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Principles and Bases of Operation Art within the Information Era

(Student abstract)

Topic 2 - Networks and Networking

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Abstract

Understanding how organizations have evolved as a result of the increasing use of information/and knowledge sharing and deepening networking interdependence should be considered a major issue for the military establishment as much as for the business communities in this Era where social networks play a central role. It is absolutely necessary to identify the challenges that each organization has to face and to assess its ability to act in such a dynamic operational environment.

This paper focus on the principles of Operational Art and on the overlapping influence between military and business fields. The ultimate objective is to be able to act according to need, at the right place and at the right time, carrying out operations that will achieve the desired effect. Close cooperation between actors will create the conditions for fast, coordinated and well-founded decisions. To improve its effectiveness, some organizations tend already to consider the benefits of Operational Planning and to explore the valuable contributions of Effects Based Operations and Network Centric Operations.

Overall, Organizations feel the emergent need to manage change and adapt to their involving environments, getting ready to face future challenges, inspired by globalization and stimulated by this informational revolution.

Keywords: Information Era, Operational Art, Operational Planning, Effects Based Operations, Network Centric Operations.

1. Introduction

The Information Era emerged soon after the Industrial Revolution. Its origins date back to the last half of 20th Century with the invention of microcomputers, optical fiber and personal computers and the launching of Internet/WWW. This fact rapidly changed the way organizations conduct their activities and improved its effectiveness.

"We are experiencing an exciting period in the Age of Information"¹, said Bill Gates (1995) stating that for better or for worse technology would transform our lives.

According to Manuel Castells (2002), productivity and competitiveness constitute the main processes of information/global economy. Innovation increases productivity, and flexibility increases competitiveness. Companies, regions, countries and economic units of all types had all along to refine their management processes and their services towards maximising innovation and flexibility.

Modern society's organizations are presently living the Information Era intensively.

¹ The Information Age, also known commonly as the Computer Age or Information Era, is an idea that the current age will be characterised by the ability of individuals to transfer information freely, and to have instant access to knowledge.

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They are often interconnected by computer networks and exchange information through the Internet, creating a more connected, interdependent and global world. Internet, a true “network of networks”, is multiplying itself into successive intranets that work as management systems for several complex productive organizations and is supporting the build-up of Information Society (Santos, Loureiro, 2001).

Consequently, is fair to say that the Business world, which is also the world wealth generator, developed a growing dependence upon the Internet. In all developed or developing countries, there is probably no single aspect of political, economic, military, social and scientific areas that do not rely on new technologies, computation, communications and information systems. Nowadays, organisations must be continuously in tune with current management trends and the evolution of markets and, as such, consider them in their strategic planning.

Presently, the main challenges that Enterprises have to face are, among others:

- Intense and ferocious competitiveness;
- Global Markets;
- Re-enforcement of strategy central role (decisions on how to compete);
- Scare resources (e.g. materials, fuel, etc.);
- Permanent pressure on operating costs reduction;
- Increasing environmental concerns (e.g. *green* products, recycling, etc.);
- Increasing ethical and social implications (e.g. social accountability).

Professor Aníbal Santos upon prefacing "Economy Tech" (Amaral, Luís, 2008), states that we are watching “the progressive transformation of the so-called industrial society into an information society (...) dominated by a vast assembly of technologies called “Information Technologies”.

It became therefore, a knowledge-based society, where the added value might be in activities related to scientific knowledge, generating a networked economy where communications and the markets operations are characterised by a high level of interactivity and interdependence. We are facing a brand new Digital Economy sustained and empowered by information flows distributed through networks that allow user access, enabling organizational processes and performing financial transactions in the market.

Information Society generated a new strategic confrontation arena for organizations in Cyberspace, where they can develop competitive operations or even combat operations, if considering the military approach.

Emergent challenges and new threats changed the nature of the strategic environment prompting a deep transformation in traditional military thought. Static defence requirements dwindled, aggravating the importance of strengthening Force Projection capability, making it expeditionary, modular and flexible.

The Information Age battlefield has no limits, becoming a multidimensional area of confrontation. This space includes all forms of Human interaction, ranging from

assembled battles to political debates and the conditioning of public opinion, exploring different instruments of power that include but are not limited to the traditional use of Force in the military arena.

this paper envisages is to analyse and confront, the military and business arenas, focussing on its principles and foundations, exploring different approaches and operational environments as well as their strategic and planning assumptions.

2. OPERATIONAL ART IN BUSINESS AND MILITARY ARENA

2.1. Strategy

In a conflict, the use of force is traditionally foreseen as a way to impose the will of an actor or to obliging other parties to accept its will. However, no doubts remain that the least expensive process for each "player" to reach its objectives is through persuasion or in other words, manoeuvring directly over the decisive point – the will of the other. This means respecting three well-known principles of War, perhaps the most important ones: objective, economy and moral forces (Santos, Loureiro, 2005).²

In terms of conception and planning, Strategy is considered at a higher level when compared with Tactics. It operates with a higher level of decision-making, where more importance is given to objectives, involving a greater degree of resources, time and space (Correia, 2002). Strategy conceives at a distance and in advance the answer to the **what, where, when, with whom** and **with what** questions, in order to correspond to the **what for** and the **against whom** statements defined by Politics. Thus, Strategy implies the choice of the field of action and manages structural, operational and genetic development of means and Tactics applies to immediate detailed actions, managing what is structural and ephemeral (Correia, 2002). At an intermediate level, between Strategy and Tactics, a specifically military field of thought/action called Operational Art makes the link between different battles, integrating them into a campaign in a more coherent way.

