More of the Same
The Need for Conceptual Leap in Force Design

Aharon Haliva

While much of the IDF’s force design efforts require an enormous investment of resources, their contribution to Israel’s security is limited. This is a sign of being trapped in the “more of the same” syndrome, a phenomenon that obligates a system to invest increased resources for diminishing production. Avoiding this trap depends on a conceptual leap, whose guidelines will be presented in the second part of the article.

A metaphor for the IDF trend can be seen in transportation infrastructure. Israel has seen significant new traffic infrastructure in recent years. It seems that every familiar intersection now has a newly constructed overpass or junction, while safer roads are being paved in place of treacherous routes that were the bane of modern vehicles. While these efforts are welcome, it appears that the more budgets for overpasses and roads grow, the time needed for morning commutes to work only grows longer, and the parking problems in the big cities become more and more acute. Most people already know that even though traffic infrastructure is important, there is no way that it can significantly change the reality of crowded thoroughfares in the big cities by itself. Research even shows the contrary - the paving of roads encourages the use of private vehicles and increases traffic in cities.

There is absolutely no way that any country, especially one that is densely populated and not especially affluent, can pave roads at a pace equal to the increase of travel in private vehicles. “More of the same” is not only not beneficial, it is detrimental. Experts from around the world are encouraging change in the paradigm of transportation - from a culture of the private vehicles prominent in the 20th century, to a culture of efficient public

1 General Aharon Haliva is the Head of the Technological and Logistics Directorate. The author wishes to thank Col. Eran Ortal for the educational meetings and discussions that led to the writing of this article.
transportation networks that are well-suited and synchronized, and include fast trains, municipal trams and buses, and combined transportation (public and private) to create a system of complimentary solutions. These solutions do not replace the need for private vehicles, but stress the exclusivity and prevalence of the current transportation concept.

Another example of this pattern is Israel's Sea of Galilee. Most Israelis grew up with billboards and television commercials beseeching us to "save every drop." Residents were called to save water in their parched country while anxiously following the declining level of the Sea of Galilee. In the previous decade, it became obvious that Israel's potable water resources, no matter how much they were improved or efficiently managed, no matter how much Israelis were indoctrinated to “save every drop” and prices were raised - were simply insufficient. “More of the same”
will not meet a country's water needs with a growing population of more than eight million thirsty souls. The paradigm had to be breached. New water resources had to be created, which included desalinization and treating recovered wastewater.

“Strategic Posture” and “Readiness”

The IDF’s multi-year plan, Gid’on, coined the phrase strategic posture as an encompassing term for the IDF’s powerbase - the scope of its forces, independent manufacturing capabilities and strategic inventory. A well-known Israeli entertainer, Yossi Banai, wrote a comedy sketch in the mid-1980s after the peace accords with Egypt were signed. Banai voiced a common and popular phrase at the time, “Everyone knows that the Golan is an inseparable part of Israel!!” to which many Israelis in attendance responded with applause. But then Banai, his face beaming with political embarrassment, naively added, “Just like Sinai.” The Israeli comedian shows us the truth behind the sharp slogans with exclamation marks. They often point to embarrassment and deep insecurity. The increasing use of the term strategic posture embellishes the embarrassment and the increasing understanding among Israelis concerning the ability of Israel to continue and maintain its industrial and scientific manufacturing capabilities that the Jewish state has become used to.

In the past, these cornerstones ensured the IDF's qualitative advantage. The Ministry of Defense's current buying power is finding it difficult to continue and ensure the existence of Israel's security industries and the foundations of the qualitative edge that they encompass. Moreover, the IDF finds itself with deficient ammunition and equipment inventories as a result of frequent cycles of combat in the Gaza Strip, which are demanding in nature from the operational perspective and in their ammunition consumption.

This article will attempt to address the term strategic posture, and its complementary phenomenon, readiness in general,

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2 The Sinai Peninsula was captured from Egypt in the Six-Day War of 1967 and adored by Israeli society, was returned as part of the peace agreement.
and the emaciation of inventory in particular, in a broader strategic context. The continued erosion of the IDF’s order of battle and logistical readiness is but another symptom of the IDF’s current state, just like any other military that is exposed to paradigmatic tension.

