



HOUSE OF COMMONS

Science and Technology Committee

Oral evidence: [Galileo](#), HC 1192

Tuesday 26 June 2018

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Members present: Norman Lamb (Chair); Vicky Ford; Bill Grant; Darren Jones; Liz Kendall; Stephen Metcalfe; Carol Monaghan; and Graham Stringer.

Questions 1 - 77

Witnesses

I: Guto Bebb MP, Minister for Defence Procurement, Ministry of Defence; Nick Ayling, Head of Cyber and Space Policy, Ministry of Defence; and Rebecca Evernden, Director, International, UK Space Agency.



Examination of witnesses

Witnesses: Guto Bebb MP, Nick Ayling and Rebecca Evernden.

Q1 **Chair:** Welcome, all of you. Thank you very much for coming. I am sorry about the delayed start; voting was getting in the way. Will you do very brief introductions, please?

Guto Bebb: I am Guto Bebb, Minister for Defence Procurement.

Nick Ayling: I am Nick Ayling. I have been head of cyber and space policy at the Ministry of Defence for the past couple of years.

Rebecca Evernden: I am Rebecca Evernden, international director at the UK Space Agency.

Q2 **Chair:** The European Space Agency's council recently decided to press ahead with the latest round of procurement on Galileo. UK companies are ineligible to bid for the contracts. Will the ESA council's vote prejudice the outcome of further Galileo negotiations?

Guto Bebb: We are very disappointed with the decision. We think it was the incorrect decision, in terms of what is good for the Galileo project, but we sincerely hope that the negotiations that are still to take place between the United Kingdom and the European Union on our exit from the European Union will include detailed negotiations on the Galileo system.

The United Kingdom has made a comprehensive statement of our intent on Galileo. We believe that we bring a significant amount to the table and that the system is much more likely to see the light of day in good time and in good order with our involvement. We think that it is genuinely a missed opportunity to show the way in which the negotiations about our departure from the European Union can be constructive and productive for both sides, if we manage to get the right outcome. We will carry on making the case, but the decision that was taken is certainly disappointing. It is certainly not the decision we would have preferred to see.

Q3 **Chair:** How confident are you that you can overcome these difficulties and secure an agreement on Galileo that facilitates our continued full involvement?

Guto Bebb: Clearly, we are disappointed with the decision that was made. Indeed, that decision throws into some doubt our ability to change that decision. We remain of the view that the technical note we have provided is a good basis for co-operation moving forward. We fully accept that we will not be involved with areas of the Galileo project, but we think that the red lines are both reasonable and necessary if the United Kingdom is to get full benefit from our involvement in the system.



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You ask whether I am confident. If there is good will on both sides—if both sides want to ensure that the right capability is provided to all partner nations—I am very confident. I question, therefore, the interference—not the interference, but the involvement—of the European Commission and whether it is putting the Galileo project at the heart of its thinking. If the Galileo project and its future were crucial to the Commission's thinking, I do not think we would have seen the decision taken to exclude UK companies from this round of opportunities.

Q4 Chair: If either of the other witnesses wants to come in at any stage, I invite them to do so.

The Government have said that any gap in the UK's involvement in developing Galileo will constitute an "irreparable security risk." Does the council's vote mean that Galileo will no longer be able to meet the UK's security and defence needs, if we do not overcome, as you have described, the problems we have at the moment?

Guto Bebb: If we do not overcome the problems we have at the moment, it is difficult to see how the United Kingdom can benefit fully from Galileo. Certainly, from a defence perspective, our red lines are very clear on what we expect to see in order to ensure that we have an involvement that is beneficial to our needs.

Our technical note, which we provided and which I am sure you have all read, was very clear. We see the following as red lines. We want unrestricted access to and use of the PRS signal, which I do not think is unreasonable.

We want UK industrial involvement. I would challenge anybody who argued that we should be involved in Galileo without UK industrial involvement. We certainly want that to include involvement in the secure element of Galileo—in other words, that we understand fully how the system is operating. That knowledge—that sovereign understanding of how the system works—is crucial to why we are supportive of Galileo, and have been for so many years.

Clearly, we want to see UK involvement and attendance at Galileo security meetings.

Those are our red lines. In view of what the United Kingdom has provided to the system thus far, I do not think they are unreasonable. One of my colleagues might want to expand on the technical issues.

Rebecca Evernden: I will expand on the batch 4 vote. As I am sure you are aware, this was a particularly important vote for the UK, because SSTL is the company that has built all the payloads for the Galileo constellation thus far. The terms on which the batch 4 vote was put forward, around the conditions within that procurement, mean that UK companies cannot bid for those contracts.



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It is entirely in the Commission's gift to change those participation conditions. As the Minister has said, we need to have the right agreement on Galileo that enables our companies to participate fully in the system. That will enable us to assure the system and to get an economic return, so that it provides good value for money. Overturning the decision, as the Secretary of State for Business and Sam Gyimah, the Minister, have requested, would be part of any deal that we would have to make with the Commission to make it worth while.

Q5 Chair: Is there a time sensitivity? Presumably, unless UK companies are involved in this procurement exercise, the facts will be on the ground and it will be very difficult to overcome them.

Rebecca Evernden: That is exactly right. This is very urgent, because this procurement will now go ahead. Companies will be forming consortia in Europe. If the conditions do not change and the European Space Agency is not able to say to companies from the UK that may wish to participate that they can, they will be excluded. Yes, we need to resolve this very quickly. That is why we are in discussions with the Commission around Galileo at this time.

Q6 Chair: Do you detect any willingness to be flexible?