This Operational Art or Operational Strategy is an important subject in the military field of thought and is part of NATO³ doctrine. It can be defined as the leading force in the wake of the actual operations, conducted at the frontline, rearguard or backup positions, involving the tactical employment and logistic support of Military Forces.

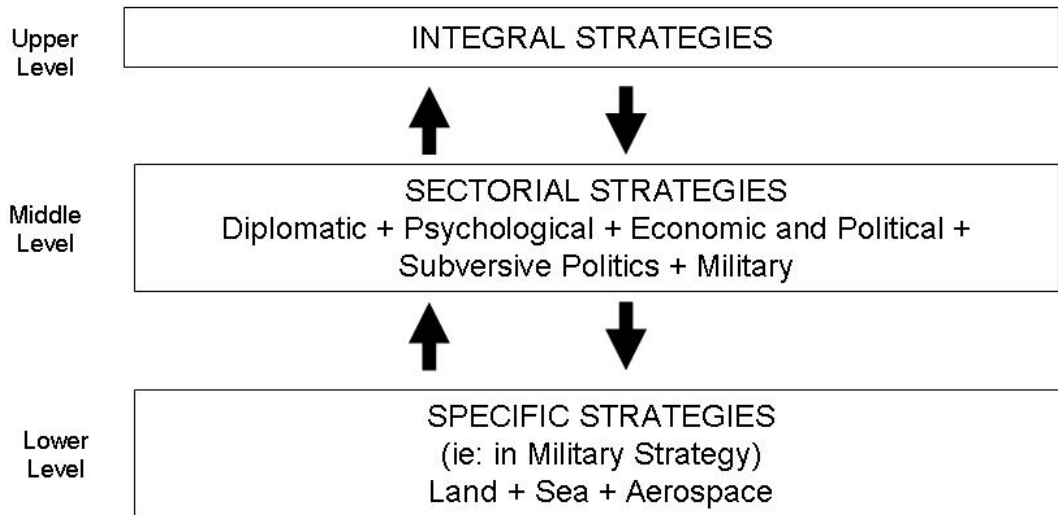
As a contribution to definitions and to differentiate Military Strategy from Business Strategy, Francisco Abreu⁴ defines National Strategy as being able to take on an Integral Strategy, when using several coercion instruments and a vast set of resources and capacities. According to the same author, Business Strategy can in a certain sense also to be looked at as an Integral Strategy, whenever an Enterprise

² Conference issued on 7 July 2005, the International Symposium on "New Challenges in the Information Age: The National Strategy for Information".

³ North Atlantic Treaty Organization

⁴ Francisco Abreu, degree in Organization and Management and Master in Business Strategy.

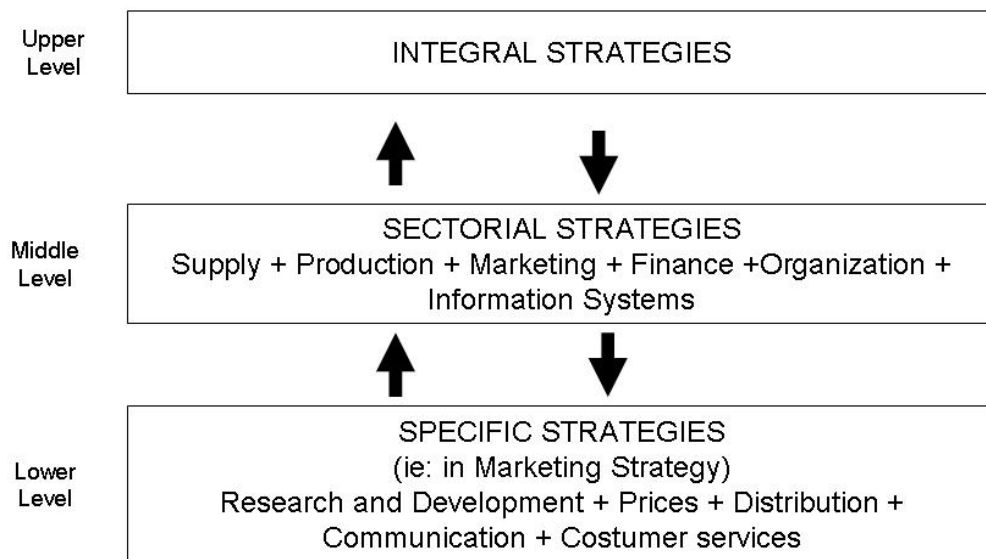
mobilises a substantial segment of its Strategic Potential with the purpose of pursuing non sector-based objectives.



Source: Abreu (2002, p.41)

Figure 1 – Military Strategy Framework

Differentiating Military Strategy and Business Strategy, emerges in the first case the potential use of Force, for the Business Strategy does not forecast the use of any kind of physical force. As shown in Figure1 and Figure 2, as a first priority, both have to contribute to the fulfilment of an upper level, the National Strategy. At an intermediate level, sectorial strategies diverge merely in their scope.



