

Dimitris Kottas

Lambda Automata: Autonomous Monitoring of Extensive Areas & Borders in Real Time.

Season 5, Episode 2

Panagiotis: Hello Dimitris!

Dimitris: Good evening.

Panagiotis: Welcome to our offices which have been turned into studios for our podcast, Outliers, in its fifth season..Let's begin so that we can get a better understanding of your story..to understand a little what you've created so far..It's a very interesting story..Would you like to start by telling us a few quick words about Lambda Automata and what it does?

Dimitris: We are a new defense and security company. We are interested in how new technologies can, related either to non-manned vehicles or non-manned aircraft, or artificial intelligence, how these can be utilized for civil protection and defense. The first products we have made with this in mind are autonomous surveillance towers for forest protection, and autonomous surveillance cells for border surveillance and surveillance of the coastline. Our systems are installed in inaccessible places within the territory of Greece. As a company we are trying to grow. Recently we have offices and a presence in Athens and London. We are a unique company, we have a range of people who may be veterans from the defense sector, to software engineers, either from Silicon Valley, or young graduates from universities in England and Greece...And our company's mission is the strengthening of the deterrent capabilities of European States.

Panagiotis: So Europe is your focus, and your mission you feel is to strengthen Europe's defense capability through technology.

Dimitris: We make the following assessment right now, whether we like it or not, three great forces are at work in history. That is, if we looked at history as an outside observer, like an alien, and it didn't affect us at all, we see three events that did not occur years ago. One is that revisionist forces exist. There are powers, so to speak, middle powers or even superpowers, which have decided that they don't like the way the world has taken shape, either at the end of the Cold War or at the end of WWII, and they want to change it. These forces have no moral boundaries, and try to change these things by force. Secondly, new technologies make this a lot cheaper. If a country wanted to...If a middle power, a paranoid dictator, wished to sink the borders around him 30 years ago, he would need to have access to technologies, such as warplanes, technical weapons, technologies that only the UN Security Council could provide him, and no one on the UN Security Council was crazy enough to do that. Today this has changed. A middle power with a non-democratic or a hybrid regime, can create fleets of armed robots, fleets of killer robots, since thousands of drones can be manufactured on an industrial scale, and they can use them without any moral boundaries, to blackmail their neighbors. The characteristic thing that occurs today is that this can happen with components that someone can buy on Skrutz, or on Amazon, in other words, commercially...

Panagiotis: So they are readily available.

Dimitris: Exactly. The third force affecting history is the climate crisis. To a large extent, the effects of the climate crisis, are more numerous than the effects that we would have had 20 or 30 years ago, both in our daily lives, in our security, in our well-being, despite all the means we have, either to prevent a large fire,

or how the results of the climate crisis are addressed in the field, the tools we have, to a large extent, have remained the same. And it's not just about Greece, it's also about much more developed countries than Greece.

So, in come these three forces, they raise questions, how can the new technologies that have evolved, how they can be utilized in a faster way, by the democratic countries of Europe, so as to ensure its security and prosperity.

Panagiotis: Very interesting...And it's interesting to understand a little bit, how you've ended up with a company like this on your hands. Where were you born, where did you grow up. Do you want to tell us a bit about your background?

Dimitris: I was born and grew up in Athens. I have lived in various areas of Athens, from Ilion to Nea Penteli, Nea Ionia etc. I studied in Patras, as an electrical engineer. In 2010, I went to study for a PhD in the United States, in Minnesota, where I did a lot of academic research, on GPS-free navigation systems, how can a robot, whether we're talking about an aircraft, whether we are talking about a car, how it can find its position and where it is located without the use of GPS. I published several papers, academically...I was there for a total of six years. A lot of hard work in University in the United States, but at the same time also a great opportunity, to learn new things.

Panagiotis: You're in Patras, studying to become an engineer.

Dimitris: Electrical engineer.

Panagiotis: Electrical engineer. And then you go to Minnesota. How did you take that step there?

