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**JUNE 16–18, 2011**

**INTERNATIONAL COOPERATION IN THE DEFENCE INDUSTRY**

**Expanding Technology Horizons**

**JUNE 18, 2011 — 12:00–13:15, Pavilion 5, Conference Hall 5.1**

**St. Petersburg, Russia**

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The defence industry has an ambitious technology agenda including the development of supersonic aircraft, pioneering new spacecraft and related platforms, and advances in nuclear technology, to mention just a few. But major international joint-government collaborations are increasingly rare. The 'Manhattan Project' today is not possible. Innovation is coming out of the private sector, and the world's leading powers must bring together major industry players with technology innovators for the joint development of next-generation systems.

**Moderator:**

**Joe Pappalardo**, Senior Editor, Popular Mechanics

**Panellists:**

**Giuseppe Orsi**, Chief Executive Officer, Finmeccanica S.p.A.

**Mikhail Pogosyan**, President, United Aircraft Corporation JSC

**Andrei Reus**, General Director, Oboronprom United Industrial Corporation JSC

**Tomas Svitek**, President, Stellar Exploration

**Roman Trotsenko**, President, United Shipbuilding Corporation JSC

**Front row participant:**

**Massimo Pugnali**, Executive Vice President, AgustaWestland

**J. Pappalardo:**

Thank you very much everyone for coming. We have a very distinguished panel. I am very much looking forward to hearing what everyone has to say. My name is Joe Pappalardo, I am a senior editor for *Popular Mechanics* in the United States, and one of the things that my magazine covers is defence issues. We have been around for over 100 years, and I often look through back issues of the magazine to see how my predecessors predicted where technologies are going, and one of the things that is most interesting is the pace and development of military technology. When you look back at the pace of innovation and development in this industry, you see that there are a lot of fits and starts, and that the evolution does not often occur at an even pace. I think right now, especially on the international field, we have got a lot of innovation, and the landscape is changing. The people on the stage here with me are some of the people who are really driving that change and who are responsible for the future. History often hinges on men like these, so I am very eager to hear from them. There will not be any presentations. We will just have a conversation, and hopefully, if time allows, we will be able to take questions from the audience. So I guess to start off, I would like to introduce you to the panellists: Giuseppe Orsi, Chief Executive Officer, Finmeccanica; Roman Trotsenko, President, United Shipbuilding Corporation; Andrei Reus, General Director, Oboronprom United Industrial Corporation, which works with helicopters and engines; and last, but certainly not least; Mikhail Pogosyan, President, United Aircraft Corporation. I want to start off by asking you, Mikhail, for a quick update on the new jet fighter. I wanted to ask you, whether on top of the update if there had been any lessons learned from your civilian aircraft, which just had its first flight. Have there been any lessons learned in international cooperation on your civilian project that you can apply to the military jet?

**M. Pogosyan:**

Thank you for the opportunity to say a few words. The growth of our business is tied directly to the development of both military and civilian projects. I believe that the modern aviation market demonstrates that we will enjoy greater success if we are able to combine work in many areas and diversify our business. Looking at the military programmes, we hold quite a steady global position in terms of the production of military aircraft, with the Russian Sukhoi and Mikoyan jets representing over 12% of total global production. This figure perhaps does not seem especially significant, but approximately 50% of the military aviation market is taken up by America, with a further 20% belonging to the NATO states, so, all in all, we hold about half of the remaining 30%. It is difficult for me to see how we can possibly increase our share of the American market, so thanks to our 12-14% we are actually the second largest single producer in the aviation industry. In my opinion much of this success is down to the fact that we have developed a reasonably balanced system for the promotion of our products to our consumer market, which is linked to our ability to adapt our aircraft relatively quickly to consumer demands. I can tell you that almost all the aeroplanes we deliver have been modified in some way to meet the requirements of our potential customers. It goes without saying that these changes to the aeroplanes not only include the modernization of current systems, but also the integration within the aircraft of other systems, which were not present up until then. Perhaps one of the best examples of this is our joint venture with India on the Su-30, where, in our supply programme and subsequent licensed production, we adapted a number of pieces of French, Indian and Israeli equipment in the rather tight timeframe of the project. Secondly, we work actively with others not just in the collaborative development of the aircraft, but, as I have already mentioned, in transferring technology to our customers through licensed production programmes. This has all created the solid foundation for us to move on to a new stage in our collaboration. I am referring to the collaborative design of advanced aeroplanes. We have two current projects. First of all there is the fifth generation jet fighter,

for which we are cooperating on equal terms with our Indian colleagues. There are plans for joint investment, the sharing of risks and the joint marketing of the product. Secondly, we are working on a multipurpose cargo plane, based on almost the same principles. For me this trend in the construction of modern military aircraft is a sign of what the future holds. Projects are becoming more and more complex and there is increasing competition in the market so, in order to stand your ground, you need to establish long-term alliances.

