

Communication Satellites for European Defence and Security: Challenges and Opportunities

Partnership - Improving security for the people of Europe

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1. The people of Europe ask for security. They are faced with terrorist attacks and immigration waves at unprecedented scale. This represents a major challenge for European defence and security . European countries are expected to cooperate more and better to respond to the very real concerns of their citizens.. I thank the organisers of this important seminar to give me the opportunity to share with you my thoughts on how ESA - in partnership with all stakeholders – can contribute in the field of communication satellites for European Defence and Security.
2. I feel privileged to work in the space domain and at ESA in particular. At ESA we promote a world without borders and values of peaceful coexistence. At the same time, we have a special responsibility in this regard to help and protect our society and its values.
3. Among all the world's space agencies, ESA is remarkable for the breadth of its remit, which addresses every type of civil space-related activity.
4. Although it is an independent inter-governmental organisation, ESA's activities include close cooperation with the European Commission, notably for the development and delivery both of the space components of the Copernicus system (Europe's system for monitoring the earth) and of Galileo (Europe's global navigation system).
5. The seventh ESA-EU Space Council held in November 2010 acknowledged the reinforced EU engagement in security and defence matters embedded in the Lisbon treaty. It invited the EC and the EU Council, assisted by EDA and together

with Member States and ESA, to explore ways to support current and future capability needs for secure space assets and services, including satellite communications. In December 2014 the EU Council underlined the need to avoid fragmentation of demand and to foster civil-military synergies for the preparation of the next generation of governmental satellite communication, through close cooperation among Member States, EDA, the EC and ESA. In this context it is perhaps worth recalling that the ESA Convention allows for such activities in the field of security for peaceful purposes.

6. This cooperation with ESA reflects the fact that the Agency is very active in an area that is of the greatest relevance and importance for the purposes of this conference: satellite communications.
7. ESA has been highly successful in supporting research, development and innovation within the European Satcom industry and in helping that industry to thrive in a highly competitive global market.
8. A key reason for this success is Partnership. ESA and its Satcom programmes are built around partnership on multiple levels between industry and institutions. This comprises satellite prime contractors and their consortia; satellite operators and service providers; Member States; EU institutions; International organisations; and space agencies.
9. A key aspect of this partnership is ESA's engagement of industry in various forms of Public-Private-Partnership, including every part of the value chain and ranging from multinational corporations to SMEs and start-ups.
10. This philosophy of partnership and collaboration also underpins recent initiatives with European Union institutions, for instance with the EC on the European Data Relay System and with the EDA on Satcom R&D and Remotely Piloted Airborne Systems.
11. The GOVSATCOM programme may leverage from these well proven mechanisms for delivering operational Satcom systems and services through partnership of EU institutions, ESA and industry.
12. In a minute I will come to practical successful examples which may be a reference also for GOVSATCOM.

13. First it is important to recognise that the Satcom sector, is truly a global, highly competitive and dynamic market. In terms of direct annual service revenues the Satcom sector accounts for €115Bn.
14. Players in this commercial market move with great speed compared to institutional players and the services they provide evolve rapidly, so that the underlying technology development and innovation of services have to keep pace.
15. In fact the institutional players, including the military, are increasingly gaining large benefits in cost and capability from utilising the commercial systems in a dual use context.
16. However, any form of public intervention in the satcom commercial market should not distort it. Any governance and ownership model of any dual use Satcom system may not be able to take Copernicus or Galileo as a blueprint. For instance, while institutional control & guarantee of service are mandatory for GOVSATCOM, different options may be considered for the ownership of infrastructure, including infrastructures privately owned by service providers.
17. ESA has quite some experience of building new types of partnerships between private industry and public institutions. I should emphasise that these are not conventional PPPs of the kind that have gained a mixed reputation in recent years. Instead they are carefully customised partnerships in which each party takes the roles and risks for which they are best equipped. ESA typically covers the technology risks associated with innovation. Constructing these partnerships has not been easy but I think we can say that it has been consistently successful.
18. ESA has thus implemented public private partnerships for several major Satcom projects.
19. This has enabled us to leverage public funding very effectively. The level of private funding has varied across the projects we have implemented but has averaged at around 50%. In some cases the level of private funding of industry-initiated partnerships can reach 70%, whilst for public initiatives the public contribution may be dominant. At a time of constrained public finances this

flexibility and leverage is a vital benefit and can help to 'better spend' public funds and European taxpayers money.

