

Intuitive and Rational Cognition in the Theory and Practice of Management Sciences

Submitted: 11.01.19 | Accepted: 26.03.19

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The aim of this study is to explain the role of rational and intuitive cognition in the theory and practice of management. The article presents a synthetic review of definitions and ways of interpreting the concept of intuition. Subsequently, a conceptual apparatus for rational judgments, intuitive judgments, and intuition as a special type of skills is proposed. On the basis of the four-stage model of the creative process and the model of System 1 and System 2, the role of intuition in the work of management theoretician is explained. Using the four-stage model of competence, the role of intuition in the process of making managerial decisions is explained. The study shows that intuition is a key skill in the theory and practice of management.

Keywords: intuition, intuitive judgment, intuitive cognition, managerial decisions, epistemology of management sciences.

Poznanie intuicyjne i rozumowe w teorii i praktyce nauk o zarządzaniu

Nadesłany: 11.01.19 | Zaakceptowany do druku: 26.03.19

Celem niniejszego opracowania jest wyjaśnienie roli poznania rozumowego i intuicyjnego w teorii i praktyce zarządzania. W artykule przedstawiono syntetyczny przegląd definicji i sposobu interpretowania pojęcia intuicji. Następnie zaproponowano aparat pojęciowy dotyczący sądów rozumowych, sądów intuicyjnych oraz intuicji jako szczególnego typu umiejętności. W oparciu o czterofazowy model pracy twórczej oraz modele systemu 1 oraz systemu 2 wyjaśniono rolę intuicji w pracy teoretyka zarządzania. Posługując się czterofazowym modelem kompetencji, wyjaśniono rolę intuicji w procesie podejmowania decyzji kierowniczych. W opracowaniu wykazano, że intuicja stanowi kluczową umiejętność zarówno w teorii, jak i w praktyce zarządzania.

Słowa kluczowe: intuicja, sąd intuicyjny, poznanie intuicyjne decyzje kierownicze, epistemologia nauk o zarządzaniu.

JEL: D20, M20, B40

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1. Introduction

One of the most important issues in the area of management science is the decision-making process (Simon, 2013), (Sinclair & Ashkanasy, 2005). Managers must make decisions under the pressure of time, in the absence of recognized algorithms for resolving management problems, or the lack of standards for the assessment of measures taken (Laszczak, 2010). Therefore, the decision-making process takes place in conditions of permanent uncertainty, which manifests itself, *inter alia*, in limited amounts of information or incomplete data (Hodgkinson et al., 2009).

Authors exploring the subject claim that managers perceive their work more as art than science (Sułkowski, 2015; Micklethwait & Wooldridge, 1996; Sudoł, 2014). One of the fundamental reasons for this *status quo* is the inadequacy of the management theory in relation to problems faced by management practitioners in the decision-making process. In the practice of management, intuition plays the key role – the use of classical management theory based on analytical processes which require a lot of information becomes limited (Akinci & Sadler-Smith, 2012). It seems that the perception of intuition is the primary cause of the discrepancy between the theory and practice of management (Ghoshal, 2005). It is often stated that while intuition can be a tool for a manager, theoretician should abstain from using it. Management theorists often perceive intuition as unspecified and irrational. Intuition is, however, an important cognitive tool for both managers and management theoreticians. This study presents intuition as a common feature of management practitioners and theoreticians.

The article explains the role of intuition in the theory and practice of management. Through exploring the similarities and differences in the perception of intuition by theoreticians and practitioners of management in the context of their work, we can contribute to a better understanding and, consequently, to reducing the discrepancy between the theory and practice of management. Considering the above, the aim of this study is to explain the role of rational and intuitive cognition in the theory and practice of management. This objective shall be pursued through the application of the following methods and models:

- conceptual construction methods – in order to develop an appropriate terminology of intuition;
- a four-stage model of the creative process and a model of System 1 and System 2 – to explain the role of intuition in the work of a theoretician of management;
- a four-stage model of competence and a model of System 1 and System 2 – to explain the role of intuition in the work of a management practitioner.

