HOUSE OF COMMONS

Scottish Affairs Committee

Oral evidence: Defence in Scotland—Military Shipbuilding, HC 81

Monday 14 November 2022

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Watch the meeting

Members present: Douglas Ross (Chair); Deidre Brock; Sally-Ann Hart; and Pete Wishart.

Questions 129 to 165

Witnesses

I: Professor Keith Hartley, Emeritus Professor of Economics, University of York; and Hans Pung, President, RAND Europe.

Examination of witnesses

Witnesses: Professor Hartley and Hans Pung.

Chair: Welcome to this Scottish Affairs Committee meeting on our inquiry into defence in Scotland. We have two witnesses with us today. I should say, just for people watching, that the numbers here in the Committee Room are quite light because of the travel disruption affecting Members getting from Scotland to Parliament today, but we are quorate and we will press ahead with the session.

Could I ask our two witnesses, who are joining us virtually, to introduce themselves and give an opening statement, if they would like?

Hans Pung: It is a real delight to be here today. I am Hans Pung, the President of RAND Europe. We are a public policy not-for-profit research organisation. In addition to leading RAND's operations in Europe, I have been researching the UK's shipbuilding industrial base for a number of years, particularly looking at programming, resources, facilities and skills requirements for future naval acquisitions.

Professor Hartley: I am Keith Hartley, a defence economist. I am currently Emeritus Professor of Economics at the University of York, and my current research interests are European defence policy, the future of the European defence firm, and defence markets, which is really a study of the economics of outsourcing.

Q129 **Chair:** Thank you both. I will start with a question to you, Professor Hartley. We are obviously looking at defence and shipbuilding in Scotland. I wonder how you feel the National Shipbuilding Strategy can help the current sector in Scotland, and the sector going forward into the future.

Professor Hartley: Before I answer that specifically, can I make a couple of additional points by way of introduction?

Chair: Please do.

Professor Hartley: When faced with the sorts of questions you are posing, I usually ask myself three questions. What do we know about the industry? What don't we know about the industry? And what do we need to know to have a sensible debate in this area?

The answer to the first is: quite a lot. There is a lot we know. We know, for example—as in my paper—about the broad employment in the industry, but there is a lot we do not know. We do not know, for example, the total value of output. We do not know its value added, and we do not have any data to allow us to assess the labour productivity of the industry as a whole to compare with other industries in Scotland and elsewhere in the UK. Finally, on what we need to know, I would like to know far more about labour productivity in the industry, and more about its skills content and its defence R&D. Those are three sets of questions that I think we need to address.

I come back now to your question about the National Shipbuilding Strategy. I am in a dilemma with this. As I said in my evidence, there is a gap in your terms of reference and you are asking the wrong question. The question you need to ask is: what would the industry look like if Scotland were to vote for independence? My answer to that is: at the moment, the industry's future depends on the Royal Navy. Without the Royal Navy, you would not have an industry.

Q130 **Chair:** Well, I didn't think we would get to independence quite so early in this discussion. That normally comes from Members around the table rather than our witnesses, but it is good that we have got there so early. We will come back to it, I am sure.

Mr Pung, is there anything you want to say about the strategy itself and how it can be viewed from outside the industry as being supportive to the companies in Scotland at the moment, and obviously the workers who they employ?

Hans Pung: Overall, I think the National Shipbuilding Strategy as a document is very welcome. When it was first published in 2017, it was probably the first or at least the most full strategy around maritime and naval industries that we had had in the UK since the 2005 Defence Industrial Strategy, which also laid out quite a detailed view of how shipbuilding could develop more broadly.

I think it is particularly good to see that the strategy has had some staying power. It was published in 2017 and there was a refresh in March 2022. Being able to provide industry with a vision and some strategies to potentially deliver on that is helpful for industry as it makes decisions around investment and workforce management more broadly.

Also, if you look at the shipbuilding strategy in concert with the last Integrated Review and the Defence and Security Industrial Strategy more broadly, there has been some signalling around R&D priorities that I think are also useful. As Professor Hartley said, there is probably not quite as much clarity around some of that. Exactly what does that mean? Certainly the signalling is helpful, and some of your previous witnesses from the industry have confirmed that.

Although the strategy is strong on vision, it is weaker when there is less clarity on details around how to achieve some of the objectives, particularly as one looks to objectives around productivity. I would say the strategy lays out very, very ambitious targets around the naval industry being in the top quartile of shipbuilding worldwide. Certainly when this was looked at in the late 2000s, the industry was not there and they were having a hard time trying to measure that.

I think it will be very difficult to get to that upper quartile productivity by 2030, particularly given labour costs in the UK compared with other places in the world—perhaps the upper quartile of European productivity, but to do that in world productivity would, I think, be more difficult.

Q131 **Chair:** Do you believe that is measurable now?

Hans Pung: I am not sure we have perfect measures of it, but there are some proxy measures one could look at. There are some cost outputs and hours stamped on various activities. The National Shipbuilding Office will have challenges—I am sure we will get there in later questions—in trying to get some of that wider global data. It is probably measurable—whether we are able to get the data to measure it is another question. Maybe a good starting point would be to measure what our current productivity is in UK shipyards and look at how we can improve on that, too.

The other thing that the strategy does helpfully is to outline the number of necessary studies and modelling that need to be done to show how the strategy can be delivered, such as looking at skills requirements and what the demand profile actually looks at, but there are a lot of gaps here. Although the activity has been done previously, I don't think it has been done publicly for a number of years. The last study I can remember that put that information into the public domain was some work that I did with RAND back in the mid-2000s.

Q132 **Chair:** Would you agree that an area of clarity is more information on the funding to go alongside the strategy? While there are an awful lot of positive elements within the strategy, there have understandably been concerns on whether there is the financial backing to achieve it.