My claim is that the immense and continuous investment in key combat platforms, inventory and readiness, is comparable to the investment in overpasses and roads, but does nothing to for a sustainable long-term solution to the problem itself. In infrastructure for roads, and for strategic positioning and readiness, our focus on these painful problems is just more of the same, and it prevents us from taking steps towards the immense changes that are required.

This is not to say that we oppose operational readiness of forces and preparing sufficient inventories. If we return to the transportation parable, then it is clearly wrong to stop paving roads. The IDF must be ready at any given moment for combat, and its forces, commanders, equipment, and the logistics they require, must be completely prepared. Along with these, our intention is to point out the need to create an applicable conceptual vision that will break the vicious cycle in which we are trapped.

The Continuous Reduction in the Order of Battle

Augustine’s Law Number XVI, written by Norman Ralph Augustine, an aerospace engineer who would serve in many senior positions in the aerospace industry including CEO of Lockheed-Martin, dictates that in the year 2054, the entire defense budget will purchase just one aircraft. This aircraft, the tongue-in-cheek law continues, will have to be shared by the Air Force and Navy 3-1/2 days each per week.

The law is intended to clarify a fact that cannot be argued with - the technologically rich combat platforms of Western militaries are becoming exponentially more expensive, far beyond the growth (and often reduction) of defense budgets.

The IDF is clearly not exempt; the increase of the defense budget does not meet the skyrocketing costs of core combat
platforms. While the IDF has developed its own advanced intelligence and attack capabilities over the last several decades, rarely has the IDF initiated a reduction in its scope of forces. This is the result of a planned exchange of elements in the order of battle with other capabilities.

For example, the IDF has developed a magnificent, world-class array of unmanned aircraft. This array replaced most of the filming missions traditionally carried out by combat aircraft.

However, the reduction in the number of fighter jets in the Air Force over the years is not considered by most as a step that was taken in coordination with the scope of tasks allocated to these unmanned aircraft. On the contrary, the scope of missions for both these arrays, manned and unmanned aircraft, is continuing to increase, regardless of the relationship between them. “The red line for aircraft” is a phrase first coined by the Minster of Defense, Ariel Sharon, but that line has been moved again and again, just like the red line for pumping water from the Sea of Galilee.

Despite the growth of “new” capabilities (most of them the fruit of the intelligence and attack revolution of the 1990s), the IDF's internal analyses are inclined to point out ever growing requirements in all dimensions - the scope of ground troops required, the scope of the need for intelligence collection aircraft, various types of ammunition, aerial munitions, armored personnel carriers that are better protected and many active defense systems that are even more sophisticated than before.

In 2003, the Israeli defense budget stood at NIS 46 billion. A decade later, in 2013, the defense budget stood at NIS 60.3 billion (Bank of Israel data - actual budget). In spite of the budget's increase in real terms, there was no feeling of relief in the IDF: not in terms of the order of battle, not in terms of readiness and inventories, and not even for UAV platforms - a central part of the increase in the order of battle. The resources are simply not keeping pace with the operational requirements.

Despite the continuously increasing investment in platforms - new armored vehicles (Namer APCs and Merkava Mark
4 tanks), fighter jets (F-35), surface vessels and mid and high altitude UAVs, it appears that these investments are not contributing to a feeling of progress in operational effectiveness. In fact, nothing could be further from the truth. The IDF is lacking forces, and the more advanced the new vehicles, the more the previous versions are considered unacceptable on the battlefield. The IDF is finding it hard to explain what many on the civilian side of the question often see as a paradox - while the military threat from Arab armies is dissipating, the IDF's appetite for new combat platforms is becoming insatiable. 3

**The Emaciation of Inventory**

The Gid'on multi-year plan also introduced the term *emaciation* to describe IDF’s lack of combat inventory following repeated cycles of combat. And the truth is, ever since the Second Lebanon War there is the impression that after every limited conflict, the IDF finds itself in a state of limited inventory. Following every operation, the IDF is required to embark on a costly, continuous and complex process of inventory procurement.

And what is the conclusion reached in the IDF? Prior to embarking on an operation, we “adjusted” the models.

For those not familiar with military jargon, modern warfare is both art and science. To ensure their military capabilities, modern militaries are required to assess the amounts of various kinds of ammunition necessary for combat. Therefore, to make the best preparations and be as accurate as possible, defining who the enemy is and how long the conflict will last are paramount. These two parameters are supposed to enable military planners to assess the scope of ammunition consumption and the types of ammunition required.

