In 2035, will the leader in combat be a leader of men or a connected manager?

Earth Thought Notebooks

le Chef de bataillon Sebastien PISTRE, le Capitaine François-Xavier LAMBIN-BERNOT et le Captain Bernhard KIRCHNER

Published on 09/06/2020

Commandement

Command support tools are multiplying in information and command systems. The challenge is to define the room for manoeuvre for tactical military leaders in an environment saturated with top-down and bottom-up information.

Thestate of the art of technology and the prospect of the durability of Moore's Law for the next few years easily suggest that tomorrow's tactical leader will have, **in** theThe state of technology and the prospect of the continuation of Moore's Law over the next few years make it easy to imagine that the tactical leader of tomorrow will have, in the performance of his duties, a wide range of command and control tools to help him dispel some of the fog of war and save time. This evolution is logically in line with that of the modern world and, following the example of the civilian world, in which innovation is a source of market domination, "operational superiority is now achieved through the domination of the cognitive field", explains General Cuche.

However, dominating the cognitive field is a particularly ambitious project that requires tools and procedures so that the mass of information gathered can be exploited and used in time for the sole purpose of making decisions. The investigations that followed the attacks in New York on 11 September 2001 showed that it was not the lack of information, but rather shortcomings in the circulation and exploitation of this information between the various security and intelligence services that did not prevent the attack.

The evolution of our command systems in an increasingly complex context is a necessity, but above all a challenge. It is no longer just a question of the evolution of hardware technologies as it has been since the dawn of time,because today operational superiority is acquired through the new and intangible field of information control and rapid decision making.

Thus, in a pivotal period during which the digitization of the battle space (NEB) is expected to reach maturity, and with the advent of the new information and communication technologies, the battlefield is becoming a more and more important area of activity.With the coming advent of infovaloristion, it is important to consider the

prospects, challenges and pitfalls of the "over-connected" tactical leaders of tomorrow.

The progressive integration of new information and communication technologies (NICTs) for the benefit of military leaders is more of an evolution than a revolution. Tomorrow's combat leaders will undoubtedly be "connected military leaders".

Despite legitimate concerns about the future of the military leader, the military leader will know and will have to adapt to the new technologies by relying on a coherent doctrinal corpus and quality training.

Lhe military leader, between concerns and certainties

Throughout the ages, the military leader has been the subject of countless writings. The place and future of the leader in armies, whatever the era, have been a source of concern and questioning. The fear of seeing the leader lose his authority and charisma invites each generation of officers to question the leader's place in the armies and conflicts of tomorrow. This fear is based on a two-fold observation: the world in which man lives is in perpetual change and is becoming ever more complex, while man, who builds and shapes this world, is intrinsically changing very little and at a much slower pace. This raises the question of the military leader's ability to adapt to economic, social or technological change.

From the writings mentioned above, there is a real desire to be reassured about the future of the military institution's ability to cope with change of all kinds. Although sometimes paternalistic, it would be absolutely reductive to consider that the authors simply sought to testify to their concern. Indeed, it is not a question of denying future generations the ability to evolve, but rather of allowing training tools and military means to be adapted to the challenges and men of tomorrow, while preserving the values and characteristics of the military leader.

Nevertheless, with great foresight, adaptation is described as a real challenge. Indeed, although permanent adaptation remains one of the primary qualities of the military in general, the military remains no less reluctant to change, whether it is undergone or desired. In his book "Towards a**professional army", General de Gaulle** clearly states this reticence: "The army, by nature, is resistant to change.. living on stability, conformism and tradition, the army fears, instinctively, what tends to modify its structure"3. Sociologist Elvin Toffler also notes that "the military, like any large bureaucracy, is resistant to innovation". This is a long-standing phenomenon. The introduction of innovations, both material and immaterial (doctrine), generally finds few fervent defenders and a majority of opponents, convinced of the uselessness or even danger of the innovation in question. The historian Karl-Heinz Frieser considers that, given the number of tank opponents and their influence, German armoured divisions would probably have been disbanded in order to re-establish an "infantry in the lead" tactic if the German sickle strike had failed in 1940.