Professor Hartley: Yes. You're back to the issue I focused on at the start. The issue of funding depends on the willingness of the UK Government to buy warships for the Royal Navy. I know there are exports, but it is basically the UK MOD, for the Royal Navy, that—as for all UK defence industries—constitutes the major buyer. In some cases, it is the only buyer. The MOD provides the funding. If the MOD is willing to buy warships, that is good news for Scotland. At the moment, we are committed to buying our warships from the UK, which means Scotland, but, as I say, that could well change in the future.

There are two other points that are a bit different from what we have been talking about. First, when looking at the shipbuilding industry, don't forget that there is a big core of shipbuilding in the submarine industry in the UK. BAE is a major supplier—the only supplier—of nuclear-powered submarines. We can't ignore that in looking at the broader warship-building industry.

The second point is about another development we cannot ignore, which is that warships, and defence equipment in general, are costly. Unit costs are rising. This goes back to a famous contribution by Norman Augustine, who used to be the chief executive of Lockheed, who looked at high-technology defence equipment and identified unit costs rising and rising continuously—probably by a factor of four every 10 years for combat aircraft.

We haven't yet seen the impact of that technology on warships. Although we are seeing it, it is not as marked as in the aerospace industry, for example, where we have massive leaps in technology. I am sure we have similar leaps in warship building, but it is difficult to measure and identify them.

In the case of combat aircraft, for example, we have gone from propellor-powered aircraft to jet-powered aircraft, and from conventional designed aircraft to stealth aircraft. The changes in technology have been quite mind-boggling. If you go back to 1910 or 1914—I know that is a long time; it is a bit beyond my age as well—aircraft maximum speeds were about 100 mph, which my car will do now. You are talking about thousands of miles an hour for major rockets in space systems and the latest F-35 aircraft. Don't forget the role of technology and the impact that will have on the unit cost of defence equipment, including warships. Warships are not cheap, and they are getting more expensive.

Q133 **Chair:** Since you have twice alluded to it now, Professor Hartley, can you answer your own question: do you believe there is a future to defence shipbuilding in Scotland should it become independent from the rest of the United Kingdom?

Professor Hartley: No. Sorry.

Chair: Quite unequivocal.

Professor Hartley: An independent Scotland will presumably have a minute Navy—it will be like Ireland's, for example, with offshore patrol vessels. It won't have the demand for deep-water frigates and destroyers of the sort that are currently being built in Scotland, such as the Type 26 and Type 31. It won't have that demand. It couldn't afford them, anyhow—the unit cost for a Type 31 frigate is £250 million at least. I do not know the size of an independent Scotland's defence budget, but it is not going to be large. I do not think it would put a lot of resources into building advanced warships. In short, no, I do not see a future for a Scottish warship building industry in an independent Scotland.

Q134 **Chair:** I imagine that other Committee members may come back on that in a little while. Mr Pung, do you believe that there is capacity with the shipbuilding strategy to sustain one, two, or perhaps more, military shipbuilding companies in Scotland, given what has been outlined by the Government and what we are seeing already?

Hans Pung: It is probably a slightly more nuanced answer, because the National Shipbuilding Strategy talks about shipbuilding in the UK more broadly—accepting that most of the shipbuilding that happens is currently happening in Scotland. However, it has happened in other parts of the UK recently, such as Portsmouth, Appledore, Cammell Laird, Harland & Wolff and other places—so you have a number of the other UK nations represented.

When you look at the National Shipbuilding Strategy, it is for the whole of the UK, and not just Scotland. I accept the premise of your question, which is that most of the warship building is in Scotland at the moment. It is difficult to definitively say that there would be a future for one, two or three independent warship builders, because that depends on where future programmes decide they want to build and how much funding they are going to allocate.

Historically, there has been enough funding for multiple shipbuilders in the UK. Whether that then means that in the future, with rising unit costs as Professor Hartley talked about, you could guarantee there would be funding for multiple shipbuilders—I am not sure about that.

There is probably a future for multiple ship maritime organisations, because there is still quite a lot of ship repair work that happens, for example, in Faslane and Rosyth and with the aircraft carriers probably having their major overhaul activity in Roysth as well. It is probably also worth broadening your question out from just shipbuilding to wider naval activity. I think ship repair is something that we should not forget about.

Q135 **Chair:** To widen it out, what more do you think the Government can do to help and support Scottish SMEs to become involved in the sector?

Hans Pung: That is a really good question, and I think a really important one. The first thing I would say is to urge the Committee to look at the MOD defence supply chain strategy, which I think is being launched later this week. We will be able to answer your question better once that comes out.

The other thing I would say is that the MOD working-with-industry group should really take a hard look at the benefit of industry clusters. It is a well-known phenomenon, and I am sure Professor Hartley can talk about it. For example, there is a strong maritime cluster on the Clyde, and it is not that far to Rosyth either. Those are not just the major shipbuilders—Babcock and BAE in this case—but they also have significant supply chains that run through Scotland and all of the UK.

Q136 **Chair:** Professor Hartley, would you like to add anything about the clusters? Also, in terms of the original question, how many potential companies could Scotland, currently and hopefully—from my point of view—continuing within the United Kingdom, sustain in this sector?

Professor Hartley: I suspect that the UK Government would commit themselves to supporting two major primes on the Clyde in Scotland, mainly because it would want some competition. It is highly unlikely that the UK MOD would want to be reliant on a single prime contractor for warships on the Clyde. It has gone out of its way to try to create alternative suppliers to BAE Systems. It wants some competition. Competition is good for encouraging efficiency and determining prices, and it controls, regulates and determines profits. In a world with no competition, the MOD would have to determine all those variables. It would have to estimate costs, negotiate profit margins and determine prices, which is not an easy task, so I suspect it will be committed to maintaining two major supplier prime contractors in Scotland.

