# The foundations of the operational decision-making culture in France 1

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**The culture of operational decision-making in the French Army is rooted in the very rich history of Western ideas and strategic thinking. It has undergone notable changes in recent decades, mainly linked to an acceleration of scientific progress and to a willingness, commendable in any case, on the part of military leaders and private and public officials to draw inspiration from good practices observed among them.**

**The need for interoperability, the need to take account of new forms of conflict and adversity, and the integration of new technologies, especially information technologies, have led the armed forcesor nearly three decades, Western armed forces have adopted a command organisation and operational reasoning methods that are broadly similar and very strongly inspired by American doctrine.**

**Organisations, tools, methods and processes, sometimes highly adapted to the business world, now seem to have taken precedence over the real determinants of decision-making in warfare. In fact, the timeless and universal notions of the fog of war, complexity, adversity, contingency, and the personality of the operational leader, are poorly suited to tools and methods that rely essentially on the acquisition of quantifiable and objective data to enable decision-making.**

An information report by the National Defence and Armed Forces Committee recently highlighted the implications of new technologies on command and control procedures for operations.

"As Gérard de Boisboissel, secretary-general of the Saint-Cyr chair of cyber defence and cyber security, explained, "the all-digital world is changing the way we operate. Indeed, with the increasing precision of sensors and the improvement of digital transmissions, new technologies are making it almost possible for the general or even the President of

the Republic to look over the shoulder of the tactical commander". These technologies for the processing and mass transmission of information are thus changing the balance of responsibilities in the chain of command and even the very notion of subsidiarity. As such, they require in-depth doctrinal studies on the responsibilities of each level of the hierarchy. "» 5

While emphasising the relevance of the analyses conducted by the armed forces over the past several years, the recommendations in this report invite the entire joint doctrinal community to speed up its reflections on command in operations and its organisation. Mainly driven by the considerable resources invested in research and development by the digital giants, the AFGAM6 , the dynamic initiated by the US Army sets the tone, while Russia and China are not lagging behind in this field. The reaffirmation of international ambitions and the impetus given by the Head of State since his election reinforce the tropism of thinking towards new technologies. In this context, the Joint Operations Planning Centre (CPOIA) has been mandated by the Deputy Chief of Operations of the Armed Forces Staff to study the long-term impact of developments in digital technology on joint command. As a result, a working group on joint command of operational engagements (C2IA WG) was set up in September 2017. This study, conducted with all the armed forces, our allies and French companies, has already made it possible to consider initial interesting recommendations based on operational feedback, cross-cutting analyses and experiments. For the French Army, these reflections have also been well underway for several years. The digitisation of the battle space (NEB) had already placed it at the forefront of the field in the 2000s. The lessons learned from the digitised French and Allied engagements in the early 2000s are still, almost fifteen years later, of great value7. Furthermore, the French Army Staff (EMAT) and Land Forces Command (CFT) are currently conducting an in-depth study aimed at enhancing the agility of command posts deployed on operations. Finally, the preparatory work for the draft Military Programming Law (LPM) 2019-2025 has enabled the EMAT to consolidate a global vision in the field of innovation and research into the integration of new technologies. "Digital transformation, big data, artificial intelligence and the networking of systems are opening up new prospects in fields as varied as 3D reconnaissance and cartography, warfare and the development of new technologies.Digital transformation, big data, artificial intelligence and networking of systems open up new prospects in fields as varied as 3D reconnaissance and mapping, electronic warfare, collaborative combat, autonomous robot navigation, predictive maintenance, decision and command support, operational simulation and human resources8. 8 "The French Army has therefore taken up this issue in a resolute manner, but it is not a new one.

8 The Army has therefore taken up this issue in a resolute manner, but it is not a new one. Let us begin with the term operational decision-making. Igor Ansoff (1918-2002), a Russian-American expert in corporate strategy, distinguishes three types of decision-making. Strategic decisions, taken by the company's general management, concern general orientations and have long-term implications, committing the company's future. Tactical decisions are taken by the company's management staff. They have medium-term implications and important consequences for the structure. They entail a significant risk. Operational decisions are limited in scope and involve minor risk. They are made by management or employees. Under the heading of operational decision-making, we will use, in a less restrictive way in this document, any complex reasoning process related to operational decisions.The study of these processes can be facilitated by reference to theoretical models. This process is characterized by four phases: the acquisition of knowledge, the modeling of the problem, and the choice and control of the action. Secondly, this notion of decision-making will be studied mainly through the singular prism of the Army. The terrestrial environment, unlike others, is characterized by its heterogeneity and its very great complexity, both physical and human. However, as we

shall see later, since army operations always take place in an air-land or even inter-military context, it is not conceivable to totally dissociate land and joint commands in this study.