Thus reluctant to change, the military world was sometimes forced to draw inspiration from a civilian world more inclined and quick to adapt to progress.

Management training has long been inspired by military experience, but the phenomenon has been reversed since the 1980s. As a consequence of this constantly changing world and of the continuous adaptation of the armed forces, the latter, in financial and

profitability logics, but also by mimicry, have been inspired by the "managerial sciences". However, the military leader has always refused to be compared to a manager by following the adage that a leader does not manage but commands. The suspension of national service has furthermore reinforced this feeling that it is necessary to adopt a management style similar to that of the civilian world. This rapprochement stems from the fact that leaders at all levels manage volunteers for several years and that in order to retain this resource, they need to be "managed". "Command is fully justified under fire, but in peacetime it has to be done differently. The officer must be more concerned with motivating the troops, explaining the rationale behind decisions, exchanging ideas and, in short, managing. He can't just order," explains Serge Alecian, managing director of the management consulting firm Innovence.

This is not an umpteenth definition of a manager or military leader, but we will consider that "the leader is the one who decides and commands. He is the one to whom all eyes turn in difficulty. He is the one who, in front of his men, can say "forward" and be sure to be followed. He is also the one who, in the midst of his men, helps each one to surpass himself and federates energies. This degree of exigency alone justifies that the military leader should be inhabited by the principles of command which are at the heart of his vocation: exigency, competence, decisiveness, humanity, justice and trust", and we understand the manager as the person "responsible for directing and rationally managing an organization, organizing activities....s, to set goals and objectives, to build strategies by making the best use of people, material resources, machines, technology, with the aim of increasing the profitability and efficiency of the company".

Beyond these definitions and on closer inspection, however, the two concepts of command and management are not so far apart, or even built on the same foundations. In 1917, General Nivelle described himself as a "captain of industry". As early as 1916, Henri Fayol, director of mining operations, wrote "L'administration**industrielle et générale", a work in which he described the** key**role of** the chief as being responsible for the good management and success of the company. To better describe this leader, he attributes seven essential qualities to him (in particular: physical vigour, intellectual vigour, moral qualities, general culture, the art of handling people, etc.) and describes fourteen general principles of administration (better known as Fayol's 14 rules). Among these are the principle of authority and responsibility of the chief, with the notion of discipline and the fact that the chief assumes his orders. There is also the principle of unity of command, the subordination of particular interests to the general interest, but also the principle of initiative and hierarchical respect. Apart from the concepts of personnel, company, collaborators and leadership, it would not be possible in a quick reading of these rules to know whether they were originally written by (or for) a company leader or by (or for) a military leader. This tends to prove the fine line between these two terms, but one still manages to differentiate between them.

There are four essential differences between a manager and a military leader:

Firstly, the military commander acts with financial disinterest. He seeks to be efficient and not profitable. The notion of money therefore does not corrupt his thinking in combat. If he is careful to preserve his men while carrying out the mission entrusted to him, he is not subject to the permanent reflection of the business world in terms of cost-effectiveness.

A second essential difference lies in the notion of service. The military commander is at the service of his country and its interests, and therefore of his fellow citizens, whereas the manager serves his company and/or his own interests by setting aside any notion of the common good. As the "Soldier's Code" states, the soldier is devoted to his "employer"

at all times and in all places, while the manager is devoted to his company and for a defined working time.

The third element of differentiation lies in the boldness of the military leader and his ability to decide in uncertainty. While reducing risk and taking the safest and most reliable route is mainly a guideline for the manager, the military commander can be more daring and accept greater risk. When the manager leads a project, the military leader is leading a mission of an uncertain nature by constantly "feeding" on the accidental, and is led to make decisions in difficult circumstances (enemy fire) in a very short period of time that can lead to death.

Last but not least, unlike the manager, the military commander, as the holder of legitimate violence, is confronted with it doubly, by his capacity to give or cause death, and by the fact that he assumes the counterpart, that of losing life, both his own and that of his subordinates.

The military leader is certainly a manager in the organizational sense of the term, but above all a leader of men, especially in combat. The specificity of his vocation is also rooted in the values inherent in the officer's function and in his ability to adapt to his environment as well as possible.