20. Rather than going into a lot of detail about the individual partnerships – you may get more information from my colleague Mr. Moeller in our panel discussions later- , let me give you some quotes from the CEOs of the private companies involved.
21. Michel de Rosen, CEO of Eutelsat, said of our recent Quantum project that our approach is “rewriting the rulebook on how satellites are designed, built and operated”. He added that this is, “a game changer... clients want reach and flexibility” and Quantum enables them “to adapt to our clients’ needs, instead of asking them to adapt to our satellites”.
22. Stephen Spengler, CEO of Intelsat, had this to say about the INDIGO partnership, which delivers a new ground segment for their EPIC satellite system: “ESA has recognised the need for continual innovation throughout the satellite ecosystem. ESA support gives us the opportunity to develop and add new features... we can deliver new services across multiple vertical markets”.
23. That is important considering the wide range of users that future European governmental Satcom systems will have to address: and there are further considerations, relating to the health and competitiveness of the European economy. Spengler adds that “PPPs drive technology innovation and develop thought leadership.” He goes on to say that “Working together we will secure our collective position in the global communications landscape, open new markets and create jobs and economic growth.” He was gracious enough to add that, “None of this would be possible without the support of ESA.”
24. I am happy to say that these are not isolated examples. We have put several PPPs in place, as with Inmarsat for Alphasat and for their next generation system ICE; with Avanti for HYLAS; with SES for Electra; with TAS for NEOSAT and with Airbus for EDRS and GlobeNET for data relay services. Moreover we put several of these arrangements in place rather fast, by which I mean months not years.

25. Clearly some of these existing projects or evolutions thereof could provide important elements or precursors when we are collectively building up a future GOVSATCOM system and services.
26. I should add that the approach we have used to build these elements is now well proven, even if it is not exactly a simple blueprint of 'one-size-fits-all'. It takes hard work and specialist expertise, it is tailored to the specific user needs and to institutional as well as industry objectives.
27. This brings me onto the issue of challenges and opportunities. Govsatcom by its nature will have to face the challenge to bring together commercial and institutional players. First come the users, from the civil, military and security domains. Then there are the ones who may be contracted to build the systems and provide the services: prime contractors, SMEs, satellite ground segment operators, service providers and R&D organisations. Finally there are, let me call them "the institutional enablers", the Member States, inter-governmental organisations and EU institutions, most notably the EC and EDA, and inter-governmental organisations such as ESA.
28. ESA has a lot of experience in facing such challenges, partnering with an experienced and engaged European space industrial community. The European defence and security sector in synergy with space presents a great industrial opportunity for these partners.
29. This is an opportunity that Europe must not miss. We have no equivalent of the situation in the USA, where the world's largest defence programmes underpin massive R&D investments to the benefit also of commercial Satcoms.
30. If we fall into the trap of individual Member States purchasing strategic parts of existing solutions from outside Europe, then Europe will lose not only its strategic autonomy but also endanger the very existence of a strong and competitive space industry. It is a tough global market out there and so far our European space industry has been competing rather successfully, despite not operating from a level playing field. Yet that is not a given. Complacency, short term thinking and lack of coordination will damage our ability to innovate, to keep pace with market needs and ultimately will damage our economy.

