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# The manager's toolbox in the management system (2nd edition, revised, 11.03.2011)

**Summary.** The purpose of the article is to improve on the cognition of the location and role of the manager's toolbox in the management system of the action system. The current status in this field is not satisfactory. The nature, capacity and structure of the manager's toolbox is open, fuzzy, variable and hybrid. Generally speaking, the toolbox does not have the explicit qualities of a system, it only has the qualities of a set. It is based on specialised management processes and activities (causing, modelling, organising, directing, linking, meta-management). The tools are but one of many factors, components of those processes. These qualities result from the nature of the object of management in the system-based approach, and the differentiation of management in its broader and narrower sense.

## Introduction

In this paper, I will try to propose an approach to elaborating on the cognitive knowledge concerning the "manager's toolbox". To be precise, I will attempt to refine the definitions of its nature and location as well as the role within the management system.

The objective scope (objective domain) encompasses management "tools" in their narrow sense, whereas the material scope (material domain) and the spacetime domain (TS) cover management and action systems, understood as categories. The toolbox is capacious, meaning that it may contain different "tools", depending on how we define management and the "tool" (instrumental) function.

The starting point, having made the preliminary assumptions, is a brief, critical review of the current status of knowledge on management tools, in terms of their exploration, taxonomy and explication, against the broader backdrop of the management system. This diagnostic review shall expose the problem of management tools. In my next step, I do not study into the causal sources of this problem, so I diverge from the diagnostic path. Instead, I apply the prognostic method to give shape to the proposed concept, using mixed deductive reasoning (axiomatic-deductive and hypothetico-deductive). I apply the axiomatic-deductive reasoning primarily in the **"Assumptions..."** of thetoolbox concept below, whereas the hypothetico-deductive reasoning is used mainly to shape the concept itself. All this combined forms the mixed, diagnostic-prognostic scientific method.

I am guided by one general goal: to achieve cognitive progress in the understanding of the management system of action systems. By studying the category, I strive to imbue theorems on management tool with a universal quality, so as they may be applicable to any action system. It requires that reasoning be conducted with reference to the systems theory, praxeology and general organisation and management theory. At the same time, the cognitive goal is not total and detailed. I assume that cognition comprises exploration (study and identification), taxonomy (classification) and explication (explanation). Actually, I am attempting to refine the definition of the problem of cognising the management tool problem in the meta-cognitive sense ("definition of the problem of cognising the management tool problem"). Naturally, this imposes some obvious constraints on the breadth and depth of the cognitive power of these deliberations. I cannot elaborate on the concept for the problem

solution due to the size of this paper, compared to the complexity of the issue. Thus, I shall focus on the elementary recognition of chosen exploratory and classificatory issues, with elements of explanation.

The system-based approach uses such notions as the "system", "subsystem" and "supersystem". The key is to define a given, highlighted object as the "system". Only then can we identify the "subsystem", i.e. a component of the system, and the "supersystem", i.e. a system of a higher order of which the given "system" in question is a part. Such a conceptual hierarchy makes it possible to use the terms "management system", or "management tool system", even though they are always parts of the highlighted action system ("enterprise management system", "production management system", etc.). Obviously, apart from the obligation to identify the *genus proximum* of the higher and lower order (supersystem and subsystem) of the system under analysis, it is also necessary, by implication, for the object which we define as "the system" to meet the criteria of a system.

In this paper, I will be discussing the so-called "management in a narrower sense" ([Cf.: 10; 12]. This means that I am in principle narrowing down the reasoning to specialised management activities, performed by specialised entities.

## 1. Assumptions for the manager's toolbox concept

In this section, I adopt certain definitions to be treated as axiomatic assumptions in the mixed deductive method of reasoning applied. My choice of axiomats is, unfortunately, arbitrary. This is partly caused by the underdevelopment of sciences, including management science. For example, there is no canon of theorems governing how the laws of natural sciences might be extended to apply to action systems[1]. Likewise, in social sciences (here: economics and management studies) we do not have clear paradigms, also those referring to management tools, and consequently it is necessary to define assumptions such as presented below.

### 1) Action system

The action system is a set of elements (E), with specific properties and parameters of those properties (W). The key attribute of any such system is man (human being; group, team; community) as one of – but the most important – component of the set. There must be relationships (R) between the elements of the set, occurring through the elements' properties. Such a set must be characterised by coherence, arrangement and interactions with the environment. Ultimately, the configuration of these variables must make it possible for the set to perform a chosen function or be capable of achieving chosen goals (finality). These prerequisites combined constitute the criteria of a system.

The unique characteristics of action systems include openness (exchange of energy, matter and information with the environment); fuzziness (indeterminate boundaries with the surroundings); structural and functional variability and hybridity (variable structure, operating mechanisms as well as the material, social and virtual substance). As a result, action systems are characterised by various levels of integration [Cf.: 13, chap. 5], except for the unattainable extremes: that of addition and that of the machine[2].

The action system, linked to the natural system under non-straightforward principles, constitutes the civilisation system. For every action system to persist over time it is necessary that is should have an energy surplus. Without the energy surplus over the long term, each action system must collapse (decline, dissolve, fall into entropy). Genetically and ultimately, the only source of energy surplus for the action system is always and solely the environment (another action system or natural system) [Cf.: 13, chap. 5].

### 2) Management

In my opinion, management can be perceived in a broader and narrower sense [Cf.: 10; 12]. In the broader sense, it corresponds to the Polish expression "prowadzić system

działający" and encompasses the entirety of activities and responsibilities related to the status, situation and outcomes of the enterprise. The English equivalents are "to run a business" or "a going concern". It links the management activity to the general responsibility for all the affairs of the action system, particularly its orientation (requirement, demand) towards success.

Something that needs to be mentioned here is the relationship of management versus control and regulation (the cybernetic perspective). The application of the cybernetic interpretation of influencing behaviours onto the ground of action systems must be extremely cautious. One must remember that it applies to machines (organisms and artefacts), which is in some sense the opposite of action systems. Control, a notion broader than regulation, refers to defining controlling norms and influencing the configuration to maintain its functional equilibrium in the proximity of norms (including also learning, innovative and intelligent systems). Regulation, on the other hand, is a narrower concept in that it accepts the norms as given, originating from the controller (the controlling element determining the norms). To apply the term „regulation", especially with reference to supersystems (national economies), it must be defined precisely, otherwise it gets dangerously close to a colloquialism.

Management in the narrower sense, in my view, is a non-straightforward set of activities (processes, actions – depending on the segment of reality covered by the action system): causing (C), modelling (M), organising (O), directing (D) and linking (L). It is a constituent part of any action, including by imperative also the fundamental, executive, supportive, communicative and economic activities [Cf. the concept of action as a string, in: 13].

Management, regardless of the approach, does not exist in and of itself. It is always an inherent component of an action. This means that a discussion of management and management systems, as specific and separate entities, must ultimately look out to the action or the thing, object, institution and action system that they refer to. In other words, it must not be abstract of them.