The article is organized as follows: Section (1) presents the theoretical problem related to the use of intuition in the theory and practice of

management. Section (2) contains a synthetic overview of definitions and interpretations of the concept of intuition. In section (3), on the basis of the traditional theory of knowledge, the concepts of rational judgment and intuitive judgment are defined and presented as two components of the knowledge of the subject of cognition. Subsequently, our own definition of intuition as a specific type of skills is presented. Section (4) explains the role of intuition in the work of the theoretician of management on the basis of the four-stage model of the creative process and the model of System 1 and System 2. Section (5) explains the role of intuition in the decision-making process in management practice on the basis of the four-stage model of competence and the model of System 1 and System 2. In section (6), research results were summarized and further research directions are indicated.

2. The essence of intuition

The word 'intuition' comes from two Latin words: 'intueri', meaning to look at, gaze upon, and 'intuitio', meaning premonition (Krapiec, 2003). Intuition is the subject of interest in many fields of science, including philosophy, psychology, cognitive science, or neurocognitive science. The concept of intuition occurs in literature as a word defining the type of cognition, the type of knowledge, or the power of the mind enabling a specific type of cognition (Rorty, 1967).

One of the basic philosophical approaches is to treat 'intuition' as a specific cognitive tool. According to Plato, intuition is an extra-rational tool enabling people to get to know the world of ideas. Plato distinguished two types of reality – a perfect and unchangeable world of ideas, and an imperfect and changeable physical world. According to Plato, intuition is a kind of bridge between the two worlds. Knowledge that has no sources in rational cognition is the effect of intuition (Wolfsdorf, 2011). Descartes, on the other hand, indicates that intuition is, despite reason, a component of the intellect. Intuition in this sense is a tool of direct cognition, which does not require either perception or the use of reasoning methods. Intuition is the opposite of reason, itself the tool of indirect cognition, which requires perception and necessary reasoning (Descartes, 2018). Leibniz divided the objects of cognition into two categories: necessary truths and contingent truths. Examples of necessary truths include certain mathematical axioms, identity relation or contradictions. According to Leibniz, learning necessary truths is possible only through intuition. Thus, according to Leibniz, intuition is a cognitive tool that enables us to learn necessary truths. I. Kant, however, perceived intuition differently. According to Kant, intuition belongs to senses, not mind. Sensory intuition is a cognitive tool in the sense that it enables the mind to develop concepts that become the object of the synthesis of reason. In addition to sensory intuition, Kant also distinguished

the so-called pure form of intuition, which included two a priori forms of sensibility – time and space (Thompson, 1972). For E. Husserl, intuition is the source of knowledge. Reasoning without intuition is not possible because intuition is its foundation, as it provides premises for reasoning. According to E. Husserl, the role of intuition in cognition prevails over reason. A similar position on the role of intuition in the process of cognition is expressed by J.M. Bocheński, who distinguishes two types of intuition. The first is intuition preceding reasoning, and the second is intuition manifested in the vision of the entire system created in the process of reasoning. According to C.G. Jung, intuition is a kind of organ that functions outside of the person's consciousness. Intuition is an opposition to reason, functioning on the level of consciousness. C.G. Jung attributed to intuition a role that was superior to the role of reason in creative processes. In this sense, intuition is a necessary basis for the creative process, without which reason remains useless (Dane & Pratt, 2007).