War is a realm of uncertainty, but militaries do not have the privilege to avoid these kinds of preparations - incomplete preparations result in a military being ill-prepared for war. However, over-preparation means a reduction of the budget

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3 See for example, *Dare to Win: A Security Policy for Israel* by Ofer Shelah (Tel Aviv: Yedioth Ahronoth, 2015).
available for military buildup requirements (new and advanced weapon procurement) and training. Every operation over the last several decades once again "surprised" the IDF in terms of the ammunition required. After every operation, models were updated, procurement was carried out according to new models, and then we were surprised again in the following operation. Do inventory models need to be updated again? So there will be even more stock available? It is obvious that we are stuck in a vicious cycle of “more of the same.”

The repeated failure of the ammunition consumption model led the IDF to conclude that the problem stemmed from the inability to control the scope of this consumption. The IDF responded accordingly - it strengthened the command and control mechanisms, introduced a plan for the concentrated management of ammunition, but still, it seems that every operation requires significantly more ammunition than was predicted beforehand. The command and control mechanisms were of little benefit.

Concerning ammunition for ground forces, speculation was raised concerning the problem of managerial incompatibility between the authority of the Ground Forces Command and the Technological and Logistics Directorate. The current process of merging these two bodies solved this conflict.

Do we now feel that when the IDF realizes its preparation objectives and completes the merging of the Ground Forces and the Technological and Logistics Directorate, we will finally see consumption levels that match predictions? Has the IDF's real problem concerning ammunition consumption been solved? Is there a relevant forecasting model for ammunition consumption when the IDF’s strategic operational method repeatedly reverts to a pattern of fires operations based on the attrition approach? Does air and ground ammunition consumption in Operation Protective Edge, for example, meet any acceptable standard for the number of terrorists that were killed?
The Logistics-Maintenance Crisis

For the last 20 years, there has been an ongoing discussion about the IDF’s abilities to transport its armor platforms, the need to renew the Technological and Logistics Directorate’s semi-trailer tractors, the lack of competence among logistical echelons of combat units, and the lack of spare parts. In the field of transportation, the IDF's current fleet of tank trailers are aging; many of the logistic trucks have been in service for four, and even five, decades. Here too, there was improvement in the IDF's capabilities in this area. And yet, the more the IDF purchases new combat platforms (Merkava Mark 4 tanks and Namer APCs), the more the current daunting transportation challenges become more acute - and they do not always receive adequate solutions.

In the field of maintenance and logistical endurance, the issue of spare parts emerges. The spare parts for the Merkava Mark 4 tank and Namer APCs are significantly more expensive compared to previous models, which means the IDF purchases less of them. This of course leads to a decrease in the IDF's ability to maintain the platforms' competence for the time required for extensive operations. This is logistical endurance. At the end of the day, the transportation and maintenance challenges are only becoming more intense: the new platforms are much heavier than their predecessors, few of the trailers are capable of taking them to the front, and so the IDF's strategic flexibility to transport forces to the front is mitigated. The complexity of maintenance is increased, which decreases the ability to return armor to battle competence during combat. The bottom line is that the IDF's realistic order of battle is even smaller.

In the field of ammunition, the IDF is investing in smarter and more innovative types of ammunition, so they are more expensive. However, in spite of efforts invested in the field of intelligence collection and command and control systems, the "disappearing enemy" has been successful in not becoming an easy target. So we are spending more on ammunition and consuming more of it.

The IDF's logistical needs in general, and those on the
ground in particular, are continually multiplying despite the overall reduction of forces. The pace of the growth and sophistication of the logistical arrays are unable to bridge the gaps.