The managing subject is a person or a group/team involved in this activity professionally, usually referred to as the manager, director, management body, etc.

**3) "Management system"**

In this case, I am using my own concept [cf. 13], even though originally it referred to the enterprise. Adopting the broader and narrower understanding of management, I also assume respective understanding of the management system. In the broader sense, the management system covers all the actions related to running the action system, aimed at ensuring the anticipated success of the endeavour [3]. In the narrower meaning, the management system is a subsystem of the action system, highlighted due to the management process, which also has its objective substance (managing subjects, management tools, et al.), institutional substance (management regime and organisational structure) and social substance (e.g. management culture). For such a system, the key value it pursues is the effectiveness of a given action which is being managed, irrespective of the semantic substance of the "effectiveness" category. The problem is, however, that "management system" probably does not exhaust the category "all behaviour-driving factors". It suggests that behaviours are also driven by non-management factors, which in itself generates a good deal of scientific questions (problems).

**4) Management tool – preliminary assumption**

Throughout the text, I am using the term "management tools", both in the broader and narrower sense. In the narrowest and most specific sense, the tool is regarded as a mediator between the subject (-s) and the object. It increases the subject's potential and serves as an instrument transferring the energy of impact in the management relationship. The management tool is a factor of management, a component of the management system, which

means that the management system is semantically a superior notion. In the broader sense, I apply this term to management in the broader sense.

**5) Key laws to cognise the management of action systems**

I assume that action systems, in principle[4], also fall under certain laws formulated on the basis of formal sciences (R.W. Ashby's law of requisite variety, K. Gödel's theorem), and physics (laws of classical thermodynamics, W. Heisenberg's and W. Planck's laws).

An adapted R.W. Ashby's law stipulates that action systems, and management systems within them, will never be completely (perfectly) recognisable due to the asymmetry of variety. This is because it is impossible for a cognitive tool, constituting a part of the system, to be as varied as the whole system, and such symmetry is a prerequisite for total cognitive capacity. Consequently, the effectiveness of management will also be sub-optimal. An additional factor enhancing its validity lies in the attributes of the action system. K. Gödel demonstrated [Cf.: 13, chap. 2] that it is never possible to prove from within a given system that it is logically non-contradictory, which means that its cognition is possible by referring to *a priori* assumptions and/or from the point of view of the environment (the second incompleteness theorem). W. Heisenberg proved that it is impossible to determine the position and momentum of a particle at the same time, and tests aimed at reducing the uncertainty disrupt the system under analysis. Likewise, in the case of action systems tests disrupt those systems, whereby the outcomes are encumbered with errors and may have only statistical validity. In turn, the Planck constant marks the cognitive boundary of physical systems, and however difficult it may be to apply it directly to action systems, there exist unquestionable boundaries restricting human cognition (for example, of the brain). This is of significance taking into account the recent fashion for behavioural trends in social science.

In light of these laws, the current state of certain disorder (indeterminateness, ignorance, chaos), referred to below (subchapter 2) in the area of management system problems (including management tools) is "normal" or "natural". It is still highly unsatisfactory, though, in terms of options for cognitive improvement.

## 2. Problem of management tools

That there is a problem of management tools (and what it involves) is – in my opinion – indisputable. It concerns complete human activity, i.e. practical activity (application and use of management tools), scientific activity, and – in some sense derivative of the above two – teaching activity. Science and practice reinforce each other, meaning that the development of one, as an independent variable, stimulates and shapes the development of the other. Nevertheless, over the long term and ultimately, management practice is decisive. This is where real activities take place and the related management processes, and this is where management hypotheses and concepts are proven or disproven (the positive approach). On the other hand, management practice leads to the development of master models for running action systems and managing them. After all, these models do not exist outside reality. Still, they have a different function: to provide an answer to questions: "what should/must/is supposed to be?", in other words, they point to the standard to strive for. They are also virtual: they are a component of reality, but are unreal themselves. This general normative-virtual function is an expression of motivations, pursuits and intent of various entities. These entities are situated within the empirical sphere (for example, managers) and scientific sphere (academics). The former resort to various sources while enforcing chosen management tools, starting with their own creativity and experience, through normative scientific proposals, ending with – occasionally – whim, faith and hope. The latter may arrive at normative judgments via similar routes, with diagnostic scientific research regarded as carrying more weight than other approaches, for example scientific speculation. Scientific speculation, such as this paper, leads to defining scientific concepts, without empirical verification other than

the certificate of logical and methodological value. Only practice can ultimately validate deductive-normative theorems in management science. It does not mean that scientific prognostic procedure is inferior, on the contrary, its innovative and creative function cannot be overrated.

Diagnostic knowledge about the current state of management tools comes from:

1) review and evaluation of the practice of applying and using management tools,
2) review and evaluation of scientific literature reflecting current academic achievements in the field of management tools,
3) review and evaluation of teaching in subjects related to the domain of management methods, techniques and instruments.

A diagnostic review of these domains proves that each one comes with a relatively similar set of cognitive and axiological theorems. Below, I list the elementary diagnostic theses, based on literature studies as well as my own practical management experience. As a result, I formulate the problem of management tools serving action systems, in the context of the management system thereof.

***1) Diagnostic theorems concerning management tools***

a) There is no sufficiently clear and commonly accepted (paradigm, canon) differentiation between management and economy, and – respectively – management science and economics (problem with defining the objective scope). Consequently, it is not clear whether these domains can be attributed with the status of sciences. As another consequence, management tends to be somehow marginalised and, apart from being stripped off scientific status, it is reduced to the role of an instrument of economy.

b) Synthesis in management science is not being developed sufficiently, even though it is necessary due to the huge diversity of managed entities and situations where they find themselves or may find themselves. These are key variables co-determining the problem of management science synthesis, including management tools. Scarcity of such synthesis is conducive to under-determinateness in the field of management tools, and reduces the value of the whole set thereof by allowing in random and non-scientific tools.

c) There is a strong pressure for success in operating action systems. As a result, there emerges a market of sorts for management tools; tools in use are being copied; tools are applied and used experimentally and without testing; instrumental activities take place, semi-ethical and semi-legal. Consulting groups continue selling newer and newer management tools as a product, and some members of the academic community are willing to validate nearly any variables as potential tools. This leads to under-determinateness in the area of management tools, to “tool fashions” ebbing and flowing, as well as to certain “wizardry” in this domain (“management guru”) and “scientific forgery” (e.g. the so-called Sokal’s hoax).

d) There is no commonly held view or practice with regard to the definition of the “management tool” in the above contexts, including its relationship to other concepts, such as “management instruments”, “management methods” and “management techniques”, or finally “management system”. Individual concepts are defined and interpreted randomly in their wider or narrower sense, and consequently nearly everything is/becomes a management tool. If so, than what is not a “management tool”, or why use other terms, if everything is a “management tool”?

e) There is no commonly held view as to the “management tool set” or “management tool system”. As a result, the set is excessively labile, open and fuzzy.