Moving on to aircraft construction, our current view, as I have said on many occasions, is that the market has changed. Most aircraft produced in the 1960s, against the backdrop of international competition and the Cold War, were for the military, but nowadays the lion's share, over 70% of the market, is held by civilian aviation. If we want, as we certainly do, to maintain our position as one of the world leaders, then we must switch our focus to gaining a serious presence on the civil aviation market. We have a large-scale project in this area. We are working alongside our Italian colleagues Alenia Aeronautica, who are part of the Finmeccanica group, and believe this partnership to have great potential. A further reason for the current need to develop the civil aviation sector is that the technology in civilian aeroplanes has begun to surpass that in the military industry, with innovations in civil aviation now being adopted by the defence industry. So if we aspire to be successful in military aviation, we should bring together both the existing technology in the defence sector and the cutting-edge technology of civil aviation. This is particularly true of avionics and customer service, where we have to make a lot of progress.

I do not want to speak for too long, but will just say that we are looking at market developments from every angle and, in our opinion, it is now not enough to just build military aeroplanes, but to grow in every area required. Our strategy consists of bringing to market aircraft in every sector – military, cargo, and civilian – and engaging in wide-ranging international cooperation.

**J. Pappalardo:**

When you work with so many different nations, are there any general approaches or recommendations that apply to each of those when you make a partnership or do you feel like each nation is so unique that they are a case-by-case basis? Or is there any larger takeaway lessons that you can offer?

**M. Pogosyan:**

Our approach has changed from collaborating on specific projects with individual suppliers, fifteen or maybe ten years ago, to developing a long-term growth strategy that we are seeking to agree with our partners. Nowadays we start from the premise that above all we have to agree on the specification of the aircraft system that we are planning to build. For example our collaboration with India is not a one-off, instead we are working on a large number of projects and I think that the next step will be India's participation in some joint civil aviation projects. I believe that this will provide the opportunity to make full use of the advantages of all the participants. I do not only have bilateral relations in mind as, for me, we should develop relationships with many parties.

It is critical to establish the correct framework for the collaboration. A large number of participants could lead to the project becoming unmanageable. It is not my intention to criticize European projects, but I sometimes feel that project management systems that are too unwieldy and complicated, in cases where the interests of the project are not advanced, with a multitude of political counterbalances being drawn up, lead to considerable cost overruns and unmet deadlines. It is hence important that, when we are establishing this general cooperation, we do not lose control of project management. This is one of the challenges. But when you are highly experienced and the partners share a degree of trust and mutual understanding, we have a good chance of keeping the project under control.

**J. Pappalardo:**

You are stronger together than apart. And one thing in international partnerships that maybe some people do not think about too much, is managing the supply chain, not only during the development but during the lifecycle of a product.

So I want to ask you, Mr Orsi, when countries and industries are looking to partner up and engage in these big complicated projects, is there any advice that you can give or any insight that you can give on keeping control of these large, sprawling supply chains and efforts? And is there a way that we can maximize the technology or other mechanisms to make these more effective and keep the cost down and not be management-heavy or be too top-heavy, as we have been discussing?

**G. Orsi:**

Yes. I think that managing the supply chain is one of the major issues in international collaboration.

Let me mention what international collaboration means for Finmeccanica and what it means for Finmeccanica and Russia, because today we are among the major industrial partners of Russian industry, two of them here on this panel, as already mentioned by Mikhail.

We have a 25% plus one share of the Sukhoi civil company. We have been participating in the development of the Superjet 100 and we have, through a company based in Italy, a responsibility to sell the Superjet 100 worldwide in most of the western world, and we hope to be successful in that.

That is one partner. And as we mentioned, it is certainly the first type of big collaboration in that field.

A second area of collaboration that is very important is in the field of helicopters, and this is also very unique. A few years ago with Andrei, when we made a kind of survey of the Russian and some Russia-related markets, we saw that there

was a demand for a certain kind of helicopters, particularly the 6-tonne, where AgustaWestland are the leader of the market.

We know that Russian helicopters lead in another segment and also are competitors of ours in certain cases. Still, the idea of collaborating in a market segment to the point where we have a joint venture, a company here in Russia that has developed a factory and is producing here that specific helicopter to bring that technology, but mainly to bring a leading helicopter into a specific market segment, is really innovative. And I should from this point of view also appreciate some views as to whether it is accepted to do that or participate in that.

Then, from that specific class of helicopter, we may move into others where Russian helicopters lead. If you talk about that sort of helicopter, then a different collaboration may arise. So it is really different.

Again, Finmeccanica here in Russia is as a joint venture, as can be seen in our partnership in transportation, with Russian Railways.

We are working on what we call ITARUS, Italia-Russian ATC, for the automation of train railways. We are working on security, we are working on automation, we are working on energy. So in all the sectors of Finmeccanica, we are really engaging with Russian partners.

Still, going back to your question, managing the supply chain for each one of these is a big job. But still, this is the only way to go towards the future. In looking at our partnership with Russia, we are not just looking for a market, as we said. We are looking to develop something in common to go and to get together in the market, so to increase our joint possibility to go into the world market.

**J. Pappalardo:**

And it seems that, not the cost, but the effort that it takes to really make that partnership seamless, you have to have a facility onsite. You have to think about

training, you have to think about the entire spectrum of what it means to produce those aircraft.

Does that make these deals harder to put together on the front end but easier on the back end? And is there any sort of tension in making all of those preparations ahead of time so that you do not have problems farther down the line?

