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The Essence of Management System

The present text is a synthesis (an open-ended and non-simple sum) of my previous papers.[1] My focus is on the cognitive exploration of the "management system" (MS) as a category, irrespective of the action system that it is a subsystem of. I use a praxeological and systematic approach, prognostic-diagnostic methodology and hypothetical-deductive reasoning. The diagnostic component of the method is rooted in my own competence, knowlege and evaluation of the current status of management science (as of the end of 2015).

In science, including management science, the management system is a vaguely defined cognitive category. In practice, the term is in common use, albeit with qualifiers, such as the "quality management system". Any deeper exploration of the MS seems to pose a challenge, as the endeavours to date, if any, including those made in Poland,[2] have to failed to produce the expected results. Research in management systems is needed primarily in the practice of any action systems (AS).

1. Selected terms and definitions

1.1. General terminology

The management subsystem (system) is an arrangement of a set of specific elements (E) with specific properties (P) and connecting relationships (R), which makes it possible for the whole set to managerially cause the activity (behaviours and actions) of any action system.

Closely related categories: 1) system (subsystem, suprasystem – superior system); 2) management (directing; governing; steering, regulating); 3) action and action system.

Independence – dependence; freedom of organisational behaviour; self-regulation – regulation

Independence – a term originating from Latin "dependere", meaning "to hang from". It means, simply, that the behaviour of a given entity is largely decided by itself. In extreme cases, the entity may refuse to surrender to the coercion of the environment, even at the price of health and life. Behaviour (Zieleniewski 1969: 162) means that a thing (here: an entity) remains in a specific condition which may be described in reference to the environment

[1] Since Witczak H., 2008, *Natura i kształtowanie systemu zarządzania przedsiębiorstwem*, WN PWN, Warszawa, through to: Witczak H., 2016, *Doktryny zarządzania strategicznego* in: collective work content-edited by: E. Stańczyk-Hugiet, J. Niemczyk, *Strategie. Procesy i praktyki*, Prace Naukowe UE we Wrocławiu no 420, Wydawnictwo UE we Wrocławiu, pp. 398–410, Wrocław.

[2] Cf.: https://mfiles.pl/pl/index.php/**System_zarządzania** (last accessed 26 July 2016).

and/or component parts of the given thing (entity). Absolute (complete) independence means that the behaviour of a given entity originates solely from its intent and that the environment does not impose any constraints on such intent. ***"Dependence"*** is the opposite of independence. A complete dependence refers to a situation wherein the behaviour of a given entity is decided solely by its environment.

These general considerations on independence (freedom) need to be elaborated on, seen as intent is a crucial, but only one of many sources of conscious and rational behaviour. Our behaviour, if considered from the point of view of reflection, is often governed by intuition, instinct, reflex, the subconscious, impulse (emotion), and most often – by an idiosyncratic mix of intent and other sources.

System

To define the management system as a category, we must first define the "system". The system is described with reference to any object, primarily as a *set* (the first "rigour", or "requirement", of systemicity) of any elements E, with any properties P, connected by any relationships R. However, for such a nonempty set to be called a system, it must also meet other requirements (rigours) of systemicity: 1) structure; 2) consistence; 3) boundaries; 4) interactions with the environment; 5) capability to perform a given function or achieve a given purpose (cf. L. von Bertalanffy 1984). The system understood in this way is a universal cognitive category which may be described with reference to any set, as long as it meets the requirements of systemicity. The capability to achieve goals is characteristic of teleological systems (exhibiting purpose or design), and the most general category of such systems are action systems (AS).

1.2. Action system

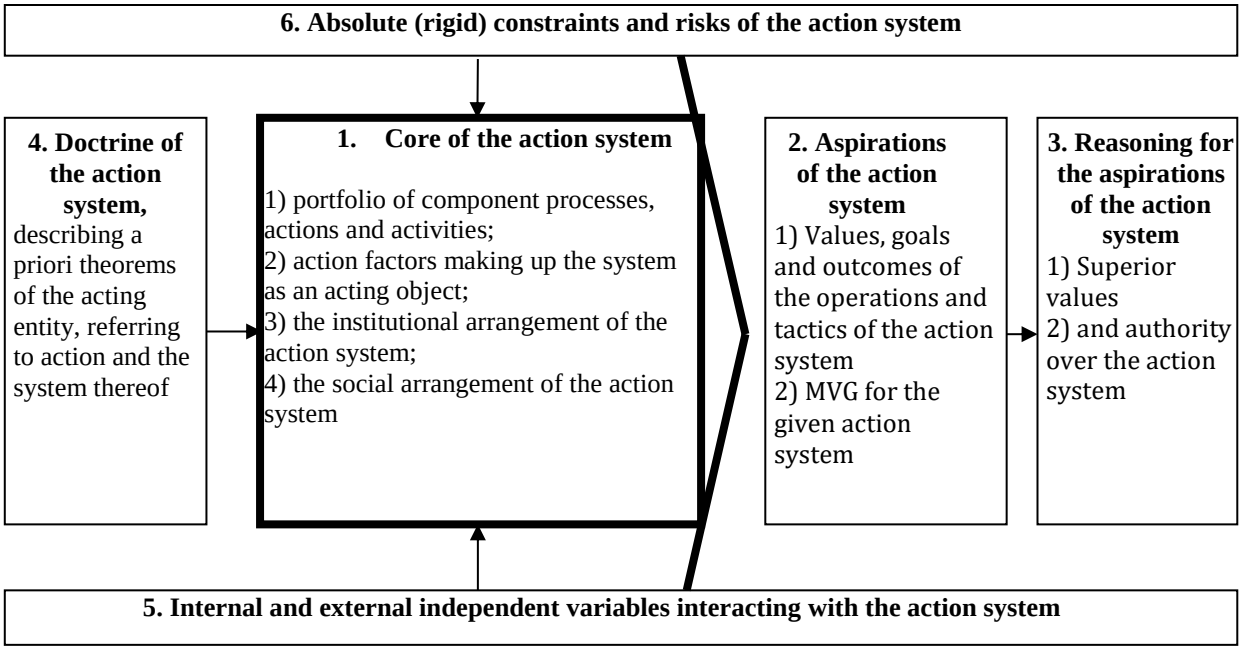
Action is the purposeful behaviour of a given entity. It involves decisions whether to act or abstain from acting, what direction the behaviour should take, and how to coordinate the components and circumstances to move along a trajectory leading towards the goal. The problem is relatively simple when dealing with a single-entity action (carried out by one person). Its complexity increases significantly when a multi-entity action is involved (an institution; organisation; a great action system). Determining the direction (goal), the path to the goal and coordinating a multi-entity human arrangement, in the context of a complex and changeable environment, becomes a tough challenge.

When describing the independence/dependence of multi-entity action systems, we use the concept of the "freedom of organisational behaviour" (FOB). FOB equals 1 when there are no

constraints on the action of a given AS, which is practically unheard of. If any component of the AS had this degree of freedom, it would be impossible to organise the AS to the extent (degree and scope of behavioural convergence) required in the light of the goals, direction, path and coordination of actions of the entire AS. By the same token, FOB = 1 in interactions with the environment could occur solely in a situation where there were no other entities in the environment. In other words, the environment would not pose any constraints on the AS, which practically impossible. One might, for instance, believe that even Adam and Eve, our hypothetical ancestors, may have been driven by curiosity whether in their environment there is anyone else apart from them [here: the environment as a factor inducing (causing) behaviours].

The action system (AS) is a system surrounding man. The human individual is an elementary AS, even if not using any other tools than own organs. Thus, action systems have

Fig. 1. Action system (AS)



Where: MVG – mission, vision and strategic goals

Source: own work

the attributes of purpose, they are teleological systems. At the other end of the spectrum in terms of complexity, one finds the incredibly complex civilisation systems (e.g. countries). It is debatable whether the examples of such systems would include the European Union Anno Domini 2016, or the world as a global village. Definitely though, such action systems include

AS categories differentiated for their attitude to supply and economic surplus (profit): 1) for-profit ASs – enterprises (including large holding companies); 2) not-for-profit ASs (e.g. public organisations); 3) mixed ASs.

