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**Toekomst van de Nederlandse onderzeedienst**

**Nr. 14**

**VERSLAG VAN EEN RONDETAfelGESPREK**

Vastgesteld 26 april 2016

De vaste commissie voor Defensie heeft op 16 maart 2016 in het kader van een rondetafelgesprek experts gehoord over:

- de brief van de Minister van Defensie d.d. 11 juni 2015 houdende de visie op de toekomst van de onderzeedienst (Kamerstuk 34 225, nr. 1).

Daarbij werden eveneens betrokken:

- **position paper dated 11 March 2016 by S. Williams on behalf of Clarion Events;**
- **position paper dated 11 March 2016 by Mr Buchner on behalf of MARIN, Maritime Research Institute Netherlands (MARIN);**
- **position paper dated 11 March 2016 by Försvarets materielverk (FMV);**
- **position paper dated 11 March 2016 by Mr Hank Ort on behalf of NATO Science and Technology Organization Centre for Maritime Research and Experimentation;**
- **position paper dated 11 March 2016 by Mr Bjorn Olav Knutsen on behalf of the Norwegian Defence Research Establishment (FFI);**
- **position paper dated 11 March 2016 by Mr Henning Faltin on behalf of the German Ministry of Defence;**
- **position paper dated 15 March 2016 by Mr Jeroen de Jonge on behalf of TNO;**
- **position paper dated 15 March by Mr Simeon Wezeman on behalf of Stockholm International Peace Research Institute (SIPRI).**

Van dit rondetafelgesprek brengt de commissie bijgaand geredigeerd woordelijk verslag uit.

De voorzitter van de commissie,  
Ten Broeke

De griffier van de commissie,  
Van Leiden

**Voorzitter: Maij**  
**Griffier: Van Eck**

Aanwezig zijn negen leden der Kamer, te weten: Belhaj, Ten Broeke, Jasper van Dijk, Eijnsink, Houwers, Knops, Maij, De Roon en Vuijk.

Gehoord worden:

**Part 1: Strategic developments**  
**(12.15 – 13.15 hours)**

Mr. Reyn: Ministry of Defence (NL)  
Mr. Colijn: Clingendael

**Part 2: Military strategic developments**  
**(13.25 – 14.55 hours)**

Mr. Wezeman: Stockholm International Peace Research Institute Rear admiral (ret) Williams: Clarion  
Rear admiral (ret) Ort: NATO Centre for Maritime Research and Experimentation  
Mr. De Jonge: Organization for applied nature-scientific research (TNO)

**Part 3: International cooperation and development submarines worldwide**  
**(15.05 – 16.30 hours)**

Captain Faltin: Germany: Ministry of Defence and Chairman Conventional Submarine Round Table  
Mr. Knutsen: Norway: Forsvarets Forskningsinstituut (FFI)  
Rear admiral Olsson: Sweden: Försvarets materielverk (FMV)  
Mr. Buchner: Maritime Research Institute Netherlands (MARIN)

Aanvang 12.20 uur.

**Part 1: Strategic developments**  
**Mr Reyn: Ministry of Defence (NL)**  
**Mr Colijn: Clingendael**

The **Chairperson**: Goedemiddag allemaal. Ik heet de diverse sprekers, de collega's, de andere mensen in de zaal en de mensen die deze bijeenkomst elders volgen van harte welkom. Wij voeren een rondetafelgesprek over de toekomst van de onderzeedienst. Wij hebben vandaag een vol programma dat drie onderdelen heeft. Het eerste onderdeel gaat over strategische ontwikkelingen, het tweede onderdeel gaat over de militair-strategische ontwikkelingen en het derde onderdeel gaat over de internationale samenwerking op dit gebied.

Ik schakel zo meteen over naar het Engels. Dat is misschien een beetje curieus omdat de eerste twee sprekers de Nederlandse nationaliteit en het Nederlands als moedertaal hebben, maar er zijn vandaag erg veel woordvoerders die Engels spreken. Zij komen in het tweede deel aan het woord, maar ook zij hebben belangstelling voor hetgeen door de eerste twee sprekers wordt gezegd.

I also wish to extend a warm welcome to our guests whose native language is not Dutch. Today's meeting will be in English because the majority of the speakers in the second and third group use the English language and I would like to enable them to listen to the introductions in the first round and reflect on those introductions in their own speech. I am pleased to welcome two speakers in the first round, Mr Reyn from the Ministry of Defence and Mr Colijn from the Netherlands Institute of International Relations Clingendael.

I give the floor to the first speaker, Mr Colijn.

Mr **Colijn**: I would like to express my thanks for the opportunity to inform you on this subject. I offer my apology for not handing out my presentation on paper, but I will leave a copy for your kind perusal should anyone be interested.

My first basic but inevitable remark is that the world is a dangerous place. Over the last five to ten years, it is has even become more dangerous. This is not so much reflected in the slightly rising number of conflicts, which are mostly land-based and not between rival nations but between cross-border groups or groups on one side of the border. The majority of these violent conflicts revolve around political power, or a dominant ideology, if you like, rather than around territory or resources. Whatever the cause, they do exist and there is a growing trend to deepen the security level, which we will talk about.

The severely increased insecurity firstly follows from the changing world order. We are heading towards a multipolar world. There are new kids on the block. Old revisionist powers are trying to reassert their influence and resist their becoming marginal. Secondly, the number of fragile states or non-states is slightly growing thus giving way to non-state actors like pirates and maritime terror groups turning the lack of governance or the lack of control or coastal control to their advantage. Unfortunately, there is a breakdown in essential security governance in the world. Thirdly, very fundamental technology developments might alter the traditionally stable balance between the so-called defensive and offensive weapons, between small and large countries, between state and non-state actors and between the logic of deterrence and the logic of actual use of force. Projected on today's theme of submarines, or sea power if you like, all these developments first warrant a very careful analyses: what contributes to security and what alternative means would poorly or, for that matter, more effectively serve the public good? In this context, the word «replacement» concerning any weapon might be the most misleading word, for all the systemic conditions of the best system available since 1990 – 25 years ago – will not automatically be present for the follow-up system in, say, 2030, by which time conditions may have changed completely. I do not say submarines are worthless in the future because surely they are not, but nowadays submarines are not simply to be «replaced» by submarines, or aircraft by aircraft or missiles by missiles.

Let me tell you what I mean. Today, to some extent manned aircraft can be replaced by drones, by unmanned aircraft; surface ships can be replaced by unmanned maritime vehicles; air defence systems can be suppressed using advanced cyber systems instead of missiles and aircraft; earth-based intelligence can be gathered by space-based systems and so on. In short, there is no logic in a one-on-one replacement. I return to the subject of submarines. «Trends in technology are favorable to the submarine as against the surface ship». This may sound great to the submarine guys, but hold on a minute! This is a quotation from the article «The Future of the submarine» published in a Foreign Affairs magazine in 1959. At that time, submarines had a bright future. Its main functions were nuclear deterrence, protecting or attacking merchant vessels, laying mines, searching for and attacking enemy submarines and even transporting military cargo. Hunting Soviet submarines was considered to be essential because 78% of the urban population of Europe was within the range of the unseen Soviet submarine-based missiles. It was the only way the Soviets could launch a surprise attack on Europe. All other available means were too visible and therefore too vulnerable. The reasons for having a viable submarine force then were completely different from the reasons today.

In the 1980s, of course, nobody talked about this kind of threat anymore. The threat from long-ranged and medium-ranged missiles based on the land had become much more urgent. Nobody thought of the submarines' potential cargo function anymore but submarines were still seen as a

cost-effective instrument for sea lane protection. I call to mind that nowadays collecting intelligence that others cannot, operating in shallow waters very near to coastlines and enabling Special Operations Forces (SOF) to carry out raids on nearby strips of land are the very arguments in favour of Dutch submarines. Those two functions were never mentioned 30 years ago, let alone in the 1959-article «The Future of the Submarine». So things are changing. Again, by bringing this to mind I do not imply these two functions are unimportant or even constructed. It only highlights that in this respect automatic replacement is not simply logical. These arguments and the fact that, as stated in my opening sentence, the world has become a more dangerous place simply dictate that one should analyse threats time and time again and think of the best ways to respond to them and not fall into the trap of an automatic one-on-one replacement, because 2030 will not be 1959 or 1995.

The Russian submarine fleet has returned to the North Atlantic and the inner waters of Europe, near the Baltic States and Sweden. In the words of NATO commanders: «There is more activity than we have seen since the Cold War». One new observation is that the Russians are interested in undersea fibre optic cables, so protection against their tapping or even destroying underwater communication lines might be a new strategic priority. It must be considered.

Do we have the most cost-effective means to counter this capability in a right way? Is having a new set of diesel-electric submarines, which are able to put some Special Operations Forces ashore in Somalia and intercept communications from drug barons, terrorists or warlords in faraway countries, the answer? Loitering in Scottish waters where nowadays the British nuclear Trident missile finds itself spied on by Russian submarines, Dutch submarines prove themselves very useful indeed. The real question, however, is what will happen to this British nuclear deterrent. Is it in NATO's interest to maintain it and subsequently help us protect it?

One of the more or less deliberate but remarkable decisions made by both the US and British Navy is that they have opted for nuclear submarines rather than conventional ones. I would say this makes us much appreciated training partners for their navies because we could simulate the silent attacks on their navies the Russian kilo-class submarines are nowadays able to carry out. But is this the most cost-effective way to perform this function now or in 2040? And to what extent is our or, for that matter, your freedom of decision defined by this type of division of labour within the alliance? I need only mention last-year's report by the Defense Advanced Research Projects Agency (DARPA) and the very recent report by the British American Security Information Council (BASIC) in which it is indicated that both unmanned subdrones or unmanned underwater vehicles (UUVs) and unmanned surface vehicles (USVs) are cheap alternatives that pose a very real threat to any type of future submarine. I am aware, however, that this is outside the scope of this part of the meeting.

By the way, as a sparring partner we play a very useful and honourable role in training other navies indeed. On the other hand, the US feels that using active sonar is the only way of detecting quiet conventional submarines, but with a view to the protection of wildlife such as dolphins and whales it is not allowed to use active sonar near the West Coast. So what about this role in training?

Once again, I am certainly not denying the deteriorating security environment or the return of the threat of late posed by the Russian submarine passing the GIUK gap, the gap between Greenland, Iceland and the United Kingdom. Certainly, this has to be addressed somehow. Right now, forty-odd countries in the world possess more than 400 diesel-electric submarines, which in itself warrants discussion: why wouldn't we? Most of them are popular and their number in the contested

sea areas of this world, such as the South China Sea, is rising. Most submarines are Russian e.g. the Russian kilo-class submarine. China's song-class submarines are tracking US Navy ships operating near Taiwan and Japan and could for instance easily threaten the Kitty Hawk aircraft carrier, as was recently the case. According to admiral Walsh, commander of the US Pacific fleet, in that region of the world now more than 140 diesel-electric submarines threaten the critical choke points. Do we have to be present in that area and if so, are we willing to do so, rendering it unavoidable that the US Navy shifts more assets from the Atlantic fleet to the Pacific? Do we want to fill the gap? Do we think about that? And if yes, do we have a stake in that competition? Answering this question cautiously I would say yes. That would also be my response to the more general question whether we need submarines in 2025, but it really would be all too easy to consider replacement as being logical. We had a submarine fleet in the past, we have one now, so we will have one in the future? There is no logic in that. We have to weigh our options each and every time. We will have to face threats, in this regard threats in 2030. We are dealing with three different generations of one system bearing the same name, submarine, and we have operated and will operate in three completely different contexts.

The **Chairperson**: Thank you very much Mr Colijn.  
I would like to give the floor to Mr Reyn of the Dutch Ministry of Defence.

Mr **Reyn**: Thank you very much. Although the slides I show you are in Dutch, I will use the English language.  
I would like to identify briefly the most important strategic developments and relate them to the submarine force.  
First, we need to realize that the geopolitical rivalry between the major powers in the world has considerably grown over the last couple of years both globally and regionally. Of course, we have to take into account that Russia is a less predictable country with an anti-Western and anti-NATO stance. In terms of spheres of influence the Russia of president Putin has a geopolitical view; it is a revisionist power. Its military doctrine gives a tactical and operational role to nuclear weapons. Russia surprises us time and time again. It is clear that, as a result, the emphasis on collective defence in the European Union and in particular within NATO has increased. The Dutch Cabinet has also highlighted the increased importance of collective defence and of both nuclear and conventional deterrence.  
From a geopolitical perspective we should look at the growing potential for conflict in East Asia and South-east Asia as well. This concerns the relationship between China and Japan. In recent years for instance, there has been a focus on the Senkaku Islands. In this respect, we should think of the inherently unstable situation on the Korean Peninsula as well. The situation in the South China Sea concerning the Paracel Islands and Spratly Islands, however, attracts the most attention. The latter is of importance to Europe and the Netherlands because it affects sea lines of communication. Talking about the geopolitical situation we should also think about for instance the situation the Middle East as countries have geopolitical interests in the Middle East. Relationships with the Middle East and parts of South Asia deteriorated in the recent past. Obviously, geopolitics is an important aspect of strategic consideration when thinking about the added value of a submarine force.  
Secondly, we need to take account of the likelihood of a continued conflict and instability in the south of Europe, the southeast of Europe, the Middle East and North Africa. Many aspects that play a role in that region make it likely that both conflict and instability will remain part of the security image, resulting in a continued threat of terrorism and probably ongoing

migration flows. Even though we have been able to subdue piracy to an important extent there is still a possibility that piracy will return. The third strategic development I would like to mention concerns new technological possibilities and developments like miniaturization, robotization and the possibility to operate systems from a certain distance. Thinking about the future submarine capability we have to take these technological developments into account and try and make good use of it as much as we can. During the session we had this morning we talked about this as well. It is important that we understand that the future submarine has to have an adaptable capability. We cannot have an unchangeable capability for a period of 30 years. We need to make sure that we have an adaptable platform. It is still unlikely that certain technological limitations will be resolved. This morning, Mr Ammerlaan already talked about the fact that for instance the medium of water still imposes limitations for technological solutions. We certainly need to consider options such as combining the platform with a drone or an underwater vehicle.

I am zooming in now on the maritime perspective. Geopolitical rivalry has already resulted in a growth in military capabilities around the world, in particular in the regions I have just mentioned. Large nations focus their efforts on the maritime domain and purchase for instance new submarines or a service fleet. Competition in the field of using sea line communications is increasing, not only in the South China Sea but also in the Persian Gulf, some part of the Indian Ocean and the Suez region. Using open seas for your own benefit, to find energy resources or for fishing, is also gaining in popularity. In short, the pressure on the maritime domain is growing and fuelled by the sharpened geopolitical relationships in the world.

I also want to mention the impact of climate change and the opening up of new lines of communication in the Arctic region. A couple of years ago, the Netherlands Institute of International Relations Clingendael wrote a report on this subject. Of course, this is a long-term affair, but it is still within the realm of the replacement of the submarine force. From the Dutch perspective, this is likely to be a new area of interest. We should take heed of the possibility that countries that surround the Arctic will increase their maritime presence in the Arctic region. It may be a new operational area which we need to take into consideration.

Mr Colijn already gave some examples of the proliferation of the submarine force. It is obvious that more countries invest in submarine capability. From a Dutch perspective Russia and China but also regional powers are of interest. We need to understand that since the end of the Cold War the anti-submarine warfare capabilities of the Dutch armed forces have been reduced significantly. This means that we now rely on our current submarine capability to cope with the submarine threat. The Netherlands has divested itself of many other capabilities such as the P-3 Orion aircraft and a number of frigates.

From the preparation of this meeting I know our visitors are interested in the five strategic questions stated in the Dutch future policy survey report – in Dutch: de Verkenningen – which was published in 2010. This report ended with the following five strategic questions that are considered to be relevant for the submarines file. 1. What will be the military contribution of the Netherlands in the international context? 2. What kind of defence efforts do we need in view of the security context? 3. Which balance should we strike between on the one hand protecting and defending our own territory and NATO territory and on the other hand dealing with the source of security threats in the form of expeditions? 4. What should be the contribution of the armed forces to the security of the society within our national borders? 5. To what extent can we afford to be dependent on other countries? Of these five questions I think four are really relevant to this file. The fourth question might be the least relevant. I would like to

respond to those questions by addressing what we feel are the three most important strategic challenges in the years ahead. These are the three challenges the Dutch Minister of Defence outlined in her recent letter to the Dutch parliament. I also want to talk about the kind of contribution the submarine force can make.