**What is happening here? What is the “more of the same” that is ensnaring us?**

Ever since the mechanized revolution that took place between WWI and WWII, conventional militaries, including the IDF, have defined themselves by the scope and quality of their combat platforms. This was the concept of the industrialized masses. Platforms such as tanks, artillery cannons, aircraft, APCs and ships were what defined the potential power in a military's arsenal. Competence, readiness and compatible operational concepts were required for effective employment of this force, but the basis remained the masses of platforms.
The platforms defined the modern approach to logistics. Since the wars of attrition in the 19th century, and even more so in the 20th century, war has been defined by military might on the battle field on one hand, the ability to create resiliency in the home front on the other hand - and the logistical capabilities that connect the two. J.F.C. Fuller claimed that the real revolution of air power is related to the strategic movement of logistic forces.\(^4\)

Just like the parables presented from the fields of transportation and water, military empowerment also appears to be a subject where the more we try and bridge gaps by familiar methods, the more these gaps widen. We are caught in the “more of the same” trap. Several of these current gaps are relevant to the IDF:

The gap from the economic perspective - There is no modern Western country that is willing to bear the economic responsibility of maintaining the size of its military while it preserves a reasonable level of quality. According to Augustine’s laws, this option does not exist. The modern air, ground and sea platforms improve the tactical combat effectiveness on one hand, but challenge us even more from the perspective of our logistical endurance on the other.

The gap from the strategic perspective - The IDF is improving the lethality of its infantry. It is procuring shoulder-fired missiles, mobility is enhanced by Namer APCs are protected by active armor (the Trophy system), and it is able to produce fire power with precisely guided weapon systems. And yet, ground forces remain vulnerable. There is always a weak link. The concern over injuries among ground forces brought decision makers to prefer, as much as possible, war from the air. But wars fought from the air tend to be longer, more expensive, and more frequent.

In the last decade, the IDF has led four broad operations such as these. In this area as well, in the operational context, the IDF’s ability to locate the enemy has very much improved, but its capacity to attack enemy targets and turn intelligence into

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destruction within a relevant timeframe remains unsatisfactory, in spite of the vast improvements that have been achieved. The IDF's power has become more expensive, but its strategic effectiveness has not improved proportionally. And even more severe, on the tactical level, the more commanding officers in the field find it difficult to actually see the enemy, the more the consumption of costly ammunition increases. Anyone who has ever fought against a “disappearing enemy” understands that this an unavoidable turn of events.

The gap from the technological perspective - While the technological and business world outside the IDF deals more with software and mobile apps, while developing sophisticated integration and new ideas, the IDF continues to develop the next generation of platforms. Moore's law (the exponential development of the number of transistors per inch in computer processors) represents the collection of business, social, technological and conceptual revolutions in the civilian world, all of them dramatic. It mainly causes products to become more sophisticated, cheaper and smaller, and connects all of these traits. This revolution has only mildly influenced the employment of military force and its effectiveness.

The IDF needs a conceptual change - one change of essence, not of quantity.

There Needs to be a Transition from Platform-Based Warfare to Network-Based Warfare.

The prevailing opinion in the IDF is that the regional strategic situation provides a window of opportunity. The question that must be asked is: How do we make the most of it? Will we continue to invest in efforts that are mainly more of the same, or will we embark on material military transformation processes - concepts, weaponry and organization? My position at this point is clear.

Ever since the 1990s, the term network-based warfare, as opposed to platform-based warfare, was understood as a vector for a revolution in military affairs that was making its way into the
military world. The combination of precision-guided munition and sophisticated intelligence-collection systems that communicate between them through digital systems resulted in new concepts of warfare. Concepts such as the American air-ground battle led to new military organizations and created new forms of warfare, some of which were seen in the two gulf wars against Iraq.

However, the revolution in military affairs that took place in the 1990s focused on the creation of intelligence-attack asset bodies on the highest of operational echelons (divisions, regional commands). The tactical levels (brigade and below) basically remained the same. According to Western military thinking of the 1990s, ground forces would engage enemy forces that had already been identified and attacked by the combination of divisional intelligence and attack assets, and therefore ground forces can remain as they were in the past.

As long as ground forces fought other regular forces, this assumption was valid. But, the enemy was not resting on its laurels, which should be a surprise to no one. In Iraq, Afghanistan, Lebanon and the Gaza Strip, American and Israeli ground forces still have not had to face units from regular militaries over the past decade. They found themselves in combat with irregular enemy forces who were not exposing themselves to sophisticated intelligence collection capabilities until there was a tactical engagement.

Only then did the tactical combat turn into an endless series of encounters and ambushes where the weaker, irregular side, defined the location, time and usually the duration of the battle by its own initiative. In other words, while the enemy did concede the idea of conquering or protecting ground assets, it was compensated by the fact that it had the right to initiate battle and to disengage - almost at whim. Since the enemy was not spotted prior to the engagement, missions to secure the forces' flanks dramatically increased over time. This required the allocation of more and more forces for every mission.