The characteristic qualities of the AS include: 1) openness; 2) fuzziness; 3) hybridity; 4) variability; 5) purpose (teleology); 6) self-organisation (autopoiesis); 7) in statu nascendi.

1.2.1. At the heart of the AS are elements included in the **"1. Core of the AS"** block. First, it is the ***portfolio of processes, actions and activities,*** which produce results in the form of products and services dedicated to specific customers and their needs. Of course, it is assumed here that we are discussing ASs involved in socially acceptable activity. The values, goals and outcomes of the operations and tactics of the action system, which are included in block 2 in Fig. 1, should actually be presented in block 1, in the arrowhead. Their location in block 2 is dictated by the technical constraints of text edition: it would be difficult to fit such a text in the arrowhead. The processes engaged in by any AS may first be inferred from the AS lifecycle. These include formation processes (shaping): *a) AS creation; b) AS existence; c) AS decline; d) AS changes*. In turn, the "AS existence" processes may be further divided into: *a) fundamental processes; b) auxiliary processes; c) management processes; d) economic processes; e) communication processes*. Of these, the most important are fundamental processes, which enable the given AS to interact with the environment. The second category of the core is made up of ***action factors*** which, once integrated, form the management system as an acting object. The most important factors include (italics): *acting entities (managerial and executive),* which impact (*component activities*) on certain *objects*, using the relevant *resources,* applying the relevant *instruments and methods*, and carrying out activity in a given *spacetime*. The third category is the ***institutional arrangement of the AS***. It involves the *regime,* as well as *dynamic and static organisational structures of the AS*. Their role is to determine congruence, including particularly the rights and obligations of the AS and its component parts. As a result, the AS may have corporate status (*registration*) in relations with the environment. Without the "institutional superstructure", the AS would not be able to start operations or interact with the environment (it would not be bound in relations with the environment). Finally, the AS core as a whole features an ***arrangement of social variables***, such as culture, emotions, interests, faith, hope, trust, etc. They permeate the entire AS, at

various levels and in different structures, creating the complex social fabric of the AS.

1.2.2. The second set of subsystems within each AS includes its **aspirations (blocks 2 and 3)**. While the arrowhead of the "AS core" contains operational and tactical aspirations, the "surrounding" blocks feature strategic (block 2) and political (3) aspirations. Strategic aspirations position the AS, its activity and results (AS domain), in the wider context of the environment and change. Strategic aspirations, and particularly the strategic Mission, Vision and Goals (MVG), are superior to the AS domain, because the changeable and opaque environment features other entities without reference to which the given AS will not achieve the success it pursues. Ultimately, reasoning of the highest level is found in political aspirations, determining the superior values of the AS and the principles defining the authority over the AS and its relations with the environment.

1.2.3. Thirdly (in terms of sequence, not importance – all the blocks and subsystems of the AS are equally important), there is the **doctrine of the AS**. It is a set of theorems adopted a priori (i.e. prior to taking action) by the entities managing the AS about the object of management: a) the AS; b) its relations with the environment; c) and the principles of managing the AS. They reflect the beliefs of these entities on the subject and constitute a virtual external framework for the AS, which these entities can refer to when justifying attitudes, practices and – generally speaking – the principles for managing the AS.

1.2.4. The next block 5 describes the **internal and external independent variables interacting with the action system**. Internal variables emerge from the structure and interactions within the AS, naturally in connection with the environment of the AS. External variables include the arrangement of the AS environment, open, hybrid, opaque, particularly complex, etc. Projecting the internal potential of the AS onto the potential of the environment of the AS enables one to explore and shape the situation (position) of the AS within the environment. Against such a backdrop, the AS finds itself somewhere along the spectrum between the leader and outsider, with the perspective of durability/perishability, etc.

1.2.5. The final block (6) contains the **absolute (rigid) constraints and risks of the action system**. Absolute (insurmountable) constraints define the boundaries of acceptable behaviours, that is the level of the FOB. Constraints may be absolute due to objectively-existing reasons, independent of the entities managing the AS,

or due to their subjective decisions (e.g. adopted in the operational doctrine or in response to the environment, etc.). This category also includes risk levels unacceptable to these entities.

2. Management

At the root of the behaviour exhibited by every action system, there are certain triggers, stemming from relationships of cause and effect, as well as conditions. The relationships of cause mean that there may be "n" reasons "why", preceding the given AS and its behaviour, which encourage/discourage a given action. The relationships of effect, in turn, mean that there may be "m" reasons "what for / to what end", which follow from the given AS and its behaviours. The latter may be interpreted as the desired state and then they are regarded by the given AS as "goals". They may also be interpreted as the undesirable state, and in that case they constitute a disincentive for the AS to display certain behaviours. Finally, there is a set "about" – the broadly understood circumstances of action (conditions), which may encourage/discourage certain actions on the part of the AS. In action involving reflection and rationality, the causes, effects and conditions are the object of consideration, as a result of which the entity chooses specific behaviours. However, the conscious rational approach usually involves other indicated above variables (intuition…), which makes it rather difficult to ascertain the principles which lead a given AS to a certain action/inaction or behaviour.

2.1. Causing – management vs. execution[3]

Action is a sequence of consciously determined and organised processes leading to an effect intended as a goal. In fact, action is an organised sequence of local effects, caused by the acting entity, producing the overall result (final or ultimate effect). In single-entity action, effects are integrated with a single entity. The entity manages execution (defines models and implementation principles) – it simply "gets down to work" and transforms various resources to achieve the desired state of affairs (final results). In multi-entity action, where the workload is divided, management is separated from execution, though at the same time they must be integrated in the AS organisation. There emerge managing entities (directing, controlling entities, managers) and executing entities (operators), together making up one paradoxical, divided and integrated, action system.

[3] Cf.: Witczak 2008: 206 ff.

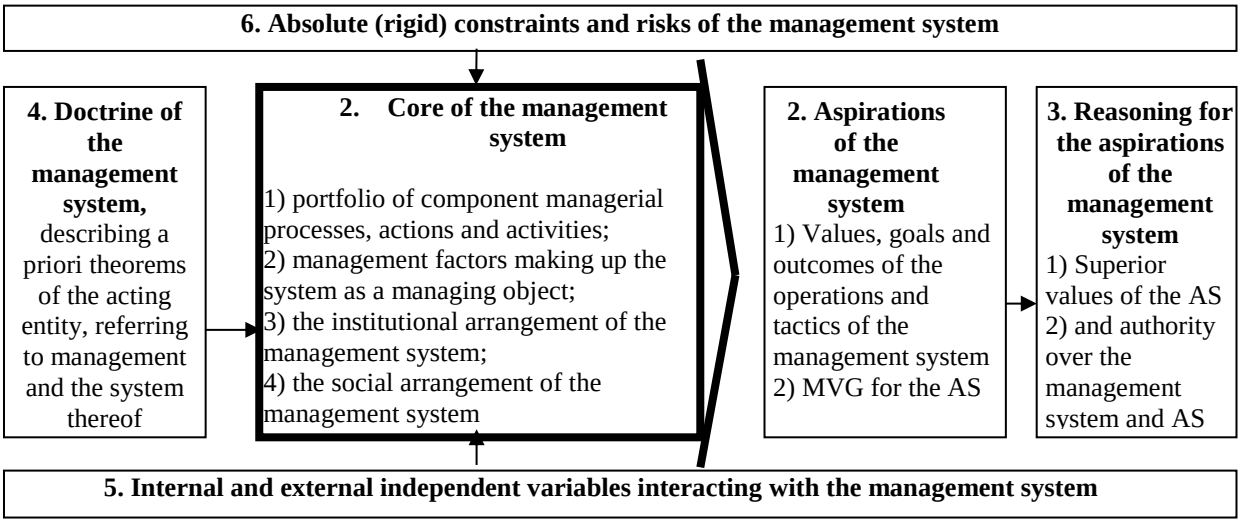
This picture now needs some context. The FOB of each of these entities is <1 (less than one). If it were possible to quantify the FOB, the total sum of those "freedoms" should amount to 1. However, man is not a social machine, no such machines exist, nor will they ever exist, people do not switch on/off at the push of a button. Each of us is a separate AS, which can become a part of an "organisation-like" AS (a multi-entity AS), meaning that in any organisation there are numerous single-entity ASs, people. The organisation-like AS is a whole made up of other ASs (people), which leads to the question of fragmentation/integration of the organisation-like AS. The problem is rooted in the natural divergence of the autonomous FOBs of various entities, making up organisation-like ASs. What is more, each entity has its own aspirations, operational doctrines and its behaviour is shaped by various unique circumstances. We are dealing here not only with divergent categories (FOB), but also with structural divergence within these categories.