As previously discussed, the world in which the leader is called upon to act is constantly changing. In a 1963 article on executive training, Army General Gambiez first of all evokes an evolving framework and then identifies three major themes of evolution. The first is the accentuation of the scientific and technical characteristics of progress. The second is the acceleration of progress (particularly organizational and administrative) and the third is essentially social. According to him, these three themes must be taken into account in the training of tomorrow's leaders. Thus, while the world is changing, probably at an ever-increasing rate, as a result of globalization and the reign of "hyper-information", human beings are evolving to a much lesser extent. The military leader is no exception to the rule either. On the contrary, on the strength of his greater or lesser reluctance to progress, he has a tendency to evolve even more slowly in certain areas. This should in no way be seen as a defect, but should be analysed in terms of the qualities that have always been his strength.

In a world where individualism has often taken precedence over the general interest, and where certain values are sometimes considered to beIn a world where individualism has often taken precedence over the public interest and where certain values are sometimes considered obsolete, the military leader remains committed to the concepts and values of loyalty, discipline, humility, probity, daring and courage. It is not a question of considering the military leader as the "guardian of the temple", but rather of realizing that what made him strong in the past is still relevant today. The fact that these qualities continue to be cultivated today in training schools or units is not a matter of desperate conservatism but of a desire for efficiency. Thus, the military leader, relying on solid physical, moral and intellectual foundations, manages to adapt to the times without denying the very essence of his profession.

This ability to adapt is of paramount importance in the material and technical fields at the risk of not being able to carry out his duties properly. It is even vital, as Army General Pierre de Villiers reminded the future officers of the French armed forces during a speech

at the opening of the joint seminar of the Grandes Ecoles Militaires on 17 March 2014: "The framework in which you will decide will already be different from today's. Our world is constantly changing, we must adapt to it, and therefore reform: any static structure dies of entropy!"

However, this adaptability on the part of the military must be clearly defined from the outset. In spite of scientific and technological progress, the role of the leader has changed very little, as General de Gaulle said: "To lead men into battle, whether armed with a sword or wielding a modern tank, the role of the leader is always to design according to the circumstances, to deTo lead men into battle, whether they are armed with a sword or operate a modern tank, the role of the leader is always to conceive according to the circumstances, to decide and prescribe by forcing his own nature and that of others, then, once the action has been triggered, to seize again on occasions the system of his means which the facts relentlessly distort". Two decades later, General Ely affirmed for his part that "a true leader adapts to any technique".

The conflicts in which France has been involved over the last ten years illustrate this adaptability of the military. With sometimes a little delay, military leaders have been able to integrate all the new techniques on the battlefield to make the most of them. From the Tiger helicopters in Afghanistan to the REAPER drones in the Sahel and the Feline system, officers, whatever their level of responsibility, have easily managed to assimilate and make good use of the latest technologies available to them.

Nevertheless, despite its qualities and its great adaptability, technological progress, especially in the cognitive field, the pressure of the civilian model and the re-evaluation of the civilian model, have made it difficult for officers to adapt to the new technologies.Will technological advances, especially in the cognitive realm, the pressure of the civilian model, and the responsiveness to change not in the future overwhelm the values of the military leader and force him to relinquish command in favour of some other form of incentive to act?

Vers 2035, a connected military leader

In view of the qualities of leaders that have survived through the ages, it is clear that the evolution of the modern world should not call into question certain virtues. While certain abilities required of leaders are evolving (physical, understanding of the world, technical knowledge of equipment, etc.) the exercise of command is based on a foundation of management and leadership, culture and authority, wisdom and boldness and cannot be called into question. However, advances in information systems have led to fears of a change in the military leader as well as in the art of warfare. Should we then fear the death of the artist under the weight of science? Although differentiated from the outset, the simple fact of wondering whether the leader will be a connected manager betrays the fear of a change in the leader's status and a possible change in professional culture under the effect of technology.