Guto Bebb: Certainly, our requests for meetings in Brussels have been met positively. I am having a visit on the issue as well. As for whether the European Commission will respond positively, thus far we have to express our disappointment.

Q7 Chair: You say that this is really urgent. What is the timescale? Is it two weeks? What is the timeframe to get this resolved, in reality?

Rebecca Evernden: It is probably weeks, rather than months. There is no particular timescale attached, but it is probably in that bracket.

Q8 Chair: Does this put at risk the deep security partnership the Prime Minister has talked about wanting to secure in a post-Brexit world?

Guto Bebb: It undoubtedly raises questions. I think that the Prime Minister's speech in Munich and her aspiration of achieving a deep and meaningful security partnership with the EU are put in doubt, because one issue that creates genuine concern is the classification of the UK as a potential security risk in relation to this project.

That is very disappointing. I am not sure that anybody in this room would consider us to be a security risk. After all, the exchange of information that we undertake on a regular, daily basis with our NATO partners is not dissimilar to what we have asked for in relation to the Galileo project.

In the speech made by the Prime Minister and the technical note on Galileo that we sent to the European Commission, the United Kingdom Government have been very clear and open about our desire to be involved, for the benefit of both parties.



In terms of future co-operation, there is no doubt that a continuation of the Commission's line on this issue will raise question marks about how we can work together in a manner that is comparable to what we do with NATO partners. I am sure that all Committee members will find that very disappointing.

Q9 Chair: There were article 50 discussions on the future relationship last week. Was Galileo discussed?

Rebecca Evernden: Yes. There was a discussion last week, which was organised through the Taskforce 50 process. Ahead of that discussion, the Commission published a set of slides, which you may have seen. That was its official response to the technical paper that we published last month. Essentially, the slides said that the Commission was offering us a third-country model of participation. During the talks, we challenged some of the assumptions in the slides, particularly the one that, if the UK was part of Galileo, it would somehow become an EU-UK programme. We have been very clear all along that we recognise that this is an EU programme.

We are not trying to change that. We recognise that we are a third country. However, there is a unique situation here. We have been deeply part of the programme from the start. Our companies are at the heart of developing the security of the system. It seems that it should be possible to come to some kind of agreement on a bespoke arrangement.

Q10 Chair: Did you get any sense from the discussions last week that we were making progress in making that argument?

Rebecca Evernden: We certainly made the argument clearly.

Q11 Chair: How did they respond?

Rebecca Evernden: Their response was that the slides that they had published, which set this out, represented the EU 27 position. At that time, that was as far as they were prepared to go. We do not believe that this is the end of the process. We have some further discussions to have.

Nick Ayling: Perhaps I can add a couple of points. What the Commission laid out was its offer to provide access to the encrypted secure signal for Galileo. It questioned why the UK would seek what we asked for in our paper, which was a comprehensive technical understanding of the full characteristics. We explained to the Commission the distinction between access, as a user, and assurance, which, essentially, is the ability to understand how the signal would perform under the full range of potential circumstances, if we wish to place military reliance on it.

We laid out the thinking behind that in some detail and why that full understanding is required. We explained that to ask for that level of transparency between countries that collaborate militarily is not uncommon. I think there was a perception that, if it were to grant that, the Commission would be introducing a risk to the interests of the



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members. Therefore, we laid out in a bit more detail how, if you wish to interoperate with other countries—

Q12 **Chair:** But you cannot say that you felt that you were making progress on that argument. At the moment, you are met with the stated position on the slides. The one ground for hope is that there are further discussions to come. Is that right?

Nick Ayling: There is a willingness to have further discussions, but, personally, I cannot say that I was encouraged by the response.

Q13 **Darren Jones:** I am hearing that there are different layers of relationship in question: the access, the assurance and the ability to be part of the supply chain. I understand that the EU is negotiating third-country access to Galileo for non-EU members. Do you know whether those third countries have made any progress on the assurance question? Are we the first country to ask for assurance access?

Nick Ayling: The line taken by the Commission at meetings is that we are the first people to ask for this. There are questions, on which Rebecca may be able to elaborate, about whether that is the ultimate objective of other countries that are seeking access. Nationally, based on our technical assessment, we do not see how you could place military reliance on a positioning, navigation and timing signal for the full range of military tasks if you did not have a deep understanding of the nature of that system.

Q14 **Vicky Ford:** Will it be discussed at next week's European Council or at the NATO summit? What is the process for escalating the row?

Guto Bebb: The Secretary of State has certainly been discussing this with NATO partners. I would expect the issue to be on the agenda in our discussions with our European partners. I have raised it in all my meetings with bilateral contacts in members of the European Union involved in this programme, ever since we first had an indication that there was an issue back in the early part of this year.

Q15 **Chair:** Do you get a better response from those bilaterals with individual member states than we have had from the Commission?

Guto Bebb: It is fair to say that, on a bilateral level, the response from the individuals I have spoken to has been very constructive. They understand the contribution that the United Kingdom has made to the Galileo project, but there is also a view that this is still a matter for the European Commission, acting on behalf of the EU 27. Although individual Ministers I have been dealing with understand and appreciate the contribution that we have made, and can still make, to Galileo, they revert to the comment that this is a matter for the EU 27, acting through the Commission.

Q16 **Chair:** I have just been told that you have to go by 5.30 pm. Is that right?



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Guto Bebb: I have a promise of an engagement with the reservists. Obviously, I do not want to be in any way—

Chair: We will try to get there. I ask for a bit of discipline all round, if possible.

Q17 **Graham Stringer:** Can you explain to me something that I do not and, possibly, should understand? The European Commission is taking these decisions, but the European Space Agency is not—or, certainly, was not—a creature of the EU. How does that work?