The first challenge is to remain safe in Europe and the Netherlands within the changed security context. This is not only about protecting our territory but also about protecting our civilization, and not only about the Netherlands or NATO but also about the Caribbean. At the moment, the Dutch submarine force provides an important capability in this context. It provides escalation dominance and contributes to conventional deterrence. Within the Dutch armed forces it is the most important anti-submarine warfare capability. We need the capability to protect our service fleet. Therefore, it is clear that this capability is of vital importance for collective defence and the defence of the Dutch interests in the Caribbean.

The second challenge lies in the field of the so-called flow security. The economic welfare and economic well-being of the Netherlands depend on the Netherlands being the hub of physical and virtual flows. Furthermore, the Netherlands is a big maritime nation with harbours in Rotterdam and Amsterdam and becoming more and more the digital gateway to Europe. From both perspectives the submarine capability contributes to flow security by keeping sea lines of communication secure and protecting them against state and non-state threats. Mr Colijn already talked about the security of sea fibre cables. As you can see, this is a part of flow security as well. The position of the Netherlands as a digital hub in the world also depends on those sea fibre cables being secure. From that perspective, the submarine force contributes to the idea of flow security to a large extent.

The third and last challenge is the strategic assignment to promote stability around Europe and in the Caribbean. After all, failing to do so would confront us with the consequences of instability. In this field the submarine force makes an important contribution to intervention operations too. This morning we talked about the contribution of the submarine force to the operations in the Balkans in 1990s, embargo operations and area and sea denials. The submarine force also conducts special operations such as the special operations that might be necessary should Dutch people be held hostage in an area of instability. In a situation like that the submarine force could help achieve a solution. In all three strategic assignments the intelligence task of the submarine force is of the utmost importance.

The **Chairperson**: I would like to express my thanks to Mr Colijn and Mr Reyn for their thorough introductions.

We have approximately half an hour for questions and answers. I would ask my esteemed colleagues to pose only one question per person in the first round. Should there be more time, we can opt for a second question.

Ms **Belhaj** (D66): I have many questions but I will focus on the aspect of innovation and the remarks made by Mr Colijn. The submarines could be ready in 2025. To what extent do technical developments and innovation make it necessary for us to invest in defence equipment other than submarines now?

Mr **Jasper van Dijk** (SP): Thank you, Mr Colijn and Mr Reyn, for your introduction. I would like to pose a question to Mr Colijn about the process of decision-making in this project. After all, it is a big project and there is a lot of money involved. It has always been said that in the process of decision-making concerning the Joint Strike Fighter there have been gaps in the flow of information to parliament. There were a lot of

questions. What lessons can be learned from this process and what should parliament do to receive as much information as possible in order to be able to come to a wise decision on this subject?

**Mr Knops** (CDA): I have a question on the position of the Netherlands within the bigger picture of NATO. Why should particularly the Netherlands obtain submarines? How do these submarines fit into the bigger picture of international cooperation, performing and sharing tasks, specialization and so on, seeing that the Netherlands could only afford a relatively small number of submarines?

**Mr Vuijk** (VVD): I would like to thank Mr Colijn and Mr Reyn for their helpful contributions. I have a question about the protection of the Kingdom of the Netherlands, particularly in the Caribbean. How is the Caribbean being protected? What will be the response if Venezuela becomes a serious threat? Will there be a response from NATO or is this a problem that we should solve? Do we need a comprehensive fleet containing service vessels and submarines or is it for example possible to deploy submarines belonging to other countries?

**Ms Eijnsink** (PvdA): Thank you, Mr Colijn and Mr Reyn for your contribution. As already stated, the submarine is one of the important weapon platforms that can collect crucial information for both the political and military decision-making process that cannot be obtained in any other way. Do submarine services have a future in the span of global strategy and the European foreign defence strategy, which I hope will be made clear by Ms Mogherini in June this year? My colleague Mr Knops mentioned it already, but how does this relate to NATO planning capabilities? Are submarine services needed? Do they have a future?

**Mr Houwers** (Houwers): I express my thanks to Mr Colijn en Mr Reyn for their contributions. I would like to ask Mr Colijn a question. He feels «replacement» is a misleading term because underwater vessels may not be replaced at all. What would be the main reason to buy and deploy submarines instead of unmanned vehicles over the next ten to twenty years?

**The Chairperson**: Or maybe an unmanned submarine. You never know. I would kindly ask Mr Colijn and Mr Reyn to answer the questions.

**Mr Colijn**: Please, allow me to use both the English and the Dutch language in this respect because it may be too difficult for me to explain some of the details in English.

Laat ik beginnen met de vraag naar de logische vervanging, the logic of replacement. Deze logica is in zekere zin misleidend. Overigens werd gevraagd naar de komende tien of twintig jaar, maar de onderzeeboten die wij gaan aanschaffen, zullen vermoedelijk niet eerder dan in 2025 instromen. So the challenge is to predict the threats made from 2025 onwards. Dat is de uitdaging. Welke bedreigingen zullen er dan zijn? Ik denk dat er dan nog steeds een heel goede reden is om zoiets als een onderzeeboot te hebben. De vraag is alleen wat voor soort. I do not deny the fact that threats are increasing; so far, this has remained undisputed. Mijn voornaamste advies vandaag is: probeer flexibel te denken, probeer vooruit te denken, denk niet automatisch aan de functies waarvoor de onderzeeboten op dit moment heel erg nodig en gunstig zijn. Of je moet de bedreigingen die zich in 2030 voordoen met grote zekerheid kunnen noemen, of je moet kiezen voor een systeem dat zodanig kan worden aangepast dat je in 2030 een andere functie aan dit platform kunt geven. Daar gaat het om. This is a hell of a job. Bij het opstellen van de Verkenningen in 2010 was het al bijna onmogelijk om rekening te houden met



scenario's die nu actueel zijn. Wij mochten het helemaal niet over de euro en dergelijke hebben en wij mochten het al helemaal niet over Griekenland hebben. Deze scenario's waren onvoorspelbaar; zij werden althans onvoorspelbaar verklaard. Toch werden zij bittere werkelijkheid. Het is dus heel erg moeilijk om te bepalen wat wij precies nodig zullen hebben.

De situatie op de Middellandse Zee, de demografische ontwikkelingen in Noord-Afrika, de migratiedruk en de toename van mensensmokkel maken het bijna zeker dat je onderzeeboten nodig hebt om de havens aan de kust van de Middellandse Zee, in dit geval de Noord-Afrikaanse kust, goed in de gaten te houden. Ik zou er in ieder geval mijn geld op zetten. Om te achterhalen of het kosteneffectief is om dat te doen met onderzeeboten of dat dit moet gebeuren via een andere arbeidsverdeling of met andere systemen, moet je nu heel veel investeren in kennis daarover, zodat je weet wat je kunt doen en of je dat misschien samen moet doen met de Italianen of Fransen.

Waarom zouden wij investeren in onderzeeboten die de noordelijke shipping lanes – misschien gooi ik de steen in de vijver – goed kunnen bewaken als nog niet duidelijk is hoe belangrijk die sea lanes of shipping lanes zullen worden? Het is ook niet gezegd dat wij dat misschien met onze onderzeeboten het beste kunnen doen. Feit is dat Nederland zich in een niche bevindt en goed is in onderzeeboten die heel stil zijn. Daarvan zijn er overigens heel veel in de wereld. Zeker 30 of 40 marines hebben stille onderzeeërs, maar die kunnen niet zo ver varen als de Nederlandse onderzeeboten. Dat is op dit moment het unieke van de Nederlandse onderzeeboten. Is die niche werkelijk nodig? Of moeten wij inderdaad terug naar de Koude Oorlog en de open ruimte, the gap, tussen Groenland en het Verenigd Koninkrijk zien te beschermen? Heeft dat een hogere prioriteit dan het beschermen van een chokepoint in de Grote Oceaan dat op het ogenblik door de Amerikanen wordt aangewezen, of van één van de 140 chokepoints die door de Chinese en Russische onderzeeërs in de gaten worden gehouden? Of moeten wij een heel andere soort arbeidsverdeling realiseren, waarbij wij die open ruimte, the gap, voor onze rekening nemen?

Ik zal het nog iets breder trekken. Zelfs in Noorwegen en in Groot-Brittannië wordt op dit ogenblik serieus nagedacht over het herinvoeren van een marine luchtvaartdienst. Het afschaffen van P-3 Orions is voor ons meen ik onomkeerbaar, maar zij hebben dat niet onomkeerbaar verklaard omdat zij vinden dat deze middelen nodig zijn voor het bewaken van deze gap: dat kunnen wij beter met vliegend materieel doen, of in ieder geval met een andere mix. Zij willen zich niet vastleggen op de, misschien niet minder adequate, onderzeeboten. Wij moeten bereid zijn om dat soort afwegingen te maken en tot de conclusie te komen dat wij deze functies ofwel samen met andere landen ofwel met andere systemen moeten gaan vervullen.

Nogmaals, ik heb geen twijfel over het feit dat er meer bedreigingen zijn. Ik onderschrijf de analyse van Sebastiaan Reyn wat dat betreft helemaal. Het is echter erg moeilijk om te voorspellen dat wij bijvoorbeeld zes of vier onderzeeërs nodig hebben van het type Walrus 2.0 om adequaat op deze bedreigingen te kunnen reageren.

Ik ga nog even in op de Caraïben. Dat is nog een steen in de vijver; daar ben ik mij heel wel van bewust. Het heeft iets onnatuurlijks dat wij over onderzeeërs beschikken om taken ver weg, aan de andere kant van de Atlantische Oceaan, te kunnen uitvoeren. De Amerikanen voeren nu misschien met enige tegenzin taken uit in de buurt van Europa. Wij zouden tegen hen kunnen zeggen dat wij die taken van hen overnemen als zij de Caraïben voor hun rekening nemen. Ik heb dat ook in de Verkenningen gezegd. Om andere redenen is dat toen volkomen onbespreekbaar verklaard, maar goed, af en toe moet je out of the box denken. Misschien is dit idee in de Caraïben niet al te populair, maar het is

raar dat wij over een onderzeeër zouden moeten beschikken die een lange afstand door de oceaan kan afleggen alleen maar om een eventuele onderzeebootendreiging vanuit Venezuela tegen te gaan, terwijl de Amerikanen met ons zouden kunnen ruilen en deze taak zouden kunnen overnemen.

Misschien is het volgende anekdotisch, maar het is wel waar: het is natuurlijk vreemd dat wij ons druk maken over dit soort dingen terwijl wij een jaar of tien geleden hebben geprobeerd onderzeeboten aan Venezuela te verkopen. Wij zouden ons dan moeten verdedigen tegen de onderzeeboten die wij zelf aan Venezuela hebben verkocht. Misschien is dit interessanter voor de mensen van Buitenlandse Zaken die hier in de zaal zitten dan voor de mensen van de marine.

**Mr Reyn:** Ms Belhaj asked a question about innovation. I agree completely with what Mr Colijn has said: no replacement can ever be automatic. That is why we said this morning that all options need to be open. For the same reason I focused in my presentation on the extent to which a submarine capability can address the strategic challenges we might face in the future rather than on the capabilities of the current force. When we think about this future capability, it is essential that we take the potential of technological developments into account as much as we can. We clearly have an interest in doing so. By using this potential the submarine force might be able to exert the same operational effect while having a smaller crew. It seems highly improbable, however, that by the time of 2025 or 2030 a manned capability can be replaced by an unmanned capability. At least, that is what my technical expertise tells me. Therefore, we are still considering whether to replace the current manned capability with a manned submarine capability. However, the capability itself can include many innovative elements.

Mr Knops asked why the Netherlands should have submarines. I had hoped to answer part of this question by focussing on these strategic challenges from a Dutch perspective. Of course, we want to contribute to the collective NATO defence but we also have an interest in the Caribbean. I particularly do not agree with Mr Colijn's remark that we can divest ourselves of the responsibility for the protection of this part of our territory, because it is part of the Kingdom of the Netherlands. This is the flow-security part of the story. We also have a genuine interest in safeguarding or protecting maritime trade flows and digital flows. I feel a country like the Netherlands, which is orientated toward maritime trade flows and flow security, should clearly have a submarine capability.

Mr Vuyk asked about Venezuela. Are we on our own or can we count on NATO? The Caribbean is not part of NATO territory, which means that article 5 does not apply to the region of the Caribbean. We do cooperate, however, with many countries in this region, particularly with the United States. If there was a conflict with Venezuela, we would highly depend on the willingness of other countries and particularly the United States to support us. So we would not be on our own, but we do have a responsibility for this region and it is difficult to divest ourselves of it.

Ms Eijsink talked about the EU global strategy. She asked to what extent the submarine capability fits in with that strategy. We still have to learn what this strategy will be, but I feel that we should not only think about the EU global strategy but also about NATO requirements. From NATO perspective, the requirement is clearly present. Seeing that the world is becoming increasingly multipolar and geopolitical rivalry is sharpening, both the European Union and Europe need to ensure that they are players rather than pawns in the world. From a military perspective too we ought to be serious about this, which means that a European nation should have a credible and capable military force. A submarine force should be part of that.

Mr **De Roon** (PVV): Voorzitter, ik heb een punt van orde. Het spijt mij overigens dat ik wat later ben binnengekomen, maar dat komt doordat ik moest deelnemen aan een plenaire behandeling van een wetsontwerp. Ik constateer dat Nederlanders nu met elkaar in het Engels spreken. Ik heb begrepen dat u dat van tevoren hebt aangekondigd, dat daarom gevraagd is en dat aanwezige leden zich daar niet tegen hebben verzet, maar ik blijf het onwenselijk vinden. Hiermee worden mensen die wel Engels maar geen Nederlands spreken gefaciliteerd, maar Nederlanders die geen Engels spreken, hebben op dit moment het nakijken. Zij kunnen het verhaal van de heer Reyn niet volgen. Ik wil u vragen om die mensen alsnog tegemoet te komen, bijvoorbeeld door te zorgen voor een goede vertaling van het betoog van de heer Reyn naar de Nederlandse taal en deze op de website van de Kamer te plaatsen of anderszins toegankelijk te maken voor het Nederlandse publiek dat geen Engels spreekt.

The **Chairperson**: Ik denk dat dit een goede suggestie is. Tegelijkertijd merk ik op dat in de procedurevergadering is besproken dat in de diverse panels Engelstalige mensen zitten en dat de leden van tevoren hebben afgesproken dat er Engels gesproken zou worden. Ik begrijp dat de heer De Roon daar een punt van maakt. Wij hebben nu nog tien tot twaalf minuten om vragen te stellen aan de heren Reyn en Colijn. Ik stel voor dat wij dat doen en dat wij hierover verder spreken in de pauze tussen de wisseling van de panels.

Mr **De Roon** (PVV): Voorzitter, mag ik nog even reageren op wat u zegt? U hebt inderdaad gelijk: dit is in de procedurevergadering afgesproken. Dat moest gewoon omdat wij nu eenmaal buitenlandse gasten hebben die geen Nederlands spreken. Wij hebben niet het geld om alles wat wordt gezegd simultaan te laten tolken. Maar als Nederlanders tegen Nederlanders spreken, dan moet het Nederlands toch de voertaal kunnen zijn in plaats van het Engels?

The **Chairperson**: Nogmaals, ik begrijp dat u dat zegt. Een van de twee sprekers heeft zijn presentatie op ons verzoek in het Engels voorbereid. Ik vond het wel zo beleefd om hem niet ter plekke te vragen om zijn presentatie te gaan vertalen.  
We now have a second round of questions.

Mr **De Roon** (PVV): Nu heb ik toch weer een punt van orde, want nu gaat u de vergadering van een Nederlandse Kamercommissie in het Engels voorzitten. Dat is toch belachelijk?

Ms **Belhaj** (D66): Het gebeurt niet vaak dat D66 het eens is met de PVV over zulk soort onderwerpen, maar het kan wel degelijk. Ik ben zelf relatief nieuw in deze commissie en ik was dus ook een beetje verrast door het besluit dat ik alles wat ik had voorbereid in het Engels moest doen. Ik zal mijn vragen vervolgen in het Nederlands omdat ik dat zelf prettig vind en omdat ik het belangrijk vind dat ik de vragen nauwkeurig kan stellen. Misschien kan ik op die manier trendsetter zijn, en dat nog wel met mijn afkomst.

The **Chairperson**: Ik ben ondervoorzitter van deze commissie. Deze afspraak is door de leden zelf gemaakt. Ik heb dit zo meegekregen. Ik vind het dus ongemakkelijk dat u mij op deze manier zo neerzet. Ik vind het prima dat wij hierover een discussie hebben, maar ik vind het eigenlijk ook vervelend, want wij hebben twee gasten wier tijd wij nu aan het verbruiken zijn.

