



CLC and the principles of warfare

military-Earth thinking notebook

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"Digitisation places the Joint Chiefs of Staff within an air-land synergy without which the conduct of operations - even if they are predominantly land-based - is now difficult to conceive of".¹ It is clear that today information and communication systems (CIS) are indispensable for all modern commitments. However, this does not mean that the use of CIS in tactical operations is free of deviations. As a source of illusion and prey to certain vulnerabilities, they do not necessarily ensure the conditions for victory.

¹ Principles for the use of the level 3 digitized land task force, CDEF, 2004.

Man, who is at the centre of the complexity of the battlefield information space, has a new source of friction to grasp. Although the quest for information superiority is often seen as a necessary condition for military success, information must remain a means and not an end. Above all, information technology must remain at the service of man and not the other way round.

While it may be interesting to demonstrate the contributions of CIS through the prism of the principles of Foch's war, the excesses of a biased use of CIS can be studied in terms of the "anti-principles" of war. It is important to be aware of these risks in order to better protect oneself against them.

Contributions of CIS and principles of warfare

- Freedom of action

For Xenophon, "the art of war is the art of maintaining one's freedom of action". SCIs contribute directly to this principle. Indeed, one of the major interests brought by the SCIs, in particular through digitization, is to reduce the "fog of war". Ideally, the leader is freed from the conduct of the action in progress and has more distance for the preparation of the following times of the manoeuvre. Digitization gives the joint commander the ability to better control the action: he has time to check the consistency of his manoeuvre, but also the proper understanding of the orders given and their execution. During the battle space digitization (NEB) experiment in Côte d'Ivoire, Colonel Gillet, commander of the IATF1, insisting on the fact that digitization facilitated the reversibility of his system, said: "the NEB is the guarantee of my freedom of action" [1].

1] Moreover, one of the great difficulties for military leaders has always been to know exactly not only the position of the adversary, but also that of their own forces. Now, the geolocalization of friendly forces, through Blue Force Tracking (BFT) for example, and enemy forces, makes it possible to overcome this difficulty. The leader can more easily foresee adverse events and actions: he thus keeps all his ability to take the ascendancy and impose his will on the opponent. In addition, the numerous pieces of information provided to the leader are precise (images, videos) and therefore facilitate his decision making. The information, available to the greatest number of people, is shared and can be easily disseminated.

Finally, a final contribution of the CIS contributes to the principle of freedom of action: the acceleration of the pace of warfare. Topographical uncertainties are reduced and, as a result, travel is safer and faster. Moreover, in a digitised environment, the decision loop is shortened and the time taken to design and disseminate orders is reduced. Thus, the substantial time savings coupled with the ability to anticipate adverse actions increase the possibilities of surprising the enemy and thus retaining maximum initiative.

These contributions of CIS undeniably contribute to increasing the leader's freedom of action: the various constraints imposed by the environment and the enemy are mitigated by the information available in real time for the benefit of the leader.

- Concentration of Efforts

"It's better to be with ten men where it counts than somewhere else with ten thousand." This sentence by Tamerlan, a 14th century Turkish-Mongolian warlord, insists on the optimized convergence of actions in space and time, a convergence that is fundamental to the principle of concentration of efforts.

Thus, one of the contributions of the SCIs, relating to the principle of concentration of efforts, is linked to the ability to coordinate the action of the troops more effectively. Joint actions are combined and the effects optimised. For example, a UAV can detect an enemy presence and alert an infantry unit in the field before artillery fire deals with the detected threat. This example, simple in appearance, is only possible thanks to an interconnection of the information systems of the different weapons, and leads to increased effectiveness of actions on the chosen objective. Moreover, within the limits of the ranges of the weapons, the concentration of efforts can be de facto obtained without necessarily concentrating the means [2].

2] Moreover, from now on, "military power is no longer the result of the number of tanks, aircraft or ships one possesses, but of the capacity to produce a given effect by combining all the means at one's disposal" [3]. During the 1991 Gulf War, a total of 700,000 men were deployed, while 200,000 were needed in 2003. Admittedly, the Iraqi army was weakened, but in 2003, the American objective was to occupy all the territorial space (440.000 km²) and to reach Baghdad, whereas in 1991 the aim was simply to reconquer Kuwait and its 18,000 km². In Iraq, the fully digitised Stryker brigades have areas of operation three to five times larger than conventional units. A similar observation was made by the French units deployed in Côte d'Ivoire during the NEB trials. Proof of this is that the use of forces is now rationalized and concentrated on the most essential areas.

