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Task-Based Approach to Digital Transformations

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Abstract: In this paper, the problem of digital transformation of the object and the subject of management of the economic actor into their Digital Twins (DTs) is considered. By economic actors we understand digital computer models that provide system historical, operational and forecast data about both the object and the subject of management and the environment. The DTs of economic actors' subjects of management have been studied very poorly since their construction raises a nontrivial problem of completeness and adequacy of their digital representation. We believe that the main and true content of problem solving is the task solution, and the activity of managing an actor is nothing but tasks! The management of resources, risks, data, changes, etc., has a secondary character and therefore represents a special case of options for solving managerial tasks. The authors propose that the original task approach to artificial intelligence, which takes into account the achievements of the physiological theory of functional systems of purposeful behavior, effectively overcomes the problem of building DTs of economic actors. The concept of a task is carefully analysed: what is its nature; what is the criterion for its solution; how should the task be formulated in terms of executable specifications leading to its solution; how should the task be constructed and solved. The logical and functional model of the subject of management of the economic actor is described in the paper. As a representative example of the subject of management, the urban management system is presented.

Keywords: digital twins, subject of management, object of management, economic actor, artificial intelligence

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Научная статья

Задачный подход к цифровой трансформации

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Аннотация: Рассматривается проблема цифровой трансформации объекта и субъекта управления экономического актора в их цифровых двойников (ЦД). Под экономическими акторами понимаются цифровые компьютерные модели, которые предоставляют системные, исторические, оперативные и прогнозные данные как об объекте и субъекте управления, так и об окружающей среде. ЦД субъектов управления экономических акторов изучены очень слабо, поскольку при их построении возникает нетривиальная проблема полноты и адекватности их цифрового представления. Главным и истинным содержанием проблем является решение задач и деятельность управляющего субъекта. Управление ресурсами, рисками, данными, изменениями и т.д. носит второстепенный характер и, следовательно, представляет собой частный случай вариантов решения управленческих задач. Предполагается, что оригинальный задачный подход к искусственному интеллекту, учитывающий достижения физиологической теории функциональных систем целенаправленного поведения, эффективно решает проблему построения ЦД экономических акторов. Тщательно анализируется концепция задачи: какова ее природа; каков критерий ее решения; как должна быть сформулирована задача в терминах исполнимых спецификаций, ведущих к ее решению; как должна быть построена и решена задача. Описана логическая и функциональная модель субъекта управления экономического актора. В качестве репрезентативного примера субъекта управления представлена система городского управления.

Ключевые слова: цифровые двойники, субъект управления, объект управления, экономический актор, искусственный интеллект

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1. Introduction

Computer science now represents the main tool of the modern direction of human society development, which is fundamental in nature — its digital transformation, which is based on the active and widespread use of digital information technologies provided by computer science. Among a wide range of such technologies, according to the authors, the key and promising are as follows:

Internet ⇒ Artificial intelligence ⇒ Smart contracts ⇒ Distributed registries

Next, we will show that the basis of the digital transformation of the intellectual activity of human society is the ability to set and solve tasks, that is, the widespread automation of the process of setting and solving tasks. These issues are being investigated in the direction of problem solving as a human problem-solving process [19; 21; 22]. We have developed an original "task approach" for problem solving, which simultaneously provides (1) an objective declarative description of the task in terms of executable specifications (section 2.1) and (2) problem solving, which is based on the original cognitive architecture of purposeful human behaviour, based on the physiological theory of functional brain systems [27–30] (section 2.2).

Let us pay special attention to the problem of trust. This issue is especially relevant in connection with the rapid development and application of artificial intelligence technologies, particularly neural network technologies. By analyzing this problem, we can conclude that the problem of trust is closely related to the ***responsibility of the problem solvers***. The latter, in turn, necessitates the presence in the formulation of the task being solved a ***criterion of the task solution*** (sections 2.1–2.2).

