

**DEFENCE TECHNOLOGIES  
AND  
TECHNOLOGY CULTURE**

**Prof. Dr. İsmail DEMİR**



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### **Abstract**

Focusing on the interaction between culture and technology, primarily in the defence sector, the present study contends that the development of defence industries lays the groundwork for the rise of the National Technology Initiative, and that a nationalized and localized culture of technology has become possible as a result of such an initiative. The study is composed of three parts. In the first part, the relationship between the National Technology Initiative and defence industry, and its impact on the culture and the constitutive role of the rise of defence industry in this relationship is discussed. The second part analyses the strategic constitutive elements behind the rise of the defence sector, being political leadership, focus and stability, the construction of an eco-system, a broad spectrum of products, intersectoral interaction, popularization, and a mass awakening. The third and the final part of the article examines the constitutive concepts behind the National Technology Initiative and suggests new paths for the deepening of this initiative.

### ***Keywords***

*Defence industry, Great transformation, Political will, National technology initiative, Culture*

## **The Key to the Past and the Future: Defence Industry**

The relationship between technology, culture, and the future is a point of discussion that dates back to the first appearance of the human race. Does technology require a unique cultural structure or not? What kind of relationship exists between the two? Does the culture in question here refer to one that is independent of geography, history, time, and space, or is it specific to certain regions, periods or even races? Is history a process that is limited to the last 400–500 years in which modernisation and industrialisation efforts gained momentum with Western Europe under the spotlight, or is there a background that is richer and more diverse?

The dilemma or debate of “Western technology vs. Western culture” is one that has been continuing since the last century of the Ottoman Empire. This debate has been addressed in general terms by those who do not accept the existence of a divide between culture and technology who see the two as an inseparable whole, feeding into each other; and those who make a clear distinction between the two that is sometimes categorical, sometimes political and sometimes cultural (TDV, 1992).

One group claim that modernisation is only possible in the presence of a Western lifestyle and culture, and thus that there is no distinction between Westernisation and modernisation. This attitude has been at times open and discrete and has taken on many different forms since the last periods of the Ottoman Empire up to the present day. On the other hand, there are those who advocate that not only is there no direct or imperative relationship between Westernisation and modernisation, but also that the creation of a technology that is local and national in its direction is only possible by remaining local and national in the cultural context. The emerging approaches have included those whose existence have been caricatured as “Yes to the Western technology, No to the Western culture”, but which in their essence have regarded modernisation and Westernisation as two distinct processes from a very early point in time; as well as those that observe a feedback relationship between culture and technology, and that look to develop a technology culture that is native to our country (TDV, 1992).

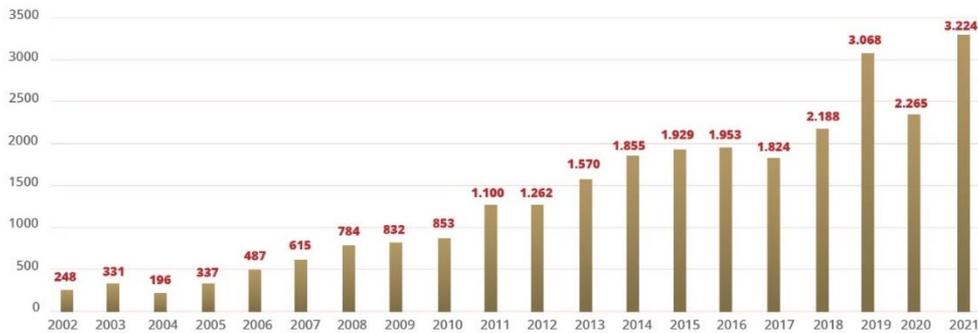
There is no doubt that in both the final period of the Ottoman Empire and throughout the history of the Republic of Türkiye, there have been times in which the Turkish intellectual sphere witnessed multiple various modes of approach, giving rise to a wealth of intellectual heritage and political practice.