Source: Abreu (2002, p.41)

Figure 2 – Business Strategy Framework

Although some similarities and common aspects could be identified at upper levels, there is a fundamental differentiating factor between Military and Business Strategy dealing with the conflict resolution approach. On one hand, considering the

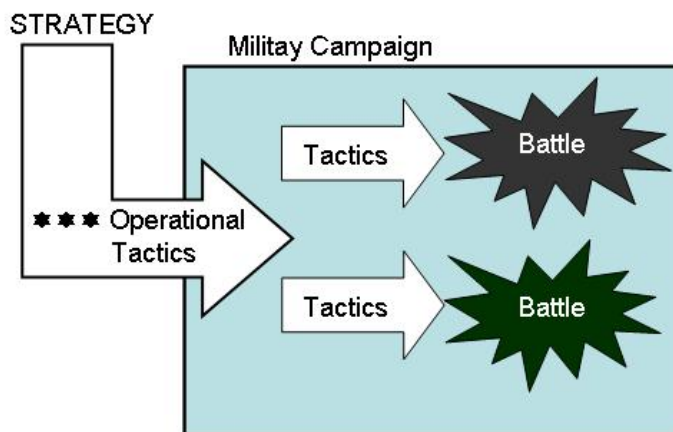
perceived national interests, the Military Strategy is subordinated to political objectives, aiming to preserve national security and welfare. On the other hand, Business Strategy must ensure that it is possible to do better than competitors, and must guarantee a decisive advantage perceived by all its stakeholders and stockholders. In brief, whatever its scope, Business Strategy must provide a conclusive and decisive result with high levels of profit value, customer satisfaction and better image/publicity.

Some substantial differences must be considered in the contexts of these two types of Strategy. Military Strategy always considers the possibility of a confrontation of wills. In the Business world, only in certain situations there will be two or more Enterprises directly disputing the same market.

The second difference resides in what is understood as a victory or defeat condition. From the military perspective the tendency is to define a "winner" and a "loser". By analogy, in the business perspective, the concept of defeat would mean bankruptcy or the take-over by the most direct adversary.

2.2. Tactics

Strategy defined and outlined, whether through a military or a business perspective, and Operational Art summarized, reference to Tactics must be made. Quoting General Cabral Couto (1988), it is the "science/art of using, in the best way, the military means and techniques available in the operational environment, with the aim to reduce an opponent through battle or the threat of battle"⁵. Relating Strategy to Tactics, the latter comes at a lower level, as it emerges in fact as an application.



Source: Dias et al. (2008, p.25)

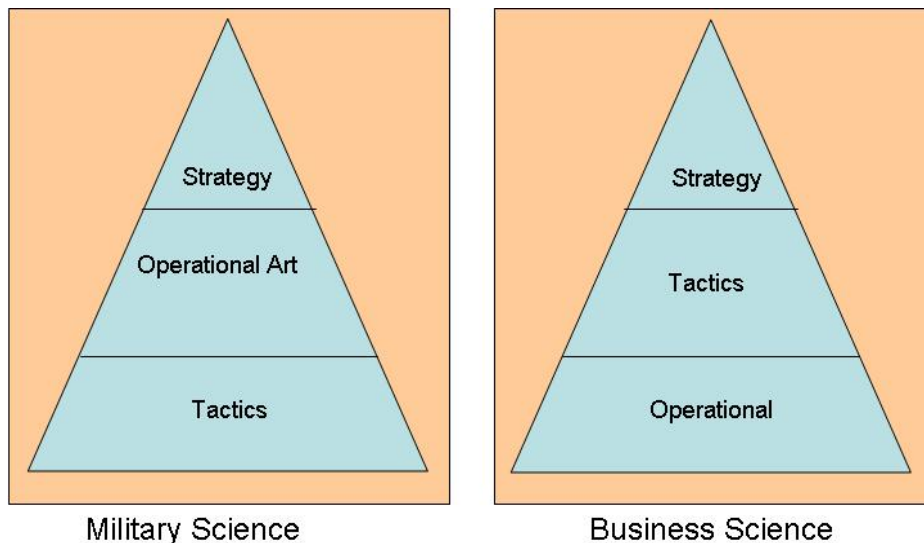
Figure 3 – Link between Strategy, Operational Art and Tactics

Yet In the last decades, with the evolution of warfare technologies it has become more and more difficult to identify a clear and simplified conceptual division

⁵ Couto, A., (1988) Elementos de Estratégia, (Vol I p.221), Lisboa: IAEM,.

between Strategy and Tactics.

The authors of the book "Portuguese Strategy" (Dias, Álvaro e al, 2008) state that "since the end of the 19th century, it has been very difficult to integrate the views of the strategist (who plans the strategy), of the others (who performs it) and the one of the tactical commander (who actually leads battles) in the same person, making even more difficult to have to exert an effective Command and Control (C2) of the Forces deployed on the battlefield. Associated to this incapacity of monopolising the management of the battlefield is also the incapacity of clearly imposing to the opponent's our Political will." Being battles related to space and time, they can take place in several domains and places, they can be prolonged in time and even the victories of tactical operations cannot be immediately or clearly translated to an upper level as a Strategic victory. Difficulties emerged therefore on understanding and applying the concepts of Strategy and Tactics and "Operational Art" appeared, purported to "lay the bridge" linking military plans and the effective operational use of Forces.