Q137 **Chair:** Before we move on, Mr Pung, would you like to come back in on that point?

Hans Pung: Although I agree with the thrust of Professor Hartley's argument—that would be the ideal—we should remember that the UK Government has deviated from that strategy in the past. Back in 2005, there was effectively a commitment to one major warship builder—BAE Systems, when there was a merger between BAE Systems and VT Shipbuilding. The MOD tried to square that circle by setting up a terms of business agreement, where they would effectively try to lock in a long-term supplier relationship. Some elements of that worked reasonably well. My personal view is that the design was very good, but the implementation got a bit tripped up by some financial concerns. I don't think it is a foregone conclusion that we are going to end up with two, but if there is sufficient financing in the system, that would probably be most ideal from the MOD's perspective, exactly for the reasons that Professor Hartley articulates.

Q138 **Chair:** Thank you. Professor Hartley, back to you on the clusters.

Professor Hartley: I understand and am familiar with the arguments, but I have a major problem with the research question: what do we know about the supply chains? The answer is very little.

I have done a lot of work on the economics of defence industries, looking at supply chains. The work is very research intensive and very costly to undertake because supply chains are very complex. They vary between national and collaborative programmes, and between air, land, sea and space systems. They are highly complex. They are like an iceberg: quite often, we just get the tip of the iceberg.

The problem we face in the Scottish shipbuilding industry is that, although we know the major primes like BAE and have a limited amount of information on their supply chains—in my written evidence, I looked at some of the suppliers, but only first tier suppliers—to get a proper analysis of supply chains, you need to find out the suppliers to the first tier suppliers and the suppliers to the second tier suppliers. Depending on how far you want to go, I suggest that you go up to about three or four levels in the supply chain.

These supply chains are very complex, and Governments do not understand them and do not have any knowledge about them. They have knowledge about the first tier suppliers to the primes, but beyond that they really do not understand and have little knowledge. That is why they commissioned a study from me to look at the supply chain for armoured fighting vehicles, which was a major piece of work. I am somewhat perplexed. I don't quite see that we have the evidence to identify supply chains to the Scottish warship building industry.

Q139 **Chair:** Okay. We will maybe look at that a bit more going forward. This is the final area from me before I move to my colleague Sally-Ann Hart. Mr Pung, you mentioned the National Shipbuilding Office, which we will come to later in the session. Do you think it is sufficiently empowered to achieve its objectives? Could you outline a bit more the potential issue of getting wider global data? Is that a bit of a handicap for the office?

Hans Pung: It is very useful to have a National Shipbuilding Office, particularly in the planning co-ordination role. It is a bit more difficult to see whether it has the ability to drive transformational change across the industry, given that it doesn't have the ability to mandate specific procurement strategies. For example, different project teams in the MOD will decide how they want to procure various vessels. There may be such an expectation in the National Shipbuilding Strategy, which very nicely, by the way, lays out the potential programmes that we might see in this country over the next eight to 10 years, but it does not estimate how those programmes will be delivered, how many platforms there will be and what the volume of work will look like. It is hard for the National Shipbuilding Office to do that. That is not because they are not capable people—they very much are, and Admiral Cox has pulled together a good team to do that—but more the way the office has been set up and what it is, or is not, empowered to do. That said, it would be very difficult to have a National Shipbuilding Office that is empowered to do all the things I was talking about with respect to transformation, because that would emasculate the ability of individual Government project teams to make decisions in the best interests of their own programmes.

It was good and welcome to see a commitment in the revised strategy for the National Shipbuilding Office to open an office at the Government hub in Edinburgh to give that link to Scottish shipbuilding. Again, that seems like something that is long overdue, but it is very welcome.

Q140 **Chair:** Indeed, I think we have commented on that in some of our private sessions when we have been up in Scotland. Do you think, however, that it allows more opportunity for co-ordination and a clearer route for issues to be raised and driven forward?

Hans Pung: Absolutely; yes, it does. It has been carrying out a number of those activities. I have been reviewing some of the minutes co-ordinated by the National Shipbuilding Office with respect to the shipbuilding executive group that has been set up. I think the real power is being able to co-ordinate, convene and bring stakeholders together to help people understand where there may be some mutual synergies. The other advantage is that it provides a focal point that industry can talk to. While the National Shipbuilding Office may not be the single point of truth because there may be some things it does not know, as Professor Hartley said, it is probably the best place in the country to coalesce data and knowledge to inform procurement strategies more broadly.

Q141 **Chair:** Professor Hartley, is there anything you want to add?

Professor Hartley: No; I agree with that. It is useful to have such an office, but the driving force that we cannot ignore, which Mr Pung mentioned, is the Ministry of Defence. They are the ones ordering the equipment, and they know exactly—I hope they know—what they want. They have some idea of what they want and perhaps some idea of how the things should be built, if we are talking about warships. That would be useful, but I am not expecting a radical, revolutionary change resulting from the office.

Q142 **Sally-Ann Hart:** Good afternoon, gentlemen. I have some questions about skills and the workforce. I am just reading through our briefing notes and hearings from past witnesses. We heard the Confederation of Shipbuilding & Engineering Unions state that communities all over Scotland depend on the UK defence industry for economic survival, security and a future for young people. We heard from BAE that apprenticeships are "over-subscribed by a factor of three or four". How much does Scottish shipbuilding rely on Scottish labour?

Professor Hartley: I start by going back to my opening remarks: what do we know, what don't we know and what do we need to know? You have hit on the fact that it is an area where we know very little. We don't have published data on the skills composition of defence industries. In fact, going back to an earlier point when we were talking about the global defence industries, I have just completed a major study into the world's defence industries, and what I found amazing was that most Governments do not have any decent data on total employment in their national defence industries. I will make the point that the UK is one of the few exceptions. It needs to be revised and can be improved, but we do at least have some data on both direct and indirect employment in the UK's defence industries. That is also broken down by region. However, when we come to ask questions about the skills, we do not have much published information on the skills composition.