Rebecca Evernden: You are absolutely right to say that the European Space Agency is not an institution of the EU. However, ESA has acted as a delivery body for some of the EU space programmes. The owner of the programme—Galileo or Copernicus—is the EU, but it does not have the technical expertise to manage and deliver the programme. Therefore, funding is transferred from the EU space budget through to ESA, for ESA to deliver aspects of the programme.

The EU recently announced a new set of draft space regulations, in which it intends to bring together the responsibilities of the European space programmes. It will be interesting to see how the relationship between the EU and ESA develops as the new draft regulations are negotiated.

Q18 **Graham Stringer:** Ivan Rogers recently pointed out that, 17 or 18 years ago, when Galileo was first mooted, the Government—and, certainly, the Select Committees of this House—were not very keen on it. It was started and promoted as a civil project. What has changed in the Government's attitude? I know that that is a long period, but it is a significant change. Can you explain when and how the Government's attitude changed?

Guto Bebb: I am not in a position to offer an answer on when and how it changed. We think that Galileo is important for the resilience and security of our armed forces. We utilise GPS in about 90% of our capability—it is a system that we have used. We have an encrypted signal, which we are allowed to utilise, but we took the view, from an MOD perspective, that the option of having a secondary system to rely on, if necessary, would give our armed forces a degree of security and resilience. Indeed, over the past few years we have seen some examples of GPS being compromised, which is a concern in ensuring that when we utilise the system it is secure from intervention by a foreign body. Nick will answer on the history.

Nick Ayling: The description that you quote is accurate. Originally, the UK was not a proponent of the European Union establishing a global navigation satellite system. It was also sceptical about the introduction of a secure service—in the 2000s.

What has changed, among other things, is the investment made by other countries in capabilities that are designed to jam, disrupt or otherwise degrade space-based capability in general, and this kind of capability in



particular. That means that we place greater importance than we used to on enhancing resilience.

Rebecca Evernden: You are quite right: Galileo was developed as a civil system and primarily for civil use, unlike GPS, which was developed primarily as a military system. Of course, the development of the public regulated service—the encrypted bit of Galileo—has meant that European militaries have been able to consider whether they wish to use PRS as an alternative to GPS. I believe that the UK was the first country to declare its interest in PRS for military uses, in the SDSR of 2015.

Q19 **Graham Stringer:** Fortunately or unfortunately, I have been around long enough to remember the ministerial responses to these things when they first came around. The Minister then, who was a Labour Minister, made the distinction, for military uses, that GPS can be used to know where tanks or vehicles are, but that an encrypted system—which was being thought of then, although it was not thought that it would be used—would be used to direct rockets, missiles or whatever. Is that still the key distinction? Is that why an encrypted system is needed?

The other point that the Minister made at the time was that the Americans—I do not know who else—could jam any systems that had then been conceived. Is that still the case?

Nick Ayling: On the first of your questions, there is a very wide range of uses that armed forces make of positioning, navigation and timing systems. On the one hand, they are used to be aware of the location of friendly forces and the forces of allies. At the extreme end, they are used as a guidance system for precision munitions and missiles. Arguably, the latter use would be the most demanding of any to be made.

Therefore, you would wish to incorporate the encrypted service, which would be secure and resilient, in those systems. Certainly, as part of the robust global navigation system project that we have ongoing to develop receivers for the armed forces, precision guidance for complex weapons is one of the uses that we would intend for access to the Galileo PRS system.

Q20 **Graham Stringer:** Are there any other uses to which it would be put? The PRS will not be ready for two years or so, will it?

Nick Ayling: At least. As I said, a project is going on at the moment for robust global navigation systems, which would have a range of uses. Given the need to prioritise, it would probably be used for precision-guidance munitions and the location of high-priority forces in operational theatres.

Q21 **Graham Stringer:** Is it invulnerable to jamming?

Nick Ayling: We need to do more work on its vulnerability, but it is much more resilient than the unencrypted signal would be.

Q22 **Graham Stringer:** But it might be vulnerable.



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Has the Ministry of Defence been developing equipment that would become obsolete if we did not have access to the PRS signal?

Nick Ayling: The robust global navigation system project is very innovative, in that it would seek to make use of the maximum number of global positioning satellite signals. Ideally, it would not be reliant on a single system. It would triangulate between the different signals it received. We have certainly not been putting all our capability eggs in the Galileo basket.

Q23 **Graham Stringer:** I will finish, as I started, with something that I do not understand. There are many NATO allies within the European Union, but there are NATO allies without the European Union. Does that mean that other members of NATO that are not in the EU will not have access to this signal? Isn't that rather peculiar?

Nick Ayling: I refer back to the question about the distinction between access and assurance, for the most demanding purposes. Certainly, the European Union's current policy of third-party access does not preclude other nations—third parties—from having access, as users, to the secure system. At present, it precludes their having deep assurance about how it would function under a whole range of circumstances. Therefore, from a UK military perspective, we would be unable to place reliance on it. Clearly, I cannot speak for other nations and their criteria.

Q24 **Carol Monaghan:** I understand that there are a lot of civil markets for Galileo in, for example, precision timing and autonomous vehicles. Is there a risk that, if we do not get access to the PRS—or, indeed, if we do not develop our own system very quickly—we will cause damage to the UK's reputation for high-quality R and D and innovation?

Rebecca Evernden: The Galileo open signal will still be available to all. For example, downstream companies that want to develop innovative applications to use the open signal will still be able to do that—absolutely.

Q25 **Chair:** Do they just contract for it individually?

Rebecca Evernden: The open signal is free and open for all to use, in the same way as the GPS open signal is free for all to use. In fact, the PRS signal should also be free to use, but it will be available only on a governmental basis—on the basis of a user-access agreement.