Fifteen years after having digitised its units, the Army is faced with persistent user mistrust of operational and command information systems (OICS). This attitude is rooted in the development process of these systems, a consequence of the reversal of the dominance

relationship between military and civilian innovations. In 1998, Renaud Bellais noted, in an article, that although the armed forces had been contributing since the end of the Second World War to developments in electronics through their weapons programmes, in the 1990s they had fallen considerably behind the civilian world in terms of software and communication technologies. As a result, armies today benefit from major transfers of knowledge from civilian research, reversing a situation that has long prevailed. Bridging the technological gap has therefore involved a necessary militarisation of civilian technologies. This consisted in reducing the scope of what was possible (civilian R&D creates "everything possible" before selecting what is marketable) to that of what is militarily useful. This, combined with budgetary requirements, the lack of a global vision and various reservations, led to the development, in stages and with the help of different industrialists, of tools that were not very interoperable and were particularly tedious to handle. For a user who is increasingly from generation Y and accustomed to the instinctive discovery of new products, there is a glaring gap between the user-friendliness of civil NICTs (nobody reads the user manual of a computer) and the user-friendliness of the civil NICTs (nobody reads the user manual of a computer).(nobody reads the instructions for using their new smartphone) and the difficulty of using battle area digitisation tools (NEB) (more than 20 hours of training are required to qualify a SIR or SICF user and knowledge is lost without regular practice). What should be a command support tool is then sometimes a constraint, at worst a burden. This explains the lack of adhesion that our army is experiencing.

At the present time, the prospects for major technological developments, which are a source of operational superiority, are of the cognitive and automatic order. But the foretaste of the tools in gestation for tomorrow's war, embodied in France by the command support tools that the Scorpion programme will propose, are causing fears and reticence among the military. This is particularly prevalent among officers, who see a tool that would take away their prerogatives as leaders and would tend to dehumanize the war. The development of artificial intelligence, a major area of innovation in the coming years, could generate computers that are too powerful for human beings. Man would become physiologically incapable of following the flow of information to be processed. The machine would have the capacity to do without the human brain to propose in a fraction of time a decision with unquestionable logic based on a quantity of parameters and information from sensors. Will the artist fall under the weight of science? The legitimate fears expressed have their source mainly in the failure of digitisation, but it would be simplistic to leave it at that because every innovation brings new risks and because war will never be an exact science.

The over-connection, with the cognitive advantages it provides, revives the idea of perfect knowledge of the battlefield. If this were the case, the total erasing of the fog of war that Schlieffen defended by considering that "any uncertainty can be controlled by designing a rigid plan and centralizing command" would regain its full meaning. However, while it can be assumed that technology will undeniably make it possible to limit battlefield friction even further, one must be convinced that the fog of war will remain. To deny it "is based on a profound historical misunderstanding, a disregard for the lessons of the past and a disregard for a reasonable examination of recent conflicts".according to General Scales in reference to the American utopia of eliminating friction during engagements in Vietnam and Iraq. Uncertainty cannot and will never be removed; on the contrary, it can re-emerge or grow stronger with friction. No technology will erase random factors such as the weather, which must always be trusted, or the "freedom of mind" of the enemy and his often unpredictable reactions (fear, recklessness, murderous madness...). In the same way, certain factors smooth out technological superiorities: water absorbs radar waves, bad weather makes it impossible to see even with the best infra-red

or thermal cameras. Finally, it will always be difficult to discriminate between civilians and combatants. Thus, while it may be considered that planning prior to any engagement can be carried out with a certain degree of peace of mind and with means that reduce uncertainty to a minimum, the dividends of these technological advantages (superiority, morale, speed) will generate new uncertainties. The military leader will therefore have to decide in this new uncertainty and decide quickly because the pace will be faster. He will then retain all his prerogatives as a decision-maker and leader. He will no doubt even be required to be much faster in analysis and decision-making than today's leaders, in order to adapt to the acceleration of the tempo of operations. To dominate uncertainty remains a utopia and deciding in uncertainty will prevail.

To suffer the tyranny of technology is an equally conceivable pitfall. The leader, under the pressure of time and his actors, may no longer be the source of the decision.