This puts in question how the behaviours and actions of AS components and the AS a whole are caused to achieve the anticipated goals of the given organisation-like AS. This question is particularly complex and implicated.

2.2. Management system as a category

It is impossible to fully isolate the management system within the action system, mainly

Fig. 2. AS management system



Where: MVG – mission, vision and strategic goals.

Source: own work.

because of the above-mentioned integrity of activities and unique properties of the AS. Fig. 2 presents the management system as a category, a subsystem of any AS, also a category itself.

2.1.1. At the heart of the AS management system are elements included in block **"1. Core of the management system"**.

Primarily, these are various ***managerial processes*** (activities, actions). Nothing, including management, happens magically as in the Wishing Table, and active involvement – action and behaviour – are necessary to achieve any effect. In the broad sense, such involvement includes processes summarised under the acronym SMOKWF. *C – causing processes*, that is being the cause, reason of a given state of affairs, situation and action. *M – modelling processes*, including representative modelling, axiological modelling, AS action modelling, and finally AS master modelling (that is deciding what principles should govern AS management). *O – organising processes and outcomes*, resulting in a specific level of organisation of any non-empty set within the AS, and of its positioning in the environment. *D – directing*, which encompasses motivating, management styles; negotiating, participation and co-management. It must be emphasised here that directing can only be aimed at people. *E – execution* is a special function of management because, in the division of labour, managers do not do anything directly, as they are not executors *per se*. Execution *per se* involves direct impact on objective properties: physical, chemical, biological, formal, etc., undertaken directly to satisfy someone's important needs. In turn, managerial execution involves causing things to happen or not to happen. It means, for instance, that we increase/decrease the price of our products/services not only, or specifically not to, push sales up/down and achieve the desired economic results. Such an increase/decrease may be intended to, for instance, change (cause the change of) the buyer structure, or cause a specific response of our competitors.

Tab. 1. Variables of performance and their interrelations

Key categories of aspirations of any AS		Praxeological forms of performance			Praxeological attributes of performance	Non-praxeological aspirational values
		Effectiveness	Benefit	Profit	Accuracy, fitness, purity, simplicity, confidence, rationality, vigour, reliability and creativity	Potential, position, competitiveness, security, satisfaction, success
Praxeological forms of performance	Effectiveness	Meta-effectiveness	Effectiveness in achieving benefit	Effectiveness in achieving profit	Effectiveness in achieving praxeological attributes	Effectiveness in achieving non-praxeological attributes
	Benefit					
	Profit					
Praxeological attributes of performance	Accuracy, fitness, purity, simplicity, confidence, rationality, vigour, reliability and creativity					

Non-praxeological aspirational values	Potential, position, competitiveness, security, satisfaction, success					

Source: own work.

Evidently, any change may cause (bring about) multi-functional effects in the sphere of action of the given AS, it can also be used to cause behaviours. *F – feedback*, used to shape the desired relations between models and reality in managing the given AS. All these functions also apply to management itself and its system, leading us towards *meta-management* (the management of management). Meta-management is necessary in the management system, in light of the self-organisation of management. All these management-related processes, actions and activities are oriented towards a single operational goal: ongoing effectiveness, irrespective of its category and content (tab. 1).

The sphere of effectiveness of the AS concerns any fragment within or without the system, while the content and structure of effectiveness depend on a range of diverse variables. This means that it is impossible to define a universal canon (paradigm) in this area applicable to any AS.

Here, it is worth recalling that "management processes" can be regarded in the narrower and broader sense. The broader meaning of AS management involves the comprehensive conduct of such a system. Managerial causing, in this sense, involves taking "appropriate action", in line with the principles and with a view to the goals important to the managing entity. The key to understand managerial causing lies in the integration of action (work, duties), decision-making powers with regard to the action (authority) and the responsibility for action and authority. Such integration affords to the managing entity of the given AS full control over it (command), while at the same time necessitating comprehensive responsibility. In other words, "AS management in the broader sense" is synonymous with "conduct of the AS", and encompasses the complete set of functions (CMODEF). "E – execution" here covers all processes involved in implementing AS models (plans, designs, programmes, etc.).

In the narrower sense, management refers to a set of related (in a non-simple manner) processes and functions of causing, modelling, organising, directing people, execution and feedback. Managerial causing in the narrower sense involves these activities and functions performed by entities having professional managerial potential (managers of various ranks) for the purposes of managing the respective spheres (agendas; sectors) of the action system and its environment. In this sense, managing entities (managers, supervisors) participate in the

division of managerial labour, controlling only selected spheres of the action system and its environment. “Management in the narrower sense” is an expression of the division of labour and involves the fulfilment of the specialised managerial functions CMODEF in any sectoral domain. “E – execution” in this case does not involve doing anything per se, but rather shaping the facts which are intended to indirectly bring about the desired state of affairs.

Tab. 2. Professional, specialised management system of the AS

Action system (AS) Managerial processes	Aspirations	Doctrine	Core	Surrounding situation	Constraints	AS as a whole (synthesis)
Specialised management						***Specialised management subsystem***
Causing	Causing aspirations	Causing doctrines	Causing in the core of AS MS	Causing in the environment	Causing in constraints	Causing subsystem
Modelling	Modelling aspirations					Modelling subsystem
Organising	Organising aspirations					Organising subsystem
Directing	Directing aspirations					Directing subsystem
Execution	Executing aspirations					Subsystem of management through execution
Feedback	Feedback re. aspirations					Feedback subsystem
Participation and co-management	Participation and co-management in shaping aspirations					***Participation and co-management subsystem***
Meta-management	Meta-management of aspirations					***Meta-management subsystem***
Synthesis	Managing aspirations and through aspirations	Managing doctrines and through doctrines	Managing AS core and through AS core	Managing the position of AS in the environment	Managing constraints and through constraints	**AS management system**

Source: own work.

The second component of the “core of the management system” are ***management factors making up the system as a managing object.*** These are, analogously to the AS (see description of the AS): *managing entities*, which exert influence (*managerial component activities*) on certain *objects*, using the relevant *managerial resources*, applying the relevant *managerial instruments and methods*, and carrying out activity in a given *spacetime*. See, for instance, “company management” (*an individual or collective managing entity*), impacting on the “company’s enterprise” (*object of management*), involving “CMODEF” (*managerial component activities*), using a certain “management budget” *(“managerial resources”),* applying “managerial tools” (*management instruments and methods)*, in a given “space and time – location and relations” (*spacetime)*, to generate a certain “profit level” (*effectiveness of*

management). We must recognise that in today's age of the division of labour "profit" is category shared by managers and operators. However, while for "company management" it is a synthetic category and a directly measurable quantity, attributed to management (congruence), for workers (product/service operators) profit is a background category and quantity, belonging to the environment, the relationship with which is not obvious. At the operational level, "profit" translates into completely different categories of "revenue" and "cost", as well as "liabilities" (e.g. taxes), which for the operators, or line managers, are related to their congruence and therefore directly comprehensible. This type of integration and coherence is one of the major problems of management – with ultimate impact on the effectiveness of the AS.