Dimitris: I saw some doctoral researchers who were friends of mine working on robotics problems, that was incredibly interesting to me. I had some pretty solid foundations, as far as sciences go, since high-school. Before that, I went to math competitions in high-school. I loved mathematics a lot. I loved the history of science. I loved science. But I was not a model student. Quite the contrary, I would say. And I was very much drawn to various robotics applications. There were some guys, one of them is a professor, a university professor in Norway, one of the most renowned in the world for quadcopters. They were making little quadcopters. Those little drones that we see now. This was back in 2009.

Panagiotis: In 2009?

Dimitris: In 2009 at a Greek university. And this really captured my attention. I dove into it. I read a lot of literature on the topic. I built various things myself. And with a good thesis, so to speak, proving that I have a lot of passion and love for what I do, I managed to find a position for a PhD, on scholarship to the USA. A scholarship— PhD tuition in the USA— it's impossible to pay for it somehow. You have to be a pretty good student, so that— for some time— you can do research, or assist, teach. It's called a research assistant or teaching assistant. In this way, with the time you work for the university, you can cover the tuition. And at the same time, you take classes, do your research, etc. Then there was Minneapolis, Minneapolis is, truly, the coldest metropolis in the world. It's a beautiful place, the best city in the USA for cycling. It has the second largest public university in the US in regard to student population. It's an amazing university. The pacemaker was invented there. The most famous variety of apples. 3M is located there, Dow Chemicals. A number of important companies. It's the coldest city in the world. Let me give you some examples. You can wait on the bus with the weather being

-35°C Celsius in winter. The Student Union had a board in the hallway that indicated the temperature on Mars as well as the temperature outside. And, sometimes, Mars was...

Panagiotis: Warmer?

Dimitris: Warmer yes...I worked very, very hard there. I had the pleasure of working with amazing people. There are Greeks and people of other nationalities, amazing professors at this university. In 2016, decided to discontinue the PhD program. On the one hand I could see that there were many more financial opportunities, as well as professional and intellectual opportunities in the industry. I started a family young, so I wanted a bit to be able to have greater let's say financial freedom and independence, than you have when you are a student.

And thirdly, there is Akto academia which is what we call it in the US, something quite cruel and paranoid at times, which can be tedious. The most important thing I would say, the main thing I saw then, which caught my attention, is that the industry I'm in, robotics, made the same transition that various technology sectors make, which have a critical turning point, that when a technology matures enough, its leaves the universities and goes to companies. What drew me more and made me discontinue my PhD and go into the industries where it needs to be done, is that I was watching the number one teachers worldwide in robotics, who may have been 10-15-20 years at a university, they would then leave and go to the companies. This is what happens when a technology matures.

Something similar happened with graphics cards 30 years ago.

Something similar happened with aviation 50 years ago.

With networks 40 years ago.

Each technology reaches a point that the university no longer has anything to offer because basic research is no longer needed. Applied research is needed. More resources are needed. Problems need to be solved which you encounter only when you have the whole product technically in front of you, in all its complexity.

Something which a company is in a much better position than a university, to approach it, albeit with some exceptions. So I saw this happening in robotics, and I realized that now is my chance to pursue some opportunities. Then I went with my family to California, I started at Apple...I was at Apple for a total of six years. I started as an engineer. I left there as Engineering Manager 2.

So I was managing a team of engineers, and I could manage teams of engineers. We were working on perception systems. Perception systems for autonomous systems, let's say perception algorithms.

That is how an autonomous system that has sensors, cameras, lidar, radar, can make sense of the world around it. My main job was in the Special Projects Group.

There I was exposed to the whole - shall we say, everything that has to do with how a robot, an animated robot, uses sensors, whether we're talking about cameras or lasers, or radar, to figure out where I am, what are the things that are around me, the objects that are around me are there people, are there trees, what is their shape, what is their speed, what are they going to do, what are the possible scenarios about what they can do. So I was exposed to this whole pipeline, from where I place a sensor on a robot, to how I take, gauge a decision, let's say, that an object that I see may take.

I had the pleasure of working with amazing people there. There were people, let's say, who had incredible backgrounds. I had a colleague there who had won an Oscar, because as a programmer, he had built a library, which is used in many visual effects for movies.

Panagiotis: Okay.

Dimitris: We had colleagues who are very, very big names, in machine learning.

So it was an impressive atmosphere, with its positives and negatives.

