

SYMPOSIUM - 7 JUNE 2022

European Governance of Emerging Technologies:

**Concepts, Challenges
and Practices**



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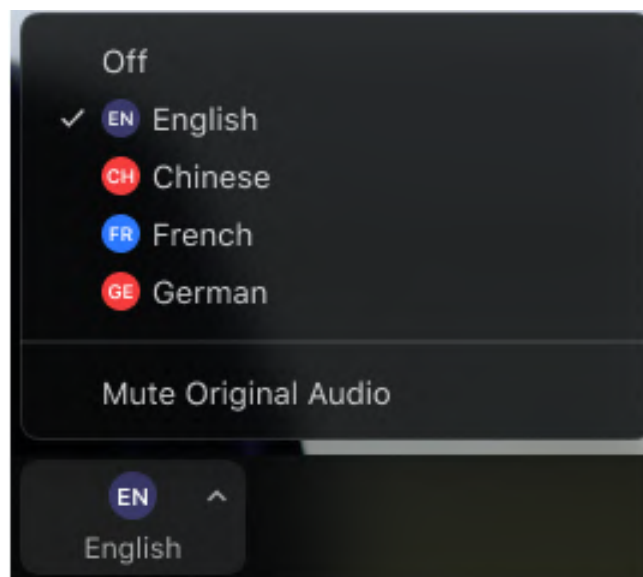
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SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

7 June 2022
9:00 – 17:00 (UTC +2)

The rise of emerging technologies such as artificial intelligence (AI), drones, Big Data and 5G, and even the acceleration of their development in several sectors, fascinates as much as it worries. The almost infinite potential of these technologies, which are often described as disruptive, is leading to major changes in usage. They offer a wide range of applications, with a dual use, both civil and military, but have technical and legal limitations, and raise many concerns about malicious acts (cyber threats and terrorism).

This situation has led European and international bodies to take a close interest in their development, and to adapt their policies and practices to contribute to, and above all benefit from, their growth. Faced with a highly competitive and constantly changing context, coordinated action with public and private partners is essential, particularly in terms of investment, expertise, and cutting-edge research and development.

At the time of the French Presidency of the Council of the European Union (EU) and the midterm mandate of the European Commission, this symposium aims to take stock and discuss issues related to ambitious European initiatives: the European drone policy (their integration in the European airspace with the implementation of U-Space and a 2.0 strategy), the European Defence Fund and the Action Plan on synergies between the civil, space and defence industries.

The EU aims to strengthen Europe's technological sovereignty and preserve its strategic autonomy. It has multiplied its strategies on AI, drones, digital services, cybersecurity and the fight against terrorism. It has also revived its collaboration with the United States, including the creation of the Trade and Technology Council (TCC), and a new defence and security dialogue that should also include collaboration on emerging technologies is set to begin this year. In addition, the continuation and deepening of cooperation with NATO on emerging and disruptive technologies as well as on the adaptation of defence and security to climate change. These are key developments that will feed into the discussions.

Organizing & Scientific Committee

Dr Océane Zubeldia, Institut de Recherche Stratégique de l'Ecole militaire (IRSEM)

Dr Chantal Lavallée, Centre for security and crisis governance (CRITIC), Royal Military College Saint-Jean, Canada/IRSEM/Peace Research Institute Oslo (PRIO), RegulAIR project

Dr Raluca Csernatoni, EU Cyber Direct – EU Cyber Diplomacy Initiative, Carnegie Europe

Dr Bruno Oliveira Martins, Peace Research Institute Oslo (PRIO), RegulAIR project