***2) Theorems about the problem of management tools***

a) An elementary difficulty of a higher order: what is management and management science, in relation to other sciences?

b) A difficulty in defining the canon and scientific synthesis (paradigm) in the area of management, including its tools.

c) Identified difficulties apply to all cognitive areas, i.e. exploration, classification and explanation.

## 3. Cognition of the manager's toolbox – exploration

### 3.1. Management instruments – prerequisites for exploration

Exploration is the first step in the cognitive process, assuming of course a linear approach. Its key role[5] is to determine whether a given object "is" in the first place, i.e. whether it exists (ontological being), as well as where it comes from (sources, genesis), which requires a description and explanation.

Cognition of the nature of management tools requires that we refer to the etymology of the term "tool". A tool (instrument, device) is used by a given entity in action to enhance its potential and transfer the energy of this potential onto the object of the action. In fact, tools are applied and used to achieve desired goals. The entity will not use the tool, if it decides (for instance, though not necessarily, through calculation) that the expected results can be achieved without it.

The substance of management in terms of process (action) is to drive behaviours, and this significantly impacts considerations regarding the definition of management tools. At first, there are two parties to the relationship: the driving entity (driving subject) and the driven entity (driving object). The driving subject can also be its own driving object, in which case we are dealing with self-driving (self-management). The primary object of management is people, while other resources (objects) are only impacted through them. The management relationship is distinctive in that its direct object (people)

1) is also in fact a subject (has freedom of behaviour in this relationship higher than zero),

2) and is – simultaneously – an instrument from the subject's point of view (applied and used instrumentally by the subject).

The subjectivity of people who do not constitute managing subjects (meaning: managers, professionally involved in driving) is twofold. On the one hand, they are subjects taking into account the general attributes vested in each individual. On the other hand, people (especially workers) are components of congruence, necessary to manage the entirety of a given action. To simplify the notion of congruence, each employee makes decisions, performs duties and takes responsibility according to the distribution of work in a given action complex (action system). For this very reason, he/she can – and should – become involved in driving the action system as a whole, which manifests itself as participation in management. Human subjectivity has other significant consequences for behaviour, too. Namely, decisions are ultimately made, be it compulsively or following deeper reflection, by a behaving individual. For him/her, managerial influences (conscious driving applied by the managing subject) are only one of the elements within the full context of interactions. In other words, management and its system do not exhaust this context, or this context is a concept broader than management and its system[6].

Other implications, and the most difficult problems related to management tools, stemming from the adopted definition of management, concern the very nature of driving. First of all, managerial driving is, in fact, entirely instrumental in nature. Driving someone's behaviour means that one is the causative impulse, promoter, the reason for the behaviour. Yet, we must not treat management mechanically, and reduce it to the "first strike" so to speak, i.e. initiating action. We cannot assume that management will be effective, just like striking the cue ball. Theoretically, if the player (driving entity) strikes well, it launches a very complicated configuration of cause-and-effect relationships, and the ball inevitably lands in a

pocket. Whereas in practice, not even world champions or geniuses are completely effective here, let alone in the case of driving behaviours in and of action systems. Thus the manager, driving behaviour, must actively influence behaviour throughout the course of action, until it is completed and accounted for. In this light, management as a whole, and therefore the management system of a given action (action system), can be regarded as a large, complex driving tool, ultimately a management tool.

Secondly, there is also executive driving, i.e. realising the expected results by entities which are not professional managers. If the manager's orders are not executed by him/her (self-driving) or other entities, the desired effect will not be achieved. Thus, executive driving appears to be, broadly, a tool for achieving desired effects. From the point of view of final outcomes, it is a direct driving tool. From the manager's point of view, it is an indirect tool. When applied and used in managerial driving, it is meant to initiate a chain of cause-and-effect in influencing a given object of driving, and consequently produce the final success (desired result).

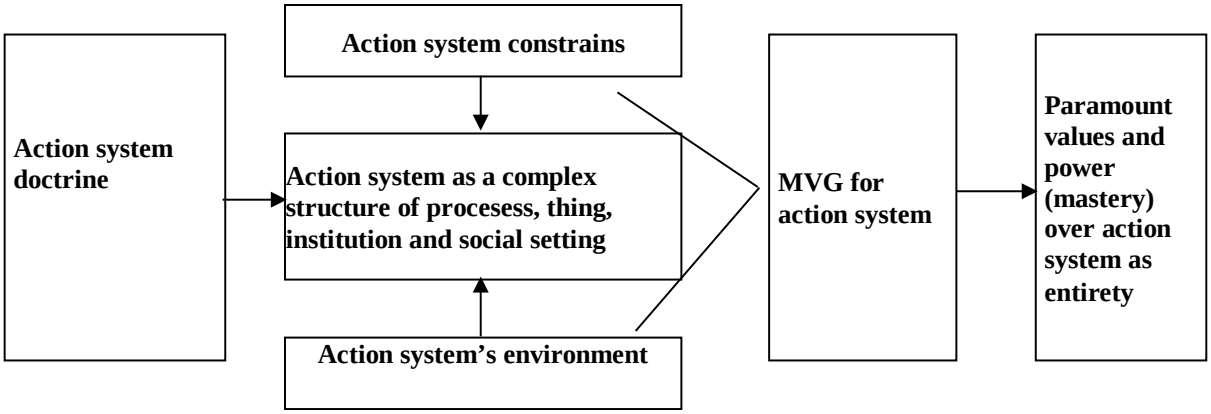
The above reasoning is connected to the assumption of "management in its broader sense". The entire management system of a given action is built and shaped under such principles that enable, preferably complete, effectiveness. The manager applies and uses this system instrumentally, attempting to play a game with the object (subject) of driving, as well as other contextual conditions of his/her behaviour, plus the action as a whole. At the same time, the "dice" in this game are executive processes, and other activities comprising the action regarded as a string (fundamental, supportive, communicative, economic and meta-management). The same role is played by their objective factors (people, money, other resources), institutional factors (management regime and organisational structure) and social factors (faith and hope, sensitivity, culture, and others). Under this approach, management and management system is a total, professionally defined and used tool for driving behaviours. Its domain includes internal and external relations of a given action system, in the continuous spacetime of running it. Management here takes on an omnipotent role, with general and complete congruence (adequacy of duties, authority and responsibility). Generally, such a role is attributed to the owners of action systems and their agents. Yet, to a varied extent it applies to and encumbers all entities directly involved in running a given action system[7].