31. GOVSATCOM is an opportunity for the EU, Member States, ESA, industry and users to work together to maximise synergies between Defence and Space for the benefit of all. We must strengthen the synergies between national and European programmes, in terms of both assets and requirements. We must reinforce the role of the EU as a security provider contributing to peace and stability. We must leverage ESA's role as the leading R&D organisation, implementing agency and experienced partner of European space industry. We must engage with industry and with the existing and potential users. We must make best use of the available institutional framework at EU, Intergovernmental and national level and the role of ESA as mandated by its Member States. In short, this is an opportunity and a challenge for us all.
32. Let me therefore sketch out a possible way forward, capturing what might be a way ahead for a GOVSATCOM system.
33. The first step for ESA is the preparatory phase that is already ongoing in 2015 and 2016, in coordination with our partners, and a system study under our ARTES programme that complements studies by the EC and EDA.
 - This includes support to EC and EDA in requirements consolidation and the identification of required innovative technologies, system architectures and technical implementation scenarios. It may assess the extent by which foreign technologies or solutions should be replaced by new European ones to secure security of supply. It also address the opportunities for demonstrations and In-orbit validation of technologies using precursor Satcom systems, in a security user context.
 - We anticipate that the ARTES study will also assess EDRS and Quantum and their evolution as possible future elements of a GOVSATOM precursor system, together with other existing Satcom systems currently under assessment in dialogue with industry.
34. In a second step, ESA intends to define a pre-cursor phase by end 2016 making use of its existing mechanisms, specifically the ARTES programme. With this ESA takes the next steps beyond study level and towards in-orbit demonstrations, in line with ESA's Long Term Plan and objectives.

35. We shall undertake such precursor phase in coordination with all our partners in Member States, the EU and industry.

36. The precursor phase will be addressed at the next ESA Ministerial Conference late in 2016.

37. The programme of pre-cursor activities for GOVSATCOM for which we aim to seek CMIN16 ARTES funding are expected to include three main areas.

- a. First there are early R&D works and demonstrators, in support of the specification and implementation of the operational GOVSATCOM programme.
- b. Second there is early support to European industry to develop technology solutions, leading to an increased level of European independence from non-European security solutions.
- c. Third there is leveraging from the experience and capabilities of European satellite operators, for the demonstration of pre-cursor services relating to the development of future GOVSATCOM services, which may be provided under commercial service level agreements.
- d. Finally we intend to demonstrate the benefits that PPP based elements can bring, in terms of leveraging not only from existing programmes but also from future private sector investments.

38. The pre-cursor shall support the establishment of a full GOVSATCOM programme.

39. As a third step we would see the establishment of a full GOVSATCOM programme. For this we understand GOVSATCOM to most likely take the form of a federated system with two main elements.

- a. The first element is a framework to be established at European level, supporting intelligent pooling and sharing of existing national and European Satcom capabilities. This could start prior to 2021.

- b. The second element is the deployment of additional capacity and enhanced capabilities as needed.
40. We anticipate that the EU will lead the pooling and sharing of existing assets; the definition of governance; and on the political framework for the implementation programme and operations phase of a full GOVSATCOM which may be expected as from 2021.
41. In coordination with the EC and EDA, ESA would be available to support the overall programme in leading the necessary R&D efforts and the technical implementation of any new space elements providing additional capacity and enhanced capabilities. This may consist of one or more satellites or hosted payloads in response to specific user needs that require innovative solutions.
42. We are ambitious in our aims because we believe that GOVSATCOM responds to a true need for European security; that it represents an enormous opportunity for European industry; and that it poses a great challenge to which European institutions must surely rise.
43. The key, for us, is PARTNERSHIP:
- a. in the cooperation in space research and technology
 - b. to establish operational space applications systems
 - c. for the benefit of citizens
- This is the very essence of our purpose as the European Space Agency in support to our Member States and European space industry and in cooperation with the EU.
44. GOVSATCOM will be part of Europe's response to its people asking for security. It will demonstrate how European countries and stakeholders can work in partnership towards a common goal. It will be an example how space promotes a world without borders and values of peaceful coexistence.
45. ESA is ready to face this challenge. Together with you.
46. Thank you.