I would like to comment on the other potential uses of the encrypted signal in the UK, on the civil side. We have heard about the military side. On the civil side, there is much less understanding of the real potential of what an encrypted signal could contribute. Here I am thinking particularly of first responders, emergency services and CNI operators, where an encrypted signal can deliver quite substantial benefits over an open signal in protecting against jamming. *[Interruption.]* Shall I carry on?

Q26 **Chair:** Finish the answer.



Rebecca Evernden: It can provide assurance and authentication of those signals, so that there is a really reliable signal available. If you are an energy or transport operator, you need to have an absolutely guaranteed, assured signal for what you are doing. If we are in Galileo, the PRS gives the opportunity to offer that to our CNI sector in the UK. Doing a UK domestic system could also offer that to our civil sector, as well as provide what we need for our military that PRS would otherwise have provided.

Chair: I need to interrupt you there, because of the vote. I suggest that we adjourn for 10 minutes. Can everyone make a real effort to get back quickly? We will be back in 10 minutes.

Sitting suspended for a Division in the House.

On resuming—

Q27 **Bill Grant:** I note Rebecca's comment that, following the European Space Agency council's vote, which we would describe as disappointing, UK companies cannot bid. Are UK companies completely locked out of the latest round of procurement for the Galileo project? Is that regardless of the fact that, in the future, we could come to some arrangement to be part of the EU space programme, if somebody puts good will on the agenda?

Guto Bebb: I think that good will needs to be on the agenda. The current situation is disappointing, as I have indicated. Although we will still push very hard to get to a better place on Galileo, because, as I have said previously, it is to the benefit of both the UK and the EU, we have also taken the view that the UK space industry is a significant sector within the United Kingdom. It is a growing sector. Recently we passed an Act of Parliament to support it. Therefore, we clearly need to look at the possibility of the United Kingdom developing a system independently.

I do not think that is the Government's preferred position. We would much prefer to be involved with Galileo, but we cannot afford to lose the lead we have developed in our involvement with the space sector as a result of the fact that, as it stands, we are shut out of the Galileo project. We are looking very carefully at the possibility of undertaking a new, United Kingdom, response, but I stress again that we would prefer to resolve the situation. I am sure that Rebecca can expand on where the opportunities lie to ensure that we are readmitted.

Rebecca Evernden: Currently, we are not able to bid for contracts related to the PRS—the secure part of the Galileo system. That is the part of Galileo in which our companies have the strongest interests.

Q28 **Chair:** Are there UK companies involved in other aspects of Galileo?

Rebecca Evernden: There are; that is correct. They can continue—

Q29 **Chair:** Is there procurement going on at the moment in relation to that?



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Rebecca Evernden: There are some smaller procurements, but the big interests for our companies are mainly in relation to PRS.

I will give you a flavour of the impact of this. It is not done on a share basis, but, pre-referendum, based on track record and an understanding of capabilities in Europe, we would have expected UK companies to win about a quarter of the remaining contracts in the multi-annual financial framework. We think that has probably at least halved since the referendum. Therefore, likely and actual contract wins are significantly down.

This is reversible. If the Commission is able to meet the conditions set out in our technical note, to which the Minister has referred already, by removing the participation conditions so that companies can be part of the bidding process and by providing explicit agreement that that can continue through the implementation period, they will be able to continue bidding. You are quite right—a successful deal could reverse this.

The Minister has also said that, even if we are not able to reverse this, there are other, positive things going on in the sector, around the proposal to look into developing a domestic system. If we go ahead with that, it will give UK companies opportunities to develop aspects of an alternative to Galileo.

Even if that does not go ahead, there are lots of other things going on—for example, the sector's ideas for a sector deal. The UK Government are in talks with the sector around a strong sector deal to boost the UK space sector.

There are other things, as you well know, around the development of launch capabilities in the UK.

There are lots of positive things going on, but the contractual situation at the moment is quite challenging for UK companies.

Q30 **Bill Grant:** On the same theme, what is the position for UK companies that are already contracted to the Galileo project and have elements to deliver post March 2019? Where do they lie in the system? Are they still fine to deliver those elements, or has that been declined?

Rebecca Evernden: If contracts are not related to the PRS, they are not affected. The current conditions say that, after March 2019, contracts related to the PRS cannot be delivered in the UK. They have to be delivered from within an EU member state, because they are related to the secure aspects of the system.

Q31 **Chair:** Would that involve those companies having to set up—

Rebecca Evernden: Those companies would have to transfer the work overseas, if a deal was not reached with the EU. As we have said, we are still trying to reach a deal, which would mean that that would not have to happen.



Q32 **Bill Grant:** My final question is not intentionally a negative question, but it has a negative tone. What is the impact assessment for UK companies, jobs and the cost to the economy if we fail to continue engagement with the Galileo project post March 2019? I note with some comfort that there may be alternatives for the skills and energy of those companies on a stand-alone project. Hopefully, we will engage with Galileo, but, if we fail to do so, what will the impact in the UK be?

Rebecca Evernden: As we have said, our space sector is very flexible. It is very innovative and good at getting involved in new areas. To answer the question directly, we estimate that there are several hundred jobs related to working on contracts around Galileo. That brings significant revenue into companies based in the UK. As we know, some of those are multinational companies and can easily move work around. Other companies can move more easily into different areas in the space sector. It is quite hard to pin a direct number to it, but several hundred jobs are currently related to delivery of contracts around Galileo.

Q33 **Bill Grant:** They will not necessarily go, but they are at risk. Is that a fair comment?