Earlier, we noted the importance of the digital transformation of technologies provided by computer science, since their wide availability and new opportunities allow us to build relationships and interactions between authorities, enterprises and employees within enterprises, business companies, individual entrepreneurs, and citizens, i.e., all those who are active participants in economic relations. Such participants in the social and economic literature are often called ***economic/business actors*** [15; 18; 20], meaning, by this, such a participant in economic relations who produces a number of products (goods, services) and possesses the following:

– a certain independence (autonomy) in decision-making;

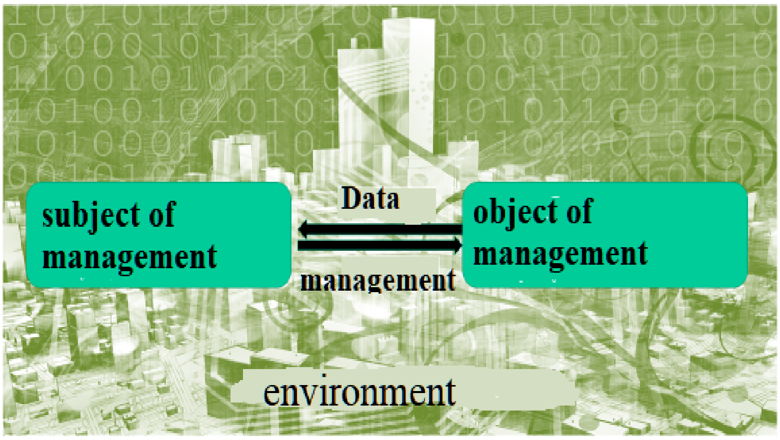

Figure 1. The general structure of the economic factor

- Having your own behaviour strategy;
- the ability to compare one's strategic goals with the institutions of society as the rules of a certain game and set oneself up not only to adapt to these rules but also to change them, up to the transformation of the entire game, on the basis of one's own goals;
- the availability of ways to achieve the set goals and the necessary own resources (tangible and intangible, real and potential) for this;
- the ability to make a practical impact on the environment and change it through their actions.

Another feature of the economic factor is its peculiar informational structure, in which the ***object of management*** and the ***subject of management*** are distinguished (Fig. 1).

At the same time, the peculiarity of such a structure is its possible deep **hierarchy** and what can be called **fractality**. It is about defining this contour and the level of the management system, which we attribute to the main functions of the actor's management entity. For example, a certain plant can be considered as a system consisting of production workshops and support services, i.e., all that plant management, as the subject of plant management, considers its management objects. Moreover, each workshop and service can also be considered as a subsystem consisting of an object and a subject of management, where the role of the latter, for example, is performed by the head of the workshop together with his or her management team.

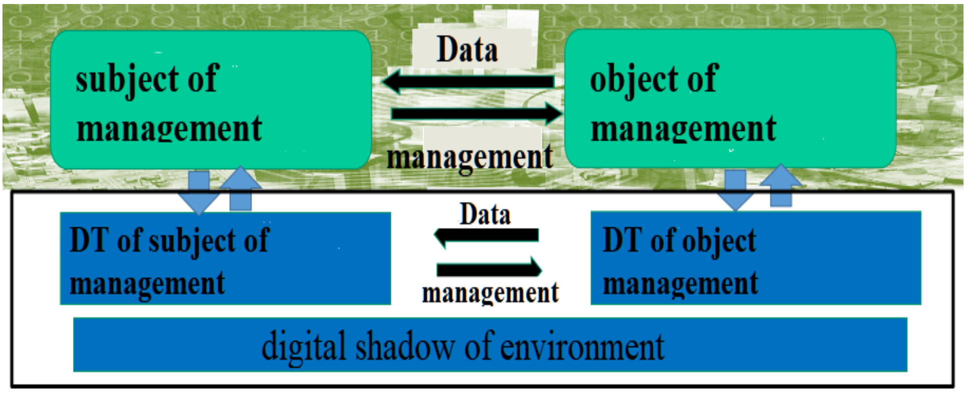

Figure 2. The digital twin of an economic actor

Among the main directions of the development of the digital transformation (DT) of economic actors, we first note the following:

– ***Digital platforms*** – digitalization of relations between economic partners;
– ***Digital twins*** – digital models of economic actors themselves (Fig. 2).