**G. Orsi:**

Well, saying that they are good negotiators is the least we can say. We obviously have some tough times, some nice times. What I think is important is to have a vision. We need to know where we want to go. Once we have agreed on a vision, we have agreed on what we want to achieve, then getting there may be sometimes more difficult, sometimes easier, but certainly it will lead us somewhere.

So all these steps, training, factory, we will have a factory for the helicopter just outside Moscow. The factory will actually be working day after day. So once we have decided, then everything will go there.

So what I think in this situation, in this transfer, in this partnership, is to have a really clear focus, a clear idea of where you want to go, not to use it having second thoughts. I mean, "I want to transfer the technology, but really I want to get the market." Then you are going the wrong way. If from the beginning you say, "OK, I transfer the technology to get to the market," we develop the technology together to do that. Then it is easier to get to the point.

**J. Pappalardo:**

And Andrei, maybe this is a good time to get an update on the factory and also maybe discuss a little bit about some of the preparations that you had to do to make these deals, and especially how you did in training Russian workers to be able to work in these factories, and especially some of the complicated

manufacturing that goes into these types of aircrafts and engines or the things that you make.

How do you ensure that your employees have the necessary skills in training to be able to keep the factories running optimally?

**A. Reus:**

I would like to say a few words before addressing your question. We have quite a large company that produces helicopter equipment, engines, and aircraft equipment for power systems. Our company produces goods worth over USD 6 billion per annum. So, for us, the theme of partnerships and cooperation is one of the most important. I am happy to point out that this year we have entered the American market in force and have sold a number of systems. Considering that the lifespan of our products is 30-35 years, I believe that we have broken into the American market for good. This is good news. We have collaborated quite closely on a cooperative and technological level and now our products have appeared in the market.

I should add that we have quite a specific picture of the world, in which we consider areas of the map in terms of their technological expertise. The presence of particular expertise in one region or another indicates its level of development or lack thereof. We then move on to the introduction of the product and the economic conditions of a particular region. We therefore attempt to preserve these skills and develop them, for which our work with partners across the world is crucial. It is no secret that we had a kind of gap, we were failing in the 1990s, when we were barely working on new designs, the consequences of which could be felt in the long-term. So we need to catch up and quite quickly too. And that is possible, of course, only with the help of cooperation.

Our production contains a good proportion of so-called 'dual-use' engineering, by which we mean that we work in both the civilian and military sectors. Our work in the civilian sector, including the exchange of technology, equipment and so on, is

typically a simple process, but as you know perfectly well, this is essentially one and the same thing for us. The same technology works in both the civilian and military sectors; the same materials are used and so on. This topic is therefore very important for us.

Let me now turn to our work with our partners. On the one hand there obviously is competition. Suppose that we hold in the order of 14% of the international helicopter market. I think this is quite a healthy amount. There is a small number of companies in the market, the six of us know each other well and share the market. We try to cooperate with each other and find different ways of doing so: in particular, we have established a joint venture with AgustaWestland that is currently starting up operations. But all this work is conducted with the understanding that we are in competition. Having said this, there are second and third level companies that do work as subcontractors for AgustaWestland and Eurocopter, as well as for Russian Helicopters and Sikorsky. These companies are essentially open. For them it is strictly business and second and third level companies work quite actively and effectively.

We have recently developed a reasonably extensive system of cooperation. In the last few years we have opened ourselves up to the market and the world and have significantly strengthened our work with our partners. Of course issues of training and the organization of work on new equipment are key for us. The crucial production process for our company is that of knowledge management. These are not empty words, but reality. This is what helps us get to grips with hardware and work in these markets. I do not particularly like talking about unfinished business, but I would like to highlight our transparency. As you are aware, this year we took the first steps towards an IPO of Russian Helicopters. We called a halt to this process, or to be more precise, postponed it for a while, but we will definitely finish this public offer and become a transparent company, because this is our fundamental position. This is also the government's perspective, as they have already developed their economic model. It is evident

that in strategically important sectors there should be clearly defined public-private partnerships. This is not 'State Capitalism', but a kind of insurance against the risk of doing business in a strategically important industry, and is starting to work in the necessary areas. On the one hand we are open to the capital markets, in so far as we are moving towards greater transparency, but, on the other hand, we are seeking to work in partnership with the state to overcome the gap of the 1990s and fulfil the goals set by the state, so as to go on to attract considerable interest from the private sector by doing this in a methodical manner. This, in a nutshell, is probably my answer to your question.

**J. Pappalardo:**

And in speaking about the private sector and its appropriate role, I would like to speak with Roman really quickly, just a little bit about your experience in the private sector and coming over into government and dealing with the technology gap as we've been discussing and also, the issues of consolidating and making a more efficient industry.

How do you balance those efforts and how can you leverage any kind of international partnerships to assist you in that very, very difficult task?

**R. Trotsenko:**

Joe, I do not think there is a big difference between private sector and the state-owned companies. The difference is between properly managed companies and badly managed companies.

For example, so I do not think that Mikhail Pogosyan would have acted differently as a head of private company from what he is doing right now, leading a big state-owned one.