And since the enemy had been equipped with long-range precision attack capabilities, such as advanced anti-tank missiles,
light and sophisticated ground-air missiles, tactical mortars and rockets, Western forces required far more advanced warning and defense systems. But these systems were demanding in terms of their weight and technical requirements from the combat platforms. The need for heavier and more advanced platforms was created.

Since the enemy was almost never sighted, there was an increasing need to attack suspicious locations and sites the enemy fired from just moments before, hoping they would still be there. It must be remembered that the combat environment was a civilian one, these locations had to be attacked with precision to reduce, as much as possible, non-involved bystanders. This resulted in the need for ever larger amounts of sophisticated weaponry.

The revolution in military affairs and the network-based revolution of the 1990s completely passed over the tactical echelons. The enemy has identified this weak spot: they abandoned their combat platforms of regular militaries and adopted guerilla warfare concepts.

Attempts to respond to these trends, to refrain from ground battle, have resulted in longer and less effective wars. We are increasingly more dependent on “what works” - collection and counter-attack capabilities - and are surprised that we still depend on concepts which do not work as well, such as ground maneuver.

Yet again, we have become entangled in the trap of “more of the same.” More platforms, more protection, and more ammunition; but all of these do not change the essence of the battlefield and the relative advantage achieved by the enemy in the tactical environment.

Although this is a cold and cruel diagnosis, it is not beyond our control. We are living in an era that enables a new revolution in military affairs - the next generation of network-based warfare. In the 1990s, the combination of intelligence and attack assets was dependent on costly aircraft that had big, sophisticated sensors installed under their fuselages to collect relatively raw data from large areas of space. From the IDF's perspective, as long as the enemy was assembled in long lines of armor and used detectable
air defense systems, it was natural that collection and attack capabilities would be concentrated on higher echelons and will be managed from the arena/theater level. This was correct not only from the operational perspective, but also from the perspective of resources.

Lines of armor and air defense arrays have not returned to our sights as we search for enemies. We are looking for small enemy teams and units, well-concealed in complex locations. We are also no longer completely dependent on large and expensive aircraft that can stay airborne for hours and haul payloads of hundreds of kilograms. New capabilities are now available, made possible by the miniaturization and cost reductions introduced in the 21st century. All these could facilitate the combination of intelligence and attack assets on the tactical echelons - a tactical internet of things (TIOT).

This revolution is comprised of several levels:

**Resolution** - In the past, large collections of sensors located large targets over wide areas. This was part of the "stand-off" world. Today, we require collection intelligence that can locate small targets, with a low signature, in closed areas that are abundant in places to take cover. The revolution of miniaturization and cost reduction of sensors facilitates the transition to numerous, diverse and precise sensors that are present ("stand-in") in a tactical environment and are able to receive even the lowest of enemy signatures.

**Robotics, artificial intelligence, data speed and fusion** - As long as enemy tanks and other armor were identified, it was assumed they would not be lost until the cycles of attack were complete. The combination of collection and attack assets in large situation rooms that bring the human processing of data and decision-making for these conventional situations sufficed. In an era of a disappearing enemy, human data processing and decision making in headquarters will no longer provide an acceptable operational solution. Transition must be made from a world that
focuses on the transfer of information from the command and control systems to commanders, to a world that also combines direct communication between the various means; in other words, along the lines of the internet of things.

This is the tactical internet of things (TIOT) that will enable sensors to cross-check information and automatically fuse it with other sensors to achieve precision verification of enemy positions within seconds and connect them to attack assets according to criteria that was dictated by tactical commanders to the automated integrated system that serves them. This is nothing more than a communication network that is also a system of artificial learning - artificial intelligence. The collection of sensors does not only locate the enemy, it also learns about the enemy's behavior as part of the process, which then increases the chance to locate it in the future. These sensors need to be carried by small, autonomous and inexpensive aircraft. Since automation already enables to employ fleets of small robotic aircraft without having to constantly control them, then this potential can be realized without burdening the tactical force with additional tasks.