Mr **Vuijk** (VVD): Zoals het nu gaat, roept deze discussie zichzelf op. De Kamerleden kunnen zich niet goed herinneren of het op die manier is

afgesproken. In het begin van de vergadering hebben wij daar al even over gesproken. Het is toen geen formeel punt geworden, maar nu wordt het dat wel. Wij zullen het morgen in de procedurevergadering aan de orde stellen, in het Nederlands, maar ook bij de leden is er verwarring en ongemak. Wij verkeerden in de veronderstelling dat in ieder geval dit deel van de bijeenkomst gewoon in het Nederlands zou plaatsvinden.

The **Chairperson**: Dank u wel. Dan geef ik nu het woord aan mevrouw Belhaj voor het stellen van haar vraag in de tweede ronde. Helaas hebben wij daar nu nog maar acht minuten voor.

Ms **Belhaj** (D66): Voorzitter. Ik wil het ook wel in het Marokkaans doen, maar dan wordt het nog ingewikkelder.

Ik heb nog een aanvullende vraag over het verkrijgen van inlichtingen. In welke mate is het vergaren van inlichtingen met behulp van onderzeeboten dé manier om inlichtingen te vergaren? Vanochtend heb ik ook gevraagd of daarvan een goede indicatie kon worden gegeven. Hierop is echter geen percentage van het geheel genoemd. Ik stel de vraag daarom nog een keer aan de heer Colijn. In welke mate is de onderzeeboot in dit opzicht belangrijk? Hoeveel procent van het totaal aan inlichtingen wordt door Nederland met behulp van onderzeeboten verworven?

Mr **Jasper van Dijk** (SP): In de eerste termijn heb ik gevraagd of de heer Colijn ons advies kon geven over het traject rond de aanschaf en de besluitvorming. Dat is een complex proces. Hoe kan het parlement dat het beste doet? In de Volkskrant van vandaag wordt verwezen naar Cape, onderdeel van het Amerikaanse Ministerie van Defensie. Dat is een onafhankelijk adviesorgaan dat dit soort besluiten op de snijtafel legt. Zouden wij daarvoor een Nederlandse variant kunnen bedenken? Kan de heer Colijn ons zeggen wat hij deze commissie aanbeveelt over de aanschaf van de onderzeeërs? Daar staat een enorm bedrag voor, namelijk 2,5 tot 4 miljard euro. Zegt hij «doe het wel» of zegt hij «doe het niet»?

The **Chairperson**: Ik heb in elk geval geconstateerd dat de vraag in het Engels korter geformuleerd kan worden.

Mr **Knops** (CDA): Mr Colijn already brought to mind that the so-called replacement project is not really a replacement project, but I wonder how this project matches the study the navy carried out in 2005 or, for that matter, matches any future study by the navy. The navy has several projects in mind but we have only one budget, which means we can only opt for one of the projects. Would Mr Reyn be so kind as to reflect on that?

Mr **De Roon** (PVV): Voorzitter, ik heb weer een punt van orde. Het spijt me dat ik u daarmee moet lastigvallen, maar wij hebben net besproken dat het wenselijk is dat hier in het Nederlands wordt gesproken. Uiteraard kiest de heer Knops zijn eigen woorden, maar hij bepaalt nu ook zelf in welke taal hij spreekt. Ik vind dat u als voorzitter daartegen moet optreden. U zou er bij de woordvoerders van de Kamer op moeten aandringen dat zij tegen andere Nederlanders Nederlands spreken. Dat er mensen in de zaal zitten of elders meeluisteren die alleen het Engels machtig zijn, is dan jammer, maar het gaat hier om Nederland en Nederlandse burgers moeten dit kunnen volgen.

The **Chairperson**: In dit deel van de vergadering val ik in voor de vaste voorzitter. Ik herhaal dat de leden zelf hebben afgesproken dat op deze bijeenkomst Engels zou worden gesproken. Ik houd mij aan de afspraken die zijn gemaakt. Een van de twee mensen die voor deze bijeenkomst zijn uitgenodigd, heeft zijn hele presentatie in het Engels voorbereid. Wij

hebben mensen gevraagd om hun bijdrage op een bepaalde manier voor te bereiden. Ik vind het dan beleefd om hen die bijdrage dan ook zo te laten leveren. Ik begrijp dat u hiervan een punt van orde maakt. U kwam later binnen. Dat is prima. Ik heb u de gelegenheid daartoe gegeven. Ik vind het alleen ongemakkelijk dat u nu alle tijd die wij aan de inhoud kunnen besteden, opsoupeert voor uw punt van orde terwijl wij in de eerste ronde prima met elkaar overweg konden.

**Mr De Roon (PVV):** Dat komt doordat het onder uw regie op dit punt steeds mis blijft gaan. Helaas.

**The Chairperson:** Het is uw mening dat het misgaat. Dat heb ik van de collega's nog niet gehoord.

**Mr Knops (CDA):** Misschien mag ik nog een ding zeggen. Ik wil de heer De Roon wel even helpen. Hij denkt natuurlijk dat niemand Engels spreekt, maar ik denk dat dit niet het geval is. Wij hebben hierover een afspraak gemaakt toen de heer De Roon er niet was. Het is prima dat hij andere debatten bijwoont en andere prioriteiten heeft; dat is zijn keuze. Wij hebben een afspraak gemaakt. Wij komen daar morgen in de procedurevergadering op terug. Ik heb mij alleen maar aan die afspraak gehouden. Ik zal morgen in de procedurevergadering zeggen wat ik van die afspraak vind, maar wij hebben die net wel gemaakt. Ik steun de voorzitter dus op dit punt.

**Mr Vuijk (VVD):** I continue in English.

The US was mentioned as a partner but the US has only nuclear capabilities. Let us assume we are forced to protect our interests in the Caribbean by military means. Would we have to use our own submarines or can we ask partners for help?

**Ms Eijssink (PvdA):** I would like to thank Mr Colijn and Mr Reyn for their answers. Mr Colijn said submarines do have a future. In what way, however, is a subject of discussion as it is still unknown what threats we have to face in 2025 or 2030.

I would like to come back to the global strategy. We have been discussing smart defence, pooling and sharing, for years. I would like to deepen the discussion on this subject. What does this mean for the NATO capability planning system and for submarines and what does it mean for the global strategy? Presently, the Netherlands is discussing the future of its submarine services. What does this mean to the High Representative? What are we going to do with mutual capabilities? After all these years of discussion I would say that is crucial. You can only choose for one of the submarines and there is only one budget.

**Mr Houwers (Houwers):** Ik zal het in het Nederland doen omdat ik toch het makkelijkst in mijn moedertaal spreek.

Ik herhaal mijn vraag aan de heer Colijn. Je kunt de onderzeedienst verschillende taken geven, maar is er één taak waarvoor je de onderzeeboot echt nodig hebt omdat die niet door onbemande vaartuigen of anderszins kan worden vervuld? Kan de heer Colijn één taak noemen, een hoofdreden, waarvoor je echt een onderzeeboot van dit type nodig hebt?

**The Chairperson:** Ik heet de heer De Roon van de PVV welkom in dit gezelschap. Ik geef ook hem de gelegenheid een vraag te stellen.

**Mr De Roon (PVV):** Dank u, voorzitter. Zoals gezegd, moest ik de behandeling van een wetsvoorstel in de plenaire zaal bijwonen. Daardoor heb ik de wijze betogen van de heren Colijn en Reyn niet kunnen volgen. Mijn assistent heeft dat wel gedaan. Gelukkig spreekt hij goed Engels, dus

ik ga van hem nog horen wat hier allemaal gezegd is. Ik kan op dit moment dus niet met vragen reageren op hetgeen deze heren hebben gezegd. Ik laat het daarbij, maar ik dank hen voor hun bijdrage. Ik zal die graag en met belangstelling nalezen.

The **Chairperson**: We komen eigenlijk al twee minuten tekort, maar laat ik beide heren nog vijf minuten de gelegenheid geven om kort te reflecteren op de vragen die in de tweede ronde zijn gesteld.

Mr **Colijn**: Ik meng mij uiteraard niet in het conflict over Engels of Nederlands. Hecht dus geen betekenis aan het feit dat ik in het Nederlands begin. Het besluitvormingsproces staat niet op de agenda van deze sessie, maar er is naar gevraagd, dus ik moet daarop antwoorden. Wat wij kunnen leren van de JSF is dat het proces in het begin van de jaren negentig al begonnen is, maar dat wij nu pas beginnen door te krijgen wat het toestel werkelijk zal kunnen en wat het niet zal kunnen. Gisteravond las ik dat iemand uit Amerika die het kan weten en die betrokken is bij het proces, zegt: wij hebben eigenlijk toch drie verschillende vliegtuigen en niet één vliegtuig. En dat terwijl dat laatste een van de hoofdredenen was om de JSF te ontwikkelen, namelijk als een gemeenschappelijk vliegtuig voor drie serviceonderdelen. Maar hij zegt: daar stappen wij vanaf. Dat zal ook de les zijn bij een groot project als submarines. In het algemeen is het heel tragisch dat in de civiele wereld – als je dat onderscheid nog mag maken – de grote technologische revoluties zich met een frequentie van een jaar of tien à vijftien voordoen, terwijl je in de militaire wereld met systemen werkt die 30, 40, 50 jaar meegaan. Dat kun je bijna niet bijhouden. Wij zijn steeds meer afhankelijk van die revoluties in de civiele wereld. Een eenvoudige rekensom leert dat je eigenlijk altijd achter de feiten aanloopt met grote militaire projecten. Het is de kunst om zodanige platforms te ontwerpen dat daarin misschien wel drie keer in hun lifetime de laatste revolutionaire civiele ontwikkelingen kunnen worden geïncorporeerd. Ze moeten dus bijna drie keer «van leven veranderen» gedurende de technische levensduur. Dat is erg moeilijk en ik kom niet verder dan vast te stellen dat de Kamer in staat moet zijn om zover vooruit te kijken. Dat geldt voor ons als denktanks natuurlijk ook wel, maar u moet geen genoegen nemen met een antwoord in de trant van: wij gaan binnenkort een submarine aanschaffen die 30 à 40 jaar «fixed» is en helemaal op zijn taak berekend zal zijn voor de dan geformuleerde taken. Ik had natuurlijk in de eerste ronde al moeten antwoorden op de vraag over de global strategy. Nee, ik zou mij geen enkele illusie maken. De global strategy, die overigens geen security strategy mag heten, zal absoluut niet afdalen tot het niveau van «dit of dat wapensysteem, zoals de submarines, zullen wij nodig hebben». Er zal wel iets in staan over de noodzaak om de zuidflank van Europa te beschermen. In de eerste ronde heb ik al gezegd dat daarin een rol voor submarines is weggelegd. Dat zijn echter coastal submarines, die goed in het Middellandse Zee-bekken kunnen opereren. Daar heb je niet per se een ocean-going type voor nodig. Dat is dan misschien meteen een antwoord op de vraag «noem in ieder geval één taak die submarines over 20 of 30 jaar nog zullen moeten kunnen uitvoeren». Welnu, in dat soort wateren, zoals de Middellandse Zee, zullen zij in staat moeten zijn om taken uit te voeren in verband met mensensmokkel, migratie en grensbewaking. Ik vind het wel jammer dat de vraagsteller maar naar één taak vroeg, want ik kan er misschien wel twee of drie noemen. Ik denk dat ze ook een belangrijke rol kunnen spelen bij het afgrendelen van havens in de naleving van embargo's. Het sanctiewapen is sinds de jaren negentig ongeveer zes keer zo vaak toegepast en ik verwacht helemaal niet dat daar een einde aan komt. Daarom zullen submarines voor die taak, niet voor de strikt verdedigende taak, nog steeds een grote rol blijven spelen. Ik heb nog een aantal vragen

niet beantwoord, maar de tweeënhalve minuut heb ik waarschijnlijk al gebruikt.

**Mr Reyn:** I will speak in English, so we will balance each other out. What percentage of the intelligence is provided by the submarine force? As Mr Bindt explained this morning, you cannot express this in percentages. It is important, however, to understand that the intelligence provided by the submarine capability is a specific type of intelligence, about specific subjects, which cannot be provided by other capabilities. It is an important and unique source of intelligence, that can also be shared with allies, and the quid pro quo dynamic then takes effect.

Mr Vuyk asked about the Caribbean interests. Do we need our own capabilities? I would say yes, even though we depend on the support of the United States when it comes to a military conflict in that region. We have a responsibility to protect our own territory; the Dutch Caribbean is part of the Netherlands. Therefore, I would say that we also need capabilities under water, given the tasks of the armed forces and the Ministry of Defence, to protect our interests. But this is obviously a political question.

Ms Eijssink asked about the EU's global strategy. I agree with what Mr Colijn said about that. She also talked about pooling. International cooperation can be achieved in this area. Pooling is a lot more difficult, because we are talking about a strategic capability that is also used for intelligence purposes. Pooling of this capability, like AWACS for instance in the NATO context, would be more complicated.

Mr Knops referred to the «Marinestudie» from some time ago. From our perspective the submarine capability needs to remain an integrated part of the maritime capability. It is part of it and it is difficult to separate it.

The **Chairperson:** Thank you very much for your explanation. This concludes part 1 of our round table talks. We will now continue with part 2.

## **Part 2: Military strategic development**

**Mr. Wezeman: Stockholm International Peace Research Institute**

**Rear admiral (ret) Williams: Clarion**

**Rear admiral (ret) Ort: NATO Centre for Maritime Research and Experimentation**

**Mr De Jonge: Organization for applied nature-scientific research (TNO)**

The **Chairperson:** Welcome to the second session of these round table talks. I give the floor to our invited guests to make a brief statement in advance. At some point we will have to suspend the hearing for voting in the plenary sitting.

**Mr Wezeman:** Thank you, madam Chairperson. I was going to say it is a bit weird. I am sitting here for the first time in this parliament, I am Dutch and I speak English. But I am not going to change that. I have done this work for many years and even if I started in Dutch, I would continue in English after three minutes. As a concession I will present a Dutch version of the notes I made in advance.

Basically, I was asked to answer two questions. The first question is: who is doing what on submarines and why? Secondly, I was asked to comment on the letter to parliament about the vision on the future of the Dutch submarines.

Who is doing what? The answer to that question is rather simple. It is very factual: many countries in the world have submarines. More countries are requiring submarines. New developments in submarine technology have already been mentioned. That is one of the reasons why countries are

again interested in submarines. You could say that there is a sort of renaissance. Submarines have gained much more endurance with air-independent propulsion. That keeps them under water for more than two weeks if necessary. There are new sensors and new weapons. New torpedoes and new missiles, including land-attack missiles, are becoming quite common. A submarine nowadays, if it hides, let us say somewhere off Spakenburg, could hit every place in the Netherlands with its weapons without any problem. That is quite a significant change as compared to twenty years ago or even ten years ago.

New countries having an interest in submarines are popping up, especially in East Asia. Vietnam recently introduced submarines. The Philippines is talking about submarines. Bangladesh recently introduced submarines and Myanmar is interested in them. Several countries that have submarines are looking at expanding their submarine forces. Australia is doubling theirs. South Korea is looking at expanding its submarine force. The Japanese have decided to buy more submarines than the one per year they already did. They have a very significant submarine force and are currently increasing it.

The question why is much more difficult to answer. Most countries do not work like West-European countries, including the Netherlands. They may be democracies, but democracy is not always functioning. Defence policy is not discussed in parliament and certainly not in politics. Any discussion about details like what to acquire and why to acquire it, is often completely lacking. In the Netherlands, we get at least a nice set of papers about defence from the government. What is the security situation of the Netherlands? How is that being filled in? We have a parliament that can discuss that.

Sometimes it is obvious why countries have submarines. In East Asia there is a very clear threat. Countries such as Vietnam, the Philippines and Indonesia see a very clear threat. Of course, if one of your neighbouring countries, China, says «this is our maritime territory, there is no discussion about it» and then moves in with a large naval force which is becoming ever more advanced and bigger, you have to react and you buy submarines. That is the underdog weapon. It is an access-denial and area-denial weapon of an extreme capability. One Vietnamese submarine, lurking around somewhere in the South Chinese Sea will cause a major headache to the Chinese for any operations that may hamper Vietnamese interests in the area. That is a very obvious reason for a submarine to be acquired.

In some of the other areas it is a bit less clear. In South Asia, India and Pakistan have quite large submarine forces; both are looking at expanding their forces. But the «why» is less clear here. In Pakistan there is not really discussion about it and the same is true for India. Most countries in South America have submarines. These are mostly old submarines and some countries are looking for new submarines. Brazil just bought five new submarines, including a nuclear-powered one, without giving a clear indication of what they need it for. What is the threat to Brazil for which it needs submarines? The one thing they mention is protection of its economic zone, oil platform protection for instance. To be honest, in Brazil there are some people who laugh about that, saying «why do you need a submarine for that?» Of course, you can use a submarine for that, but there are many other options which are a lot more cost-effective and more flexible.