Intuition is an important subject of interest for representatives of management sciences (Khatri & Ng, 2000). One of the first researchers in this discipline who undertook to define and interpret the concept of intuition was Ch. Barnard. In the 1930s, he proposed two ways of decision-making – logical and non-logical (Agor, 1989). The logical process of decision-making was based on reasoning expressed in words or symbols. The non-logical way of making decisions cannot be expressed in words. This is a reasoning that can only be learned by making a decision, expressing judgment, or as the effects of an action. In the opinion of Ch. Barnard, non-logical decisions are the result of intuition. According to W.H. Agor, intuition is a way of thinking at the interface of consciousness and unconsciousness (Agor, 1989). This mechanism is launched in the face of the decision-making situation, giving ready answers. H. Simon states that decision-making processes are twofold. In this process, two mechanisms are used – analytical thinking and intuitive thinking. H. Simon treats intuition as a rational process, based on the work of the mind, which searches memory and previous experiences in aim to find analogies to current decision problems (Simon, 2013). I. Nonaka and H. Takeuchi, however, propose the concept of tacit knowledge as an opposition to explicit knowledge (Nonaka et al., 2009). Tacit knowledge consists of three elements: intuitive knowledge, instinctual knowledge and emotional knowledge. J. Parikh points out that intuition is a form of intelligence whose source lies in cumulative experience beyond the consciousness of the subject. The results of the operation of intuition are ready assessment and decisions (Parikh, 1994). Currently, an increasing number of management science studies explores the subject of intuition, especially in relation to such issues as (Laszczak, 2010):

- decision-making procedures in an organization;
- intuitive abilities of managers;
- the impact of intuitive decisions on the organization's effectiveness;

- factors influencing the intuitive way of making decisions;
- presence of intuition in making decisions at various levels of management.

3. Intuition as a skill

On the grounds of epistemology, the starting point to define the word ‘knowledge’ is the analysis of the sentence: *S* knows that *P* (Łukasiewicz, 2018). Knowledge is most commonly defined as justified true belief (JTB). In accordance with the presented conception *S* knows that *P*, if and only if:

1. *S* believes that *P*.
2. *P* is true.
3. *S* is justified in believing that *P* (Gettier, 2017, pp. 69–70).

Literature points to the disadvantages of the JTB concept, mainly related to the condition of truth (condition 2) and the condition of justified belief (condition 3). One of the most important objections to the truth condition of knowledge is the lack of universal consent in terms of the definition of truth. It is even commonly believed that formulating a definition of truth is, in principle, impossible. The presented situation is a strong premise to exclude the truth condition from the definition of knowledge. In the case of adopting *ex cathedra* one of the concepts of truth, such as the consensus theory of truth (conventionalism), in which true statements are considered to be true when the majority of specialists in a given field consider them as true, a fundamental problem appears. It is based on the discrepancy between the common use of the word ‘know’ and the assumed concept of truth. It is, thus, impossible to eliminate from common use statements such as:

- I know that the Earth is flat;
- I know that you can cure cancer using vitamin C;
- I know that there exists a perpetual motion machine.

In the context of the consensus theory of truth, all of the indicated statements are obviously untrue. On the one hand, an individual who utters such sentences is, on the whole, convinced of their truth and may consider them as components of his/her knowledge. On the other hand, external observers usually consider all of the above sentences as untrue and, on this basis, they call such knowledge untrue. The common use of the statement “I know that...” shows, therefore, the existence of two types of knowledge – true and false. A separate group contains sentences such as: “God exists”, the truth of which seems to be unverifiable on the grounds of the correspondence theory of truth. Although people who recognize such a judgment are often not conscious of the impossibility of verifying its truth, they consider it as a component of their knowledge (often one of great importance for them). Regardless of the adopted concept of truth, it should be recognized that, in its common use, the concept of knowledge is not immanently attributed to the truth condition. Thus, authors of this article decided to propose a concept of knowledge devoid of a necessary

truth condition. It is also assumed that the statement according to which one of the conditions of knowledge is a sufficient justification of a given sentence (*P*) by the subject of cognition (*S*) is in disagreement with the common use of the word 'know'. We often witness situations in which the subject claims: "I know this and that, though I do not know why." Such a situation is sometimes described as intuition or the sixth Sense. It was assumed that the statement that these types of judgments are not the subject's knowledge seems to be incompatible with the common sense and common meaning of the word 'know'. Thus, a concept of knowledge devoid of the necessary condition of both truth and sufficient justification is proposed in this article.