A typical example of the first direction is the appearance of so-called marketplaces (OZONE, Yandex.taxi, Valdberis, etc.). We will focus on the second direction — the digital twins of economic actors — which, in the future, will be understood as digital computer models that provide system historical, current operational and forecast data about both the object and the subject of management, as well as about the environment, as well as, possibly, additional software that allows improving the management system and providing support decision-making to improve the efficiency of management activities and achieve set goals.

Note that in Fig. 2 above, we use the concepts of the "digital twin" and "digital shadow". For example, we designate the digital model of the environment as a "digital shadow". Let us provide some explanations of the concepts used here.

We call the digital communication channel connecting the simulated object with its digital model a **digital thread**. If there are no such threads between the object and the model, then we deal with an ordinary digital model. If the digital thread binds the economic factor to the digital model and this model is updated with data about the object automatically, then they talk about the **digital shadow**. If the digital thread binds the economic actor to the digital model as a source of calibration information for it and the digital model to the economic actor, in turn, as a source of calibration information for the actor, then we are talking about a full-fledged **digital twin**. The problem of creating digital threads, shadows and doubles is currently being addressed by scientific and engineering disciplines such as digital engineering.

Now, a few words about the digital twins (DTs) of the object and the subject of management of the economic actor are presented.

For the DT of the control object, at present, the topic of building and implementing the DT of the control objects is quite well developed, which, in many ways, is explained by the presence of parameter lists for a wide range of control objects that fully and adequately characterize the object. This circumstance significantly facilitates the construction of a digital model. The following is the most common understanding of the DT of the control object (see [1; 33; 34].

The **DT of the control object** is a continuously adaptable digital model of the control object, duplicating its states and life cycle using real operational data from the control object (including real–time data), which ensures the relationship between physical and virtual states with the appropriate synchronization speed and allows automatic control of the behavior of the object.

The development of the **DT of management objects** is largely determined by the abundance of methods and a variety of tools for their construction. These tools should include, first of all, computer-aided design systems such as CAD, CAM, CAE and others; communication systems such as PDM and IIoT; and linking physical and virtual objects, as well as artificial intelligence (AI) and machine learning (ML) tools. Specialized instrumental and technological software platforms are also emerging, an example of which is the first AIoT platform in Russia, the SberMobile AIoT (see, for example, https://sberlabs.com/news?news=1701). The platform makes it possible to integrate various devices, sensors, systems and services into a single digital environment, which allows one to effectively manage heating, ventilation, lighting, and access control systems and intercoms; track leaks; and analyse data from CCTV cameras. Notably, the creation of such tool platforms is a very expensive and resource-intensive event that only very rich customers and/or performers (in this case, the Sberbank) can afford.

For the **DT of economic actors' subjects of management**, the topic of building their DT has been studied very poorly, since their construction raises a nontrivial problem of completeness and adequacy of the digital representation of the actor's subjects of management, which we discussed above, and the related problem of choosing the right aspect and level of digital modelling of the organization managing an actor. Note that since we are interested in the problem of effective management by an economic actor, it is advisable to consider the DT of the subject of management, first, as a management decision support system (MDSS). Moreover, by endowing MDSS with the ability to store and process large amounts of data and expand it with AI technologies, we can create so-called **intelligent** DTs that are able to connect information about the past and present with future scenarios.

Since the DT of the subject of management is, first, its digital model, then there is a difficult problem of accurately and completely determining what the real meaningful model of the subject of management is. In other words, we address the problem of identifying the level of managerial decision-making related to the object of management, as well as what the employees of the organization representing the actor's management entity actually manage. What should be taken as the main subject and management tool when building a meaningful model of the organization that serves as the basis of its digital model? Therefore, starting with the digital modeling of the subject of management, one should first ask the following question: what does the decision maker (DM) truly control the subject of the actor's management?