Panagiotis: When did the idea of Lambda Automata start to take shape in your mind, because that is the last step, isn't it?

Dimitris: Yes, it's a series of events that took place then, right? You know, these decisions are not instantaneous.

Panagiotis: Not at all.

Dimitris: These decisions are built over years, months and you are constantly preparing yourself. Your mind may be also preparing to make that decision, in some way, for Years and without realizing it. The first thing is, at the University, many projects which we had— we had initially... because, again, we were working on guidance systems, about how an aircraft, e.g. can fly without GPS. This has very powerful applications in defense, because, if an aircraft is called in to fly in a hostile environment, it's very easy for someone to jam— to disable the GPS in a region, so, it's a very important technology. We had some projects, where, for the same technology, the sponsor was the US Air Force in collaboration with Honeywell or Northrop Grumman. Honeywell is a very large defense company, it makes F-16 guidance systems. For example, Northrop Grumman builds aircraft carriers. They really are Giants.

Panagiotis: Giants.

Dimitris: And the very next year, because these technologies had major applications in Augmented Reality..Why? Because most experiences in Augmented Reality occur in an indoor space in order for your mobile phone or headset to be able to show you the different characters, it must know exactly where it is and what its orientation is. It did not have GPS access because it is in an indoor space, so, the same algorithms found an application there. And then, the following year, we worked with Google. Google is a sponsor and partner for very similar technologies. And there, I was terribly impressed, at that time at least, how defense companies— and we're talking about giants—were mostly hardware and integration companies (how they can get a large number of parts and put them together to deliver an aircraft carrier to the Congress), compared to Google. And particularly, as far as software issues are concerned. I was terribly impressed. Things that at Google were obvious practices, so to speak, best practice on how to develop software, as we can see the team that develops software, was something that didn't exist. How much easier it was to do experiments on some new algorithm. How, for example, the traditional defense companies, adhered to the waterfall model. They would say "We're going to make a plan, nine months, we'll do experiments, we'll base data, we'll run simulations and run the experiment again". And, while at Google this cycle may have lasted two weeks for each cycle, and you have numerous cycles to have some iterative, so to speak, faster growth model. That made a huge impression on me, and I couldn't believe the difference, the gap, between the defense companies, that, due to Hollywood, we think that they are the very best for technology, compared to Silicon Valley. That was the one thing, and that's what I always had in the back of my mind, and I've discussed it with colleagues, I remember, that it's not possible for this gap to exist. And the second thing that I started to see in 2019 is that Anduril was launched. Anduril is now worth 7.5 billion euros. That's when Anduril was starting out. We had one of the founders of Anduril, we had some mutual acquaintances at Oculus, at Facebook. So, I learned the news, when they started, and I talked to my friends, etc. We talked about how they got it, that there's this gap, they will try to fill this

gap. But I had various ethical dilemmas. I mean, if someone said to me at the time that I'd build a defense company, I would call them crazy. I wouldn't have believed it. There are various ethical dilemmas. And then, a series of events that took place in '20, I would say, in our region, that put these ethical dilemmas to an end in my mind. Meaning this: There is a moral dilemma that— what is more unethical? Working for a defense company where either way, you're going to produce either weapons or something that's a weapon, and even if you do everything for it to be used properly, you can't guarantee that.

Panagiotis: Never.

Dimitris: And you can't guarantee how it will be used in 20, 40 years from now, right?

Panagiotis: You never can.

Dimitris: So, option one was this, which is somewhat unethical. And then an ethical dilemma arises where, when you see revisionist forces building killer robots on an industrial scale and they aim to change the borders around them—And you see that. Since you have the knowledge, as an engineer, to build countermeasures— you see, what is more unethical? To say "I'm not going to do anything because these are weapons", while you see something bad coming right before your eyes? Or is it more unethical to build countermeasures, weapons nonetheless, which we don't know how they may be used in the future. I answered that question at one point and I said that it's now important to have deterrence capabilities for Europe to preserve, as we know it, the democracies of Europe, their technological superiority. I consider this a prerequisite to being able to prevent either revisionist forces, or to be able to cope with the climate crisis, as well.