In reply to BAE's remark on apprenticeships, if there is a shortage of apprenticeships, then there are two solutions: BAE or other firms can train more, or, if there is a major gap in the market, the UK Government, or the Scottish Government, can introduce skills training centres. However, it is fine saying "skills training centres", but you have to be a bit more specific. Everyone starts saying, "Well, we need more skills in the UK". Yeah, we do. "We need more skilled labour." Well, what sort of skilled labour? Which sort of training courses are we going to put on to provide these elusive skills? I think there is a bit of a research agenda there in looking at that in more detail.

There is another dimension, which you raised when you talked about the contribution of the UK to UK defence industries and the UK Ministry of Defence. We have talked about warship building, but I think, at times, we are moving into the importance of total defence expenditure for employment in places such as Scotland, Yorkshire and the south of England. That, I think, is very much dependent on something you have looked at as a Committee, which is the location and size of UK military bases in Scotland. Some of those are very large and demand skills. Lossiemouth is a good example, where you have some high-technology skills required for servicing the aircraft.

Q143 **Sally-Ann Hart:** Ruling out Scottish Independence for the moment—let us just say that it is not a factor on the horizon—is it possible for the shipbuilding defence sector to plan a future workforce? Knowing what we know now, does it have enough certainty to plan a future workforce, in terms of the procurement and defence—

Professor Hartley: Good question. I am sure that industry will always say they haven't enough information, but they would say that. Unless you tell them exactly what is going to happen—on a plate—they will always complain. However, I think they have enough information now; the National Shipbuilding Strategy, and the refresh, has laid out the future requirements of the Royal Navy. It wants destroyers and frigates, and will want to replace those in the future.

I think, compared with recent years, industry has far more information than it has had for a long time, so I would not listen to complaints and tears from the shipbuilding industry about the lack of information. They have quite a lot compared to what they used to have. That might not be as much as they want, but it is enough to run their businesses. If they do not like it, they can get out of the industry, and they have not done that.

Q144 **Sally-Ann Hart:** Thank you, Professor Hartley. Mr Pung, do you want to add anything on how much Scottish shipbuilding relies on Scottish labour, and do you know how much of that labour is drawn from local communities?

Hans Pung: I do not have specific numbers about how much is drawn from local communities, although I would guess that both the unions and the industry should be able to provide that data, because they should understand, when they recruited those people, where they have come from. However, I would also say that, often, industry will not necessarily track exactly where they get people from, in terms of nation or location of origin.

I think it would be reasonable to assume that a lot of the early production workers and apprentices would be coming from the local Scottish environs, because they would be the places that would be the most likely to have people recruited into those roles.

For me, I think that the skills challenge is more about how you maintain a core set of skilled workforces that you can then use to train up and mentor, as you may need, for surges in demand. Getting on to your second question about whether the industry has the ability to plan its future workforce, it probably does in big handfuls, but there will be some areas around specific skills where it will not have the detail until the particulars of particular procurement potentials are unveiled. Sometimes that may even be at the end of the result of a competition. The challenge then is whether those industries—shipyards and ship repairers—are maintaining sufficient skills so that they can surge where they need to surge. Also, do they have sufficient skills to make sure that they are really able to exercise some of their key activities—things like testing and commissioning, and detailed design—where they are needed?

I often think that shipbuilders have shown in the past that they can surge and grow the workforce; it is to what extent they can do that productively. The more time they have to understand what the future programme looks like, the better their opportunity should be to grow it productively, but sometimes they do not have that information. As for anyone who runs a business, you just need to make do, but laying out what the future pipeline could look like in the National Shipbuilding Strategy is helpful. It is necessary, but perhaps not completely sufficient.

Q145 **Sally-Ann Hart:** Before I move on to Professor Hartley, he raised the issue of Scottish independence. On the issue of retaining skilled labour, at the moment we have certainty about the pipeline of orders for shipyards because business has said that having a pipeline of orders is better because you have certainty and can skill people up. Do you think that the issue of independence is something that businesses or employees focus their minds on, or is it something that you think they have not factored into skills training and retention?

Hans Pung: They would be better placed than me to say what they are focused on. What I would say is that maintaining skills, and having certainty of having the skills, is probably strongly positively correlated to understanding what your future demand signal looks like. If you have an independence vote and you have less certainty around what the future looks like, it will be more difficult to hold on to particularly skilled workers—who we know, by the way, particularly the more experienced workers, can go and get jobs in other places.

Q146 **Sally-Ann Hart:** Professor Hartley, do you have anything to add to that?

Professor Hartley: Yes. There is something that is troubling, not about Scotland but about the UK labour market, following covid. I think there has been a change that, as labour economists, we are not picking up. The change that I am trying to focus on and tease out is that we had furlough. As a result of furlough and of covid, I think major changes have taken place in the attitudes of workers towards work. They are perhaps less willing to work than they used to be at current salaries. They are more willing to move around and move to different jobs, and they are more willing to stay out of the labour market rather than get back into it. These are just some vague generalisations of mine about the effect of covid, the epidemic and the pandemic, and the massive changes that have taken place in the labour market that I do not think we are yet understanding.

Q147 **Sally-Ann Hart:** Do you have any data to support that, Professor Hartley?

Professor Hartley: No.

Q148 **Sally-Ann Hart:** Looking at future skills, how might the shipbuilding sector and workforce be affected by the introduction of AI and automation in the years ahead? What skills are shipyards going to need in the future?