The standard answers to this question usually look like this: the DM manages resources —finances, people, projects, processes, assets, data, risks, situations or changes. Our point of view is somewhat different — we believe that the main and true content of a manager's activity is the formulation and solution of managerial tasks. In other words, the manager manages nothing but tasks! At the same time, setting (formulating) a task, solving it and/or accepting a task solution from the contractor, the manager is obliged to treat his activities extremely responsibly, taking into account both the goals of the organization (as social education), the overall strategy, and the specifics of its activities. The central point here is understanding responsibility as an obligation to set tasks correctly, solve effectively and/or make decisions, being responsible for the result. A more precise understanding of responsibility can be defined as the obligation to provide a certain, predetermined result to account for the decisions and actions taken and their consequences/results to the members of the organization and actors of the external environment, as well as to understand and accept such possible consequences as incentives and penalties, i.e., all that, in the future, we call it a **criterion for solving a management task**.

The authors suggest that the proposed original **task approach** [2; 16; 27–30], which takes into account the achievements of the Theory of Functional Systems (TFS) [23; 25; 26] of the human purposeful behavior, effectively overcomes these obstacles and difficulties in solving the problem of building DTs of actor management subjects. The logical and functional model of the actor's control subject is described below, which is based on the experimental scheme of the functional system developed in [25; 26] on the basis of the provisions of the TFS. As a representative example of a management subject, the urban management system will be mentioned below.

2. Materials and Methods

2.1. A task-based approach to artificial intelligence

We have already noted earlier that the true content of any manager's activity is the formulation of tasks. The question that arises – what is the task itself as an entity? This question is answered by the original task approach, the main provisions of which will be outlined below.

The first answer to how the task is arranged was obtained in the works of academician Yu.L. Yershov and Dr. sci. K.F. Samokhvalov, devoted to the application of the ideas and provisions of the task approach to the foundations of mathematics [13; 14]. According to their reasoning, the problem is defined (understood) if and only if we have a ***criterion for the task solution*** – a criterion for checking whether the presented solution is really a solution to the task. Otherwise, any proposed consideration can be considered as a solution of the task. Note that the conclusion about the necessary presence of the criterion of its solution in the formulation of the task allows us to raise and solve at a practical level the question of creating a digital model of the concept of "responsibility" of the Problem Solver.

The propositions formulated and substantiated in the works of Yu.L. Yershov and K.F. Samokhvalov were subsequently developed and adapted by a team of mathematicians in relation to the problems of artificial intelligence, since the need for practical application of the task approach to solve as large a class of specific artificial intelligence problems as possible forced the authors to consider in more detail the structure of the concept of "task". The result of such consideration was the formulation of this concept at first at the methodological level, and then at the formal, mathematical level, which led to the creation of an original logical-probabilistic theory of ***semantic modeling*** [2–12; 16; 17; 24–32].

First, let's give an informal definition of the task concept and then move on to its formal counterpart. We will assume that the task is defined if and only if its formulation contains:

– an indication of the ***subject domain***, fixed in the form of a formal model, including a description of the signature and structure of the language (ontology), as well as knowledge about the subject domain, including source data, facts and hypotheses;
– to which ***request*** (***goal, question***) formulated in the task to the subject area, we should receive an ***answer*** (***solution of the problem***);
– ***criteria for satisfying the request*** – in which case it can be considered that the answer (solution) to the request (question) has been received;
– in what ***context*** should we look for an answer (solution) to the request (question) – what goal do we pursue when solving the problem, i.e.

what do we expect from the result and what are its consequences and what to do if the answer turns out to be negative.