It would appear that, setting aside the discussions related to intellectual history or political processes, discussions regarding the nature of the relationship between culture and technology – in more accurate terms, culture and industry – have taken on a new framework with the adoption of defence industry policies since 2002 and their systematic implementation in recent years. In this respect, the defence sector has stood out as a key to the establishment of a relationship of mutual feedback, promotion and reinforcement between culture and technology that is reasonable, effective, and capable of achieving results.

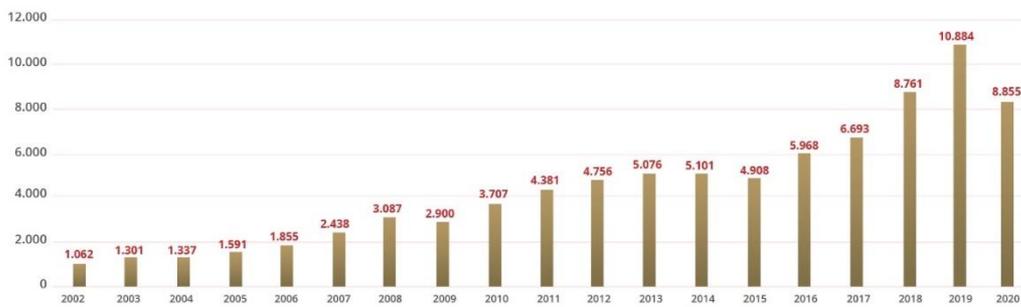
Setting aside the philosophical aspects, for nations such as ours, the debate on the relationship between culture and technology, and modernisation in particular, is led by such questions as “How can we be successful?”, “How can we stand our ground?”, “What is the most effective way of protecting and strengthening ourselves while retaining our identity?” and “What do we need to do in the face of the grand transformations in global relationships, power balances, politics and culture?” Naturally, such questions should be

addressed taking into account the efforts in response to the attacks against the Ottoman Empire, the attempts at occupation and the endeavours threatening Anatolia’s very existence in our recent history. Alongside all these questions, the vital questions, “Who are we, and for what should we stand?” manifest themselves through the direct and indirect ways in our minds and the policies we implement.

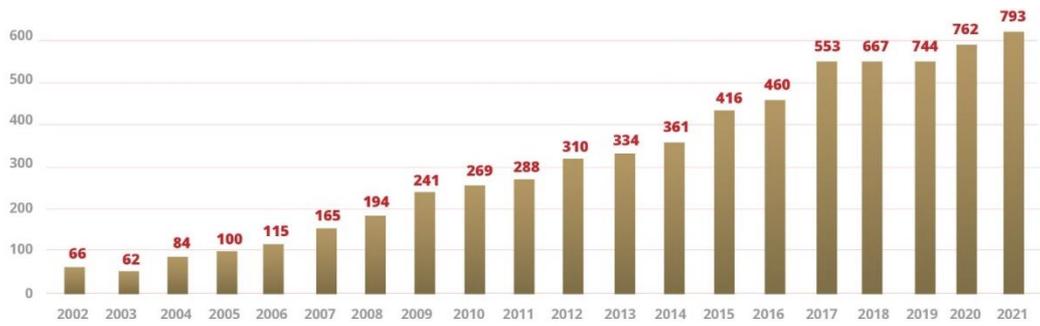
The defence sector can serve as an example when responding to these questions, and for the successful identification of a connection between the past and the future, while the National Technology Initiative offers a perspective for the identification of tangible answers. The leading factor making such an approach possible is the technological success story that resulted from the policies applied to the defence sector, and the activities of the industries themselves. These successes in fact underlie our interpretation of the National Technology Initiative as a success story and vision for the future. The graphs below detail the great transformation witnessed from 2002 to 2021 in terms of exports, turnover, number of projects and contract values.