Panagiotis: What motivated you to get started? Was it a threat or an opportunity? That is, you see technology as a tool that changes the facts. At that time, did you see this as a great opportunity for smaller armies, or armies who are potentially a little behind, to ensure that democracy prevails in the world or did you see it as a threat because you see evil forces being too quick to take such initiatives?

Dimitris: Neither. I wish I could tell you that our company doesn't need to exist so that we can focus fully on civil protection. The main thing I see is the classic ethical dilemma related to any form of technology.

Panagiotis: Yes.

Dimitris: The example of a knife. A knife can be used in a kitchen to prepare food. A knife can be used to kill someone. There is the question of ethics and technology and so on. I think there is a third scenario which is even worse: not making knives yourself and getting them from somewhere else. And that's what motivates me the most. What is, so to speak, the "knife"? What is the modern technology? It's artificial intelligence. Where is artificial intelligence applied? On our mobile phones.

Everybody in here, our mobile phones are either from America or from China. Both of these countries are fully respectable. Obviously, America is much closer culturally to us, etc. But neither of these is under our control, right? So, the various ethical dilemmas, as to whether the knife will be used to prepare food or to do something bad, we can't even answer them in Europe. Because we don't make knives. Because we don't even have mobile phones. We don't even have, so to speak, artificial intelligence systems. Similarly, we don't have tactical

drones. We don't have anti-drone systems. This pertains to a number of technologies that are missing. And this is mainly the driving force for me. I think it's insane that Europe does not have the capabilities in certain specific technologies. And that's the gap I want to fill.

Panagiotis: I have one question here, you're six years into your PhD and then you go to Apple and you stay there for six years where you start to climb the ranks. You've got people beneath you, you discover gaps in an industry, which has a lot of power, influence, but at the same time has lagged behind technologically. And you see an opportunity which you nonetheless associate very strongly with Europe. And my question is after 12 years in America, how are you so tied to Europe?

Dimitris: It's clearly sentimental, personal. It is facilitated by the fact that social media exist and you can keep some contact in our day and age. But I think it's clearly personal and Sentimental.

Panagiotis: Yes, okay.

Dimitris: I wanted my children to have the opportunity to grow up in Greece, to experience the culture that I experienced, whatever that may be. So, I wanted at that time— at the same time, I wanted to attempt, along with my wife and children, to move back to Greece and to try, so to speak, to make a new start— if you will, here in Athens. And it's always easier— that's what my co-founder, Giorgos, says. Giorgos was in the UK for many years and he returned as well and they ask him "Why in Athens?" The guy left at 18 years old, or whatever, and he says, you know, that was my garage. In other words, it's much more difficult— It's much more difficult to found a company abroad where you may have to pay a home loan, to rent a house etc. It's much easier here where you have a network of friends and family etc., who can support you. It's your garage.

Panagiotis: I hold on to the fact, that, certainly people who have it as a top priority that: "At some point, I wish to return. I'm here, I have come here for a reason. It goes this way for me, that is, an opportunity— while it comes my way, I see another, and being a smart man and an ambitious man, I follow what the universe tells me. But always in the back of my mind, whatever I learn, no matter how much I broaden my horizons, I tie this to my home, to my destination." Which perhaps, for some people, is to return. You're at Apple and I'm trying to understand a bit about the moment when you start your company. You start while at Apple, tell us a bit about this transitional period when you also met your co-founder. How did you meet him? He's in England, he's at Palantir.

Dimitris: I think it's pretty important when you're somewhere to be 100% professional. So, I quit Apple and the first day I left Apple, I turned on my laptop and started writing a text, a master plan, so to speak, about how I imagined this company. The idea was that there is a terrible gap in defense right now in Europe. See, the companies that are being created in America— no equivalent company is being created in Europe. Let's create it. Greece is ideal to create something like that.

because Greece is number one in terms of GDP, that is spent on defense, out of all NATO countries, it has the tenth longest coastline in the world without even one tenth of the population, it has a number of national security issues from border surveillance to forest surveillance, coastline surveillance, challenging air defense issues. It has a number of issues that are an ideal testbed to produce defense products. We're going to start here but with a view to expand

across Europe. There was a plan on how to make a product, there was the expertise, but there was neither a product, nor a team. I did not speak with any VC outside of Greece, most people treated us like complete lunatics. I can say that two people were the most eager to help us: Nikos Drandakis and Panos Papadopoulos. And that's before we even raised any money. It was just because they understood the story and the plan and why it is necessary. I started on my own. At that moment, Marathon realized that, "Okay, he's going to do it, no matter what." So, I had several meetings with some other investors etc., with Marathon, we raised some money from Marathon and that was...