If we are looking for differences, then the only difference is the attitude of the customer. Until now it has been simpler and more convenient for a customer in Russia, and by this we mean the Ministry of Defence, to work with state-owned

companies. It is matter of changing people's mentality, which will eventually be achieved. The specifics of our business dictate that the cost of an order for us, as for a road constructor, can at times be many times more than our net asset value. If a business is badly managed or a shareholder has improper motives, there is always a risk that the customer's funds will not be used as intended. The order will ultimately remain unfinished.

I have to say that this is not simply a hypothetical risk. We can give two examples. The first is of the private enterprise that owned the Amur Shipbuilding Plant and, in short, left a major order unfinished, so we had to step in to save both the order and the factory. The second example is of the Yantar Shipyard in the Baltic that actually ceased operations under the ownership of a private company, leaving us to come and provide emergency crisis management. So I would say that everything depends on the people.

If we are looking for differences in the product, then the shipbuilding industry has the longest product lifespan. 40-50 years pass from the technical design specification for the ship to the moment the last ship of the series is written off. This is longer than in aviation but less, let's say, than in engineering for the energy sector, if we are talking about thermal and nuclear power stations. Knowledge management and its transfer during the design process and service of a product are incredibly important. If there is a break in this delicate logical chain from the design phase to operations, then the product may simply lose the very qualities for which it was commissioned.

Andrei was absolutely right when he said that we have had to endure extremely tough times, when we went without any orders for 15 years. In reality there are not that many examples over the world of such extended, industry-wide crises, after which the sector made a full recovery. For 15 years competent people having to find something to do to keep themselves occupied. Your typical shipbuilder, whether they be a labourer, a skilled craftsman or an engineer, is very highly qualified. If they were a welder for a shipbuilding company then for

them to work, let's say, on a normal construction site, is simply ridiculous. These are extremely simple tasks for them. In addition, their work there is often better paid. It is therefore an incredible stroke of luck that the industry was able to keep its potential, despite going such a long period without any orders. The reason for this is the fanatical devotion of people to their work. We will not find any material explanation for why people, earning next to nothing, often going a long time without being paid, stayed in the industry and worked, as they continue to do, on designing helicopters, aeroplanes and ships.

We have now reached a turning point: last year total sales were USD 7 billion, with year on year growth of 25%, and 31% last year. This is a lot for a shipbuilding company. We possess a diversified portfolio, and now a third of our sales are for civilian vessels, generally for special ships for the Arctic: icebreakers and ice-resistant platforms, which represent quite complex engineering. A third of our business comes from orders by the Ministry of Defence, and the remaining third comes from our military-technical cooperation. In our view it is very sensible to have three support points like this.

To continue Andrei's thought, I would say that we are now living through a unique period, when probably for the first time in the history of engineering, faster progress is being made in the civilian sector than in the military. Why is this the case? As a result of the highly competitive environment. Increased competition in the civilian sector gave rise to high demand for personnel training and the application of technology. Now the challenge is to start using civilian technology for military purposes, so the complete opposite of what was the case 20-30 years ago. The world previously produced about 3 million tonnes of military tonnage per annum and approximately 25 million tonnes of civilian tonnage: a ratio of 1:7. Nowadays we are producing roughly 200,000 tonnes of military tonnage for surface vessels and nearly 50 million tonnes of civilian tonnage. So there is an enormous difference. The challenge we face is the introduction and implementation of civilian technology into the defence industry.

**J. Pappalardo:**

Can you share with us a little bit about how some of the technologies have changed in shipbuilding since that gap, and how, and what you've done to try to catch up?

**R. Trotsenko:**

Joe, it's much more difficult to find a field where there have been no changes, so... Let us go in order: navigation systems have changed completely. Electronic navigation equipment and ships' navigation systems have changed, as has the approach to designing the hull and the attitude towards hydrodynamics. Let me give you a simple example: the idea that a steam-powered ship should travel at a speed of 35 knots now does not even come into the equation. Why? Where exactly is it going to go at 35 knots? However quickly a ship travels, a helicopter can fly faster. So? But no matter how fast a helicopter flies, a rocket can go even faster. And? So we appreciate that there are now new requirements for ships. A ship does not itself have to be heavily armed as much as it is a platform for weaponry so, for one thing, it needs a large deck for the deployment of helicopters. Secondly, it needs a large amount of available power for the deployment of rockets. For all this the ship only needs to go at 23 knots. As a result, for example, there is the idea that we can switch from steam power and gas turbines to electric propulsion. Why? It is quiet, efficient and there is no reason for the ships to hurry.

These are the many circumstances that are currently changing the face of the navy. Owing to a certain resistance to change, which we have already mentioned, and the extremely long lifespan of the product, the adoption of these innovations has stalled somewhat. But they are being brought in discretely. As a result, every new generation of ships is initially designed with different philosophical principles. You see, third and fourth generation nuclear submarines

are worlds apart. It is not a matter of one being slightly inferior in terms of performance. They represent two completely different approaches. We now expect there to be large, revolutionary changes in shipbuilding because of the application of new technology. This is also linked to the introduction of new materials and changes to the nature of warfare: for example, there is barely a country that is now building first-rate ships. Why? It is not just a question of money, but also one of necessity. It turns out that a second- or third-rate ship can complete the same tasks.