Source: Dias et al (2008, p.41)

Figure 4 – Conceptual Framework related to Military and Business Strategy

While at the Strategic level (see Figure 4) there are no major conceptual differences, at the Military Science level a link between Strategy and Tactics is created by introducing an intermediate level (the Operational Art). From the Business perspective, Tactics performs a hierarchically superior role considering activities at the Operational level, relating them to the Business Strategy. In Business terms the Tactical level operates the pre-allocation and the movement of resources, takes short term decisions, and creates specific plans and programs related to a certain business area. Tactical decisions are normally performed by Division Directors, Department Directors, and Operations Directors. The Operational level essentially deals with technical aspects, and managers'

responsibilities mainly involve the control of daily routines and procedural activities.

2.3. Operational Art

"Operational Art" emerged within the Russian military in 1920, referring to the deployment of military Forces of an echelon above Division in order to conduct Campaigns where specific ideas were formulated to engage Forces and conduct Battles (Dias, Álvaro, et Al, 2008).

The concept of Operational Art according to the Portuguese Army Field Manual (RC-130, 2005, p. 3-2) "is the judicious application of Military Forces in order to achieve military and/or operational objectives, through the conception, organisation, integration and conduct of theatre strategies, campaigns, operations and battles". Other authors don't define it by the scale of a military engagement, but as an activity: the connection between strategic-military objectives and tactical actions (Dias et al, 2008, p. 27). According to Portuguese military doctrine, Operational Art is in general terms perceived as a question of imagination and builds upon the capacity to weigh and combine the influences of time, space and available forces in order to obtain and maintain initiative and produce the military conditions for success.

Thus, Operational Art seeks to guarantee that Commanders use Forces, space, time and information, to efficiently interact in cybernetic, physical and moral domains, through the conception of large Campaigns and Military Operations. The physical domain includes resources, actions and the activities developed at the battlefield. The cybernetic domain includes C2 systems and the systems associated with decision-making support, including the capacity to process and release relevant information in a timely manner. The moral domain includes what we can designate as the Will (motivation and conviction), translating the behaviour of individuals and groups into the mobilizing need to reach objectives.

Although Operational Art takes into account a subjective component associated to the "inspiration" of the Military Commander, it also presents tangible elements associated with the Mission fulfilment and the definition of objectives that are mainly visible during the operational planning process by:

- Creating Operational Plans for and visualising how the Operation is going to develop;
- Determining the necessary links between the tactical engagement of Forces and the achievement of Operational and Strategic Objectives;
- Establishing Coordination Measures during the conduct of Operations as a base for creating sequence and synchronisation between actions and effects;
- Creating innovative ways to achieve the Endstate with the available means.

, Operational Art is made up of basic concepts that are fundamental for understanding how to apply in a logical and coherent way the available resources. Among others, and because they are considered part of Operational Planning itself, we highlight the following concepts:

- **Desired Endstate:** the political and/or military conditions that should be achieved at the end of an Operation and is considered to be favourable to the fulfilment of the defined conditions for success;
- **Objectives:** must be clearly defined and understood and work towards achieving the desired Endstate. .
- **Center of Gravity:** is defined as the characteristics, capabilities or places from where the freedom of action and the physical force of an actor comes from, as well as the will to fight of a Nation, an Alliance, a Military Force or any other Entity (Association or Group) (RC-130, 2005, p. 3-7). they may exist in the moral and physical domains, and may be tangible or intangible.
- **Success Criteria:** in order to achieve objectives, the Commander establishes criteria for success which contain the observable and measurable requirements, defined in accordance with the necessary conditions or effects, that must be achieved in moral, cybernetic and physical domains (as previously described), so that a given objective may be successfully achieved. Similarly, the Commander can also determine success indicators in order to achieve a certain objective. These indicators will allow the Commander to evaluate when an operation is reaching the desired conditions and effects avoiding, whenever possible, any undesired consequence.

3. Operational Planning

3.1. Fundamentals

Although Operational Planning may be applied to different levels (Strategic, Operational and Tactical), at the Strategic level it aims to achieve a Political Endstate based upon Strategic Objectives established by Political-Military Authorities. All are defined in accordance with the available resources and attending to possible constraints and limitations imposed by the operational environment. Operational Planning tries to translate the strategic direction and orientation into a set of integrated military actions, trying to determine the best way to run Operations, using available Forces and Capacities, in order to effectively achieve objectives with acceptable risks.

According to the Portuguese Military Doctrine, (RC-130, 2005, p.3-4), the aim of Operational Planning is to provide answers in order to guarantee that the following

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tasks are performed:

- Run the Operation in order to achieve strategic and operational objectives;
- Determine the necessary Force Capability to run the Operation;
- Projection and deployment of Forces into the Area of Operations;
- Logistic support;
- Explore and control the use of operational information;
- Command and Control arrangements;
- Cooperation with Civil Authorities;
- Forces Protection.

Today, Operational Planning is fully applied and is used to structure the planning of Operations and Military Exercises both at National and International levels, namely by European Union and NATO. At Business arena, objectives are seen as the desired results in any activity and, when not explicitly defined, "goals" and "targets" are synonymous of objectives. The purpose of objectives definition is to make the Mission more concrete achieving a clearer vision of the future path to be followed by an organization. They must also be quantifiable and easily carried out.