Panagiotis: In 2021.

Dimitris: At the end of 2021. Then I started looking for people, a team. There was no team. I found Giorgos Kontogiannis, who was—I found him on Twitter. I just saw someone, he's Greek, he works at Palantir, so, he will likely be working in a similar market and will understand a similar mission. I'll send him a message. And similarly, I found Giannis, in an even stranger way, I needed someone— not a very experienced engineer— to help me with some technical issues, related to electronics, hardware etc. and I placed a job posting on LinkedIn, and I was not impressed by any CV. And I saw one and said "Okay, let's call this one." After we arrange the meeting etc., he comes and he arrives with a box. Giannis was also in England, in Bristol, he had studied in London and Bristol as a mechanical engineer. And he comes with a box with various constructions he had made and little robots, etc., and he showed me how much passion he had for the whole production aspect.

Panagiotis: What do you tell these guys, what exactly is it, what is the product you have in mind? Or do you just get together and create the product?

Dimitris: I think the main thing at this stage is not the product. The main thing at this stage is the company's mission.

Panagiotis: The mission.

Dimitris: The first product was the autonomous surveillance towers. Currently these are installed in various locations. They went through several iterations...

Panagiotis: Certainly.

Dimitris: ...until now. The great thing about what we do is that our product has expertise from various things. That is, from how we train the artificial intelligence model to detect, for the camera on the surveillance tower to detect with the computer, over there on its own, for the computer to operate the camera by itself and to be able to detect smoke, people, vehicles, columns of smoke, to how we can have a construction as easy as a piece of IKEA furniture. Our product is like the watch towers that the firefighters, the army etc. may have, which are usually manned and somebody is inside with a telescope, with binoculars, with a radio. The idea is a device...

Panagiotis: We imagine a tall tower and someone is in this tower, and from above,

Dimitris: ...like the watch towers in...

Panagiotis: Exactly.

Dimitris: Our idea was that we could build a device which is simple to install like a piece of IKEA furniture. This is important, because, if you try to install something on a small island, if you try to install something on the peak of a mountain, you have no power, no tools, no heavy vehicles. You must— just like you set up a piece of IKEA furniture— you must be able to set it up like that. Secondly, it needs to fit on the back of a truck or on a raft. It must not require infrastructure. In other words, our tower doesn't require someone to dig, to pour cement, to create foundations. It does not require any building infrastructure, nor electricity. It has batteries and photovoltaics. So, there is no need for someone to come, for a power supply to exist there. It has its own communications. It either has a satellite connection or a mobile connection and selects which of the two is available. When we detect something, we can accurately identify its coordinates. This is of great importance when you detect something, e.g. if you detect a fire that has just started. It is very important to quickly report the coordinates, where it is located geographically, so that someone can intervene. With our software— and this is a major innovation that we have as a company— we can offer this on any camera connected to a computer. What does this allow us to do? This allows us, firstly— when our system detects something— to be able to report its location. Secondly, the operator of a fleet— nowadays this is possible with the low cost of cameras, photovoltaics, batteries— It is feasible to have a fleet of cameras monitoring all forests. It is something that is technically feasible. And this has other important advantages of an ethical nature, such as— because the image processing is done locally in the tower and not on a central server, we can also have strong guarantees, so to speak, in terms of anonymization of various data. Our product for us is how could we— a vast national park, a very long coastline— in a very short period of time, be able to monitor very large forest areas, or large border areas?

Panagiotis: What are other applications for this technology?

Dimitris: It will be possible for a large percentage of new fires, when they start, for the updating to be done by an automated system and for the information to get where it needs to go very quickly and for it to be utilized very quickly. This is already happening in California, with systems similar to ours. I feel that this is the most important thing, in terms of the Greek market, that we can achieve at some point in the years to come.