The classical definition of knowledge understood as Justified True Beliefs, devoid of the two conditions, i.e. truth and sufficient justification, amounts to a set of beliefs. As a result, the following definition of knowledge is proposed (Nowak, 2019):

Definition 1. Knowledge is a set of judgments about the reality of the subject of cognition

Judgment is understood as a sentence containing statements about reality. Thus, both an interrogative sentence and an imperative sentence do not meet the requirements of knowledge. If a subject asks a question, provided that it is not a rhetorical question, then his/her intention is to acquire knowledge. If, on the other hand, one formulates a command, (s)he intends to influence reality rather than to make statements about it. Another issue to consider is the origin of judgments, i.e. on what basis the subject of cognition makes certain statements. Basically, two types of judgments can be distinguished (on the basis of the criterion of origin): judgments based on other judgments of the subject of cognition and judgments not based on other judgments of the subject of cognition. This assumption enables us to formulate the definition of logical judgment and intuitive judgment.

Definition 2. Logical judgment is judgment based logically on other judgments of the subject of cognition

Judgment which is logically justified on the grounds of other statements of the subject of cognition can also be called rational judgment.

Definition 3. Intuitive judgment is judgment not based on other judgments of the subject of cognition

As intuitive judgment is not based on other judgments, it is judgment without logical justification, thus it is allogical judgment. Each subject of cognition has a certain set of judgments at a given moment – some of them can be classified as rational judgments, and some as intuitive judgments. Both types of judgment form the knowledge base of the subject of cognition. Every subject of cognition, apart from knowledge, possesses a certain set of skills. Skills associated with making logical judgments (the ability to think logically) are a component of the intellect. The conducted analysis allows us to define intuition as a specific type of skills.

Definition 4. The ability to form intuitive judgments is called intuition

The indicated definition does not refer to the accuracy (compliance with reality) of intuitive judgments. However, it does not seem necessary. There exists a group of intuitive judgments whose accuracy or compliance with reality at the given moment are impossible to determine. An example of this type of judgment is any forecast. Not assigning accuracy or compliance with reality to intuition also seems consistent with the common understanding of intuition. In everyday speech, we commonly refer to good or bad intuition. Good intuition characterizes a person who has the ability to form accurate intuitive judgments. On the other hand, a person whose intuitive judgments are generally inaccurate is said to have bad intuition

The juxtaposition of the theory and practice of management, in the context of the occurrence of different types of cognition (rational and intuitive), requires prior definition of the concepts of practice and theory. A reflection of reality in the form of a system of sentences can be called a theory (Pszczółowski, 1978, pp. 182). A scientific theory is a particular type of theory. A scientific theory can be understood as a system of sentences making a statement about a certain object of reality characterized simultaneously by the combined occurrence of three attributes: intersubjective communicability, intersubjective verifiability, and cognitive or utilitarian validity. Practice, on the other hand, is the field of human activity that consists in changing a certain object of reality (Pszczółowski, 1978, pp. 182). The logical consequence of the adopted conceptual apparatus is that the process of developing the theory is also a practice. Such an action is, in itself, also a change of reality, for example through writing with ink on a white card. At the same time, the creation of theory (as practice) is not theory. Theorizing (practice) is a certain activity whose effect is a theory. Theory as a system of sentences reflecting a chosen object of reality creates a resource of the subject of cognition, which is called knowledge. The resource of the subject, created as a result of practice, becomes skills.

4. Intuition in management theory

The subject of Section 4 is the analysis of the action that consists in the creation of a scientific theory, including the participation of rational and intuitive cognition. The aim of a theoretician is to develop a scientific theory (including management theory). The theoretician's means of action are knowledge and skills. It has been assumed that the action of developing a scientific theory is of a creative nature. This is due to the fact that this action consists in formulating and verifying new judgments (previously unknown to science). In the presented context, the development of a scientific theory can be presented as a creative action consisting of the following stages (Sadler-Smith, 2015):

- Preparation – involving an expansion of the knowledge base on the subject of the theory;
- Incubation – when the subject of the theory remains beyond the scope of conscious reasoning;
- Illumination – making judgment that are not based on other known judgments using logical reasoning;
- Verification – confirming a given judgment through its logical justification in comparison to other previously recognized logical judgements.