From 2016 onwards, the prospective work leading to Future Land Action9 (ATF) **has made it possible to** highlight, among eight factors of operational superiority (FSO), that of command performance10. However, as this document points out, while the technological and technical aspects are essential, they are only one aspect of it. The essential work that has been done in recent years on the impact and potential contributions of new technologies must not obscure the fact that the decision making process at war is fundamentally, and for a long time to come, based on human factors and, above all, on the ability of an operational leader to take account of the complexity and uncertainty inherent in the phenomenon of warfare. In the plethora of civil and military studies on the subject, it is now imperative to reflect calmly on the fundamental principles of operational decision-making. This document is intended to contextualize the direction currently chosen by the CDEC, which, if it focused solely on a technological dimension, would not provide an appropriate framework for thinking about improving command performance. The stakes are high, since the ultimate goal is to maintain a leading position among the world's military powers. This dossier therefore proposes to return to the historical and theoretical foundations of operational decision-making and to the meaning of this concept. Indeed, taking an interest in the improvement of command systems first invites us to consider their origins and purpose.

"The true school of command is therefore general culture. Through it, thought is put in a position to exercise itself in an orderly manner, to discern the essential from the accessory, to perceive extensions and interferences, in short, to rise to that degree where the whole appears without prejudice to nuances. There is not an illustrious captain who did not have the taste and feeling for the heritage of the human spirit. At the bottom of Alexander's victories, we always find Aristotle. "» 11

Let us start with some clarifications. In its broadest sense, the notion of decision-making applies to any entity with a living or artificial neural system. This movement is activated when a need to act is perceived in the face of a problem or need, without the action to be taken in return being assimilated to a reflex.Decision-making is based on complex cognitive processes, which may be based on rational arguments (established and measurable facts) and/or metaphysical arguments (which escape sensitive knowledge and experience). Cognitive processes correspond to perception, attention, sensation, memory, representation, language, reasoning, categorization, recognition, learning, emotion, forgetting, action, individual and collective behaviour, collective phenomena. Many theological or philosophical theories and currents deal with this question. Since the end of the 19th century, praxeology has been interested in the study of human action. This term, nowadays mainly attached to the Austrian economist Ludwig von Mises (1881-1973), even if it was not originally coined, refers to the interdisciplinary study of behaviour, from the point of view of choices and performance. This field of study, largely based on the contributions of the cognitive sciences, finds applications through the social, political and economic sciences, business administration (management) and, of course, the art and science of war. It is at the heart of research currently being conducted in the field of the development of artificial intelligence. It is obviously out of the question to mention all these theories in this synthesis. However, it does seem useful to consider those that, by simply conceptualising and breaking down the notion of operational decision-making, allow us to apprehend the totality of what can be covered by command performance in operations. This first approach thus aims to identify what can be considered as fundamental references of the modern decision-making culture in France. Ultimately, this approach will make it possible to explain what we understand today by

operational command, by clarifying the links between the taking of decisions and the performance of the command in operations.decision making (processes and procedures), the means that enable it (a staff and decision support tools) and the decision maker (the operational commander).

The philosophical roots of the search for knowledge and decision-making.

In the beginning was... confrontation. Dialectics (from the ancient Greek dialegesthai: to converse, and dialegein: to sort, to distinguish) has held an important place in Western philosophy since antiquity. Formalized by the pre-Socratic thinker Zeno of Eleaea (circa 490 - 430 BC), Plato's dialogues12 have spread its use. It designates a movement of thought that, through opposition and confrontation, makes it possible to attain knowledge. It is at the same time a method of discussion, reasoning, questioning and interpretation. Plato's work is characterized by the refutation of all forms of empiricism, because the world puts too many different obstacles in the way of understanding. Knowledge can, according to him, only be the product of pure reason. Dialectics, as a rational and methodical approach, allows us to verify successively concepts and proposals in order to attain knowledge and allow action aimed at the Good. Plato uses both types of reasoning proper to dialectic. The first is the method of division, which consists in breaking down the object that one seeks to define. He then uses the method of consequences, which consists in examining and testing all the implications of a hypothesis. Dialectic has since become, particularly through its assimilation by the Middle Ages, a classical technique of reasoning, which generally proceeds by the opposition of a thesis and its antithesis, and which tries to overcome the resulting contradiction by developing a final synthesis.

One of Plato's disciples, Aristotle13 , who was also the tutor of the young Alexander of Macedonia, refutes Plato's purely rationalist approach. He distinguishes between two phases in a decision making process. The first is a phase of analysis of the situation and deliberation. It highlights possible options, with their advantages, disadvantages and risks. The second is a phase of concrete choice of action. To use modern military decision making terminology, the deliberation phase is concerned with the study of the general framework for action and leads to the development of an operational concept, while the choice phase is concerned with the selection of a mode of action. In this process of questioning, Aristotle insists on the necessary recourse to the moral virtue of prudence, or practical wisdom known as phronesis. According to Aristotle, phronesis is the part of the rational soul that concerns the realm of contingent things. It is opposed to the other part of the rational soul, which he calls sophia, the theoretical wisdom whose domain is that of established things. Phronesis is empirical knowledge rather than learned or inferred knowledge (that which the sophia gives us). It is of the order of the reasonable rather than the purely rational. It appeals to the subjectivity of the decision-maker and can oppose or complement the exclusive objectivity required by the sophia. Phronesis is thus oriented towards action in situations of uncertainty. In the decision-making process, it allows the analysis of the context, the various possible actions and their consequences. It establishes the framework for the second phase, that of choice. As suggested by Lieutenant-Colonel de Gaulle in 1934, it is tempting to think that Alexander's decision making during the war had its origins in the teachings of his tutor.