This definition allowed the authors of the approach to clarify the understanding of artificial intelligence itself, since, according to the propositions of the task approach, the true purpose of artificial intelligence is to automate the formulation and subsequent solution of tasks with the presented justification for compliance with the criterion of solvability, assuming that tasks can be formulated in terms of ***executable (declarative) specifications***.

As is known, mathematical logic is engaged in the fundamental study of the concept of computability in mathematics and implements this within the framework of two main approaches: ***axiomatic*** and ***model-theoretic***. As noted above, it is the axiomatic approach that forms the mathematical basis of the existing declarative programming. But after all, as a conceptual basis for computer problem solving technology, one can also choose a model-theoretic approach, taking, for example, as a mathematical base the possibility of ***formulaic definiteness of computability on constructive models*** and using ***oracular*** (relative) computability, and the computability process itself can be thought of, for example, as a process of ***verifying the truth of a formula*** or the ***process of calculating the value of a term*** in a constructive model. This idea was the basis for the concept of ***semantic modeling***, put forward in the 80s of the last century (the authors used the term "semantic programming" at that time) by the staff of the SB RAS, academicians of the Russian Academy of Sciences S.S. Goncharov, Yu.L. Yershov and Dr. sci. D.I. Sviridenko [6–8; 11; 12].

The provisions formulated and substantiated in these works were subsequently developed and adapted by a team of mathematicians in relation to artificial intelligence as the task-based approach. In short, the essence of this concept is as follows:

1) It is assumed that there is an initial basic model acting as the core of a certain calculator, by means of which tasks will be specified and solved. All the objects of this model (elements, functions, and predicates) and their logical operations are assumed to be ***constructive***, i.e., computable. Note that in semantic modelling, this model is considered together with its list add-on, consisting of inherently finite lists generated by elements of the basic model, which, by the way, allows you to work with almost any data structure. Moreover, as mentioned above, some predicates of the basic model can be interpreted as oracles calculated by external calculators.

2) The initial conditions of the task are compared with a mixed formula-thermal, i.e., a logical-functional definition of the new model using the so-called Σ**-formulas** and Σ**-terms** of the predicate calculus language

of the first order of the signature of the original basic model. Moreover, the thermal part of the used Σ-language is significantly expanded by assuming ***conditional*** and ***recursive*** terms [3; 9; 10]. Recursive descriptions of not only new functions but also defined predicates are also allowed (Gandy's theorem).

3) As a response to a formula query or term query, written either as a Σ-formula or as a Σ-term, in the first case, such concretizations of the free variables of the formula are algorithmically searched for which this Σ-formula is ***true***, or the value of the Σ-term query is ***calculated***. We should immediately note that in practice, it is proposed to limit ourselves to the class of so-called Δ_0-formulas and Δ_0-terms, which differ from Σ-formulas in that when writing Δ_0 formulas and Δ_0 terms, it is allowed to use only limited quantifiers of existence and universality. The reason for this limitation lies in the desire to limit oneself from the very beginning to efficient calculations, i.e., calculations of a given, for example, polynomial or automaton complexity. In [4; 5; 17] it was just shown that the Δ_0 determinability of the problem and its polynomial computability coincide.

Thus, in the proposed semantic modelling, the main steps are the process of a formula-therm description of a certain problem area in the form of a constructive model and the procedure for either verifying the truth of the Σ-formula query on this model or calculating the Σ-term in this model. Moreover, as shown in the works of E.E. Vityaev [24; 31; 32], such a specification language can be effectively enriched with probabilistic constructions, which significantly expands the expressive capabilities of the specification language. Practice has shown that such a logical-probabilistic approach makes it possible to adequately represent and fully preserve the ***original semantics of the task***. This is why it is called semantic modelling.