He could find in these tools a form of protection that would allow him to justify non-decisions, because they are chosen according to the machine's proposal and not according to his own perception of the situation. This behaviour, given the increasing judicialization of military operations, could thus become widespread. Indeed, how can it be criminally justified not to have followed the advice of a machine whose computing power exceeds human capacities? The leader could also find himself inhibited in his command, unable to decide as long as the intelligence conditions are not met, or unable to command without the help of these tools. Finally, the technological contribution provided by future systems will accelerate the pace of the manoeuvre. This acceleration is desired and desirable insofar as it is imperative to adapt quickly to a sometimes elusive enemy that is constantly on the move and whose behaviour is unpredictable. The political demand for quick and visible results reinforces this need for acceleration. The outcome of the operation will often depend on the speed of decision-making. However, due to saturation effects, the chief could find himself in a state of physiological overload, unable to absorb the flow of information. General Scales notes that in Iraq "leaders have to make decisions in the second under an avalanche of information that pushes them to the limits of what they can physically absorb".

But the major risk is that of a probable alteration in human relations. War, as a confrontation of antagonistic wills through destruction, imposes a very singular relationship from the military leader to his subordinates. Indeed, apart from the failure of the mission, the idea of consenting to death is the component that distinguishes war from any other human enterprise. The command relationship, made up of obedience, but also of discipline, trust and adherence, is a fragile bond between soldiers and leaders. This link could be modified when NICTs, and especially artificial intelligence, have reached the capacity to model and then analyse a complex situation and propose tactical solutions. This state of affairs is rationally conceivable over the next fifty or sixty years. Three phenomena can already be imagined: an increase in the legalization of military operations, the alteration of command relationships and the generalization of "micro-management".

The judicialization of military operations is already a current phenomenon that could increase in the future. The combat leader, with the means of analysis and decision-making support, will be indirectly "supervised". The preservation of digital data will make it possible to have, after action, a very precise vision of the course of operations and it will be easy toThe preservation of digital data will make it possible to have, after action, a very precise vision of the course of operations and it will be easy to attack a leader who wishes to preserve his prerogative of decision according to the circumstances, by freeing himself

from the "advice" of a machine with computing capacities far superior to his own.

In the same way, the info-valuation, with the real-time geolocation of units, will allow a friendly situation monitoring in the slightest detail. A natural consequence will undoubtedly be greater rigidity in design (Schlieffen's concept of the domination of uncertainty) and will necessarily encourage the phenomenon of "micro-management" (crushing of hierarchical levels by entering the "action bubble" of the subordinate leader). Far from the troop, perfectly informed about the situation (at least friendly) and exempt from battlefield frictions such as fear, weather conditions or fatigue, the temptation to interfere in the manoeuvres of subordinates will be great and will contribute to altering the role of the military leader.

Furthermore, it cannot be excluded that these technologies may sometimes be rendered inoperative due to breakdown, jamming or even intrusion. Relying on "all technology" would then be a mistake and a source of failure by paralysing a troop, or even an entire army, deprived of its combat capabilities. Finally, it is the very status of the leader and his professional culture that could be called into question. Today, command methods already require that the troop be explained and adhered to in order to win support. Tomorrow, if a machine is the driving force behind the decision, authority could be relativized and the chief relegated to the role of technician. Will the troop follow the advice of a machine?

Imagining these risks may sometimes seem exaggerated, but it makes sense to think about them now, and therefore to think about how to protect against them.

In the end, the issue is not whether or not to accept future technologies in the military world, but how to adopt them intelligently, because they will inevitably become the norm, and as Renaud Bellais notes: "It is one thing to have technologies that introduce radical innovations, but it is quite another to know how to take advantage of them". In order to overcome fears, which are after all legitimate, and to mitigate the risks, it is necessary to consider avenues of reflection in order to better understand and prepare for the future.

In order to make our future systems profitable, it will be necessary to preserve constants and to commit to change with determination. The development of reliable, resilient and easy-to-use equipment will contribute to the success of this change. However, depending on the civil industrial system of production, it may prove difficult to act directly on their initial design. Efforts will therefore have to be made in the field of training, NICTs will have to be adopted with determination and doctrine will have to be adapted.