The effect of the third stage of the creative process model is judgment that can be called an idea. The mechanism of reaching such judgments is called heuristic. From the point of view of the objectives of this article, the problem of the mechanism of idea formulation will be omitted, whereas the effect of this mechanism in the form of an idea shall be analyzed. This idea constitutes judgment that finds no confirmation in existing scientific theories. Thus, such judgment can be called intuitive judgment, since it does not directly result from previously recognized judgments. Indirectly, however, it results from the knowledge of the theoretician broadened as a result of increasing the knowledge base about the subject matter of the theory during the preparation stage. From the point of view of the methodology of science, such judgment is called a hypothesis or a thesis. In order for intuitive judgment to become part of a known or new scientific theory it must be subjected to a rigorous scientific procedure: verification, or falsification (for hypotheses) or proof (for thesis). A given intuitive judgment becomes an element of a scientific theory after conducting reasoning aimed at its recognition. Through experience, consisting in increasing the amount of knowledge and developing new theories (or its elements, theoretical models, etc.), the theoretician acquires skills in this area – intuition is being improved.

The theoretician's activity can also be presented in the context of D. Kahneman's System 1 and System 2 theory (2011). D. Kahneman distinguishes between two modes of thinking – System 1 and System 2. System 1, the so-called fast thinking system works automatically, without any significant effort of the subject of cognition. At the same time, it makes no sense to consciously control it. System 2, the so-called slow system of thinking is a deliberate system, consciously initiated by the subject of cognition. System 2 is responsible for activities that require a significant effort of the cognitive entity. The functioning of System 2, therefore, involves a subjective sense of focus and a conscious action. In the context of D. Kahneman's theory, it can be stated that System 1 is responsible for formulating intuitive judgments, and thus it is responsible for the key stage in the development of a new scientific theory, i.e. for formulating intuitive judgments – ideas. This process takes place outside the mechanism of reasoning, inaccessible to System 1. The role of System 2 is, therefore, reasoning aimed at the rational justification of intuitive judgment.

The following conclusions can be drawn from the presented process:

- a necessary condition for formulating a thesis or a hypothesis constituting an element of a scientific theory is the acquisition of a means of action in the form of knowledge, concerning the studied object of reality;
- intuition, as a skill, is a tool for formulating intuitive judgments – ideas in the form of hypotheses or theses;
- intuition is a *sine qua non* condition for the development of scientific theories;
- reasoning is secondary to intuition in the development of scientific theories – reasoning is a tool for logical justification of intuitive judgments formed with the use of intuition;
- the effect of the theoretician's activity is knowledge and ability in the form of intuition;
- intuitive judgments are the effect of the functioning of System 1;
- rational judgments are the effect of the functioning of System 2.

In conclusion, for a theoretician, intuitive cognition precedes rational cognition. There is a causal link between the two types of cognition. Making intuitive judgment is the condition for making rational judgments. Therefore, the researcher's intuition forms the basis of theory, and reasoning confirms this theory. The effect of theoretician's work is given only in the form of a set of rational judgments.

5. Intuition in management practices

The aim of the management practitioner is to improve the skill of making effective management decisions (Simon, 1987), (Griffin, 2016), (Cleden, 2017), (Ceschi et al., 2017). A managerial decision is a specific type of judgment about the optimal choice of one alternative instead of other available alternatives. Therefore, a managerial decision may be rational judgment (based logically on other recognized judgments) or intuitive judgment (not logically based on other rational judgments).

The process of shaping the ability to make effective decisions can be described using the four-stage model of competence. This model includes the following phases (Lynch, 2017):

- unconscious incompetence;
- conscious incompetence;
- conscious competence;
- unconscious competence.

