unified object. Should he be only a specialist in templates in the field of project management? No, once more, he should not. Having a set of templates, even in the presence of a considerable number of diverse variants in this set, it's not always possible to apply this or that variant correctly. So, for example, at the very beginning of the project on building of hydroelectric power station realization

as one of stakeholders a small settlement in the north of the state Mozambique is discovered. In agreement on Project Charter with them in the document the formal signature of the head of settlement is put. In a year after the beginning the armed revolt under the guidance of that exact head of the settlement blocks hydroelectric power station building. It seems that all of us have done everything correctly. There is a signature in the Project Charter. However, a number of the inessential, indirect facts is not considered. More than half of population of Mozambique are illiterate. The northern part of the territory of the state is under control of the armed group whose head does not admit technical progress and doesn't see the necessity of cheap and accessible electricity for development of agrarian production priority. Besides, the head of the state sees threat to agriculture in blocking one of waterways of the country and does not prevent the revolt. Settlement and adjoining territories admit only oaths by blood obligatory for execution. Templates do not work.

At immersing of the manager into the project only, there can be a comparable situation. Even more number of stakeholders may appear overboard, the large quantity of external factors can be not considered. Why does it happen? Because, as soon as the project manager starts to interfere with the project content, he starts to work as a specialist and ceases to manage, since all his influences occur inside of the object of management, and do not influence the whole object. And any selective effort is vain and also won't allow affecting the end result entirely. Only being over the object of management, it's possible to manage it.

Why do the heads of companies invite advisers? Don't the latter know or can do more? Do they invent anything new? No, they don't. But they have one unique feature – they can «rise over the organization from above» and perceive it as an integral object while the heads of companies are more often inside of them. That is the feature that allows advisers to give practical advice to managers, allows heads to «come up» from the organization. The manager works with those whom he manages. It's clear what for. It's necessary to achieve the objective, a target condition of the organization, the project. But there is an important question – how do we manage?

We manage through managerial influence. We prepare and realize the administrative decision which can be an individual action or a set of influences on the object of management to reduce it to the necessary condition. If to be more exact – the administrative decision is not transformation of the object of management itself, but *the information, the model of these transformations.*

It's very important! The administrative decision is the information on necessity of any changes, the model of these transformations. For some reason it's considered, that the result of the administrative decision must be its formalization – the order, the regulations, the instruction. Yes, and they too are the information

representing the model of transformation, but the powers of these documents have borders within our organization owing to what they lose their efficiency beyond its limits, and in contracts with external participants not all can be predicted and described.

It's important to understand, that any information coming from us, both written, and oral may be administrative impact. If we want it. And we'll want it only when we understand, that it's possible. It can be an official letter on the form or an e-mail letter, meeting minutes, correspondence in a chat, the meeting or negotiations, etc. And these tools are effective in the same way and always at your fingertips. How much time is it necessary for your organization to co-ordinate with all services regulations or an instruction? And how much time is it necessary for you to write an e-mail letter? Do you feel the difference? And here it's possible to achieve results comparable by efficiency. And – what's important – everyone can pick up those tools of management which he used to working with, and further to manage effectively through them.

We can manage simply and effectively, using tools habitual for us. We'll return to the tools of management a little bit later but now we'll talk again how «management» is carried out.

«Management» is realized through a simple algorithm:

1. Gathering and processing of the information necessary for decision-making.
2. Working out of variants of administrative decisions and choice of the optimum and most effective decision.
3. Sending the administrative decision to the object of management (or its parts).

These are the steps which answer the question – *how we manage.* Let's dwell on these steps; we'll try to understand them and to fill them in with simple and clear tools. What for? Because now it's still slogans, general words which again do not give a simple and clear answer to the question how we should manage, manage the project.

Let's try to explain the same things easier. How do we manage? First of all, as an input we must have two components:

– The objective, that is the understanding we move towards and what we wish to attain in the end;

– The initial «system» - it may be an organization, a project team with the set of resources, conditions and restrictions (in any case we cannot start to manage with «blank» page, there should be – *who* manages, *who is managed* and their environment, that is where they are).

And then «management» starts:

1. Information gathering and processing, necessary for decision-making.

Here we answer a question: *and what is taking place?* It's always important to understand, that something has occurred and something should be done with it. For what? To achieve our objective. After all we are gathered within a certain project exactly for that objective.

Natural situation in management – lack of information. It happens owing to special properties of management – the decision should be taken quickly and/or in proper time, and, besides it's often the same. Any decision makes sense and is necessary till the certain moment of time after which taking this decision has no sense any more. It's late to change and influence something.

For this reason the administrative decision is accepted more often in the conditions of uncertainty – insufficient quantity of the information for decision-making. And for this reason it's necessary to provide constant information gathering to reduce the level of uncertainty.

Any *gathering of information is possible only in its circulation*. If there is no circulation of information it's impossible to collect it in another way.

Therefore, one of the major problems in management is to make the information move and to provide its overflowing. Here we would like to attract your attention to the base axiom – *all the necessary* information *is* available, it's just necessary to find who possesses it, and then provide its movement.

Tools for this objective can be simple, for example:

– Collective meetings on the project.
  We put them in the first place. Meetings of various levels with participation of representatives of the customer, the investor, key contractors etc. Here is maximum information overflowing, especially if the activity itself is directed qualitatively and correct questions are put on the agenda. At such meetings the information flows between participants freely and in a considerable quantity and already in the course of the meeting it's possible to make qualitative and timely administrative decisions and to guide them towards the object of management (or its parts). The more participants take part in the meeting, the more the probability that here the source of the information necessary for you is.
– Personal meetings with project key stakeholders (both individual, and group)
– Calling conversations, audio-/video - conferences
– Remote dialogue, electronic correspondence with all key participants

– At last, various kinds of reporting. In an ideal situation reporting should be a simple formality, and all the necessary information on the state of affairs in the project should be already available from other sources.

For any project tuned up, channels of communication which would allow all the information to flow freely between all the project stakeholders become important and demanded.

One simple example. As the project manager, you receive the information on hold-up of the basic work on erecting a gravitational concrete dam. Besides, you must admit most important fact of having in combination with this information also the information about considerable decrease in extraction of diamonds in the republic of South Africa, where the building of HYDROELECTRIC POWER STATION takes place, liberation of a significant amount of able-bodied population of the country, labour cost depreciation in the country and the information that financial services have forgotten to inform about simple giving of the quarterly award to the workers of HYDROELECTRIC POWER STATION, for the term of more than two months and the following strike of the workers who are afraid of long-term decrease of level of payment is extremely important.

If we speak about the quantity of information here, it's necessary to be cautious because the process of work with information is boundless, and the more we work with it — the less important our decision on the results of information processing can become. The decision is good, if it's timely. The paradox turns out – the information in the project is super-valuable, but the more and longer it's collected, the less valuable it becomes.

Information processing is, first of all, its analysis. The analysis from the point of view of the general situation, presence of resources, changes of the situation, consequences of these changes etc. Here it's necessary to distinguish two situations in which information gathering and analysis take place; it's in the beginning of our movement to the objective and in the course of our movement to the objective.

In the beginning of our movement to the objective it's necessary to receive, first of all, a «route» card of our movement that is to prepare the program of our actions. For this objective, gathering and analysis of the information is directed, first of all, to reception of initial «mould»: what it's necessary to receive as the result of it, what resources we have for it, what restrictions exist, who are participants, stakeholders of the project, what interests are interwoven around our objective, what arrangements exist already and what is necessary to achieve, etc.

In the course of movement the logic of information gathering and analysis of the information is different a little bit. It's natural, that we should fill «blank» spaces

in our route chart (the program of actions), but key conclusions which we should make are conclusions about what deviations from our laid way to the objective have arisen, and consequences of these deviations.

Result:

– We either understand from what we start from and what we should consider in the course of movement;

– Or we understand whether we move to our objective correctly or there were any deviations and something needs to be made.

1. Working out variants of administrative decisions and choice of the optimal and most effective decision. And here we should understand: *and what will we do*? What will we do to make our movement to the objective begin or proceed?

Depending on a situation we face, the result can be also various here:

– If we are in the beginning of our way to the objective, it can be the program of actions on achievement of our objective which, as a matter of fact, is a *complex* of administrative decisions (for example, the project management plan is a program of actions on basis of which we'll move to the objective of our project);

– In the process of our movement to the objective we prepare the decision directed to updating of our movement, to elimination of negative deviations and consequences.

In any case we prepare the model of alteration, alteration of our project team, organization, group of stakeholders, surrounding world for maintenance of our movement to the objective.

Let's dwell on one more important question – the objective we move towards. First, the objective is put by the operating system of higher order, that is, in these relations the project manager acts as the object of management (who is managed). We won't focus our attention on it to reserve a chance to revert to this question in more detail when we discuss management levels in the project.

Secondly, the objective formulation has the general character which is necessary to detail and translate into more concrete language.

Third, forming the program of actions, the project manager should transform this objective to a set of clear actions and problems for the object of management. And, moreover these actions and problems for the executor should not be always

connected with the project objective. He should know, what he takes part and where all move, but for executors it's necessary to put simple and clear tasks. And the movement objective is a tool a manager works with.

The movement objective is also a criterion on which basis variants of decisions are formed and selected. If the decision does not help us to advance somehow to our objective, not looking at all its efficiency, we'll refuse it in any case.

Working out of variants of administrative decisions is a preparation of variants of our actions, that is, understanding of what we'll do, how we'll move further to our objective.

How can we prepare a set of alternatives? Coming from the available information. When we start a project, we have the information on the project objective, we collect the information on resources, restrictions etc. On the basis of this information we form the Project Charter, the Plan of project management. That is, we analyze all the available information about the project and we prepare a complex of decisions/actions.

In the course of movement we receive the information on execution of the program of actions, on any deviations, their consequences and influence on our movement. On the basis of this information we prepare variants on minimization of deviations, consequences or, on the contrary, we are going to use positive consequences as an advantage to ourselves. In any case we can achieve our objective in various ways and it's that set of variants which we receive from the results of decision development.

How can we select the optimal and effective decision? On the basis of criteria. From this set of variants we select the optimal and effective decision.

In each concrete case it's necessary to prepare those criteria on basis of which we'll select the administrative decision. Frequently these criteria are formed already in the course of preparation of the program of actions. For example, in the formation of the Project Management Plan the criteria of decision-making are the objective of the project, existing resources and restrictions etc. All these circumstances do not allow us to take advantage of a wide spectrum of possible decisions and a priori narrow the field of decisions.

And further we start to apply other criteria which are important for the project or for us personally.

It can be minimal expenses for decision realization, the minimal consequences for the project, it can be maximum PR for the project manager. In any case the set of criteria is made up of two components:

– The criteria set by the project, project participants and stakeholders
– Personal criteria which are important for us.

2. Sending the administrative decision to the object of management or its part.

Here it's important to define, *who will directly do it, and not just to send the decision to the executor (the object of management), and to achieve the beginnings of decision realization.*

All project stakeholders act as the object of management. Moreover, the object of management is a unified system. But administrative influence is directed towards a part of this object (an element). That is administrative influence directed towards a concrete person or a group of people who represent a part of the object of management.

It does not contradict that the object of management is a unified system. Simply, influencing a separate element of our object of management, really in any case we influence the entire object. One should remember that the object of management is not only people, but also interrelations between them. And any local narrow influence directed to change even in a part of the object, in any case will lead to the change of the entire object. If the decision is of complex character, these changes simply will be faster and more vividly expressed.

What is the sending of the decision to the object of management?

It's information transferring and distribution, information presentation to the whole object of management (all participants) or its separate part (to a concrete person or group). The information which says what is necessary to do, what is necessary to change, how it's necessary to behave in this or that situation etc.

This information can be presented/is fixed in any kind:

– Oral order
– E-mail
– Reference in a chat
– Official form letter
– Section of the contract with the a participant of the project
– The control check-list
– The project charter, the plan of project management, the plan of management of risks, the plan of management of delivery etc.
– The order, the direction, the instruction, the scenario, regulations etc.

The tool kit for sending of this information is big; the main thing is that the person, whom this information is addressed to, should not simply identify it, but

accept it as the guide to action. That is, to start to realize the set of requirements, problems or the actions directed towards achievement of the project objective.

How? It's already a question of powers availability, tools of «soft» management and motivation, ability to agree, possibilities to satisfy interests to use coincidence of interests etc. It's a separate large theme which would be quite good to dwell on subsequently.

In any case, how much our decision will transform the reality, how far and quickly we'll move ahead to our objective, how quickly we'll change our environment, etc. how executors will effectively work depend on this important stage. We'll stop at it. It's time to bring out the first results of our reflections.

The first and interesting conclusion consists of that the subject of management (who manages) is, first of all, some version of information system which collects and processes the information and the exit of which is the information about the model of transformation of the reality. That is, the project manager and project management team constantly collect and process information and on its basis prepare administrative decisions which are the model of transformation of all project participants and stakeholders. What for? To put all project stakeholders into necessary condition and, as consequence, to achieve the project objective.

The second conclusion emerging here is that in consciousness of people, there is a substitution for the object of management. Because of it actually instead of managing people many start to manage the project substantiality. They create formal documents, without understanding, what for they are and what to do with them. And all administrative decisions are directed towards no people, but to the modification of these documents or the subject.

The third conclusion – «management is simple». The algorithm of management is simple, we know all necessary tools for management and we use them in the daily life. It's necessary to understand it, fill it simply with own content and to provide it with necessary tools. A little experience – and we manage already …

Perhaps, the most important conclusion – it's possible to manage only people. Managing a project, we manage people who implement this project, who are influenced by its results or interested in achievement or failure of its final objectives. For this reason we consider, that project management is a development and realization of purposeful managerial influences on all project stakeholders (and interrelations between them) for achievement of the project objectives.

2008.

LANGUAGE CREATING OUR REALITY

In the beginning was a Word...

Everything began with it. Our reality, the life of our world began with it. And it's still the basis of our reality. First of all, it's the basis of how we think, how we communicate, how we see the world, how we understand it.

Why are the words we know and say, the language we speak, so important? Why are they crucial from the point of view of a management tool, from the point of view of management efficiency? Why is it important to understand the responsibility we have in our dialogue with others? Why is it important to understand what we say, what sense we can happen to fill a simple phrase with? Why is it important to understand that, uttering phrases, we can say nothing?

All these questions, attempts to answer them, different thoughts on the importance of the word and language arise constantly. And first of all, for all of us these questions are connected with management. As it turned out, if we do not reflect on it, we may make a lot of mistakes in management being unaware of them, and we simply won't see or understand many of our mistakes. Before we start looking for answers to these and other questions, let us recollect something from the theory of linguistics.

So, the word is a key element (unit) of any language.

Words are used for naming objects, their properties, phenomena, relations etc. Words help us to describe our reality. In every language there is a set of signs which allow distinguishing these elements. It's clear, that the word is not the smallest lingual unit, but we are not linguists and we won't get into the jungle where we can lose our way. For our analysis it's sufficient to regard the «word» as such an element. Language is a system of sound and written symbols used by people for conveying their thoughts and feelings. That is by means of language we communicate, we convey information.

But this definition is not good enough for understanding the essence of the term «language». Probably, the most important thing for understanding is that language is a system of units (mainly words), and in this system some word combinations owing to common *agreement* have a conventional meaning and such combinations can be used for *communication*. Here it's important to make the following remark – in our understanding such agreements should be reached concerning words as well.

Only in this case they can be combined and by means of such combinations it's possible to convey thoughts that are clear to others. These agreements concerning general meaning of words, word combinations exist within the limits of any lingual, geographical or cultural group.

Further, if we speak about the language, we'll also speak about the word, as the latter enters the former, and the former is impossible without the latter. Besides, language enables us to think. Man thinks by means of language, silently «speaking to himself». As far as thinking is concerned, the definition of the term «language» from computer science will be more appropriate here – by means of language we collect, process, store and distribute information. Our consciousness and subconsciousness, describing reality and storing information, use words and their combinations for this purpose. Every word is bound with associative chains and images, which help us to describe the reality. By means of words and language we store knowledge in our heads and pass it to others.

What's important from the theory of linguistics for our further reasoning and understanding?

First, the key unit of language is the word.

Secondly, word combinations have a general meaning and can be used for dialogue, only if *there is* an *agreement* concerning the meaning of certain words and their combinations.

Thirdly, language is a tool for our thinking, for accumulating knowledge.

Fourthly, the basic function of language is communication. Why are these points important? Why is it important to understand them? Why have we built this logical chain of points in our reasoning? Just because «management» is, first of all, communication. And effective communication and, consequently, high-quality management represent our understanding of how we think, how we comprehend the reality, how we store and convey information.

Understanding of each of these postulates is important for any person, for any activity, but it seems to us that for management it has special importance as all management is built up on communication.

About words and combinations...
So, the key unit of language is the «word». Words help us to describe the reality, everything occurring around us. *The reality does not vary. It always remains the same.* What varies is our description of this reality, of the objects we see, the phenomena which occur, the relations which arise etc. The sense and the meaning we put in each word, describing the reality, also vary. Due to it our attitude to the reality varies, what we see and how we perceive it also varies. «It's raining» is the reality. For somebody rain is wet, dank weather when it's always sad, for another person rain is renewal of the nature, fresh air, calmness. Everyone sees something different and describes the reality one's own way.

By means of words we do not only describe this reality, but we also actually create it for ourselves. Let us apply two absolutely different words with different meanings to any phenomenon, and here we have two reconstructed individual realities before us. We shouldn't forget that everyone has ones own reality.

How does the creation of this reality happen? Through words. And how do words structure and describe the reality? Through the content and meaning they bear for us.

For us any «word» is a container. The container man fills his own content and meaning with. It goes without saying that there should be agreements on each word as well as on word combinations. People living in one country, speaking one language should understand each word nearly in the same way. Also agreements are more likely to be a certain informal convention, a certain custom, and the use practice is fixed in dictionaries to avoid erosion of meaning and content of words. Dictionaries specify all the meanings of each word used in language. But more often all these agreements are borders of these containers. Since childhood we have been acquainted with these words-containers, and then their filling begins. And the content and meaning of a word constantly vary. In a kindergarten, at school, in a family etc. we receive information about the meaning and sense of this or that word. Then we ourselves start filling these containers with our experience, our understanding, which is connected, first of all, with the life we live.

One shouldn't forget that the volume of these words-containers, that is, the volume of understanding and content, which a word-container may posses, varies from person to person. One person may see the whole world behind a word; another one will simply see the name of an object.

There is a word «home» (ancestral home) which is simple and clear to everyone. What does this word mean to us? The answer depends on how and where we lived. One person thinks of the place where he was born, where it's warm, cozy and comfortable, because in his family hearth was not a simple image, but a sacred tradition. For another person «home» is just a residential building, but not a place where he would wish to come back, where it's comfortable and cozy, because both relations in the family and his parents «have knocked» all love the ancestral home out of him.

How will these two people communicate? Will they be able to pass to each other their thoughts through simple words-containers? There is a natural question – what is the probability of the same word being filled with one and the same meaning by two different people? It must be rather low. The more people communicate, the more they synchronize their understanding, the content and sense of words. The closer their perception and description of the reality becomes.