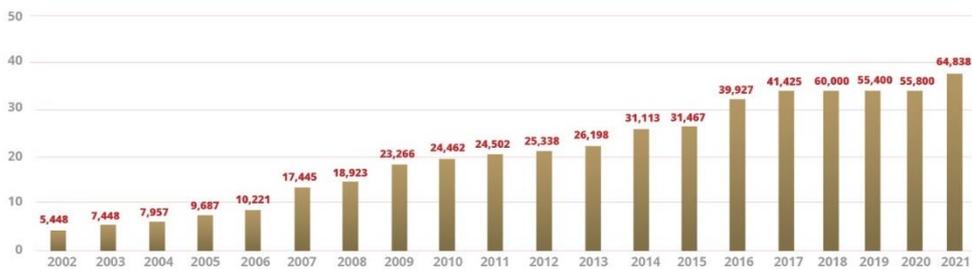
**Figure 1.** Defence and aviation export (Million \$)



**Figure 2.** Defence and aviation endorsement (Million \$)



**Figure 3.** Total number of defense projects



**Figure 4.** Total contract price of defense projects

*These graphs tell a clear, sharp, and tangible success story (SSB, 2022a).*

The consideration that requires a sensitive approach here is whether there is another initiative and period which we can address within the framework of the concepts and objectives of independence and perpetuity, be it in the last period of Ottoman Empire or in the history of the Republic. What happened that made things so different today? Which elements of this great transformation were of strategic importance?

### **Strategic Elements of the Great Transformation**

One aspect in the development of a local and national defence industry is the construction of a local and national memory pertains to the defence industry. The development of our defence sector in the last decade has happened hand in hand with several studies that contribute to such industrial memory, as well as researches analyzing past initiatives that have been swept aside, forgotten or desired to be forgotten, and in general, that chart the history of the Turkish defence sector (Dervişoğlu, 2019., Yeşilyurt and Kurt 2021., Erdinçler, 2021) Our sector has witnessed countless initiatives, the proponents of which remember them sometimes with nostalgia, and sometimes with disappointment, whereas critics qualify them with such terms and adjectives as “pipe dream”, “failed initiative” and “wrongly inspired initiative”. These studies reveals that our nation has engaged in various endeavours in its history that have somehow culminated in the establishment of a strong defence sector (State Archives Department & SSB, 2021, SSB, 2022b). Those involved have pushed limits, or have taken a few steps here and there, however in each case the desired level of progress was not achieved for a wide variety of reasons or due to encountered problems. The 2000s, on the other hand, were a time when nothing was the same as before. To answer the question of what is different today, the considerations summarised in six

items below should be addressed as strategic elements that made the great transformation possible, and that launched the discourse of the National Technology Initiative.

The primary and constitutive element is political will. A defence sector is characterised by high financial and political costs, and with no tolerance for lost time, and if it does not sense a strong and determined political will behind it, it cannot progress. President Recep Tayyip Erdoğan, since the first Defence Industry Executive Committee meeting in which he participated as Prime Minister in May 2004, has pursued a policy of ever-increasing support and direction for the creation of a strong defence sector (Demir, 2020). The policies of support have been pursued systematically, be it in terms of budget, human resources, or legislation, to ensure success with focus on localisation and nationalisation in a political sense. Alongside different forms of support, the latest move took part in the late 2017 and 2018 respectively. Undersecretariat for Defence Industries (SSM), as the main body for defence procurement, with responsibility for the modernisation of the defence sector, and was first brought under the umbrella of the President, and later restructured as a Presidency. This made it possible for the institution to evolve into one that develops a comprehensive procurement analysis and policy, after being unable previously to fulfil its function as a decisive, facilitating and ground-setting body for procurement, in spite of the countless initiatives, policy documents, supply model transformations and other efforts it instigated. In this process, the positive contributions of such institutions as the General Staff, the Ministry of Internal Affairs, the National Intelligence Organisation and, in particular, the Ministry of National Defence, under the leadership of President Erdoğan, rendered this transformation stronger and more profound. Here, the key element has been a political will that shows determination.