Finally, and as a logical follow-up to the improvement of joint actions, recent developments have led the SICs to allow a growing phenomenon of interarmization. The networking of command systems has contributed to gradually decompartmentalise the barriers between the different armies. Admiral Cebrowski, father of the American concept of Network Centric Warfare [4], considered that the networking of all military means would allow for superiority in the field of information, information being, in his view, the necessary condition for military success. He advocated that the different armies should stop fighting side by side to fight together. The progress made in recent decades has been immense. Suffice it to recall, for example, that during the first Gulf War, the Navy's communication system was not compatible with that of the Air Force.

- Economy of means

The principle of economy of means presupposes the desire to obtain the best ratio between the capabilities available to a force and the effects that are sought in order to achieve an assigned goal.

In human terms, geolocation makes this economy of means possible at several levels. First of all, as regards limiting friendly losses, in the first Gulf War, for example, 24% of American losses were caused by fratricidal fire. During Operation Iraqi Freedom in 2003, there was no fratricidal fire between BFT-equipped vehicles. 5] Knowing at all times where friendly units are located significantly reduces the risk of fratricidal fire.

Secondly, SICs make it possible to limit collateral damage. On 13 February 1991, the Americans bombed a bunker in Amiriya, Iraq. But the bunker had been turned into an air raid shelter, killing 94 civilians. This kind of "blunder" might be avoided today. In 1991, it took 24 hours from the time a target was detected to the time it was destroyed. Today, the time between the detection of a target and its destruction is counted in minutes.

Finally, the use of means is optimised and the use of force is proportionate to the effects to be achieved. The use of Precision Guided Munitions (PGMs) has increased significantly over the last twenty years: 8% of this type of ammunition was used during Operation Desert Storm, 60% during Operation Enduring Freedom and 70% during Operation Iraqi Freedom. In 2003, ten times less ammunition was fired for the same number of targets as in the first Gulf War.

The principles of warfare, which have served as a framework to explain the contributions of CIS in contemporary conflicts, are obviously complementary. Thus, the economy of means facilitates the concentration of efforts, freedom of action allows the economy of means and the convergence of effects. However, SCIs are not without limits, risks and vulnerabilities. These aberrations will be analysed on the basis of the "anti-principles" of war.

CIS drifts and the anti-principles of war

- Action paralysis

"The over-use of technology, especially in combat, presents the grave danger of undermining the autonomy of subordinate leaders..." [6]. [6] [6] Indeed, it is imperative to preserve the principle of subsidiarity, i.e. the degree of initiative of each level in the manoeuvre. SCIs offer the possibility of interfering in and interacting with the actions of subordinate levels: the risk of entryism is real. For example, in 1993, during Operation Restore Hope in Somalia, General Garrison commanded from a distance by means of helicopters equipped with cameras. The latter suffered a loss of reality with regard to the actions carried out on the ground, which ultimately led to a form of inertia conducive to the Somalis gaining the upper hand. This explains the shortcoming of "situation visualization", as opposed to "situation awareness" [7]: the leader may feel that he has a better vision of the situation than his subordinates. The right balance between the leader's need to know and the principle of subsidiarity remains a crucial issue. In France, our doctrine has clearly stated: "the chief avoids at all costs interfering in the conduct of the subordinate level" [8].

8] Another drift arising from the risk of entryism is the tendency to pull decision-making upwards. This phenomenon is due to the cognitive pressure of feeling observed. The subordinate tends to take less initiative, and gives in to the temptation to transfer the decision to his superior: he waits for his superior to make the decision by simply observing his screen. The tendency to postpone decisions can lead to a certain self-effacement on the part of the boss, or even to a form of paralysis in action.

Above all, the effective leader must resist the temptation to "know it all", because the contributions of SCIs can give this illusion: it is the syndrome of non-decision in the search for the perfect solution. A 99% safe solution takes twice as long as an "80% solution" [9]. Hence the risk of no decision being made or of a decision being made too late because of the illusory search for the perfect solution. Thus, the benefits of SCIs may lead to a lengthening of the decision-making loop rather than a shortening of it, a form of decision-making paralysis rather than faster decisions.

In the cases discussed above, the result is the same: SCIs create a risk of paralysis of action at the antipodes of the principle of freedom of action.