Professor Hartley: Going back to my point about Augustine effects in terms of high technology, very complex equipment that is costly and rising in unit costs, I think we are moving towards a far more skill-intensive and research-intensive labour force. I have studied the aerospace industry in great depth, where the production methods have moved dramatically from labour-intensive to capital-intensive. That will be the way forward for the shipbuilding industry, which will move towards more capital-intensive production methods and away from labour-intensive.

Traditionally of course the shipbuilding industry has been a very labour-intensive industry, but so too was aerospace. I am reminded of an experience I had when I went down to the Airbus factory in Cheshire. Years ago, when they built aircraft wings, they would have a massive labour force around the wing, riveting them. They do not have that now: they have one man or woman in charge of a massive riveting machine and it is done electronically—it is computerised. One guy has replaced what was hundreds of riveters. I am sure the same thing is happening—or will happen—in shipbuilding.

Q149 **Sally-Ann Hart:** Do you have anything to add, Mr Pung?

Hans Pung: I would say this is already happening. Professor Hartley makes some observations about your post-covid workforce, and as more technology is integrated in we will see a continuation of trends that we have already seen. I am sure that when you had John Howie and Simon Lister testifying, and they talked about how they now build ships in Scotland, it is very different to what happened 20, 40 or 60 years ago. You are seeing a shift away from labour and a higher shift towards automation, which means a higher requirement for digital skills and understanding advanced manufacturing, and probably a higher requirement for certain engineering skills, particularly material engineers, as one moves into the use of composites or specialised steel. This is less of a revolution, perhaps more an accelerated evolution in skills that we have already seen.

Q150 **Deidre Brock:** Thank you for speaking to us today; it is very much appreciated. I have to mention your comments about an independent Scotland, Professor Hartley. I am a member of a party that supports independence for Scotland, and you will be happy to know that the Scottish Government will be producing a paper in the coming months on defence in an independent Scotland, so you will be able to get some answers from that. Babcock also appeared before us and I have to say disagreed with your point on shipbuilding not continuing in an independent Scotland. Their representative at this Committee pointed out that they have made £76 million of investment recently at Rosyth, and described it as a core part of their business strategy. They said the reality was that their business could operate from wherever it needs to. Look out for that paper from the Scottish Government.

I want to pick up on your point about covid affecting skills in the workplace. You did not mention Brexit, and we have certainly had evidence suggesting that the loss of freedom of movement has had a big impact and exacerbated the shortage of skilled workers. Is that something you have found as well?

Professor Hartley: I have not done any empirical work on it but, analysing the situation as an economist, I agree that Brexit has had a major impact, not just on the economy but in terms of skills and the supply of labour. It was a massive change, and I do not think we have got over that yet—if ever we get over it. For my part, I voted remain.

Q151 **Deidre Brock:** I am certainly with you on that one. Do you have any thoughts on that, Mr Pung?

Hans Pung: I think the Brexit effects we see are more second order than first order. What I mean by that is that, historically, because a lot of the warships are built with quite security-sensitive systems, there have often been national restrictions on who was able to work in shipyards on some of the programmes, especially with respect to complex warships. Probably most, if not all, of the workforce you would see working on carrier, Type 26, Type 31—the companies can probably verify this—would be of British extraction or with some sort of clearance.

That being said, your point about Brexit is still well made, because these people can still work on the open market. If there were to be a skills exit from other industries that then need these production, design and support skills and so on, where are they going to go to find them? It is almost certainly inevitable that some of these skills would leach out of the shipbuilding industry and go to other areas. It would also be interesting to understand what that has done to wages and so on, because if you have fewer skills and a similar demand, prices would theoretically go up.

Q152 **Deidre Brock:** Mr Kumar from the faculty of nautical and STEM at the City of Glasgow College was not able to join us today, but we will certainly be writing to him to ask for his input. I think some of those questions might be answered by his proximity to the shipyards and the workforce they are attempting to supply.

Could I turn to the issue of procurement and the MOD's decision to do things on a case-by-case basis? The Confederation of Shipbuilding & Engineering Unions has stated that it believes that "uncertainty is corrosive in shipbuilding", which is something I think we can establish, and that the MOD procurement method "acts as a disincentive to risk and investment". In your view, does that policy work for or against the objective of supporting a strong domestic shipbuilding sector?

Hans Pung: There is inevitably a tension in that, but there is also a question of value for money and affordability. You have to weigh a decision to procure everything in the United Kingdom regardless of what it might cost against your ability to maintain a dynamic and sustainable industry more broadly.

To me, the question is probably more that if you want to maintain an industry for operational sovereignty and security of supply reasons, then there are questions about what the minimum load is you need to place within that industry and what that looks like with respect to future programmes. I think this shipbuilding strategy is less definitive on that than, say, the 2005 Defence Industrial Strategy, which was much clearer that complex warships will be built and maintained in the UK. I cannot imagine a near-term scenario where that would be any different now, but it is not as explicit.

The bigger question comes with ships that are more in the grey zone. The FSS ship procurement, which you have talked about a lot in previous sessions, may fall into that. Then there is the question of whether you need that to maintain particular skills, or is it advisable to do that from a social value perspective? You may want to come back to social value later. If we stick to looking at efficiency and productivity, you may have more of a mixed economy on a decision around that sort of ship. Looking at your future pipeline, if there is a particular gap in complex warship procurement, there may be good reasons why for continuity of skills you would look to place those orders within.

It is a tension, and it is something that needs to be worked out. Ultimately, it will require some balance between what the size of the workforce is that you think you need to maintain, how much money you have within the whole procurement pipeline and how important the resulting economic activity from those various things is.

Q153 **Deidre Brock:** You mention what sounds like a woollier approach than the last strategy. Do you think that reflects that the MOD has woolly thinking? Or do you think it is reluctant at this stage to spell out exactly what the strategy might entail in the future?

Hans Pung: Do you mean the 2005 Defence Industrial Strategy or the current National Shipbuilding Strategy?