But it's a small loss, that we see different content behind words. There is another problem connected with words. It's the presence or absence of words in the language, in a person's lexicon.

Here are some thoughts.

If we speak about the physical reality which surrounds us, it's easier for man to perceive those things which have verbal designations. He can see more details if he knows more words describing the properties, parts, elements of a concrete physical object. For example, if a mosque is perceived by somebody who is familiar with such concepts as "minbar", "mihrab" and "hauzy" he will recognize more compared to somebody who doesn't know about them. It's a bit easier to deal with objects, because we often work with physical reality.

If we speak about another plane of the reality, the reality of relations and phenomena, which is more abstract by nature and does not have such obvious manifestation as a cathedral, *man simply won't see* the relations or phenomena which he does not have names for. For instance, he won't be able to see a mistake in management if he does not have corresponding terms describing such mistakes, their signs and consequences, in his lexicon. It means that such a mistake doesn't exist for him, and it's impossible to eliminate something that doesn't exist.

That means, we cannot manage something we do not know, and as a consequence, we do not see. And the most important thing is that there are many artificial words describing this irrational reality in the language of management. Do we know it? Will we see these relations and phenomena? And will we be able to see all the details? To get round to all causes? What should we do here?

Practically the same thoughts cross our mind, if we speak about word combinations. Here conveying and understanding the meaning becomes much more complicated. Combining words, we create sentences. Words perform the role of a constructor, allowing constructing an infinite number of sentences out of *the limited* number of words.

Apart from the fact that there is an ultimate number of words in language, which can be used by somebody for constructing sentences, every person is limited, first of all, by his lexicon and everyone has his own limitation. Somebody knows 5' 000 words, another person - 10' 000. The numbers of word combinations of these people will differ in geometrical progression. Besides, 50 percent of these people's lexicons is occupied by buzzwords generated in the course of work and is different from others.

Here, it's possible to make two conclusions, which are important for us from the point of view of management.

First, it's extremely difficult to convey any thought so that it could be understood. Words are like vessels. But these vessels are empty. Words themselves do not bear anything. Only man fills a word or a sentence with this or that meaning and sense. We convey only a form (a word-container or their combination), but every person fills this form with the content himself. To solve this problem it's necessary to synchronize one's understanding with other people for quite a long time. Most effectively it takes place in the course of group communication, for example, in the course of regular meetings, organizational-business games.

Secondly, things we do not have a name for, things we cannot describe with words, do not exist in our reality. We simply won't see these objects, phenomena, relations, all their details and peculiarities. As a result we won't be able to work with them, won't be able to influence or change them. In our activity we should artificially introduce as many concepts and terms as possible – in order to start paying attention to all details, to expand the borders of the reality. This will let us raise our efficiency. In the same way we should expand conceptual apparatus of people we work with for them to start seeing those relations and phenomena, which exist in our reality.

Having solved the first and the second problem, we'll start seeing the same, the ways we perceive the reality will get closer, and we'll be assured, that the information will be accepted by our interlocutor with the least distortion.

About communications...

We communicate with the help of word combinations. We communicate with the help of language.

The basic function of language is communication. And the purpose of communication is *an exchange of information without distortions*. As we understood a little bit earlier, it's not so easy to convey information without distortion, to make people understand what we actually say. It's also difficult to understand what has really been said to us. Do we understand what has been said correctly? Are you sure that you correctly understand the meaning of your interlocutor's phrases? I have started to doubt it recently.

How does it usually happen? Communication consists in an exchange of information bearing some meaning with another person. The person wishes to tell something to his interlocutor, he says aloud a word combination filled with some sense. But what happens? The other person has received an empty vessel and fills it with meaning himself. This is the way we communicate. We pass each other emptiness concluded in borders. And we are surprised, why others do not understand us. But the most important thing is that we do not understand that in the same way we may not understand correctly, what other people meant to tell

us. After all we also receive words-containers and fill them with our own sense.

The most important thing in the dialogue is not only to be understood but also to understand our interlocutors correctly. And management is built up on communication, on effective communication. It's based on such dialogue when we are understood, and we understand others.

Let's take an example – there are ninety words denoting rice in the Hanunoo language in the Philippines.

Try to imagine 90 words to denote rice in various forms. It's difficult. Why do they have them? Just because it's important for them. Important from the point of view of their culture, life, routine. Having no possibility to describe certain phenomena in our daily life, which are important for our activity, we can run a big risk. For this reason there should be such number of words describing various details of objects, phenomena and relations that are important for our life, work, and activity.

In our language we do not have so many words connected with rice. It's neither good nor bad. It's life. Ignorance of these words won't affect our life in any way. Because it's not important for our life. But we have some words in our language which are not familiar to them. Let's shift this situation on to management and try to understand, how we could manage a person speaking the Hanunoo language.

It would be very difficult. For us any of 90 words designating rice in various forms will simply mean rice. We won't see important details; we'll lose a lot of information when we try to understand what he is talking about. When we try to tell him something about rice, he will simply not understand, what we actually meant. And how will we explain to this person things, events, phenomena whose names do not exist in his life? And how can we understand, what he talks about?

«It all would be funny, if it were not so sad …» Do you think, the situation is different in our life? If we remember how we communicate with our colleagues from different departments, which are engaged in other types of activity … How can you understand the professional language of a lawyer or a designer if you have never been engaged in such activities? And after all in their language there will be the same 90 words, not for denoting rice, but, for example, for contract conditions. These are vital details for them, and for us it's just one of the contract points.

And will they understand you, their manager, if they have never managed anybody themselves, but have been area specialists? What if the coordination function in their professional language is just an abstraction? Will they be able to understand those abstract or artificial terms which you operate with? How will you be able

to explain each other things that are important for each of you, and to convey all the palette of details?

And even if there are general terms in your professional languages, it will take us back to the first problem – each word is a container and everyone can fill this container differently. First of all, it will depend on personal and professional experience. One and the same term in your professional language and in the language of your expert is more likely to be filled with different professional content.

We constantly have an illusion of having said something and having been understood. We have an illusion of having correctly understood what was said to us. Why does it seem so? Let's imagine a situation – we are explaining something. We are putting our own meaning and experience into these words. The person, listening to us, receives empty containers and fills them with his own meaning and as a result receives absolutely different information, not the one we wished to tell him. We try to find out, what the person has understood. He pronounces the same words-containers which he has received from us. We receive these words, again we fill them with our meaning, and it seems to us, that the person has understood everything we told him. Though, we have actually exchanged the same empty containers.

What do we say and how do people understand us? It's a very complicated and important topic. One should at least address such questions to himself. If you have read up to this place, some new words may have appeared in your language, or some old words may have been filled with new meaning, new experience, and new content. In any case you have changed a little. Now you know, that communication is not what you have said aloud or written, but first of all it's what you were actually able to convey. It's not what you have heard and understood proceeding from your own experience, but the meaning which was actually put in by your interlocutor.

How do we communicate? By means of exchanging words, phrases, sentences. How should we communicate? We should make sure people understand us, make sure we ourselves understand our interlocutor correctly.

About thinking...

It's even more interesting with thinking, and again it's directly connected with our language. The perception of information and thinking directly depend on the language the person speaks. The hypothesis, that language defines thinking, was suggested by American scientists Sapir and Whorf (Sapir-Whorf hypothesis).

The person sees, understands only what he can describe and explain by means of

words. It's very brightly shown in the field of management. For example, let's take the area of finance management. If he does not have specific terms describing the area of finance, dividing this area into subjects and objects, into mutual relations of subjects and objects etc. for describing this reality, how will he manage all these? From the point of view of finance management? He won't be able to see all those vital details which will allow him to manage the finance effectively until he masters the professional language, a special set of tools which is also based on this language. There is a term «professional deformation». It happens when an investigator sees crimes everywhere in life, and a lawyer talks to his spouse at home as though they were in court. It's not deformation. It's the language creating our reality. We have learned new words which create our personal reality. Now our spouse does not simply speak, but gives her arguments in favour of the prosecution, and we search for mistakes in her arguments, we analyze her speech from the point of view of weak points, we search for counterarguments, and we are ready to invite witnesses. It's clear, that the situation is exaggerated. But our thinking has changed due to the fact that our language has changed. Terms which dissect the reality in a special way, which fill it with our meaning, have appeared in our language. We see those phenomena and relations which we deal with at work every day.

But in any case we can change our thinking by means of language. Introduction of any terms will change our perception of the reality.

By means of new words we can change other people as well. We can give them new words, agree about their new meaning, and give them a new reality through this. To be more exact, we can give them a new description of this reality.

There was received an amusing observation from real life during the analysis of the process of introduction of a design system of management and a project management system in one of the engineering companies. It appeared that both the organization management system, built in project logic, and the engineering project management system are mainly models of the reality which were successfully introduced in the heads of the company employees and which were based not on organizational structures, points and regulations. All employees were just given a new language of description of the reality, what is called professional language in our life, and this very language enabled us to change the reality, to change it, first of all, in their heads. This language concerned not a concrete subject field, but the field of management and described the whole organization. Through this language new areas and reality spheres were described and shown, they were filled with meaning and content, these words (terms) divided the reality into necessary elements, new combinations were constructed from these elements, they were given sense, and new connections were described in this reality. As a matter of fact, people's forms of thinking and reality comprehension have been changed. It's difficult, but it has turned out to be possible. After all what

has actually changed in the company? People are the same, the departments are practically the same, the subject of activity is the same, and the top management is the same as well. What has changed is the people's view of the reality. Having given people new words and having filled them with meaning, they have changed their reality comprehension and the subject of communication. Now, looking at their organization, they see a design system of management in it though the set of agreements concerning this reality has changed.

It's clear that designing a management system, including organizational design, description of processes, designing subsystems of finance management, staff management, strategic planning – all that exists. It's necessary and it's useful. But it all has served as a tool for creating a modern language, for describing a new reality. New models of the reality have appeared in people's heads.

Here it's important for us that our thinking directly depends on our language. The thinking directly influences the way we see the reality. It picks out information for us, as well as trifles and details which we can understand, which are important for us and which correspond to our model of the reality.

Changing and filling the language (first of all professional language), both ours and that of people surrounding us, we can change thinking in the necessary direction. It's also a management tool, besides, it's one of the most effective tools we have seen.

About filters and patterns...

All of us look at the reality. And we see it differently. We describe it differently, we have different attitude to it. But the reality remains the same. Unique. Invariable. It varies only in our consciousness, in our perception.

How does a person perceive the reality? Imagine for a second, that we do not only see all details of the reality, but we can also describe them, both physical and irrational planes.

The amount of time we'll spend gathering and analyzing this information, will simply be enormous. And how long will we describe it? Very long.

Therefore in order to work effectively human thinking possesses a set of filters which let pass a part of the information necessary for its activity, eliminating another part. It's natural, that these filters, first of all, should be based on the language of communication and thinking. Those phenomena and relations, whose names are absent in man's lexicon, simply get rejected by filters. All this does not exist for man. He does not see it.

Filters let the rest pass. They let pass what a person can describe, understand the meaning of, the sense, everything that is important for their owner.

As an example, let us take an organization structure, description of business processes of an organization. It's exactly adjustment of filters in people's consciousness. Does the organization physically change? No, it doesn't. What really changes is the way it's seen. Before the description of processes we saw our department and our direct manager. The rest of the organization practically did not exist for us. We have described business processes, and other people have appeared in our reality, but not our direct managers, moreover, we have seen what the result of our process is, what we work for, what our contribution to common cause is. We have suddenly noticed that we work for clients. We have started to communicate with people who we did not communicate with before – we just did not see them. The reality has not changed. Our perception of this reality has changed. Consequently, our behavior and our circle of contacts have changed.

Are filters necessary? They definitely are. But we should also understand that they can be a strong obstacle. The point is that the filters inserted into our heads may keep away us from the reality so much that we'll start working in a purely illusory world. These filters may eliminate things that are really important for our activity, and vice versa, they may let us see unimportant things. In other words, we can say that our filters are a set of thinking patterns. Patterns of what we see, how we perceive information. Other thinking patterns are our standard ways of analyzing information, patterns of making conclusions.

Besides filters and thinking patterns there are also behavior and communication patterns in our head. Those are typical reactions to external world changes, the way we'll act or communicate.

Having both filters and patterns of thinking, behavior and communication is, on the one hand, very good. We see what is important, we save time for response, we narrow an information field, a decision-making field, variability etc. But on the other hand, there is an essential disadvantage – the number of patterns in people's heads is limited, and filters can «get littered». These are frameworks which are difficult to go beyond. And who will be engaged in acquiring new patterns and improving old ones? Practically nobody as no one realizes it and everybody considers that the behavior in each case is natural reaction. And what we do not see does not exist for us, hence, we can change nothing in this part.
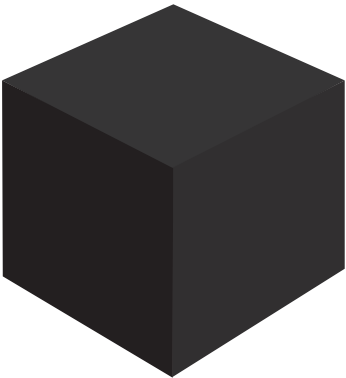
What is the project management standard? One of the purposes which is reached through studying it's mastering a language, through this change of thinking patterns and adjustment of our filters take place. As a result we start seeing the reality in another way. Subject fields of knowledge are, for example, those

separate filters which are built in our consciousness. We used to work and know nothing about project management and suddenly there was the first filter – «risk management», and we suddenly saw, that we were surrounded by dangers (that is why, positive risks which strengthen us and represent additional opportunities do not fit so easily here). We start seeing threats in our reality. Now abstract phenomena which may occur one day, have suddenly become real for us.

Then goes the next filter – communication management. And we start seeing sources and receivers of information. Then there is another filter, the following one etc. As a result we start dividing the reality in the project into nine parts – into nine subject fields of knowledge. We see only these fields. We operate only in them. We have got frameworks, which are not so easy to go beyond.

And together with filters we are given action patterns and communication patterns. So we have been programmed. The main hypothesis that man is a biological robot has once again proved to be true. If before we were programmed in a family, a kindergarten, at school, in our friends' company, at university, now we have received the next program at work. And we see only things these filters let pass. We realize the thinking, behavior and communication patterns necessary for our employers.

It's neither good nor bad. It's life. Filters and patterns are necessary in any case. We did not have these filters in the project before. And now we have them. And it's definitely good for the project. We have common language for description of the reality. But the main thing is that if the people managing the project, participating in the project, will simply start talking about risks, quality, communications, deliveries etc., that will be enough to raise the project efficiency, to increase its chances of successful completion. Because they have not even seen it before. And what we do not see does not exist. As a consequence they could not solve problems in these areas. Now we see it, and that means we can influence it.

One of the brightest images which we associate with project management is an image of a cube. Imagine a black cube.

This cube is the project. It's the reality. Not the way we see it, but the reality. The project, that is our cube, is complicated, multi-dimensional; there are many elements and interrelations inside.

But at the same time the cube is a unified, complete object. It's the project we manage.

And what happens to filters? And filters are the sides of the cube. On one side of the cube we see Gantt Chart, on another side – communication management plan, on the third side– procurement management plan. Have we seen the project? No, we have seen simplified two-dimensional projections of the project. The projections which describe separate fields of knowledge. The projections which have lost a lot because of the absence of volume and depth. There has been reality simplification.

As for the project management plan, based on two-dimensional projections, will it be able to describe this complicated three-dimensional object, to describe it, on the one hand, as a unified and integral project, on the other hand – will it reveal all its multidimensionality and complexity?

Not always. As a result there can be a catastrophical mistake. Instead of managing the project as this cube, a unified and integral object, in our reality we'll see a separate set of two-dimensional projections, and we'll start managing these projections separately. Not the project, but separate areas of the reality. Subject fields of knowledge. Because we see this reality in such a way. Because the filters are adjusted in such a way. Because integration management works as a separate filter, not as uniting all and everything, but as a separate filter – a two-dimensional projection of this cube.

Did you ask yourselves a question why some separate plans are so difficult to put together? Someone works out a big and clever risk management plan, and then is not sure what to do with it. It's not clear how it will fit into general management logic. And we have many problems with it. Sometimes during meetings we recall it and ask: «And what about risks?» It looks like everything is all right. And we forget about it until the following meeting.

We have dissected the reality by means of a set of filters and have described it with corresponding terms. We don't have a single reality – a black monolithic cube, but nine individual realities (nine subject fields of knowledge).

It's neither good nor bad. Just as it's. We should just work with it. And we should understand it. It's possible to manage effectively with these filters, but one should understand, that filters sometimes prevent us from seeing the reality that is necessary and important for us.

It's important to understand, that these standard filters with a set of action patterns are not always useful or effective. Probably, sometimes these filters need changing and adjusting to a concrete situation. And can we do it? No, we can't. Because we do not understand, that these are filters, for us it's the reality which we work with. Filters and patterns are useful. But it's necessary to understand clearly, that it's an artificial which we look at our life through. More often people

do not have a big number of thinking, action or communication patterns at their disposal. Man increases their quantity and quality gradually, first of all, along with acquiring work experience. As a result, the more patterns the person has, the more effectively he analyzes, thinks, communicates, acts. But these are patterns. Sometimes it's necessary to be able to break these patterns. To change filters. To change their filling and capacity. To replace them with others, more effective in this field. To change behavior patterns.

Or, at least, it's necessary to understand, that we have these limitations. To understand, that all this sets certain limits. It limits and deprives us of lots of possibilities. In conclusion we would like to note the following. Management is based on communications, on dialogue. The management content with managing influence consists in passing information to the people we manage. Information on the model of changes, on what needs to be done. And here it's very important that our information should be understood without distortions. Otherwise, all our correct, timely administrative decisions will become inefficient because they were left misunderstood.

Equally it's important for our correct understanding of information. We should also understand information without distortions. Any administrative decision is based on the information which we collect and analyze. If we have misunderstood the information, we make a decision based on incorrect messages. The result is that our decision is aimed at changes which are actually unnecessary, and may even be dangerous for us.

In our communication we should make sure we are understood correctly as well as we understand our interlocutors. Besides, professional language forms filters and patterns in our head. These are filters and patterns for information perception and reality perception. One should bear in mind that we limit our understanding of reality and this limitation is artificial. That the reality may be different, but our standard filters do not let us see important things, and our patterns do not let us draw appropriate conclusions. One should be able to manage filters, changing the old ones and creating the new ones.

And at last we can manage people "gently", but effectively through changing and filling our professional language, through changing the content and meaning of words and word combinations, through changing filters and patterns, through synchronizing our understanding.

2008.

STRUCTURING CHAOS

It's desirable to go on with the theme «how we operate» and go on with our reflections on the very definition of the project.