The transition from the phase of conscious incompetence to the conscious competence phase takes place in the learning process. The learning process is carried out using two mechanisms – learning about the subject of decisions taken and learning through decision-making practice (often for many years). The manager improves his/her key skill on the basis of theoretical knowledge and knowledge derived from experience (the effects

of earlier decisions). Improvement of the manager in the scope of decision-making skills results in the fact that a wide range of managerial decisions previously taken consciously using System 2 (and therefore the mechanism of reasoning) becomes decisions made by System 1 (whose mechanisms cease to be realized). Therefore, in the case of a typical, repeated decision, it is desirable that the manager ought to be guided not by reason, but by the skill in the form of intuition. At the same time, it should be noted that this applies to problems that the manager would solve analogically using the reasoning mechanism. The shift of a wide range of activities from System 2 to System 1 provide managers with a number of benefits, the most important of which are: reduced effort, lack of necessary attention and a greater speed of decision making. A particularly important advantage of the use of intuition (System 1) is the speed of decision making – the need to make decisions under time pressure is a fundamental problem faced by managers (Beach & Lipshitz, 2017), (Luhmann, 2018).

In the case of non-typical decisions or those burdened with a high level of uncertainty, reasoning becomes inadequate. Forecasting is an example of this type of activity. To a large extent, decisions regarding the future are made on the basis of the decision-makers' intuition (Salas et al., 2010). At the same time, it should be noted that intuition and its effects in the form of intuitive judgments are built on the basis of experience of the decision-maker and previously made rational judgments (based on both current practice and theory).

The following conclusions can be derived from the presented process:

- intuition is a skill built by the decision maker in the process of acquiring experience related to both practice and knowledge,
- for many typical managerial decisions, intuitive judgments have a number of advantages over decisions based on rational judgments,
- intuition is a key tool for making non-standard decisions,
- intuition is the basic decision-making tool in the work of a management practitioner.

In the case of a management practitioner, the situation is different than in the case of a theoretician. Intuition is both the basis for making decisions (typical and non-typical), as well as the result of earlier decisions. Intuitive decisions concern a number of management actions related to planning, organizing, motivating and controlling. Managerial decisions are not judged from the point of view of the logic of judgments, but from the point of view of their effectiveness. Therefore, considering the role of intuition in the decision-making process, management practice can be perceived as a combination of elements related to both science and art. The basic tool for making decisions by a manager is intuition. Intuition is a skill that arises from the knowledge gained by the manager, which consists of two sets of judgments: rational and intuitive. Knowledge is acquired by the manager basically in two ways. One of them is learning the

scientific theory, and the other is gaining experience from the assessment of previous decisions.

6. Summary

The article proposes a new terminology for intuition. Intuition has been defined as the ability to form intuitive judgments. Intuitive judgment, however, was understood as judgment not based on other judgments of the subject of cognition. The article also explains the role of cognition and intuitive cognition in the theory and practice of management. The study shows that intuition is a key skill in the context of theory and management practice. It was indicated that intuition is a prerequisite for the formulation of scientific theories. Using the four-stage model of the creative process, it was found that reasoning is secondary to intuition in the development of scientific theories – it serves to logically justify intuitive judgments. Using the four-stage model of competence, it was indicated that intuition is also a key tool for making managerial decisions. The advantages of using intuition in the practice of management in relation to typical as well as non-typical decision problems have been demonstrated. Both the development of theory and management practice are associated with the improvement of intuition. The effect of this study is the explanation of the role of intuition in the theory and practice of management. This article is a contribution to further work on topics related to the presence of intuition in the theory and practice of management.

The publication was financed from the funds for the statutory activity of the Faculty of Engineering Management at Poznań University of Technology, under the DS Młodzi grant “Epistemology of management sciences”, No. 11/142/DSMK/1000. Project leader – Marcin Nowak, PhD, Eng.

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