The military Operational Planning describes the sequence of actions that have a higher probability of reaching the required military conditions to achieve objectives and the desired Endstate. For every phase of the operational planning, the following aspects, among others, must be considered (RC-130, 2005):

- Evaluation of Operational Environment, including both military and civil aspects;
- Evaluation of existing capabilities, limitations and probable intentions or actions of opposition Forces;
- Operations should focus on achieving Objectives and the Endstate established by the Superior Commander;
- Implement the intention expressed by the Superior Commander;
- Convergence of actions towards the Center of Gravity of
- Protect our own Center of Gravity;
- Establish favourable conditions in Opposition Forces; Decisive Areas;
- Clearly define the criteria for measuring success and reach the Endstate;
- Ensure the availability of the necessary means to guarantee operations support.

In a business environment the following aspects must also be considered, (Teixeira, S., 1998):

- Planning must reflect the desired outcomes;

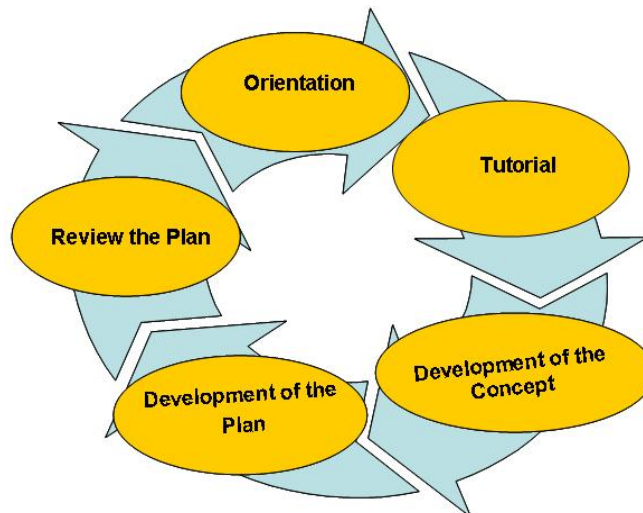
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- Define the critical objectives for success;
- Define the fundamental objectives and the measures that need to be implemented in order to improve performance;
- Considering the existing conditions, make sure that planning is essentially practical;
- Make sure that planning is defined taking into account the critical areas;
- Make sure that the planning is consistent.

3. 2. Planning Process

The military decision process is co-ordinated by the General Staff, searching for the best possible solutions to fulfil tasks or plan other tasks that may arise. Its aim is to adjust the planning process and procedures at several levels, to guarantee that political-strategic control is carried out throughout the whole planning process and to allow the conversion of political-strategic objectives into strategic-military objectives.

This process embodies five distinct phases: initiation, orientation, concept development, plan development and revision.



Source: RC-130-1. (2005 p 3-15)

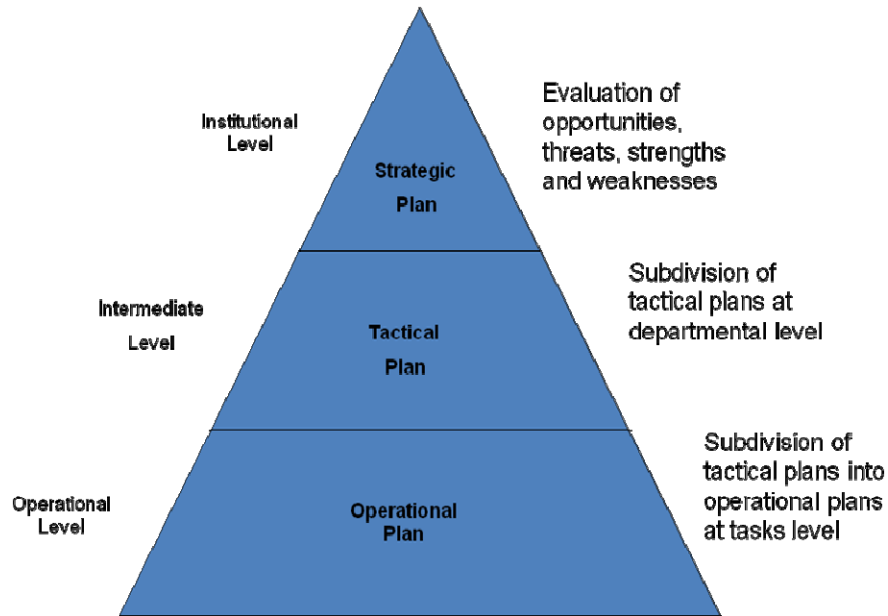
Figure 5 – Operational Planning Cycle

In business terms, in the planning process, like in any decision process, those making decisions must, at all planning levels (Strategic, Tactical and Operational) follow the phases of intelligence, design and choice (Reis, A.,2001). In the intelligence phase, alternative solutions must be prepared. In the design phase, these alternatives must be developed and, finally, in the choice phase, the most appropriate solution must be selected. In the Military planning process this is known as:

- Analysis of Course of Actions;
- Comparison of Course of Actions;
- Selection of the best Course of Action.

Thus, when elaborating a plan, several strategic development tools must be considered. Furthermore, the analysis of critical success factors, of the critical set of information services, and the analysis of objective dominant characteristics must also be taken into account.