Rebecca Evernden: If we do not get a deal, I think that those companies will find other work to do. They are involved in other areas in the space sector. There is the Copernicus programme, in which we still expect to be fully involved as a third country. There is lots of opportunity there. It is not a bleak picture, but those companies are having to think about the impact on jobs as a result of where we are on Galileo.

Q34 **Liz Kendall:** Hasn't Airbus said that it will move SSTL? How many people is that?

Rebecca Evernden: I do not believe that Airbus has said that it will move SSTL. I am sorry if I have not understood that. It has facilities in the UK—

Q35 **Liz Kendall:** Facilities it has said it will move. How many people specifically are involved in that?

Rebecca Evernden: Airbus has facilities in the UK and facilities in France. I believe that Colin Paynter has said—if not to this Committee, then to another Committee of the House—as MD of Airbus in the UK that, because of the conditions that have been imposed by the Commission in the contracts, it will have to deliver certain aspects of the work on Galileo from France. I am just reiterating the comments that Colin has made.

Q36 **Liz Kendall:** How many people is that?

Rebecca Evernden: Some of this is commercial in confidence. I do not think that I am prepared to speak on behalf of Airbus, but I believe that it would be a reasonably significant number of people.

Q37 **Chair:** Did you say that it would be “a reasonably significant number of people”?



Rebecca Evernden: Yes. Airbus is considering how it will handle this at the moment. It is in discussions with its offices in France and Germany, as Colin has explained to the House. I do not think that we have a clear understanding of exactly what the impact on particular individuals would be.

Q38 **Vicky Ford:** May I understand what batch 4 means? I think that batch 4 was 12 new satellites. Were they replacing the old ones? Will there be a batch 5? Is this a terminal decision? Is there another procurement round, or is this basically it?

Rebecca Evernden: Batch 4 is to develop the second generation of the Galileo system. The first generation is pretty much complete now. All the satellites in the constellation have been or are in the process of being built.

The second generation is about evolving the technology. Satellites have a lifespan of roughly 10 years, so you have to replenish a system. You have to update the technology to deal with the latest threats and, of course, so that you are at the cutting edge of what you are trying to deliver. Sensibly, the Commission is planning ahead and looking at how the system will evolve down the track.

Q39 **Vicky Ford:** Was this procurement round for all the clever kit for all the clever satellites, rather than just a bit of it?

Rebecca Evernden: It is to procure the payloads and the development of the satellite itself. There are other elements to the development of the future system, around the ground control segment and so on.

Q40 **Vicky Ford:** But it is not the case that there is another procurement round coming in, or that this one was only for things that would go on two of the 12. It was for all the payloads, on all 12.

Rebecca Evernden: Yes, we think so.¹

Q41 **Liz Kendall:** We were told in January about the problems with Galileo, but I understand that the UK Space Agency was not asked to convene a taskforce to look at alternatives until May. Why?

Rebecca Evernden: As all Government Departments are required to do, we have to look at contingency plans for any scenario in which we do not get the agreement we are hoping for. Although the Prime Minister announced the fact that we were doing this work in May, ahead of that we were doing some early thinking about what other contingency options there might be.

Q42 **Liz Kendall:** Why was there a four-month delay in sitting down to figure out the alternatives? Maybe I will ask the Minister that question.

¹ Note by witness: Batch 4 procurement refers to transition satellites only. The second generation of Galileo satellites will require future procurement exercises.



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Guto Bebb: I do not think that that is the case, to be honest with you. We first started to look at an independent UK capability back in 2017. The initial work of looking at the possibility of having a UK version of something similar to Galileo was done in 2017.

Clearly, when we were informed of the Commission's stance in relation to Galileo, a significant amount of effort was made to ensure that the Commission understands the position of the UK Government. A huge amount of work was put in to ensure that we communicated our position very strongly. At the same time—running concurrently—I was already having discussions on whether there were options for a UK alternative. The work had already been put in place. Back in 2017, the MOD was involved, with the UK Space Agency and other Government Departments, in looking at the possibility of developing our own GNSS.

It is unfair to say that we were informed of a problem early in 2018 and did nothing until May. That would be a simplification of the situation.

We are very clear that we feel quite strongly that we have the capability in the United Kingdom to deliver such a programme. Initial analysis of the cost has been undertaken.

Q43 **Liz Kendall:** How much will it cost?

Guto Bebb: The initial analysis is that it will cost between £3 billion and £5 billion, from a capital investment perspective.

Q44 **Liz Kendall:** Up to £5 billion.

Guto Bebb: Yes—between £3 billion and £5 billion.

Q45 **Liz Kendall:** If we are no longer part of the project.

Guto Bebb: I am being very clear with you. That is the initial analysis that we have had.

The ongoing cost of the system would be comparable to our contributions to Galileo on an ongoing basis. Clearly, we would much prefer to remain involved in Galileo. Ultimately, the decision to leave the European Union was made by the British people. To class us as a security risk on Galileo, in view of the fact that the United Kingdom has shown nothing other than good will on this issue, is problematic for the Government.

Q46 **Liz Kendall:** If we developed an alternative, it would cost £5 billion. When would it be ready?

Guto Bebb: The initial discussions that we have had within the MOD imply that, given that Galileo would probably be delayed as a result of the UK being removed from the programme, there is every likelihood that we would be in a position to have a system up and running within a similar timeframe.

Q47 **Liz Kendall:** Which year is that?



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Guto Bebb: By the mid-2020s.

Q48 **Liz Kendall:** For £5 billion.

Guto Bebb: For £3 billion to £5 billion. In May, the Prime Minister asked for this work to be taken into further detail. The initial £3 billion to £5 billion figure tells you that there is a ballpark figure of between £3 billion and £5 billion. I do not think that you should take £5 billion more than £3 billion.