**J. Pappalardo:**

Do you find the same thing, did you feel like you were starting from scratch when you were working on a new jet fighter, or did you feel like you could draw from the strong legacy of superb Russian aviation, to help out, or did you feel like you're starting nearly from zero because things had changed so much?

**M. Pogosyan:**

On the one hand, I agree with Roman that our approach has completely and utterly changed. On the other hand, if we focus on the military sector of the aviation industry, we are widely introducing fifth generation technology when we modernize fourth generation aircraft. We believe that the military aviation market will not just be developed through the construction of a fifth generation fighter aircraft. Together with fifth generation aircraft, we will see the modernization of fourth generation planes with elements of fifth generation technology, first and foremost in terms of electronics. The Americans, alongside their work on the F-35 and F-22, are currently continuing their modernization programmes for the F-18 and F-16, which have changed completely since they were released. We are also adopting this approach in trying to increase our turnover of capital, instead of locking it into the lengthy development process for a new platform, and to

return the funds through modernizing aeroplanes of the previous generation and keeping them in large-scale production. This is roughly the situation.

**J. Pappalardo:**

I was going to ask him, speaking of the map of the world, about competencies in different industries and nations and companies can bring.

Is that how you plan your strategy of Finmeccanica? Do you look to see where the needs are and then you go and fill those and, when you look at the map, where do you see the next big opportunities for Finmeccanica to bring the next military capabilities to the effort?

**G. Orsi:**

Today, we are certainly one of the major defence sellers or defence groups, in the world. The way we see it is that we look at the globe uniquely. So we try to find out which are the needs over there but also to see where the technologies are, what the real needs are and how they are developing.

One thing that has been said also before, we are in an industry that we have been a part of for the last 20, 30 years, or even more. Then there is evolution. Today, the technology, if we talk of electronics mainly, is developing so fast that in the life of a platform there are at least two or three generations.

So what we need to see is where the technology is going and how can we catch up with the technology considering that what we designed today has to be good in 20, 25, 30 years because the 20/50 or whatever is being developed today has to be on the market in 10 years, has to be good for 20 years.

So one of the points of focus when we look at the market is what different technologies have, is what different countries are developing which can be in the needs of the different countries in 15, 20 years. And then we start to get collaboration of partnerships in those countries.

Putting aside Russia that I mentioned before, if we look at China, if we look at Brazil, if we look at India, we really see countries with certain needs in defence, in energy, in land security. So our aim is to establish with these countries a long-term relationship and start to develop with them something that will be good for that country in—when the need arises for 15, 20 years. And with them, to satisfy maybe short-term needs with existing product but basically to plan for the future. And that obviously, again going back to what was said, is good for both civil and military. And these boundaries are really, really thinner. If you consider satellites, what we can get from the satellites today is good for the military and for civilian purposes. You encrypt some information for the military, you give other information to the civilians. What you can really switch off is a matter of decision, is a matter of how you want to manage the information that you are getting from the satellite. And that is one of the most critical areas for everybody.

So really, all the technological development more and more in the future will be good for both sides. It depends on how we want to use it, how we want to apply it. If we talk about electronics, materials, energy, are we going to have electrical engines soon? How soon are going to have electrical engines on aircraft? Are we going to pass through a hybrid or shall we go from internal combustion straight to electrical engines?

Each engine today consumes less and less with each new generation, at least 10% of specific consumption, or fuel burn. Are we going to progress until at a certain moment, we will completely switch over?

So these are the challenges and these are different in different parts of the world even though we can't say ours is unique because in the end, as I said, the boundaries are thinner and thinner.

**J. Pappalardo:**

And you're involved in, or your company is involved in, a lot of different markets. If you can maybe share a little insight on some of the key take-away differences

between working with the developing nation versus working with a developed country.

**G. Orsi:**

Well, it's certainly different working in the USA or working with India. There is no doubt. Still, the aim is the same. Working in the USA, obviously, you have to try to get the market. We all know about the procedures. You can get there in different ways. So you can go there because you have a better product, then maybe you need to have a partner just for, let's say, more for the reason of jobs. Or you can get there by investing in a company that is already a supplier of the DoD. So we have done both.

It is clear that over there, you have to gain credibility to be a supplier and possibly a first tier supplier over the year of the DoD. If we go into India, the strategy will be to try to develop with HAL, or whoever, something that would be good for their requirement of the Armed Forces in a time that is acceptable by them but also that allows the Indian partner to develop something with you, to catch up with the technology, and make a product that could be Anglo-Italian, Indian, Russian but still developed together. So the approaches are very different, and in between there is a full scale.

Turkey is another very interesting country. Ten years ago Turkey was off-set. And then we started some participation, then joint venture, then partnership. Now, Turkey wants to develop its own fighter. They want to develop their own helicopter. They are looking to acquire technology in order to develop their own products. And then they would be on the market themselves, to develop.

So it is a really different approach; each country has their plan. It is up to us to try to cope up with the strategic plan of each country. We need to keep also our own interest, in the meantime, to become more and more global.

**J. Pappalardo:**

And I don't know how we are on time exactly. But I did want to open up the forum to questions. There is someone in the back waving their hand frantically.