We have already told about the project as a certain system we operate; also about the project as a set (hierarchy) of all project stakeholders, participants and interrelations between them (structure). But we haven't mentioned such points as how the project comes into existence, how it's outlined and how it's organized. It's important from the point of view of organization and management of complicated and complex projects in which:

– besides the project objective itself, there are a lot of different level objectives of the project stakeholders, which should be worked at too;

– many large and critical counterparts, on whom the success and efficiency of the project depend, greatly take part;

– there is a need for «assembling» a considerable number of different subject domains in the project (for example, designing, building, delivery etc.) and various kinds of knowledge.

As it has appeared, the most difficult thing about such projects is to organise all the project participants and stakeholders. Lack of such organization often makes it difficult to pass from the process of project initiation to the process of planning, to say nothing of that once it's necessary to start moving to the objective of the project.

The realising of it came after participation in the process of several large building and social projects initiation when the counterparts and a part of stakeholders simply could not agree practically on all fundamental questions. Why did it happen? Because the state of the project at that moment resembled chaos – unorganized set of people, each of them represented the interests of his organization, moreover, the actions of many hinted at their personal interests which they wished to satisfy at the expense of the project. It was extremely difficult to find general things in common between them, the ways to satisfy all these interests and to agree on the project.

In that situation nobody could understand who was to act and what he had to do, how the project was going to be realized, who was going to be in charge and what for, etc. Besides, nobody could offer certain decision for one simple reason: nobody understood how it was possible to structure all that chaos the project like was for that moment.

All this directed our reflections into the search of technologies and mechanisms of project organization, first of all of the organization of all the people taking part

in the project. So we fell to thinking and began to look for the answers to some questions. Firstly, how a project comes into existence, mostly a project as a unity of people. Secondly, what separates the project from the world around. Thirdly, how we can organise this chaos.

Project «birth»...

What is the reason for creation of the project? Certainly, the project objective. Exactly the arising of the objective, the achievement of which is possible only through initiation and realization of the project, starts the process of structuring of the reality.

Up to the moment of project arising, the reality surrounding us is chaos – a super complicated dynamic system, the system which consists of a large number of subsystems of different levels and size, which are pursuing different aims and carrying out various functions. Various unities of people from small organizations and companies of social and political institutions can be recognized as such subsystems. All this lives, interacts, develops, unites and splits.

And here, in chaos, there arises a demand for some result. The reasons for such a demand can be different, for example, the result is important for someone's functioning. This external world demand for the result is fixed in the form of the project objective. It's natural that there is a certain period when this demand is being transformed into the state of a more specific goal. Then the objective is formed completely and finally.

This formulated objective creates a sharp demand for creation of certain system, certain mechanism wich may help to make it's possible to reach the set objective. It's the objective that starts the process of creation of a new mechanism which will carry out some actions directed towards the achievement of this objective.

All this, thanks to the set objective, leads to that some persons start to unite into a certain organized set of people, what we name the project. People unite for the purpose of organizing this mechanism [system] which will allow achieving the set project objective.

Let's give an example. Let's take, apparently, a chaotic set of the various facts characterizing this or that system, some separate systems and simple objects. In the centre of Western Europe one country prospers. Within the state there are a lot of investment companies-residents. The government has made a decision to strengthen the financial position at the expense of the gold reserves increasing. According to the forecast of the leading western analysts in seven-eight years of general financial and economic recession there will be falling of gold pieces, especially at its purchase or commodity exchange in an extraction place. In one of

the developed countries of Eastern Europe in hands of one of the companies the sufficiently big scientific potential and technical means of building large dams are concentrated. In Russia in three years within updating of the power supply system of the country at two large factories it's expected the releasing of powerful hydro-turbine installations. The opposition in Mozambique (south-east Africa) tooks the northwest part of the country under its control and tries to make independent contacts with some European countries. The European Union actively starts to develop the policy of cooperation with developing countries. In the Republic of South Africa the falling of gold mining is observed because of decrease in volumes of realization and quality of raw materials under the conditions of shortage of the special means of extraction and lack of electric power. What's necessary for uniting separate people and the project birth? Accuracy objective stating and appointment of the skilled project manager. The objective has been already put by the government of that certain country in the centre of Western Europe – strengthening of financial positions at the expense of gold reserves increase. The project manager in coordination with the country leaders resolves the decision that the project objective can be achieved, in particular, by means of building of a huge hydroelectric power station on the river Limpopo in south-eastern Africa running through the territory of two African states – the Republic of South Africa and Mozambique.

The objective is the pivot which keeps all project participants and stakeholders in general frameworks and supports the mechanism of the project in a stable condition.

And at last, the objective is a basis of management and project functioning as those functions which are carried out by project participants and stakeholders are born from the objective, and we are guided by the objective in the course of project realization.

By means of the project objective in our example various systems and separate elements started to work as one united mechanism. The chaos has received more or less distinct elements, project stakeholders, and people. To their number the following is ascribed: the government of the country which has laid down the aim, the project manager and the project management team, the European investment companies, financial analysts, the European dam building company, large Russian plants releasing hydro-turbines installations, the oppositional groups and the government of Mozambique, the government of the Republic of South Africa, mining companies in the south-east of Africa, manufacturers of gold extraction and processing electric equipment from the USA, gold mining companies of the Republic of South Africa and a number of other participants of this project and stakeholders.

The preliminary conclusion which can be made is that the project objective is a system forming factor which leads to project «birth» as a system. The project

objective allows uniting and keeping people within the limits of demanded borders. It's the objective that starts structuring the disorder in a definite way, structuring chaos, pointing out the first elements which will make the basis of the project. At least there starts a search for the required company able to form the mechanism for achievement of the project objective.

One more nuance, important for us, is the understanding that the objective as a system forming factor of the project is an external factor in relation to the project. We won't go into details right now, as this nuance is important for the analysis and designing of net-centred (virtual) organizations and for construction of the system of project management on virtual logical basis. We'll consider it a little bit later.

Limiting chaos...

And so, there was a demand for mechanism creation. The first step in this direction is to outline the borders of the project, the set of people, the people who will take part in the project, people whom we'll operate.

Why do we constantly point out people, not companies as the project participants? It's because, according to our point of view, we always work with particular people. There is a company which will act as our counterpart. But this company represents precisely the same outlined and organized set of people, but with a bigger life term than the project has. And when we work with this company, in any case we work with a particular person, but not with the whole organization.

Naturally, he broadcasts the interests of his company into our project, but this person, as well as anyone else, puts his personal interests in the first place and they may conflict with the interests of his organization. And working with him, we should consider both his organization interests, and his personal ones.

For us, as managers, there is no matter where the person works, the main thing is that if he has been brought into our project, it will be him whom we'll co-operate with, instead of the company.

How are the borders of this set outlined? Probably, it's possible to point out two situations:

– the situation when large and critical counterparts, stakeholders are defined just together with the project objective, for example, by the customer or if they «have been assigned from above level»;

– the situation when the project manager starts to point out from the world around the elements necessary for realization of the project.

In any case it's necessary to point out the companies which we'll work with (counterparts), key stakeholders. In these companies and among the stakeholders we are to define those people whom we'll work with – as a matter of fact it will be the first borders of our project, of our created mechanism. The borders within which there are people participating in the project to some extent, and which demand «management», influence, coordination, control or just supervision.

It's natural, that creation of the borders of the project is an iterative process as the project borders can change during the project. In the course of our movement to the project objective we can understand, that for successful realization of the project it's necessary for us to include new stakeholders with whom it's necessary to work. Then borders of our project will extend. Also we can precisely narrow these borders, understanding, that we spend a lot of time on the participant who does not influence the course of realization of the project.

The most important for us is that we set the borders of the project by our own. That is to say, it's us who should separate the project from the surrounding reality by these borders. To tell ourselves: here are the people, who are included into the project, and we'll operate them, and these people are not included.

Why is it important to be mindful in operating the project borders?

Just because the project borders are those filters which directly influence our vision of the project. These are the filters which are artificially created for us and for all the project participants and stakeholders. We can narrow the borders of our project, and as the project participants we'll see only representatives of the EPCM-contractor, including also several stakeholders, and we can expand – and then we'll see subcontractors and subsuppliers.

What borders can be set for realization of the project according to our example? It could be a large building company erecting hydroelectric power stations, the updating gold mining company in the Republic of South Africa, the investment group of the companies which is in charge for the financial support of the project and management group led by the project manager. Adopting such an approach means that the main part of work and responsibility for achievement of the project objective is laid on the project manager and project management team, and the considerable part of stakeholders could even stay out the project borders. And, then, after some time from the moment of project start, the neglecting of the interests of group in the north-west of Mozambique, for example, can lead to disorder in the subproject on building of the largest African hydroelectric power station and make doubtful the achievement of the project objective on the whole. And vice versa, in spite of its size and considerable branching, the project could choke because of the vagueness of the filters taking into account the interests of excessive number of stakeholders, such as the heads of the settlements in the

valley of the river Limpopo in the north-east of the Republic of South Africa or the attempts of the total control including the raising of level of the population literacy up to the level of ability to do the step-by-step reporting.

Thus, at the expense of the borders and filters we should be conscious of the increasing number of people we'll operate or reduce it artificially. Otherwise, we could simply miss the things really important for the project and treat the phenomena and relations, which the project success directly depends on, as insignificant and vice versa we can be drowned in the stream of the superfluous information… It's important to remember that we cannot operate the things we do not see. However, sight dispersion into a considerable number of objects reduces its sharpness altogether.

Operating the project borders, we create one of the filters through which we look at the project. We create it not only for ourselves, but also for the associates. And this is already the management tool with the help of which we can raise the efficiency of our project management, and, first of all, we can generate correctly the member of people whom we'll operate within the project.

About structure of the project and hierarchies…

We have outlined the project borders: pointed out the companies taking part in the project, in these companies we have defined people whom we'll work with. Now our challenge is necessity to organize them keeping in mind that we are to organize not companies, but people.

For creation of the working mechanism there are two tools for people organization – structure and hierarchy. That is to say, it's necessary for us to structure all this member of people through pointing out various elements, establishment of relations between them and introductions of accurate and clear hierarchy (mutual subordination of elements in a system). At the expense of it we solve two key problems of management:

– by means of structure we can distribute all functions, problems, which are to be accomplished and solved to get the project objective;

– by means of hierarchy we lead in the mechanism of management and coordination of all these participants and stakeholders.

Let's agree on terms.

Structure (*lat. structura — a structure, the order of relation*) — the regulation of relations (connections) connecting elements of the system and providing its balance, a way of system organization.

The project structure is a set of steady relations between the elements of the project which provide integrity, stability and efficiency of the project.

What is structuring necessary for? The way of how our project, our system as a community of people, will work depends on it. The behaviour of all the participants of the project and all the project stakeholders depends on it. Whether we achieve the project objective or not also depends on it. And our first step in the organization of the people in the project is the creation of project structure. Our task is to structure our participants so that all functions and tasks which are necessary to execute and solve for achievement of the project objective, will be distributed into various elements.

Let's not stop at functions and tasks as this theme is clearer, let's consider the logic of pointing out the elements which will perform these functions and carry out the given tasks.

It's natural that we associate these elements with people or groups of people. These elements or the elements organized in separate subsystems of our project, realize all necessary functions, tasks or subprojects.

The logic of pointing out the elements is simple: there is a function or a problem, so there should be a separate specific element. These elements (separate people or groups of people) are pointed out artificially, according to the project requirements. A basic error is to take the «natural» borders as a basis of pointing out these elements important for the project. For example, when a group of the people working in one department or in one company is pointed out as such an element of the project. That is to say, «natural» borders in which people are used to working can be taken as the basis.

Why is it so important? To understand it, let's study the example. In the project there has been made the pointing out of the elements according to the «natural» borders, and we've got the first element consisted of people working in the design organization, the second element is people working in the building organization. These elements are necessary in the project as each of them carries out the important function for the project: one organization designs, and the other builds. At pointing out these elements the project structuring has stopped. But besides these functions, there are other functions and tasks which are necessary for execution. For example, the design-budget documentation should be carried out without mistakes and be adhered to the reality. And it's possible to provide only in case of pointing out one more element of our system where the representatives of both the design and building organization will be included. But not all of them. And the function of this additional element is to provide the accuracy and adequacy of the design and budget documentation. But owing to the fact that the template has been already launched and within the project the

groups, have been pointed out according to the natural borders, are working, nobody carries out this function. What result will we have? We have got the design and budget documentation full of technical and technological mistakes and the building organization refuses to build according to this documentation. The achievement of the project objective is under the threat of failure.

So with natural construction of elements the achievement of the project objective of increasing gold reserves (in our example) looks, at least, doubtfully. Let's imagine that the project manager has chosen the simple way and has pointed out the project elements within the limits of the natural borders: the Republic of South Africa, the European investment conglomerate, the East European country where there is a dam building company, and Russia, as the largest manufacturer of hydro-turbines. It seems like all the key positions are included, the maximum number of directions is designated. What will we have in result? Absolutely uncontrollable structure. The Republic of South Africa with money of the European investors would receive the most powerful gold mining and processing industry, and refuse building of the hydroelectric power station with initiators of the project, and start the independent separate hydroelectric power station building project delivering gold in large quantities to Russia in exchange for hydro-turbine installations. When using the integrated, natural pointing out of the project elements such a variant of development of the events looks and smells realistic.

For this reason it's necessary to point out these elements artificially!!! Point them out according to the project tasks. It's difficult, as people would like to work in habitual, natural (pattern) framework. But it's the task of the project manager to break their templates and to introduce those elements of structure which are necessary for the project.

The technology of fixing of these elements in the project is arrangements on which the necessary elements of our project are based, for example, the advisory council on technologies, the working group on logistics and so on.

These elements are the bricks we build the structure of our project with, build the mechanism which will carry out all necessary functions and will lead us to the project objective. But it's impossible to point out, for example, ten elements and stop at it. The formation of new elements and changing the old ones is the same iterative process as the creation of the project borders; it's a constant process which lasts during the project. New elements are being constantly created, functions and tasks are being constantly changed, and the old ones die as soon as they have performed their functions. And this process is necessary to operate, considering the fact that any person participating in the project can simultaneously take part in unlimited number of the project elements, carry out various functions and tasks or take part in their performing.

So, in full or in part we have defined the element structure of our project. But pointing the elements out is not the only thing for saying that we have created the structure of our project. For now we are ready with only the building material – bricks of which we are going to build our structure. Now we need mortar to hold them together. Then it's necessary to tell about one more important component of project structure – the relations (networking) between the elements.

It's one of the most interesting themes, the subject of relations (networking), interactions and connections within the project.

What are relationships?

Relationships *are a mutual restriction on behaviour of objects* [the project elements], creating the restriction on behaviour of the elements and interdependence between them.

Appearance of new relationships in our project lets us create some new possibilities, to provide the performance of some functions and tasks, unrealizable only by means of separate project elements.

The basis for appearance of such relationships and the technology of their creation implies the formation of arrangements between all the stakeholders. Of such arrangements which are about the subject of relationships, about rights and duties. The arrangements are the very skeleton where the project based on, the cement makeing available to connect the isolated elements into a whole. It's a dynamical process and demands — if not direct control but, at least, some coordination.

How should we form arrangements? First of all, it's necessary to reveal the interests of the project participants and stakeholders. Having perceived their interests, we are able to offer something all of them within our project. That's good, if their interests coincide with the project objective or with our general movement. If not, it's necessary to search the way to synchronize them with our interests or of some separate participants among themselves (it's also necessary to help them here).

It's important for us from the point of view of relationships formation, to receive the fixed (legitimate) arrangement. When we can achieve it then we can tell that we have generated the relationship between some elements of our project. These arrangements, first of all, allow us to distribute rights and duties, to fix all the functions and processes which will be carried out within the project, to generate the project hierarchy (first and foremost, to point out the decision-making levels). On the basis of these arrangements we create necessary relationships between the project elements. As a result, our project (as a set of people and interrelations between them) is organized.

No arrangements, no relationships. If there are fixed arrangements, then the project structure appears. If there is a structure, we can consider our project to be organized and ready for effective functioning.

Let's take only a part of our example, concerning the development of the industry in the field of gold extraction and processing. For the subsequent formation of arrangements there are the following objects to be pointed out for sure among the participants and stakeholders: the government of the Republic of South Africa, the extraction and gold processing complexes, the trade unions of workers of these complexes, the equipment suppliers for re-equipment, the customers of the complexes' production at the moment of the project launching, the managers of servicing industries, the population of the places nearby the territories of the extraction, the environmental committee and the «green party», the managers of the hydroelectric power station building project, the project mass media. To provide the smooth development of the project we start to cross the interests and to establish the arrangements. Let's examine at least some of them.

With the government of the Republic of South Africa we agree about the maintenance of average market purchase prices of gold and the possibility of their freezing in case of insignificant recessions in the world market. Besides, we guarantee the lowered tariffs on the electric power and active participation in electrification and creation of an integrated power grid of the country. In response to it we are given support in questions of priority deliveries of gold and help in interactions with managers of the gold mining and processing companies and the heads of the settlements located near to the territories of the extraction. We fix the arrangements with the equipment suppliers and we sign the long-term deals with prospect of expansion in process of development of re-equipment of gold mining and processing.

We secure the consent of the trade unions, guaranteeing from our side stable payments, improvement of working conditions and increase in number of trade unions at the expense of inflow of workers because of modernization and manufacture expansion. Through mass media we promote the idea of the improvement of ecological conditions in the region at the expense of changing conditions of extraction and processing of gold and we come to the arrangement with the «green party» and the environmental committee about the joint creation and development of «National park of Southern Africa», in order to preserve the rare species of unique animals and plants of the continent. With the management team of hydroelectric power station building company we make the decision on building of several well-arranged settlements for the inhabitants of the territories adjoining to the location of the future hydroelectric power station and places of extraction and gold processing. Under the conditions of re-equipment and expansion we agree with the current gold customers on the general decrease in purchase gold prices and the possible increasing in the limit of purchases

taking into account already existing arrangements with the country leaders. Difficult? But it's only the tail of a bear hidden in of all necessary contacts, fixed arrangements and studied relationships necessary for successful realization even for a medium-sized project.

What conclusion can be made? It's necessary to create conditions for all these necessary arrangements conclusion. It's necessary to provide management of this process. It's necessary to fix and transform these arrangements into legitimate ones, so that the project participants and stakeholders would not have possibility to refuse any reached arrangement. All this is the project management work which we'll have to carry out.

If we can provide constancy and rhythm in the process of arrangement formation between all the participants and stakeholders during the whole project we can achieve the level of dynamic distribution of the volume of rights and duties, and this is the formation and management of network-centric (virtual) organizations which we are to speak about later.

What do we get with all these arrangements and relationships?

Our relationships provide us by:
– Organization of the project, co-subordination of its elements (hierarchy);
– Distribution of rights and duties;
– Interaction of elements;
– Realization of all necessary functions and achievement of goals;
– Integrity and stability of the project.

On the basis of these relations we form communication channels - the channels which let through information within our project, and, first of all, managerial influences, that is the most interesting for us, as for managers. To make it a bit clearer: the legitimate arrangement equals the relationship, moreover, the relationship equals any number of communication channels generated on the basis of this relationship (arrangement). For example, between two key project stakeholders there has been formed a well-defined arrangement about who is to act and what he has to do. On the basis of this arrangement we can unite the representatives of these stakeholders in various elements in any way and build communication relationships between them.