Tomorrow's training will be a crucial aspect because the "technical" aspect will have to take on greater importance without, however, neglecting the tactical aspect or that of the behaviour of the military leader. It is true that our young leaders are already being trained on a wide range of equipment, but it will be essential to make the necessary efforts, possibly at the cost of longer training periods. Tomorrow's leader will above all be a tactician, but must also be a high-performance technician. According to General Ely, it is also necessary "to educate the youth so that they can take their place in a world in which the world is becoming more and more complex.preserving the highest spiritual values in them". To this end, future leaders (officers in particular, but also non-commissioned officers) should be instructed from the outset in these new technologies in training schools. It will be a question of training and learning with the means that will be used in the theatres of operation. However, the training should not focus exclusively on these new technologies. In view of the risks mentioned above (breakdown, jamming, intrusion,

etc.), command by voice must always be taught as a basis for and prior to the use of connected tools. Although it is difficult to define the ratio between the traditional method and modern technology, it can be estimated that half of each could be satisfactory. Finally, the switch from one command mode to the other will have to be taught and repeated to maintain ease in all areas. This training aspect is based on a logic of means made available both in training schools and in units and will have to be the subject of particular vigilance. Finally, particular attention must be paid to the style of command of future generations of senior officers. It will be necessary to inculcate the culture of "eyes on, hands off" consisting of following an operation live without interfering (except in vital emergencies) in the manoeuvring of subordinates in the field.

However, training should not be limited to these aspects. Instilling a deep sense of responsibility and enabling the future leader to develop a strong character will also be essential. With regard to strength of character, it will be a matter of enabling the future leader to convince his subordinates, and even his leaders, of the soundness of his decisions and reasoning. This will have to give him the ability to humbly acknowledge his mistakes, but also to open up respectfully and freely to his superiors about his opinion and any disagreements he may have.

Finally, a training effort should be made to improve the general and military culture of young leaders as soon as they pass through their initial training school: "The true school of leadership is general culture". It will not be a question of knocking them out with books or doctrine, but of giving them a taste for reading and getting them interested in the subjects of yesterday as well as those of tomorrow. To this end, it will be necessary to give them time to cultivate themselves while guiding them so that they do not get lost or scattered.

This general and military culture will enable them to understand the new technologies in the best possible way by constituting a base of knowledge and a tactical reference system that can be used not as solutions or recipes, but as handrails on which to draw when necessary. These solid foundations will then sublimate the use of NICTs. Moreover, this knowledge will also allow the future chef to do without new technologies as much as he deems necessary. It will therefore not be a question of instilling in them a "ready-to-think", but rather of giving them the ability to think about a problem from different angles with different avenues of thought. "Thanks to my reading, I have never been caught off guard by any situation, never without knowing how a problem has been tackled (for good or ill) before. It doesn't give me all the answers, but it's a light on a path that is often dark".

Concerning the adoption of NICTs, according to the old adage "the better is the enemy of the good", it will be necessary to find a point of culminating usefulness. It will indeed be a question of avoiding the search for the perfect, universal equipment adapted to all circumstances. An example that should not be reproduced is the development of the Light Joint Helicopter (LJH) which is supposed to replace the Gazelle in the Army, the Lynx in the Navy and the Puma in the Air Force. Ultimately, this project could result in a universal product that does not meet the needs of any of the three armies. To avoid this in the field of NICTs, it will be necessary to discriminate between essential and accessory functions in order to produce simple and effective tools. One solution is the choice of a common core, both hardware and software, which will be adaptable as required, interoperable and scalable. Finally, it will have to be accepted that the whole spectrum of possibilities offered by these new technologies need not necessarily be used. To do this, it will be necessary to define the minimum standard level of knowledge of the system and the "optionals". The standard will have to be defined at the Army level (or predefined during preparations for projection). The use of the optionals may be left to the discretion of the corps and unit commanders. By favouring a particularly solid basic knowledge over

a global knowledge that is often lacking, the effectiveness of the decision-making and command processes in combat will be increased.