In order to put strategic planning into practice, it must be used as a reference and implemented at intermediate and operational levels of management, where tasks are performed, evolving into tactical and operational plans, as shown in Figure 6.



Source: Teixeira (1998)

Figure 6 – Planning Levels

Tactical Planning is conducted at the Intermediate Management level and is a result of the unfolding of Strategic Plans. Operational Planning refers essentially to tasks and operations carried out at Operational level.

According to Paulo Amaral (2008), "Strategic Planning is not enough to guarantee the success of Strategic Management in Organisations mainly due to slow procedures and their poor performance in the field"⁶. Planning a strategy is only the basis for the understanding of the competitive environment, helping to choose a way to foresee its implementation.

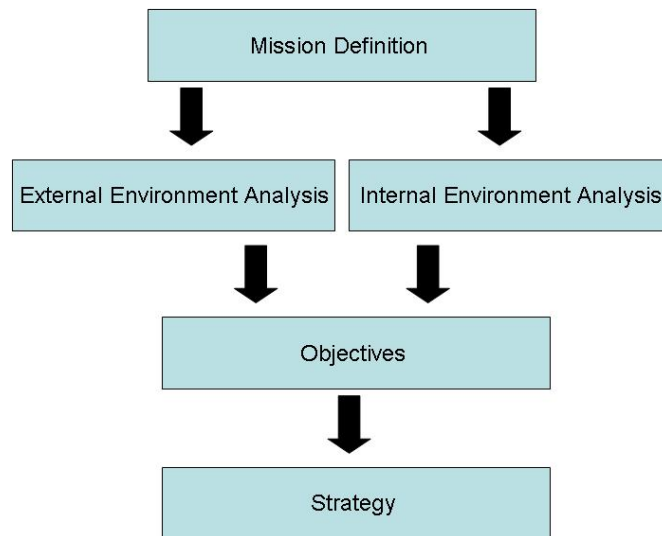
Strategic Planning begins with the definition of the Mission: the basic statement of principles to be followed by an Enterprise, which will determine the orientation of the main efforts undertaken to reach the intended Objectives. The second planning phase consists of analysing the internal and external environments of the Enterprise. SWOT⁷ analysis is traditionally used to detect opportunities and threats (external) as well as weakness and strong points (internal) of organizations and can be incorporated into the strategic planning process as represented in Figure 7. Another way to conduct the

⁶ Amaral, P., (2008), TOP SECRET, Lisboa: Academia do Livro

⁷SWOT strengths, weaknesses, opportunities and threats

analysis of the environment is also known as the PEST analysis, whose acronym corresponds to the initials of the main environmental variables arranged into four categories: Political, Economical, Socio-cultural and Technological.

The operational environment analysis or the execution of tasks to be developed is influenced by the positioning of stakeholders, or rather, by the degree of influence they exert or receive. The third phase of the Strategic Planning Process involves of the definition of specific objectives.



Source: Teixeira (1998)

Figure 7 – Strategic Planning

The Planning Process allows Enterprises to create a list of opportunities, to develop a segmentation matrix (products/ markets), to identify critical success factors that Rockard (1979) defines as being "a limited number of variables, for a given business and organisation, which if correctly managed, are sufficient and necessary to preserve the competitive performance, the evaluation of synergies and the presentation of proposals to define objectives and a macro-structure proposal of an organisation".

4. Effects-Based Operations

4.1. Conceptual Principles

In this new era of unrestricted conflicts, a small group of actors can develop specific actions and inflict damages at a tactical level, with catastrophic and disruptive effects, affecting the strategic posture of a State or coalition. In an attempt to respond to new competition and conflict models and to face different tactical and operational problems, NATO brought out an Effect-Based Approach to Operations (EBAO), at the source of the Military Transformation in course (Vicente, 2008). The need to adopt this new concept derives, according to Edward Smith (2006), from three new aspects of the security environment:

- The qualitative difference of asymmetrical competitors;

- Current spectrum of Military Operations;
- The growing complexity of real world Operations. .

According to NATO's official definition, it establishes the parameters for a "coherent application of different instruments of power, combining them with an effective co-operation with non-NATO actors involved, in order to create the necessary effects that will contribute for the successful achieving of the planned objectives and lastly, the Endstate desired by NATO". According to Edward Smith (2002), "Effects produced on the basis of co-ordinated operations are sets of actions which shape the behaviour of friends, enemies, and neutral parties in situations of Peace, Crisis and War (...). Since actions create effects (...) they represent a necessary approach to the National Strategy (...). As such, the concept of Effect Based Operations has become a key concept for the development of a Network Enabled Capability (NEC), facing the challenges of integrating different levels of security, when dealing with an environment that combines new and old threats." This means that this concept can be applicable when dealing with "new threats" at this level (Global Strategy) and is closely linked to Colonel Boyd's⁸ decision cycle (OODA – Observe, Orient, Decide and Act), meaning that each action has an effect, preferably being the one predicted. The overlapping of several effects, when coherent and correctly synchronised, will lead to the intended results. In this way, strategy articulation is needed and should be carried out, not only to reach an objective (Desired Endstate), but also to deconflict and synchronize the effects it produces (Vieira, 2008).