Deidre Brock: The current National Shipbuilding Strategy.

Hans Pung: I am not sure that I would call it woolly; I might use the word "pragmatic" if I wanted to be nice to them. If I wanted to be unkind, maybe one would say "woolly". When one is coming up with a National Shipbuilding Strategy, if they do not have all the levers to make some of those decisions, it is hard to be definitive about that. One would have the option to do that. Perhaps there is less certainty around what these things are going to look like and the MOD are therefore looking to keep their options open. It is probably a better question to ask those who wrote the strategy, in terms of why they did that. It is certainly less definitive than what we would have seen in 2005, but certainly more definitive than what we would have seen from 2005 until 2017, when the current strategy was first mooted.

Q154 **Deidre Brock:** Professor Hartley, what are your thoughts on that?

Professor Hartley: I am not certain that the MOD has been woolly on this. It has said, "Look, we want a Type 26 destroyer," and it has specified the number of units. There is no guarantee from anyone that they will deliver on that number of units, but they have specified that number. They have done the same with the frigates: they have set out what they want, the budget constraints on them and the number they are looking at. There is some specificity there.

Two aspects come to me that we have not talked about. First, in terms of skills, you build up the skills in the shipbuilding industry and you must bear in mind that it is not a one-way process. As you begin to develop skills in the shipbuilding industry, located in specific areas, they might attract other industries that are looking for that skilled labour. So it builds up a very prosperous economy[i].

Years ago, I went to Munich, which is very much dependent upon the Eurofighter. In Munich there are a number of industries that want highly skilled labour, including highly skilled aerospace labour, and they moved into the Munich area. So other industries might be attracted by the skills offered by or available in the shipbuilding industry.

The other point that we have not looked at and cannot neglect is that defence industries are very complex. We have talked about the skills they need; we have not talked about how you maintain them, in the longer run, during troughs and reductions in demand for warships. It is coming up very shortly with Eurofighter and Typhon: how are we going to maintain the combat aircraft industrial base in the UK? The answer at the moment is the Tempest programme.

The same issue comes up with warship building, which in recent years we have just neglected and left. Now that we have a strategy, there will hopefully be a better loading of the industry in terms of work possibilities during substantial reductions in demand, which are going to come—you get peaks and troughs. At the moment we are moving to a peak; the question I am raising is how we are going to cope with a trough. Hopefully, the National Shipbuilding Office and strategy and so on will start to address these issues.

Q155 **Deidre Brock:** I was going to ask you about the award of the contract for the Fleet Solid Support ships. If that is not awarded to a Scottish shipbuilding yard, what might the impact be on the drumbeat of orders that we are told is so important for the maintenance of skills that you mentioned?

Professor Hartley: Not good. In the short run, we have the programme of work for Royal Navy warships that I summarised a few minutes ago. An additional ship would certainly help us with the peaks[ii] in that work programme. The fact that it might go elsewhere—outside Scotland and the UK—is not good news.

Q156 **Deidre Brock:** The Society of Maritime Industries said that the decision on the Fleet Solid Support ships is a "litmus test for the credibility of the National Shipbuilding Strategy". Is that something that you would accept or acknowledge?

Professor Hartley: I would certainly accept and acknowledge it, yes. You reach a stage where—

Q157 **Deidre Brock:** Mr Pung seems to disagree with you.

Hans Pung: I think I disagree, but I will let Professor Hartley talk.

Professor Hartley: No, no, let me hear your disagreements, Mr Pung; I am quite happy to.

Hans Pung: I'm not sure I would characterise it as a litmus test, but my disagreement is conditional on what the forward load looks like, what the funding is behind it and how critical a Fleet Solid Support ship is to mitigating or meeting that future demand.

Let us look at what a forward load will look like in the maritime industry without FSS. The National Shipbuilding Strategy commits to modelling skills foresighting for the shipbuilding strategy by 2024 and modelling skills shortages more broadly, and that requires them make some assumptions about what the future load looks like. FSS is part of the future load, but it is not all of it. We also have the Type 32, the Type 83 and an abundance of other ships or platforms in the National Shipbuilding Strategy.

The jury is out on whether FSS is a litmus test, because first I would like to see what the future load options look like. If FSS is not required to maintain that, it is less of a litmus test. You still may wish to award it to a UK firm or a Scottish firm. I am not suggesting that you take it out if you have sufficient load, because there may be other things that you look at, around economic impact or social value, but I don't think I would paint it as starkly as it has been painted.

Professor Hartley: I would not disagree with that, but I would add that, rather than building FSS and so on, we might think about building and supporting new technology, such as unmanned or uninhabited submersibles. We could think about expanding on drones, including carrier-based drones, which might offer more future job and export prospects than building cargo ships.

Q158 **Deidre Brock:** Perhaps the latest shipbuilding strategy is not as specific as the 2005 strategy because it is so difficult to keep up with technology. It is shifting, changing and progressing so fast. I appreciate that.

I wanted to ask about social value, which we have looked at. A Babcock representative noted that Canada has mandated Babcock in contracts to deliver 100% of contract value in social value into the Canadian economy, either directly or indirectly. He said that it is interesting to watch other countries use social value elements to help build industrial capability and capacity, and to help shape their industry. We know that there is a 20% social value requirement in the contracts that are out but, given other countries' experience in this area, do you feel that the UK is sufficiently recognising the potential contained within that as a procurement requirement?

Hans Pung: I believe the 20% that you cite is that 20% of the marks in the competition need to be social value, and the other 80% can be things such as cost, capability or whatever. You are right that social value is a really important consideration. It is now across all UK Government contracts, by the way; it is not just defence and shipbuilding. If I am competing for research contracts at RAND, there is often a social value component. How that is defined is up to the procuring authority.

Q159 **Deidre Brock:** The percentages are lower in other contracts, aren't they?