What for? For managing. To make our project manageable. We have already discussed the fact that management is based on communication, on intercourse. Accordingly the initiation of any managerial influence is possible in case of the presence of some communication channel no matter if it's direct or got through an «intermediary». Therefore, we emphasize once again: arrangements, relationships create a project skeleton, and communication channels *define organizational*

design where the project elements are located in a certain hierarchy and between them the communication channels intended for information transfer, including managerial influences, are tuned.

Through the very communication channels we are to operate our project; these two components – the set of tese elements and communication channels – define the organizational design of our project (a kind of project organizational structure), that is the final, visible result for us, something that is possible to display as the project organizational structure.

When we create the structure of our project, mostly the final one, where all the project elements are already connected by communication channels, we should know what principles this organizational structure should be based on, what this structure should provide and if there is a lack of any other elements, arrangements, relationships, communication channels.

What else is necessary for project management? It's up to everyone to decide, but it seems to us, that considering the logic of management we have just discussed, the principles the system should be based on are the following:

– Maximum flow of information – information exchange should be instant and have as few as possible intermediate links. To provide maximum quantity of information it's necessary to make administrative decisions;

– Minimum distortion of any information, especially for the purpose of managerial influences. There are two components here. Firstly, when you transfer the information directly from the source to the final addressee there is a natural distortion of the information, owing to that everyone understands it in his own way, adding his own sense. Therefore, it's necessary to provide constant synchronization of the general understanding of the project situation, the project common language. Secondly, any information between the source and the final addressee should be transferred directly, otherwise, besides distortion of the final addressee, there will be additional distortion entered by any intermediaries;

– Information instant transfer which is available at the expense of the maximum number of direct communication channels and the general information transparency within the project, when it becomes the guidline of communication. It will allow reacting quickly to any changes in the project and its surrounding, and to the external influences;

– Centralization within the project when one of the project elements (the subject of management) possesses the maximum number of relationships and communication channels that allows him to carry out administrative func-

tions effectively. Sometimes there are such cases when it's difficult to define, who operates the project, everybody receives contradicting instructions. And it can lead to the project destruction;

– Flexibility of the project when there is a possibility of fast replacement of one element supervisory or central position for another one;

– Tenacity of the project or ability to restore quickly all functional possibilities of the project in case of the destruction of a part of the structure at the expense of fast redistribution of the functions, or inclusion of some new participants in the project, or creation of some new elements.

And now let's compare and decide which one among structures given below meets our requirements to their best?
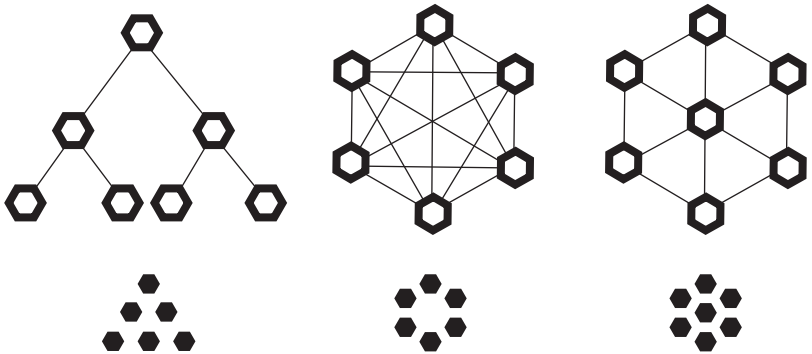
The first figure is an example of hierarchical structure where the command functions of some elements in relation to the others are brightly expressed.

The second figure is an example of the all-channel structure where each element is connected with all the others; all relationships are equal, and the speed and reliability are of maximum effect.

The third figure is an example of star-of-hub structure which may be a special case of hierarchy when one of the elements carries out the command functions or may be a special case of the multiconnected structure where the basic number of elements are connected with each other, but there is no accurately outlined element carrying out command functions.

Everyone should determine for himself which type of structure will be suitable and adequate for his project. As we put it, the star-of-hub structure precisely

correlates with all the principles we have described earlier. This structure is the most adequate for project management; the same structure is the basis formation of a network-centric (virtual) organization.

In any case, the technology for project organization with the help of the key tool is the ability to negotiate the arrangements. We can point out the elements ourselves (we have already given the examples of the elements created outside of natural borders of companies – the advisory council on technologies, or a working group on logistics and so on), and introduce them to our project through simple and clear things. And the creation of project structure building up the skeleton for which are relationships is possible only through negotiating and fixing of arrangements. It will let to organize all the stakeholders within the project and to fix the project borders, elements, structure, in such a way providing the achievement of the project objective.

Some more things about hierarchies...

Some more points about the project hierarchy. The term hierarchy (Grek. "hierarchía", from "hierós" — sacred and "arche" — power) means a principle of the structural organization of multilevel systems. This principle consists in *regulation of interactions between levels.* In other words, the arrangements are formed not only from the point of view who is to do and what is to be done, what rights and duties are, but also due to the fact who is subordinate and in what questions. That is why we should point out the levels of management which regulate the elements according to the principles of subordination, the functions they carry out, the levels of decision-making, etc.

In any case, hierarchy means structural, functional and informational division within the project. Here is one of the variants of such division into levels:

– The strategic level of management. Here the basic project arrangements between the key stakeholders are formed: the arrangements on strategic, crucial questions of the project. The result is the skeleton of the system, or its basic relationships which could be developed at the other levels, and form some new relationships on their basis. The basic function of this level is venture, strategic management.

– The integration level of management. We think that this is exactly the level on which the project manager and project management team work. The basic function of this level is project management. The object of management is the people realizing the project. At this level the set of arrangements is formed, concerning, first of all, communication and administration channels. Besides, there is one more very important function to be realized here. This is the integration function, «assembling» the project into all-in-one and forming all necessary interconnections.

— The subject level of management. At this level the design team works, those who are strongly connected with the performance of all the functions and tasks, aimed at achievement the project objective. This is the basic function of the level. Here the object of management is presented by subject domains (design, building, technologies etc.) and fields of knowledge (finance, personnel, deliveries etc.).

We communicate with those stakeholders who do not take part directly in the project though can affect it, and those whom we have included into our project, at all levels, owing to our possibilities, the level of decision-making and the formation of arrangements.

Let's try to divide participants and stakeholders from our example according to these levels.

For whom would the top strategic level of management be a working place? First of all, there would be the country leaders, those who have defined the project objective. Besides, on the same level there would be the representatives of the Republic of South Africa and Mozambique – the future consumers of electric power, the country leaders of existing gold customers, and the omnipresent «green party».

At the second one which is an integration level of management the project manager, the head of the hydroelectric power station building company, the equipment suppliers for the hydroelectric power station building company and the gold extraction and processing company, the representatives of the trade unions, the heads or representatives of the service production complexes, the heads of the settlements, adjoining to the territories of extraction and gold processing and the hydroelectric power station building, the local environmental committee, the project mass media, the oppositional group in Mozambique, mountain-processing complexes in the south-east of Africa, etc., will find their calling.

The subject level of management is carried out and realized by the project team, lower level of heads of the hydroelectric power station building company; the extraction and the gold processing company; the staff responsible for delivery in the companies producing the building of dams equipment, turbines, the equipment for gold processing; the financial analysts and many-many other people in the project connected with subject domains and knowledge fields.

Finally, it's necessary to mention one more thing in the reflections on hierarchy: understanding of the idea that the index point of an axis of co-ordinates according to which we point out these levels is us ourselves. But at the same time we are always at the middle integration level of management. If any person from the

top level tries to draw the same hierarchy, in his understanding, he will occupy the same middle level too, as to our position, we would be at the subject level for him. The same would happen with the subject level. The representative of the contractor (for us he is at the subject level) is the head of his own project which he carries out within our's. According to his view he is at the integration level, and, being the customer, we are at the strategic level. At the subject level this representative of the contractor also has the executors whom he operates.

Such an intricate picture where everything is intercorrelated.

In conclusion of this section, it would be desirable to generalize our basic conclusions.

To make our project manageable it should be organized. The question of organization of all the project participants and stakeholders is extremely important for big and complex projects. It does not mean that in small projects these questions disappear. When the project is small its organization is carried out easier and faster. In any case if there is no organization of the participants and interrelations between them, there is no project at all. From this point of view we do not have any mechanism to help us to achieve the project objective.

The basic system forming factor is the project objective which let us to create, organize and, subsequently, keep the frameworks. It's the project objective which is to allow us to start uniting people and to take the first step to their organization, to outline the project borders, to point out the people in the surrounding chaos whom we'll include in our design mechanism, with whom we'll move to the project objective.

For the further structuring of the reality we have two tools – structure and hierarchy. As to us, it's necessary to structure all this number of people through pointing out various elements, to establish relationships and communication channels between these elements, to provide accurate and clear hierarchy.

Any function or problem in the project demands an adequate specialized element which you won't find in «natural» borders of the companies whenever there would be need in, and which needs to be created artificially. The skeleton is necessary for fixing this element in the project space. It can be generated only on the basis of relationships (arrangements). All this is our work on the project organization.

The basis of the technology of project organization is the maintenance of conditions for arrangements negotiation (communication platforms) and management of the process of arrangements negotiating itself. Thanks to arrangements we can change project borders, point out the elements necessary to us, synchronize the

general understanding. For us it's important to generate and fix arrangements between all project participants and stakeholders, and to provide a skeleton for our project inside of which we can create and fix any elements.

The process of project organization (management of its borders, pointing out elements, and formation of relationships) is iterative, constant and proceeds, until there is necessity for that mechanism which moves to the project objective. And it can disappear no sooner than the project objective is reached, or the decision on the prescheduled termination of the project is accepted.

ABOUT NETWORKS, NETWORKED AND NETWORK-CENTRIC ORGANIZATIONS

We invite you to dream for a little. To dream about what can await us in the near future. What we can see there, about what we can become.

But let's start dreaming not as a separate person. Let us try to imagine our future as representatives of a separate professional category – the category of managers.

You can admit that it's difficult to dream not about your own personal life, but about the future of your profession. Nevertheless, let's imagine how in the near future our profession can change. For example, how and whom we'll manage. What for? Probably, to simulate what to go to, what to create, in what direction to change, what to be ready for.

It's very good when a person dreams: it means that he is able to aspire to something greater, interesting. When a person dreams not of abstract matters, but about concrete things which he would like to get, and also of steps which are necessary to be made for this purpose, he does not just dream, he starts to model his future, makes his first steps in creation of a new reality. When he starts to dream together with someone their common dreams are an attempt to agree on the future. It's an important step in the creation of the future, first of all, in the creation of a common collaborative reality. The technology of foresighting seems to be based on it, when people, first the representatives of various elites, «dream» (predict the future) together and on the basis of these notions about the future actually agree on the following: yes, we like this picture of the future, and we'll move in this direction together.

That is why we invite you to dream together. Quite probably, that, reading these lines, we together with you have already started to create a little bit of our new future. But even if we do not agree and cannot generate a common notion of our profession in the future, anyway combined reflections will allow achieving interesting results.

The time when industrial types of relations dominated passed long ago. At the heart of these relations between people (their associations) subject activity was assumed. These relations arose at first around craft manufacture, then relations became complicated thanks to the development of division of labour, then the (commodity, commodity-money) exchange was mastered. All these have led to the manufacture of goods for sale, to the development of trade and appearance of financial structures providing a commodity economy with money resources.

At that moment the heads managed the organizations (associations of people, structures) in which industrial types of relations reigned. That is the organization, and management of organizations, that was carried out round the subject of human activity.

The paradigm changed, and the time when communications take the first place has come. The questions connected with the subject activity of the person, first of all, with manufacture, actually turned into the condition of the outdated technologies. In these conditions of the development and organization of business and enterprises new types of relations – communication – took the first place. Here any manager (we do consider it from the position of managers) had to master new skills – various forms of dialogue, building communications, management of relations. Now the organization of activity and the function of management are based on how well any person, and the manager in particular, is able to communicate, agree, manage his communications and relations with the world around. All today's organizational structures are the reflection of formal communication channels. The same communication channels are used for management. The hierarchy in these structures, frequently, is the consequence of arrangements – who manages and who is managed. These principles underlie practically any structure. Owing to the ability to agree, build communication channels inside of the organization and with the external world people have already mastered and introduced new technologies in business (companies) organization.

But what is further? And further the complexity and branching of these communication channels, interrelations only increase, and it leads to the creation of new forms of organization and business dealing. Already now there is an active development of the organization and management of chains. The development of a new form of the organization of business – network – has begun.

What will be these new forms of the organization of business?

We can observe new forms of business organization– the networked organizations – even now. To be more exact, we can see the networked organizations which correspond to our notion of them. But what this is in an ideal sense, how to create companies in such a form is an interesting question which has no certain answer today.

What is it necessary for us to do? To master actively new administrative skills: creation and management of networked organizations. The first networks in business were created on the basis of a various kind of alliances, strategic partnership, associations of manufacturers and suppliers, and other comparable associations including the companies in the logic of simultaneously horizontal and/or vertical integration.

Now this experience is being comprehended, and different researchers make an attempt to introduce new technologies to it in order to pass to the following stage – conscious organization of networks of the following generation based on the ideology of equality of the participants of the network and optimization of

their possibilities. These two components in our understanding will be the key institutions dominating in the networked organizations.

Further the organization of networks will turn into the organization in that logic of a larger number of people, and in some time this will lead to the development of the ability to organize a society in the same logic. New ways of society organization will be based, most likely, on the ideology of «fraternity» of participants from the new society and the organization of their requirements, abilities. Perhaps, then at last also «Plato's ideal state» will arise where wise men from art, religion or science will rule. And thus not the word (communication) will be used as it's now, but more complicated and capacious structures – a symbol, an image, a concept. To replace today's key tool of management – communications and arrangements, new tools will come when people learn to operate through introduction of new forms of thinking, through ideologies, through moral values.

It's one of the possible variants of development. Time will show if it will be so or not, but we'll return to the organization and management of networks.

What for do we need it? For the one able to collect isolated elements into these networked (distributed) structures becomes their user. For today networks and networked organizations are not dreams any more, but the reality which surrounds us. We are extremely interested in this topic because now we can already apply the logic of the organization and management of the networked organizations in the field of management of complicated complex projects. Exactly in the field of management of such projects new skills of creation and management of the networked organizations may allow us to raise management efficiency. And the first step in this direction is the conscious perception of the project as a networked organization where the project is understood, first of all, as a set (hierarchy) of all the participants and stakeholders of the project and interrelations between them.

Let's try to understand what these networks and networked organizations are and how it's possible to raise project management efficiency with their help.

In our understanding, networks and networked organizations are, first of all, special vision of the reality! (see the essay «Language creating our reality»). To start to create and manage networks in business consciously, it's originally necessary to introduce into one's conceptual system a great number of new words [terms] which would allow describing specific relations and phenomena peculiar to networked organizations and the process of organization itself and management of networks. When we master this language, we'll start to see in our surroundings new relations, phenomena, elements which we can use for the construction of a networked organization.

After that we can pass to the next stage – to the conscious process of projecting, creation and management of a networked organization.

Therefore, in the beginning we suggest agreeing on the terms to make it easier for us then to move on.

Now the concepts «network» and «networked organizations» are used in practice for referring to absolutely different phenomena. Researchers seem to name the same term, but the relations which they describe, very often different, that as it seems to us prevents from coming to the unified understanding of this form of organization of business at the moment. We want to offer our own understanding, without assertion of the absolute truth.

For ourselves we distinguish three levels of networks:

1. The first level. A network (global) – this level can also be named networked economy. It's the general global integrated environment based on electronic networks (digital communications). In this environment any company or person who is located at any point of this environment, can quickly and directly contact with any other company or person concerning joint activity with minimum expenses.

2. The second level. A networked organization (other names are a network having borders, a strategic union, a corporation «without borders») is a set of autonomous, equal in rights and independent partners, which has borders. Common interests, motives, some ideology, a set of common values, historically generated relations, common network strategy shared by all the participants, geographical belonging, the policy of collective self-restriction, etc. may become these borders. In any case partners exist within the borders of such a network-corporation. There is no hierarchy in it, but there are co-ordinating mechanisms which support the network within the borders, set the game rules, and work at their institutionalizing. Each participant of the network is engaged in his basic kind of business, the rest of the requirements are totally fulfilled by other participants of the network. As a matter of fact, each participant is the centre of competencies or a functional partner. Exactly in this network temporary hierarchical and other structures can emerge for solving concrete tasks. The networked organization itself functions in the global network where it can start to co-operate, merge or attach other networked organizations to itself at any moment.

3. The third level. A network-centric organization as a temporary or constant organization formed on the basis of network connections, relationships and technologies, using them in management [of business]. The given organizations are called network-centric because though in this structure all relations and communications are built among the elements equal in rights, nevertheless, one

operating (co-ordinating) centre is always distinguished. That is the hierarchy takes place all the same, it's just minimal, the structure, nevertheless, is flat. Among network-centric organizations it's possible to distinguish three basic structures:

– The network project group (other names are a virtual organization, a virtual project team) is a network structure, as a temporary hierarchy in the existing networked organization (corporation «without borders»). It's a fragment of a networked organization, with temporary hierarchy and structure, focused on project performance. There is an existing network which includes functioning and interacting set of participants equal in rights (companies, groups), without hierarchy. Any organization can reveal the requirements of both the environment, and the network itself and formulate on its basis the project objective. For realization of this objective in a network on a contractual basis a temporary hierarchy and structure for realization of a concrete project is formed. Here are initially no differentiations between internal and external members of the organization, own and others' resources, all is perceived as the unified integrated environment. As the managing centre jet out either the owner of the plan (the project objective) or the organization in coordination with him capable of realising the project most effectively.

– The way of the own business organization through formation inside of the organization of a network structure. In this case the organization transfers the logic of the inter-organizational cooperation applied in networked organizations, to the internal life, structure, connections. Inside of the company there are still mechanisms of control, distribution of resources, but home markets are introduced for creation of the competitive environment and the field of interaction. Instead of division of employees into constant departments only temporary network elements (analogue knots of a network) – working (project) groups – are used. Working (project) groups are analogue of network project teams which we have told about above, the unique distinction is that it's formed not of separate companies, but of smaller elements – employees of the company.

– The way of the own business organization through formation outside of the organization of a network structure. In this case any organization starts to be facilitated because concentrates only on a key kind of business, on key competencies, other functions are taken out for outsourcing. Further the relationships with all suppliers, contractors, clients, customers, investors are built in the networked logic. There can be formed chains which then merge with each other and a network appears. As a result, the process of formation of own network takes place when the network from real and potential partners starts to surround this company. In this network the owner of the business as the bearer of the plan and all basic interrelations acts as the managing centre.

Such a structure can be the basis for creation of a high-grade networked organization (or at the expense of expansion of own borders, or merging into other similar structures). Here, first of all, in the mind of owners of such an organization, traditional differentiations between internal and external members of the organization, own and others' resources disappear; people start to think with categories of objectives and ways of their achievement.