Partners

The Institute for Strategic Research (IRSEM), (<https://www.irsem.fr/en/index.html>) was established in 2010. It is a research institute attached to the **Ministry of Defence's General Directorate for International Relations and Strategy (DGRIS)**. IRSEM is made up of a team of 40 civilian and military personnel who strive to strengthen French research on defence and security issues. Its singularity a unique entity situated at the crossroads between the defence and the academic environments. As such, the Institute plays a central role in developing the breeding ground of researchers on defence and security matters, in order to contribute to the emergence of a war studies discipline in France. The two objectives are those that the hybrid nature of the institute imposes: to be of practical utility to the Ministry of Defence while maintaining a position of credibility in the world of academia. IRSEM is a unique institute that brings together academic and military personnel, drawing its strength from the diversity of its team. As a tool for understanding the present and enlightening the future, the Institute aims to enable the three key elements of decision-making to work together: practitioners, analysts and researchers. IRSEM fosters the emergence of the next generation of researchers in the field of defence and security by providing mobility grants to doctoral students, post-doctoral fellowships and supervising a monthly seminar at the Ecole Militaire. Since its foundation, IRSEM has provided support to over one hundred young researchers.

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

7 June 2022

9:00 – 17:00 (UTC +2)

Centre for security and crisis governance (CRITIC) was created and founded in the spring of 2020 at the **Royal Military College Saint-Jean (RMCSJ)**, Canada. It supports the work of seven research groups: climate security, peace and stabilization operations, military sociology, emerging technologies, international law, gender and international studies, and history of war and strategy. Its goals include:

1. Promoting the production and dissemination of cutting-edge research on issues of global governance, national and international security, and crisis and risk management.
2. Contributing to the development of Canadian and international academic research, public policy debates and the education and training of students at the RMCSJ.
3. Supporting and developing research collaborations within and outside of RMCSJ.
4. The support and development of a basic research capacity within the RMCSJ and rooted in academic freedom and responsibility.
5. Ensuring a capacity for analysis and rapid reaction to intervene on strategic or current issues.

The **EU Cyber Direct – EU Cyber Diplomacy Initiative** (<https://eucyberdirect.eu/>) supports the European Union's cyber diplomacy and international digital engagements in order to strengthen rules-based order in cyberspace and build cyber resilient societies. To that aim, activities range from conducting research, supporting capacity building in partner countries, to promoting multistakeholder cooperation. The EU Cyber Direct project is implemented jointly by the EU Institute for Security Studies (coordinator) in partnership with Carnegie Europe and the Leiden University's Institute for Security and Global Affairs. The EU Cyber Direct is funded by the Service for Foreign Policy Instruments (FPI) at the European Commission. The project focuses on four key themes: conflict prevention and advancing responsible behaviour in cyberspace through international law, norms, and confidence-building measures (CBMs); cyber resilience and critical infrastructure protection; cybercrime and criminal justice in cyberspace; new and emerging technologies with a potential disruptive effect.

RegulAIR (<https://www.prio.org/projects/1902>) is a 4-year project based at the **Peace Research Institute Oslo (PRIO, 2021-2024)** that explores security and regulatory challenges emerging from the integration of drones in the civilian airspace. The project addresses two essential contemporary challenges: (1) how to conceive security in the three-dimensional airspace, and (2) how to reconceptualize the new security problem-set emanating from emerging technologies. RegulAIR be developed in close proximity with regulatory actors and end-users in Norway and in the EU.



SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

7 June 2022
9:00 – 17:00 (UTC +2)

PROGRAM

9:00 – 9:05 : WELCOME WORDS

Dr Marjorie Vanbaelinghem, Deputy director of Institute for Strategic Research of the École militaire (IRSEM)

9:05 – 9:30 : KEYNOTE SPEECH : EUROPE'S TECHNOLOGICAL SOVEREIGNTY

Caroline Vinot, Deputy Secretary General of General Secretary for European Affairs (SGAE)

9:30 – 11:15 : PANEL 1: CONCEPTS AND INITIATIVES: FROM STRATEGIES TO POLICIES

The EU vision of emerging technologies, towards a European specificity?