Q49 **Liz Kendall:** Have you had discussions about where that money would come from?

Guto Bebb: The clear point from my perspective, as the Ministry of Defence position on this, is that the money will have to come from the centre. It is important to see that a lot of Departments are very involved and can see the advantages to the UK industrial base of ensuring that this scheme moves forward.

I want to be very clear again. Despite the fact that we are doing work on an alternative—obviously, you would be right to criticise us if we were not—we remain of the view that the best outcome would be to be involved in Galileo. I am sure that everybody would agree with that.

Q50 **Liz Kendall:** I understand what you want to achieve. Have you discussed with the Chancellor the £3 billion to £5 billion figure for the next Budget or spending review?

Guto Bebb: The figure in question—between £3 billion and £5 billion—is known to the Treasury.

Q51 **Liz Kendall:** Have you spoken to—

Guto Bebb: I have not spoken personally to the Chancellor.

Q52 **Chair:** The pitch is for extra money, to cover that.

Guto Bebb: At this point in time, the pitch is the feasibility of the programme and detailed costings of it. I have highlighted the fact that the initial view was that it would cost between £3 billion and £5 billion, but that is not the basis on which a decision can be made about spending priorities. There is an ongoing discussion of this issue within Government. Indeed, I was talking to an official from the Cabinet Office this very morning about this very issue—the potential funding stream for our involvement in a replacement for our involvement in Galileo.

Q53 **Carol Monaghan:** Minister, you have talked about the ability of the UK to do this. I do not think that any of us is in any doubt about the expertise that we have here in the UK. However, I am concerned that the longer we wait to start an alternative programme, the more danger there is of the skills base being lost to the EU, the US and other places. We saw that with the Astute submarine programme, where skills were lost and there were problems trying to catch up.



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Are the Government taking a serious view of this, in terms not just of money but of the skills and capabilities that we currently have and the capabilities that could be lost if we do not get a move on with it?

Guto Bebb: When we had an Urgent Question on this last Thursday, I said very clearly that one thing the Government are acutely aware of is the danger of the flight of skills as a result of this issue. That is why the Prime Minister has tasked a taskforce within Government with bringing forward detailed proposals on how we can do a replacement. You are absolutely right—the loss of those skills would be extremely damaging.

As you rightly say, the capability is here at this point in time. Our obligation is to ensure that, if our negotiations with our European partners are not successful, we are in a position to offer assurances to UK industry moving forward. That is the intention.

Q54 **Carol Monaghan:** What is the timeframe for that?

Guto Bebb: The work has been commissioned and is ongoing, within a timescale of 18 months, at this point in time.

Q55 **Darren Jones:** Recently, we have seen the Defence Secretary threaten the Prime Minister with her job if she does not commit an extra £20 billion to defence funding. Is the £3 billion to £5 billion of additional money for Galileo part of that £20 billion ask?

Guto Bebb: First, you should not believe everything you read in the newspapers. Secondly, I say very clearly that the £20 billion figure is not a figure that I recognise. The £3 billion to £5 billion, or whatever the cost of a replacement system would be, would be separate from any settlement that we are seeking for the MOD. I do not recognise the alleged threats or the figure of £20 billion.

Q56 **Chair:** Minister, we are up to 5.30. Can you indulge us for a little longer?

Guto Bebb: It is fine. It is not your fault that we had the votes.

Q57 **Vicky Ford:** I have two more questions. When we visited Brussels in April, we heard that some of the technology Galileo was relying on has moved on. Is there a risk that Galileo will be out of date? If we start to develop our own system now, is it likely to be more advanced than what we would have put on those satellites?

Guto Bebb: I have to defer to the experts on that issue, I am afraid.

Rebecca Evernden: Any satellite system, particularly the software that protects the encryption at the heart of any secure system, has to be constantly updated. Of course, if we went ahead with developing our own system, we would develop it using the most up-to-date technology.

However, it is worth saying that any UK system, if it were to go ahead, would probably be quite similar in scope to a Galileo or GPS-type system, which is a medium-earth-orbit system. We have already said that. It is



the most proven technology, and we have a lot of experience in the UK of developing systems of that kind, with our companies working on Galileo.

Q58 **Vicky Ford:** You have already talked about the pros and cons of using this system versus using GPS. Do you want to say any more about the security benefits of the European system versus GPS? You have mentioned some of the issues.

Nick Ayling: I can say a couple of things about that. It is worth saying that we have an exceptionally high degree of knowledge of and confidence in GPS. The issue of having a second signal is not a criticism of GPS; it is simply a recognition that having two signals gives you considerably greater resilience.

Q59 **Vicky Ford:** If one is jammed, you can—

Nick Ayling: Exactly. You can triangulate between them, as well as some of the open signals.

It is probably worth mentioning that, notwithstanding the technical confidence that we have in the encrypted GPS signal, because it is a US sovereign system we do not have complete freedom of action. We have to apply for licences to be able to access the security modules. Although the US is extremely forward leaning and co-operative, one of the drivers for the MOD's plan to rely on the Galileo PRS for military purposes was the ability to manufacture those security modules domestically and, therefore, to have control over potential surges in production, in order to cope with urgent operational requirements.

Potentially, we would also be able to export them, as part of receivers within defence equipment. We would be participants in a system of which we had technical understanding and to which we had guaranteed access. Again, that goes back to the red lines in the technical paper that we submitted to the EU.

Q60 **Vicky Ford:** Back in January, the Government Office for Science did a review of GNSS. It also looked at alternatives that were independent of GNSS, including terrestrial radio systems. Can one deliver a lot of the same capacity using a different type of technology, or does it still leave too many gaps?