It is vital, however, that such political will takes real facts into account rather than becoming lost in a fantasy world. This brings us to the second strategic element, namely the constitutive concepts of focus and stability. When looking at the history of the Republic, the emphasis on a fully independent defence sector has been clearly apparent, particularly in the wake of the Cyprus Peace Operation in 1974, even though this was not entirely reflected in practice. There were many projects put into practice in this period rather than remaining on paper (TSKGV, 2022), in particular, those seeded all over Anatolia by the late Prof. Dr. Necmettin Erbakan, and the establishment of the SSM under the leadership of the late Turgut Özal in 1985. While these efforts time and time again experienced setbacks, the emphasis and dream of a strong and independent defence sector were kept alive. The main requirement for realizing these dreams is to maintain stability, and the assurance of the continuity of focus and the support to policies toward a fully independent defence sector, beyond determination and the documentation of specific steps to be taken. Policies related to defence industries since 2002 have clearly prioritised technology, especially after 2014, and a persistent support has thus been provided in this direction. That is to say, a systematic roadmap has been implemented rather than “passing-fad” policies that are hindered by structural problems or that are reactionary in nature. One of the most significant elements of the roadmap is the ability of decision-making agencies or procurement agencies to adopt an attitude that responds to the determination of the political will. In the face of the countless problems that have emerged in the implementation of technology-oriented policies in the defence field in Türkiye, however, both SSM as main body for procurement and user authorities as well as other institutions and staff of the bureaucracy insisted on the roadmap alongside political will.

The third strategic element is the construction of an ecosystem. When it comes to ensuring access to the necessary human resources to satisfy the aforementioned political will and focus, the attainment of results and the creation of a system, the defence sector needs to break its isolation and broaden its field. Justifying the complete isolation of the defence sector from the nation and other state institutions on the basis of its highly confidential nature is a recipe for failure, and a broad-reaching and profound cultural transformation in the sector was naturally required in this respect. The SSM insisted strongly on policies supporting the establishment and development of local industries and expanding the base of the ecosystem pyramid, and its insurances in this regard became stronger upon its elevation to a Presidency. Significant distances were covered in the creation of the ecosystem thanks to the insistent follow-up of industrial participation and offset in all projects, regardless of whether they were for direct purchase or development, and contractual obligations were at times enforced even at the expense of increased costs. Universities, research centres, institutes, new companies, technoparks and organised industrial zones, backed by strong R&D support and efforts to encourage the specialisation of small-scale enterprises, all contributed to the resulting defence industry ecosystem, which was larger than any such initiative seen before in the history of the Republic. With the various topics and themes in play, such as wide-reaching sectoral policies rather than those prioritising the major players, the defence sector evolved from being a closed playground for the select few and a limited number of actors, into an ecosystem in which all elements of the nation and the state were encouraged to be involved. Alongside the professionals, specialists, managers, and companies and ventures with years in the sector under their belts, were young audiences with an interest in the sector and a will to contribute, as well as newer, smaller ventures capable of *agile and fast* action who entered the sector and became stronger. It is no coincidence that today the number of companies operating in the sector has reached 1,500 with an employee count of 80,000 (SASAD, 2021). One could go as far as to say that the construction of an ecosystem has been the most critical and important feature of the post-2010 period, and the National Technology Initiative corresponds in fact to the cultural and political shift revealed and represented by this transformation.

The fourth strategic element after strong political will, focus and the creation of an ecosystem is the policy to create a broad spectrum of products. This broadening of the product base should be considered a critical aspect in two ways. First, there was the transition from a defence sector with no single unit of firepower in production that was entirely local or national (including light arms) until 2014, to one that is now reaping the rewards of long-term projects from projects launched decades earlier, engaging in high-technology R&D studies, capable of developing platform-level local and national products, and continuing its progression along this path. The critical and strategic product and needs analyses conducted in the past have been deepened, and wide ecosystem building works have been reinforced as part of the policy to ensure access to a broad spectrum of products through such projects as the Defence Industry Competence Inventory (YETEN) and the Industrial Competence Evaluation and Support Program (EYDEP). This policy ensured the transition from the relatively passive “we must do what is demanded” approach to one of joint progression “through analyses of what is demanded, and how the demand can be better met”, focusing on close cooperation with all security institutions, primarily the MND and TAF. The broad spectrum of products policy, for all intents and purposes, necessitated access to enriched human resources, created a reinforced ecosystem, forced the entire sector to gain new capabilities and contributed to the deepening of the balance between competencies and needs.