Currently, semantic modelling is one of the concepts of the automatic solution of intellectual tasks; it is not only based on the methodology and theory of the task approach but also has at its disposal a developed toolkit aimed at supporting and maintaining the technological scheme of solving intellectual tasks in the form of several platform solutions [27–30]. The D0SL platform represents the next generation of so-called business rules engines (BRE) [www.d0sl.org]. bSystem platform for building DTs of organizations and processes. The DISCOVERY platform is used for the ontological inductive inference of knowledge on the domain model and the "Discovery" system implementing it [27–30].

2.2. Functional theory of systems

The introduced concept of a task makes it possible to adequately model the purposeful human activity, which is very important when solving the problem of adequate digitalization of management entities of economic actors. This allows us to answer the question: to what extent can they correspond to the human way of solving problems? We show that the above concept of a task is, in particular, a fairly accurate formalization of any purposeful human activity described in the physiological theory of purposeful behavior of humans and animals – the Theory of Functional Systems (TFS) of brain work. As a result, we will get a "cognitive" approach to the concept of tasks, where tasks are formulated as goals with the obligatory fulfillment of the same condition – the goal cannot be achieved without having a criterion for its achievement – otherwise it can always be considered that it has already been achieved.

In the works [25; 26; 28; 29] devoted to the formalization of TFS, a cognitive architecture of purposeful human activity was developed. Here is a short description of purposeful activity, how the brain solves tasks to achieve goals – to meet certain needs.

1) When a need (task) arises, motivational arousal arises, which is transmitted to the cerebral cortex and "extracts from memory" all ways to achieve the goal that satisfy this need. Together with each of the ways, the entire sequence and hierarchy of intermediate sub-goals and sub-results that must be achieved in order to achieve the goal are also extracted.

2) For each sub-goal and sub-result, the criterion for achieving this sub-goal and obtaining this sub-result is fixed as a "set of afferent stimuli", indicating that the sub-goal has been achieved and the result has been obtained. This sequence, together with the required parameters of all intermediate and final results, are in a certain sense the control points of the goal achievement process.

3) Only the experience that takes into account the current situation and is applicable to it is extracted from memory. "Trigger" stimuli are also extracted, which indicate the start time of certain actions (a call for a dog).

4) For all ways to achieve the goal, the emotion apparatus evaluates the probability of achieving them and the costs associated with labor intensity, risks and possible obstacles. These estimates can be modeled fairly accurately by some utility function developed in decision theory.

5) At the decision-making stage, taking into account both the probability of achieving the goal and the costs, only one of the ways is chosen.

6) After that, the goal is achieving by completing the entire sequence and hierarchy of intermediate sub-goals and obtaining all the sub-results along with monitoring their receipt.

7) If all intermediate results and the final result are achieved, then the purposeful behavioral act ends with the last sanctioning stage – reinforcement, when the received method of achieving the goal, taking into account the new situation and possible modifications, is recorded in memory.

8) If any of the intermediate results or the final result is not obtained, then the plan for achieving the goal (sub-goal) is reviewed taking into account other ways to achieve the goal (sub-goal).

From the point of view of the task approach, this scheme of purposeful behavior is formulated as follows. The task of satisfying some need is:

1) there is a ***need (goal)*** that must be satisfied (a ***request*** to the subject area), which can be determined by some predicate P_0;

2) there is an experience (***domain model***) obtained as a result of purposeful behavior to meet this need. If there is no experience, then it is accumulated by the method "trial and error";

3) ***decision-making*** is carried out by choosing from the available experience a specific action plan to achieve the object, situations that satisfy this need and make the predicate P_0 true.

4) satisfaction of a need is fixed by a "set of afferent stimuli" (***criterion of satisfaction*** of a need), indicating satisfaction of a need.

3. Results. The functional model of the subject of management of an economic actor

In this section, we will show how the functional description of the brain activity of a living organism, presented in the previous section, can be used for the digital transformation of an economic actor, aiming to significantly increase the actor's ability to adapt dynamically to the flow of tasks being solved in a changing environment of functioning.