During the Renaissance, Nicolas Machiavelli14**extended the**Aristotelian approach with his principle of Fortuna and Virtù, postulating that nature is marked only by contingency (Fortuna). Thus, according to him, it is mainly character, determination, subjectivity and intuition (Virtù) that would enable the decision-maker to make timely and contingent choices to solve a problem. On the contrary, Descartes15 considers that it is only reason that makes us man (ego sum, ego existo16). Only intelligence and pure reason would

allow us to carry out action successfully. He proposes in his Discourse a method composed of four rules to avoid error. He develops a philosophy of doubt, aiming at reconstructing knowledge on certain foundations, referring to the certainty that mathematics provides. During the Age of Enlightenment, which was dominated by the cult of science, Kant[17] took the counterpoint of pure Cartesianism and questioned the uncertainty and weakness of metaphysical argumentation, the object of which was the knowledge of being (spirit, nature, God, matter, etc.).), the causes of the universe and the first principles of knowledge. This approach leads him, in order to reinforce the metaphysical approach that he considers indispensable, to establish a critical examination of the possibilities of reason. Subsequently, seeking to move away from purely philosophical abstractions, Nicolas de Condorcet, a scientist and politician of the Enlightenment, proposes an original method of voting that allows one to choose rationally between several candidates. He thus formalized a decision-making process that he divided into three phases. The first concerns the principles that can constitute the general framework for decision-making and seeks to determine the different aspects of a problem, their implications and the options to be considered for decision-making. The second clarifies the issue and takes into consideration the opinions of the actors involved in the problem, compares and contrasts them, in order to retain only a limited number of them. The last phase consists in choosing an option on the basis of precise criteria chosen by the voters.

One of the earliest methods of tactical reasoning can be attributed to the Sieur du Praissac at the beginning of the 17th century.

"Any military question can be solved by, if, with whom, where, when, how, & how much..." 18. [18] This excerpt testifies to the need for every military leader of the time to adopt a rational approach to battle. Guibert,[19] Bourcet[20] and Joly de Mazeroy,[21] in the spirit of Enlightenment philosophy, subsequently declined their own methods, seeking to determine the best way to frame decision-making in war.

One of the avatars of the Enlightenment was finally the positivist movement. Auguste Comte, both heir and critic of the Enlightenment, initiated this movement at the end of the 19th century. Positivism is characterized by the rejection of all metaphysical speculation and the idea that only the facts of experience and their relations can be objects of certain knowledge. This current had a very strong influence on a number of French officers after the defeat of 1870. Thus, General Jules Lewal, commander of the École supérieure de guerre from 1877 to 1880, conducted research and experiments for some twenty years that contributed to the re-founding of French military thought.

In 1892, he published an Introduction to the Positive Side of Strategy[22]. He also developed a method of tactical reasoning, the Lewal method, which prefigured what is deThe Lewal method prefigured the method for developing a tactical operational decision (MEDOT), which is now used by land forces[23].

[23] The intellectual filiation between Zénon d'Élée and MEDOT may seem bold because of the brevity of the above statement. Nevertheless, it is supported by texts, the oldest of which date back almost 25 centuries. This approach is intended to underline the intellectual roots of the Western, and more particularly French, decision-making culture. Since antiquity, a constant distinction has been made between a purely rationalist mode of decision-making and a purely empirical way of thinking. In the wake of Cartesianism, various theories have been put forward in an attempt to explain the phenomenon of decision-making and to describe a model that could make it more rational. Thus, throughout the history of thought in the West, scientific progress has always led to the temptation to adopt a purely scientific or procedural approach to access knowledge or

solve a problem.

This distinction reveals in many thinkers a permanent search for a compromise between rationality and subjectivity in order to enable decision-making. It is Henri Bergson24**who** , at the beginning of the 20th century, finally best highlights this indispensable compromise to guide action. According to him, if intuition is different from intelligence, it is not opposed to it. Intuition is only possible at the end of a long intellectual effort, like a synthetic re-entry of the data analysed by intelligence. In addition, intuition can only be communicated with the help of intelligence. The determination of this compromise thus rests on Machiavelli's famous Virtù, on those intellectual and moral aptitudes proper to an individual, which make it possible, when confronted with a problem, to determine the best way to solve it.The determination of this compromise is thus based on Machiavelli's famous Virtù, on these intellectual and moral aptitudes of an individual, which make it possible, when faced with a problem, to set goals, acquire the appropriate knowledge and make choices in spite of the uncertainty, the hazards and the more or less important complexity of an environment. With the philosophers' conceptual framework in mind, let us study how these ideas have found an echo in the reflections of authors who have taken an interest in the phenomenon of war.

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