**R. Tsimbalyuk:**

Hello. My name is Roman Tsimbalyuk. I represent the Ukrainian agency UNIAN. I have a question for Mr Pogosyan. When you spoke, you mentioned the issue of trust and whether there is trust between you and Ukrainian aircraft constructors. For a long time everyone has known that this is a difficult issue. Which aircraft do you prefer, the An-148 or the Sukhoi Superjet? Where will they fly? And can they be used together? Finally, could you possibly clarify concerning the An-124: has there been any progress or, as usual, are there just endless talks and plans? Thank you.

**M. Pogosyan:**

Your question is very specific to me. I thought we were talking about trends and now we have a highly focused question. The An-148 and the Superjet are currently flying together at Aeroflot and Rossiya, so I do not see any reason why these aeroplanes cannot coexist. I prefer the Superjet because I know this aircraft better and think that it has superior market potential. But I also like the An-148 because it generally matches the specification made for it at the design stage. I like all the aeroplanes produced by the United Aircraft Corporation. At the same time, I do have some issues regarding the cost price and market potential. I prefer the products which offer the best market prospects and will help us receive the biggest profit.

Moving on to the issue of trust, I think that there will have to be closer cooperation between Russian and Ukrainian aviation companies. I believe that nowadays, as was said at the start of this conversation, we are collaborating more on specific projects. We are in discussions with our Ukrainian colleagues on this point. My desire would be to move towards the development of a joint

structure, aimed, at a minimum, at global cooperation in the air cargo sector and at expanding the involvement of Ukrainian industry in the civil aviation sector. SO far, our Ukrainian colleagues are still more inclined to collaborate on individual projects. So I think that, as a result of this discussion, we will have to determine what our strategic development plan will be. Those are my views.

As for the An-124, then this is another question specifically directed at me. To talk about the schedule and implementation of a project we must, as is the norm today, analyse the cost of its realization in detail, the technical characteristics of the aircraft that we are planning to mass produce, the market size and the cost of mass production. This means that we need to decide on the status of the documentation and the scope of modernization work on the aircraft and so respond to a host of specific questions. To obtain answers to these questions, we formed a joint working group to prepare the necessary materials. When it concludes its work and we have worked out a common approach, I will be able to tell you about the precise plan that we will follow in implementing the project. I do hope that our collaborative work with Ukraine will have a healthy outlook. I am a proponent of cooperation. Trust is formed on the basis of concrete success. I do not think that the production of individual models can create the atmosphere required for further progress to be made. There needs to be large-scale production and a long-term dialogue has to be organized to determine our strategy, and then everything will come good.

**J. Pappalardo:**

Thank you. One thing I was thinking, the panellists have mentioned the failing line between civilian and defence markets. It made me think, is there a point where that becomes almost a liability because some of the technologies would have to be protected, or would be so unique I do not want it to be shared, or are the key businesses so unique that they would really not have a lot of market?

Is there a risk that that approach would lead to the deterioration of some of those very, very specific defence-related technologies or developments? I want to open that up to the panel.

Is there a point by which good cooperation becomes almost a liability or hinders progress in the very defence-specific end technologies; is there a way around that?

**R. Trotsenko:**

In the shipbuilding industry several processes are in play. Firstly, the comprehensive use of technology taken from civilian shipbuilding as well as from related sectors. Secondly, the growth in specialization amongst engineering companies and shipbuilders and, as a result, the focus of the product itself on specific capabilities. Nowadays every ship and system is highly specialized. The trend for the production of multipurpose products, which appeared in the 80s and 90s, is on the wane. For every specific project a technical design specification is drawn up and the performance characteristics are defined. Since the size of the series is becoming smaller, we are approaching the point where almost every end product is unique. I think that things are different in the aviation industry, because the series are larger and there are more units of each product, but in shipbuilding this is a very fundamental trend. As it turns out, we modify almost every project, so it is difficult for us to find two projects that are the same or two identical orders made with the same documentation.

This has two consequences. First of all, we are unable to fully enjoy the advantage of long product series, so we are unable to cut costs, which usually happens from the third or fourth ship onwards as a result of the workforce acquiring the specialized skills for their work through repetition. So neither we nor other producers will have the chance to cut costs and increase productivity for a specific order as a result of deep familiarity with the work. The second consequence is the increased cost of the order. For every order we have to work

on the design and modify the project, so we are unable to reduce the cost price of production. We see this happening for virtually all the world's producers. Many of them are either making losses or, as is the case with the Indo-French partnership on the Scorpène submarine, end up in court to clarify their relations following an attempt to raise the price significantly.

We can see that, to all appearances, this will cause if not a crisis, then at least some problems for the global defence industry. This is the imbalance between the demand for a high degree of specialization for each order and the desire of the client to reduce their own costs and expenses. This results in a kind of vicious circle and if we add what Giuseppe mentioned and the challenge of controlling the chain of subcontractors throughout the system, then it all becomes rather complicated. It is important that subcontractors do not just deliver systems of good or acceptable quality, but that they are motivated to deliver the product for an extended period of time. They should be companies who want to remain in the marketplace. As a result, there is greater overall uncertainty, because there are no large series, every product is highly specific and second or third level subcontractors have no clarity whatsoever. They do not know how many orders there will be, how many sales will be made or what is in store for their business. For our part we are doing everything we can to give our subcontractors as much comfort as possible, for they are, if you will, technological partners who supply components and manufactured goods. I would guess that our colleagues in the aviation industry face similar challenges.