Thus, we suggest distinguishing, first of all, between two concepts – the networked organization (corporation «without borders») and the network-centric organization, as a more local and/or temporary phenomenon. It's these two forms that we'll consider further. Moreover, in relation to network-centric organizations for us the most interesting ones are network structures intended for realization of projects, as it's what we ourselves can already try to create. What do we receive due to the networked organization of business?

Some very important advantages of business:

— fast access to the centres of competencies: we can involve the best and skilled partners in project realization, performance of separate functions, solution of any problems;

— all resources necessary for activity and project realization are available;

— efficiency and adaptability of the organization to any changes of the market, requirements of clients at the expense of flexible, fast, multi-various options of organizational structure. We involve participants and we form demanded and adequate configurations of executors to meet the requirements of a concrete project and a specific target. Besides, there is a possibility of holding a reconfiguration of combinations of structure elements accordingly any changes quickly and with minimum expenses;

— ability to distribute rights and duties, amounts of work in the course of activity dynamically;

— rational structure of costs: it's not necessary to have experts in staff constantly for all occasions and as a consequence to bear constant expenses for them. If necessary we involve proper experts, on the expiry of the term we stop working with them.

For the further understanding of what these network and network-centric organizations are, it's necessary to consider their three important components:

— the system formation factor is the principles uniting networked and network-centric organizations;

– the structure of network is element composition and connections between participants of the networked organization, organizational structures and hierarchies which arise in networks and principles of functioning and interaction of a network, the requirements for the participants of a network;

– the integrated network space uniting information, communications and knowledge through the conscious management of knowledge, simple tools of interaction, effective information and communication network.

A. The system formation factor for networked and network-centric organizations

The key question which is necessary to answer in order to project and create networks consciously is the question about what forces will allow uniting a multitude in one network. What forms networked and network-centric organizations? What is the system formation factor?

In social network movements this factor is ideology. It's ideology that allows integrating separate groups of people into a unified network. Besides, in social networked organizations ideology has two levels. At the first level there is a general ideological semantic concept, for example, «We should live on the pure Earth» which all agree with. At the second level this concept starts to be interpreted by different groups in their own way. Right here a field of interests of all the participants of a social movement arises. That is the interests of each group and its leader, which he substantiates through a new treatment of the ideology, are motive power of all social network movements.

Can we use ideology for formation of networked organizations in business? For this purpose first let us revise what ideology is in general.

Ideology (from Greek idea – a concept, vision, and logos – a word, concept, a doctrine) is a set of diverse more or less ordered illusory ideas, conceptions, myths, beliefs, dogmata, spells, standards, promises, purposeful directives, slogans etc., expressing interests of one or several communities and focused on replacement and substitution of rational understanding of the reality in order to preserve or change social ideals, values, norms, and also political, public, economic and household relations.

Ideology is based on the «designed» reality; it's focused on practical interests and has manipulation and management of people by influence on their consciousness as an objective.

It's the key thesis– the «designed» reality – for us. We can start to design a new network reality through the change of the language of communication, mastering network terminology, integrating a new language of description of the reality

in the consciousness of all potential participants. If we introduce new images, relations, phenomena, simply and clearly describing networks, networked and network-centric organizations into consciousness of people, we can achieve that people will start to see them in daily occurrence, in usual life. After this, people can start to master network ways of communications and ways of actions in network space.

That is, all begins with the language of description of the reality. For example, Roland Barthes, a French philosopher and culture expert, in his works united a myth and ideology, naming them «meta-language». He described the process of ideology formation as follows: usual words, terms are emptied to hollow forms (words-containers), and then are filled with new necessary sense. After, in consciousness of people these words are filled with the necessary sense, we can conclude that the ideology is created and introduced.

We should create a new network reality through filling usual words, relations, phenomena with new sense.

This way is very good in case of the own business organization through formation of network structure inside or outside of the organization, when we have a possibility to create a new language, to introduce it in the consciousness of our employees, and, subsequently, in the consciousness of our real partners. Also it's good for preparation of potential participants of the networked organization, network project teams, to interact in the network logic.

But how is it possible to unite autonomous and independent organizations in a concrete networked or network-centric organization?

If we speak about networked organizations (corporations «without borders»), here it's possible to distinguish the following external and internal system formation factors:

a macro process is any economic process which is iterative, cyclic, not having the termination date, demanding enlisting of a great number of resources and participants (for example, power development of a region, a country);

the global program having an accurate certain result (for example, building of several hydroelectric power stations in Africa) but which is probable to realize only through joint efforts of a great number of participants. Otherwise it's possible to name it as a network strategy;

the common interests of potential participants of the networked organization. It's when we search for the common interests and aspire to express them through comprehensive ideology. First the common interests, we pack them into beautiful

ideology which new participants subscribe to afterwards. That is, the way when we go from private interests to the creation of the common beautiful picture of the future is what we name ideology;

the uniting objective (ideology, semantic concept, general values) allowing uniting individual interests of each member of the networked organization, which are unattainable out of the network, for example, an access to a specific or unique resource (information, knowledge, etc.).

The list, naturally, is not finished. Anyway the system formation factor for networked organizations is a significant, complicated phenomenon, proceeding from that it should coordinate a great number of individual interests with common interests.

In network-centric organizations the system formation factor is more often a specific goal:

the project objective is the system formation factor for a network project team. That is, for the achievement of this purpose the temporary hierarchy is formed;

the strategic objective is the system formation factor for the company which started to organise its own business in the network logic (network structure inside or outside of the company). Here the strategic objective, which is possible to achieve through mastering the logic of network functioning, acts as the system formation factor.

B. Network structure (elements and interconnections)

The network consists of the following elements:

The agent (the minimum element of a network) is a working individual taking actions, including directed to others, influencing others. It can be an executor of any social or business roles, a person, making decisions, a person influencing the process of making and realization of decisions.

The network knot, the activity centre, the centre of competencies. It's a set (multitude) of potential agents, indiscernible among themselves owing to the geographical, organizational coherence, participating in the same process, in the performance of the same function, together possessing a unique resource or having similar interests, relations in the network. The knot carries out a certain function and/or is engaged in its own basal service, business; realizes a small number of key competencies (to do not all at once, but that what we can do best). Besides, the knot of a network itself is a resource claimed by the network. In any case this knot consists of finite number of agents who at the present moment

of time exist within the common borders. The knot can have a sub-network of other knots. From the point of view of an organizational structure knots possess specialization characteristic of functional structures on the one hand, and the autonomy peculiar to divisional structures on the other hand. Due to the flexibility of borders and a wide set of elements, there is a possibility of fast change of the number of resources in a network. The set of knots itself allows carrying out fast reconfiguration of any elements of a network into any structure, to transfer resources quickly.

Actor is the leader who represents all the knots, as a matter of fact he is the bearer of the resource, important and necessary by network structure. Actor acts not in his individual quality, but as the representative of a category (the leader, the intermediary, the head, the owner etc.). Actor can own (operate, impact, influence) one network knot or a network of the distributed interconnected knots (or activity centres). These knots can be separate persons, groups, formal and informal organizations or parts of groups or organizations. The key role of the actor is targeting. In an ideal situation the actor does not carry out operational management, he is, first of all, responsible for strategic aim taking, he is the keeper of knowledge (traditions), the bearer of key competencies, the umpire in the conflicts between agents of the knot, between knots, the point of gathering of the participants of the knot.

All the subjects in the networked organization (agents and actors) enjoy autonomy which is expressed in a free choice of problems, responsibility for them.

Any agent is a potential actor who either can create a knot independently, or we through the interaction with him can create a new knot round him, necessary for us. The set of actors can unite in a knot of a network and be agents for us.

The basal element of a network is a network knot. The network knot can be distinguished independently when it's positioned within the networked organization as the centre of competencies, as a functional partner, as the owner of a unique resource, as a separate company – the participant of the networked organization, etc. We'll name these knots as an «independent knot» or «natural knot». As more often such knots arise within the limits of natural borders, for example, the borders of a company, the borders of any division in a company, or in the presence of a strong leader, an actor, who himself creates a knot, filling it with the participants necessary for him. But from the point of view of management we ourselves can distinguish (create) similar network knots in our environment for increasing efficiency and the solution of tasks. For example, we ourselves can consider the company, our partner in the project as one knot, and if necessary we can consider this company as several knots, each of which will carry out a specific task, or perform a certain function. In this case our interrelations will be built not only with one actor, but with several who are necessary for successful

realization of the project. We'll name these artificial knots «functional knots» since we ourselves create a temporary knot of a network for realization of some function necessary for us; after the realization of this function the requirement for this knot disappears and the force supporting this knot within any borders disappears.

That is the necessity of creation of a functional knot by us for carrying out any task or function requires the presence of one more artificial element in a network, a networked and network-centric organization – it's the architect of the knot. The architect of the knot is an approximate name as we have not found the term adequately approaching to this subject.

So, the Architect of the knot is an agent who under the arisen problems of a networked or network-centric organization constructs a functional knot from various distributed unconnected participants, coordinates the work of the functional knot, for maintenance of achievement of the purpose for which the knot has been created. He does not operate the functional knot, but creates all conditions for the effective process of group work at the expense of what the effective work of the knot and the set objectives are achieved.

The main goal of the architect of the knot is to include all unconnected earlier participants of the functional knot into teamwork, to develop among the set of the participants the skills of joint and independent decision-making, to adjust network communications in such a knot, to provide effective performance of the set task/function in the knot. It's natural, that the functional knot should be presented by the actor. Accordingly in creation of the functional knot the decision is made:

if the knot is important for the direct control, after the assemblage of the knot the architect of the knot should become its actor, but thus he ceases to be the architect of the knot;

if the knot is not so important for the direct control, in the structure of the participants of the knot an adequate actor is searched (or powers are delegated, or, if available, an informal leader is elected, etc.) and further the transition of the knot to autonomous independent work is provided.

By analogy with the architect of the knot other artificial elements are possible: the architect of the sub-network, the architect of the network, who should be able to create and work with network elements of the higher order, for example, with artificial networks. To be more exact the architect of the knot (sub-network, network) should be over the knot (sub-network, network), but not inside of it. Only being inside, he can be an actor.

Each independent and functional knot is equivalent to each other and equal in rights. Exactly for this reason the same element can act both as an operating knot, and an executive one. There mutual submission may arise within the limits of one problem, double and threefold submission, interlevel interaction, movement in the hierarchy. At the same moment any knot can be both the subject and the object of management simultaneously.

All the elements of the networked organization (agents, knots, actors), are interconnected directly with each other, that is between them there are connections equal in rights which are constant or temporary restrictions on the behaviour of each other (network elements).

These connections are voluntary and are of two types:

real connections are the experience of the joint activity gained earlier or already generated arrangements on the basis of which at any moment it's possible to actualize connection, relations and to gather quickly in any temporary or constant structure for teamwork.

potential connections. The time of creation of connection is so little, and the connection itself requires such little efforts for its creation, that they may not be taken into consideration but it just may be admitted that this connection exists. Preliminary (frame) arrangements on joint activity can be generated. These connections are based on the accessible to all information about possibilities of each company, its experience, the resources, the accepted rules and interaction conditions (as well in each company and in the networked organization itself) and on readiness to cooperate. Accordingly in the networked organization round the solution of specific problems these connections are instantly created and group of elements is formed in the most optimal structure for the solution of any problem. In the networked organization at the first stages potential connections prevail. In the process of accumulation of experience of joint activity there arises a large number of real communications. In the network-centric organization real connections prevail as it's created on the basis of concrete arrangements between all the participants of this structure.

In other words, network and network-centric organizations are a set of elements (knots, people, actors, etc.) which are united and included in the general frameworks, borders between which there are potential and/or real connections.

Hierarchies and management in the networked organizations

The skeleton of the networked organization is the rules of interaction, cooperation («game rules») which all the participants shared and agree with. These game rules impose on all participants of the networked organization mutual restrictions on

behaviour of each other. These game rules are some institutions in a network and are based on the coordinated and shared by all the participants' expectations from each other. Game rules cannot be established from above. They can be developed only collectively during long negotiating processes, development of the networked organization. Besides, a part of rules, stipulations of use can be formed by the results of the reflexion of joint activity experience.

The formal rules fixed in contracts, frame agreements, codes of behaviour voluntary accepted, policies of self-restriction, etc. can act as such game rules.

The two key principles (substitutes) which should be introduced in «game rules» are a reciprocity and trust.

The skeleton of the network-centric organization is concrete arrangements concerning joint activity. The basis for formation of these arrangements is the strategic objective, the project objective of the organization.

It's very important for formation of networked and network-centric organizations to define a role position for each knot of the network. The role, a role position of the knot of the network is a function, the key competence, basal business in which the network knot is involved, the type of relations between them, specialization.

What is the role in a network defined by?

Making entry into the networked organization the roles (administrative, technical, functional) which participants can apply to are defined in advance. That is informal arrangements are formed, which define and fix possibilities of all the participants of a network to act in this or that role – the coordinated expectations from each other.

It's important not only to be declared for a role, it's important, that other participants agree to these possible roles (functions). Attaching role positions to network knot is carried out on the basis of simple criterion; it's an adequacy of the knot for the declared role, how much the knot considers itself effective in this position (positioning in an external world) and how much others will agree with it (knot history, experience of joint activity). For example, everyone can be declared in the networked organization for a role of the universal manager of projects, but not all can admit this role, as a consequence – won't be invited to the project in this role or will simply refuse to participate in the project where there is already an organization in this role.

Possible role positions impose clear restrictions on participants from the point of view of what relations, they can participate and in the capacity of whom. In any case there are knots of a network having wide specialization – a large

number of roles, but there are the knots, which are initially narrow specialized. They, for example, can be engaged in maintenance, gathering and distribution of information, safety, maintenance and administration of the information field, etc.

In networked organizations there is no hierarchy in its pure state. There is no one commander-in-chief who would carry out general management of all participants. There is no unified management centre – there is a set of management centres (activity centres). Management of networked organizations is carried out on the basis of coordination. The collective structure which carries out general coordination of all the participants of a networked organization acts as the managing director, to be exact, the coordinating body. It can be constant or temporary structures, for example, consulting councils of actors, or some temporary coordination advisory councils. Already within this coordinating structure decisions may be taken by negotiations, finding the compromise, voting or in the logic of the centres of competencies, when the centre recognized by all the participants (the network knot which is the most competent of any question) in the person of its actor can make a decision on a group of certain problems. Also decisions can be made by ideological leaders, when some actors have very big authority and can exercise veto on any decision at least and at most make some decisions individually. All this is very similar to communal (family) relations when all the members of a community (family) know the duties and carry them out voluntarily. It's known that in biopolitics the term «the networked organization» is explained as revival of the primitive type of social organization of people.

The given coordinating structure carries out the following basic functions:

– the objective coordination of the joint efforts;
– the control over «game rules» keeping;
– the umpire for settling conflicts;
– the adaptation of the networked organization to the external world.

Instead of the usual control of performing the tasks, the achievement of the objectives, which is common in hierarchical structures, in networked organizations control is maintained at the level of keeping game rules, including principles of interaction, operational behaviour, expectations from role positions.

Apart from that knots themselves can consist of other knots (to represent sub-network), they can be formed in other logic, not network, including the means of rigid hierarchy. The good order of connections (interaction) and the direct mechanism of management (hierarchy) in networked organizations are a temporary phenomenon and it arises only at the moment of the solution of a concrete problem, project realization.

Any specific objective (project objective) in the networked organization leads to the creation of a network-centric organization on its basis. As soon as the network-centric organization starts to be formed for the project realization, the managing centre forms, within the accepted «game rules» in the networked organization, own rules on the basis of which it will manage the participants of the project. This temporary structure is intended, first of all, for a combination of necessary knowledge and experience without formal organizational restrictions.

The difference between the networked and network-centric organizations is that in the networked organization the management mechanism is coordination as all the elements are equal in rights, in network-centric organization – coordination-hierarchical where one of elements equal in rights at some concrete moment of time, nevertheless, takes up supervising functions in relation to the rest.

C. The integrated network space (the network environment)

Network interaction and network logic of functioning are impossible without the corresponding environment which unites and connects all the participants of networked (network-centric) organizations, sets some peculiar borders with the external world. This network environment can be compared to the lake which is the basis for a separate ecosystem, where there are its typical «inhabitants»: plants, fishes, microorganisms, etc.

Similarly, the networked (network-centric) organization is an artificial system consisting of a set of network elements (agents, knots, actors) and the environment of their functioning, the resources connected with each other by exchange, information, knowledge. It's exactly the environment of functioning, that we name the network environment or the integrated network space, that gives stability to this system. The network environment allows uniting all separate participants in some peculiar network ecosystem with its own borders and functioning rules, where the information (resources, knowledge) flows freely and all the participants interact with each other.

All network elements, which we spoke about earlier, are located at a physical level. It's a level, where all the participants of a networked (network-centric) organization are physically located, where main events of the network take place, where there is a physical interaction or realization of joint projects, where we see all the participants (distributed geographically, functionally, due to competencies) etc. In other words it's possible to name it an event level for here all the events (actions) anyway connected with our networked (network-centric) organization take place.

The integrated network space itself is an «invisible» level of the networked (network-centric) organization. And if the organization of all the participants of

the project in the network logic, first of all, the question is of structuring and distinguishing of all the necessary elements, formation of a set of necessary arrangements take place at a physical level, creation and fixing of network connections, interaction of network elements, functioning of all the network elements occur at an «invisible» level: in the integrated network space (the network environment).

Therefore, for steady and effective functioning of any networked (network-centric) organization it's necessary to create such a network environment uniting information, communications and knowledge. For this purpose it's necessary to create and work with separate areas of our network environment:

The communication area is an area of interaction of participants of a networked (network-centric) organization either inside, or with the external world, the area where there is a possibility to communicate, to establish direct relations quickly. At the expense of a wide set of communication tools, information about all the participants and readiness of any participant to interact a possibility of an establishment of direct (horizontal) relations between all the participants of the networked organization is given. At the expense of the possibility of simple, fast and direct communications conditions for a constant negotiating process between all the participants are created.

The information area is an area where information and knowledge are created, collected, processed, transferred and distributed. In networked (network-centric) organizations one of the major tasks is providing fast access to the knowledge and experience of any participant, to all the information, concerning the networked organization, joint activity, the information on capabilities of the participants, etc.