Chair: Dr Pierre Haroche, Institute for Strategic Research of the École militaire (IRSEM)

1 - *Towards a European and Civil-Military Approach to Artificial Intelligence*

Dr Raluca Csernatoni, EU Cyber Direct – EU Cyber Diplomacy Initiative

2 - *The European Strategy for Drones: towards a Civil-Military Ecosystem*

Dr Chantal Lavallée, Royal Military College Saint-Jean

3 - *European Cybersecurity and Cyberdefence*

Dr François Delerue, EU Cyber Direct – EU Cyber Diplomacy Initiative, Leiden University

4 - *Convergence of Space and Digital: What Lessons for the European Satellite Constellation?*

Dr Xavier Pasco, Fondation pour la recherche stratégique (FRS)

5 - *Crossed Views on Emerging Technologies: EU and NATO Strategies*

Dr Antonio Missiroli, Institute of Security and Global Affairs, Leiden University

11:15 – 11:35 : COFFEE BREAK

11:35 – 13:00 PANEL 2 | PERSPECTIVES AND CHALLENGES: CONNECTING THE DOTS

What challenges does the EU face in moving from theory to practice?

Chair: Chief armaments engineer Benoît Rademacher, Institute for Strategic Research of the École militaire (IRSEM)

1 - *The Defence Innovation Agency to meet the challenge of implementations*

Chief armaments engineer David Foricher, Defence Innovation Agency (AID)

2 - *Regulating defence industries and technologies: Time for Reflection?*

Dr Jocelyn Mawdsley, Newcastle University

3 - *Understanding drones and drone disruptions*

Dr Anna Jackman, University of Reading

4 - *Implementing Climate Security*

Dr. Bruno Charbonneau, Collège militaire royal de Saint-Jean

13:00 – 14:30 : LUNCH BREAK

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

7 June 2022
9:00 – 17:00 (UTC +2)

14:30 – 16:00 : ROUND TABLE | CASE STUDY: THE INTEGRATION OF DRONES

Analysis of the civil and military dimensions of the integration of drones in the European Airspace.

Moderator: Dr Chantal Lavallée, Peace Research Institute Oslo (PRIO/RegulAIR)

Maria Algar Ruiz, Drone Programme Manager, European Aviation Safety Agency

Séverine Charmant, Drones/VTOLs Project Manager, Aviation industry department, Direction générale de l'aviation civile, France

Colonel Christophe Hindermann, Deputy director of airspace, Direction de la sécurité aéronautique d'État (DSAE) / Direction de la circulation aérienne militaire (DIRCAM)

Christophe Vivier, Head of Single European Sky Unit, European Defence Agency

16:00 – 17:00 : KEYNOTE SPEECHES: DIGITAL SOVEREIGNTY

16:00-16:30 : Dr Dennis Broeders, Professor of Global Security and Technology, and project coordinator for EU Cyber Direct – EU Cyber Diplomacy Initiative, Leiden University

16:30-17:00 : Lieutenant General Armement Corps Nicolas Fournier, Director General of Digital and Information and Communication Systems (DGNUM), Ministry of Armed Forces

17:00 : CLOSING WORDS

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Dennis Broeders is Professor of Global Security and Technology, Senior Fellow of The Hague Program on International Cyber Security at Institute of Security and Global Affairs of Leiden University and Project Coordinator and Team Leader on Norms for the EU Cyber Diplomacy Initiative - EU Cyber Direct project. His research and teaching broadly focus on the interaction between international security, technology and policy, with specific areas of interest in global security, international cyber security governance, and emerging technologies. He teaches in the Bachelor program Security Studies and in the master program at the Cyber security Academy. He is the author of the book, *The public core of the internet* (Amsterdam University Press, 2015) and has contributed to the national and international debate on cyber security and international norms in many different fora, including the UN, IGF, EU, CyFy and CyCon.



Bruno Charbonneau is Professor and Director of the Centre for Security and Crisis Governance (CRITIC) at the Royal Military College Saint-Jean, Canada. He is also founder and Director of the Centre FrancoPaix in Conflict Resolution and Peace Missions of the Raoul-Dandurand Chair at the Université du Québec à Montréal. His work examines the international politics of conflict management, with a particular focus and expertise on the Francophone West African Sahel. He is currently working on the links between armed conflict, counterinsurgency, and climate change in the Sahel. His research has been funded by, among others, the Social Sciences and Humanities Research Council of Canada, the Organisation internationale de la Francophonie, and Global Affairs Canada. He is coeditor of *Routledge Handbook of African Peacebuilding* (2022) and the author of *Comparing Armed Conflicts* (2021). He has collaborated with various agencies of the Canadian, US, and French governments, with the UN, the EU, the G5 Sahel, and the OIF. He can be reached at bruno.charbonneau@cmrsj-rmcsj.ca or followed at [@charbonneau_b](https://twitter.com/charbonneau_b).