#### **A. Reus:**

I do not see such fundamental problems. As I have already said, when we talk of dual-use production, these problems seem to fade away. Of course there is some production that it is difficult to imagine being used for civilian purposes: I cannot see nuclear submarines conveying tourists from one country to another and tanks are probably not suited to agricultural work. I do remember once

pulling out roots with a tank, but this is a specific application. We need to emphasize above all, and Giuseppe made this point well, that we are now all fated to engage in global collaborative projects as there is no other option. It is impossible to concentrate all operations in one place. That is simply absurd. Nevertheless, some military sectors may have their own solutions, which may not be directly applicable to other areas, but this is completely normal as everyone wants certain advantages and to receive a larger market share than their neighbours.

All the same, the key issue for us is the presence of engineering schools in the country. If there are such intellectual hubs which are preserved, then they are capable of cooperating with other countries and are able to obtain the required technology or produce it themselves. To keep the school open, it needs to be doing something all the time. We were faced with this question as soon as we began to develop new products, be it the Superjet or the new engines that we are now making, or a new helicopter. As soon as the school is revived, so are its intellectual and engineering capabilities, and the school is ready for global collaboration. On the one hand our business is becoming borderless, but on the other hand, there should be schools and intellectual centres within our national borders that are capable of interacting with the world. This is what enables us to overcome potential difficulties.

**J. Pappalardo:**

Does anyone else in the audience care to ask a question? I have plenty more so that's okay.

One of the things I wanted to also speak of was problems of the economies of Europe and the United States. I keep thinking about Andrei's map of the world and the capabilities and others' comments here. How is the anticipated shift in defence spending in United States and also how is the economic condition in Europe affecting the business landscape? Are they trying to sell products, trying

to partner internationally or form different sort of alliances across the industrial sphere? I open it up to the panel.

**Speaker 1:**

Certainly, or fortunately, the decrease in spending in one country is balanced by the increase of spending in other countries.

We are developing countries that are really, today engaging themselves investing in defence. We mentioned India. We did mention Turkey. I can think of Brazil. I can certainly think of China. There are many, many countries; I'm thinking about Indonesia that has programmes out there. And they have also money to support these programmes.

In North Africa before this spring time, there was a lot of investment, a lot of plans for it. I think it is certainly different the way we have to approach it, because these became competitive markets. And as Andrei was saying, we now are competing with him in, say, India, to take one country.

Therefore, while both of us used to be mainly supplying our domestic market, so the dynamics of the company are obviously not on the same plane, but the dynamics of the company were different from being supplier of DoD, than, to take the UK, supplier to the MoD and being supplier of the Russian Defence than competing on the international market.

So, we need to be absolutely more competitive, and that means to reform our way of working; it means to take care of the customer from the tip to the end, so starting with overall capability means to be capable to give a solution of all the products. All of that is making us change. So, somehow going more international is better for our companies.

By the same token, what we are facing, talking about the USA, If you talk today to Boeing, Lockheed Martin, they will tell you that they are changing, they mix, and now they are looking to a very high portion of their budget coming from export.

In my field, if you take Sikorsky, the sales in Turkey, the sales in Australia have been to their helicopter programme, highly supported by the US government in order to increase their export. Until a few years ago, Sikorsky was pretty satisfied selling to the UK and US customers. So, we need to be more competitive, but also we face more and more the competition from the US domestics now that they are looking around much more.

So bottom line, what we need to do is really to have more efficiency, to be more active and to use what our companies are very good at, to be flexible and to be capable to think of turning the time to market shorter than our competitor. Some competitors that used to plan in the long-term because of the DoD or the MoD are less flexible than we are.

So, each one of us should develop a characteristic in order to face the new markets.

**J. Pappalardo:**

Andrei, you spoke about entering the US market with helicopters. Do you see the same thing that when you are trying to partner, and you are trying to sell to other countries, you will be facing US helicopters more, because of the economic conditions in United States? And do you feel that is a driver to become a leaner, better, more competitive company?

**A. Reus:**

In a normal market, competition is always fierce, especially in the helicopter market. Strictly speaking, the presence of intense competition and the fight for market share is a very positive phenomenon. Very positive. The fact that we have now managed to enter the American market is a great joy for me. I am delighted! I understand that my counterparts aspired to the same market share, but this is an absolutely normal relationship. Fortunately I am not a politician so I

see everything from the perspective of who I am, what I do and what I produce. I really like money being spent on defence. It is good in the sense that last year, for example, we equipped the Russian army with two new helicopters. Of course the Ministry of Defence paid for this in large measure because we worked strictly on the tasks we were set. Opportunities for military-technical cooperation have suddenly been revived as, since we supplied new equipment to our own army, everyone knows that we would not supply them with bad products, so we have received international orders for the Ka-52, the Mi-28N and so on. I am happy with this state of affairs. Firstly, there is competition and secondly, money is being spent on defence. The state makes decisions for itself, I am prepared to build aircraft with this money and this gives me certain competitive advantages.