The pursuit of a broad spectrum of products naturally resulted in the gaining of sectoral experience, invigorated by this approach, to give rise to a policy of intersectoral interaction, being no longer contained in itself. A sectoral culture and policy that has left behind its past isolated and closed nature, that has put all of its accumulated experience at the service of all domains, including project management processes, and that is in turn open to the experiences of other domains, have emerged (Ünüvar, 2021). In particular, in the fight against COVID-19, as many have witnessed, the accumulated experience of the technology-oriented defence sector has been directly involved in multiple domains. Today, there is no field in which the accumulations of the defence sector are not being felt, but most prominently in the agriculture, healthcare, energy, transportation, communication technologies and education technologies sectors. In fact, the Presidency of Defence Industries (SSB), along with the ministries and institutions with which it has traditionally been in close contact in recent years, has started to pursue a policy of close contact with all ministries and institutions, particularly the Ministry of Foreign Affairs, the Ministry of National Education, the Ministry of Agriculture and Forestry, and the Ministry of Commerce, and has entered into cooperation agreements with several of them. As things stand, one of the most significant reflections of this transformation has been the increase in the member count of the Defence Industry Executive Committee (SSİK) under the Presidential Government System. There is no doubt that the intersectoral interaction policy is a two-way street, as the defence sector, through its close contact with these domains, has been able to familiarise itself with new experiences, and has enriched itself by engaging with various human resources. The enrichment of human resources and the current agenda has naturally resulted in a cultural and societal transformation becoming possible, at the widest extent.

The sixth and final strategic element is the practice and policies of the defence sector towards popularisation and the mass awakening. In this period, a national policy of mobilisation, for the want of a better word, has been pursued with the participation of all layers of society towards the creation of a holistic defence sector. It is the field that most epitomises the cultural transformation, in which the National Technology Initiative reaches all elements of the nation in a broad sense. This has, on the whole, been shaped by activities conducted under the three main headings access to the general public, studies directed at specialists, and studies directed at a high level of specialisation. The miscellaneous competitions that have been launched for young people within the defence sector have in time evolved into TEKNOFEST – heralded as the greatest aerospace and technology festival in the world. Furthermore, the *Dene Yap* (Try and Make) technology workshops hosted all over the country and the Visionary Youngster initiative activities directed at young people under the coordination of the SSB have left their mark on the national agenda, and a strong technological awareness has emerged. The great interest of the public can clearly be seen in the ever-increasing number of news items at an institutional level. In this respect, the SSB, having appeared in 2,814 news items in 2021 in comparison to 347 in 2015, can be considered an important indicator of the growth in public interest (Interpress, 2022).

At the same time, as part of the efforts aimed at boosting defence industry literacy, a significant increase has been seen in the number of defence industry concepts for specialists, defence industry strategies and analyses (Duygulu, 2019, Erboğa, 2020, Özer, 2019, Yalçın, 2017, Yeşiltaş and Pirinçci, 2021). As part of the same process, prominent activities promoting a high level of specialisation are being carried out, in particular by the SSB Defence Industry Academy and the academies of the foundation companies (SSA, 2022,

VG, 2022). As intensive shifts continue in universities, the SSB has come to accept requests for support from youth associations and student societies for their activities and the overall effect of these activities, through TEKNOFEST in particular, has been the emergence of considerable synergies and a transformation into productive energy, and the unified support by all walks of life and all state institutions for the march of the defence sector. This vast support has transformed the National Technology Initiative into a narrative of societal and cultural transformation.

### **Constitutive Concept of National Technology Initiative**

Türkiye has drawn productive energy from the tension and debate between technology and culture through the perspective and policies of the defence sector. Thanks to the tangible successes achieved, backed by public support and political will, a local and national technology culture that is unique to Türkiye has emerged. In this respect, the National Technology Initiative can be considered a key concept, goal and policy that embraces this entire process. To understand the direction of our country and to draw a vision for the future, it would be helpful to look at the key concepts behind this initiative and the constitutive concept itself.