Why would the Netherlands want to have submarines and does that make sense? In the vision documents three steps are taken. First of all, the general security issue is mentioned. It was talked about in the first session. I can agree with that. If you want submarines, where are you going to acquire them? Cooperation has been mentioned. It is obvious that we cannot do it on our own, so we have to buy the submarines somewhere else or we have to cooperate in the development, purchase



and use of them. Japan could be interesting, together with the Australians. These countries are looking into building submarines of exactly the type and size as those of the Netherlands.

The main issue is the reason why the Netherlands should have submarines. In my paper I am mentioning severe weaknesses. I mentioned many reasons why submarines are useful. With all of them you can more or less agree. The question is, however: are submarines the most effective way of solving the issues at stake? In a perfect world you have millions of euros to spend on defence and still have enough money for all the other things, but that does not work that way, of course. You have to set priorities. The question to answer is: are the tasks that we foresee for submarines priorities for the Netherlands? Are there other, more cost-effective and flexible means? Just to mention one task: the defence of the Caribbean. I would say that submarines are the least effective in defending the Caribbean against Venezuela. Venezuela is not going to invade Aruba, even if they sometimes say that they want to do something like that. There is not only the US, but also the OAS, the Organization of American States. Then we have the UN, not to speak of other institutions. It would be a bit weird considering Venezuela as a clear threat, when at the same time supplying this country, not with the submarines we try to sell them, but with the electronic equipment for their tall surface ships as well as with the landing craft with which the Venezuelan marines would then probably land in Aruba.

In the end, the question is: what does the Netherlands want? What task does it see for itself with regard to the security issue? What tools does it need to carry out this task? What can the Netherlands afford? What are the real priorities? How do submarines fit in? To be honest, considering most of the aspects I would say: submarines are not really top priority. It is good to have a discussion about the question where submarines fit in with the priorities when it comes to the tools the Netherlands need to fulfil the various tasks as they are prioritised.

**Mr Williams:** Thank you very much, madam Chairperson. By force of circumstance I have to give my comments in English. I will confine myself to five basic points which you are probing around in the questions that you sent us. The first question is about the utility of military force. Why do you have military force? You have military force to change behaviour or to make an informed decision. It is both of those factors. You are trying to change behaviour either by deterrence, persuasion or dissuasion. This combination factor means that you are seeking the most cost-effective platform, to give you those three elements in one bundle. I am a submariner by trade, but I left my submarine career behind me and worked at the strategic level. I would still contend that the submarine does give you those three elements in one bundle quite effectively. It is discreet, it has the ability to change behaviour in a very dramatic way and it gives you complete discretion in terms of the collection of intelligence to informed decisions. We can programme that in questions.

The second point which I made in my submission to you was: as you consider the future, that future is about 50 years ahead. Your programme will start delivering in about ten years. The whole life could be anything between 30 and 40 years beyond that. The platform is just one part of it. It is the outside wrapper. Therefore, you have to probe around the adaptability of the sensors and the human element that you are going to plan into that platform.

The third point which I would stress is the difference between science fact and science fiction and the difference between science, basic science and technology. We are all very familiar with the transformative effect of modern technology. But the facts are that the world in which we live is constrained by the physical laws of time and space and the basic laws of physics, which make sea water impermeable to electromagnetic radiation.

Immense amounts of money were expended on both sides during the cold war to come up with different solutions. We emerged from that long period of huge endeavour with the acoustics as the only mechanism that really works in water. That has certain constraints and it constraints the size of the body that you can use and the type of platform you can use to actually deliver effect. So we can probe around the effects of introducing unmanned vehicles and robotics into this space, but ultimately I believe we have to come back to a basic discussion: physics as opposed to technology.

The fourth point I want to make, is one of numbers. In 1990 there were 862 submarines operating across the world. 2015, the last time a sort of census was done, there were about 512, which is quite a big drop. The largest part of that drop is in the Euro-Atlantic area, by about 40%. The shift of balance is going to the Asian area, where there is a huge growth. There, the number went up by 30%. Most of that is in the convention area. There is a complete re-bouncing of effect into the Asia-Pacific region. However, what has gone in the Euro-Atlantic region are the smaller coastal submarines. They have been replaced by much more effective and more modern platforms, principally produced by France and Germany. The last point I want to make is on the resource that the Netherlands actually has and that you have already invested in over a very long period. Fighting power is made up of three components. The first is the physical element, which is the platform. That is what we all look at. Then there is a moral component, which is actually based in the society. The third element is the conceptual element; knowledge. Once lost, it is almost impossible to recover. You have invested a huge amount of human capital and effort in a programme up to date. As you consider this decision, that human capital is immensely valuable across the alliance. In the 29 nations of NATO we have to look at the marathon powers and the capable marathon powers, of which the Netherlands is one, and those with a high-end capability and those with other capabilities. The Netherlands has a highly technical society and a high-end capability and makes an immense contribution in that regard. That human capital is part of your debate. I would suggest that you consider this programme going forward. This is probably not a 20- or 30-year programme. You are probably talking about 50 years in terms of legacy.

**Mr Ort:** Thank you very much, madam Chairperson. I have been looking into the subject of this round table talk from my experience as a naval officer. The last position as such I held in the maritime command in Northwood as chief of staff. Currently I am the director of the NATO Centre for Maritime Research and Experimentation. When preparing for this round table I asked myself three main questions. Why would the Netherlands need submarines? What makes submarines so attractive? How do manned submarines fit into an appreciation of the future, which indeed lies probably fifty years ahead?

Why would the Netherlands need submarines? I have read the vision that is on the table today. I think it is very well worded. There are definitely challenges to the Euro-Atlantic security and challenges to international law and order. There are also quite a lot of crises and conflicts to the East and South of NATO's territory and to Europe in this case. On top of that, there is increasing global interdependency of our economies, which is essential for an open economy as the Netherlands. We are very much dependent on the security of sea lines and the safety of our harbours for the majority of our trade. Last, but not unimportant, we see an increase in security challenges in the maritime areas, like the Arctic, where economic interests are heavily contested. If you look at those interests from a Dutch perspective, it makes sense for the Netherlands to operate a robust navy. The submarine is an excellent element of that.

I now come to the second question, namely what makes submarines so attractive. Not only are submarines very effective, they are also very cost-effective. Let me explain why I think that this is the case. It is primarily because of the versatility of the platform. I mention the following characteristics: endurance, flexibility of the payload and the fact that submarines can operate covertly. Submarines cannot only collect intelligence, but also analyse it. As was pointed out by previous speakers: it is the ASW-platform of choice, because it operates in the same medium as the opponent. Therefore, it has the advantage in the detection. These characteristics give the submarine a very powerful force protection potential and a big potential in area denial. In my last job as chief of staff in Northwood I operated the Dutch submarine off the coast of Somalia in counter-piracy. We have seen a proven effectiveness even in that area. These characteristics give the submarine a combination of specific capabilities which is unique: maritime striking power, the intelligence potential, the possibility to operate with special forces and the possibility to exercise strategic influence. Whilst it may be true that, if you consider any of these elements on their own, the submarine might not be the only choice or even the most cost-effective choice, it is the combination of these elements that is truly unique. That is what gives the submarine its huge attractiveness.

The third and last question: what about the future? There are two elements here to consider. The first is the increasing transparency of the ocean. The other is the increased use of autonomous systems. Just a few words on transparency: small platforms with a low signature will always be very difficult to detect. I completely agree with what admiral Williams explained. If you look at the pure physics that we are dealing with in the underwater domain, then you will not see any fast solutions anytime soon. Even if you factor in a capability that has not yet been developed, you will still have the statistical challenge of these vast ocean areas. It will require huge economic resources, even with those new means, to find small submarines. Whilst it is an old recurrent claim that we would see transparency soon, that is nowhere near in practice.

As to the autonomy: If you asked me what the main reason is why we will continue to need manned systems, rather than completely autonomous systems, I would say that you need a man in the loop, to be able to react adaptively and flexibly to changes in the circumstances. That is the main argument, but there are other arguments. An unmanned system, which would be able to exercise the full combination of capabilities that I eluded to before, is so extremely complex to create that this is still science fiction. Even if it could be done, technically, we would still face a huge challenge, which is moral, ethical and legal. Take for instance the discussions about the unmanned car, the Google-car. A lot of money has been spent on that because of the huge commercial interests that are at stake. It is a huge challenge. Most nations still do not have the legislation to allow such cars to operate. We would face similar problems in the maritime.

**Mr De Jonge:** Thank you very much, madam Chairperson. The challenge is time here. I am very glad that I can build on some arguments that were put forward earlier, especially by admiral Williams, about knowledge as a conceptual element of any capability. Military capabilities are more about knowledge than about hardware. I know that we are talking about hardware here today, but knowledge is a strategic military capability which is crucial in all phases of the lifecycle of military capabilities. It is indispensable in naval shipbuilding, which in our case is often done nationally, which is a strategic choice. The so-called triple helix, or ecosystem in the new speak, builds, maintains and shares a strategic knowledge base. The knowledge base enables the MoD to have the latest innovation and knowledge inserted in each new ship design at the lowest possible cost. The Dutch Underwater Knowledge Centre (DUKC), part of

the NIDV, is the custodian of this knowledge base for submarines. It comprises all the knowledge that was built up with the Walrus-class submarine over the last 25 years. However, some knowledge was also lost since the last Walrus-class submarine was put to sea. The actual detailed design of the submarine is a very complex matter, which is no longer available in the Netherlands as hands-on experience in all its facets. However, the strategic knowledge base that is available, is indispensable to build, maintain and upgrade expeditionary submarines in the Netherlands in a strong international partnership that is based on sharing knowledge. It provides jobs and technology and turnover throughout the 30 (or more) -year lifecycle of the new submarine. Moreover, we need this knowledge base to build the next generation submarine capability in 2055, when I will be old and grey.

TNO is a valued partner for naval shipbuilding programmes, because of its continuous and broad naval R&D-programmes, its objective scientific assessment and its understanding of the Royal Netherlands Navy throughout the full lifecycle of all its capabilities, including submarines. Therefore, TNO is ready to assist the MoD in the objective cost-benefit analysis, mentioned by Mr Reyn earlier, of the possible international submarine partnerships. In the longer run and in close coordination with the MoD, TNO is also able to engage in concept development and that is another important element of your future capability, together with the industry. This ensures the long-term strategic knowledge base and makes sure it preserves and even improves.

This will not only improve the safety, affordability, and the quality of critical mission elements that make up the Dutch expeditionary submarine, but it also improves the competitive edge of our national shipbuilding industry within an international submarine partnership for the future.

#### **Chairperson: Ten Broeke**

The **chairperson**: There is now room for asking questions. I first give the floor to Ms Belhaj.

Ms **Belhaj** (D66): My point relates to the remark you made that the Netherlands is in a sense able to have all the right institutions for innovation. On the other hand I can understand that we do not have enough knowledge to realise such an important development.

Mr **Knops** (CDA): My first question is to Mr Wezeman. He made a lot of critical remarks about the vision of the Dutch Ministry of Defence. They were a bit contradictory to the other introductions. I would like Mr Wezeman to comment on the introductions of the three retired navy officers.

This is my second question: to what extent will the Dutch submarines be seen by our NATO-allies as a serious contribution to the NATO-based protection of the freedom of our territory? To what extent is this a unique capability that we should purchase?

Mr **Vuijk** (VVD): Thank you very much for your interesting contributions. I have a question for Mr Williams, Mr Ort and maybe Mr De Jonge. Could you please elaborate a bit more on the topic of ocean-going submarines? Are those important or not? Some of you mentioned the fact that 30 or 40 navies use the same sort of silent conventional submarines. You did not mention the ocean-going ones. Most submarines are coastal ones. What is the importance of ocean-going submarines for NATO? Do other navies have this ocean-going capacity, within or outside NATO? Do we know something about that?

**Ms Eijnsink** (PvdA): Thank you very much for the papers you sent us and for your introductions. My question is about the adaptability of the system. As we all know, threats are unforeseeable. Mr De Jonge referred to the fact that the civil systems in technology are more durable in ten years than the military systems. How can platforms be made adaptable? That is what Mr Colijn already talked about. The purchase of military weapon systems is decided on here in parliament, in a political way. Mr De Jonge emphasized the importance of knowledge. How can we, in the political field, handle that through the years? This has to do with the budget as well. It is hard to allocate a budget for five, ten or fifteen years. We have been through that, I can assure you.

**Mr Houwers** (Houwers): Thank you for your contributions. Some of these were critical. That is good, because it makes us think about things. We have to make choices. Flexibility is very important. Mr Williams talked about systems being «future-proof» and said that flexibility is very important. Could you explain a bit more about what you mean by flexibility? Once you have a design, how can you assure it remains flexible?

**Mr De Roon** (PVV): First of all I would like to thank the four gentlemen for their excellent presentation and their excellent papers, which help us streamline our thoughts on the topic of the replacement of our submarine force. In particular, I would like to mention that I most appreciated one particular remark in the paper of Mr Williams – but I think it was also stressed by some of the other speakers – that one of the more important assets is that we have well-trained and operationally experienced people. Once we put away with that, it will be very difficult, if not impossible, to ever rebuild it again. I think we should all be very aware of that. I have two questions, one to Mr Ort. You mentioned in your paper that Russian submarines have made a major jump in technological performance, with capabilities we have not seen before, which are not mirrored by the West. Could you explain which capabilities they now have that we do not have, but should have or even surpass? My other question is to Mr De Jonge. You said that the combination of the three Dutch knowledge institutes TNO, Marin and NLR, the triple helix, allows our Ministry of Defence to integrate advanced allied weapon systems into technology and Dutch design, against relatively low investment and lifecycle cost, compared to foreign designs. My question is whether that is a fact or wishful thinking. If it is a fact, could you please give an explanation why we accept it as a fact?

**Mr Ort:** I will combine some questions, like we all will, and see where that will get us.

I wrote it in my paper, but I did not mention it in my introduction: the current contribution of the Dutch submarine service to the submarine capability of NATO is highly appreciated by NATO, partly because it is complementary to the nuclear capability that is fielded by some of the other big maritime nations. This appreciation provides the Netherlands with a seat at the table where decisions are made about certain operations and where missions are being prepared.

Another set of questions relates to the future and the potential of using unmanned platforms. Technologically speaking, this is something of a more distant future. What would the future look like? I see a future of heterogeneous networks, in which we have a combination of all the means that are available. This will definitely consist of some of the unmanned systems, because they are cheap. It will never be the full solution. We will also need manned systems. I already talked about the man in the loop. I see a future where the submarine could provide a

logical platform, act as a mothership if you like, to utilize autonomous sensors and autonomous vehicles.

That leads us to the question about adaptability. Something we might want to consider is the possibility of a more gradual development. The fact that we replace a complete capability after a lifecycle of 30 or 40 years, is not very conducive to keeping the capability up to date. Some other nations replace a capability by a relatively smaller number of platforms, but they do that more often.

The other manner in which we can prepare for adaptability is to build into the design provisions for a modular approach. That is related to the argument about size. Size gives you several things. It gives you expedi-  
tionary range and it gives you the opportunity to adjust the trim of the platform so you can operate globally without logistic support, and operate in any environment, no matter what the temperatures and the degree of salinity are. So size is also related to adaptability. I think I will leave it at that.

**Mr Williams:** I think I will just pick up on the theme, because there are two questions around adaptability and flexibility which Hank Ort just talked about. Also it was asked what the difference is between ocean-going and coastal, what the emphasis is and why that is important. If I could just fish in my pocket for my prop: this iPhone is a very good example of something that is not very flexible or very adaptable, and deliberately so. I wonder if anybody in the room has got an iPhone 3G S, still. No. No-one still wants an iPhone 3, because it will not operate on IOS 9. It just will not. So when you are thinking about a platform that is going to last 40 years, you have to design it in such a way that it can keep up with some of the technological developments.

How are you going to handle basic elements in the platform – power distribution, cooling – in different environments? The temperature of the water for example has an enormous effect because of marine growth. If you do not operate in this environment, these are things you would not even think about. You actually have to specifically design the systems to backflush in tropical waters, in order to prevent marine growth. Otherwise the cooling system will not work and if the cooling system does not work, none of your fancy electronics work. So adaptability and flexibility in design come down to understanding the environmental factors and good engineering, to provide a series of ports and sockets which will allow you to go forward.