When embarking on the digital transformation of an actor, it is necessary to answer the following fundamental questions. Who needs a digital counterpart of an economic actor's management entity, or, in other words, what is the composition of the stakeholders of the future digital counterpart? Why and for what they need it? What tasks do they plan to solve with its help? What kind of "functionality" of the subject will we represent in a meaningful and digital model, or, in other words, what goals will we achieve? Only after receiving answers to these questions can we proceed to further logical and physical design of the digital twin.

It is clear that this is quite difficult for large-scale and complex economic actors. For this reason, we adhere to the following initial conceptual provisions.

1) The digital twin of a complex and large-scale economic actor is proposed to be considered a hierarchical set of digital twins of different subsystems of the actor, functioning independently of each other but taking into account the results of the work of others, as it was arranged for functional systems. An example of a possible digital twin scheme for such a factor as a city is shown in Fig. 3.

2) By replacing the functions of the subject of management with the tasks it solves, we can thereby describe and digitize any subject management by means of a task-based approach. In this case, the tasks solved by this management entity will be local goals, whose activities are aimed at achieving.

3) For each task, described by its FS, it is necessary to determine:

   a) what ***goal (request)*** defined by some set of indicators, properties, parameters, etc. determined by some predicate P_0 we need to achieve?

   b) what ***control points*** (acceptors of action results) for achieving goals and subgoals that satisfy corresponding P_0 need to be controlled to effectively solve the task?

   c) what ***data (information)*** (situational afferentation) about the current situation (context) is needed to find a right solution of the task in this context and what properties should they have (completeness, consistency, timeliness, sources)?

   d) what is ***estimates*** of the solution of what is "good" and what is "bad" are needed to choose the right way to solve the task (here we are talking about using an analogue of emotions, which can be formally represented by a utility function)?

   i) what method of rewarding or punishing do we choose for the solutions of the tasks that achieved goals or subgoals (reinforcement of the solutions in the learning process)?

   f) All these data from the previous points, which are necessary for the FS functioning of the task, constitute ***the context of this task***.

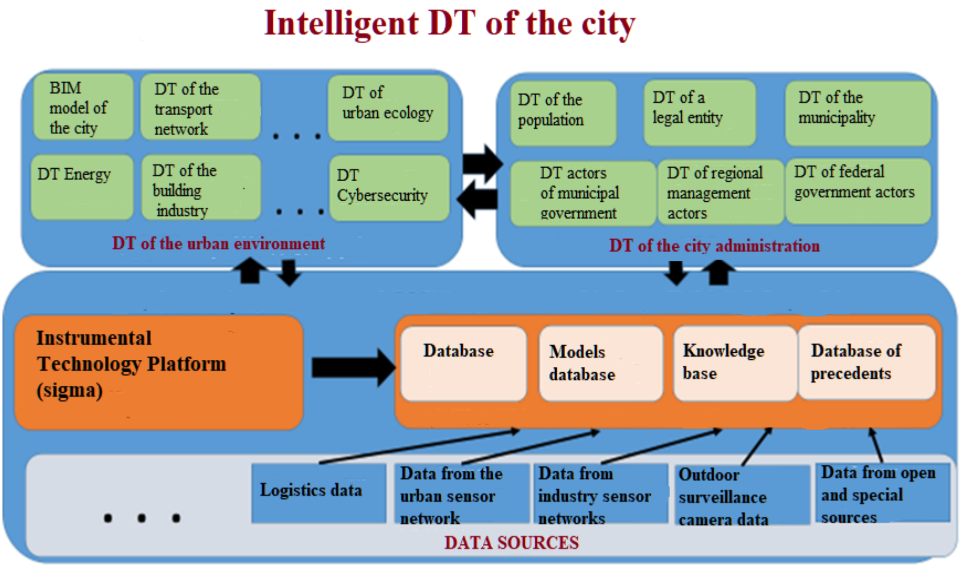

Figure 3. A possible scheme of the digital twin of the city

4) We assume that for a subject of management whose functioning is determined by a certain system of regulations (sets of rules and restrictions that the entity must adhere to when achieving a particular goal), the search for ways to achieve the goal is carried out in a certain "corridor of possibilities" determined by these regulations. In this case, successfully fulfilled solutions and methods produce the experience.