Let's begin by asking the question of whether "National Technology Initiative", "local" and "national" mean the same thing to everyone, and to try and further expand on these concepts. Looking at the concepts from a more general perspective rather than one that is specific to our country will make it easier to understand the broad framework of this transformation.

In the most general terms, a local product is one that is produced within one's own borders, while a national product can be defined as one for which you own the design and the intellectual property right. It would be helpful to exemplify what is covered by these concepts and what kind of framework is in question. If we are to give an example from among the commonly used products that are very well known around the world, "Apple" is a brand and its products are "national" products from a US perspective. Even though dozens of foreigners have worked in the development of these products, and work packages are distributed all over the world, the product is national as far as the United States is concerned. The market has been developed to such an extent that it is no longer necessary for a product also to be local, as it has been guaranteed that thanks to the US mark on the design and branding stages, all subsequent developments and products carry the same qualification. Even if a foreign company were to buy Apple, nothing would change in this regard – it would still be a US company as it would, for many reasons, be protected by state interventions in strategic issues for the country.

Local production, on the other hand, refers to products that are produced within the borders of a given country, and that use primarily the human and material resources of that country. This category includes products of various models manufactured through licensed production or workshare through joint ventures. The key criterion or critical consideration here is the issue of the associated intellectual property rights. If the intellectual property rights of a local product do not belong to you, and you have not participated in its design and creation, your chances of being able to produce the next generation of that product are slim to none. There is no doubt that such processes can be considered useful opportunities in the context of periodical needs. Particularly when an approach is adopted to contemplate the why and how, rather than just do as one sees in joint production or licensed production processes, such initiatives can serve as a very useful groundwork. In this way, the possibility

of drawing learning experience from the associated relationship and taking the product to the next level increases. These two forms of production, in short, are based on the concepts of “know why” and “know how”.

As a country, we attached importance to the subject of “know how” and have often taken care to attain the competencies required by this concept through various mechanisms and a diverse set of defence industry projects. This was a required approach in the early stages, and certain milestones and capabilities were attained. The core issue in this process is the transition from manufacture based on “how?” to manufacture based on “why?” Focusing on *how* a step is taken in the first stage of any project is one thing, while going one step further to take a more in-depth look and asking the question *why?* is another, even though these two stages support each other. In the second step, in which one contemplates every stage in a project, each intervention made into the finest detail represents a significant learning experience. Such experiences have brought benefits to our country, although it cannot be said that these benefits have been at a sufficient level to serve the ultimate goal, as this stage does not bring a sufficient level of intrinsic national design experience or capacity.

Looking at projects in the defence sector, one can see clearly both the transitivity and the differences between the two concepts in some specific examples. Projects that start with “know how” can pave the way for indigenous and national products through mixed models in which we introduce “know why” to our share of work. When we do not do this, and limit ourselves to “know how”, this transition is not as easy as it looks. For example, the F-16 assembly line was well noted as a project involving very few local products, focusing entirely on “know how”. In contrast, the ATAK helicopter project, which was launched with focus on “know how” as a joint project, also required a certain level of “know why” in the local work packages. As such, the project served as a stepping stone for the next stage – the national helicopter Gökbey – the prototype of which was “national”, but not completely “local”. This was a turning point in the history of the Turkish defence sector and can be regarded as a clear demonstration of the concepts of locality and nationality. As things stand, we know that once it is ensured that the product is national, full localisation is by no means necessary.

The constitutive concept of the National Technology Initiative is an implementation the SSB has insisted upon as a method and a point of sensitivity, including during the SSM period, in workflow processes and even before the constitutive concept took on the meaning of including localisation and nationalisation in industry. It is clear what the content of this constitutive concept is trying to tell us: We must internalise existing technologies through in-depth reviews, and to go forward to create new technologies under our own initiative, drawing upon our accumulated ideas and knowledge. In this way, we can progress towards becoming an economically strong and independent country with the ability to produce products with high added value, as well as a global power in defence and security.