Séverine Charmant is Drones/VTOLs project manager, Aviation industry department, French civil aviation authority. She is in charge of: Designing and implementing the development strategy of the national civil drone industry; Chairing a network of private and public stakeholders with multiple working groups relating to technical, regulatory and societal issues; and Representing the French civil drone industry within European agencies dealing with R&D.

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Raluca Csernatoni is Visiting Scholar at Carnegie Europe in Brussels, where she leads the research workstreams on European security and defence, as well as the emerging disruptive technologies. As part of her contribution at Carnegie Europe, she is Team Leader on New Technologies and Research Expert for the EU Cyber Diplomacy Initiative - EU Cyber Direct project. Currently, she is also Guest Professor on European Security with the Centre for Security, Diplomacy and Strategy of the Brussels School of Governance, at Vrije Universiteit Brussel. Her co-edited book, *Emerging Security Technologies and EU Governance: Actors, Practices and Processes*, was published by Routledge in 2020. Her research on European defence and emerging technologies was featured in academic journals such as *European Foreign Affairs Review*, *European Security*, *Critical Military Studies*, *Global Affairs*, and *European View*.



François Delerue is a Senior Researcher in Cyber Security Governance at the Institute of Security and Global Affairs at Leiden University and Team Leader on International Law for EU Cyber Diplomacy Initiative- EU Cyber Direct project. He is also an Associate Fellow of The Hague Program on International Cyber Security. Previously, he worked as a Research Fellow in Cyberdefence and International Law at IRSEM. His book titled *Cyber Operations and International Law* was published by Cambridge University Press in 2020 and received the 2021 Book Prize of the European Society of International Law.



Chief armaments engineer David Foricher has been deputy head of the Defense Strategies and Technologies Pole since September 2020. A graduate of the Ecole Polytechnique (class of '96) and the Ecole Nationale Supérieure des Techniques Avancées (ENSTA, Paris), he began his career at the Direction Générale de l'Armement (DGA) technical center in Bourges, then at the defense analysis center. The quality of his career led him to the position of deputy director of business at DGA Maîtrise de l'information, the DGA technical center in charge of cyber defense, telecommunications, information systems, intelligence, electronic warfare, sensors and missiles (2017-2020). He also holds a Master of Law degree in "industrial strategies and public policies of defense" and is an auditor of the second national session "digital sovereignty and cybersecurity" of the Institut des Hautes Etudes de Défense Nationale (IHEDN) - National Institute of Higher Studies in Security and Justice (INHESJ).

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Lieutenant General Armament Corps Nicolas Fournier is Director General of Digital and Information and Communication Systems (DGNUM), Ministry of Armed Forces. A graduate of the Ecole Polytechnique, he joined the corps of weapons engineers in 1996 and completed his training at the Ecole Nationale Supérieure des Techniques Avancées (ENSTA) in the field of signal processing before joining the Ministry of Armed Forces. His career has led him to alternate between operational and strategic responsibilities in the field of armaments, mainly within the Direction générale de l'armement (DGA): chief of staff of the Délégué général pour l'armement (2005), technical advisor for industrial affairs to the Ministry of Armed Forces (2007), head of the radar and electronic warfare division and then deputy technical director in Bruz (from 2009 to 2012), armament attaché at the French Embassy in the UK (from 2012 to 2016), deputy director of the "Space and Operational Information Systems" management unit (UM ESIO) and in charge of some thirty digital projects (2016), and finally he is in charge of the DGA's sub-directorate for plans and programs (2018). IGHCA Nicolas Fournier is a Knight of the Legion of Honor and an Officer of the National Order of Merit.