The perception area is consciousness of each separate participant of a networked (network-centric) organization, first of all, the logic of cognition and perception of the world (the description language of the network reality) and template processes of information processing. It's the most difficult, not absolutely clear, but the most necessary area for creation of a full-grown networked (network-centric) organization. It's necessary to introduce in consciousness of people new forms of perception of the surrounding reality in the form of a network, to show the place of the person in this network reality, to teach the logic of the network interaction, functioning. To provide and teach new forms and means of communication corresponding to this network reality. And further it's necessary to achieve, that not only the templates of perception and information processing become ones of network in character, but also it's necessary to stimulate the development of new templates of communication and behaviour adequate to the network logic of functioning. Why is it so important? Because in networked (network-centric) organizations decentralization of responsibility happens, tasks are necessary to

solve quickly and in the place of their occurrence, there is a specific character of functioning and interaction of all the elements in the network logic. First of all, any element should interpret adequately the arisen events and react to them independently in the place of their occurrence, instead of transferring the information about their occurrence and waiting for a managing instruction what to do. As a matter of fact, each element of a network (agent, knot, actor) should be a highly intellectual unit capable of reacting to all events independently, taking a decision autonomously, setting to himself tasks within the limits of the reached arrangements, taking up responsibility quickly, etc. This provides natural dynamic distribution of the number of the rights and duties among the elements. Such high requirements to the elements of a network demand constant, regular development of all the participants of networked (network-centric) organization, including the necessity of training in functioning in the network logic, expansion of the set of competencies, increasing of the professional level.

The task is to achieve conscious integration of these three areas with the physical (event) level and to increase the efficiency of functioning of the networked (network-centric) organization at the expense of occurring synergetic (mutually influencing) processes.

The technical infrastructure allows connecting to each other physical level of the networked (network-centric) organization, communication and information areas of the network environment. This technical infrastructure should provide:

– fast, simple access of all participants to any saved up and new information materials, including the ones about the disposable resources, about the capabilities of the participants, business ideas, free funds, business contacts, possibilities, the experience of joint activity, vacancies etc.;

– accumulation, actualization and use of the resource of knowledge, fast and simple access to the knowledge of any participant;

– possibility of a simple and fast establishment of direct multilateral relations between participants interacting within the networked (network-centric) organization.

The base of the interaction in a network is complete accessible information on all the participants of the networked (network-centric) organization, from the point of view of that each participant is a resource for the others. It will allow finding quickly the people ready for solution of this or that problem, that is, to identify and mobilize knowledge and competency for any problem. Therefore it's necessary to have access to the information on individual propensities, capabilities, qualification, information on the experience of companies, resources, knowledge, possibilities, the accepted rules and interaction conditions, access to all contact data.

But it's important to remember, that the technical infrastructure is that IT platform which we'll use as a base for the networked (network-centric) organization though this is its important element, nevertheless, it cannot replace communications or create knowledge. Because and communications, and information, and knowledge are inseparably linked with the participants of the networked organization. It's them who can fill the environment with information, knowledge, create all necessary communications. It's possible only in the case if we can provide the development of all the participants through the assimilation of new knowledge, competencies, allowing interacting and working in the network logic effectively.

Technical infrastructure with an expanded set of communication tools and the complete information on all the participants, including contact data, only provide us with possibilities for formation of direct (horizontal) relations among all the participants of the networked (network-centric) organization. The key question is not only possibility, but also readiness of any participant to interact in the network logic, but it already depends on how much the person is able and ready to work in the network logic.

The technical infrastructure cannot fill the base with information, knowledge. It also depends on how much the person is able and ready to work in the network logic. For knowledge accumulation it's necessary to change the attitude to experience and knowledge among all the participants of the networked (network-centric) organization. First of all, it's necessary to get rid of the competitive approach of each separate specialist, when knowledge is perceived not only as one's own property but also as a key competitive advantage. Only in this case the participant will be ready to share his knowledge. For knowledge extraction it's necessary to create the culture of a constant reflecting: situations when the practice of studying and analysis of all errors becomes usual. When valuable lessons are taken from errors, the search of their solution is constantly carried out; the tolerance to errors («not an error, but a valuable lesson») is shown.

For spreading of knowledge it's also possible to create an original networked university (for example, the centres of competencies which train in what they are the best) for the organization of the continuous process of training of the participants of the networked (network-centric) organization. It's very important, that all the participants learn from each other, keep the knowledge and experience received in the process of work at joint projects, filling the knowledge base with them.

For providing the process of continuous development of participants of the networked (network-centric) organization it's necessary to build into working processes training tools and technologies which would allow mastering skills of network interaction at any moment of joint activity, functioning in networks.

It demands conscious projection of these technologies and their conscious embedding in «Game rules» which are shared by all the participants (for example, carrying out meetings in a special way, or formation of reports in a specific way etc.). Most likely, in the presence of complete understanding of required skills of network interaction, they should be broken into separate fragments and parts to build in the maximum number of network various processes to make the development of these skills go imperceptibly, in a «natural» way. The task is to eliminate the difference between work and study, transforming them into a unified process.

If to sum up our reflections it's possible to draw the following conclusions:

Networks, networked and network-centric organizations are complex, multidimensional and yet not an absolutely clear phenomenon demanding further studying;

It's necessary to differentiate two basic terms – the networked organization as a set of autonomous, equal in rights and independent partners, and the network-centric organization as the phenomenon more local or temporary where accurate borders are defined and where one of elements equal in rights at a certain moment of time takes up supervising functions in respect to the all rest;

Networks, networked and network-centric organizations are, first of all, special understanding of the reality, that's what is in our mind, in the mind of our partners, the logic of the perception of the world as a network. That is the key component of networked (network-centric) organizations is, first of all, people who see networks and networked organizations. The people who see themselves and their place in this network reality. The people, capable to work, co-operate in the network logic that means readiness to communicate, negotiate and co-operate, ability to work on conditions equal in rights with others, readiness to build partner relationships, to render mutual assistance (that is people should not only take, but also, first of all, give others).

THE PROJECT ORGANIZATION IN NETWORK-CENTRIC LOGIC

Now let's try to describe management of a complex project from the position when we consider the project to be a network-centric organization. Here, probably, we'll be interested in the algorithm of project organization in network logic and a tool kit making us available to manage this network project structure.

From the point of view of project organization in network logic it's necessary for us to give to all information, communication and event streams a certain order which would correspond to the network logic of functioning, interacting and could be interpreted by us, and in an ideal situation — by all the participants of the project—in such logic. In our understanding it's possible to create such order at the expense of project organization and *actions organization* in network logic, when all participants communicate with each other, to create through coordination of joint efforts aimed at achieving the goal. And organization of these actions should be based on the «rules of game» shared collectively, which would permit to create all necessary network connections and to manage our project as a network-centric organization.

So, we'll try to consider the algorithm of project organization in network, and to be more exact, in network-centric logic. At the moment of project initiation we are in a situation when we have no network organization where we start the project realization. We'll consider the situation when we enter the project, having only a goal of the project, the customer of the project, a small number of potential participants who represent a set of the resources necessary for the project realization.

Let's present our initial data, including all real and potential participants of the project, placing them schematically on different levels (fig. 1).

On the first level there is a company managing a complex project. The key participants of the project are the customer, the initiator, the sponsor of the project, the investor etc., who also are represented on the first level. Such schematic presentation of the key participants of the project from above, over the project manager, leads to their being perceived not as participants of the project but as higher organizations while it's necessary to work with them as with any participant of the project, as well as manage them or relations with them.

On the second level we have physical realization of the project and achievement of the project goal. Here the companies taking part in realization of the project and carrying out separate stages of work are located. In the given example they are placed in the logic of life cycle of product creation.

On the third level there are stakeholders who do not take an active part in project realization but who can influence the project and also influence separate participants of the project and interrelations between them.   The project
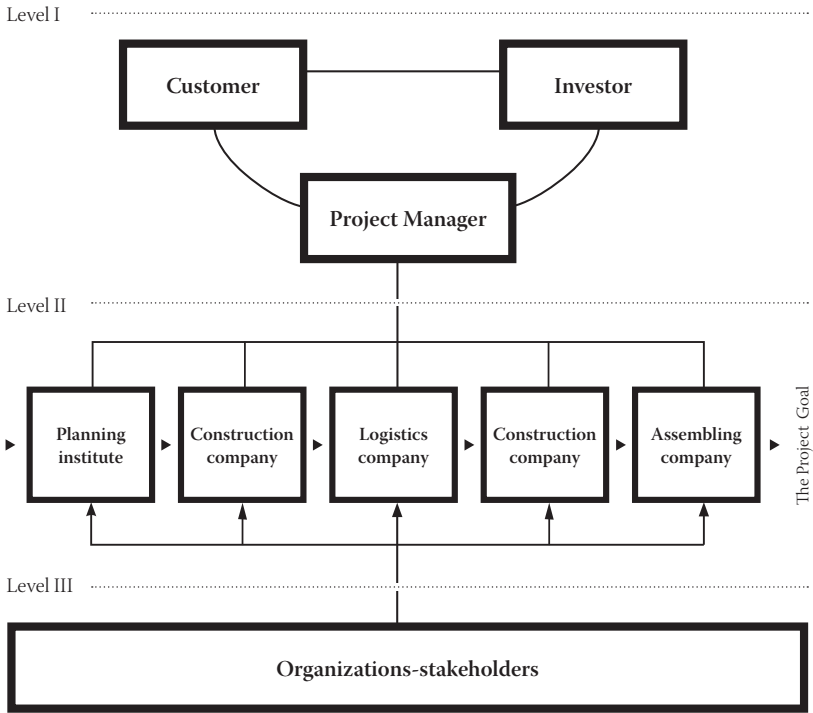
Fig.1

realization is a chain of participants where all participants of the project, including executors of the stages, the customer of the project, the investor etc., for us are frequently «black boxes», the input containing resources, and at the outlet we receive a certain result (an intermediate result of the delivery), which is important for the following stage — the participant of the project (the executor). Stakeholders influence these «black boxes», as a consequence, we can face difficulties with terms, quality, cost, or, on the contrary, achievement of an excessive degree of quality, prescheduled accomplishment or cost reduction.

Now, having defined the minimal set of the familiar participants of the project, we'll try to present a certain sequence of steps, the algorithm of the project organization in the logic of network-centric organization:
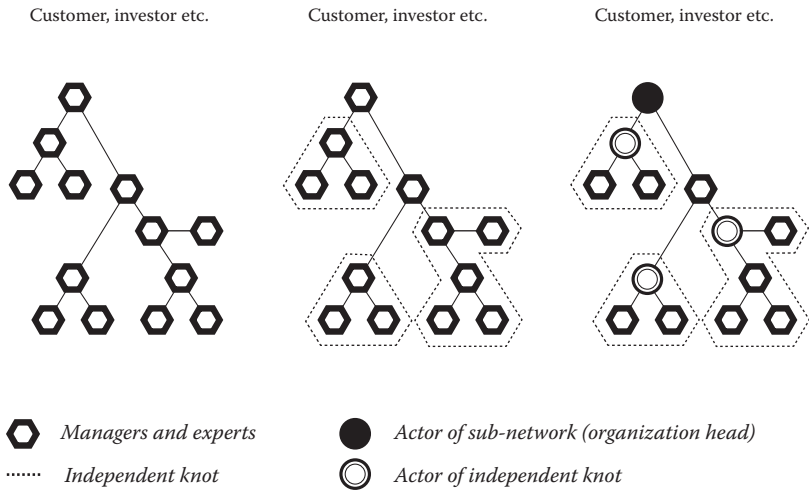
1. The first step in creation of a network-centric organization is creation of network mechanisms of direct management of our project. For this purpose we form a project management team of coordinators based on separate administrative functions and directions, stages of work. These coordinators should provide accomplishment of several important tasks from the point of view of network organization:

– To provide the interface of interaction with actors of independent knots (for example, through administration of information and communication channels);

– To act as architects of all required functional knots. All the burden lies on them in terms of assembling various distributed disconnected participants into artificial functional knots, coordinating their work, ensuring accomplishment of a task or functions of these knots;

– If necessary to be an actor at created functional knots;

– To develop (to train) team work skills, as well as skills of joint and independent decision-making of participants of functional and independent knots;

– To adjust all necessary network communications both inside knots and between participants of functional and independent knots;

– To provide the possibility of changing hierarchical subordination of knots quickly and not obviously (to remove resistance). It can be provided due to distribution of such managing influences through coordinators, as a result for the executing knot at this moment the customer will be the coordinator from the project management team, instead of another knot which expressed its need to the coordinator;

– To provide the possibility of quick and simple reconfiguring of network architecture of our project.

The network architecture of the project is built up on the coordinators, who are members of the project management team.

2. Further, it's necessary to open the «black boxes» of the customer, the investor, the sponsor of the project etc. so that they could represent a clear set of experts and managers, to trace interrelations between them, their zones of responsibility, their interests concerning the project (collective and individual) etc. These «black boxes», being participants of the project, at the same time initially are on another level – above the project. The project and the project manager for them are accordingly the knot and the actor of this knot. The customer, the investor, and the sponsor of the project can be elements (knots, actors) of the other or their own networks. Therefore, an attempt to open these «black boxes» can encounter a counteraction based on unwillingness to include an additional temporary knot (project) with an actor into someone's own network. However, it does not exclude our need for breaking down the customer, the investor, the sponsor of the project into smaller and accessible elements for adequate work in our creation of a network-centric project organization.

The most effective tool for opening «a black box» is «face-to-face» meetings which are held with each «black box» separately. It's necessary to hold these meetings on the territory of the customer (the investor, the sponsor of the project, …). On behalf of one side the project manager and the maximum number of coordinators should participate, on behalf of the customer's (the investor's, …) side the presence of the maximum number of managers and experts involved in our project should be ensured. What happens when a «black box» is opened? From an independent knot outlined by borders of the company, with the company manager, as an actor, it turns into a sub-network of independent knots where the manager accordingly acts in a role of a sub-network actor. An ideal situation occurs if a project management system is introduced in the company because anyone taking part in the project on behalf of the company becomes a member of the project team, and we receive the one and the only knot with one actor whom we'll work with. More often the situation is different and as a result of opening the box we can receive some independent knots with their own actors.

| Customer, investor etc. | Customer, investor etc. | Customer, investor etc. |

⬡ Managers and experts   ⬤ Actor of sub-network (organization head)

······ Independent knot   ◎ Actor of independent knot

Such situation when one company, from the point of view of participation in our project, has broken up into several independent knots with their own actors (not including the head of the company who is the actor of this sub-network) unequivocally complicates the management scheme; nevertheless, that's what we'll have to work with.
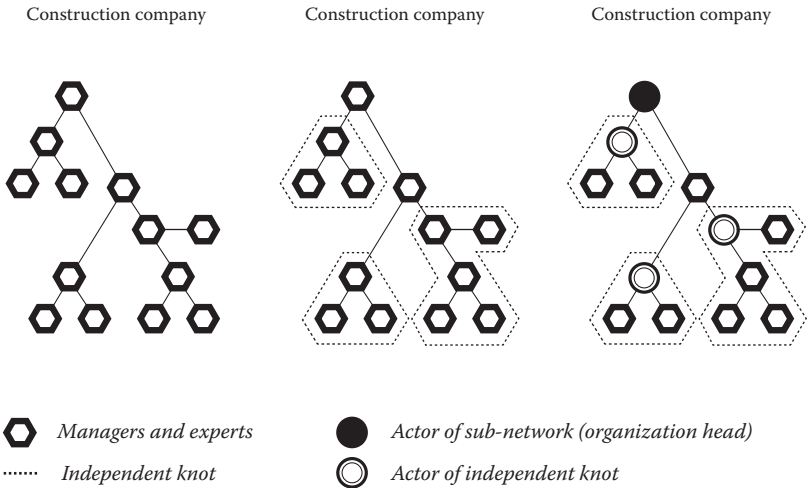
In order to correctly define all the actors and their knots, which will take part in the project to this or that extent, it's necessary to conduct internal analytical sessions. Also it's important to define correctly the interests of all the actors whom we have allocated as they are either the subject of our agreements, or if we do not take them into account, are a potential risk for the project.

The results which we should receive are to define collective and individual purposes of participation in the project, to define for ourselves a set of independent knots and their actors whom we'll work with, also who can influence the project, understand the interests of all actors, fix all the data on the powers and capabilities of the actors, to fix the formats of communication, the persons responsible for the project, to receive the maximum list of contacts.

3. The third step is opening of each participant who physically realizes the project. The necessary tools remain the same, as at the first step – holding «face-to-face» meetings with each executor («a black box») separately. It's necessary to hold these meetings also on the territory of the executor.

On behalf of one side the project manager and the maximum number of coordinators should take part, on behalf of the executor's side the presence of the maximum number of managers and experts involved in our project should be ensured.

Judging by the results of executors opening we'll receive a similar picture, as at the previous step.

Construction company   Construction company   Construction company

⬡ *Managers and experts*   ⬤ *Actor of sub-network (organization head)*

······ *Independent knot*   ◎ *Actor of independent knot*

The results we should receive are the same – to define what is done and who does it, to define the collective and individual purposes of participation in the project, to define for ourselves a set of independent knots and their actors whom we'll work with and who can influence the project, to understand the interests of all the actors, to fix all the data on powers and capabilities of the actors, to fix the formats of communication, the persons responsible for the project, to receive the maximum list of contacts.

During realization of the second, the third and the subsequent steps it's important to remember, that we do not have to say to participants of the project that we are creating a network structure, it's necessary just to organize interactions in such logic.

The intermediate result – if necessary, we can get access to all discovered elements in the former «black boxes». Now all our nearest environment in the project, i.e. all the participants of the project, represent for us a plane of accessible elements, located not under us in a rigidly hierarchical logic, but around us. We have received for this moment an accurate idea of structures of the companies-participants, the logic of their internal interaction, the actors, existing internal knots and the persons making decisions concerning questions interesting to us. It's possible to continue to work in a direction of constructing network architecture of the project. The field for further work is practically ready.

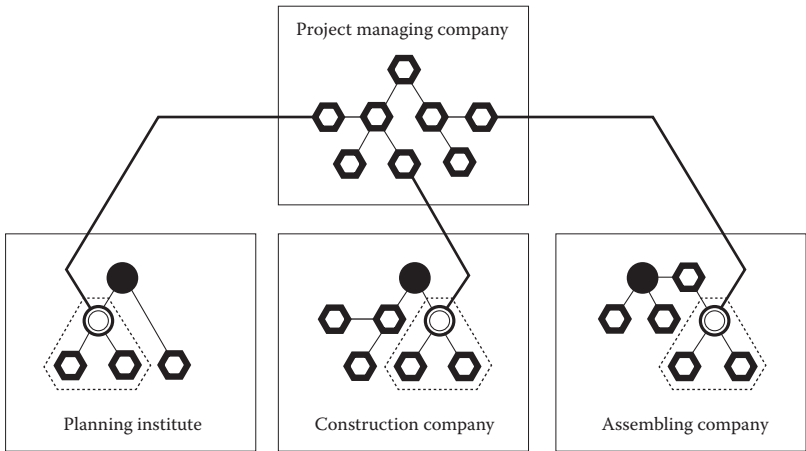That's, in its beginning the project can be represented in the following way:
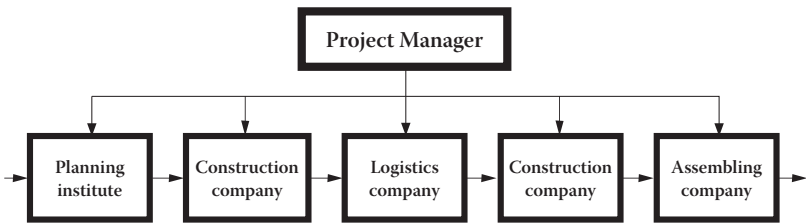
Real connections

Further, we opened the maximum number of «black boxes» and received another picture:
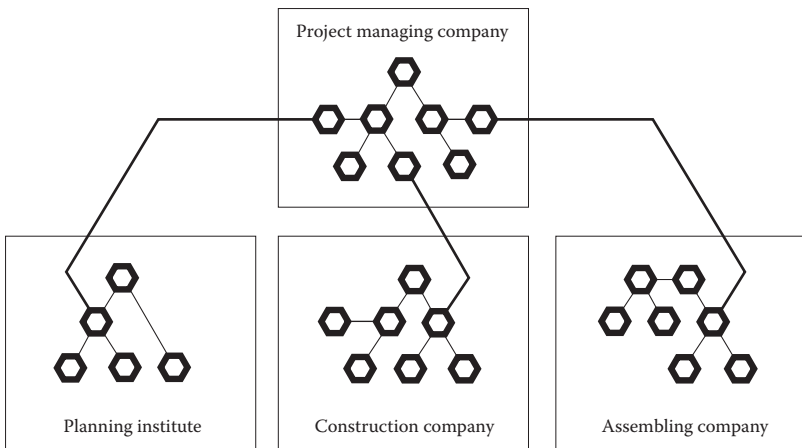
After that, we defined all independent knots and their actors necessary for us to work with in this project or whose interests it will be useful for us to trace for us:

4. The fourth step –   we should develop a strategy of interaction with «black boxes» of stakeholders.

We should make a remark here, that stakeholders represent, on the one hand, the same «black boxes», on the other hand, they are «black boxes» of a special type. Therefore, they require independent consideration and deserve a separate step in the algorithm.