After a brief look at these two concepts, we can assess the current state of our country and move on to the roadmap. Beginning with production, we are in a good place in terms of cost-effectivity and high-quality production, although there is still room for improvement. Türkiye has come a long way in this respect, especially in projects that started with foreign partnerships, and through adaptations to their systems and disciplines we have come to surpass the actual owners of the products. Works that were initiated in a forced way through such applications as offset, which were once particularly popular in the defence sector, we attained a quality that is indispensable to foreign partners thanks to the endeavours of our

industrialists and the determination and discipline of our employees. In time, despite few in number, companies with years of experience in the sector, as well as new industrialists and entrepreneurs driven by the Turkish affinity and courage for entrepreneurship, began to join the production chain. This growth of the production chain supported the creation of an ecosystem. Although efforts were needed to fully inform all entrepreneurs of the incentives and available supports, along with their effective use, the pursued industrialisation policies, supports, and incentives played a major role in this process.

Most of our industrialists started out adopting such methods as copying, imitation and reverse engineering, and this remains the case. This is a highly critical aspect on which we must focus our attention, as other than a few exceptional cases, we lack a sufficient number of entrepreneurs who have discovered a brand new technology, developed it and made the decision to become industrialists. An entrepreneur with limited resources who decides to become an industrialist will first of all aim to ensure a return on their investment within a reasonable timeframe. As such, the tendency to produce products and to provide services that have proven themselves, and for which there is a strong market, is quite natural. In the case of progress focused on individual initiatives, such an approach is natural, although it is actually of great importance for the deepening of the National Technology Initiative that guidance be driven by an incentive mechanism and long-winded policy that prioritises knowledge, innovation and invention through the establishment of the necessary mechanisms. Although they are not yet at the desired level, it is gratifying to see that in recent years, some significant ventures have been launched (Ministry of Industry and Technology, 2022).

The question of “what mechanism should be in place for the generation of knowledge-based, innovative, and unique products and technologies?” shall remain a vital issue in front of us. This question that I regard as the most critical on the agenda of the National Technology Initiative is for the most part answered by the classical “academy-industry cooperation”. There is a great deal of truth in this response, as such cooperation is indeed of vital importance for local-national industries. However, without strengthening the content and mechanism of such cooperations, we cannot further deepen this theme which we describe as a slogan, plain goal or expectation. In the end, we are often left with singular, isolated and individual successes. It is critical that we institutionalise such cooperations in a systematic manner, and even more importantly, make them an integral part of the institutional and corporate culture. At this point, the steps necessary for the detailed implementation of each stage can be examined with examples.

The critical importance of R&D when a vital need arises is clearly apparent in this regard. We know that special significance has been attached to such activities throughout the successive governments of President Recep Tayyip Erdoğan. The rapid increase in resources allocated to R&D has been an important step forward for our country (Anadolu Agency, 2022). Although the transitory period time and time again saw the use of resources that did not bear fruit, these exceptions should be regarded as attrition in a warm-up period. Policies increasing R&D-oriented works and resources are vital, and should be brought to maturity, and flagship research projects should have result-oriented and defined roadmaps and objectives that allow the pre-planning of where they will sit in the product range. At the same time, scientific studies that can form the basis of future technologies should be kept on the radar and incentivised.

The so-called Death Valley concern is one that is rightly so from a certain aspect. Here, we can prevent the loss of R&D results to Death Valley by establishing a chain of contact and

liaison together with our industrialists and encourage them with direct and indirect incentives in the initial stages of their studies.

Incentives in this context should not necessarily mean direct financing, land or tax benefits, as the greatest incentive is aiding the industrialist in looking forward and implementing approaches that invoke confidence in product volumes and order quantities. This should include a roadmap for the production of assertive products and technologies that can compete in both the global and domestic markets, and the transition to a global company. It is also very important to raise awareness of the need to use local goods when it comes to product volume and production amounts. It is inevitable that short-term benefits will be reflected as extra costs and dependencies in the long term in this respect. As such, all stakeholders need to act with determination and resolution in the use and consumption of local goods. We observe time and time again the approach of playing it safe when it comes to choosing between a proven foreign product and a local product that is still in development, for which a number of justifications or excuses are cited. Unfortunately, this attitude not only discourages the production of local products in the short term, but also leads to the creation of an externally dependent production chain in the medium and long term in terms of both resources and knowledge. Expecting success in the long term would not be fair without incentivising the use of local products.