Nick Ayling: Our current assessment is that only a space-based global navigation satellite system could deliver global coverage and miniaturisable receivers for positioning, navigation and timing. The study refers to the ability to have regional solutions. There is something called eLORAN, which is a series of land-based radio transmitters from which you can triangulate your position, based on the signal that the receiver obtains. Unless you had a global system of terrestrially based radio lighthouses, you would not be able to do that.

We are exploring some novel technologies—quantum clocks and other techniques—as part of the defence science and technology programme.



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The current assessment—at least, for 10 to 20 years—is that, although they may be able to deliver an element of either timing or position, they will probably not be miniaturisable for military purposes in the very short term.

Q61 Chair: Does one complement the other? Can you have the localised or regional systems you refer to with the space-based system?

Nick Ayling: Yes. There is no incompatibility, but for expeditionary military operations around the globe there is an inherent need for a global system.

Chair: You rely on that.

Q62 Vicky Ford: If we were building our own system, I assume that we would not necessarily build it in the same way as the Galileo system. You might look at some of the low-orbit satellites that we can now launch from the UK, for example, because we have our own Space Act.

Guto Bebb: From Wales, preferably.

Nick Ayling: The feasibility studies we have been doing have looked at different options. The current view is that, because of the distance of the satellites from the earth, a mid-earth-orbit system gives you the most efficient way of covering sufficient parts of the earth, as the satellites rotate with the system. That avoids the need for you to have a very large constellation of satellites and lots of ground stations to do the telemetry.

However, because the security aspects were not designed into Galileo from the start—they have been retrofitted—it might be possible to do something different, if you set out with that in mind at the outset. Again, all of this is subject to further technical study.

Q63 Stephen Metcalfe: NATO and the EU have a strategic partnership, which states that both sides are committed to “coherent, transparent and mutually reinforcing development of military capability requirements.” Do you not think that the EU’s stance on all of this is undermining that?

Guto Bebb: It is certainly not helpful, I would argue. From our perspective, it is very clear that what we are asking for on Galileo is exactly what we are doing with NATO partners. The fact that that is currently being refused is a concern.

We feel very strongly that the European Union should be working very closely with NATO. It should recognise that the United Kingdom, as the second-largest contributor of money and resource to NATO, should not be seen as the security risk that it has deemed us to be in relation to Galileo.

It is difficult not to accept the aims of your question, which were to highlight the fact that this is not really what the European Union should be doing if it is trying to build a degree of confidence in the relationship between NATO and the European Union.



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Q64 **Stephen Metcalfe:** Potentially, it is damaging its own strategic interests.

Guto Bebb: As I said at the outset, our view of the situation that we face with Galileo indicates that both the Galileo project and our own position will be damaged by the decision to exclude the United Kingdom from that project.

Q65 **Stephen Metcalfe:** At this stage, with the EU's position stated as it is, do you agree that there is no chance of NATO ever adopting the PRS system?

Guto Bebb: It goes back to the issue of the freedom of action we are looking for and the ability to have ownership, in effect, of the encrypted systems and so forth. That is why our red lines come into play.

Not every country that wants to have access to the system would demand that, I suspect, but, from our perspective, as one of the leading players in the Galileo project and as a country that has highlighted its importance as an alternative system, to give us resilience for our military capability, it is a clear red line. I cannot speak on behalf of other Governments. We see the advantage of being involved with Galileo from a military perspective, but we have red lines, which I articulated at the start of this hearing.

Q66 **Stephen Metcalfe:** The States has been in negotiations for a number of years to access the Galileo PRS system as a third country. Do you think that it will take us as long to negotiate a resolution of this?

Guto Bebb: We hope that we can resolve the situation on the basis of the technical note and the arguments we have provided. We accept that this is a new project, but we want to be involved. I ask Nick to clarify the timescales for the US's desire to be involved with the Galileo project.

Nick Ayling: Rebecca has actually been part of this.

Guto Bebb: My apologies; I thought that the defence element was all yours.

Rebecca Evernden: The US has been in discussions with the European Commission for a number of years on the possibility of a user agreement with the EU on PRS. Obviously, it is starting from a different place from where we are starting. We are very clear on what we want from a PRS user agreement. Of course, that would have to sit alongside the other things that we would want to get to make having a deal on Galileo worth while, but we are very clear.

The US is going through a much more exploratory phase, to understand what PRS is and what it needs to know to be able to make a decision about whether it might wish to use it in the future.

Q67 **Darren Jones:** Is it not right to say that the fundamental problem here is that the EU has a set of rules that says that third-party countries cannot bid for procurement contracts where there is a defence or security



prohibition?

Guto Bebb: That is the situation. The difference is that I do not think that the third-party rules surrounding Galileo ever envisaged a key central partner leaving the European Union and then requesting involvement in the programme.

If we are genuinely looking for a comprehensive agreement with the European Union that is positive for both the European Union and the United Kingdom, we have to challenge some of the assertions that have existed with regard to the way in which the European Union does business, in the same way as we have to challenge some of the assertions in the United Kingdom as well.

The key perspective is that there is nothing in our technical note that is unreasonable, but, yes, we are asking the European Union to allow the United Kingdom to have a level of access that is beyond what is currently classified as a third-country access agreement.

Q68 **Darren Jones:** Presumably, you are having these conversations about defence procurement generally. Will you tell us how it is going on the broader question of defence procurement, as opposed to specifically on Galileo? Is it more positive generally?