Stakeholders, as well as the customer, the investor, the sponsor are elements (knots, actors) of another or their own networks.

However, they are not included into the number of the participants of the project and initially they do not pursue with their actions, the achievement of the goal of the project, therefore, graphically we have shown them on a separate level.

The quantity of stakeholders, revealed during project organization in network logic may differ by several times from the quantity of stakeholders in a usual project structure. Special importance is attached here to the fact of opening «black boxes» – all our participants of the project.

At this moment comes to light not only the internal structure of participants, but also a considerable part of external dependences. Depending on the chosen strategy the distinction drawn by us while defining participants of the project and stakeholders, can be erased. Stakeholders can turn into participants.

Let's talk about this in more detail. Regarding the situation with opening our «black boxes» it's necessary to add more to the definition of the participant of the project and the stakeholder given earlier. What's important - the participant directly participates in physical realization of the project, and the fact of his participation (the fact of his being involved in project realization) a priori promotes achievement of the goal of the project. In the case with stakeholders the goals of the project and actions (interests) of stakeholders may be different or even opposite.

Stakeholders can make a negative impact on achievement of the goals of the project during all the time of its realization, before its beginning and after its completion.

The logic of network-centric project organization (network architecture) provides for construction of maximum open information-communication space where any information and communication channels are accessible at any moment whenever any participant wants it.

Opening potentially negative stakeholders may lead to the switch of their activity status into direct participants of the project, and, the participants counteracting achievement of the goal of the project. It's clear, that such situation is inadmissible.

What should we do? Just give up further breaking up for obviously dangerous, potentially dangerous and neutral stakeholders. For them, standard tactics from the general theory of project management will be more applicable, when each of such stakeholders is perceived as a further indivisible knot with an allocated actor.

To stakeholders, having positive influence on project realization, are applicable for the same tools which were used for other «black boxes». One should apply the tools, using as the main guideline the expansion of positive influence with strengthening the possibility, and, if necessary, transforming the given stakeholders into active participants of the project.

The intermediate result – increase of the quantity of stakeholders, more careful study of positions and interests of available stakeholders, their breaking up into positively influencing, dangerous, potentially dangerous and neutral ones.

Thus, we reduce the risk of negative influence on the goal of the project from stakeholders and expand the possibilities of interaction and stir up positive influence through opening «black boxes» (positive stakeholders) necessary for us.

After completing the fourth step we receive a base plane for further construction of network architecture of the project – in this plane we see a field of real participants and stakeholders (fig. 7) with all their internal knots and actors (fig. 8).
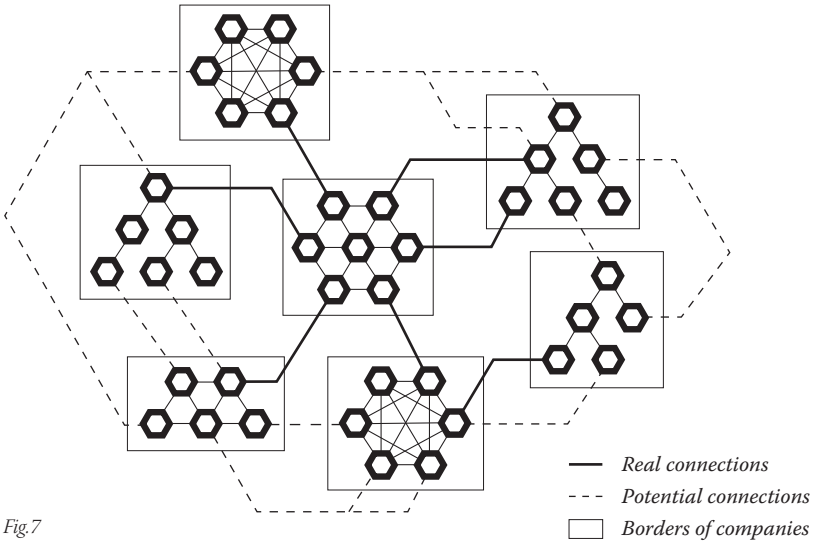

Real connections
Potential connections
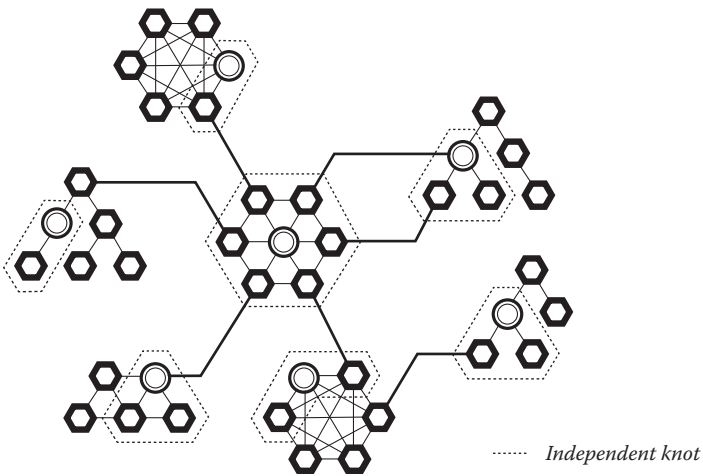Borders of companies

Fig.7

Independent knot

Fig.8

At this moment our base plane is not a unified system yet. It does not have interconnections necessary and sufficient for achievement of the goal of the project and for the subsequent interaction upon completion of the project. It's a plane, and an adequate network-centric organization is more comparable to a spatial object where interaction of elements is promoted by the environment in which these objects are located.

In real life there are practically no flat objects interacting in flat environments. For example, the eco-system of the world ocean is a set of millions of volumetric objects (animals, fish, plants etc.), interacting in a volumetric environment (water mass) and it's the environment, i.e. the ocean itself that is the basis of the eco-system.

The same holds true concerning a network-centric organization. To make it real it's necessary to build a maximum number of direct network interconnections and to create the environment in which elements separated from the point of view of the project in the network logic will interact.

5. The following step is working out, agreeing on, confirming and accepting the «Rules of game» by participants. One variant is – in the beginning we create these rules ourselves, then we agree on them with all the participants and temporarily confirm them. But creation of adequate «Rules of game» is a result of a great number of negotiations and reached arrangements on the project where we should initiate the description of principles of interaction, mutual restrictions, other norms which we may need to form network architecture of the project. The «Rules of game» themselves can contain requirements to interaction (for example, types of meetings held concerning the project, their periodicity, structure of participants, the list of questions for discussion), interaction principles (for example, a principle of the maximum information transparency), to describe and give legitimacy to all network elements of the project (for example, about the necessity to create working expert groups to define their status, the rights and duties, the right of coordinators of the project/architects of knots) etc. Taking into account that the «Rules of game» are collectively distributed, carefully agreed on expectations of participants from each other's behavior, working out the «Rules of game» is not a point event, but a process going on during all the realization of the project. Therefore, if at the first stage of the project we represented ourselves as the authors of the «Rules of game» further these rules should be developed collectively, agreed on and accepted during joint realization of the project. Taking into account that the process of creation and agreement on the rules is complicated, we suggest the following order of their formation:

— We create the first version of the rules by ourselves, we agree on it and temporarily we confirm it with all participants of the project;

— In the process of gaining interaction experience we receive understanding of what we need to add and what to remove judging by the results of the last period of joint activity. Here, forming new rules and changing the old ones become a collective process;

— In the process of experience reflection we can expand our understanding: what we need to add and what to remove from these «Rules of game», as well as to

understand and fix in what context these or those norms should be applied and in what context they can be ignored. Here forming new rules and changing the old ones will also be a collective process.

The intermediate result – we have received the tool for formation of horizontal communications, for the further creation of the project environment, the tool accepted and used by all participants. During each separate moment of time each participant of the project knows what rules of interaction within our project is built on.

6. With the sixth step we create a big number of horizontal communications between all participants of the project whom we thought to be in «black boxes». It will provide the maximum overflowing of information. Creation of a maximum quantity of horizontal communications is an iterative constant process. What should we do to ensure this process? It's possible to use an accessible tool kit:

– The analysis of the cumulative information on the already available structures of the companies-participants and stakeholders, the logic of their internal interaction, actors, existing internal knots and persons making decisions;

– Revealing a maximum quantity of necessary initial communications within the project for effective realization of the project;

– Forming horizontal communications where they are absent, through initiation of contacts among various knots, their participants and actors in the form of meetings, conferences, both personal and remote. At initial stages of the project initiators of creation of such horizontal communications should be coordinators of the project from the project management team in order to manage this process and build the maximum number of horizontal connections.

The intermediate result – we have created a communication plane of the project – one of the most necessary things for the network organization of the project. Here our base plane turns into the base of network architecture of the project, but this base is still flat. For creation of the environment some more steps are necessary. Only interrelations and channels of communications are not enough.

For example, a case with inhabitants of the world ocean. It's not enough to have knowledge of presence of natural and artificial interrelations between its inhabitants for it to become an eco-system. Yes, we know, that whales eat plankton, sharks – various animals and fish, we'll assume, for a change, that whales eat sharks. But without the environment all these are just seafood spread out on the plane.

7. Creation of «functional knots».

Due to creation of functional knots separate administrative functions, such as quality management, risk management, logistics management, deliveries management etc. or separate problems and directions in the project are realized.

We have «independent knots» — these are fragments of the companies – participants of the project. We create «functional knots», and, for others they can be called working groups (for simplicity of perception by people surrounding us it's possible to replace the term «functional knot» by «working group»). «Functional knots» include a part of elements of independent knots (internal knots and actors) and independent actors. Accordingly, the actor of this knot for us is the head of a working group who can be allocated naturally as well as be artificially appointed by us. The tool of creation of functional knots for us is the architect of the functional knot which enters the project management team as the coordinator of administrative functions and directions. The architects by means of moderating work of knots support our logic of direct management. The architects act as moderators of organization of actions, motivate constructive-critical collective thinking, a constant self-reflection of members of these knots and first of all themselves. They ask and raise questions; they manage construction of these functional knots. After the knot is constructed, its architecture is set, the participants of the knot have mastered skills of group work, they are capable of making collective independent decisions, the further need for the architect disappears and he either becomes the actor of this knot or switches to the solution of other problems.

The intermediate result – on our plane of co-located objects, mutually bound in natural (independent) knots with numerous interconnections among the objects new artificial formations – functional knots have appeared.

<div align="right">

······· *Independent knot*

▬ *Functional knot*

</div>
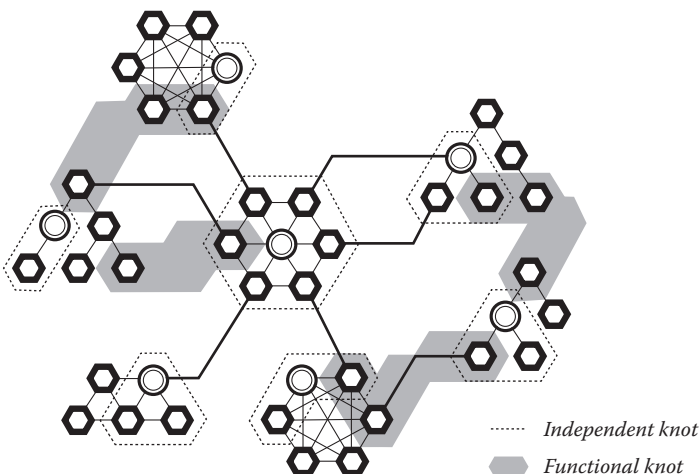
Creation of these knots is an important step in construction of network architecture of the project. Actually these are first artificial essences, increasing efficiency of project management and allowing coordinating its separate directions. Functional knots in combination with communication channels are already impossible to hold and present on a plane – at the moment of their creation the project starts to open up, to fill with volume. Before the moment of appearance of functional knots the project was not and could not be a network-centric organization, and it had only a few necessary, but insufficient elements and preliminary steps on the way to its creation. Now we have reached the point when our base plane became a volumetric system and we only have to complete the project through strengthening this system by means of the environment necessary for existence of the project in the logic of network-centric organization.

8. To create the mechanism of coordination of a network. In the basis of the mechanism there are the following elements which can be considered as tools of creation of the mechanism of coordination:

Coordination meetings – the basic coordination mechanism of a network. As a matter of fact it's precisely the same functional knot of our network-centric organization. To receive an official status these meetings can be named Coordination board of the project. The task is to provide the participants' aspiration to achieve general goals by active inclusion in decision-making processes. The obligatory participants of coordination meetings are the actors of sub-networks (heads of the companies – participants of the project, the persons making decisions), the actors of independent knots and the actors of functional knots (to provide the participants of coordination meetings with information). To hold such meetings a significant amount of efforts for development and acceptance by participants of logic of their holding will be needed. For the maximum effect such meetings should be carefully directed by the company managing the project. The given coordinating structure should have the following basic functions:

– The target coordination of general efforts through achieving consensus, that is making administrative (collective) decisions on the basis of a consensus and absence of basic objections of the majority of interested persons;
– Formation of agreements on all key questions;
– Creation, confirmation and updating of «game rules»;
– The control of observance of the «game rules» accepted at coordination meetings of agreements;
– The arbitration judge for resolution of conflicts, going outside the limits of one natural or functional knot. These should be resolved by negotiating processes open as much as possible;
– Adaptation of the network organization to the external world (acceptance of collective decisions concerning any external changes, reaction to external conflicts with stakeholders).

The results of such meetings should be publicized: that's an additional tool of management of actions of participants of the project.

Integration meetings – a meeting of actors and participants of independent and-or functional knots. These meetings are a functional knot of our network-centric organization. The task is simplification of interaction between knots, their participants and actors, formation of the maximum number of direct horizontal connections, the solution of project problems, connected with interaction between knots. At the first stages of the project such meetings will be held with participants and actors of independent knots.

After appearance of functional knots the meetings will solve questions of integration of the knots which have not been captured by functional knots or the solution of which is impossible without participation of actors of the involved independent knots. The functions of this coordinating structure are:

– Increase of efficiency of interaction between separate knots;
– The solution of questions of integration of separate independent knots within the network project;
– The coordination of decisions on creation of functional knots;
– Exchange of experience;
– The solution of problems within the project as a network-centric organization.

The results of such meetings should be also open to public; that is an additional tool of management of actions of participants of the project.

Other forms of personal meetings of various participants of our project, raising an overall performance in the project in the network logic, are possible, for example: working meetings on concrete questions of the project, meeting of functional knots (working groups), organizational-business games, seminars, conferences, etc. Personal meetings allow forming horizontal communications, mastering important components necessary for exact and adequate interaction with each other, such as common language, negotiating competence, aimed at cooperation, exchange of experience, spread of knowledge, revealing of interests of participants.

The intermediate result – the coordination mechanism is created. The project starts to work in network logic. Thus, the coordination mechanism simultaneously creates and supports the project environment in which there are continuous processes of creation, distribution, systematization of the information, accumulation and exchange of knowledge, integrating and breaking up functions and tasks, communications of all participants, joint development of all participants of network-centric project organization.

9. To provide the network-centric organization with a system-forming technical infrastructure – an IT platform solving a problem of simplification of management of a project as a network organization.

The given infrastructure is an integral part of the coordination mechanism of network-centric organization and the environment in which participants of the project will interact. The obligatory functions (possibilities) of this platform should be:

– Granting to participants of the project various tools of communications;
– Placing and storing in one place a considerable file of all information on the project;
– Providing general remote access to the information at any moment;
– Automatic actualization of the information;
– Display of a current situation on the project;
– Interaction with objects out of the platform (our IT environment);
– Placing and display of information objects in the logic of the network organization of the project, i.e. in that kind which is necessary for each separate participant of our project,
– Informing participants of all occurring changes.

10. To build in all working processes tools of development of participants of network-centric organization. Besides organizational-business games which can be actively used for training skills of network functioning, it's possible to use other tools, for example:

– Due to formation at coordination, integration and other meetings of agreements and their written variants we can manage actions of various participants of the project, involve them in the work of different knots, dynamically distribute rights and duties in the project etc.

– At the expense of publicity and availability of results of coordination, integration and other meetings, we can reach a readiness condition to cooperate from various participants of the project: nobody will want the information that a company has not fulfilled its obligations within the project or has broken the fixed agreements to be publicized.

– In the course of any meetings it's possible to artificially set local (small) tasks for a small number of representatives of separate independent knots. As a result we'll receive a short-term functional knot where a small number of people from different companies in the course of work on the problem will master the skill of direct network dialogue.

– A very important training tool is training by action, setting an example of your

own behavior. For example, to change the attitude of representatives of various knots to information as a valuable resource, you can open as much as possible information on the project from your part. Or you can directly communicate with a maximum quantity of representatives of various knots.

– To share experience it's possible to agree on giving master classes, seminars, courses on various important questions of the project, the main thing is to define the centre of competence correctly and to agree with it etc.

This list of tools is approximate as the question of development of participants of network-centric (networked) organization is extremely important, but we have at least started studying this question.

And what is the result?