At its most fundamental end, it is about protocols. The fact that these things do work, that they are so wonderful and that they rule our lives, is due to the protocols that people have designed into them. They are an open architecture that everybody can assimilate. So as you specify what type of platform you are building, if you specify it down to the particular type of equipment you need and the particular type of architecture, that will lock you in forever, in terms of legacy. In that case, you cannot adapt it for the future. So the whole emphasis as we go forward is on open architectures and different designs.

Look at the basic wrapper of the platform. The basic engineering is hydrodynamic performance or propulsion performance. That has to be built with a long-term view, but the internal design of the platform has to be sufficiently adaptable so it can keep pace with some of the new technology in terms of sensors and weapon developments. After all, to reverse engineering is highly expensive and very difficult to do. I suppose all of us here probably served in platforms that were very old, some dating back 25 or 30 years, in which we tried to insert new technology, but really found that very difficult to do, because of its nature. You can design that out at this stage. I think that people increasingly will, but that requires clever thinking.

One of those clever-thinking parts is the difference between ocean-going and coastal. You can take a very small submarine to sea for a very long time. The German U-boats of the Second World War were actually very small platforms, compared to the platforms of today. The crew lived in very awful conditions, but had long endurance, simply because that was the way that they operated. They were not very effective. They were ineffective in today's terms. If you are going to build an ocean-going platform, it has to have endurance and that is a design feature that you build in.

Why do you want them ocean-going? Because you have interests that demand that you have an ocean-going capability, for instance. That may be because you have territories which are global. I guess the Netherlands and the United Kingdom share that. We have dependent territories that are global and therefore there is a need to provide physical securities. That is part of that. There is also a need in terms of freedom of navigation. I am conscious we are in The Hague here, the home of Grotius, in terms of *Mare Librum*. The freedom of navigation, the freedom of the seas is a fundamental tenet for all of us, as part of the trading network, but you cannot defend the freedom of navigation close to your own coast. That is actually a task that you have to try and enforce, in various ways, through presence or not. That is how some countries can operate. They can have deniable presence on a global stage. It depends on what is driving your interest and what is driving your output, the need for your requirement. I think I should leave it there, because otherwise I take up too much time.

The **Chairperson**: That leads us back to the innovation?

Mr **De Jonge**: I like the example that admiral Williams used of the iPhone, because there is a really good comparison with submarines, namely the battery life. The life of a submariner depends for a great deal on the battery life of the submarine, so that is one of the innovation areas that we should really take a good look at. It is actually one of the areas in which the Netherlands is very capable, although you would not expect that. We have very good technology in the Netherlands and very good knowledge about how to cope with the energy mechanism on a constrained platform such as a submarine.

There are more areas that I did not mention in my presentation here, but they are mentioned in my paper, which describes the inherent Dutch knowledge base of which TNO is a part, but that is built up around companies, but also around the navy itself and the maintenance people who work on the Walrus-class in operation now.

I will now address the question Mr De Roon asked about the weapon system integration. Are we still capable of such an integration? Is there an example of such integration? There are many examples out there, including the Walrus-class submarines, which integrate a US-torpedo system into a Dutch-designed platform, which is quite something. There are other examples as well, for instance on the surface fleet. As one of very few countries, the Netherlands is, based on its inherent knowledge base, allowed by the US to carry specific US-weapon systems operated by a Dutch-designed radar. This is almost «cursing in the American church», as we Dutch would put it. So we are talking about American missiles, controlled by Dutch radar. That says something about the knowledge, but also about the measure of trust placed in the Dutch knowledge base that allows us to do that. It allows us to be almost as effective as US-weapons or weapon platforms are – I am not being very modest now – for half the cost and ten years earlier. That is the Dutch knowledge base.

The importance of ocean-going submarines has already been addressed by admiral Williams. One important point to make is that the design and the size of a submarine are only a result of the requirements imposed on the platform. These requirements greatly define not only the size, but also

the form of the submarine. What you want to do with it, defines the form. That also goes for an iPhone, by the way. An ocean-going submarine places very heavy demands on exactly those concepts that the community around the Walrus-class has built its knowledge on. That is the safety concept, and that safety concept – I have not heard that before – is a very important factor. If you operate a coastal submarine over 4.000 m of water and something goes wrong and you depend on the bottom as one of your safety aspects, that bottom is not there. You have to think about that and that demands a lot of knowledge. In the structural design and the acoustic signatures are perhaps the most important aspects, as so eloquently mentioned before in the presentations. One of the tasks of the submarine is to gather intelligence and it is better to do that while nobody else can measure your acoustic signatures. So that knowledge is also resident in the Netherlands and also defines one of the characteristics of the Walrus and its successor.

I will conclude with a question of Ms Belhaj and Ms Eijsink about adaptability. I think that adaptability is one of the most crucial questions for you. I thought of something while I was jotting down the question: it is not a once-in-a-lifetime, but a once-in-a-lifecycle-opportunity, if you want, to make a decision about acquiring a submarine. A submarine is not only a hull, but the hull does need to be defined very properly. The adaptability lies in the way in which you design a submarine, in how you design adaptability into the submarine itself. So that means that after all we have heard today, the Dutch submarine design is specific to what we want to do with that submarine. Our knowledge needs to be inserted in any design we choose, and that is a matter to be addressed at a later stage. That is not something to be decided on now, but after the B-phase, the decision on which design to choose and which partner to choose, has to be fed with that knowledge, which is resident in the Netherlands submarine community, of which we are merely a part, but that knowledge needs to be inserted into the design in order to ensure that the adaptability you all want so badly is inserted in that submarine design. That is one thing that needs to be addressed in any strategy for the near future.

**Mr Ort:** Before I pass on the mike to Mr Wezeman, there was one question by Mr Houwers that I did not answer yet. It was about the Russian submarine development. The quote in my paper was actually a quote from commander Johnston, who is currently commander maritime command in Northwood, so those were not my own words. Secondly, it is a bit difficult to go into the details of something that is in essence classified, but I can say that what is of concern to NATO in its decision-making, is the fact that the Russian submarine building programmes have all been revived. There is a lot of development and construction going on. It is about platforms that become more silent than their predecessors and the most varying aspect is related to the weapons that these platforms can carry. You may have heard or read the news about much bigger nuclear torpedoes that can be used at a longer range. As Mr Colijn pointed out in the first round, there is some saber-rattling involved in the claim that these weapons might be used in a tactical way. So if you add all of that up, it goes to show why it is extremely relevant for NATO to have the appropriate means to counter that development. For that purpose, a submarine is a good choice of platform.

Mr Wezeman, maybe you can now comment on the earlier interventions.

**Mr Wezeman:** Let me start by saying that submarines are mighty fine weapons. That is, by the way, a quote about tanks, but still, submarines are great weapons. Especially when you look at area denial and access denial in the maritime sphere, submarines are probably the best weapon you can think of, certainly for smaller states. They are stealthy, they are hidden and they give surface forces a major headache. Look at the enormous amount of effort the British put in 1992 into trying to find this



one Argentinian, not even very advanced submarine with not very advanced weaponry, that was probably somewhere around there. That was a major issue and that submarine being there or not being there made a hell of a difference for the British naval forces. The Vietnamese are buying these things. One or two submarines are somewhere in the South China Sea and the Chinese have no idea where they are, but they do know that they are probably there. They can pop up and they can reach anything within a range of 100 km, from wherever they might be. It is a very cheap solution for area denial and maritime access denial.

The question is another one. When I read the vision paper, the list of reasons given there for the acquisition of new submarines made me wonder if there are no other alternatives that are more flexible and more cost-effective. I am not saying that alternatives would save you money on defence, but you could spend that money on defence somewhere else. If you say that you need submarines for the defence of the Dutch territories in the Caribbean or of territories for which the Netherlands are responsible in the Caribbean, then I think you are way off. Venezuela is not going to invade, there are other means and if you really want to do something there, then it should probably be a couple of marines on a surface ship, not even a very expensive one. It is a deterrence, at best.

Submarines also have a serious intelligence gathering function, but are there no other means? Are aircrafts not more flexible and much more mobile? You can have them here today and there tomorrow. Try to do that with a submarine. These are questions you will have to ask. The gathering of intelligence in general is a very secretive business. You will have to ask the Dutch intelligence services how they think about the different means of gathering intelligence and where submarines stand in that. Ask them if what they get from submarines, if they get anything at all, is something they cannot get from somewhere else.

The issue of enforcing arms embargos has been mentioned. To be honest: that is rubbish, even if I do not want to use that word. Arms embargos are enforced with legal means, by law enforcement agencies, by policy, by political pressure and by intelligence which is very much for customs and the legal means, the law enforcement. The military play a role in gathering that intelligence, but arms embargos are not really enforced with military means by the Netherlands. Certainly there are ships around to check what is going to Iran or what is going to Yemen, but is the Netherlands involved in that? Does the Netherlands want to be involved in that? Look at the problems you will get from it. One ship, a Spanish ship, stopped a North Korean ship carrying scud missiles to Yemen. That led to a major diplomatic problem. Does the Netherlands want to be involved in that?

**Mr Knops (CDA):** On the one hand, you are saying that submarines are very cost-effective. On the other hand you are saying: maybe they are too expensive.

**Mr Wezeman:** I am saying that they are cost-effective for certain roles, and for other roles they are not. The list of roles given in the vision paper contains exactly those roles about which I have serious doubts as to the cost-effectiveness of using submarines to do the task. Submarines are cost-effective for roles of which I wonder whether the Netherlands intends to play them. Is the Netherlands going to be seriously involved in access denial, in area denial? Is the Netherlands going to be seriously involved in the protection of sea lines of communication in East Asia? That is the big question. That is, of course, also a matter of political priorities. What does the Netherlands want with its submarines? What does it want with its security and defence policies and how do submarines fit in that? Are there no other means that fit into it much better?

**Mr Ort:** I would like to remind the delegates of something I mentioned in my intervention. If you unpick the list of potential tasks, then it is indeed in some cases possible to build the argument that maybe submarines are not the only solution, or maybe not even the most cost-effective solution, but what we are looking at is choosing a weapon system that will have the flexibility to cover a unique range of tasks. That is an important argument to keep in mind. The second element is that it is easy to suggest that there could be alternatives, but in many cases these alternatives are not available now. So they would require quite a costly investment as well. The Non-Practicing Entities (NPEs) were already mentioned. If you talk about intelligence gathering, we often refer to satellites. Well, the Netherlands does not operate its own satellites. So that would need to be taken into account. I would like to give Simon Williams the floor shortly to say something about embargos.

**The Chairperson:** He has already indicated that to me, so if you leave that to me, I can keep the order here a little bit. Rear admiral Williams, make it a short intervention please, because I would also like to have the members pose a few extra questions if necessary. I do need to remind you of the clock ticking away: we have about ten minutes left for this session.

**Mr Williams:** Just briefly: the question is not whether a submarine can complete an arms embargo. Of course it cannot. It is a contributory. Can you contribute? There was a question about national versus NATO. How is the conundrum resolved if the Netherlands» government wishes to employ a Dutch submariner on a national task versus a NATO-task. That is something that happens almost every single day. Throughout NATO, forces are chopped to national or under a NATO-umbrella. That is part of the whole process within the alliance. The essence of it is: can you contribute? Can that platform make a contribution? Because none of us can do any of this alone. The only two nations on earth that have the military power to do things on their own, are still the Russians and the United States of America. The rest of us, only in very limited circumstances, in very defined national circumstances, have the combat power to be able to do things on our own. The rest of it is about which contribution is going to make a difference, how much that contribution buys you in terms of political power and in terms of your ability to work as part of the alliance.

**The Chairperson:** I would like to go back to Mr Wezeman, so he can continue to answer. When I said ten minutes, I was referring to the time we have left to answer this set of questions. We will then do another round of questions.

**Mr Wezeman:** I agree that some of the things you can contribute are a bonus effect in a way. But that is true for other assets also. If you have a frigate, that also has a bonus effect. You do not mean to use it to enforce arms embargos, but it is probably better to do it that way. It depends on the list. What does the Netherlands want with its maritime forces, with its security forces? Which tasks does the Netherlands want to do and can do? Wherein does the Netherlands want to be involved? And then, what are the tools needed for that? You then make a priority list of these tasks and you find out which tools there are. From among these tools you have to choose. Which tools can we afford? Which tools are the most flexible for our needs? Not for the needs of others, but for our needs. You can of course link that to some of the needs of our allies. After all, we are in an alliance, either in NATO or in the EU, but in the end we set our own priorities in what we can do and what we want to do and how the tools fit in that.

One of the things the Netherlands is very strong in, is peace-keeping under a UN-mandate. But then there are always problems. If the UN starts screaming for helicopters in the DRC, which they do, nobody responds positively. Everybody in NATO says: our helicopters are too busy, we cannot afford helicopters, even though we know that for the Netherlands, that kind of peace-keeping is a priority and that kind of prevention of conflict and killing is a priority. So again, it is a matter of setting priorities and the Netherlands making up its mind.

The **Chairperson**: Are these your answers, gentlemen, to the questions? Then I would like to go back to the MPs for another round of questions.

Ms **Belhaj** (D66): It is getting more difficult. The feeling I have is that when you are in a decision-making process and you ask people to name reasons why a submarine would be a good thing for the Netherlands, you will end up having 1.000 arguments in favour of having submarines. Can the Netherlands really focus on the submarine? After all, if we do purchase a submarine, that will have consequences for other parts of defence. It could also mean that you end up having a stronger urge for more submarine ships. That could also be a consequence. I still do not have a really clear answer to my earlier question: in which way can the Netherlands really focus, so as to make things work, but also to remain a serious partner in all kinds of international relations? That question has not been answered yet.

My second question concerns the decision-making process as well. The United States have organized in their own defence organisation the escape concept, in which they have a high officer, a director, who can say something about the cost assessment. He can advise without any negative consequences. My second question is: in which way do you think it would be good for the Netherlands to also integrate such an institution to prevent debates like the ones we had about the JSF?

Mr **Knops** (CDA): To create a happy ending, I would like to comment again on what Mr Wezeman said. He was rather critical about the vision of the Ministry of Defence. He said he missed some extra arguments in the letter, rather than saying: submarines do not have added value. Is that correct? If so, I understand him and we might have a nice debate with our Minister after this meeting about whether or not the proper arguments were used in the vision paper. Did I understand him correctly?

Mr **Vuijk** (VVD): I have another question about the ocean-going capability. What are the consequences if you want it? We talked about silent and coastal. We talked about silent and ocean-going. What are the consequences thereof? To be more precise: what are the consequences for the size, for the quality of the hull, for the engine for example? What are the consequences for the crew? Do we need more or less people? What are the consequences for supplies, for the fuel, for the weapon systems? I am just making a few suggestions. Maybe you could elaborate on the consequences of choosing an ocean-going capability.

My second question for Mr De Jonge is about employment issues. What is the position of the Dutch industry? How many people are involved if we go for this capability? What are the positions of the universities and the knowledge institutions? Maybe you can elaborate on the importance of that decision for our economy and for our people.

Ms **Eijsink** (PvdA): Thank you for your answers. My question is for Mr Wezeman. If I heard you correctly, Mr Wezeman, you were talking about a set of priorities. We discussed earlier that there are unknown threats and unforeseeable threats. We also learned through the years that capabilities are needed when they are demanded. So could you please comment on

that? We talked about the adaptability of systems in five, ten, fifteen years. We should not neglect the adaptability of politicians by then or over the years. How would you relate to that? You are from a well-known institute, SIPRI in Stockholm, Sweden, and you are better informed than all of us; I know some of your reports about this. Could you reflect a little bit on this or otherwise send us your reports about this, because up north, where you live, there are all these problems concerning submarines, and the Nordics have different aims for that as well? I am just looking for your priorities, because I cannot connect them to some of your reports, if I may say so.

**Mr Houwers** (Houwers): I have a question for Mr De Jonge. In the position paper he sent us, he wrote about close international cooperation and also about an industrial partner. What is more important: choosing an industrial partner at the beginning of the process or choosing other countries to cooperate with? After all, one choice may well turn out to be a problem for the other.

**Mr De Roon** (PVV): It is mentioned in the vision paper of the Dutch Ministry of Defence that technological developments will make it possible to operate new submarines with smaller crews. That is, however, not specified with any numbers, nor is there an explanation given. I wonder if one or more of the gentlemen present could give us some more insight in such an idea. What kind of technological development are we talking about? How much reduction could be reached? I believe we currently have a crew of 50 people. I would appreciate it if someone could say some more about that.

**Mr Ort**: I start with Ms Belhaj's question about the ability to focus. Currently the vision for the Dutch armed forces that I am aware of, is that we are still aiming at balanced armed forces. So far, we have never suggested that we should choose one service over another or one weapon system instead of an important weapon system of one of the other services. If we look specifically at the navy, I stick to my original argument that within a robust navy, which is very sensible for a nation as the Netherlands to maintain. The submarine would fit very well into such a robust maritime service.