In *Gazeta Wyborcza* daily, [cf.: 5] J. Kornai wrote: "The most important instrument of improving income distribution is to create increased equality of opportunities. The crucial role is played by education. (...) inequality starts with unequal chances of learning". It is easily noticeable that the "tool" according to Kornai is an aggregate variable ("create increased equality of opportunities"), while its variable of a lower order is "education". J. Kornai's reasoning is as follows: better access to education (variable – primary tool), equals better access to other variables (e.g. higher level of knowledge and awareness – variables – indirect tools) and, consequently, higher odds of improved income distribution (effect – result, outcome variable, expected variable). Variables are related causally and functionally, which leads to the creation of complex mechanisms for transferring the driving energy. Importantly, management in this case does not involve restricting the freedom of behaviour, quite the contrary: "equality of opportunities" creates an even behavioural ground for everyone, on the basis of which everyone is free to build their own path towards improved income distribution (but they are not obliged to do it), has a chance to achieve the final result independently. A variant of the above approach, the Robin Hood principle (rob from the rich and give to the poor), may appear to be considerably more fail-safe. It is easier to rob and give, which ensures significantly higher odds of success (improved redistribution of income). Yet, it is a passive path, which reduces the diversity of behaviours of everyone involved, introduces arbitrariness, which is the fundamental error of operating under conditions of ignorance and limited resources.

### 3.2. Management instruments in the narrower sense

In the context of work division and professionalisation of management, one can also speak of management tools with regard to "management in its narrower sense". This approach is based on the assumption that management – as a category of complex activities, let us reiterate – is a component of any action. In other words, within the action system, management and management system are one of many generic components. Still, it is present in every constituent activity, which stems from the assumption of action as a string. The substance and form of management and its system are conditioned by the system context in which the action system finds itself (fig. 1). In my opinion, this context includes: specifics and size of the action system (in the arrow); aspirations (including values and operational goals – located in the arrow – and MVG, authority and higher values); rigid (unbreakable) internal and external constraints; operating doctrine of the action system; internal and external circumstances (action system environment) with which the system is involved in a game [for more on this topic, see: 13].

Fig. 1. The complex action system



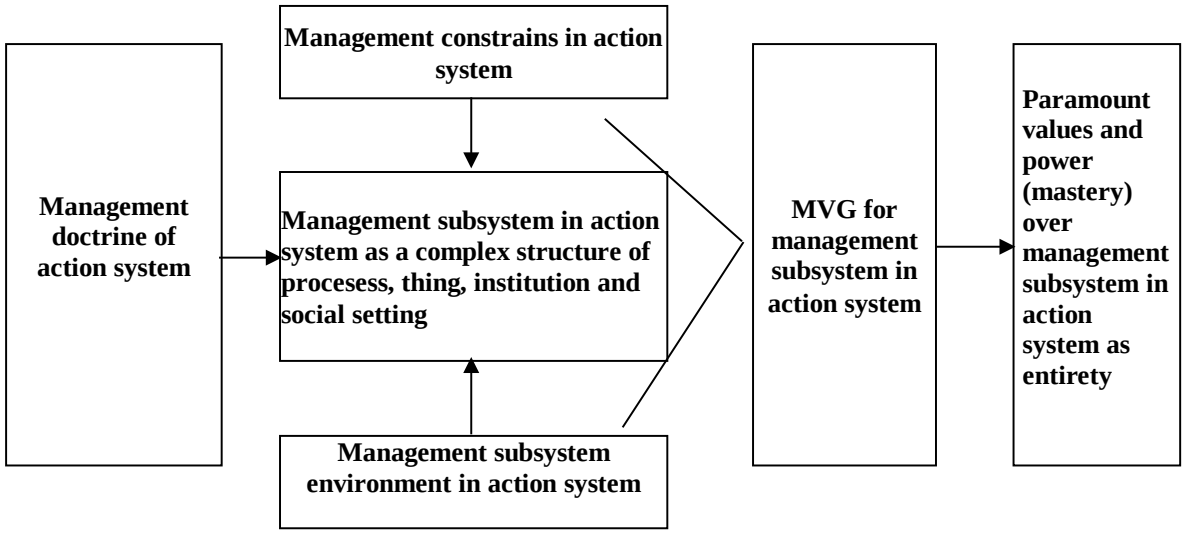

where: MVG – mission, vision and strategic goals.
Source: own work.

Managerial activities are specialised and professional, same as marketing, financial, investment activities, etc. Yet, on the other hand, in each of these groups of activities there is a managerial elements, or in other words: they are objects of management (management of marketing, finance, investments, etc.). Thus, one has to go some lengths to "extract" management and its subsystem from among other activities and systems within the action system.

Such "extraction", using the logic behind Fig. 1, may be carried out with regard to any of the logical blocks presented in the chart. Thus, the management subsystem of the action system is presented in Fig. 2 respectively. For instance, apart from management doctrine, within the doctrine of action systems one can identify *a priori* theorems referring to the definition of the action system, specifying mutual relationships between such a system and the human individual, and others. In turn, the management doctrine itself, respectively, includes statements regarding the definition of management, or specifying mutual relationships between management and its system, and the action system. On a side note, one must be careful formulating doctrines, including those of management instruments, taking into account that they may not have the status of scientific doctrines (scientific doctrine of

management instruments). They find their source not always in science (in the sense of the process and outcomes), but in common experience, beliefs, or random convictions.

Fig. 2. Management subsystem within the action system




where: MVG – mission, vision and strategic goals.
Source: own work.

I used the example of doctrine not without reason. Namely, a specialised management system as a whole may also, like I demonstrated in the case of "management in its broader aspect", be a total instrument for driving behaviours. This conclusion may be extrapolated to apply to the whole of a given action system under management, as well as a selected domain thereof (area, scope). For instance, the total management system of investment has its doctrine, both of investment, and of investment management, etc. There is no principle accepted in social science which would account for deriving theorems in a scientific manner (objectively, using the scientific method, etc.) that would challenge such an approach. Consequently, this means that, in any case, it is necessary to adopt a foundation for theorems from the domain of social studies, and points to the key role of doctrines, especially scientific doctrines [8].

Nevertheless, such an approach does not preclude an even narrower viewpoint, as if from the inside of the system. This is because actually the core of management and its system lies in the categories identified inside the arrow in the chart (fig. 2). The rest is a logical, system-oriented buffer around the core. There are feedback mechanisms between all categories, with complex mutual relationships. For instance, the management subsystem is one of the key independent variables (authority and others), affecting others, if one were to treat them as dependent variables. On the other hand, the management subsystem (as a dependent variable) may be and is subject to, strong influence of other categories (independent variables), which help it evolve. There is no doubt that a follower of D. McGregor's Theory X will most likely choose negative sanctions as management tools, or an autocratic style of directing. The management doctrine, in this case based on Theory X, may resist all other category variables, shown in Figure 2, if only the managing subject is sufficiently dogmatic. Dogmatic obstinacy may mutate into another management doctrine, if it is broken by the combined influences of other categories, in connection with an assessment

of management efficiency and learning capacity of the managing subject. The managing subject, perceiving the inefficiency of negative sanctions, must seriously consider changing the doctrine, from Theory X to Y or Z, or else the evaluation of his/her managerial competencies may go down, with all the other consequences.