Pierre Haroche is Research Fellow in "European Security" at the Institute for Strategic Research of the École militaire (IRSEM). He is a graduate of the École Normale Supérieure (Paris) and received his PhD in Political Science from Paris 1 Panthéon-Sorbonne University. His research focuses on the theory of European integration, European defence cooperation and the evolution of the European institutions. Before joining IRSEM, he taught at King's College London and Paris 1 Panthéon-Sorbonne University. He has notably published in the *Journal of European Public Policy* and *European Security*.



Colonel Christophe Hindermann joined the Air Force in 1986. After a first part of his career focused on the maintenance of transmission systems, he reoriented himself to become an air traffic controller officer in 1995. He worked for several years in various operational units before taking command of the air traffic services squadron at the Colmar-Meyenheim base from 2006 to 2009, and then of the CICDA, the air control and defence training center, from 2013 to 2016 at the Mont-de-Marsan base. After a few stints on the staff, he has been deputy director of airspace at the military air traffic control center in Villacoublay since 2018. In this capacity, he is in charge of national airspace management policy for defence, the nodal point for civil-military coordination in France for all air traffic management issues, and is widely involved in various European working groups in this field. Finally, since 2018, it has been in charge of conducting experiments on the integration of MALE type drones into general air traffic.

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Anna Jackman is a Lecturer in Human Geography at the University of Reading. Anna's research interests are around technological visibilities, volumes, relations and futures. Her work approaches these themes through the lens of the drone, examining how it (re)shapes military, urban, and everyday life. Anna's publications have examined drones and domestic life; urban drone futures; the domestic threats of drones; and the visual cultures of both military and non-military drones. Anna is on the editorial board for the journal *Digital War* and on the editorial advisory board for the journal *Defense and Security Analysis*. Anna acted as Specialist Advisor to the Science and Technology Committee's Inquiry into 'Commercial and recreational drone use in the UK', and an expert witness to the Defence Committee's Inquiry into the 'Domestic threat of drones'. Anna has shared her research with a range of audiences, including at Westminster (APPG on drones event on rogue drones) and to the United Nations Institute for Disarmament Research. She can be reached at a.h.jackman@reading.ac.uk and found on Twitter at [@ahjackman](https://twitter.com/ahjackman).



Chantal Lavallée is Assistant Professor of International Studies and Assistant Director of the Centre for Security and Crisis Governance (CRITIC) at Royal Military College Saint-Jean, Canada. She is senior researcher at Peace Research Institute Oslo, involved in the RegulAIR project: *The integration of drones in the Norwegian and European Airspaces*, led by Bruno Oliveira Martins and funded by the Research Council of Norway (2021-24). She is Adjunct Professor at Université de Sherbrooke. Prior to this, she was Marie Skłodowska-Curie Fellow at the Institute for European Studies of the Vrije Universiteit Brussel (2017-19) working on "The European Commission in the Drone Community: A New Cooperation Area in the Making". She holds a PhD in Political Science from the Université du Québec à Montréal. She conducted postdoctoral research at the European University Institute (2010-12) and IRSEM (2015-16). She is associate researcher with IRSEM, the Jean Monnet Centre Montréal, GRIP and the think tank OSINTPOL. Her research and publications focus on the contribution of the European Commission to the security and defence as well as emerging technology sectors. The book *Emerging Security Technologies and EU Governance* she co-edited with Raluca Csernaton and Antonio Calcara was published by Routledge in 2020.



Jocelyn Mawdsley is a senior lecturer in the School of Geography, Politics and Sociology at Newcastle University UK. Her research focuses on the political economy of defence and the interplay between defence, innovation and industrial policies. She is editor-in-chief of the journal *European Security* and is treasurer of the University Association for Contemporary European Studies. Recent articles have been published in the *Journal of Common Market Studies* and the *European Journal of International Relations*.