Institutionalisation of management, the third component of the "core…", is related to the processes of defining the centres of responsibility for running the AS, as well as the status they are given within the AS and in relations with the environment. Regime of the AS determines its legal, organisational and economic identity, which gives rise to the centre of responsibility, registered or not, with a specific legal form (organisational and legal form). These may be "utility centres", "business centres" (investment centres, profit centres, revenue centres, cost centres, expense centres), or "mixed centres". The status of the given centres has an impact on the organisational structure of the AS and its components, such as subsidiaries, branches, etc. The organisational structure may take e.g. a linear, matrix or project-based form. The institutionalisation of the AS is founded on processes. All processes linked up together make up the dynamic organisational structure, with the static structure (the arrangement of organisational units) superimposed thereupon. The core of the AS institutionalisation is to shape the congruence of management, including the diversity in terms of the FOB of the respective entities within the AS discussed above. Consequently, the key to management is found in "Directing" processes, which refer solely to people. In these processes, certain tensions emerge between the paradoxical interests: *of the AS Team as a whole* [including the owners, managers (agents) and hired workers] and the *autonomy of each entity* alone.

The social arrangement of management is the fourth component of the "core…". It emerges out of the paradox of individual/collective entities and unity/division of labour. The interests and other variables of this arrangement related to the above paradox create another paradox: the *unity of management* (one goal, one plan, one manager), which requires that employees fall in line vs. the *sense of supremacy and superiority*, which stems from empowerment ("we are the entity"). For each of the autonomous entities, belonging to the AS

is regarded as a “revenue” item (e.g. remuneration and other benefits), while for the AS, the corresponding account is a “liability” (lost resources due to paying out remuneration and other benefits).

2.2.2. Aspirations of the management system. These can be divided into operational and tactical (arrowhead, block 1 in Fig. 2), as well as strategic and political (blocks 2 and 3) aspirations. In any category, these aspirations are identical to those of the AS, while the focus of managers (managing entities) is on effectiveness in any domain (business sector) of the AS and its environment. Such aspirations usually take the form of an open-ended set with a hierarchical structure (aspirations of the network, holding company, enterprise, process and function), and an open-ended arrangement of categories (e.g. business; non-business; security) and preferences (priorities; key items; ranking). The management system as a whole is driven directly by aspirations related to the variables of management performance (see Tab. 1). Measurement and/or estimation of all the variables and subsystems of the management system (Fig. 2) make it possible to define the aspirations of the management system as a whole in respective categories, for instance the economy of specialised management. The comparison of management revenues and costs (through subtraction or division) makes for determining the desired measures of benefit and economic output of the management system. There is only one problem, though: while the costs of the management system may be calculated, albeit with some difficulty and subject to certain assumptions (cf.: Stabryła 2010; 2015), determining and quantifying “management revenues” is an insurmountable problem. Of course, one might employ the “old trick”, whereby all of the revenues of a given AS (e.g. enterprise) are regarded as the consequence of management and compared with the specific costs of management. Still, this kind of calculation is vague on the revenue side, incorporating the effects of all revenue-generating factors. Plus, there is an even bigger problem with not-for-profit and mixed ASs (due to their approach to economic surplus).

The strategic and political aspirations of the management system correspond to those of the AS. The managing entity, acting as the strategist (politician), bears the ultimate responsibility, in line with the highest congruence ascribed to it in the AS. When the entity is an individual, congruence is realisable (feasible, purposeful and practicable). With collective management, however, the questions of integrity and coherence of the set of values and goals (aspirations) emerge inevitably, leading to dialectics, chaos and paradox in this sphere.

2.2.3. Doctrine of the management system. It is a part of the doctrine of the AS, and focuses specifically on the management system of the AS. The doctrine of the management system may differ in terms of content, arrangement and interactions with the other subsystems of the AS and the environment. It contains a priori theorems about management and its system, using scientific/non-scientific approaches: cognitive (C), axiological (A), responsive (R), normative (N) and implementative (I) – altogether CARNI. Example: a manager may assume that McGregor's X Theory is the accurate description of how people are driven. Such a doctrine then impacts on their approach to devising specific solutions in terms of incentive methods and instruments and the choice of management style. In the absence of situational obstacles (block 5 – e.g. a strong resistance of trade unions), such a manager, guided by their doctrine of choice, will most likely opt for predominantly negative incentives and an autocratic management style. They will do so because of the assumed beliefs, which provide a justification for the practical structure of the core of the management system.

2.2.4. The internal and external independent variables interacting with the management system (block 5) create the management context, in other words – the position of AS management. The management system interacts with the entire executive system of the given AS from which it is inseparable. Moreover, as an element of an autonomous AS, with a certain level of FOB, it interacts with various ASs in the environment. The environment involves many entities (multiple ASs) and is so complex that one might debate its wholeness, or integrity, also in terms of the super-system such as the country (state; society; national economy). Special components of the environment include the external management system of the super-system (state and local government) as well as self-organised associations of ASs (for instance holding companies, networks; interest groups). Changeability, situation-dependency, games, etc. are properties used by managing entities to orientate the given AS in all aspects. The relationship between creationist-like steering/regulation and competition is a special kind of paradox in this regard. The paradox applies to the interior, but even more so to the exterior (environment) of the given AS. In both of these domains, the given AS may attempt to effect a state of affairs that will be favourable to itself, but the final results emerge out of the game played by the internal entities of the AS and its environment. The steering/regulating influence (function) is also characteristic of object-oriented facts and projections (anticipations) – for instance, cultural or technological trends and tendencies. Of course, for the most part it is impossible to determine who is the author of these trends and tendencies. They also exert a multi-functional influence on the given AS, including causing

(managerial and executive). This encourages/discourages certain actions/behaviours (FOB) of the entities managing the given AS, in line with certain principles related to the other determinants of choice, positioned in blocks 1–4 and in block 6 of the AS. Management doctrine is paradoxical, too: an excess thereof (hypertrophy) may lead to the formation of "doctrinal management systems" which, in their extreme form, dominate the management of the given AS (e.g. Hitlerism). An atrophy or lack of doctrine, in turn, make the management system and the AS itself unstable: there is no foundation on which the necessary durability and permanence of action could be based.

2.2.5. Absolute (rigid) constraints and risks of the management system. These risks apply to all the subsystems of the AS. Their special significance to management, however, refers to special issues, discussed in the above five blocks of the management system (starting from "1. Core of the management system"…). Absolute constraints and unacceptable risk factors are found in all management processes and functions – starting for example with Causing (C) – decision-making processes, criteria and acts of choice; initiating, supporting, inhibiting the AS and its environment; etc. Similar examples can be provided for the remaining processual areas (MODEF). The constraints and risks are also found in the sphere of management aspirations (blocks 2 and 3); they stem from management doctrines (block 4 – e.g. "operations of the AS are financed solely with its own capital"); they are found within and without the AS (block 5 – e.g. legal regulations). They are synthesised in block 6, and the awareness on the part of the AS entities of the content, form, subjectivity/objectivity of this block creates the management perspective. One of the possible perspectives – grounded in management doctrine – is to ignore constraints and unacceptable risk factors: the law, ethics, obvious impossibilities etc., sometimes to the point of delusion and madness. Constraints are also paradoxically stigmatised. Excessive self-limitation, or imposing constraints on management and the AS lead to risk-aversion (caution, orthodoxy), inflexibility and petrification of action, whereas in turn a lack of constraints ("live like there's no tomorrow") may produce action that is illegal, non-ethical, asocial, and that is not far from the above-mentioned deviations of pathology.