The introduction of other new and productive models to this policy should be seen as an important theme or need. Substantial resources should be allocated to R&D in various areas, and efforts for the attainment of successful results should be channelled into a sustainable structure and policy. Disregarding sustainability, refraining from taking steps in this direction and pressing forward unabated with a purely state-supported model raises the risk of a great depression that is not in the least financial. Technology development is neither cheap nor easy, and requires serious and sizable amounts of resource allocation. Insisting on a state-supported structure without ensuring direct or indirect returns on these allocated resources would be detrimental to efficiency and sustainability.

One of the ways of overcoming this problem is to become the best in a particular field, and to become the global choice as a result. This can be achieved through the consideration of various parameters together, including cost, effectiveness, and technological prowess, and ensuring a balance between the three that ensures your product outperforms your competitors. That said, such steps and methods will not be enough on their own. Creating a strong framework in which the use of local products is strongly incentivised, and through which the local industrialist can go on to become a global actor is necessary. It is of vital importance to ensure steps are taken to implement multinational and multilateral ventures in line with an overarching technological roadmap, and to open up to the world. In the same vein, it would be beneficial to apply diverse cooperation models to large-scale, overarching, and long-term projects in the defence domain, in which our foundation companies in particular are playing a leading role. In this respect, it would appear that the time has come to move beyond the prime contractor-oriented model, at least in some large-scale projects. The new workflow model, which we consider worthy of strengthening, can help our foundation companies deepen their existing collaborations, increase efficiency in resource usage, elevate the involvement of SMEs and private entrepreneurs and contribute to their further professionalisation, and ensure that large-scale projects have early access to cost savings and advanced technologies, facilitating their completion. In this way, our overall export and R&D-oriented defence industry initiative would be realised in the broadest sense, giving a leg up to the National Technology Initiative as it marches forward.

## **“Crawling is Over, We Have Risen”: It is Time to Run**

In the first section of this article, which began by addressing the relationship between technology and culture, we attempted to define the key role of the defence sector in the cultural and societal transformation facilitated by the National Technology Initiative. After identifying this role, we then carried out an analysis summarising the strategic elements of the changing relationship between technology and culture in the second section of the article under the headings of political will, focus and stability, ecosystem construction, broad product spectrum, intersectoral interaction, and popularisation and mass awakening. Based on these elements, we described the great transformation behind the National Technology Initiative, serving as the narrative and symbol of the entire process. In the third section of the article, we briefly dealt with the constitutive concepts of this initiative and what needs to be done to ensure its deepening.

As the narrative of Türkiye’s great cultural transformation, the National Technology Initiative is, in fact, the fruit of narratives, efforts, ideals and works spanning centuries. The successes attained in the defence sector, as the main driving force behind this Initiative, have been the key that opened new doors for our country. In this process, technology and the working culture underwent a transformation, and the debate around the relationship between the concepts of technology and culture has thus been brought to a conclusion.

In a recent speech, President Erdoğan, speaking about the struggle against embargoes and the rapid progress in defence production, said that they are responsible for the step-by-step development, growth, and reinforcement of the defence sector. He went on to say, “our defence sector has left behind its crawling stage and is today standing on its own two feet ... Today we owe Türkiye’s high regional and global prestige, and its position as a commanding power that can intervene and achieve the desired results, to the fact that we have reinforced our democracy and development programs and our defence sector ... Of course, we still have issues to resolve and projects to complete. However, you may rest assured that we have left behind the critical stage. The rest is only a matter of time and resources” (TCCB, 2022), pointing, in essence, to the new goals and tools. I have no doubt that, with such strong support and the opportunity to deepen the National Technology Initiative, the sector will continue its march along this path, conscious of the fact that we must take advantage of every second, every coin and every person. It is now time to run!

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