**J. Pappalardo:**

Do we have time for more? Five minutes for five questions? Luckily, for you guys it is only five minutes.

I did also want to open up the questions to the panel on the defence market; it is very unique, and that is very tied to international politics and national interest.

I wanted to ask, since, everyone here is in the business of producing items and manufacturing goods and providing services, and actually having something to sell: an integrated part of an airplane, an entire engine, or what have you.

Does the politics get in the way of that process? Is it something that hampers the industry or is that just part of the environment that you have to deal with, and if you're engineering-minded, does it become a source of frustration or how does the national interest and the international politics inform the way you do business? And whoever wants to jump into that one, feel free.

**A. Reus:**

You know, for us politics is ultimately the economic model in which we find ourselves. Irrespective of the decisions made by politicians, they either spend

money on one form of work or another, or they do not; they either create specific conditions or they do not. For us, I consider the recently established model to be the correct one. I would praise the civil servants because I once woke up from fear in the middle of the night, thinking that I was still a civil servant, which I was for 10 years, but then I remembered that I had become a businessman a long time ago and could not stop laughing: "Isn't it good that I'm not a civil servant." But I think they have created a very good model for us. I have referred to public-private partnerships, but in the sense of insurance against risk and the reduction of risk to a level that makes it possible to invest and earn money in this area. This is the framework we have in place. In addition there should be a healthy dose of protectionism, within the WTO or otherwise. But it should be there.

Things will work when we have these two things: an economic model and the appreciation that we had a gap, that we need to overcome some difficulties and that we need to insure against risk and allow strategically important industries to open themselves up to the world, work normally there and cooperate with other countries. I believe that we are now living under a model that allows us to cooperate. We all heard yesterday's speech by our President. This framework suits us because we see in it an economic model in which we can develop our business. However cynical, this is our point of view.

**J. Pappalardo:**

Anyone else care to?

**R. Trotsenko:**

It has to be said that the recent economic and political changes are good for the Russian defence industry. What do they amount to? The financial crisis resulted in many countries cutting their budgets for purchasing equipment and, since Russian engineering has always been seen to offer 'reliability for sensible money', customers have taken the decision to turn to Russian military products,

in the knowledge that they could save a considerable amount of money. That's the first point. The second is that Russian national politics, which supports the idea of a multipolar world, allows us to engage in trade operations with a host of countries. Today we do not see any major political restrictions. You can see the huge success of the Russian helicopter industry with its first sales in America. We are currently working in 25 different countries. So I would say that the situation favours the development of this industry – not in the sense of exhausting the Russian state's defence orders, but as an independent business area. In the long term it will enable us to establish a national system for the sale of military equipment, in which Russian industry will be able to specialize.

**J. Pappalardo:**

It seems to me that the flexibility of Finmeccanica is one of its greatest assets concerning the way things can change very quickly.

You have mentioned the Middle East and different market shifts and the economy. I guess your insight may be different from that of other panellists in that some of the areas that Finmeccanica are in have that flexibility.

Is it easy to shift your experience from one area to another and stay current with geopolitical events, or is that constantly something that is interfering with your plans, or is it that more of the opportunities can be found at different places. How do you balance that from a strategic standpoint?

**G. Orsi:**

Well, I think that what is happening geopolitically, is that we have to try to adapt to it quickly. I mean Libya is the latest case. We were ever-present in Libya. Now, we are not; we have to move.

On the issue of the politics, obviously the most expert here is Andrei because he is the only one who did both. I do not think anybody on the panel has done the same. So I should buy what he is saying.

But basically, our companies, our strategy for our countries is independent of whether our government is also a stakeholder or not. We manage Finmeccanica as a public company.

So, the influence of the government is said to be more political than as a shareholder. Actually, I will say that there is no influence as a shareholder.

It is obvious that in the industry, different governments have different ways to conceive a strategic company like us.

In France, they have a list and those companies cannot be acquired by foreign owners, as we know. In the U.K. when we did buy Westland, that obviously is a strategic company, we signed a deed where we are committed to the government to leave some capabilities, some special things in the U.K. So this is another way to protect things, even though the U.K. government allows foreign ownership.

But still in the USA, as you know, there is an old version of foreign ownership control that is very, very heavy on foreign-owned companies now. The U.S. has to apply to either 4K or even a proxy board for parts of the business. So the government controls what it considers a strategic decision.

We believe, as Finmeccanica, we can accept these legitimate kinds of controls over legitimate rules around us. Still, we are flexible enough to adapt to a new geopolitical situation that may happen.

**J. Pappalardo:**

That's interesting, the case-by-case basis wherein every time, you have to enter. Before we close up, I wanted to mention our panellist Tomas Svitek, who was supposed to speak with us but had health issues. I hope he is listening online and we definitely wish him the best. So, it was unfortunate he could not be here. He really wanted to be, so I just wanted to pass that on as well.

I think we are out of time. I wanted to thank my panel very, very much for coming here and speaking with all of us. Everyone, enjoy whatever is left of the Forum. Thank you.