A major condition for the successful adoption of command support tools is also user buy-in. The definition of the tool, its components and interfaces and its functionalities contribute to this. A reliable, intuitive and ergonomic tool will be required. This tool will have to be adapted to its intended use, which implies a principle of differentiation according to the level of command, or even the weapon of use. It is on this condition that the support of the leaders will be acquired, who will in turn have to get involved to convince them of the interest of the tool. These principles are not new, but the lack of user-friendliness of today's NEB tools is one of the major reasons for its failure, as we have already pointed out.

Finally, the doctrine for the use of the units of the future will have to evolve in order to manage the effects induced by NICTs. The doctrine will have to describe procedures, taking care not to saturate the leader intellectually with too much information, "because the leader, in order to act, must have a reserve of potential". It should reinforce the role of the military leader in the cycle of designing and conducting operations. Despite greater freedom of speech for subordinates towards their superiors, it should preserve the sense of hierarchical relations, which is a guarantee of the smooth functioning of armies. Doctrine will therefore need to be robust in reaffirming the primacy of the leader over technology. Paradoxically, it will also have to be sufficiently flexible to allow the military leader full and complete freedom of choice and action. In short, it must always leave room for boldness and intuition.

The crushing of levels, if it is to be avoided, should not necessarily be seen as a pitfall. One can thus imagine a greater modularity in the articulation of the troops. Units could momentarily change subordination on short notice and in the course of action, with the aim of narrowing the decision-making loop for a specific mission. Info-enhancement and geolocation could also mean the end of hermetic coordination limits or at least make them more permeable, as the risk of fratricidal fire would be reduced. The principle of subsidiarity will therefore have to be implemented by giving responsibility to commanders at all levels and leaving them a margin of initiative in line with command by objective. Consideration will also have to be given to strengthening certain hierarchical levels (second deputy for section chiefs, etc.). For unit commanders, etc.) in order to regulate and manage the increasing flow of information to be processed and let each chief take the decisions at his own level. Command will be partly modified with an increase in the participative aspect of the command dialogue.

While it is normal to have doubts, it is salutary to consider the answers to the problems and, in any case, like the Americans, the French armies will not give up their potential technological superiority.

In an ultra-connected world, the ability to communicate over very great distances in very short times has radically changed the way the United States conducts warfare. In the face of global and sometimes interconnected threats in all four corners of the globe, the ability to acquire information, analyze it and conduct an operation in the aftermath has increased and condensed over time. It now takes only a few hours to obtain strategic-level endorsement.

The United States remains at the forefront of digitization and interconnection. In all likelihood, it can be considered to be about ten years ahead of France in this field. As true precursors, it is necessary to take into account their feedback (RETEX) on these subjects in order to avoid certain pitfalls previously discussed. The first American lessons available in the field point to three main pitfalls to be avoided.

The first of these is the crushing of levels and the associated micro-management. The photo of Barack Obama assisting from the White House in the "Neptune Spears" operation to neutralize Osama Bin Laden in 2011 has been taken around the world. If it illustrates the capacity of the political and strategic level to order a "very short loop" operation at the tactical level, it also embodies the major risk of interference. This risk is reflected in the capacity of the strategic level to interfere directly in the chain of transmission of orders and the temptation to conduct the operation itself thousands of kilometres away. It may also be considered that the Navy Seal, knowing that it is being watched by its President, risks not behaving in the same way because of additional pressure over its head and fear of interference from the politico-strategic level. According to the American partner, this risk of interference has increased considerably in recent years with the accession to senior leadership positions of military personnel who have previously used this type of technology in the field. Indeed, until the mid-2000s, the "senior leaders" positions were held by general officers who had never experienced these advanced technologies in the field. This immediately limited their willingness to intervene in the tempo and sequence of operations. Over the last ten years or so, the accession of officers familiar with these new technologies to these same functions has increased the temptation for them to intervene directly down to the lowest echelons. Consequently, these officers must not behave like "managers" constantly intervening, but like military chiefs leaving the tactical chief in the field complete freedom of action and manoeuvre.