4.2. Effects –Based Planning of Operations

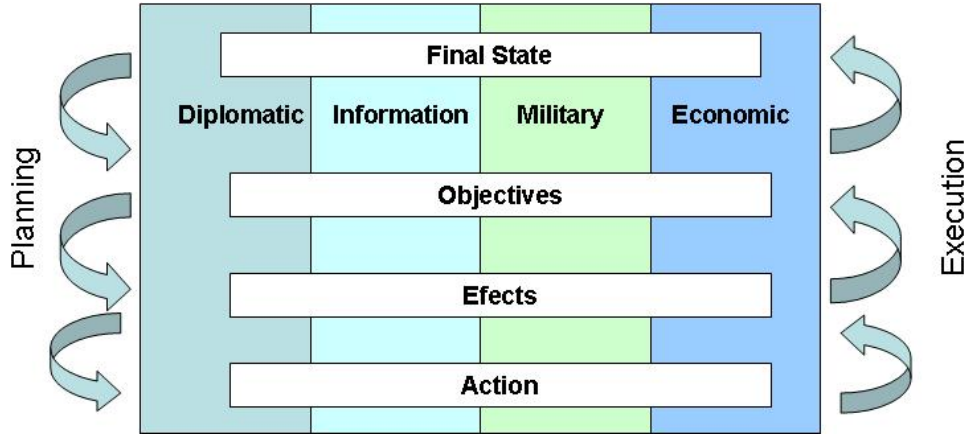
The Effects –Based Planning of Operations involves determining the desired strategic effect to be obtained and correctly defining the most effective and efficient set of actions needed to reach the Endstate. Thus, when pursuing an Effects-Based approach, the essential components of the planning process are (Vicente, 2008):

- Endstate definition, which is the condition aimed for at the end of all Operations, in accordance with the strategic objectives established,;
- The Objective, which is the clear definition of the intention to be achieved by the Endstate;
- The Effect to be reached, which is the physical or behavioural state resulting from an action, or a set of actions, caused by one or several instruments of National Power (Diplomatic/Political, Information, Military and Economic - DIME);
- The Action to be undertaken, defined as an activity that explores an instrument of National Power, in order to achieve an Effect, or a combination of pre-determined Effects, at all levels of the engagement

⁸ The **OODA Loop** (for **Observe, Orient, Decide and Act**) is a concept applied to the combat operations process, often at strategic level in both the military and commercial operations.

arena.

During the analysis phase, each of these components is evaluated by specialists according to their area of responsibility (see Figure 8): Diplomatic, Information, Military, and Economic.



Adapted from Zamarripa (2006)

Figure 8 – Effects-Based Planning and Execution of Operations

The military theory regarding EBO adapts perfectly to the business world, if we consider its planning process, in which the Endstate corresponds to the market positioning aimed for by a certain Enterprise in a given competitive market. The purpose of establishing objectives is also to clearly reach the desired Endstate, which in this case may have implications in several business areas such as Marketing and Innovation; human, financial and material resources; levels of productivity; social liability and dividends (profits). For instance, we may say that the desired effect in e-business has been to eliminate the physical elements of the value chain that do not play an essential role in business transactions. In other words, buyers and sellers interact through electronic links, which represent a fundamental change in the traditional way of "doing business". In an e-business system, interconnectivity and interactivity among the different actors involved should be guaranteed in order to make the outcome of their actions effective and to contribute to the achievement of the desired effect.

5. Network Operations in Business and Military

5.1. Military Arena

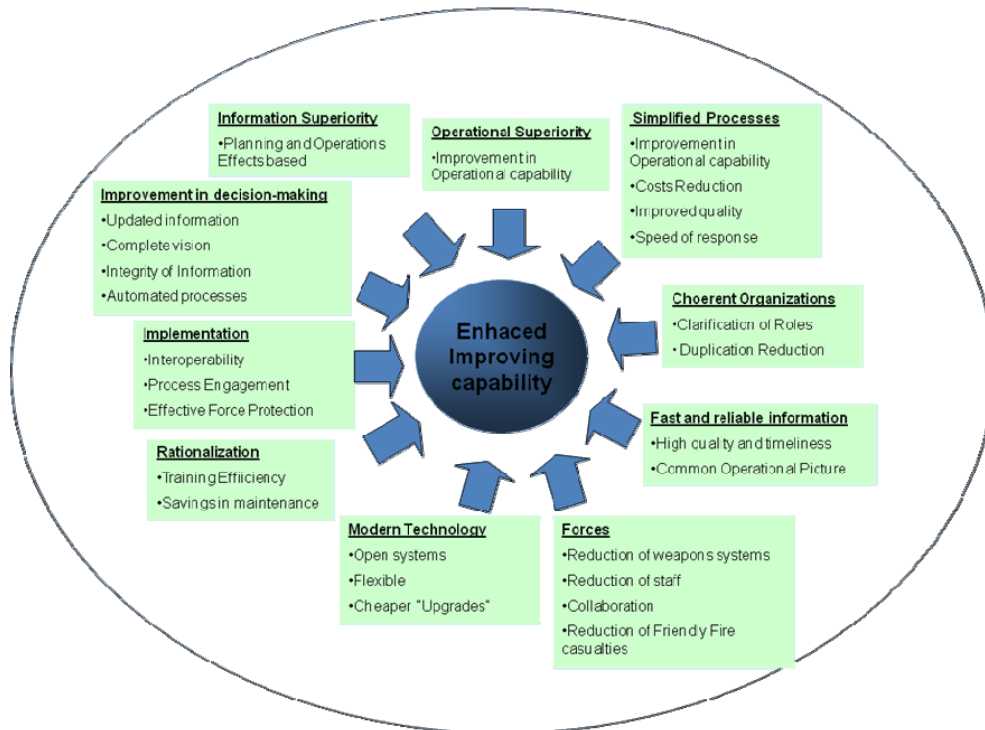
In a time where we are experiencing the so-called Revolution of Military Affairs, dominated by those who are able to achieve information superiority, NATO suggests the adoption of the principles of Network Centric Operations (NCO), as an essential requirement for obtaining the operational desired effects.