The basic constituent categories comprising management as a whole are its internal processes (activities, functions). They lead the managing subject to the outcomes treated as goals. Yet, processes will not take place without action factors, i.e. active ingredients, directly involved in the action. Saturation with these factors creates the objective structure of action, i.e. an organised action system. In my opinion, the key management factors include the following:

1) Management entities (subjects) and their personal potential.
2) Management doctrine.
3) Management values and goals (here: management client and management utility)
   a) management client – entities whose needs are satisfied by management; key management clients are: clients of the environment justifying the social sense of the existence of the action system, the action system itself as well as its owners and team,
   b) management utility – products and services that management provides to management clients; the point of departure is acts of choice (decisions – right, etc.).
4) All constituent activities and functions, and management processes (widely understood, specialised activities shaping management, including meta-management), excluding the relationship of directing
   a) management processes as a string [fundamental management processes (CMODL); supporting management processes; meta-management; management-oriented communications; management-oriented economic actions],
   b) specialised processes shaping management (creating management and its system; maintaining the existence of management and its system; decline of management and its system; changes in management and its system;),
   c) processes: cognitive (C), axiological (A), responsive (R), normative (N) and implementative (I) - (CARNI), with regard to management and its system.
5) The relationship of directing (D) as a specific management process among the CMODL (here: motivating, directing style; participation in management), in the superior-subordinate relationship.
6) The attitude of managing subjects towards non-personal sources of authority (formal access to sources, attitude towards sources, etc.; attribution, assignment, property, etc., of sources), shaping the authority potential (law, supraindividual social culture, information, material and financial resources, other).
7) Management-oriented information (on different levels: data, information, knowledge, wisdom), including CARNI models.
8) Management methodology [language of management; logic of management; management methods and techniques; management styles; management instruments]. Information and authority, too, are management instruments. I quote them as separate management factors due to their specific, also non-instrumental role [9]. Whenever qualifying instruments, one must address the application of the principles of disjointness, completeness and entailment (inclusion) of sets. There are close and reciprocal links between the elements of management methodology which means, for instance, that the method is selected to suit the instrument, and a change of instrument may render the method useless. Likewise, a change of approach may entail adjustment of management tools.
9) Material and financial resources serving management (assets, liabilities; equipment), understood as a string and development.
10) Effectiveness of management (process and outcome).

11) Object of management (quasi-factor). Without an object there is no management – the object has a two-fold connection to management.

a) Initially the object is the executive subsystem, then the action system as a whole. The executive subsystem on the inside is subject to a dominant, authoritative influence of the management subsystem, yet it is linked to it by a specific management relationship (here: participation in management),

b) The object of management is the action system operating in connection with the environment which means that the field (domain) of management also includes the environment. The interior of the action system is subject to the authoritative domination of the system's owners and key management. The environment remains in predominantly partnership-based relationships with them. For this reason (relationship of equals), management of the environment of the action system is peculiar. It applies, for instance, to marketing which becomes a management process in relationships with suppliers, customers, the public, regulators, competitors, other entities and systems, etc.

12) TS – spacetime of management, i.e. the location of management and its system within the interdependent space and time.

In this context, specialised management instruments, compared to the entire management system in the object-based approach, are merely a small set of factors, located within the subset "management methodology" (see table 3 below).

Consequently, broadly speaking, outsourcing – for instance – may be called a management method, technique, or tool (I do not discuss the conceptual differences here). Whereas, in the narrow sense outsourcing is a kind of operation, in this case performed upon the body of the action system, thus it cannot be called a management method, technique (tool). The same outsourcing must be managed, i.e. for instance in the process-oriented approach: a causative impulse must be made with regard to outsourcing (C), modelling (M) and organising (O) must be conducted, the whole process must be directed (D), and linked (L) throughout its course and with regard to the outcomes, internally and with the environment.

**4. Cognition of the manager's toolbox - classification**

The above cognitive considerations lead to the classification (typology) of management tools. Classification (taxonomy) consists in defining the concept (specifics, attributes, differentiation) and separating from other categories/environment — *differentia specifica* and *genus proximum*, as well as identifying the internal structure of the given object. Classification, with regard to structurisation, is rigorous as it requires the set to be characterised by completeness, disjointness and entailment (inclusion) of elements. In the case of management tools, as can be derived from the theorems in subchapter 3, meeting these rigours is practically unattainable. Hence, they are classified without imposing such refined division criteria.

I assumed above that management instruments, under the most specialised approach, are contained in the set of the management factor that I refer to as "management methodology". Apart from them, a clearly instrumental role therein is played by management methods and techniques, as well as management styles. If one should identify, for etymological and semiotic reasons, an instrument with a tool, their most narrow definition refers to a factor that can be applied and used in a given activity, action. In other words, the activity (process, action) is a necessary factor in the application and use of an instrument (tool), including that of management. In my opinion, this path brings us to the concept of management method and techniques.

***Management method*** emphasises the approach to conducting the overall management process. In extreme cases, assuming that the entire, specialised management process consists of CMODL, it may proceed applying and using solely personal, including virtual,

management tools. In a micro-enterprise, the sole proprietor (entrepreneur) performs all the actions alone, including management. The activities of causing, modelling, organising, directing and linking (CMODL) may take place in his/her mind, thanks to the personal internal and external relationships, including commitment. To include specialised tools, for instance facilitating acts of choice (decision tables), modelling (e.g. representative drawings), organising (e.g. flow charts), directing (e.g. reward), linking (e.g. work attendance tracking cards) would inevitably mean that they should be blended into certain functional structures. The decision table is a selection tool, but its application and use entail specific activities [10]. Thus, it is impossible to differentiate precisely the management tool from the method, technique, or even management style: a tool without the subject and "peri-instrumental" activities is just a potentiality, like a musical instrument without a musician.

Management method is an approach to driving, with management tool/tools as a necessary component, emphasising (pushing to the forefront) the logic of the process, and not the tool.

***Management technique***, on the other hand, is the approach to driving, with management tool/tools as a necessary component, emphasising (pushing to the forefront) the very tool, and not the process.

Indeed, we are arriving at the instrumental function of a given factor or a set thereof, which may be expressed on a higher or lower level. By level, I mean the scope and intensity (tension, rate) of "instrumentality", the given factor's suitability to the instrumental role.

In this context, I differentiate ***three categories of management instruments in the narrow sense:***

1) Management instruments *per se*.
2) Quasi-instruments of management.
3) Para-instruments of management.

*Management instruments per se* are all the factors defined, as well as applied and used, solely for the purpose of driving behaviours in the narrow sense – people and through them, action systems. In other words, a given driving activity will not be effective, if we do not apply the given management instrument *per se*. A typical example is a decision table, with no other application than causing.

*Quasi-instruments of management* are all the factors developed, applied and used for various purposes, including those of driving behaviours in the narrow sense – of people and through them, action systems. A typical example of this is pay, which has many functions, including that of an incentive (may be used in directing).

*Para-instruments* of management are a partial or total contradiction of the second part of the expression, i.e. "management" (e.g. "para-management" like the "paranormal"). The set of para-tools of management contains factors/instruments which ultimately serve other values, purposes and functions than declared. Thus the scopes of requirements of the management process and the functionalities of these instruments do not overlap, or overlap to a minimal extent. One example may be withdrawing funds from a subsidiary (the actual purpose) under the pretence of rewarding high-class consultants from the parent company (the apparent purpose: driving consultants' behaviours – motivating). The structurisation concept of the tool set is presented in table 1.

