MARITIME STRATEGIC EVALUATION FOR ISRAEL 2021/22

Chief Editor: **Prof. Shaul Chorev**

Editor: **Dr. Ziv Rubinovitz**

אוניברסיטת חיפה
University of Haifa
جامعة حيفا

HMS
Maritime Policy & Strategy Research Cente
המרכז לחקר מדיניות ואסטרטגיה ימית

Military Innovation on the Part of the Political Echelon – the Dolphin Submarines

Itsik Bilia

Introduction

Examination of the process which led to the delivery by Germany of the *Dolphin* submarines to Israel shows that Israeli politicians, and in particular prime ministers and ministers of defense, led to an innovative military concept of maintaining a set of submarines which would provide a continuous at sea deterrent. Those politicians realized that the need for submarines as a strategic system was vital for Israel, despite vociferous objections from the army chiefs, who preferred to invest resources elsewhere. This situation of disagreement between the political and military echelons, which led to military innovation is a familiar occurrence and the research literature has dealt with it. In this article, I shall present the theoretical model, alongside outstanding examples from world military history. Besides these, I shall analyze the Israeli case of the *Dolphin* submarines and the influence the political echelon had on their supply. Finally, I will briefly present another Israeli case, the Iron Dome project, which also demonstrates this kind of occurrence. [1]

What is military innovation?

The research discipline called military innovation is relatively new. What is military innovation? Adam Grissom distinguishes three components of military innovation: first, military innovation alters the way military frameworks function in the field. In other words, the military innovation has to find its expression in practical military activity, not merely as a bureaucratic improvement that has no effect on the battlefield. Second, military innovation has to be significant in its scope and impact. Minor changes cannot be regarded as innovation. Third, military innovation will inevitably lead to greater military effectiveness, where this is measured in the results on the battlefield. In other words, effectiveness which is expressed in battlefield performance at the tactical and operative level in terms of objectives accomplished, action time, casualties incurred to the forces in operation and to the enemy forces, etc. At the strategic level, one has to add the ability to retain deterrence vis-à-vis the

[1] There are other examples of strategic projects in the State of Israel which were the subject of considerable objections from the senior military command but which, through intervention of the political echelon, were carried out eventually – for example, the development of military satellites.

enemy over time. Grissom also introduces the different schools of thought which have emerged in an attempt to explain military innovation. The first focuses on the relations between the political echelon and the military echelon; the second focuses on inter-organizational politics, the third on intra-organizational politics, and the fourth on the organizational culture.[2] In this article, I will focus on the first model of military innovation – relations between the political and military echelons.

School of Political-military echelon relations-based military innovation

The school of thought on military innovation which is based on the relations between the political echelon and the military echelon was developed by Barry Posen. This school of thought claims that the relations between the political echelon and the military echelon are the significant factor in the formation of an innovative military concept. Posen bases his theory on study cases from the period between the two world wars, which include the doctrinaire changes which the armies of Britain, France, and Germany underwent. The British leaders were fearful of the German Luftwaffe attacks and pressured the military echelon to be innovative. As a result, the Royal Air Command set up an integrated, interlinked network of radars, Command & Control centers, and fighter squadrons which proved themselves in their counteracting the German aerial attacks on the British isle. The French political leadership, on the other hand, had failed in its attempts to press the French military toward innovation, which led to disastrous results when the German army invaded France and the French military was left with no countermeasure. On the other side, the German leaders were interested in a strategy of rapid conquest and pressed their military accordingly. The result was the Blitzkrieg – the famous combat doctrine which proved itself in their subduing of large swathes of Europe. According to Posen, the key to military innovation is through intervention of the political echelon in forming the military doctrines. This is usually done with help from officers within the military. Only thus can the military organizations be prodded into action, since they tend normally toward fixation in their positions.[3]

Grissom assembles additional examples of this model from other researchers. Edmund Beard's research, which deals with the development of the intercontinental ballistic missile system in the US Air Force, supports this model. Beard describes how a political appointment within the Air Force Secretariat, along with pressure

---

2 Adam Grissom (2006) The future of military innovation studies, *Journal of Strategic Studies*, 29:5, 905–934.

3 Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, NY: Cornell University Press, 1984).

from the Eisenhower administration to appoint certain officials, led to the historic shift in the US Air Force's concept and its preference of strategic bombers. Had it not been for the intervention of politicians, the US Air Force had planned to continue developing new generations of strategic bombers and would not have transitioned to develop strategic ballistic missiles. All this happened despite the doubts which arose as to the ability of the bombers to survive against the Soviet anti-aircraft systems in comparison with ballistic missiles, which exhibited better performance.[4]