Hans Pung: Yes. Clearly, the economic activity that arises from shipbuilding, ship repair and related tasks has a really positive economic impact on the local community, as well as for His Majesty's Treasury. It felt to me that, when the Government introduced some of their social value considerations, they were looking to reward organisations that focused their economic activity within the UK, although it is not clear to me exactly how that is measured, and whether they get credit for social value that happens outside the UK. That is probably a question for lawyers, rather than me, but I think the intent was to focus on UK value.

The other thing I would say, which strays slightly away from social value but not too far, is that activity happening within the UK construct builds sovereign capability, which is also very important as it enables you to maintain and upgrade your own vessels. That is even more true around specialist skills—design and engineering skills—rather than only production skills. To echo my earlier comments, if you have sufficient amounts of this to maintain those skill bases on other programmes, it might be less important on simpler, less valuable ones, but still something for consideration.

Professor Hartley: I have a number of comments on that. I am reminded of the debate we used to have about offsets—the situation where when a nation buys some defence equipment, say, from the UK, it requires part of the contract to lead to work in the buying country's defence industry. There was a whole debate about offsets, which are now regarded as illegal in the European Union, and they were very much criticised. There is a problem in terms of the efficiency implications, because we get into a similar debate about subsidies. The worry really is: at what point do you decide whether we can have any criteria or evaluation that allows us to support buying British? Yes, we can buy British, we like it and it provides value, but that would mean a departure from a competitive policy. The implication of that is that we might have fewer tanks, fewer aircraft and fewer warships for our armed forces. Social value does not come costless.

Q160 **Deidre Brock:** That brings me quite neatly to my next question about the competitiveness of Scottish shipbuilders in the global marketplace and your views on that. We had a comment from Babcock about how state involvement in many shipbuilders outwith the UK makes competitiveness a relative term in the global market for shipbuilding. What are your thoughts on that?

Professor Hartley: We are not talking about a real market here. It is a market heavily influenced by states, by Governments, and by a role for quite often state-owned shipbuilding companies. Ours are privately owned, and I have a preference for that. I am quite impressed by the work of BAE Systems and of Babcock. They have done well to revive and revitalise the UK shipbuilding industry, so I am not surprised. In addition, I look forward to seeing BAE Systems applying more of its aerospace technology to warship building and warship design.

Hans Pung: I will maybe take this in a slightly different direction. I think it is also about whether you have something that the market wants. What we have been able to see—particularly in the Type 26 export with Canada and Australia and the Horizon programme, and potentially with the Type 31 in some other cases—is that the UK is offering something that is attractive to potential export buyers. That is not always easy to predict and not always easy to estimate. I always think it is slightly challenging to rely too much on exports in your shipbuilding strategy, because it is very difficult, but there are some benefits. In both of these cases, particularly in the case of Type 26, the UK has found itself in a position where it has a very capable warship that is attractive to foreign buyers who themselves also operate very capable navies, and they are willing to pay for that.

It is also worth noting, though, that a lot of the export benefit that one gets is in the design, engineering and support space rather than the production space. A lot of these countries will want to build these ships in-country, as you well know and as you have heard from other witnesses, but you still can get real value in exports through the engineering piece, the systems piece, and perhaps some wider engineering support.

Q161 **Deidre Brock:** My last question goes back to what you said about the challenges of relying too much on exports. You mentioned one about the construction being in the purview of the country that has bought it and chooses to construct it, but what other areas might present problems?

Hans Pung: I am going to generalise. The first may be the one that Professor Hartley talked about: you may have other countries that subsidise price, if cost is an important consideration. These are also often political considerations. It is not lost on me that the two countries that have bought the Type 26 design are both Commonwealth countries that are well aligned with the UK. In general—Type 26 is probably the exception to this—they tend to focus on simpler ships that are slightly easier to run and slightly less expensive. Those do not tend to be the types of ships that the UK produces. I know that we were looking to produce Type 31s specifically to make it more affordable for other countries. I would suggest that we put that price tag on that ship so that it was also more affordable for us also in the UK.

They have succeeded with that generally. Babcock is delivering that programme in the way it was designed, but export markets are very fickle. They are very able to be influenced by politics and by price, and they often focus on the sorts of platforms that the UK does not always produce, because we tend to focus more on high-end, higher-cost ships.

Professor Hartley: A quick comment on that: I think we have to give credit to Babcock, BAE Systems and the National Shipbuilding Strategy. I can remember a time when our shipbuilding industry did not export anything—or hardly anything. It is a long time since we have had any exports of major warships, so all credit for producing a Type 26 and a Type 31 and 32, which actually sells abroad. It was regarded as something almost unknown not too long ago.

Hans Pung: Yes, although the Type 26 exports were probably sown well before the shipbuilding strategy was set up. On Type 31, I would agree.

Professor Hartley: Yes.

Chair: I am very pleased to say that our Chair has been able to battle the elements to get down from Perthshire to join us, so I will hand over to Pete Wishart.

Q162 **Pete Wishart:** Thank you, Douglas, for taking my place this afternoon and conducting the session. Gentlemen, I am really sorry that I could not get down in time. It has been an absolute nightmare trying to get down from Scotland this morning. My flight was cancelled, and all other flights from Glasgow and Edinburgh were cancelled, and then the train that I managed to get on was delayed at Peterborough because of the fog. My apologies to you, but I will catch up with the transcript of the session, because what I have heard sounds fascinating. Thanks for coming along and helping us out today.

This has probably all been asked already, and if it has, please do not repeat yourselves if it is something that you have already addressed. You are absolutely right that the export situation is excellent. We had the great pleasure of visiting Babcock and BAE Systems only a few months ago and speaking to the design teams. There is such excitement and enthusiasm. I think it was the professor who said that we now have an export business when it comes to warships. Yes, it was possibly in place before the shipbuilding strategy, but it is still something that we are keen to acknowledge and support. I think we should all be very proud of the fact that warships that have been built in Scotland are now going to be exported across the world.