Table 1. Matrix of identity and separateness of actions and systems/management tool categories

| **Categories of identity and separateness of actions and their systems**<br><br>**Management tool categories** | **Process-oriented identity and separateness** | **Object-oriented identity and separateness** | **Institutional identity and separateness** | **Social structure identity and separateness** | **Synthesis in the fields of tool categories** |
|---|---|---|---|---|---|
| **1. Instruments *per se*** | Processes in the role of exclusive management tools: management understood as a string and shaping, including but not limited to the fundamental management activities (CMODL) and meta-management | 1. People involved exclusively in management processes<br>2. Assets, as above<br>3. Liabilities, as above<br>4. Information, as above<br>5. Other resources and factors, as above | Institutions, especially regime as well as the dynamic and static organisational structure of action and action system, whose sole purpose is to shape processes, objects and social structure of management as well as themselves (meta-institutions) | The social structure of the management system, with elements such as convictions, awareness, values, faith and hope, sensitivity, emotions, culture, developed from the ground up, and whose sole purpose is to shape processes, objects and institutional management system as well as themselves (social meta-structure) | **Set (system) of instruments *per se*** |
| **2. Quasi-instruments** | Processes in the role of quasi-instruments of management: all the processes demonstrating a functional "driving-like" relationship with the values, goals and functions of action, in the context of longevity of a given action system | Any factors having functional potential as instruments, useful (effective) as well as beneficial and economic for management | Any institutions having functional potential as instruments, useful (effective) as well as beneficial and economic for management | Any social structure having functional potential as instruments, useful (effective) as well as beneficial and economic for management | **Set (system) of quasi instruments** |
| **3. Para-instruments** | Processes in the role of para-tools of management: all processes whose application is not justified by "driving" actual values, goals and | Any factors having apparent functional potential as instruments for management, useful (effective) as well as beneficial and | Any institutions having apparent functional potential as instruments for management, useful (effective) as well as beneficial and | Any social structure having apparent functional potential as instruments for management, useful (effective) as well as | **Set (system) of para-instruments** |

| | | | | | |
|---|---|---|---|---|---|
| | functions of a given action and action system | economic for other purposes | economic for other purposes | beneficial and economic for other purposes | |
| **Tool synthesis in the fields of identity and separateness** | **Identity and separateness of the set (system) of processes used instrumentally in management** | **Identity and separateness of the set (system) of factors comprising the acting object used instrumentally in management** | **Identity and separateness of the set (system) of institutions used instrumentally in management** | **Identity and separateness of the set (system) of social structures used instrumentally in management** | **Total synthesis of management instruments** |

Source: own work

For the purposes of synthesising the categories of management tools, I use the term "set (system)" of tools. This issue is beyond the scope of the present paper. The use of the term "directing system" requires that the sum total of the directing components (the set) should have the properties of a system. It means that the processes, factors (object-orientation), institutions and social structure of directing, irrespective of what this set contains, should comply with the rigours of a system. Meeting these rigours in the case of the relatively homogenous management processes and the broadly understood context of management is slightly easier, but very difficult nonetheless. Such a directing system should comprise the "motivation subsystem", "negotiation subsystem", "management style subsystem", "direct participation subsystem". I think that in this context, the application of the concept of the "management tools system" must be thoroughly considered and calls for further study. Still, apparently the idea of the "motivation tool system" has a considerable colloquial appeal and probably this is why it is used in practice without deeper consideration for its theoretical, methodological and empirical sense.

Mediation, i.e. determining the instrumental nature of a given factor, requires in particular that the target, desired state of things be determined. Only from that vantage point can a factor find itself as a mediator (zero, weak, average, strong, complete), or not. Thus, the following are important:

1) Scope of mediation (material, objective, temporal, spatial, subjective).
2) Mediation process, constituent actions, object-oriented, institutional and social dimension of mediation.
3) Mediation mechanism (causal, statistical, network-oriented, etc.), its structure and dynamics as well as its potential, force and other properties and parameters (time, cost, quality, quantity, pace).
4) Level of mediation (mediation intensity, tension).
5) Utility of mediation, in terms of the needs of the managing subject and those of the management relationship, as well as mediation efficiency.
6) Alternativity, competitiveness of management tools, opportunity cost (in Afghanistan, peace can be achieved through negotiations and/or war, etc.), substitutability of mediation.
7) Effectiveness of driving. Effects may manifest themselves immediately and directly, inside the object, or be delayed (sleeper agent), in the domain of action in a given spacetime. These effects can also be incomplete (efficiency), and even (despite the tool's nominal full potential) counterproductive. It is therefore necessary to differentiate, e.g.: apparent and actual tools; nominal and actual potential, etc.

8) Beneficiality and economy of driving. The difference (subtraction) between the positively and negatively evaluated effects of driving constitutes beneficiality of driving, whereas their quotient accounts for the economy of driving. In management, tool effectiveness is a superior value, yet if two tools are equally effective, the choice should be guided by beneficiality and economy.

Table 2 presents the assumptions for the systems-based approach to the category of management tools. By "Professional and specialised management system, including narrowly understood tools (management system core)" I mean process-oriented, object-oriented, institutional management developed within the social structure, treated as a string (see header of table 4). The tool core is presented in cell 2.2. in table "Scientific management treated as a string and shaping the behaviours of people and the action system – process-based, object-based, institutional and social approach". I introduce "science" into the definition, because I think that science is the best guarantor that given management tools can be "accredited" by it, as fully *per se*.

Table 2. Assumptions for the matrix: management tool categories – system approach

| **Components of the management system, understood broadly**<br><br>**Tool categories** | **Professional and specialised management system, including narrowly understood tools (management system core)** | **Action system doctrine, including management** | **Direct and overriding values of management** | **Constraints of management** | **Independent variables of the internal and external context of management** |
|---|---|---|---|---|---|
| **1. Tools *per se*** | Scientific management treated as a string and shaping the behaviours of people and the action system – process-based, object-based, institutional and social approach | Doctrine and its components as scientific management tools – variables contributing to the shape of the management system core | Values as scientific management tools – variables contributing to the shape of the management system core | Constraints as scientific management tools – variables contributing to the shape of the management system core | Independent variables of the context, scientific tools – variables jointly contributing to the shape of the management system core |
| **2. Quasi tools** | Sets conditioned contextually | Sets conditioned contextually | Sets conditioned contextually | Sets conditioned contextually | Sets conditioned contextually |
| **3. Para tools** | Sets conditioned contextually | Sets conditioned contextually | Sets conditioned contextually | Sets conditioned contextually | Sets conditioned contextually |

Source: own work

Table 3 presents the location of management tools within the management system treated as an object. The fundamental management processes have been "saturated" (equipped) with management factors, creating an object – operationally capable of executing management processes. Please recall now that providing management processes with tools (choice) is conditioned by the context of the remaining activities of management, treated as a string (see header of table 2), as well as the context of constraints and circumstances. Table 3 does not provide for such conditioning due to technical and editorial reasons (it would be difficult to visualise in a single editorial and graphical model). I am leaving some cells blank to facilitate perception, and at the same time to encourage additional study.