Tab. 3. Meta-management – the processual-functional approach

Management processes	**C**	**M**	**O**	**D**	**E**	**F**	**Line-by-line synthesis of meta-management**
C	Meta-causing in meta-	Causing in modelling	Causing in organising	Causing in directing	Causing in managerial	Causing in feedback	***The causing***

	management				execution		***system in meta-management***
M	Modelling of causing	Meta-modelling in meta-management					
O	Organising of causing		Meta-organising in meta-management				
D	Directing of causing			Meta-directing in meta-management			
E	Managerial execution of causing				Meta-execution in meta-management		
F	Feedback in causing					Meta-feedback in meta-management	
Column-by-column synthesis of meta-management	***The meta-management system in causing***						**Total synthesis of meta-management**

Source: own work.

2.2.6. Meta-management. The management of management, from the processual-functional point of view (component of "1. The core of the management system"), may be presented as a matrix of two variables: CMODEF as an independent variable to the object of CMODEF as a dependent variable. Meta-management, however, encompasses the entire management system of the given AS: 1) as a whole; 2) its components; 3) the environment of the AS, components of the environment and the relations between the AS and the environment. Meta-management enables the management system to self-organise, that is (re)produce and maintain itself (in statu nascendi). The self-formation of the management system of the given AS, unless it is subject to efficient feedback, may "deviate", fall prey to atrophy/redundancy, and is therefore in this sense, also paradoxical.

3. Management mechanism

3.1. Management relation

Managerial causing (effectiveness) is not only a function of directing and motivating, it is a product (Y) of interdependences among the variables (Xi, where i = 1…n), situated within the subsystems of management and AS.

The key to management and the management system lies in understanding several questions.

First, people are at the heart of management and the management system. They perform the specialised managerial causing functions. However, without the other members of the

Team – objects of management, but at the same time independent entities – people, performing the executive causing functions, no success in causing behaviours and actions in the AS would be possible. This means that operators must be included in management. Second, ultimately only people can make the AS behave and act. All other resources are mobilised and shaped by people, they will not behave or act on their own. This points to the fundamental role of man in management, and the role of "D – directing" in the management system. Third, any object can be managed, even if it is not an AS. Managing assets or knowledge, etc., which are non-acting objects, means only that people exert certain influence on such objects. Such action can be undertaken directly by AS managers, making it an individual action, combining managerial and executive causing. It may also be a collective action, where specialised managerial causing entities cause the behaviours of specialised executive causing entities, which in turn impact on the objects, etc.

Tab. 4. Management relation – the object-oriented approach (factors involved in management)

Management factor	**Asking about the factor**	**Identifying the factor**	**Example/interpretation**
Managing entity	Who? What? manages	1) Man, people – as a key managing entity 2) Man assisted by machines 3) Machines – locally	***Ad 1)*** Man – Mr. Kowalski in a sole proprietorship; People – collective governing bodies of a company; Parliament and Government – Poland's management bodies ***Ad 2)*** computer-assisted management ***Ad 3)*** automatically controlled production line
Cause-and-effect mechanism	1) Why? For what reasons? – the causal arrangement 2) What for? To what end? – the aspirational arrangement	1) Reasons why the managing entity decides that it has crossed the threshold in terms of its inclination to act and cause managerially 2) Status and situation of the given AS in the spacetime perspective (yesterday, today and tomorrow) and in the arrangement of causes and effects 3) Values in the name of which the managing entity decides that it has crossed the threshold in terms of its inclination to act and cause managerially 4) Balance of the AS's proneness to undertake managerial action	***Ad 1)*** Determination of any antecedent variables (genesis), described in points 2 through 4, encouraging/discouraging managerial action of the AS Example: a) insufficient performance of human resources of the AS; etc. ***Ad 2)*** Balance of the AS's current position in the context of variables under 1, 3 and 4 ("good", "bad" position, etc.). Example: a) it is certain that legislative changes will be unfavourable to the AS; etc. ***Ad 3)*** Collection of items and their statuses, associated with the AS and its environment, to which the managing entity attributes value – the values and goals which the managing entity wishes to achieve and therefore intends to cause behaviours and actions of the AS (aspirations). Example: a) we must generate profit and business value above the industry average; etc. ***Ad 4)*** Balance of the system in terms of incentives and disincentives to causing action, and formation of potential to act (status and readiness). Example: a) direction of causing aimed at changing a negative balance (disincentives exceed incentives) in terms of readiness to act; etc.
Object of management	Who? What? is managed	1) People 2) Complex ASs 3) Any resources	***Ad 1)*** Human capital management; recruitment management, etc. ***Ad 2) for instance:*** a) network management; corporate management; multiple business management; process and function management b) finance management – managerial causing (with the aid of executive causing entities) of cash flows and volumes and adequate funds c) management of for-profit AS; not-for-profit AS; mixed AS ***Ad 3) for instance:*** a) risk management – managerial causing (with the aid of executive causing entities) of any AS in terms of identified risks

			b) value management – managerial causing (with the aid of executive causing entities) of any values of any AS c) respectively; time management; spatial management, etc….
Management instrument (tool)	Through whom? Through what? (with the aid of who/what?) to manage	Any medium used in managerial causing of behaviours and actions	***Management by objectives*** – managerial causing (with the aid of executive causing entities) impacting on any AS in terms of identified objectives, to which the arrangement of the management system is subordinated (methods, instruments, etc.). ***Management by exception*** (a type of "subsidiary management", wherein the upper tier deals only with those issues which exceed the potential of the lower tier); M***anagement through motivation*** (integration of the management system around motivation), etc. ***Management through potential*** – manifesting the potential to cause, without actually realising it. ***Management through shaping facts*** (E – managerial execution) – causing behaviours and actions through making things happen, not just for their own sake, but in order to make other, expected effects happen (e.g. Gazprom "turns off the gas tap" to cause energy problems. Consequently, it will likely cause social unrest and/or other effects expected by Gazprom (Russia). Such causing may be the underlying multifunctional mechanism of many effects).
Management method (approach)	How? to manage	Any approach to the managerial causing of behaviours and actions	1) Incremental (cumulative) management – revolutionary management; 2) Evolutionary management – creationist management
Resources used in management	What energy potential is needed?	1) People as the key resource (instrument) 2) Resources per se (material, energy, information – tangible and transcendental) 3) Authority	
Nature of management (in terms of explicit unique characteristics)	What kind of management?	Possible management focused on any characteristics 1) Management type in terms of the nature of problems 2) Management type in terms of dynamics 3) Etc.	Ad 1) management a) political; b) strategic; c) tactical; d) operational Ad 2) management a) aggressive; b) defensive; c) competitive; d) conservative
Other elements and structures	The boundaries between management factors are fuzzy due to their imprecision, interdependence and multi-functionality. For instance, it is very difficult to separate a management instrument (tool) from a management method (approach). Media (tools) are used in close connection with methods, and vice versa – every method requires appropriate tools. All this makes the classification of management factors and management systems impossible, and the suggested typologies are diverse and diffuse.		
Management system	A complex arrangement of a set of management factors and subsystems, uniting the AS with executive factors, which serves to managerially cause the expected behaviours and actions of the AS and its environment, characterised by systemicity, imprecision, interdependence and multi-functionality.		

Source: own work.

3.2. Managerial causing potential

The sum of managerial causing potential is a complex and dynamic energy structure, with characteristics consistent with those of the AS (openness…). The causing potential is in fact effectiveness potential. It amounts to 1 when managerial causing, shaped by the management system, is *fully effective*. It amounts to (-1) when managerial causing, shaped by the management system, is *fully counter-effective* (produces the opposite effects to those intended). It amounts to (0) when managerial causing, shaped by the management system, is *fully ineffective*. Both effectiveness and counter-effectiveness represent a spectrum, respectively from zero (0) to (+1), and from zero (0) to (-1). The highest tension emerges when the management system intended to achieve full effectiveness (probability of success/effect = 1), and in reality it achieved the opposite effect (100% counter-effective).

Practically speaking, the effectiveness of management, while covering a spectrum between (+1) and (-1), assumes intermediate values on the spectrum, depending on the probability of achieving an actual effect. Confidence, risk and uncertainty are immanent properties of management and the management system.