Guto Bebb: Clearly, defence procurement is an interesting job in Government; I cannot deny it. I was asked this question this morning by the Chief of the General Staff, as it happens. I feel that there is a lot of good news on the way in which we are doing procurement in the MOD, which is challenging some of the horror stories that happened in the past. There is no doubt that we are also still dealing with some of the legacy issues of previous problems that we faced.

I am encouraged by some of the innovative ways in which we are currently moving ahead very quickly with some procurement projects. The increasing willingness of industrial partners to enter into contracts where they share the pain if a contract is not delivered on time highlights the fact that we are becoming much more commercial in the way in which we do things. Undoubtedly, we needed to address that and we are addressing it.

Q69 **Darren Jones:** It is nice to hear that defence procurement is going well generally, but I need to push you on the European angle. I have some Airbus jobs in north Bristol related to Galileo. My understanding is that Airbus has had to say to the European Commission, "But for there being an agreement between the UK and the EU, we will move our people from Bristol and Portsmouth to Toulouse."

Essentially, that means that, unless you want to move to Toulouse, you will lose your job. If that is the same for other defence procurement contracts—for fighter jets, frigates or whatever it may be—the research and development that goes into defence procurement by universities and businesses is under threat as a consequence of the Brexit-linked decision



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that third countries should not have access to security-related procurement. Is that right?

Guto Bebb: I do not agree that that is necessarily the case. I note that Airbus made an announcement on Friday. I have commented on that announcement and the response to it, so I am very aware of what was said. Obviously, the announcement that was made by Airbus was in relation to its commercial division.

I would highlight, for example, the positive discussions I am having on some projects we are working on, where European companies wish to invest in the United Kingdom to develop their technology, to service the MOD and potential export markets.

It is not necessarily a one-way story on defence procurement. We have examples of projects on which I am currently working where European companies are keen to invest in the United Kingdom.

Q70 Darren Jones: I have a specific question, to push you on the European issue. Obviously, export markets can be the whole world, but today we are interested in the question of European procurement. Europe is setting up the European defence fund, the European defence industrial development programme and other initiatives. We are currently part of those, as a member state of the European Union. I think that we will continue to be deemed a member during any implementation period. That involves a financial contribution from the UK Treasury, doesn't it?

Guto Bebb: Yes. We have made it very clear that we want to remain involved in the European defence fund, for example.

Q71 Darren Jones: We are contributing to the European defence fund, without any assurances that British industry can win procurement contracts bid for through that fund.

Guto Bebb: Our ongoing contribution will be based on our negotiation of that relationship moving forward.

Q72 Darren Jones: You have no assurance from the European Commission that British industry will be able to bid for defence procurement contracts.

Guto Bebb: My official makes the comment that we are currently involved in various projects—for example, some research projects. All of this is subject to negotiation. Nobody from the MOD or from the Government is claiming that this is easy, but these are things that we should resolve, and need to resolve. The good will that we are showing in relation to these defence projects shows that we want to be involved.

Q73 Darren Jones: The consequences of failing to get an agreement with the European Union because of Brexit are things like Airbus having to say that it will move its workers to Toulouse, or UK workers losing their jobs if they are not willing to move. We have had evidence that companies in the Galileo project have had to accept Brexit clauses that say, "If you don't get the insurance, you lose the work."



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This is causing huge uncertainty, yet we continue to pay British taxpayers' money into a development fund without any assurance of being able to win the contracts, because it is subject to the negotiation. When are we going to get that assurance?

Guto Bebb: Clearly, at this point in time, we are still members of the European Union.

Q74 **Darren Jones:** Not for long, Minister.

Guto Bebb: It would not show any good will on our behalf if we started to withdraw our involvement in European projects before the withdrawal point. We are currently attempting to negotiate with the European Union, to ensure that we have a good deal that will be beneficial to both sides.

You are absolutely correct to highlight the concerns of some businesses in relation to a situation in which we leave the European Union without an agreement. However, most of the partner organisations and industry that I have met in Europe are very concerned about the impact of businesses in Europe, as well, if there is no agreement. It is a two-way issue.

Do not get me wrong. The Government are very clear. We are seeking to achieve an agreement that is unique and that highlights the fact that the United Kingdom is the first country ever to have decided to leave the European Union. I think that the unique and bespoke agreement that we are seeking between the European Union and ourselves will be beneficial to both sides. Again, I go back to this point. If the European Union is based on good will, an agreement should be possible. I hope that that is the case.

Darren Jones: I will end with a short statement, as opposed to a question. You refer to a no-deal scenario—a big issue that has been talked about in the House recently. On the Galileo project and on defence procurement, there is not just fear about a no-deal outcome but a concern about being blocked from procurement contracts as a third country, even if we have a deal.

While we are putting British taxpayers' money into funds to which, ultimately, we might not have any access, and with time running out very quickly, businesses are keen to get some answers on the assurances that British industry will be able to bid for those contracts. Minister, I hope that you will be able to come back to us soon with an answer on that.

Q75 **Liz Kendall:** Minister, I know from what you have said that you value our defence businesses. What would you think of any Minister who said, "F— business"?

Guto Bebb: I think I have been on the record over the weekend. I will say no more.

Chair: You would not like to develop that theme.

Q76 **Liz Kendall:** For those of us who missed what you said over the



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weekend, what would you say about that?

Guto Bebb: I think I made it very clear that I thought that some of the comments that were made in relation to the importance or otherwise of listening to businesses were unworthy and inflammatory.

Liz Kendall: On that, I would agree.

Q77 **Vicky Ford:** I, too, think that you made that very clear.

Guto Bebb: Thank you.

Chair: We welcomed your contribution. Thank you very much. I apologise to you all for delaying your schedule. I am sorry it has messed up your diary, but thank you for giving evidence to us this afternoon.