There were also politicians in the Soviet Union who led to a change in military concepts during the Cold War. Senior politicians and officials pressed the military elite to design the appropriate Soviet response to NATO's new plans, such as the Flexible Response.[5] They did this by creating informal alliances with the military elite in order to drive the military forward and to advance their policy. Generally speaking, the standing of politicians in their debates with the military elite prevailed and had a great influence on the Soviet planning at the tail-end of the Cold War.[6] This model finds its expression also in the battle against non-government organizations and guerilla groups. A study which compared between the United States' inability to cope successfully with the counter-uprising in Vietnam, and the relative success of the British in their Boer Wars in South Africa, concludes that due to structural differences in the political systems in the two countries, British Prime Minister Lord Salisbury was given the flexibility and freedom of action to replace senior commanders in waging the war. On the other hand, US Presidents Kennedy and Johnson had to resort to micromanaging the fighting in Vietnam, and this prevented innovation. This means that the relations between the political echelon and the military echelon affected military innovation.[7] Grissom concludes that there are many examples in which intervention by the political echelon is what led to military innovation, and that had the political echelon not have intervened, the military would have been left trapped in its original concept.

---

4 Edmund Beard, *Developing the ICBM: A Study in Bureaucratic Politics* (New York: Columbia University Press, 1976).

5 Flexible Response is a nuclear strategy in which tactical nuclear weapons are used, allowing limited damage and avoiding total destruction of the enemy. This strategy was adopted by NATO as a way of dealing with the quantitative advantage of the Warsaw Pact armies.

6 Kimberly M. Zisk, *Engaging the Enemy: Organization Theory and Soviet Military Innovation 1955–1991* (Princeton University Press, 1993).

7 Deborah D. Avant, *Political Institutions and Military Change: Lessons from Peripheral Wars* (Ithaca, NY: Cornell University Press, 1994).

The First Dolphin Submarines

Already in the 1960s, the Israeli Navy had active submarines, but these were old models dating back to the Second World War, which had been renovated for the Israeli Navy. Beginning in the mid-1970s, the Israeli Navy operated a small fleet of submarines, consisting of three German-designed submarines built for Israel in shipyards in England. The new *Gal* Series submarines gained operational successes during the First Lebanon War, successes which increased the submarines' prestige in the minds of the military and political echelons. In the mid-1980s a task force was set up to plan the requirements for the next generation of submarines. Initially, attempts were made to build them in the United States and, after this failed, German shipyards were approached in an effort to harness the American aid money for this purpose. In the summer of 1989, Minister of Defense Yitzhak Rabin approved the project with the shipyards in Germany in the face of objections from the General Staff and the contract was signed in February 1990. The rise of the threat from the East, in the form of Saddam Hussein and his large army led the then-Deputy Chief of Staff Ehud Barak and others in the IDF elite to suspend the submarine project and prioritize force building which in their mind was more appropriate to cope with the Iraqi army. Barak preferred to invest the American aid money in the procurement of fighter jet squadrons and other means, and persuaded the then-Minister of Defense Moshe Arens to stop the submarine project while the penalties for project cancellation were still low. Thus, the decision remained until the expiry of the deadline agreed with the Germans and the contract was canceled in November 1990.

The preparations for the war in the Gulf diverted attention toward acquisition of other military capabilities and suspended the option of purchasing the expensive submarines. Following the outbreak of the Gulf War and the striking of Israeli population centers by Iraqi Scud missiles in January 1991, German Foreign Minister Hans-Dietrich Genscher arrived in Israel for a visit and met with Minister of Defense Moshe Arens.[8] He offered Arens German assistance in rebuilding the wreckage and in compensating those affected, but Arens rejected the offer and asked for real support for Israel's security, saying "We need two German submarines". Genscher, who was shocked by the string of tragic events in Israel, replied that he had no authority on this matter and promised to get back with an answer as soon as possible. A few days later, the German Military Attaché invited an Israeli delegation to Bonn

[8] The following descriptions are based on an interview I held with Hanan Alon on June 21, 2021. Alon was in charge of foreign relations in the Ministry of Defense between 1986 and 1992 and was head of the Ministry of Defense delegation in Germany between 1992 and 1997. The interview was held as part of my final research project.