Potentiality is a particularly complex energy domain, which corresponds to the relationship between the management system (causing) and its environment. The managing entity may, on the face of it, wield great authority over the object of management, but without the consent of the latter (which, while being the object of management, is at the same time, paradoxically, the author of its action) its actual capability to cause the behaviours of the object may, in extreme situations (vide: conscientious objectors' refusal to behave in a certain way during wartime), amount to zero (0).

3.3. Management performance account

There may be at least two ways to calculate performance within the framework of the AS. The first way takes into account the organisation-like AS (e.g. enterprise), while the other adds up all the entities comprising the organisation-like AS (e.g. people as independent entities within the Team). Categorically speaking, such a calculation encompasses all subsystems (aspirations…, etc.). In the "profit and loss account of life" of any entity, forming part of the organisation-like AS, the sum of events regarded as positive is set off against the sum of events regarded as negative. Consequently, the entity recognises a positive balance (higher than zero) as beneficial/economical (profitable), and a negative balance – as not beneficial/uneconomical. The objective scope of this account covers performance variables (see tab. 1), and the account itself is based on principles including among others the interdependence of variables and the complex structure of the types of reflection (rationality; emotionality; intuition and instinct; belief and hope; reflex, subconsciousness; mixed types of reflection). Organisation-like ASs usually base their accounts predominantly on the principle of in-depth rational reflection.

The inclination and readiness of any entity to behave in a certain way is a result (dependent variable) of interactions within a complex structure of entity-specific variables (including those of a personal nature) and variables external to the entity. A negative balance prompts the entity to restrain its activity and undermines its inclination and readiness to be affected by independent variables. Conversely, a positive balance – tends to increase the inclination and readiness to be affected by independent variables. If the balance is close to zero, the entity finds itself at an interstage crossing. The "account phase" denotes an explicit

recognition of a “positive balance” or a “negative balance” (with acceptable probability). The “interstage crossing”, in turn, refers to the situation where the entity is not certain as to the balance of the account of benefit and profit. Such a lack of confidence and precision (uncertainty, risk) may prompt various actions on the part of the managed entity (e.g. behavioural drift).

It is difficult to mark off and unambiguously differentiate the set of independent variables impacting on the given entity, with consciously programmed functions of managerial causing, from other independent variables. What is more, the managing/managed entity attempts to exert influence on many of these variables so as to change their functions in a way perceived as positive.

The account discussed above also has another special characteristic, stemming from the paradoxical nature of AS management (tab. 5).

Tab. 5. The paradoxical subjective-objective arrangement of the management subsystem and executive subsystem within the AS

Specialised entities and management system of the AS		
Comprehensive relations upon entry from the environment to the AS	Interior of the action system (AS)	Comprehensive relations upon exit from the AS to the environment
Specialised entities – object of management (AS) – executive entities		

Source: own work.

The “profit and loss account of life” category introduced above applies to any human entity and is for them the ultimate form of account. Everyone of us, throughout our lives, keeps a performance account, on similar principles, more or less rigorously, professionally, better or worse, etc. Nevertheless, all other accounts (“local accounts” – e.g. “work/business performance account”; “non-work/business activity account”; “leisure account”) remain connected to the “account of life”.

The items of “local accounts” (revenues; costs; balances) are included in the “account of life”, not necessarily under identical categories. For instance, in the “account of life” workers (executive operators) post their “income from work” (remuneration and other) under the category “life’s revenues”, which contains all favourable effects of own activity, including those from “non-work/business activity” and “leisure account”. The same “income from work” is recorded by managing entities, especially those in charge of organisation-like ASs, under “costs of the organisation-like AS”, that is in a paradoxical position. What constitutes a cost to the business owner – is the worker’s income. If the business owner is not mentally integrally connected with the organisation-like AS (does not believe in “I am my business”),

the same contradiction applies to them: their "account of life" is the opposite of their "business owner's account". The opposite accounts to those of the organisation-like AS are kept by all entities, including managers (agents) and managing/managed entities.

In this situation, the inseparability, interdependence and equilibrium of accounts gain special significance. Inseparability – because with division of labour, the account paradox is automatically real. Interdependence – because a change in one entity's "revenues" is automatically reflected in the "costs" of another. Equilibrium – because there exists a natural divergence, sometimes opposition, of these equities' accounts, and only when the point/sphere of equilibrium between them is found, can consensus be achieved. The conclusion is as follows: the management of the given AS, naturally, involves solving the unavoidable, dialectical paradoxes between the interests of the managing and managed entities and a certain chaos.

3.4. Factors and mechanisms of managerial causing

The management mechanism thus appears as a highly complex arrangement of independent variables, jointly impacting on the effectiveness of management. The specialised management system plays an initiating, leading, coordinating and unifying role in this set of independent variables. Tab. 6 shows that the management system must use all the subsystems of the AS to make sure that the latter is managed effectively.

Tab. 6. Causing factors and mechanisms used by the management system

AS subsystems	Causing factors and mechanisms in the subsystem domain	Paradox domain
Aspirations (FOB of the parties to the management relationship > 0)	Values and goals, including authority. They attract, stimulate, arise the drive to achieve and possess. Key driving factor. Effects viewed as positive – work towards maximisation. Effects viewed as negative – work towards minimisation. The final determinant is the balance of values.	1) The organisation-like AS: towards maximising performance-oriented attitude, engagement and contribution of the team (AS) – towards minimising labour costs (remuneration and other benefits) 2) Team members (AS) – towards: maximising labour costs (remuneration and other benefits) – minimising performance-oriented attitude, engagement and contribution of the team (AS). 3) The structure of the management system should aim to create a situation where it is in the comprehensive interest of the team members to align their personal account with that of the organisation-like AS.
Core of the AS	1) The potential of the specialised management system, particularly with regard to managing entities; potential of the management cycle (the process approach to management) – CMODEF. 2) The potential of the Team: participation in management.	**Ad 1)** a) The principle of single-person, single-minded management ("one goal – one plan – one manager") runs contrary to the idea of democratisation of management and allowing team members to participate in the management in a broader capacity. It is necessary to strive to achieve an equilibrium that will make for enforceable management and a real sense of empowerment within the team. b) The higher the potential of the management system, the higher the probability of better performance of the AS – the necessary conformity of action and management with R.W. Ashby's law. c) Transactional management vs. management through networks

		Ad 2) a) Concentration vs. delegation of congruence b) Balancing ownership and participation in defining benefits between the AS and the Team
Doctrine of the AS	1) Conformity of doctrines embraced by managing entities and managed entities (in terms of e.g. excessive risk-taking; mutual confidence/suspicion; respect/contempt, etc.)	The doctrines of the management system and the executive system do not have to be convergent. In some cases, the interactions between factors present in the subsystems of the AS may lead to strong doctrinal tensions. For instance, a doctrine of the AS "no pain – no gain" clashing with the team's doctrine: "down you lie or up you stand, either way you'll earn a grand" (a rough translation of a saying popular in communist Poland, when it was believed that everyone deserves to be paid regardless of their work performance). The management system must strive to converge doctrines by coordinating the AS subsystems in this sphere in an amicable way.
Situation of the AS	1) The potential for exchange (especially transactions) and co-existence of the AS with the environment, including competition and coopetition; 2) The potential for self-organisation of the AS, in association with the environment; 3) The potential of the regulation system shaped by the environment;	**Ad 1)** a) The management system should arrange interdependencies between the AS subsystems and the relationships within the AS based on the principles of balancing supply and demand b) Where possible, the exchange between parties should take the form of a transaction – elsewhere, the flows between parties should be regulated c) Wherever possible, it is necessary to operate on the principles of competition vs. regulation and coopetition **Ad 2)** a) The freedom of self-organisation of entities within the AS – within a regulatory framework b) The freedom of self-organisation of the given AS with other ASs – within a regulatory framework **Ad 3)** a) The search for the FOB of the given AS within a regulatory framework and competition within the environment
Constraints of the AS	Any variables, originating from any area of the AS, perceived as absolute constraints (obstacles) and/or unacceptable risks	1) Identifying constraints in all the subsystems of the AS and balancing them with the FOB of all entities 2) Determining mutually restrictive variables in terms of business, non-business and security 3) Determining the role of law, ethics and culture in constraining the FOB of any entities
The AS on the whole	1) The conformity of any AS (its operations) with scientific principles, including: Ashby's law. Pareto optimality 2) Across-the-board convergence (blocks in figures above) of the potential of the management and executive subsystems of the AS, including the FOB, and the level and convergence of potentials of the managing and managed entities; 3) Potential of the unique characteristics of the AS (openness…); 4) Facts used in managerial causing.	1) It is necessary to strive for interdependence, precision and equilibrium between the parties 2) The principle of congruence 3) The sinusoidal relations between the opposing boundaries of paradoxical variables (inhalation – exhalation). 4) Operations consistent with intrinsically antithetical guidelines of successful action [specialisation – accumulation; prompting action – minimising intervention (potentialisation; machination; instrumentalisation; surveillance); deferral – anticipation (these days: "timing"); concentration and dissipation of potential]. 5) Unity of decision-making and execution vs. democratic management 6) FOB (freedom) vs. CFOB [constraining the freedom of organisational behaviour (regulation)] 6) The principle of independent supervision