To have independent advice in the process of decision-making generally seems a very good idea. Round tables like this should already meet part of that desire. Maybe Mr De Jonge can say something about that from the perspective of a knowledge institute.

On the subject of getting back to the idea of ocean-going capabilities and the consequences, also in relation to the possibility of having a smaller crew: it is difficult to give definitive answers to those questions, because we are now at the start of the process. We are defining the requirements and ultimately those requirements will be decisive for what that technically means for the platform. Very generally speaking, however, I already mentioned that a larger hull size gives you more flexibility, specifically with the payload, but also with creating provisions for potential future systems that could be operated from the submarine. Maybe Mr De Jonge can comment on that in more detail and also answer the question about industrial partners. Can I give the floor to you?

**Mr De Jonge**: That is up to the chairman.

**The Chairperson**: I will intervene if I disagree.

**Mr De Jonge**: I trust you on that, Mr chairman. I learn quickly; I work for TNO.

Coming back to the focus on submarines, a question of Ms Belhaj, I would like to add a few things to what admiral Ort already said. Beneficial effects of investing in a submarine are not only limited to the submarine, because the technology that is used in the new submarine design is also beneficial for other parts of the Netherlands» navy. For example, like captain Ammerlaan already indicated this morning, the command and control system that is used for the future submarine is almost identical to the ones used on other navy ships. So the lessons you learn about crew, design and manning concepts that are integrated into this very innovative design, are also applicable to other parts of the navy. Perhaps the general lessons learned about crew sizing, manning and team work that are inserted into that command and control system, are also applicable to other parts of the armed forces.

Another aspect which may lie outside of the defence realm, but is also important, is the energy concept that is going to be used on the submarine. It is an ongoing process. As I said earlier, battery concepts are improving almost within the year. We need to conceive the submarine in an intelligent way. We need to design it in such a way that, in ten years» time, we can include new battery concepts that will lengthen the time that a submarine can remain undetected in the water. There are lives at stake here. If we can extend that time by improving our battery capability, we are less dependent on other technologies such as air-independent propulsion, however important these may be in the years to come. So it is a matter of betting on two horses instead of just one. That it also very good.

**Ms Belhaj (D66):** Let me give you a concrete example of what I am talking about. We are talking about developing television sets here, but we will need computers in the future. That means you need different knowledge. Having knowledge about building a television set, which is an old thing, is different from having knowledge about building a computer. So when you talk about developments in a submarine, that is not the type of development or the innovation that I am talking about. My question is: are we building television sets or are we really thinking about building computers?

**Mr De Jonge:** I think what you are hinting at, is whether we are building a submarine, whereas in 20 years» time it will turn out that we need something completely different. With the knowledge we have now – and that is of course supporting the decision to be made after the B-phase by the Minister of Defence and the politicians – it suffices to say that it is safe to assume that the submarine will play an important role for decades to come, because of the unique capabilities it offers. Water is impenetrable, we cannot change the nature of the laws of physics. That means that if you want to be in control of the weapon that you are going to fire at somebody that needs to be fired at, you want to leave that in the hands of a trusted human being who has a great deal of knowledge and experience, which is your submarine commander. If you operate an unmanned system, you cannot control that anymore after you lost communication because they jammed you, who are you going to trust? What are the consequences for employment? I mentioned in my paper that by building on the already existing knowledge in the Netherlands, in universities, in knowledge institutes, in the industry, but also in the Royal Netherlands Navy, we created sort of an ecosystem about that submarine knowledge which will enable us to maintain the submarine in-house for the next 40 years. That is important. What does that mean for employment? It means that the very specialized skills we will gain thanks to having that capability in the Netherlands, will have to be built up and maintained from low technical readiness levels up to the levels of people who can be employed on board of a submarine. So yes, of course that

means jobs, but it also means the building of knowledge in that ecosystem. That has an inherent effect on the employment within Dutch society as a whole. After all, innovation is good for business. It is good for the well-being of our society. I will leave it at that, because I do not work for the industry.

Mr Houwers asked a question about partnerships which is an interesting one. Partnerships are multi-faceted. If you look at partnerships, you will hardly ever see partners being on an equal footing. Someone always benefits from someone else. The best partnership is the one in which each partner benefits equally. However, you have to look at it on four different levels. It is government-to-government cooperation, knowledge-to-knowledge – these are institutions such as ours working together – military-to-military – they need to work together with the same strategy and the same strategic culture – and of course industry-to-industry cooperation. All of these forms of cooperation are different. In determining which choice is the best, I think you should, in your cost-benefit analysis, not only focus on the thing you are buying, but on the strategic partnerships you are after. That is how you make sure that the knowledge internationally available is concentrated in a design that is suitable for the Netherlands. You should do that, rather than buying something that at the end of the day will prove not to be what you want. That is why focussing on the knowledge part of it, like I stressed, is important in assessing the international partnerships.

Finally Mr De Roon asked about technological developments and crew reduction. The Netherlands is one of the countries that have proven very efficiently that in our naval systems which is what I am responsible for in our R & D, we can crew our ships with less people with lower costs obviously, and yet provide the same output with the same ships. Already in the past we sailed ships with 200 people doing tasks that the US used 600 people for. I do not know why. Perhaps they had cleaner ships, but it is the efficiency and the effectiveness of the platform that we take into account in knowledge institutes, together with the Royal Netherlands Navy to determine exactly how many people we need for each task and how we combine them in an effective way. That is the manning and automation concept that is at the heart of the integration of everything on board naval ships and also on board submarines. Perhaps you can tell by the expression on my face that I am proud of that knowledge. It is crucial to be able to build navy ships in the Netherlands that are not only cost-effective, but also effective. I think I leave it at that.

The **Chairperson**: There were a few questions left for Mr Wezeman.

Mr **Wezeman**: There was a question by Mr Knops. When I read the list and look at the arguments, I find them weak. There are other things in which I find submarines to be strong, but these are missing from the list. The question is whether that happened by accident or whether it was done on purpose. Is it because the Netherlands does not want to do those things? Or is it because it was assumed that these things apply automatically? Was the thought: everybody knows that? I do not know. I can only go by what is in the document as being the arguments in favour. Then the question about capabilities, adaptability. We do not know what the future holds and we will never know that. There are certain things that are given, that are sort of standard. There will always be a flow of goods across the maritime sphere. Ships will always play a major role in transport and there will always be ways of interfering with that. There will always be countries that somehow, directly or indirectly, may interfere with that. That is to the detriment of a country like the Netherlands, which lives off trade. However, how that is done, what exactly we have to defend ourselves against, we do not know. There are a couple of solutions for that. One solution is that you build cheaply. You find a new threat, a new

challenge, you throw away the old one and buy a completely new one. The other solution is using the hammer, the sledgehammer. No matter what the threat is, you throw a nuclear bomb on it. Of course that is not something the Netherlands wants to do. The third solution is that you go for technology development. You build silver bullets, a couple of them. When trouble starts, you have a fully developed technology and all you have to do, is build it. Well, «all you have to do, is build it» is easier said than done.

The one thing is: build your weapons so that they can be adapted to new, not terribly different threats. Give them space. They need to be big, they need to be spacious, they need to be roomy. You have to design them in such a way that you can plug in something new. There has to be space for that. You will end up with a big submarine, because you can put a new weapon in it, you can put some new sensors in it. Within a smaller submarine, you may not have the space to do so. The same is true for ships. The same is true for basically everything. If you make something small, there is no space to add an additional sensor, to add additional power to power the sensor et cetera. We have to work from that, but we do not know what is going to happen in the future, what can happen in 20 or 30 years from now. We build our weapons for 30 or 40 years. We do not know who or what is going to be our enemy by then. If in 1985 you would have said that the Soviet Union would cease to exist, it would not be our enemy anymore and nuclear weapons would be the least of our worries, people would have laughed at you and said: no, no, that is impossible. Five years later the Soviet Union collapsed and ten years later we started fighting with terrorists, who are now seen as our main threat. We do not know.

Lastly I would like to comment on the question posed by D66 about the issues of control, costs and technologies and the whole process. The US have different ways of doing that. It is a big country with big organizations. There is the Congressional Research Service, for example, there is Congress itself with its hearings, under oath et cetera. There is the US Government Accountability Office (GAO), the equivalent of our *Rekenkamer*, which would also do certain parts of these things. And yes, it is a good idea to do that. It helps parliament. We cannot expect parliamentarians to know all the ins and outs about all the things they decide about. They need the experts to help and this is one way to do it. There are other ways to organize that and they may be even better. That is the way democracy works and that makes the Dutch democracy and the European democracy stronger. As I said in the beginning: in many countries, defence policy is not on the table of parliament, not even in democracies. It is very important that it be there.

The **Chairperson**: Thank you for reminding us how that works. Maybe some of the other members of the panel would like to respond. We have another five to ten minutes left.

Mr **Ort**: I would like to comment on the question Ms Belhaj asked about whether we are designing television sets or computers. My centre in La Spezia was specifically created to think about the future and to come up with good solutions for capability gaps. We have moved beyond the computer. We are now looking at networks. It is all about information. It is all about getting the information, collecting it, analysing the data. So big data analysis becomes a very important element in that. As I explained before, new and possibly cheaper developments in the area of autonomous systems will definitely become a part of the network of the future. It is, however, my conviction that even if you look 20 or 30 years ahead, we cannot do without the man in the loop. Of course there are different ways of organizing that, but a really very good way to do it is to

have, as part of that network, a manned submarine where that human element can be part of the total network.

Ms **Belhaj** (D66): How do you know that it is not possible to have unmanned submarines? After all, one could say: we can go to the moon without a person being inside the rocket. There are cars without a driver. So why is it not possible to have unmanned submarines and how do you know that now?

Mr **Ort**: If I used the word «impossible», then I made a mistake, because you are right to point out that nothing is impossible. The question is how much money you make available for that development and it is a matter of time. We often make the mistake of expecting too much in the very short term and too little in the longer term, so that is a well-known phenomenon to me. I did not mean to say that it is impossible, but it is my current judgement that in the timeframe we are talking about, we will not develop a capability that would be complex enough to cover the complete range of tasks we are currently discussing, while at the same time making sure that such capability would be up to the moral and legal challenges involved in putting it out in the water.

Mr **Williams**: It may be helpful to try and illustrate what the technical challenge is in terms of replicating the capability with an unmanned platform. What you are envisaging is something with an artificial intelligence that is capable of making probabilistic judgements based on very scant information, because that is what the underwater environment is like to operate in. It is very imperfect in terms of the levels of knowledge that you work through and it requires a lot of human... I try to avoid the word «intuition», but it almost requires intuition. There is a lot of skill that you develop because of years of training and practice. You literally stack the dots to find the other submarine or whatever it is that you are involved in. To try and replicate that in a machine will be extremely difficult, because we have managed to engineer out a lot of the high-frequency noises that will make a platform detectable. A high-frequency noise does not travel very far in water. So the way that we detect things at long range in water, is that we have to step down the frequency range. As you step down the frequency range, physically the arrays that you use get bigger, so they are a kilometre long. An object that size requires a great deal of power to drag it through the water and power the sensor and power the machinery that is at the other end of it. So we are envisaging machines operating in the most hostile environment that we know. The difference between space and the underwater environment is that space is a vacuum, where you concentrate on keeping the air in, at low pressure. So technically, it is a challenge. Under water the pressure doubles every ten metres. And then there is sea water. I do not know if any of you own boats, but I have made the mistake of buying one recently and when you own a boat, you discover that when you put the word «marine» in front of it, it doubles the cost. The reason is that seawater is such a hostile environment. It rots everything.

So we have a corrosive environment that changes with pressure and temperature in the most radical way over very short distances. So the engineering challenge is really fundamental. It is completely different to launching a space rocket. We understood the physics. The ballistics we understood. H.G. Wells and others who wrote science fiction well understood how to write the story of a man going to the moon. We knew the physics, we knew we could solve the problem. It was a question of the chemistry and the technology to come up with the trajectory to make it work. When we go underwater, it is a different environment. We have to think of the size of the bodies. If you think about putting in huge numbers



of drones, think of the loss of the MH370 in the Southern Ocean: we still have not found it. It is quite a big thing, but we cannot find it. It is a really, really difficult environment.

The **Chairperson**: On that note I would like to thank all of you for your expertise, for your excellent presentations and for the time you spent with us. This is certainly not the last time we will be discussing this, but it is at least an opening.

### **Part 3: International cooperation and development submarines worldwide**

**Captain Faltin: Germany: Ministry of Defence and Chairman Conventional Submarine Round Table**

**Mr Knutsen: Norway: Forsvarets Forskningsinstitutt (FFI)**

**Rear admiral Olsson: Sweden: Försvarets materielverk (FMV)**

**Mr Buchner: Maritime Research Institute Netherlands (MARIN)**

The **Chairperson**: Welcome everyone to our third and last session of this hearing of the standing committee on Defence. We are welcoming captain Faltin, Mr Knutsen, rear admiral Olsson and Mr Buchner. You are all granted five minutes for your presentation. We have already received position papers from you and I would like you to confine yourselves to complementary remarks which add to the documents received. Everyone present was able to read your papers and they were also made available to the public.

Please, captain Faltin, if I may give you the floor for your five minutes.

**Mr Faltin**: Mr Chairman. Distinguished Members of Parliament, first of all thank you very much for having me here. I sit here wearing two hats today. One of them is national: I am in the German Ministry of Defence in charge of future naval plans and strategies. My other role is multinational, I am chairing a group called Conventional Submarine Round Table, which brings together NATO and submarine-running countries in the European Union, with the aim to exploit synergies. As I am an active duty officer, I am committed to mainly two things in the planner community. First of all that is the capability to get the best equipment possible for the German armed forces, and secondly to do that in a meaningful manner when it comes to resources and especially tax payers' money. I would like to address these two points briefly: the operational aspect and the economic aspect.

For the operational aspect, I am now wearing my German hat. You have heard about the security situation. You are aware of the security situation. Collective defence has been reborn, has risen again. With that comes for the maritime domain a set of tasks that need to be reinvestigated, such as sea control, sea denial, anti-access area denial – we heard that earlier.

That comes of course with capabilities. We are in line with the NATO-requirements, the NATO-expectations for Germany when we say: anti-submarine warfare is of the utmost importance for us in Germany. It is a dedicated NATO-target for Germany and we have derived the right means for that. One of these means is of course submarines, which are perfect assets to conduct anti-submarine warfare.

To underline the deduction that submarines are an asset of choice, we have on the political level decided that the underwater platforms, submarines, are and will be a German key technology, which is supported by the German Minister of Defence when it comes to the aspect of maintaining this capability for the future of our armed forces. It may also be of interest to you in this regard that we will back-up the decision that this is a key national technology, with the intent to enhance and increase our number of submarines. At the moment we look at two by midterm, so in the end of the next decade or maybe 2030, 2031. We intend to raise the

number of our conventional submarines. At the moment we are in the process of introducing that into the budget and to propose it, via the chain, to parliament.

As for the other aspect, the economic aspect, I would like to switch briefly to my multinational hat. What are we doing in the Conventional Submarine Round Table? We bring together, as I said, NATO-countries in Europe that run conventional submarines, including the Netherlands, and we aim at exploiting synergies in several fields. One is operations. That is always there. Another one is the search for technology. We look at education and training and of course we look at in-service support.

This round table was formed in 2014. We normally meet twice a year. We have a set of working groups and we came up with a lot of quite interesting quick wins, I would say. But there is more. The round table does not look at procurement. That is something we all agree on, so we do not foster procurement in this round table. However, within the working group of in-service support, there is a lesson and this lesson is: we could be better if we were to operate on the basis of one identical European platform, or at least on the basis of common components. I do not push this in this round table. I push it with my national hat on. As you are aware, we have spoken about it. The government-to-government talks and the military-to-military talks are the venue for this. We speak particularly to the Norwegian side. We also speak to the Dutch side on that subject. The key thing now is to transform PowerPoint slides into more.

We met the Norwegians on a couple of occasions to speak about functional requirements. We have aligned our functional requirements on a working level, but it is not approved yet. We had a discussion about money, the synergy question. If you align functional requirements and want to gain from that, the catch is that you have to be able and willing to reach a compromise on functional requirements.

We heard in the last panel that you should purchase what is best for your country. If that is too expensive, that is an issue. A rough estimate for procurement is 20% savings on costs. For in-service support I do not have a number yet. We are working on that.

Both Norway and Germany are having preliminary talks with the Netherlands on this issue. We have some good examples: the Karel Doorman signature just recently. In Germany we have the Centre for Ship Signature Management. We have other things which run well. Maybe we can come together on a submarine issue. We would like that. We would be happy to discuss functional requirements on a government-to-government basis.