This vision results from the belief that a Force with a strong netcentricity improves its information sharing. The network connection facilitates the interaction between Forces who are able to share information and develop innovative ways to work in close cooperation and collaboration with others. Sensors, decision-makers and producers of

effects are all connected and work together in order to produce the desired effects. When the network is protected and accessible and has enough bandwidth to allow the distribution of the necessary information to the deployed Forces, it tends to improve the quality of interactions and the extent that those Forces are able to interact.

The sensors that collect data and convert them into information can be technological or human. The decision-making elements come from all areas, capabilities or processes of evaluation, predictions, simulations and planning and decision-making activities that are needed to reach decision superiority.

There are other structural elements such as the global network, defined as an info-structure that offers the physical linking capability needed to achieve connectivity between participants, the information sphere that contains the information needed to conduct operations and use the global network, which can be accessed by any participant, regardless of where he is connected. The human factor is also rather important, with its compelling complexity that involves both tangible aspects (individual, organisations and culture), and intangible ones, such as human interactions, uncertainty and confidence levels. All these structural factors are enhancers for the Force operational capability, as can be seen in Figure 9.



Adapted from Zamarripa (2006)

Figure 9 – Enhancing the Operational Capacity of a Network Centric Force

According to Manuel Castells, military units should become "basically multifunctional and highly dependent on their capability to connect to a network in order to obtain mutual support. As such, they would depend entirely on collecting and processing information. On the other hand, the technical interoperability of data processing, communication

systems and network protocols will be indispensable to conduct any kind of joint military operations (Castells, 2004).

Presently, the biggest operational challenge that has to be faced consists of applying netcentricity and an Effects-Based Approach to the current Operational environment, reflecting the way new technologies and the thinking behind Information Era can be structured in order to enhance their further development. (Nunes, 2005).

5.2. Business Arena

On the whole, Information Systems (IS) can offer multiple benefits to organisations. They go through organisations vertically and horizontally and can be classified as formal and informal. They can reduce costs, increase efficiency and effectiveness of organisations and, consequently, improve their competitive capacity. As such, large companies began to organise themselves into networks according to their operational needs at an appropriate market scale, supported by communication technologies that allow them to overcome physical distances. New information-based Economy, characterized by globalization and network operations become the product of the productive process.

The Internet is comprised of a vast network of interconnected computers and data processing systems which exchange and share information. Thus, it emerges as the first means of interactive and global communications, worldwide. It can be seen as a network of nets, which links thousands of computer networks that use the same protocol and address scheme (TCP/IP)⁹, interact and work together.

Thus, exploring this global network, e-business uses information technologies to support transactions between buyers, sellers and business partners, with the aim to improve customer service, reduce costs and increase operational flexibility of Organisations/Enterprises, allowing them to react and adapt to the dynamics of social interactions in the network. In this way, the traditional value chain theorized by Michael Porter gives way to a value network where all Enterprise activities (core and support functions) are networked, expanding its reach across Intranet, Extranet and Internet platforms.

6. Conclusions

The purpose of this essay was to make an analogy between military and business related concepts and terminology, not only by understanding how common fields and associated areas may be defined but also by analysing how they complement each other and interact in the Information Society environment.

The growing importance of information systems and the need to protect and secure their performance within a global network environment, based on sophisticated and powerful means of communications, presently deserve priority attention from Enterprises and Armed Forces.

⁹ TCP/IP - Transmission Control Protocol/Internet Protocol

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These are changing times and Information is the new world Economy currency. However, its operational use is twofold, revealing competitive and conflicting exploitation. It is obvious that Information Technologies are a driving factor and have a strong impact and influence at both military and business operations.

Facing different quantitative and qualitative asymmetries in modern conflicts, Effects-Based Operations emerged mainly because of the need to reach specific operational effects in order to reach a desired that can be defined not only at a battlefield but also within the context of a highly competitive marketplace.

If for the Military Operational Planning is of vital importance to reach a desired Endstate, for Enterprises it also reveals itself to be an important tool, helping them to monitor markets more effectively, provide better quality of service and reduce costs in order to promote better business results.

We are entering a world focused on social networks where structures are different, and intelligent nets are favoured when decision-making is powered by the value of exploring networking, using fewer structures and fewer people to achieve an organizational effectiveness.

Similarities may easily be found and should be explored between a Network Centric Enterprise and a Network Centric Military Force as well as between e-Business and Network Centric Operations.

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