Where: FOB - freedom of organisational behaviour.

Source: own work.

There are four principles which need to be followed, in all individual areas and the AS on the whole, for the management system to perform successfully:

1) Participative agreement of the aspirations and driving factors of the AS and the SAS (superior action system, e.g. the country).

2) Balancing contradictions, by managing paradoxes, dialectics and chaos, in the pursuit of aspirations. This concerns all contradictions in all the subsystems of the AS. The set of

these contradictions shares the same nature, domains and characteristics as the AS (openness…, etc.).

3) Respect for the laws of nature, laws of action systems and civilisation systems. They constitute absolute prerequisites/constraints of management performance. For instance one of the laws with direct impact on management is R.W. Ashby's law of requisite variety. It says that management will never be fully effective (= 100%), but effectiveness will be higher if the variety of the management system is higher, compared to the variety of the AS as a whole, subject to the requirements of beneficiality and economy of management.

4) Refraining from solving management problems (by identifying and agreeing doctrines and constraints of the AS) through extreme negative cooperation, in the sense proposed by T. Kotarbiński (fraud; appropriation; combat and war, etc.). Extreme forms of negative cooperation remain in opposition to the extreme forms of positive cooperation (integration and consolidation). There exists an intermediate form, which facilitates the search of the equilibrium, i.e. coopetition.

Thanks to such an approach, the mechanism of causing routes can be shaped. It is a product of: 1) the potential of aspirations (a sequence of ambitions, positive); 2) the potential of causes (including doctrines); 3) the potential of constraints; 4) the potential of conditions; 5) the potential of consolidation of the entire system of causing routes (integrity and coherence vs. interstage crossing).

4. Role of the management system

We can assign any role to the management system, depending on whether we understand it broadly (any role indeed), or narrowly (specialised managerial causing).

The role is understood here as identity, situation and significance of the management system in the given AS (for the given AS).

The situation of the management system within the AS is fuzzy, though because of the presence of hierarchies and networks in the AS structure, its placement within the AS may range from the highest level (owners; top management) to the lowest level within a horizontal network (nodes). The identity of the management system points to its separate status within the given AS in legal, organisational and economic terms. However, due to its spreading throughout the AS, we can actually explore the identity as a dynamic presence finding itself somewhere on the axis between detachment and integrity with the executive subsystem, and thereby with the AS as a whole. The significance of the management subsystem is equivalent to the significance of the executive subsystem, if these subsystems are to be regarded in

isolation, and also due to the effectiveness of the AS (AS management in the broad sense). However, taking into account the a priori theorem (AS doctrine) whereby any shaping of the AS starts with causing, the management system is primus inter pares with the executive subsystem of the given AS. A similar relationship applies to the situation where the given AS is part of a holding company whose headquarters may appoint a given AS, as if "from the outside", while remaining the managing entity, for instance a company.

The management system definitely cannot be attributed with the role of direct executive causing. Take, for instance, a shoemaker who makes shoes as a sole proprietor (managerial and executive causing combined in one = management in the broader sense) and sells them to customers. The same shoemaker, in his micro-workshop, may try to get rid of a customer by selling them poor-quality shoes, ill-suited to their needs. If the customer leaves never to return, the shoemaker has succeeded: in his executive-causing capacity he has done a favour to himself in the managerial-causing capacity. Many more examples of this kind could be quoted: the roles of the management system can be derived from: 1) its processes and functions (the role of causing; modelling etc.); 2) the internal arrangement (subsystems) of the AS – e.g. the role of constraining; 3) the arrangement of antagonisms – the role of mediating-arranging, etc.

5. Interpretations and examples

In this context, the management system of the AS may also be interpreted in the broader and narrower sense.

In the broader sense, it involves managing the AS as a whole within its environment and all of its elements/areas/parts separately, according to the rules of general congruence. Such management hinges on agreement with regard to the internal structuring of the AS and its place in the structure of the environment. Neither the internal nor the external structuring is obvious (they are not subject to any law or canon), thus they must be agreed upon in line with some a priori assumptions (doctrine). One example of such structuring may be a systems approach to the AS, at the highest level of system description. In such a case, the AS comprises three subsystems: the input subsystem (defining the relationships upon entry from the environment to the AS); the transformation subsystem (transforming inputs from the environment into outputs to the environment); and the output subsystem (defining the relationships upon exit from the AS into the environment). Likewise, we can identify three subsystems for managing the input, transformation and output relations, as well as the fourth: the subsystem managing the AS on the whole – treating the relations among the three

subsystems as a higher-order, integrated and coherent set separate from the environment (the AS management subsystem). At the lower level, each of these subsystems may be divided into business areas according to the adopted criteria. And so, for instance, the subsystem managing the input relations of the AS can be subdivided into the supply market management subsystem, supply flow management subsystem (to manage supply – transport; delivery routes; batches, etc.) and the subsystem determining the types, quality, structure and dynamics of supplies (supply potential management). Each of these, in turn, can be divided further, at the third level, into subsystems: managing markets A, B, C…; flows D, E, F…; potential G, H, I…; etc. The "supply market management" subsystem is in a way the reverse of the AS output management: there, too, the AS faces the problems of causing behaviours, but with regard to supply sources and direct suppliers. It acts as a buyer here, while the situation is reverse upon exit. The problems faced by the AS upon entry and exit are the same in terms of category, but opposite in terms of the role in the relationship and the causing influence.

A similar approach may be adopted in the exploration of the transformation and output subsystem. With regard to transformation, we can manage development-related matters, which can be further structured – we can manage separately the subsystems of investments, innovation and the strategic portfolio of businesses, products and services (in an enterprise). In the management of the AS output, we can identify the subsystems of marketing and sales. Marketing is oriented at effectively causing the behaviours of customers and end-users with a view to the interests of the given AS. In this area, the AS causes effects in the relationships of supply and demand, including competition and other variables impacting on the customers' and users' behaviours. At lower levels, depending on the size and complexity of the given AS, we can identify special approaches to subsystem management, e.g. 4P or 5C, etc. The situation is similar with sales.

The above approach unifies managerial causing and executive causing.