The second mistake that should not be made is, according to the Americans, to consider that digitisation can replace physical and human contact. Indeed, it is not possible to harass troops by satellite communication. Colonel Franck Wiercinski, commander of Task Force Rakkasan during Operation Anaconda in Afghanistan in March 2002, could never have mobilised his troops prior to the operation by video-conference. Without physical contact with leaders at the operational or strategic level, a loss of confidence in command and hierarchy is to be feared. A feeling of a double-edged sword within the troop is taking hold: some are risking their lives in the field while others are manipulating "puppets" thousands of miles away, comfortably seated behind a computer screen.

General McChrystal, armed with his operational experience and aware of the risks of breaking away from the troop, has sought to set an example by staying in constant contact with the troop and the lower echelons throughout his career.

The last pitfall to be avoided, according to the Americans, is to fall into the short-term ease of NICTs while ignoring the long-term negative aspects. It is not a question of giving up any technological superiority, but of analysing the consequences over a period of twenty years. The success of operations using micro-management today could quickly lead one to believe that all operations can be conducted in this way. Two major errors would then result from this reasoning. First, military leaders in combat today would lose their prerogatives and therefore their true leadership experience. Called in the future to higher responsibilities and to command from their desks, they would have no real knowledge of command and would not be able to "micro-manage" in turn. Second, if these technological means were to break down or be scrambled, the military leader in the field could find himself powerless. Indeed, accustomed to receiving orders from the strategic or operational level asking him to manoeuvre in one way or another, and used to

to being guided from start to finish of the operation, the leader could become a manager without authority. Like a child whose parents tie his shoelaces every morning until the age of 18 and who cannot do it himself, the tactical leader may no longer be able to carry out his mission and conduct tactical thinking without outside help.

Legitimate questions about the leader's future in an interconnected world and on an ultra-digitalized battlefield need to be answered in a reassuring and enlightening manner.

NICTs are by no means inevitable, but must be seen as a real opportunity. An opportunity that must be seized now in order to prepare tomorrow's leaders as well as possible. This is the long-awaited opportunity to apply the principle of subsidiarity, which is often praised but too little used for sometimes outdated reasons of preserving prerogatives. The proper use of these technologies should make it possible to switch from a logic of efficiency (sometimes cumbersome and restrictive) to a logic of adaptability (admittedly imperfect but flexible and better targeted) as General McChrystal points out26. On the strength of its operational experience and its doctrinal culture, the French Army will have to ensure that its future leaders are fully trained physically, psychologically, intellectually, culturally, morally and technically. The strength of character and the general and military culture of the leader will, more than ever, have to be the subject of particular attention from the initial training stage. As long as man goes to war, he will need leaders who command on the battlefield. In order to leave the leader of tomorrow with this full and complete capacity, it will be necessary to provide him with quality and appropriate training based on a body of doctrine that is both firm and flexible.

Marked evolution rather than revolution, the integration of these new technologies will not make the military leader a manager, but a connected military leader on condition that he anticipates the potentially harmful consequences and takes care to mitigate the risks.

Without falling into the blissful admiration of the American partner, the lessons already learnt in this field should be taken into account. If we were to learn only one lesson from the US military, it could be summed up in the opening sentence of the US Army's Army Leader Development Strategy (ALDS), published in 2013: "The US army builds leaders for our Nation. Developing leaders is a competitive advantage the Army possesses that cannot be replaced by technology or substituted for with advanced weaponry and platforms".

Thus, by adapting command (subsidiarity), training them in new technologies, increasing their general and military culture and strengthening their character, future military leaders in combat will remain the leaders to whom subordinates will continue to turn in the uncertainty of the battlefield.

Technology will not distort the military leader as long as man remains at the heart of the battle. However, since reality closely follows fiction, or is strongly influenced by it, it is conceivable that the war of men will be carried out in the medium term by remotely operated or even automated machines. In such a context, the question of the place of the military leader will arise, just as the question of the place of man and his role in the fully automated assembly lines of large companies has been raised.

Title :	le Chef de bataillon Sebastien PISTRE, le Capitaine François-Xavier LAMBIN-BERNOT et le Captain Bernhard KIRCHNER
Author (s) :	le Chef de bataillon Sebastien PISTRE, le Capitaine François-Xavier LAMBIN-BERNOT et le Captain Bernhard KIRCHNER
Release date	20/11/2017