- Hyperconcentration of resources

Nowadays, it is no longer the lack of information that we should fear but the overabundance of information. Information is potentially available at all levels. This inflation of information is not a recent phenomenon. During the Vietnam War, the amount of information needed to coordinate American forces turned out to be twenty times greater than what was needed in 1945 [10]. More recently, the importance of information circulating within command posts has led to the creation of "information management" cells. It is clear that information must enable better decisions to be taken more quickly. Therefore, the whole challenge of information management is to transform the abundance of information into a tool of decision-making superiority.

Another drift linked to the development of CIS is the phenomenon of staff hypertrophy. The staff of the British division at Telic in 2003 was as large as that of the British Second Army in 1944. The staff of the 7th^{armoured} brigade engaged in Iraq in 2003 was 25% larger than for the first Gulf War and, today, the British staffs are four times larger than in 1945. This is not in line with the principle of saving resources and shows that the contributions of the CIS have been offset by organisational and technical constraints. It is essential to understand the human resources needed to analyse the surplus of data provided by the CIS.

A final drift is the financial cost induced by the modernisation of the armed forces and the mass introduction of new technologies. According to a parliamentary report [11], the cost of C4ISR [12] would represent 10% of France's military equipment budget. The effort made by France is substantial. However, as General Irastorza said, "The NEB is inevitable, the NEB is irreversible, but we must remain anchored in the real world". At a time when the crisis is leading to a constant search for budgetary savings and when the armed forces are often the first victims, this concentration of financial resources will have to be justified in the future.

- Dispersion of effort and saving of effort

One of the vulnerabilities of network warfare lies in the interdependence of network elements. If a key element of the network is neutralized, the overall capabilities of the force may be affected. It is therefore necessary to develop back-up functions and redundant means to deal with such eventualities. But it is also important to train people in the assumption and measures to be taken in the event of network isolation. In the end, all this contributes more to a dispersion of efforts than to a concentration of efforts.

Moreover, the impression of omniscience that the NEB confers is sometimes so conclusive that we are far from imagining that we could have any weakness in the SCI. The risk of network intrusion is a real danger and can quickly overwhelm the capabilities of even the most modern force. In 1990, at the time of deployment for the first Gulf War, the U.S. Department of Defense was subjected to two weeks of cyber attacks. Consequently, the implementation of new technologies in the armed forces must be accompanied by the development of means of protecting and securing networks in order to avoid the risk of an inoperative force.

"While digitization can help to dissipate the brouillard from the guerre, it must not cause the concrete perception of it to be lost" [13]. Indeed, the contributions of CIS can create an

operational illusion. Confidence in the information provided by new technologies is sometimes misleading. However, information on the battlefield is only patchy and its interpretation is subjective: it can be tempting to see what one wants to see.

Finally, it is appropriate to question certain practices inherent in new technologies guided by convenience, an "economy of effort". For example, transferring an e-mail is not always enough to fulfil one's duty to inform subordinates. But what leader has never fallen into this trap?

Conclusion

"While technology is a means of modifying the conditions of combat, it does not change the nature of warfare, which remains a profoundly human phenomenon" [14]. 14] Thus, CIS, a major tool of command, is fully in line with the principles of warfare. However, they require reflection in order to avoid their abuses.

Finally, it is up to men to appropriate with discernment and wisdom the new technologies in order to make them real multipliers of effectiveness and not the source of new frictions.

1] "Des électrons dans la brousse", Cahier du RETEX, CDEF, 2007.

2] Reference to Guy Hubin, "[2] Reference to Guy Hubin. Tactical Perspectives", Economica Edition, 2009

3] Jean-Pierre Maulny, "Laguerre en réseau au XXI^{ème} siècle", Édition du Félin, 2006.

4] Network-centric warfare

[5] Major S. Cattermull, British Army Review n°127, "Digitalization: its effects on the British way of fighting"

6] Helmuth von Moltke, Militärische Werke IV.1, Kriegslehren, p 42

[7] Jamel Metmati, "The Art of Network Warfare" l'Harmattan Publishing, 2010.

8] FT Manual 05, "Operational Command Experience for Tactical Leaders", p 38.

9] "Des électrons et des hommes", Cahier de la recherche doctrinale, CDEF, 2005.

10] "Des électrons et des hommes", Cahier de la recherche doctrinale, CDEF, 2005.

11] Jean Michel, Member of Parliament: report "Defence equipment of forces (space, communications, deterrence)", 2005.

12] Command, Control, Communication, Computers, Intelligence, Surveillance, Reconnaissance

13] Lieutenant-Colonel Zbienen, "Des électrons dans la brousse", RETEX booklet, CDEF, 2007.

[14] FT 02 Manual, General Tactics

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