Table 3. Matrix of management processes/management factors – management system as an object

| **Management processes Management factors** | **Causing (C)** | **Modelling (M)** | **Organising (O)** | **Directing (D)** | **Linking (L)** | **Synthesis by management factors** |
|---|---|---|---|---|---|---|
| **1. Managing subjects** | Causing entities | | | | | **Total of specialised managing subjects** |
| **2. Management doctrine** | Causing doctrine | Modelling doctrine | | | | **Complete management doctrine** |
| **3. Management values and goals** | Values and goals of causing | | Values and goals of organising | | | **System of management values and goals** |
| **4. Management activities** | Constituent activities of causing | | | Constituent activities of directing | | **Management processes system** |
| **5. Directing relationship** | Causing in the relationship of directing | | | | | |
| **6. Non-personal sources of authority** | E.g. decision-making powers for causing | E.g. decision-making powers for modelling | E.g. decision-making powers for organising | E.g. decision-making powers for directing | E.g. decision-making powers for linking | **E.g. system of decision-making powers** |
| **7. Management-oriented information** | Causing-oriented information | | | | | **System of management-oriented information** |
| **8. Management methodology** | **Causing tools** | **Modelling tools** | **Organising tools** | **Directing tools** | **Linking tools** | **Set (system) of management tools** |
| **9. Other management-oriented resources** | Other causing-oriented resources | | | | | **System of other management-oriented resources** |
| **10. Management efficiency** | Causing efficiency | | | | | **Total efficiency of the management system** |
| **11. Object of management** | Object of causing | | | | | **Total objective and material scope of management (field, domain of management)** |
| **12. Spacetime of management** | Spacetime of causing | | | | | **Location of the management system within** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | **spacetime** |
| **Synthesis by management processes** | **Causing system as an object** | **Modelling system as an object** | **Organising system as an object** | **Directing system as an object** | **Linking system as an object** | **Management system as an entire object** |

Source: own work

The above table (tab. 3) is by far not the perfect analytical and research tool for the purposes of typology. For instance, if decision-making powers should qualify as "non-personal sources of authority", it creates the problem of the instrumental nature of the sources of authority in general. In other words, sources of authority might be included in the category "management methodology", and therein – "management tools". This is because authority and its sources are potential energy by nature, making it possible to drive behaviours. For instance, simply referring to the potential of one's authority (colloquially: "do you know who I am?!") may trigger behaviours and action, without resorting to other tools.

Another option for differentiation and structurisation of management tools can be found in the matrix "management in its narrow sense as a string/shaping management" (tab. 4). I have built it around the example of "higher-level education of students". The contents of the cells do not exhaust the sets, they only contain selected examples of activities (processes), and only referring to these can we determine the management tools *per se*, depending on the context of "education...". It is easy to note that the set of tools is open, fuzzy, variable and hybrid, i.e. it has the attributes of the action system.

Yet another option is demonstrated by structurisation according to the category and level of the action system management problems to be solved (tab. 5). I identify four such levels: policy (highest), strategy, tactics and operations (lowest). The boundaries between them are not clear-cut.

1) Policy of a given action is a part thereof. It is the focus of commitment within a given action on highlighted areas, with the highest significance for the action and the action system. They are:
   a) higher values authority,
   b) rudimentary doctrine,
   c) key constraints,
   d) rudimentary decisions regarding the principles governing action strategy,
   e) rudimentary decisions regarding independent variables.

Strategy of a given action is a part thereof. It is the focus of commitment within a given action on highlighted areas, with the sub-highest significance for the action and the action system. Strategy includes responding to change, playing with internal and external change aimed at maintaining policy. It is a game involving change of the object (e.g. inflation) and subject (other players), MVG-oriented, signalling potential changes in policy. Strategy also shapes rudimentary decisions regarding the tactics governing action.

2) Tactics of a given action are a part thereof. They are the focus of commitment within a given action on highlighted areas, with higher than lowest significance for the action and the action system. Tactics play instrumental functions with regard to strategy, their role is to stabilise action for the purposes of strategy and operations. They attempt to develop unambiguous premises for operations, i.e. invariable conditions for action.

Table 4. Matrix of management in the narrow sense as a string/shaping management

| **Management as a string**<br><br>**Shaping management** | **Fundamental management activities (CMODL) and other (e.g. any fundamental activities as driving tools)** | **Supporting management activities** | **Meta-management activities** | **Executive management activities** | **Communications for management** | **Economy for management** | **Synthesis** |
|---|---|---|---|---|---|---|---|
| **1. Creating action (including management)** | 1. Causing, and other management activities, in creating "education...". Includes causative impulse tools (description, choice, classification, evaluation, norms) | 1. For instance analytical services related to creating the management of "education...". Includes e.g. analytical tools for the purposes of modelling. | 1. CMODL with reference to the CMODL of creating "education...". Includes e.g. causative impulse tools (description, choice, classification, evaluation, norms) for CMODL | 1. Actual execution of management in creating "education...". Includes e.g. causing implementation tools (e.g. formally undersigning decisions) | 1. Management-oriented communications in creating "education...". Includes e.g. information selection tools in modelling | 1. Management-oriented economy in creating "education...". Includes e.g. management cost accounting tools | **Synthesis of management in creating "education...", including its tools** |
| **2. Existence of action (including management)** | 1. Causing, etc., in the existence of "education...". Includes causative impulse tools (cognition, valuation, choice, implementation) | | | | | | **Synthesis of management tools supporting action, its development aimed at ensuring longevity** |
| **3. Decline of action (including management)** | 1. Causing, etc., in the decline of "education...". Includes causative impulse tools (description, choice, classification, evaluation, norms) | | | | | | **Synthesis of management tool atrophy and liquidation tools in the process of decline of action** |
| **4. Change in action (including management)** | 1. Causing, etc., in the change of "education...". Includes causative impulse tools (description, choice, classification, evaluation, norms) | | | | | | **Synthesis of management tools for action and action system change** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Synthesis** | **Synthesis of causing, etc., in "education...". Includes causative impulse tools (description, choice, classification, evaluation, norms) of the entire process of "education..."** | **Synthesis of tools in activities supporting management** | **Synthesis of tools used in meta-management** | **Synthesis of executive tools in implementing management** | **Synthesis of tools used in management-oriented communications** | **Synthesis of tools used in management-oriented economy** | **Total synthesis of tools throughout shaping and management as a string** |

Source: own work

3) Operations involve action, including management, implementing the master models of the desired statuses. The domains of policy, strategy and tactics progressively narrow down all the way to operations at the level of details and the present spacetime.