**Modifying military power so it will be up to the challenge** - For the last few decades there has been a focus on the IDF's two-dimensional precision. From the air and on the ground, we have achieved impressive capabilities to accurately strike targets in two-dimensional space. The enemy responded by adding an additional dimension - time. We have vastly improved our attack cycles and shortened them, but we still find it difficult to match the speed with which the enemy disappears. An intelligence-air asset level that is comprised of small, highly automatic assets that are operated by brigades and battalions on the ground could enable us to locate the enemy and quickly strike. An attack within minutes or seconds will not only destroy the location of where the enemy was, but also the enemy itself. This is the new precision required for Western ground forces and the IDF - three-dimensional precision. This will also improve the survivability of the forces and their lethality which is not dependent on the pace of bottom-up force design, such as armor protection, weapon sights, mini-rockets,
special tank shells, etc.

**More of the Same** - The tactical internet of things is a new idea. Platforms, sensors and weapons can maintain a system of automatic and continuous mutual communication and feedback between themselves. The entire system will be able to serve the commander's intentions better and faster. I believe that this solution for ground forces could extract us from the quagmire of “more of the same”; an endless pit that we have been obliviously digging for many years. This concept should be considered the new era of network-based warfare that will be employed to extract the IDF from this trap.

There are several key reasons this is possible:

**TIOT as a force multiplier** - A brigade that maneuvers while employing an air-support force that will locate and destroy an enemy (under the constraints of safety and incrimination) attempting to threaten friendly forces (anti-tank missiles, rockets, etc.) could save the force a variety of tasks, such as protecting its flanks. This brigade, that will also be able to position and destroy missile launchers that shoot within villages, can neutralize the effectiveness of the enemy entrenched among civilian populations. The significance of the time and force this can save is not only obvious, it is dramatic.

This kind of brigade will be able to move faster and preserve more of its forces. It will be able to execute more missions and will require less platforms when undertaking them. This means that advanced network-based warfare (TIOT - Web 3.0), will be characterized as tactical units that carry out more missions and influence very large areas by means of drastically fewer platforms. And fewer platforms means less logistics, less maintenance - and longer logistical endurance.

The precision of three-dimensional attacks may seem expensive, but they are actually much cheaper since a missile that is network-guided does not need to carry one-time processors and sensors. Increased effectiveness means less ammunition, less
inventory, and less logistics.

Automatic and digital connections between sensors and weaponry (only where commanders will dictate this to meet safety and operational constraints) will enable better precision, and require less coordination work between headquarters and within them. In other words - fewer staff positions in headquarters, smaller attack cells and fewer attack cells. This will result in a decrease in the transport challenges facing headquarters and protect them. This era will allow us to plan and build combat platforms that carry less independent capacities and depend more on a network of tactical capabilities they can utilize. As opposed to the past, these capabilities will belong to the tactical level and be employed by it, which will enable a higher level of trust among the forces. The long-term significance is future platforms that are less cumbersome and less costly.

This is a vision that could bring us in one determined step to a new operational concept, to a new modern perspective of ground forces, and could extricate the IDF from the vicious cycle of more expensive platforms, increased scopes of ammunition and maintenance difficulties.

Nothing is really inexpensive in militaries, but airborne and tactical collection-attack networks could become prevalent much faster and at a wider scope that any other alternative investment in non-network weaponry.

Summary

The IDF Chief of the General Staff, as part of the multi-year Gid'on plan, instructed the General Staff to accelerate the process of closing down obsolete arrays to reduce the need for spare parts and inventory. Under the subject of the IDF's Offset Strategy, he also gave directives to search for more effective strategies for force design. In other words, the feeling of discomfort is already here. Now it needs to be translated into practical steps.

Nevertheless, what are our working assumptions? Are we taking advantage of the window of opportunity to disengage ourselves from this quandary so we will be significantly stronger
than when we first became trapped, or will we continue to invest a majority of our resources and attention on enhancing our readiness? How much is the IDF utilizing strategic opportunities and technological potential to develop force design concepts that are better suited to the challenges it is facing? Or is the IDF still trapped in the “more of the same” syndrome?

A renewed situational assessment must be carried out concerning budget priorities and the reorganization of R&D and procurement processes so transformation will receive precedence over continuity.

Strategic posture and readiness – these terms are not really in tension with the processes of change, but are dependent on them.

We must disconnect ourselves from the “more of the same” trap and strive for the second network revolution. This is the strategy we need today.