to present Israel's requirements for military assistance. A delegation was formed in the Ministry of Defense, headed by Hanan Alon, Head of the Foreign Relations Division. Arens instructs Alon that the submarine issue was the most important and Israel was prepared to purchase the two submarines if Germany would agree to spread the payments over many years with favorable credit terms. In addition to the submarines, Israel requested Fox chemical warfare agent detection vehicles, lending of Patriot Missile batteries to reinforce the aerial defense system, a powerful radar, medicines, etc. Ahead of their departure, Haim Israeli, who had been the assistant Minister of Defense from back in David Ben-Gurion's days, showed the head of the delegation Alon the draft Israeli request which appeared in the protocol of the famous New York meeting in 1960 between Prime Minister Ben-Gurion and German Chancellor Konrad Adenauer, which included the original request for three German submarines. The delegation arrived in Germany and they were led straight to the office of Chancellor Helmut Kohl. The head of the Israeli delegation Hanan Alon with Israel's ambassador Binyamin Navon beside him, described the hard feelings in Israel when it transpired that German companies were involved in developing weapons for Saddam Hussein's army. How embarrassing was it for Germany that Jews, survivors of the German gas chambers, were sitting in airtight rooms wearing gas masks against missiles which German companies helped to build. Eventually, despite initial objections to the supply of submarines on the grounds that they were not related to anti-missile defense, the Chancellor became convinced that this was the hour the German commitment to Israel's security was being put to the test and he agreed to supply two submarines for Israel, to be fully paid for by the German government. The surprise in Israel was great and Arens couldn't believe his ears when Alon reported the German consent and the financing that went along with it.

The Dolphin II Submarines

In 2002, Prime Minister Ariel Sharon and Minister of Defense Shaul Mofaz decided to enlarge the submarine fleet from three to five vessels. This decision is of the utmost importance in all matters related to maintaining a continuous at sea deterrent capability, in other words, the ability to keep at least one operational submarine at sea at all times. This decision of the political echelon was met with resistance from Chief of Staff Dan Halutz. In an interview with Ehud Olmert, who was a minister and Deputy Prime Minister in the Sharon Government, he said that Sharon and Mofaz understood the importance of the submarines from the strategic standpoint and approved ordering two additional submarines from Germany in order to reach a fleet of five submarines. Chief of Staff Halutz, on the other hand, objected and claimed that a fourth submarine would be sufficient. When Sharon became incapacitated

and Olmert took over as acting Prime Minister, Halutz requested another discussion. Olmert believed the information had not changed and in view of Sharon's and Mofaz's vast military experience when compared with the IDF elite at the time, which was in his mind less experienced, he decided to approve the order for the two additional submarines, thereby completing the fleet of five submarines.[9] In addition, the first *Dolphin* submarines were only capable of remaining under water for a limited length of time since they were forced to come up for snorkeling,[10] which could potentially expose the submarine. The next generation of Israeli submarines included a combination of an advanced *AIP-Air Independent Propulsion* system, freeing it from the dependency on outside air and enabling the submarines to remain submerged for longer periods of time. This is a system comprised of fuel cells made by the German Siemens Company, which enable electricity to be generated silently by converting chemical energy into electric energy. This system is combined with the conventional Diesel-electric power, thereby prolonging the time the submarine is able to remain submerged. Such a capability of the submarine flotilla increases the submarine's stealth and resilience.[11]

Advantage of the political echelon in identifying a paradigm shift

In the case of the Israeli *Dolphin* submarines from Germany, the innovative concept of Israeli politicians, mainly Prime Ministers, came to the fore, having realized that the need for submarines as a strategic system was vital for Israel, despite vociferous objections from the army chiefs, who preferred to invest resources elsewhere. The case of the *Dolphin* submarines is an example of innovation in the military concept originating in the political echelon, rather than in the military echelon. Here too, one can suppose that the submarine fleet would have looked very different had it been up to the IDF alone. Former Navy commander, Admiral Ami Ayalon suggests an explanation for this: "The army is charged with preparing for war and is therefore occupied with aspects of an operative and tactical nature – it's all about winning naval battles and achieving superiority in the naval arena. When the submarine medium gained strategic importance and the potential for coping with an existential threat, this was a paradigm shift to which the army, being a large organization, had difficulty adjusting."

---

9 Interview with former Prime Minister Ehud Olmert dated May 23, 2021. The interview was held as part of my final research project.

10 Snorkeling is the function of a submarine when it rises close to the surface or uses a pipe as a sort of snorkel to capture oxygen with which to operate the Diesel engines and charge the batteries which will be powering it when diving deeper.

11 For more information on this propulsion method: Air Independent Propulsion.

The ability to maintain a military response when the entire area of the State of Israel is under severe missile and rocket threat, and bearing in mind Israel's relatively small dimensions and the limited number of air fields, the naval branch becomes the leading option for response and deterrence. The optimal possibility for preserving the retaliatory capability is in the sea. In this context, there is a conflict between the army's operational considerations, which are focused on winning the next war's battles, and strategic considerations of the political echelon, which is occupied with the question of the security and continued existence of the State of Israel. The *Dolphin* submarines rate differently in the priorities of the political echelon than in the priorities of the military echelon.[12]