I have the yellow card here. The first point on that is: Germany keeps its submarine service and will increase the number of submarines. The second point is that we aim for a multinational effort, both to cut costs and to support our key national technology. Certainly we look for partners such as the Netherlands.

The **Chairperson**: Thank you, captain. We invented the orange card here. You can easily remember that, because it is our national colour.

Mr **Knutsen**: Mr Chairperson. Thank you for inviting me to talk about such an important issue.

As the vision on the future of the Netherlands submarine service underlines, the Netherlands and Norway are strategic partners. For years there has been Dutch-Norwegian cooperation in numerous areas, including the area of submarines. The vision underlines that submarine cooperation with Norway seems to offer good prospects for further intensification, but Norway is aiming for a smaller sized submarine, approximately 2,000, 2,200 tonnes, which is less suited for expeditionary deployment and integrated cooperations with maritime task groups.

The aim of my intervention today as an independent researcher is to pinpoint the challenges we might face in a Dutch-Norwegian cooperation on submarines, but also to emphasize the advantages for such a deep cooperation on such an important topic as new submarines for the two countries» navies. Clearly, the Netherlands and Norway share a common security policy history. We are both founding fathers of NATO and even though Norway is not an EU-member, Norway is the country outside the EU that has taken part in most CSDP-related missions and operations since the CSDP's initiation in 2003. Hence, the EU's future is also Norway's future, which is important to emphasize in the context of the EU presidency's current preparation of a EU white book on defence. Nevertheless, the Netherlands and Norway have different strategic cultures. The Netherlands» strategic culture is expeditionary, as underlined in the Dutch Defence Doctrine from 2013. This doctrine states that there are three aims for the Netherlands» defence: 1. protection of national and allied territory, 2. promotion of international law and stability, 3. support of civil authorities. This list, however, is not hierarchical. These tasks are equal and must be executable at all times. Hence, it states that national and international tasks are equally important. This explains why the defence structure is light and mobile.

When discussing with whom you are going to cooperate, strategic culture is an important point of departure. But what is strategic culture? How can we define it, both for analytical and political purposes? We can define strategic culture as the shared beliefs, norms and ideas that generate specific expectations about the state's preferences in security and defence policy. In this context Norway's strategic culture is clearly more homeland oriented, as also underlined in the report Unified effort, a new foundation for Norway's defence, which was issued in April of last year. Norway was a latecomer in defence transformation. The substantial changes in recent defence policies that started in 2000 and 2001, were mainly a result of changed demands from NATO and the need for defence reform. Especially the US influenced the Norwegian defence reform efforts. Despite the differences in the strategic culture of our two nations, we are both Atlantic oriented nations. Therefore NATO should be the fundamental institution for our security. Notwithstanding the differences in strategic culture, the Netherlands and Norway share many values and approaches to international security and cooperation. The first one is the maritime commercial tradition. The second one is the internationalist idealist foreign policy conduct. Both countries aim at gaining more leadership, which for Norway has meant a policy of peace and reconciliation. This policy is also directed towards Norway's open economy that very much depends on an open and global economy.

A driving force behind Norway's defence reform efforts has been the intention to avoid political and military marginalization in NATO. Therefore, the extent to which Norwegian security concerns are dealt with depends upon the allies» willingness to regard them as urgent. Hence, reform of the Norwegian armed forces towards internalization was regarded as a prerequisite for territorial defence. There was also the need for interoperability with allies, to underline the need for continued allied solidarity in NATO.

In the report I have written, which is the foundation for today's presentation, I do not only compare differences in strategic culture between the Netherlands and Norway. I also look into other factors like geographic proximity and interests, symmetries and asymmetries in the Dutch-Norwegian relationship, trust and solidarity between the parties and the degree of level playing field for the defence industry. Not only strategic culture but also these factors must be taken into consideration when we study the possibility of a close Dutch-Norwegian cooperation on new submarines.

The point I make in my report is that trust and solidarity between the Netherlands and Norway is an extremely important factor. It is the only factor that has the ability to counterweigh differences in strategic culture. A successful implementation of the 2013 Dutch-Norwegian memorandum of understanding on defence materiel cooperation presupposes a high degree of trust between the countries. In a changing European security situation, where we are witnessing a rebirth of the collective defence commitments in NATO and where European states again focus on symmetrical conflicts, trust and solidarity between them is a precondition for a viable European security order.

Trust is therefore the key factor that determines whether joint projects are successful.

The **Chairperson**: Mr Knutsen, I trust you are almost finished. Otherwise we will run out of time.

Mr **Knutsen**: Okay. Can I make this last point?

The **Chairperson**: You can finish your point. No problem. Go ahead.

Mr **Knutsen**: Trust is the most important factor that has the ability to counterweigh differences in strategic culture. I stop there. Thank you very much.

The **Chairperson**: Thank you very much, Mr Knutsen. I now give the floor to rear admiral Olsson.

Mr **Olsson**: Mr Chairperson. Thank you for inviting me. I am very honoured to be here and to be able to share the Swedish experience in this field. My background is that I have been a director for naval procurements in Sweden for the last twelve years.

This year, Sweden made all the decisions concerning the next generation of submarines, A26, including the procurement strategy, which ended in 2014 with the government and parliament declaring the underwater areas a national security interest. Before that Sweden was bound to lose nearly its whole underwater capability. Believe me when I say that I fully understand what is in front of you, the complexity of the questions and answers.

Sweden has had submarines for over a hundred years. The submarine is a unique capability if you have control over the design and the signature. Sweden has the sovereign capability to design, develop, construct and maintain submarines. We have developed a model that effectively minimizes risk and allows us to procure submarines at a low cost. We do not allow development inside the project. We have an independent study outside the project. When we know something is mature, we put it into the programme.

For example, when we developed the Stirling AIP (air-independent propulsion) system we first put it in a test section and worked with that for many years. Instead of putting it in the Gotland-class submarine, which was in ongoing production, we put it in an older submarine to demonstrate it. The first time we built the Gotland was in the nineties. That was when we put it into the design, because we knew it was mature. It is one way to handle risks.

When it comes to cost effectiveness, we are fully transparent about the costs during the whole process. So we know exactly how much it takes to design and procure a fin for example. So we can follow the industry and know exactly what it costs in the end.

Sweden is currently in the construction phase of an A26 submarine and in the middle of an upgrade of the Gotland. This project will secure the submarine enterprise for a number of years. However, in the long run it is

a challenge for Sweden to fully fill this enterprise. Therefore, we are looking for a few strategic partners. We will not go out and sell submarines. We will have some partners to share.

This is where I come back to the strategic partnership. We have great respect for the Dutch submarine service. The Walrus-class set a world-class benchmark for new submarine programmes. The experience gained with the Walrus-class must be an important factor in the development of a new submarine. This is the way we do it in Sweden. We call it performance based design. We take little steps forward each next generation of submarines and we build small series of submarines, so we know that the development is evolutionary and not revolutionary. We do it outside the programme.

The submarine's most important characteristic is to remain undetected. Being in control of your signature allows you to develop a highly capable underwater capability. Only by using national knowledge and capabilities when specifying and procuring a product, you get a product that you cannot acquire on the market. Submarines on the market are optimized for commercial purposes. We were able to build a submarine just for Sweden, like the US and the UK. Then you have to have a series of eight to ten submarines, so you can build a new submarine every second year. Otherwise all the skills and competencies are not used until the next submarine is built, which is very expensive. That is one of the reasons that we need to have long term programmes. Today, the A26 is funded as a national programme. It should be for the long run: twenty years along the road. That is important.

The Swedish experience with international cooperation is that it is a challenge. Cooperation is less challenging if you have common objectives, a common culture and a similar work approach. Our cooperation with the Netherlands, for instance when procuring an auxiliary ship, has proven to go very well. It has been fruitful for both countries. We had another experience with the Netherlands in 2014. We started up a centre of expertise between TNO and FMV. We closely share our work in various developments. One example is submarine design, where we had people of TNO working together with us.

If a strategic partnership is established, there is a possibility for cooperation on research and development, training, education, maintenance and upgrades, that could reduce lifecycle costs and improve capabilities even more. I know that Sweden and The Netherlands have different operational needs. We will therefore have different submarines. The submarines, however, could share the same DNA and have many communalities in subsystems and competencies. That means that you can even share blue and white collar within the industry and have distributed production. So you do not have to do everything in one country.

The **Chairperson**: Tack så mycket, rear admiral Olsson. Now for the final word in this session, I give the floor to Mr Buchner.

Mr **Buchner**: Mr Chairperson. When I was invited for this round table, an inspiring quote from our former prime Minister and submarine commander Piet de Jong flashed through my mind: «For some the coast is the end of the land, for others the beginning of the world.» In Dutch it sounds better: «Voor sommigen is de kust het einde van het land, voor anderen het begin van de wereld.» The Netherlands still is a maritime nation. It should not live with its back towards the sea. It has a strong maritime sector. It should also be open to cooperation with international partners for the development and operation of effective, affordable and adaptive submarines.

To illustrate that submarines are complex boats, I took this small model of the desk of one of my research colleagues. This is BB1. It is a research submarine developed as part of the Submarine Hydrodynamics Working

Group that MARIN (Maritiem Research Instituut Nederland) is leading. It includes Australia, Canada, Germany, France, the Netherlands, the UK and the US. A submarine has to perform complex tasks. It should be able to sail at the surface stably on waves. But it should also be able to sail underwater close to the seabed undetected. Small details in the hull, in the rudders or in the sail can affect the behaviour significantly. That means that expertise and experience in all phases of the development and use of submarines are important.

In my view it is therefore important to make use of the strong maritime knowledge base in the Netherlands in this field. This knowledge is available in all strings of the triple helix: navy, industry and research. International cooperation is important to strengthen this knowledge base and to fill the gaps that are identified. This cooperation should, however, not lead away from the goal of effective and affordable submarines, for instance by trying to fit too many requirements of different partners into one design. As indicated before, a submarine is too complex to overload it with too many requirements. Basically it will sink.

Through transparent public-private cooperation in the concept stage and early involvement of an international partner the functional and technical requirements can be translated in a focused concept design. This prevents surprises and cost overruns at a later stage and assures manageable lifetime costs. Active involvement of the Dutch maritime sector in all phases of the project also stimulates maritime innovation and assures high level maritime employment in the Netherlands. As an independent research institute MARIN is willing to assist in the development of these effective, affordable and adaptable submarines, and to work with international partners.

The **Chairperson**: Thank you for your presentations. Now we will go to our Members of Parliament for their questions.

Ms **Belhaj** (D66): Your countries made the really important decision to focus on submarines. To what extent and in which way did this have consequences for other investments in defence materiel?

Mr **Knops** (CDA): After listening to your introductions I have a question about the possibility of working together on such a complex thing as a submarine. How realistic is it to put together all the requirements of the separate countries? Would decorating the Christmas tree with so many balls not bring about its collapse? To what extent is there a limit to our working together? How easy or how difficult is it?

I would like to ask Mr Knutsen a question. He talked about strategic culture, which is necessary for working together. I would like to remind him that we purchased the F-35 together. What kind of strategic culture you use in Norway is not essential to us. It is a weapon platform. You can use it. Whether you fly it smoothly, fast or whatever is up to you. It is a platform. Maybe you can elaborate on what you mean exactly by strategic culture. Is it not the case that only the requirements and the capacity of the platform are essential?

Mr **Vuijk** (VVD): Thank you for your most interesting contributions. My first question is directed to Mr Olsson. You told us about the development of submarines in international cooperation. What are the possibilities of working together with all these different countries?

This morning we heard a lot about difficulties. Can you elaborate on the chances of success of international cooperation? We heard that it is very difficult for the different countries. They are in different phases. They have different cultures. They have different industries. There are national interests at stake. Maybe you can tell us something about your position.

My second question is directed at Mr Faltin. You told us about the importance of a submarine as a European platform. What countries should or could be a member of a consortium with this purpose? This question is annex to my question for Mr Olsson.

We have more projects like this one, for example the NH90 helicopter. What are the lessons learned from that platform? What lessons can we use to set up a platform for the development and construction of a submarine?

**Ms Eijssink** (PvdA): Thank you all for the (written) information shared with us. First I would like to ask you to elaborate a little on the involvement of your parliament in replacing weapon systems. What is your experience with that? I am not talking about the parliament but about your experience.

Mr Faltin has sent us a lot of information about close cooperation. Thank you. I am talking about the round table. It might indeed be very difficult to find a way to work together, due to different cultures, different ways of working, different MODs (Ministries of Defence) – do not forget that – different ways of looking into the replacement of weapon systems. What positive things could we learn from one another? In the information you sent to us, Mr Faltin, you also elaborate on the different responsibilities within the different workshops. I think it is very keen to do that, because for every field, like research and development and in-service support, another country is responsible. Could you help us with that?

That brings me to my third and last question. I am looking for a particular kind of structure. We have our own structure, which we call Defence Materiel Process. You are probably familiar with that. We are also looking for a structure to relate all the information. It seems to me that in your proposal of a round table and working groups there is a kind of structure to share information in a positive way.

**Mr Houwers** (Houwers): Thank you very much for your contribution. They all point in the same direction: some kind of cooperation. That brings me to the first question for Mr Faltin. You mentioned that six countries work together, but Sweden is not one of them. Is there a special reason for it? If you work together I wonder: why not since 2014? The second question is for all of you. Is there a difference in what we need or what we think we need? Sweden said in 2014 that submarines are of national security interest. I think your submarines operate nearer to the coast, but maybe you have heard in other parts of this round table that we are looking for a submarine that can sail across the ocean.

The **Chairperson**: Thank you, Mr Houwers. I would like to inform you all that Mr De Roon has excused himself because he has obligations somewhere else.

**Mr Faltin**: Mr Chairperson. The first question was what projects have been delayed, postponed or cancelled. I can provide a very clear answer. The money needed for our German submarine will be available in the second half of the next decade and early 2030s. We had a nice project there, our Joint Support Ship, which we have cancelled. Instead with the Karel Doorman we have signed up for another form of cooperation: an operational cooperation. We will not buy these ships, although we clearly need them. A lot of nations in NATO and the European Union have them. We decided there is probably another need, in this case the need for submarines. That is a one-on-one answer. There is a second aspect to that. As you are aware, ships are big projects in the maritime world. They are always very big. You either cancel one or you keep them, and then you work with smaller projects. That is what we really do. Projects under 25

million euros are postponed, and the sum makes it. But in this specific case it is the Joint Support Ship.

Question number two is what the limits of multinational cooperation are. I sensed that question number three and maybe four also touch upon that. It depends. If you have time you can go to one of the organizations like the European Defence Agency. If you do not have time or it is very difficult to agree on the requirements, then a number of two or maybe three nations is the right way to go. I used the example of Norway. We sat down with Norway. Working out an agreement between our nations, which have a similar way of employing submarines, was a very difficult process, but we were successful. I doubt that we would have been successful if we had started with six or seven nations initially. So you have to start somewhere. From this experience I have learned that you have to start small.

There was the question of how different countries can work together. What countries do you want to work with? Is it only culture that matters? My experience from the round table tells me: yes and no. Our cooperation with Italy is very fruitful. Our in-service support with Italy based on an MoU is perfect, because we have similar components and platforms. The work mentality is rejuvenating. It adds a lot of value. I do not want to say more about that, apart from the fact that it is really good.

There was a question regarding our round table. Yes, we have chosen the structure of working groups with clear responsibilities. These responsibilities were chosen by the nations, basically. It was more like a voluntary contribution. Participating in these kind of groups is based on a coalition of the willing. That is how it works. We have a communality with in-service support with Italy – Portugal wants to be in there; Germany is in there – because we have this need to cooperate. We really have synergy, we save money.

The other thing is operations. Norway has the lead in it, because it also runs similar working groups in NATO for example. So they bring in their capacity. We would not have been successful if we had not done two things: organize it like this and avoid procurement in this area. Now, I am a planner. I work front end. I am not an armaments guy.

There was a question about industries. Yes, of course, everybody can agree that one European platform is perfect. Every national armaments director might say so, but then there is the question of industries, which I agree with. Each country has its interests. These interests can be sorted out by industry-to-industry agreements. But I work for the government. It is not up to me to tell the industry how to do it.

Sweden. In 2014 we sent out letters to some countries and some countries raised interest. Again, this is a coalition of the willing. I served under a Swedish colonel in the European Union Military Staff. I am very familiar with Swedish people and I like them. It is open. At the moment that is how it is. We also have discussed contributions from other countries, such as Canada. It is not a European country, but it has tremendous expertise. Actually, during the last briefing we discussed including other nations. It is a staffing process. It is a political process. Someone said that the Ministries are involved in that. They are not always fast. That topic is on the table in the next meeting. It also depends on the nations. If they want to join, that is an option, but if they do not want to join, they do not ask me. So we have a fruitful cooperation. And two, maybe three countries could work out their operational requirements. I hope I have answered all questions.