Panagiotis: Which is done with towers or also in other ways?

Dimitris: Also with drones. So, a product that we introduced which indicates the direction in which we're headed now is a portable communications suitcase. We call it Jericho. It has batteries, communications and the same software that we have on the tower for the video. But the drone operator is able to have it with him. So, they have a suitcase which has satellite internet, it takes two SIM cards that a team of the Special Unit for Disasters or a team of firefighters, or someone patrolling the area located somewhere with no connectivity, can have three different methods to connect to the internet and an automatic method to provide this connectivity. It has batteries to charge the drone—which has the most important thing— It has our software on a laptop to which it connects without a cable with the existing controller. In any case, there is the drone controller regardless of the type of drone, whether we're talking about drones like what we see at weddings and christenings, or a military type of drone. Regardless of the type, the image from it is rendered using the same algorithms that we have on our tower and it transmits to a control center via Government Cloud, etc.

Panagiotis: That is, the drone knows the position of what it is looking at, on the map?

Dimitris: It knows its position on the map, it detects people, vehicles, smoke, it stores them and you can have an image or geographical location, but also the visuals—in other words a map and what it has detected etc.,— and this is all sent in real-time to as many operations centers and coordination centers required without the operator changing anything in the workflow. This kind of shows the direction we are headed in for future products.

Panagiotis: Before we continue, and I have many more questions so let's keep the energy going, let's play a game. You will pick a card, I'll tell you the word that's on the card and you will give me your meaning. And we'll see - if it works, we'll keep going: Strength and resilience. What does it mean? What is strength and resilience for you?

Dimitris: To be able to persevere from one failure to the next and to be able to learn from that so you can improve yourself the next time. But mostly for me, it's to be able to accept, that particularly regarding professional issues, failure is okay. It is something that can happen and it's not the end of the world. Because, to a large extent, professional issues are completely different from personal issues and it's okay to be able to endure failure over and over again and that is just as important— especially when you're dealing with research-related issues or entrepreneurship issues— that is, things that may also be beyond your control.

Panagiotis: I know, because we had been talking, before we began this discussion, off the record, you told me that entrepreneurship is a game for you and that your life is your family, your people. I really like that as a philosophy because it eases the burden a bit, so to speak, the unnecessary burden behind doing business. I see that your philosophy is quite positive.

Dimitris: I like working hard, working often. In everything I do, I like to try to be a champion. I mean, I often say that we don't want to compete with a similar company in Italy, we want to compete with a similar company in the USA and we will do it better, even though we are just 20 people in Athens. But I think the important thing is to do this in a way where you can wrap your mind around it and not go crazy. It's important to realize that this is something secondary. It is not this that will define you as a person. It is likely that all of us, except if one of us was to discover a new antibiotic, etc., for most of us, the most important thing we did are the relationships we created...our children, etc. And all the rest, it's just to complement our lives. And just like you get nervous when playing football, you may either get angry, yell, or play hard etc., Well, that's how I see my professional life as well.

Panagiotis: Would you like to talk a bit about what the next steps are, what are your company's next big goals, how will you use this money, what are your strategic plans? With Airstreet Capital, lead investor in your second round, this is the second time you have raised—you had raised a seed round from Marathon Capital.

Dimitris: Three things. One is to establish ourselves as a European company and not just as a Greek company. The key to doing this is to have a significant presence and when I say presence, I don't just mean sales, but, production, in a key country. There are three key countries in Europe. Defense issues are in Britain, France and Germany. The most feasible place to do this in the most open-minded, if you will, both culturally and practically, and the most determined, in terms of promoting European defense, is Britain. The second part is to deliver, here, in the market in which we have taken the majority of our steps to be able to

deliver a large-scale project where we can demonstrate how a start-up can deliver something that must have specific levels of quality, safety, guarantees, operational guarantees, etc. and large-scale production. So, a second part is this, how to be able to deliver large-scale projects. Ancillary to the first and second is to enter more markets abroad. And the third, our products at this time, basically, do surveillance. That is, they observe the world and realize what is located around them, but they can't react. Right? How to also make products that react, and certain new products that we're working on over there, in an experimental stage still, this is a third thing which we wish to prove. And these are, so to speak, the key objectives that we have and how we're going to utilize the money from this round.