Iron Dome as another example

Dr. Uzi Rubin, who was head of the "Homa" ("Wall") administration, which deals with the ballistic threat and is today a researcher in the Jerusalem Institute for Strategy and Security, examined the events which led to the development of the Iron Dome system in his doctoral thesis. He describes how the threat from rockets being fired from the Gaza Strip and Lebanon, and the results of the Second Lebanon War, affected the Israeli politicians' awareness of the threat rockets posed to the Israeli home front.[13] The then Minister of Defense Amir Peretz, asked the Directorate of Defense Research and Development (DDR&D) in the Ministry of Defense to evaluate various options for coping with the rocket threat. There were several options on the table: the Iron Dome system from Rafael, which is based on launching interceptor missiles; the Skyguard system from Northrop-Grumman, which is based on a chemical laser; and a system of rapid-fire, radar-guided cannons from Raytheon and Lockheed Martin. The minister of defense formed a committee, headed by the scientific deputy head of the DDR&D to examine the various options. The committee selected Iron Dome as the most suitable solution. There were many opponents to the Iron Dome system. Some had links to the alternative solutions, mainly Skyguard, and some were senior members of the military echelon who thought that active defense was a mistake. There are several reasons for the objections from the military echelon. Some considered this system to be an expensive, unnecessary system since the rocket threat was considered a tactical, not strategic threat to the State

12 Interview with former Navy commander Admiral Ami Ayalon from April 25, 2021. The interview was held as part of the research report I wrote.

13 "The Israeli security forces' ability to adapt to revolutionary changes in the strategic environment: Active defense as a case study", Bar-Ilan 2018. This study was published as part of his book *From Star Wars to Iron Dome: The Battle over Active Defense in Israel*, published by Efi Melzer, 2019 [Hebrew].

of Israel and therefore there was no reason to invest so many resources to solve a tactical problem. They believed it was preferable to dedicate these resources to the operational and strategic levels. Minister of Defense Amir Peretz, who is himself a resident of Sderot – a front-line community – disagreed with this opinion and regarded this threat, both from the Gaza Strip and from Lebanon, to be a strategic threat for which Israel had to prepare with all its existing means. Another source of resistance was a military concept of the IDF senior command, that active defense would result in a situation where the offense value, which is an overriding value in the IDF, would be degraded due to the diversion of the precedence to defense. Senior commanders were worried about the implications of using such a system on the desire to directly confront the rocket problem. Senior officers spoke out against the Iron Dome system even after it had exhibited impressive performance during Operation Protective Edge. They claimed that Iron Dome was "the new Maginot Line" since it had the same disadvantages: astronomical cost at the expense of assault resources, creating a false sense of security and atrophy for the military's offensive thinking.[14] Of course budgetary considerations were also on the minds of the objectors since this meant lengthy development requiring hundreds of millions of Shekels in investment spanning development through to procurement and maintenance. There were also senior Air Force officers who considered this an impractical solution and even one which would endanger the activities of the Air Force aircraft. The political echelon disputed the military's position and insisted on pushing forward with developing an active defensive solution. A good example that demonstrates the disparity between the political echelon's point of view and that of the military echelon's, can be seen in Ehud Barak's activity. While he was serving as Chief of Staff, he objected to a solution that would be based on active defense as a matter of principle. After he succeeded Amir Peretz as minister of defense, Barak became a supporter of the development and procurement of the Iron Dome system. Barak even found a way to harness the United States to take part in financing the Iron Dome project, thereby reducing the tensions with the IDF heads over the issue of budgeting this system.

Conclusion

The procurement of advanced submarines, which operate in secret, and which are capable of lengthy underwater stays, provides Israel with strategic depth. It seems that Israeli politicians noticed the importance of this system, which directly

[14] Brigadier-General (Res.) Dr. Meir Finkel, Iron Dome – The New Maginot Line? *Ma'arachot*, 461, June 2015 [Hebrew].

influences the battlefield and provides a continuous at sea deterrent. The IDF senior command, on the other hand, objected to this system. they considered it to be superfluous, with no direct influence on military victory in the next war and a waste of considerable resources, which should be directed toward systems of higher operational importance. This innovativeness in the military concept came from the ministers of defense and prime ministers who had to face off the IDF senior commanders and insist on having this system. Had this matter been left to the army chiefs alone, it is doubtful whether the State of Israel would have had a sufficient number of submarines to enable continuous at sea deterrent. Likewise, regarding an aerial active defense system, the likes of Iron Dome, which provides protection for the home front with its high percentage of rocket interceptions. I have no intention in this article to reach a decision in the dispute, which is still simmering, over the negative effects of using the Iron Dome system, however there is no doubt as to the military innovation it brings to bear both technologically and conceptually. These two innovative military concepts, continuous at sea deterrent and active defense are the outcome of the political echelon's intervention despite objections from the military echelon to these concepts. The two concepts represent military innovation since each one alters the way military frameworks function in the field. They are both significant in their scope and lead to increased military efficiency, which is measured in the results on the battlefield. Both the above cases add on to other examples cited in the research literature, which represent the model of political-military echelon relations and its effect on military innovation.