And as the outcome of our intellectual constructions we have received an interesting result. Let's think, what started happening to our project when we started changing it and organizing it in network-centric logic? We have given to the well-known phenomena, relations, terms a new sense, a new filling. After all both the project goal, the project itself, and its participants have not changed, the reality remained the same, but our attitude to it has changed, instead of usual organizational schemes of the project, complicated hierarchical communications we have started to see a network, independent and functional knots, actors and agents. This is what we see now when we look at our project:

.... Independent knot

▬▬ Functional knot
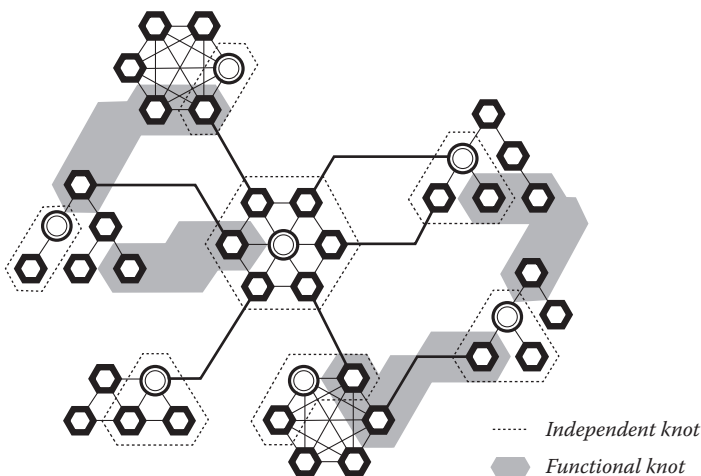
At the same time we have begun to see or at least to interpret the relations, interactions of people in new network logic.

We actually drew and created a network-centric organization in our consciousness. The reality has not changed – our attitude to it has changed.

What can we receive as a result of such filter in our head when we start to perceive the reality in network logic? The ability to build relations, to communicate, to act, as if we were surrounded with a network! During organization of complicated complex projects we can raise controllability, make the project more effective, predictable, and, what is the most important thing during the project organization in network logic, we are making the most powerful reserve for the future – we practically receive a proto-network which we can use with success after completing the project to achieve our own aims.

We believe, that such view on projects, on the reality not only has the right to exist, but also allows receiving certain results while working with them.

WHY KOMMANDCORE IS LIKE THIS

Why is KommandCore like this? Probably, to answer this question correctly, it's necessary to go back to the history of our system development.

From our experience of participation in projects and management of them we have sorted out one basic conception – *effective project accomplishment, it's enough to have just a sheet of paper and a pen at hand.* Speaking about it, we mean not only our own personal experience. We halso imply successful examples of project managers who, using only a sheet of paper and a pen in their practice, managed projects of various scales professionally and productively. They easily did that without any specialized programmes and software. No matter how ridiculous it seems, but these simple tools are enough for fixing all the necessary information on the project, all principal problems, tasks, contacts, etc. Moreover, thus each time fixing the information, we ourselves can determine *what, how and how deep in detail* we'll write it on these small pieces of paper. All by ourselves we can set that format of the information display which is the most convenient in the given project. It's precisely our understanding that always caused the following questions: why should I work in a more complicated way, not just simply using a sheet of paper and a pen? Why do existing software products and web-services in the field of project management make *my work more complicated than it could be*? Where is simplicity and easiness of management, of communication?

It's natural, that when we started to search for an IT platform adequate to our understanding of project management all these questions left traces on our requirements. Besides, by that moment we had already started to participate actively in the management of innovative projects. Our activity in the field of innovative research and development imposed additional requirements for the IT platform. First of all, the question is about the chaotic structure surrounding and filling our projects, not very easily predictable results, a considerable number of the invited developers, participants from external organizations, and multitude of communications. All this demanded an available specific system which would allow us to operate projects *quickly, dynamically and simply.*

What have we seen on the market?

In our understanding the existing software products do not help *to manage* a project, their basic purpose is *filling of the program with the information* on the project and its structuring in the mind of a small number of people, first of all, in the project manager's head. Instead of management we are more often offered to bring daily in the program statistical information on everything which directly or indirectly concerns the project, fix there to how many hours a person worked. And we had a feeling, that instead of aiming at result, we are offered the process substituting for the result. Working in such a format, we cease to work for achievement of the result, the project objectives - we just begin to take part in the project description. And we understood that we did not like big and

bulky programmes giving a set of possibilities as wide as possible; in our logic of project management it leads not to increasing in the project controllability, but to increasing in static mass of information. And the wide set of possibilities causes one question only: what for do we need the programme we'll use just ten or fifteen per cent of its possibilities?

What else confused us is that we did not see *management* in them. After all, in our understanding management is, first of all, purposeful managerial *influence on people.* And it's possible only through various communications with people, and such various possibilities of communication *are often missing in the given products.* The result is that we receive not lively management of the people taking part in the project, but a software product which may turn into the cemetery of information.

Web-services in the sphere of project management offered another extreme measure. More often the kernel of the basic part of the Internet products is communication tools (for example, e-mail), and then some possibilities and tools from the area of project management (for example, control To-Do lists, milestones) were attached to those communication tools. We liked very much such accent on communication we saw, but we had a feeling, that in them very often *management was substituted with communication.* We were also confused about, that the classical scheme of any web-service split up the project not in the logic of project management methodology (such as the areas of risk, staffing, cost, etc. management plans), but according to the tools which the Internet offered. And if it's like this, there exists a risk that these products loose something that basically the very project activity has.

What can we get as a result? Instead of the project and its areas we'll see letters on one of the insets, files – on another, tasks – on the third. It's natural, that specialists from the area of project management, used to splitting up the information on the project in other logic (just according to the field of knowledge: project scope, schedule, cost, quality, risk management), may regard such products suspiciously as the logic of structuring of information, wich is no way similar to the logic of project management, it its turn.

The personal conclusion which we have made for ourselves is that the ideology of work, a set of tools, the interface of interaction of the software and the web-services intended for project management more often display the way of thinking, characteristic, first of all, of technical specialists from the sphere of information technologies. There is such a feeling, that the products were made by technical specialists and for technical specialists.

Even the logic of project management, which was put into these systems, corresponds more to the logic of management of IT projects. Very overloaded

and heavy systems often come out instead of easiness and simplicity. Rigid and mechanistic control is offered instead of management and achievement of the project objectives.

Anyway, we understood that *on the market there was no product made by managers for managers!* When we realized it, we did not start just to develop this system for ourselves, we decided at once to initiate a separate innovative project on working out such a web-service and its launch on the market.

What we wanted to give to the users of KommandCore.

First of all, we wanted the users of KommandCore to receive aesthetic pleasure from the beautifully working service, from visual beauty, wanted you to receive constantly only positive emotions and the feeling of easiness, convenience, and freedom. We wanted what we have made to be convenient and useful for you and KommandCore to facilitate your work. That is what we wanted to do first of all. We began with the concept of beauty which we wished to create, which we wished to give to our users on purpose. One science-fiction writer describes a very revealing scene where there is a dialogue between a well-known fashion designer and one of the protagonists of the novel who addressed to the former uttered a very interesting vital approach:

«— Eccentricity, as a rule, serves for talent concealment, …, here you, maestro, have told, that throughout your life you have tried to retain beauty in this world. But why did you use the word to retain? Isn't it because beauty and harmony appear more and more denied by this world, and their place is occupied by eccentricity, kitsch, anguish. And isn't it the duty of any real artist to resist to it with all his strength? And not to follow the bad taste giving the ball …».

Think what our eternal haste results in, our aspiration to do something quickly, to earn quickly? We have no time left for seeing the beauty around us; we have no time for creating such beauty round us, to create it for others. And more and more insipid, callous, faceless things, objects, pictures, people surround us. We cannot live so, work so, do our business so. We want to retain beauty in this world very much, too. That is for this reason we always try to do beautiful things, we always try to make everything what we have created to work, function and look beautifully. We want you very much to receive real aesthetic pleasure from working with the KommandCore service, because for us it's very important for us.

What we wanted to save the users of KommandCore from.

Before telling about what we wished to create in the new system, we want to tell what we wanted to get rid of. *Of insets!* All information in web-services is often split up through a standard set of insets, for example such insets as «Letters»,

«Chats», «Milestones», «Files», etc. In reality they are filters, through which people try to structure and simplify a project. In the same way in methodology of project management any project is structured and becomes simpler through using of nine fields of knowledge (project scope, time, cost, risk, and other types of management). But if in methodology of project management there is a field of knowledge – integration management, devoted to the assemblage of isolated information into a single entity – a project, then project splitting through using other filters is fraught with difficulties. Earlier (see the essay «Language creating our reality») we already told, that for us a project is a single entity, which is possible to present graphically as a solid monolithic cube. Each side of this cube is a filter, through which a person looks at this project. Or, in our case, these filters are pre-determined, and on one side a person sees the correspondence on the project matters, on the second – the files which were born in the course of the project, on the third – the tasks. But whatever filter is used, the project was a unified integral cube and such a cube remained. How should one keep this system and not tear the integral logic of the project with filters? To get rid of such pre-determined filters is a variant. For this reason we have decided to get rid of insets. Moreover, that is why all information streams in our service are adjusted in accordance with requirements of a concrete user (smart folders, advanced search, information structuring). Everyone can adjust information streams according to his requirements. The only insets which we have kept are «Overview» and «Planning» which shared two processes: working space and planning area.

And also we wanted to get rid of control. The project is always *teamwork of participants equal in rights*, their joint movement to the objective. Monitoring of the course of project carrying out is an absolutely normal phenomenon. It's precisely the same as gathering and analysis of the information. But rigid and total control over all participants of the project transforms them into ordinary executors, as we fail to trust them; we deprive them of motivation for the best and more interesting performance of work. In an attempt to supervise all and everything some systems offer a possibility to supervise all the executors by machine – who has worked over the project, for how many hours, minutes. Sometimes it would be desirable to ask – gentlemen, what do you wish to achieve: partners equal in rights or ordinary executors? Do you want to achieve the project objective together with the participants equal in rights, or to get the process simulating the work of executors? When the set number of working hours is demanded from the executor and the payment is set for working hours, substitution of concepts follows there: we do not demand the result, we demand to spend the hours sitting, we demand from people to simulate that all this time they are busy only with our project. That is, we pay people for our illusions that all work at our project, that everything is all right. But that is an illusion. There are no ordinary executors for us; we perceive all of them as the participants of the project equal in rights. We constantly agree with all the participants on all key questions. It makes no difference for us how many hours a certain participant of

the project will work at the task. We have an arrangement by the results of which we want to receive a result.

What possibilities we put in our KommandCore service.

The system for management

We have created the system for management. For simple and agile management. The key element of the system, intended for it, is Kommand line[1]. That is why this element is running through and is available on all screens of the project, including preview of any information objects.

We have already spoken earlier, what management and an algorithm of management are (see the essay «Reflections on management»). If one simplifies the algorithm it's possible to say, that we receive information, we analyze it and on the basis of the analysis we make a decision. The decision itself (to name this action as *managerial* influence is more correct) can be realized in the form of any information, written, and oral, coming from us. *Any information coming from us can be a managerial influence!* That is, creation of any information object within the system (a letter, a task, etc.) is perceived as the managerial influence and is carried out through Kommand line. That is, wherever you are, Kommand line is an active element of the system, so that having read a document, a letter or a piece of other information, you can make not just a decision, but can also launch it quickly and simply. At any moment you can start to enter the text in Kommand line, that is to formulate a decision, a task, an assignment, then you solve, what you will put your managerial influence in (a letter, a task, a contact, an event, a subproject) and press the key «Enter».
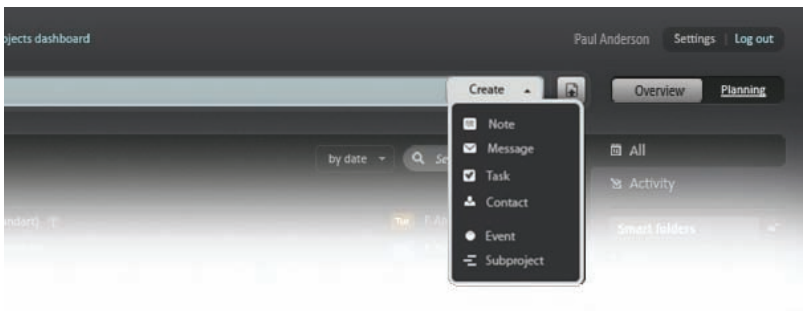
Besides, Kommand line gives one more possibility, it's agile fixing of our thoughts, notes about the project. It often happens, that, reflecting on these or those questions of the project, unexpected ideas which can be used in this or in other project as well occur to our mind, or you have drawn unexpected and

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1. A proper name of functional element of KommandCore system given by its developers

interesting conclusions. All this is the valuable information which we quickly forget if we do not fix it, and if we fix it then we cannot find. We scatter a valuable resource: knowledge, ideas. All this, as a matter of fact, is what called in project management as the lessons taken from the project. These lessons not necessarily have to be big and global. Fixing any conclusion, any idea, arisen in the course of the project, we accumulate experience, and subsequently it's possible to take from them a large number of various lessons. What for do you need after the termination of the project to recollect what interesting you have taken, to reflect on it once more? It's better to jot down the thought as soon as it has appeared, and then if necessary return to it. We name this possibility «note» when it's possible really quickly and simply to fix in the format of notes everything what is interesting, useful for us or demands further reflection and discussion.

Simple and logical approaches to the work with information

We have already told that a project is an integral multidimensional object consisting of a large number of participants, interrelations between them. Any software, any Internet service intended for project management displays the project in the form of various information objects. In other words, we work with information. Abstracting from all this, it's possible to say that project management acts in the form of the information system engaged in information gathering, processing and distribution. Just for this reason it becomes important how we work with information, what possibilities the system should provide.

So, how do we work with information? We constantly determine what we want to see, and what we do not. It's important for any person to manage independently and distribute information streams, to filter the information by his own rules. We are convinced that *information centralization should take place in a person.* It's you who should decide what and how you wish to see. Certainly, it's important to have an access to all the information, for example, on the project, but it's even more important to independently put filters on this information, to independently group various information objects in different logic, to decide on what we'll see and what we won't. For this purpose we have replaced insets in the system with the possibility to use "Smart folders" and «Marks» to adjust information streams personally for oneself.

If one speaks about information display, so in our understanding all information objects are equivalent. We do not do distinguish between files, tasks, letters, etc. They are absolutely equivalent objects, and in our understanding all of them are in the same information field. As a result, the understanding of the equivalence of all information objects has led to that all of them are displayed in one place. The display of all the information in one place is connected with one more ideological reason. Decision-making is carried out on the basis of any information (context). It may be the charter or the baseline of project management, as well as a letter or a comment on the document. We consider that rather important problem is to

avoid the situation when all the information is gathered, stored and distributed in different places that can lead to that realization of administrative actions will be carried out also in different places (e-mail, phone, To-Dos, etc.). It will lead to that the project, as an integral information object, will appear as torn apart and if there is no system, it's more difficult to manage. The understanding that everything should be realized in one place – where you collect and process information, in the same place you take a number of administrative actions, influenced that we have one working space where all information objects are gathered and where management takes place.

How else do we work with information? Contextually! To understand the additional sense and meaning of any informational object is insufficient to simply familiarize with its contents. It's necessary to know the other information on the project, the previous or subsequent, to let the information get the value for the project, sense, situation actuality, exactness, and emotional content. Imagine: you have received a letter in which you are offered to execute a number of works within the project. If you reject all the previous information on the project which you have, you will simply start to carry them out.

While in the presence of the context it may appear as additional work which is not set by the project budget, or their execution may lead to occurrence of risks. In the same way any managerial influence is valuable in its context – what was before, what was after. You launched the solution quickly and forgot what had served as the reason for its occurrence, and only then you can start doubt about its necessity. This understanding allowed setting in the system the tool named «Sources». Under creation of any informational object on the basis of the current one these connections are established automatically. If necessary these connections can be established manually. Now in search of any object in the system you receive all necessary information not only on current, but also on previous objects, which open the causes of the birth of the informational object, fill the information you have found with additional sense and meaning.

Lyrical digression

What else does contextual work with information consist of? All separate informational objects are a part of a big unified information background of the project. Idealistically, all information on the project is the unified informational object representing a multitude of hyperlinks (connections) inside of itself, and, moreover, these references and connections work contextually, fill the object with various senses. All information on the project is a huge hypertext where everything is connected. But we leave this reasoning till then as now we ourselves do not understand how it's possible to realize the similar logic simply and clearly, and also it's not clear whether it will be perceived by users. Therefore, it's simply mental gymnastics.

Besides that the information is filled with contents, meaning, sense only in a context, we consider, that all the bulk of the information contained in any information object, whether it's a document, a letter or a task, is not necessary for us. For decision-making it's often necessary for us to look only through a document fragment, to read a paragraph in the letter or simply glance at the design of the prototype. Therefore, we have included in our system the possibility of preliminary viewing of the files of all basic formats, and even more. Now you do not need to waste your time downloading a document to your computer in order to see it. You can quickly and simply see any file directlywithin the system.

The contextual factor and polysemy of informational objects have led to the refusal of information storage (first of all, files) in folders and insets. If the information simultaneously concerns various questions of the project what folder is it better to put it in? Or will we put it in several folders? Or in all folders? These questions will constantly arise in connection with any object. With the growth of information the folder tree ramifies, and here we do not already remember, where and what is stored, what concerns what, what objects concern one questions, and what – sets of them; as a result all place the information where it's more convenient, instead of where it should be stored. Instead of convenient accumulation and use of this information we can get a cemetery of information. In our system you won't lose any object. You quickly and simply can mark it, what will allow you to use it in various problems, or find quickly at the expense of possibilities of the information advanced search.

The platform for coordination of networked and network-centric organizations
It's natural that while system developing we founded KommandCore on network and network-centric logic of functioning. We consider that it becomes important and up-to-date for the world around. It's also important for us. The world already lives and functions in the network format. The same logic penetrates into the business world more and more and starts to be used in it. For this reason in KommandCore we have built a reserve oriented to the future: a set of possibilities and tools for management of networked and network-centric organizations, possibilities for project management in the network logic. What now can we offer the people and organizations living and functioning in the network logic? The set is not big yet. It's, first of all, the possibility to quickly include into a project a maximum number of stakeholders, including a customer, an investor. These are possibilities for active participation of any stakeholder in realization of the project. These are simple, direct and fast communications with all stakeholders of the project, as well as with all participants of the account. It's equity and equality of all project stakeholders that is expressed in the fact that in our system all enjoy equal rights, and the project manager acts, more likely, as the coordinator and administrator of the project. It's general information awareness, open access to all information owing to the possibility to publish any informational objects simply and quickly. Now we have built a reserve of possibilities which will allow functioning and interacting in the network logic. In the future, if realized that it's

in demand, and under the development of our understanding what networked and network-centric organizations are, we'll also develop KommandCore in this direction.

We'd better stop here. Certainly, we would like to tell about much more things. About how we live and work, what we believe in, what principles we follow and what is interesting for us. At long last, it's precisely what answers the question why KommandCore is like this.

Anyway, that's just a starter. And this book still is not written up to the end. We'll be maturing, we'll be communicating with you, and our perception of reality, our understanding of life will change and improve together with you. KommandCore will grow also and change together with it. And as for us, we'll be finishing this book.

POST SCRIPTUM

We'll be grateful to you for your response. Your opinion, comments, thoughts, offers concerning this book are important for us.

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