I divide any action into management and executive activities, differentiating four categories of management levels respectively: political management, strategic management, tactical management and operational management. Each of them can be analysed in terms of the string and shaping. For instance, in strategic management of any action considered as a string, one may identify the fundamental strategic management activities (the strategic CMODL), activities supporting strategic activities and others, etc. Configurations where the above stratification of any action, including management, can be adopted as basis for structurisation may produce new matrices.

Table 5. Matrix of tools action/management levels – identity and separateness

| **Fundamental management processes**<br><br>**Action/ management levels** | **Causing (C)** | **Modelling (M)** | **Organising (O)** | **Directing (D)** | **Linking (L)** | **Synthesis** |
|---|---|---|---|---|---|---|
| **Policy** | Tools of political choice | Tools in modelling policy | Tools of organising policy | Directing tools in policy | Feedback and feed-forward tools in policy | **Set (system) of tools at the policy level** |
| **Strategy** | Tools for activating strategy (e.g. strategic turnaround) | Modelling tools in strategic management (e.g. SWOT) | Organising tools in strategic management (e.g. map of key processes within a corporation) | Directing tools strategic management (e.g. bonuses for management) | Linking tools in strategic management (e.g. check list of milestones in implementing strategy) | **Set (system) of tools at the strategy level** |
| **Tactics** | Causing tools in tactical management (e.g. decision on adopting a variant-based approach in recruitment planning in human resources strategy) | Modelling tools in tactical management (e.g. variant-based recruitment plans) | Organising tools in tactical management (e.g. chart tracking the variant-based approach in recruitment) | Directing tools in tactical management (e.g. rewards for the recruitment variant-building team) | Linking tools in tactical management (e.g. monitoring the effectiveness of rewards in variant-based approach to recruitment) | **Set (system) of tools at the tactical level** |
| **Operations** | Detailed generic tools | Detailed generic tools | Detailed generic tools | Detailed generic tools | Detailed generic tools | **Detailed generic tools** |
| **Synthesis** | **Set (system) of causing tools in management** | **Set (system) of modelling tools in management** | **Set (system) of organising tools in management** | **Set (system) of directing tools in management** | **Set (system) of linking tools in management** | **Total synthesis of tools in the system of fundamental management activities** |

Source: own work

It is also unquestionable that management science derives its concepts of tools from the fields of study of other sciences (natural sciences, formal sciences, humanities and other social sciences). This is mainly because of the attributes of action systems and the characteristics of driving human behaviours and action systems as a whole.

**Conclusions**

Behaviours and actions of people and action systems are derivatives of broadly understood internal and external circumstances, with the management system among them (first-order independent variables of behaviours). In turn, one of the elements (parts) of the management system of action systems are management tools (one of the complex second-order independent variables of behaviours). I am trying to position management tools in this setting.

Undoubtedly, the management subsystem is an element of a given action system. As such, under R.W. Ashby's law of requisite variety, in order to solve any problems with perfect efficiency, it would have to be at least as varied as the system of which it is an element. This would contradict the above-mentioned law. A similar situation applies to science, including management science, which is equally incapable of complete exploration and determination of action systems. It is more capable with regard to natural systems which are more static. Action systems "evade" managers and management scientists in a sense, due to their properties (a metaphoric analogy: "the curve of pursuit").

In this paper, I am promoting the view that the management tool category shares similar properties with the action system: it is co-dependent on the environment, fuzzy, variable and hybrid. Thus, "the manager's toolbox" is, also by analogy, a container of sorts with a variable capacity, a reservoir of various accessories. The manager cannot afford to leave problems unsolved, cannot afford to wait. If the necessary and required tools *per se* are not available at hand, in his/her or publicly available toolbox – he/she will use any other factor expected to fulfil the instrumental function, or create a new management instrument. In fact, an continuous testing process is going on, also by trial and error, of factors for their functionality as management instruments. One of its reasons is the immense push for success. Because of the above-mentioned nature of action and management systems, success is a highly desirable achievement, even though in some sense a vanishing point. I suggest, apart from the discussed classifications of management tools, that the core, canon (if not the paradigm) of management tools is a concept blurred to the point of nebulosity, barely meeting the acceptable criteria for science. Historically, little of it becomes consolidated and it grows as accumulating knowledge, a set (system?) of tools, with a fuzzy identity, boundaries and structure.

Such a state of affairs in the field of management tools in quite natural, and will never be different. Inevitably, it will be linked to non-scientific proposals and facts, as well as fashions. The only thing we can do, which I have tried to do here, is to attempt methodological efforts aimed at enriching the cognition and developing the synthesis in the field in question.

I believe that with the theses I propose I am laying foundations for a better cognitive order in the field of management tools. Still, further academic discussion is needed regarding good cognitive sublimation of management tools, against the background of the management system, which on the whole is remarkably instrumental in nature. In the long term, research should lead to theoretical and cognitive progress imbuing management theory and practice with enhanced scientific properties.

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[1]Attempts by L. von Bertalanffy (general systems theory) and O.E. Wilson (consilience), or econophysics are rather incidents than constitute a widespread scientific trend, let alone a canon [Cf.: 2; 4; 11].

[2] Addition – the set comprises autonomously operating elements, non-interacting or interacting randomly (as in L.E. Boltzmann's ideal gas, a concept used in physics). Action systems will probably never achieve integration at the highest level – that of the machine, modelled upon the organism or machine, an artefact.

[3] One needs to be careful here: if someone assumes that their goal is to do away with an action system, then their actions are fully successful after an adequate court decision (bankruptcy declaration). Success does not always have positive connotations or it does only under certain assumptions.

[4]"In principle" – I assume scientific validity of these laws on the grounds of social sciences within the meaning of statistical nomological determinism. On this issue, see [6].

[5] The complete objective scope of cognition encompasses not only ontology, but also axiology, decision (normativism in cognition) and realisation of the cognition process and outcome. These issues are not subject to consideration here.

[6] Under extreme conditions, consciously applied physical coercion or threat of extermination may not bring about expected behaviour. Situated in the wider context, ethical and moral stimuli, or the sense of dignity, etc., may suppress fear and anxiety, and reinforce resistance-like behaviour, up to or beyond the boundary of life.

[7] As per the assumptions of this paper, I am not elaborating on this issue, even though it is of high significance for the efficiency of management (e.g. the role of external regulators, restricting the freedom of behaviour of action systems).

[8] Such an approach creates an immediate problem whether social studies are scientific in the classical sense. Classically, the standards of science are set by natural science, where it is required that the outcomes of the scientific procedure should be widely applicable laws at best. A discussion of this problem is beyond the scope of this paper.

[9] For instance, information plays a cognitive role, but can also be used for the purposes of control and regulation. Authority, a very complex management instrument, may also have an axiological meaning *per se* (value).

[10] I think that a sort of counterpoint for the study of the problem of management instruments may be found in non-managerial human activity. A musical instrument, for instance, is a direct source of sound (music), and so it creates, causes the expected final result. Nothing else (apart from the musician) is necessary. Whereas, a patient can be operated on using classical or laparoscopic procedure, through a series of different activities, i.e. achieve the final result via a more complex, alternative or variant-based approach.