5) The Worldview (WV) that the subject of management uses to solve the tasks that ensure its functionality includes an ontological model of the subject area, a set of regulations for achieving goals, the existing organizational structure of the subject of management, as well as all the data required for the contexts of these tasks.

6) The perception of the WV by a digital twin is carried out through events on the ontological model of the subject area. At the same time, the subject of management monitor the contexts of solving tasks and especially their control points. Also a digital twin need to predict arising of a new goals determined by corresponding predicates P_0 activating new (next) tasks.

On the basis of the conceptual provisions of the subject of management of the economic actor and taking into account the provisions formulated above, we can build a functional scheme of the subject of management of the economic actor Fig. 4.

In this figure, "OC" is the designation of the environment, including the current context of the flow of goals and tasks coming to the input of the

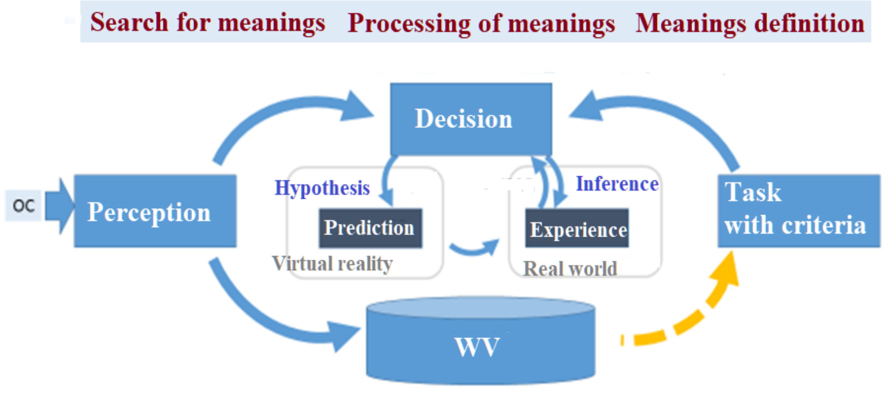

Figure 4. Functional scheme of the subject of management of the economic actor.

subject of management. The "perception" block is described in the point 6.

Arising goals, determined by corresponding predicates P_0, activate new tasks with their criteria and control points. Based on the task context and available data a set of hypothesis is put forward, according to which, on the basis of previously accumulated experience, the subject can solve the task. In the decision block in virtual reality these hypothesis predict the goal and subgoals achievement in the current context with the corresponding P_0 predicates satisfaction. For each hypothesis that achieve its goal and subgoals and provide the solution of the task its estimation is calculated. In decision the solution with the best estimation is choosing.

At the same time decision block create control points in terms of corresponding predicates P_0 for the choosed hypothesis. After that subject of management begin to execute this solution of that task. During the execution the achievement of control points and the corresponding predicates P_0 satisfaction is control.

Thus digitizing of subject management by means of task-based approach can be fulfilled.

4. Conclusion

In implementing the main tools for the digital transformation of an actor — its digital twin we need to take into account that tasks, environment and regulations may changing. Therefore, it is necessary to modify the digital model of the actor's subject accordingly. Thus, we need to be able not only to digitize the subject area and existing business processes but also to provide a special instrumental mechanisms that would allow us to easily and quickly respond to the emergence of new circumstances and effectively achieve newly emerging goals in changed conditions. These features distinguish the problem of creating, implementing and operating a digital twin of the subject of management from the creating and operating a digital twin of the object of management and therefore require special methodology, technology and tools. According to the authors, the development of such a methodology and its corresponding instrumental and technological platforms aimed in creating intelligent digital twins of management actors that can be based on the task approach and its theoretical part — semantic modeling, including its logical and probabilistic section.

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