Panagiotis: One last question before we come to the end of this round of questions. This has to do with Greece, and I think I have before me a man who returned to his country despite a career in America which is quite enviable. His first recruits, his co-founder, they are all Greek, the largest part of his team is in Greece. I'd like to ask you, how do you see Greece in comparison to America? How do you see our country, our role, the ecosystem evolving? What would you like to see happening? Has this whole chapter of faith that a lot of people like you are placing, has it started to pay off or not? We are at the very heart of this, it is very obvious, and I also have several opinions here but I would like to hear a bit about your vision and what you see so far since you've returned. What excites you, what doesn't, and what do you see for the country's future?

Dimitris: Our current situation as an ecosystem of technology is much better compared to five years ago or ten years ago. However, it is not, I believe, representative of our capabilities and I think that the first thing that is missing, is the culture. The culture of what is possible and what is not possible. I think this is the basic thing that we need to overcome to allow ourselves to set even more challenging goals.

Panagiotis: And ambitious.

Dimitris: This is something we have in common with the rest of Europe. I think we emulate Europe in a negative way. It is very typical, in a range of technologies, Europe did not take the risk to come in and offer something of its own that is competitive. There is no European Tesla, there is no European Samsung, there is no European social network. This is all related to a certain reason, and I think the common denominator here is a fear or pessimism in attempting something quite grandiose. I believe that in some matters, such as this one, there is also agreement on the part of society as whole. This agreement on the part of society as a whole, has just not been expressed yet in a practical way, that we're going to do a, b, c. I mean, I think everybody, if you talk to them, they all agree, that we need more modern means of forest protection. Everyone agrees that we need to be able to increase our productivity, for example, through the use of new technologies.

Panagiotis: Yes.

Dimitris: But certain steps are required and the extent to which this will be put, so to speak, into practice. I think that a tremendous opportunity exists. Countries like Greece, which have lagged behind in previous decades— there is an opportunity to take advantage of a trend that began in the USA, and I reckon it will come to Europe, a trend of reindustrialization, I reckon—I may be wrong— that many of our needs, either related to production or industry, which we dealt with as European countries by exporting them to Asia, they will return. And I think in

countries like Greece, there is the opportunity to leapfrog the traditional industrialized European countries such as Germany. Because we have nothing to defend. German companies, until they adhere to some new technology, they have to see what they're going to do with all the gasoline engines they have and sell, how will they ramp down— how they will ramp one down slowly, and ramp the other one up. We don't have anything, for better or worse. So, jumping into something new is a lot easier, and we need to understand that.

Panagiotis: Dimitris, thank you very much for the interesting discussion. What you're creating is fantastic and I believe that all of us listening, while looking ahead, this will contribute to our prosperity, to our security. People who are members of a society understand how technology promotes prosperity and transforms all our lives. We'll close with a nice little game, just some quick questions which we want you to answer quickly just with a single word. Okay? The first is to choose one of these two for me, alright? Book or podcast?

Dimitris: Book.

Panagiotis: Early bird or night owl?

Dimitris: Night owl.

Panagiotis: Night owl, I had a feeling. Coffee or tea?

Dimitris: Coffee.

Panagiotis: Coffee. If you could pick a historical figure to have dinner with, who would it be?

Dimitris: Justinian I, the emperor. I know it must sound funny to you. I think Byzantine history is very interesting and, oftentimes, we tend to see only its surface. The intrigues and the austere icons and churches. It's characteristic, that the era of Justinian I went through many, many crises at the same time. Some historians claim that it was the worst period in the history of mankind. The worst year. A particular year when there was, simultaneously, a pandemic, a rebellion and a major economic crisis. So, it would be extremely interesting.

Panagiotis: We always close our discussions with a common question to everyone for five seasons. What makes an entrepreneur an "Outlier"?

Dimitris: I think that for a very big portion of entrepreneurs, it's becoming obsessed with a particular problem or issue, which is essentially solved by their company. Now, in what way this manifests in every single individual, it varies. It may be a personal thing. I think that is what is crucial. To be obsessed with something.

Panagiotis: Thank you very much.