The management system in the narrow sense focuses on managerial causing and develops as a result of the division of labour. The approach to AS structuring is, in principle, identical. However, the focus, though not to the degree of automation, is on the effectiveness of what is to be done and achieved, rather than directly on the utility of what is to be done and achieved. Certainly, management in the narrow sense will achieve nothing without executive causing, but from the perspective of managerial causing, executive causing is a tool of effectiveness. The managing entity, which plays a key role here with its specialist causing potential, focuses on managerial causing, on the application and instrumental use of executive causing and

Tab. 7. Examples of the management system in the narrow sense – a process approach

Sectors (domains) of the AS, treated as AS subsystems **CMODEF**	***Innovation management system (innovation aspirations…, etc.)***	***Quality management system (quality aspirations…, etc.)***	***Risk management system (aspirations of the AS related to risk…, etc.)***	**…**	***Synthesis of the AS management system***
Causing	Causing oriented at AS innovation	Causing oriented at AS quality	Causing oriented at AS-related risks	…	Causing subsystem in the AS management system
Modelling	Modelling of AS innovation	Modelling of quality in the AS	Modelling of the AS in terms of risk management	…	Modelling subsystem in the AS management system
Organising	Organising of AS innovation	Organising of quality in the AS	Organising of the AS in terms of risks	…	Organising subsystem in the AS management system
Directing	Directing people oriented at AS innovation	Directing people oriented at quality in the AS	Directing people in the AS in terms of AS risks	…	Directing subsystem in the AS management system
Managerial execution	Shaping facts aimed at effectively causing innovative behaviours of the AS	Shaping facts aimed at effectively causing quality-oriented behaviours of the AS	Shaping facts aimed at effectively causing risk-related behaviours of the AS	…	Managerial execution subsystem in the AS management system
Feedback	Feedback of the innovation management subsystem: 1) within the subsystem as a whole; 2) with the innovation execution subsystem; 3) within the AS as a whole	Feedback of the quality management subsystem: 1) within the subsystem as a whole; 2) with the quality execution subsystem; 3) within the AS as a whole	Feedback of the risk management subsystem: 1) within the subsystem as a whole; 2) with the risk-related execution subsystem; 3) within the AS as a whole	…	Feedback subsystem in the AS management system
Sectoral synthesis	Synthesis of the innovation management subsystem, including the innovation meta-management system	Synthesis of the quality management subsystem, including the quality meta-management system	Synthesis of the risk management subsystem, including the risk meta-management system	…	Total synthesis of the AS management system

Source: own work.

effecting their consolidation into one, integrated and coherent AS and/or a component thereof, in connection with the environment.

6. Formation of the management system

Formation (creation, existence, decline and changes) of the management system is not a trivial issue. It requires consolidated effort on the part of the owners (business owners, investors), their agents (managers, supervisors) and operators (employees, workers). The leading role (primus inter pares) here should be played by specialised managerial causing entities in the narrow sense, and management science.

The management system of the AS (e.g. an enterprise) finds itself in the buffer zone of the management system of the SAS (e.g. a country). The principles governing the internal regulation of the AS, and of the external regulation of the AS by the SAS, depend on a range of interdependent variables. In my opinion, they include: 1) the unique characteristics and

complexity of ASs; 2) respect for science; 3) integrity and coherence of aspirations; 4) integrity and coherence of doctrines; 5) integrity and coherence of circumstances (situation and constraints).

7. Respect for selected laws in AS management

Respect for the laws applicable to the operations of any AS, including the laws originating in organisation and management science, is a *sine qua non* for successful management. Below, I am quoting examples of key laws with a significant impact on management efficiency.

Coping with the ES law

ES law. Any action system must in the long run generate economic surplus (ES), otherwise it will inevitably fall. In other words, ES is a necessary and sufficient condition for the long-term survival of any AS (H. Witczak, 2008, *Natura i kształtowanie systemu zarządzania przedsiębiorstwem*, WN PWN, Warszawa).

1) Recognition of any primary-level ASs (generating added value, directly satisfying someone's "essential needs", by way of exchange) as primus inter pares vis-a-vis other ASs [auxiliary; management (administration, etc.); communication; economic; mixed].

2) Managing any ASs in line with the principle of congruence, in all respects. Managing any ASs, wherever possible, in line with the principles of business congruence – centres of responsibility for investment and profit.

3) Wherever not possible, clear indication of the conditional and constraining function of ES and supply (model; account).

4) Taking into account the environment, including the natural environment and society, and the principles for recognising these factors in the account of any AS.

5) Regulating the SAS within whose framework primary ASs operate, in line with the principles of moderating (coordinating; coalition-building).

Tab. 8. Levels of FOB/regulation of the SAS – an example

Level of interdependence of paradoxical variables		Addition (none)	Local and random coalitions	Coalitions (permanent)	Permanent coordination	Union	Federation	Holition	Totalitarian AS	Action machine (non-existent)
Measurement of variables	Freedom of organisational behaviour	1	0.95	Max 0.85	Up to 0.75	Up to 0.65	Up to 0.55	Max 0.45	Minimal, depending on the totalitarian model	0
	Regulation	0	0.05	Max 0.15	Up to 0.25	Up to 0.35	0.45	No less than 0.55	Maximal, depending on the totalitarian model	1
Total measurement of variables		1	1	1	1	1	1	1	1	1

Source: own work.

Coping with R.W. Ashby's law.

Fully effective performance of the AS is conditional (in a necessary and sufficient manner) upon two laws: 1) the second law of thermodynamics; 2) R.W. Ashby's law (R.W. Ashby, 1964, *Wstęp do cybernetyki*, PWN, Warszawa).

R.W. Ashby' law applied to action systems and management systems. It is a necessary and sufficient condition for perfect (full) effectiveness of any AS that the variety of the management system of any AS should be greater than the variety of any AS. As this is impossible by definition, so is achieving the perfect efficiency of any AS. In other words, the management of any AS will always be suboptimal.

1) Classical

a) decreasing the variety of the AS (high FOB of components; fragmentation and decomposition of the AS as a whole into centres of congruence – decentralisation, federalisation; regulation of the whole focused solely on integration, coherence efficiency and security);
b) increasing the variety of the MS;
c) increasing the efficiency of the MS;
d) action compliant with science, including the Pareto principle (20% share of the management system in the AS).

2) Other

a) AAS – *Anticipating Action System* – weak signal management;
b) *Good Practices*;
c) VBM (*Value Based Management)*; CSR (*Corporate Social Responsiblity*) and similar (e.g. *CSV – Creating Shared Value*);
d) chaos, paradox and dialectic management (ongoing dialogue).

Coping with K. Gödel's theorems

Gödel's incompleteness theorems (*on incompleteness and improvability of consistency* – Wikipedia, last accessed 10 July 2016).

K. Gödel's theorems applicable to action systems and management systems. No action system, including the management system of the AS, may be recognised within the framework of theorems which apply only to itself.

1) Adopting a priori assumptions (doctrines) of the given action and the AS.

2) Referring, in the formation of the given AS, to its relationships with the environment.

Sources

1. R.W. Ashby, 1964, *Wstęp do cybernetyki*, PWN, Warszawa
2. Bertalanffy von, L., 1984, *Ogólna teoria systemów. Podstawy, rozwój, zastosowania,* PWN, Warszawa
3. Stabryła A. (ed.), 2010, Analiza i projektowanie systemów zarządzania przedsiębiorstwem, Encyklopedia Zarządzania, MFiles.pl, Kraków
4. Stabryła A. (ed.), 2015, *Metodologia projektowania systemów organizacyjnych przedsiębiorstwa*, C.H. Beck, Warszawa
5. *Gödel's incompleteness theorems*, Wikipedia, last accessed 10 July 2016.
6. Witczak H., 2008, *Natura i kształtowanie systemu zarządzania przedsiębiorstwem*, WN PWN, Warszawa
7. Witczak H., 2016, *Doktryny zarządzania strategicznego*, in: collective work content-edited by: E. Stańczyk-Hugiet, J. Niemczyk, *Strategie. Procesy i praktyki*, Prace Naukowe UE we Wrocławiu nr 420, Wydawnictwo UE we Wrocławiu, Wrocław
8. Zieleniewski J., 1969, *Organizacja i zarządzanie*, PWN, Warszawa
9. https://mfiles.pl/pl/index.php/**System_zarządzania** (last accessed 26 July 2016).