**Mr Knutsen:** Thank you very much for the good questions raised. The question of the F-35 versus submarines is very important. I see your point clearly. However, I am not a practitioner. I am an academician. You must take that caveat into consideration. In this regard it is important to emphasize that there are two problems in European defence cooperation today: differences in strategic culture and differences in the level of trust



between nations. Those are the most important impediments to a closer European defence cooperation. What we see when we discuss submarines in this regard, is that differences in strategic culture in fact translate into different requirements for the submarines. The Dutch, due to their expeditionary strategic culture, will go for a much larger submarine than the Norwegians. The difference is approximately 50%. So the acquisition of the F-35 and the acquisition of new submarines are not fully comparable in my view, even though, as you rightly point out, they are both platforms that can carry weapons.

The other question I would like to answer is the question about the involvement of parliament. That is a very interesting question. The Norwegian government will soon present its white paper to the parliament. That will be an extremely important political document for us, because when the Norwegian chief of defence delivered his recommendation on 1 October 2015 he stated very clearly that if Norwegian politicians are not willing to allocate sufficient resources to the Norwegian defence project, we will see a slow and uncoordinated reduction of the Norwegian defence capabilities. But as you know oil and gas prices have deteriorated considerably, there is a migration crisis and the possibilities for Norway to prioritize resources for defence are very limited. So one of the most important tasks Norwegian parliamentarians have in the coming months is to define the future direction of Norwegian defence cooperation. My main point is that shrinking budgets will open up more vulnerabilities, and that the need for international cooperation must be taken more into account.

I will stop here. I hope I have somewhat answered your question in a proper way.

The **Chairperson**: I see nodding heads. That is a good sign, I would say.

Mr **Olsson**: What are the consequences for other services, for other areas of national security interest, someone asked. What influence do the fighter jets have on the underwater domain? Of course they had an impact on other armed services. Maybe we do not buy as many tanks as we had hoped at the beginning. On the other hand, the underwater domain is more important for Sweden, with the Baltic Sea and all that. So it is one of these. Some programmes have been delayed, but since last year we have a bigger budget for the armed forces. Much of that was dedicated to the underwater domain.

Is it complex to put a submarine together? Yes. It is very complex if you compare it with other systems. Our design philosophy is to build the system outside the section. Putting the section inside the submarine after we have tested it, seems to be a very good way to handle risks and to minimize problems when you put a submarine together. But it is very complex if you compare it to fighter jets or other things.

How can we work together? First of all you must have a very long and trusting relationship, and a strong government-to-government link. You must have control over your IPR (intellectual property rights). Those kind of submarines are owned by the Swedish government. You must find a good balance to be able to work together, both in R & D and in the industry work load. Both countries must trust each other, as they depend on each other.

The replacement of weapon systems is incorporated in our modular design philosophy. For example, the Swedish A26 model was designed to go on from 2000. It is designed to be a balanced submarine up to 2006. We can put in a section that is more enduring, that has vertical launch missiles or that houses a normal sized crew. We do not know what the future looks like. Another thing is making a submarine a little bigger. Steel is cheap, so to say. When you operate in the Baltic Sea, you would like to have a small submarine, but in bigger submarines it is easier to properly

replace systems. Another thing that we tested, designed and put into the A26 is a big megatube of flexible payload which is 1.5 metres wide, in which we can have an underwater system or a special operations team of up to twelve divers. So it is built for what the future brings.

I do not know if I should answer the question about the round table, but I can say something about it. In my opinion it is more like a user club for nations with HDW submarines, apart from the Netherlands. I was told in 2014: Andreas, you know what is happening; we cannot invite you at the moment. Maybe I will be invited later.

The last thing was the operation. I have told you about our design philosophy. Whatever you read in the paper about Australia's decision and so on, even the former Australian Defence Minister says that Australia has the most powerful conventional submarine. They operate Collins-class submarines until 2035 at least. It is upscaled along the same design philosophy as we have done with the Gotland. We have operated the Gotland both in the Mediterranean and in San Diego. So it even works in shallow oceans.

The **Chairperson**: Thank you, Mr Olsson. I do not think Mr Buchner were asked any specific questions but some questions were asked in general, to all panel members. So I still would like to give you the floor.

Mr **Buchner**: That was also my observation. I think I can at least answer the questions of Mr Knops and Mr Vuijk about the platform. We should all realize that international cooperation does not mean that everybody has the same boats. That is very important to realize, as in many other fields cooperation is possible. I want to point out the aspect of research and knowledge, which was discussed extensively in the previous session. In that field there is a lot of international cooperation, which really helps. It is also important to realize that you can cooperate in different tasks. We talked about the different niches of submarines today. We have a specific class here now and maybe in the future. For different tasks you need to have complementary submarines rather than the same system. Of course the use of subsystems and similar weapons is a possibility for cooperation. Joint training of the crews and joint maintenance are already a fact. I sense that we agree that international cooperation is not putting all requirements in one ship but cooperating in the things that are useful.

The **Chairperson**: Thank you, Mr Buchner. Are there any more questions from the Members of Parliament?

Mr **Vuijk** (VVD): I would like to ask Mr Buchner a question about the importance of developing a new submarine. How important is it for your own institute and how important is it for the Dutch knowledge industry, for example the universities? I would like to remind you of the programme that comes with the F-35. There is an agreement with Lockheed Martin about a few internships from the universities. Is this also a possibility for the development of submarines? We did not do that the last 30 years. So this will be a new field. What is the future of this?

Mr **Knops** (CDA): In previous sessions it was mentioned that building submarines is partly connecting components, also to prevent submarines from becoming very old-fashioned quickly. In this way they try to make it adaptive. Is it possible for countries to work together on a component level: the battery, the hull, the propulsion et cetera? Would you say that the all-in-one concept is not the best proposition, but that cooperation in parts is possible?

Ms **Belhaj** (D66): I have two more questions. The first is about the financial aspects. I heard interesting things about trust when you work

together, when you cooperate. To which extent do you have your own risk analyses regarding financial aspects, considering you have the same budget difficulties? How much money do you need to reserve percentage-wise on submarine projects, because they are so complex, in relation to countries with which you work together?

The second question is: what is the optimal amount of submarines? Mr Olsson said that you need at least four submarines, but if you had endless money, what would be the optimal situation, also pennywise when you are investing?

**Ms Eijnsink (PvdA):** Today, all experts seem to say that close cooperation with partners in design, construction, maintenance and deployment of submarines offers advantages and increases the possibilities of enhancing operational readiness levels and sustainability. It seems to me that we all very much agree on that. But the next question is: is there any way to take the first step together, the first step being design? It seems to me that every country is strong on a different level: either in design, construction or maintenance. Could you elaborate on that, please?

My second question is about the Conventional Submarine Round Table. That is very much focused on knowledge, knowledge, knowledge. That is what Mr De Jonge from TNO said earlier this afternoon. It is food for thought, as you mentioned, Mr Faltin. To me the most important thing that you mentioned was that it is affording procurement. It creates a kind of secure environment in which six countries can work closely together on a certain level. What can we learn from that?

**Mr Houwers (Houwers):** Building and designing a submarine is not a goal in itself. It is part of the idea that we have tasks in defence for which we can use submarines. Is there in your countries, is there in your mind, is there in the past or perhaps now a discussion about alternatives for building a submarine, unmanned things? And why do you chose to cooperate in building a submarine?

**Mr Faltin:** I start with the question about risk analysis. I am not a budget expert. We normally put something like 20% in our plans. When we put the budget together, we normally consider 10% to 20% as a reserve in case it goes up. Sometimes it is not enough, to be honest. That is my observation of what is done when the budget is put together. What is the optimal amount of ships? I would agree that a batch of four ships is optimal if you want to have one ship operational at all times. That is the rule of thumb, which I grew up with. I have not heard anything else yet. Submarines need a lot of maintenance. So we stick to that number. Out of four submarines we generate one operational submarine. I would like to throw in a number from the Conventional Submarine Round Table. One of the slides states it: in Europe there are 55 NATO-submarines. That is a lot. How do you organize that? I personally believe that the Conventional Submarine Round Table is not a user club of any industry. I reject that. That would be a show-stopper for some nations within this format. This format is not aimed at and cannot move forward with armaments. However, it can provide a basis. If you sit at the table and someone talks very similar to you, of course you approach that person, because we exchange ideas on how to maintain capabilities, to avoid the word «replacement». How can we maintain capabilities? What do we do in the field of underwater systems? So of course you approach someone if you see similar ideas. Can we get together? Can we talk about requirements? I agree that setting up requirements is not an idea in itself, but it is of course the starting point. You have to start somewhere. Personally, in the future I would always start with the requirements and I would always start early. There is always a chance that things develop differently. We have a project at the European Defence Agency that is

called Maritime Mine Counter Measures. We might say goodbye because we have different ideas, a different geography and different operational requirements. Or we might stick together and take the next step. Are there alternatives to submarines? I think so. Autonomous Underwater Vehicles could be used for forced protection or transporting underwater, maritime or civilian. For that not so complex systems with a very narrow set of tasks or only one task could be used. We have a study going on on that subject but we do not have it in the budget right now. We have other unmanned vehicles in the budget but not Underwater Autonomous Vehicles. We are looking into that. At the end of the next decade maybe we will procure something. We look closely at EDA, because it has put a huge amount of work into that and it will do more. I would like to add something to what was said earlier about complex unmanned systems. I was a commanding officer a couple of times. Something was always broken, small things, big things, which means you need personnel. I was commanding officer on old systems but also on new systems, very new ships, such as the corvette K130. Always something was broken. I doubt that could have been fixed by an automatic or robotic system. So personally, I sing the song of manned underwater systems once it gets more complex.

**Mr Knutsen:** The first question was about components. In the area of submarine combat systems both the Netherlands and Norway have decades of experience. On such components Dutch-Norwegian cooperation is possible. For example, Norwegian defence company Kongsberg Defence Systems and Aerospace have delivered combat management systems and passive sonar processing systems for Norwegian submarines and also for export. In the Netherlands, as you know, combat systems are developed and produced within the Defence Materiel Organisation (DMO). It also delivers close combat system solutions for Dutch submarines and surface vessels. The Netherlands Organisation for Applied Scientific Research (TNO) is an important subsupplier for DMO within combat system development. So the sharing of combat system deliverables between the two countries» defence suppliers may in this regard also be a challenge in a future submarine cooperation programme between our countries. So the component level is important in this regard. Ms Belhaj asked a question about risk analysis concerning funds for new submarines. You also asked how many submarines one needs. This is a very important question. I can only speculate. I cannot give you a fully reliable answer. Today Norway has six ULA-class submarines. Previously, in the 60s and 70s, we had fifteen Kobben-class submarines. So we reduced their number by almost a third. My strictly personal view is that six submarines are needed for future capabilities. If you look at Norway's geography, you see that it has huge economic interests in the north. So six submarines, I would say, the same number as today. The other questions are also important, but I feel that I am not in a position to answer them in a proper way.

**Mr Olsson:** The first question was about economic and financial risks. In the Swedish model the armed forces, FMV, together with our research institute have the lead in the study or pre-design phase. Then a design contract is put to the industry. Normally that takes around two years. During that time we decide what kind of subsystem will be fitted in the submarine. After two years, when we have the design, comes the phase of the construction contract. Then we always like to have a fixed price. Then you do not need any risk money, but you have to have some. But this is the normal way in which we do business in Sweden when we buy submarines.

How many submarines? I said eight to ten. Then we could be independent and build our own submarines: one submarine every second year. That is also a bit of an answer to the other question about the design in different steps. Of course you can do the study and the design, but I think you need to have the people who made the design to be responsible for the last moment when you put the submarine together and test its design. However, you can do that in cooperation. You can build a port anywhere else in the world and put it together there, but when you design something as important as a submarine, you want a proven design in the end. But you can do it together.

There was a question about the development of our own submarine. Yes, I think it is important. You must have control over the costs and the lifecycle. If you buy a submarine from the shelf, it will have a midlife upgrade fifteen years from now or smaller upgrades in-between. Then you go back to the industry and have to pay what it costs to upgrade it. To have control over the costs is one reason why I think it is important that you have the competence to upgrade in your own country. You also have control over your signature if you have your own submarine. You do not want anybody else to know something about your signature, apart from your strategic partner maybe.

Can you work together on different levels? Yes, of course you can work on subsystems together. You can work together in the whole area.

Will there be unmanned systems in the future? Yes, I think they will come but not in the near future. Our design, the A26, is built to operate lots of unmanned systems from the submarine. It is one of the reasons why we have smaller series of submarines. Although it might be cheaper to buy six submarines at once instead of two, you can take smaller evolutionary steps with each submarine. If it happens to be a game-changer, you can change it and do something else. You still have the competence, the people who can design unmanned underwater vehicles. So it is just a question of automation.

**Mr Buchner:** Mr Chairperson. I start with Mr Vuijk's question about the possibilities for knowledge development. The knowledge development possibilities that come with this type of projects are important, but it is also very important to realize that at the moment we have to use knowledge that has been developed over the last ten years. I am happy that the Dutch Ministry of Defence has invested quite a lot in this knowledge over the last ten years. For instance, almost ten years ago, it allowed us to develop a free-sailing submarine model in our facilities to support the maintenance and use of the Walrus-class submarines, but that knowledge puts us on the same level as the US, the UK, France and Canada. Those are the only countries that have such a model. The foresight at that moment to develop that type of technology gives the Netherlands a knowledge position that enables us to work together in all types of cooperation. That also gives us additional opportunities. Mr De Jonge already mentioned things like hybrid systems. Development of battery types is very important for the Dutch maritime industry but also for other industries like the motor industry. Having a free-sailing submarine in our facilities and computer models allows us to be involved in the development of autonomous vessels, because they look a bit like submarines. But I will come back to that issue. It is important to invest early. The Ministry of Defence has done that. It gives us opportunities for the future and creates a lot of work in the Dutch maritime industry. On a component level I think there are areas where we do not have the knowledge in the Netherlands at the moment, for instance in the area of air-independent propulsion. That is typically an area in which we definitely have to work together, because it is very important for the future capabilities of our submarines.

Ms Eijnsink talked about doing the design together. Yes, you can do the design together based on the same philosophy and knowledge, but this does not mean by definition that it has to be the final outcome. But if you use the same knowledge and methodologies you can still have an effective design process.

Then there was the point of Mr Houwers, which I completely understand. Unmanned systems are very important. They will play an important role, but they should play a role operated from the platform of a service ship or a submarine. Having power to go from A to B is still a problem, even if you have very good batteries. Having something under water is very different from having something in the air. Communication through radio signals is very important. To give you an idea, we have a model like this of five metres long in a swimming pool at MARIN. It is already difficult to communicate 100 m under water using a radio signal. So it is a big challenge. As rear admiral Ort pointed out: we have been struggling with that for many decades. The other issue is that if you want bring a weapon somewhere, you need to have the capacity to carry its weight.

The most important issue, which rear admiral Ort also mentioned, is the moral ethical issue of having an autonomous system. We think that having the man in the loop is extremely important. With that I come back to the training of human factors, which is a very important issue now and for the years to come in the operation.

The **Chairperson**: Thank you, Mr Buchner. Are there any more questions?

Ms **Eijnsink** (PvdA): Could we be informed by you or your MOD about the working groups in which parties work closely together? Can you share that information with our parliament? Do you share that with your own parliament? What is open information? We are also in a learning process. Any help is welcome.

Mr **Faltin**: Instead of answering yes or no, I will take that back and check it. At the moment I do not see a problem with that, but as far as the round table goes, I need to speak with the other nations. The same applies to the bilateral thing. Sorry.

The **Chairperson**: Would anyone else on your side of the panel like to make some final comments? No. We had a long day of discussions and hearings. No fun intended but we dove into the matter quite deeply. Now we have surfaced I hope that it has contributed to our knowledge. We will have a debate with our Minister of Defence next week.

I would like to thank all of you for coming over. I hope you have a nice stay in the Netherlands. Thank you very much for sharing your knowledge with us and for your answers to all the questions of the Members of Parliament.

I would like to thank everybody who was here today, all those who have a stake in this matter and all those who are simply interested. It is a big thing. Parliament is doing its utmost to be as open as possible about the decisions that are going to be taken. The matter is important to us and I hope this was proved in the briefings and hearings you witnessed today. With these final remarks I would like to conclude. I wish you all a very good day.

Sluïting 16.45 uur.