Scotland has 10% of the total UK industry when it comes to military shipbuilding now. One thing that we identified in our last report, when we looked at the footprint, was that further down the supply chain this does not seem to be reflected in SME activity. I think there was disappointment in the Committee that I think only 2.5% of all MOD spending on the SME sector is in Scotland. The rest seems to be in the rest of the United Kingdom, with a concentration in London and the south-east. I do not know whether you have any particular views or observations on that, and whether you could suggest something that would address that.

Professor Hartley: I would ask the general question: why are you interested in getting work for SMEs? What you are presumably more interested in is work for the shipbuilding industry in Scotland. You are not too worried, presumably, about whether it is for SMEs or for prime contractors. It is like the emphasis on small businesses. People get themselves emotionally involved in small businesses, but very few small businesses become big businesses and really start employing people in substantial numbers with substantial skills. We do have political parties that favour SMEs. As I say, I know one-man businesses and one-woman businesses, and quite often that is the most they reach.

Q163 **Pete Wishart:** Let me put this to you, Professor Hartley. Of course, work is work and a job is a job—it doesn’t matter exactly how you classify it and which sector it is in—but I would have a great task, as I am sure all colleagues around this table would, of explaining that to some of our SMEs, which are very quick to lobby us as Members of Parliament and always keen to ensure that they get as big a slice of the cake as they can. In our last inquiry, some of the SMEs were telling us that they had real difficulty engaging with the Ministry of Defence. They felt that there was difficulty in explaining their case and in trying to be understood about what they had to contribute to issues to do with the supply chain. There was a sense of frustration in the engagement with the MOD. I don’t know if that is something that you have observed. Have you got any comment to make on that?

Professor Hartley: What I would say—this brings my sympathy to their point—is that if there are genuine barriers to entry imposed by the MOD that are preventing small or any other firms from entering the UK defence market, I would certainly be opposed to those. If you want to have a competitive, vibrant defence market, you want to encourage new entrants, so you need to be asking—this is a detailed study—whether SMEs are being prevented from entering the market and, if so, how they are being prevented. Is it simply that the MOD will not look at them as bidders? I think that is a serious complaint. If there are genuine barriers to entry for small firms, I would certainly be sympathetic to removing those barriers, whatever they might be.

Q164 **Pete Wishart:** Thank you. We are going to get the opportunity to put that to the Ministry of Defence when they come to this Committee in the next few weeks, but do you have views on this, Mr Pung? Is it something you recognise in the first place?

Hans Pung: I do recognise it. I think it is probably more about, as was described, barriers to entry. There are two ways to potentially address this, both through the MOD and through industry. As I mentioned earlier, the defence supply chain strategy is being published on Thursday, I believe. That should have, I would expect, quite a considerable focus on bringing in SMEs and trying to encourage innovation in the defence industry more broadly. From some of the work that I have done with both the MOD and the economic folks there, but also with some of the defence industry groups, I certainly know that they recognise the need to try to drive innovation through SMEs, because often they have it in certain areas.

But this could also happen via industry, and I suspect that if you recalled Babcock Marine and BAE Systems, they would be able to talk to you about their supply chain strategy and how they are trying to access that. But supply chains also run very deep, so they will have their first-tier suppliers, who may be their system suppliers and who will then have second and third-tier suppliers that run through as well. The roots of the tree start digging quite deeply into the ground, and I would suspect that the further into the ground you get, the more you will find those people operating across the UK and not necessarily only in Scotland.

Q165 **Pete Wishart:** We did discuss this with Babcock and BAE. While recognising all the efforts that they make in terms of engaging with local businesses and local colleges and universities, which I am sure you have discussed in this afternoon's session, there is more work that needs to be done in order to ensure that we are properly engaging with the supply chain, as it is looking increasingly important for all major sectors. I think we are just a bit concerned that we are not seeing that type of reflection in Scottish SMEs getting the business. Professor Hartley, I see your hand is going up there.

Professor Hartley: Yes. One thing I did neglect, which certainly could be important, was an advantage of small firms that is as critical as their employment impacts, which I think are often exaggerated or totally ignored. They have another dimension. We have talked about innovation, but I want to talk about invention. Quite often we find that small firms are an important source of new ideas and inventions. They might have problems innovating and taking those inventions to the market, but they can often be a good source of invention and new ideas, as we are seeing in our universities with business parks.

Pete Wishart: On that positive note, I have no further questions.

Chair: Can I close this session by thanking Mr Pung and Professor Hartley for their excellent evidence? Some of it was already submitted in written form, but I think you have been able to elaborate on that very well, and it will help our inquiry going forward. We are very grateful to you both for your time today, and for your answers and evidence.

I wanted to move away slightly and put on record here in the House of Commons something that is quite important. While we have been meeting as the Scottish Affairs Committee, discussing defence in Scotland, it has been reported that an utterly disgusting and deplorable arson attack took place at Edinburgh's war memorial. I think that is a deeply upsetting crime to happen within hours of Scotland and the UK standing in silence remembering our fallen heroes. I think I speak on behalf of the entire Committee, and the House, when I say that I hope the pathetic individual or individuals responsible are quickly brought to justice and feel the full weight of the law brought down on them. I thought it was important to get that on the record, as it has come up during our evidence session this afternoon.

Once again, I thank both our witnesses and our Committee here in person today. It has been difficult for others to be here, but they have missed an excellent evidence session and I know they will want to catch up on it when they get the chance.

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[i] Clarification from Professor Hartley 16/11/22: "By this I mean the local economy specifically"

[ii] Clarification from Professor Hartley 16/11/22: "For clarity, I mean troughs in the work programme."