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Antonio Missiroli served as NATO Assistant-Secretary General for Emerging Security Challenges from December 2017 to November 2020. Prior to joining NATO, Dr. Missiroli was the Director of the European Union Institute for Security Studies (EUISS) in Paris (2012-17). Previously, he worked at the Bureau of European Policy Advisers (BEPA) of the European Commission (2010-2012); as Director of Studies at the European Policy Centre in Brussels (2005-2010), and as a Senior Research Fellow at the W/EU Institute for Security Studies in Paris (1998-2005). He was also a Visiting Fellow at St Antony's College, Oxford (1996-97) and has long worked as a professional journalist on European affairs. On the academic front, he has taught i.a. at SAIS/Johns Hopkins, Bologna Center (2009-13), the College of Europe in Bruges (2010-20), Sciences Po in Paris (since 2013) and the Scuola Superiore Sant'Anna in Pisa (since 2017). Dr. Missiroli holds a PhD in Contemporary History from the Scuola Normale Superiore (Pisa) and a Master's degree in International Public Policy from SAIS/Johns Hopkins.



Samar Abbas Nawaz is currently working as a Doctoral Researcher at Peace Research Institute Oslo (PRIO) for its RegulAIR project. His research is focused on the regulatory challenges linked with autonomous civilian drones in the EU and the title of his PhD is *The regulation of drone autonomy: implications for the European civil airspace*. He studied and practiced law in Pakistan for around three years and later studied LLM (Information & Communication Technology) from University of Oslo. During his Masters, he worked for a Turkish law firm as well as Denmark based startup on data protection related matters.



Xavier Pasco (Doct. Pol. Sc.) is the director of the Foundation for Strategic Research (FRS) since October 2016. He has been involved in several European projects organized under the aegis of the European Commission since the early 2000s, notably in the framework of the Preparatory Action for Security Research, the 6th and 7th European Research and Development Framework Programs (2007-2013) and the current H2020 program for which he coordinated specific actions on space and security and defence issues. He has also been the author of recent works on data policy applicable to the future European earth observation system for defence and security purposes, and space surveillance on behalf of the European Union and the European Space Agency (ESA). He coordinates the European research project SPACEWAYS on Space Traffic Management (STM) started in January 2021 in the framework of the H2020 program supported by the European Commission.

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Chief armaments engineer Benoît Rademacher has worked as the director of the domain of Weapons and Defence Economics since October 2016. Graduate from the Ecole Polytechnique (Class of 96) and from ENSTA ParisTech, he began his career at the Centre for Defence Analysis and the French Defence Procurement Agency (DGA) as the head of technical and operational studies. He then joined the State Investment Agency at the Ministry of Finance, in charge of monitoring public enterprise portfolios. Head of the office of the tutelage and international schooling for the Defense Procurement Agency (DGA) from 2011 to 2016, he worked as a supervisor for four engineering schools (Ecole polytechnique, ISAE-Supaéro, ENSTA ParisTech and ENSTA Bretagne). Benoît Rademacher also holds the DESS Defence, geostrategy and industrial dynamics from the University of Paris II Panthéon-Assas. His work centers specifically on technological evolutions (Industry 4.0, the Internet of objects, robotization, etc.) and innovation, as well as on the strategic issues linked to the environment (climate change, access to natural resources).



Maria Algar Ruiz holds a Master degree in Aerospace Engineering graduated in ETSIA (Madrid) Madrid and in ENSICA (Toulouse). Post-graduated Master degree in fluid dynamics at the Von Karman Institute for Fluid Dynamics in Belgium. Started professional carrier in ITP (ES) working in the EUROFIGHTER's EJ200 engines. Then she worked as project engineer in CERN (European Organisation for Nuclear Research) in Geneva. Employed by Airbus as propulsion systems specialist at the Airbus Customer Support Engineering. Seconded by Airbus to JAA (Joint Aviation Authorities) as technical assistant to the Operations Director. Joined EASA in 2006 as Rulemaking Officer for aircraft operation and CNS aspects. In 2008 she joined the ATM/ANS department. She has had several positions in the department including EASA SESAR Coordinator and lately acting Section Manager of the ATM/ANS Regulations Section within the Flight Standards Directorate and UTM-SESAR coordinator at EASA's Innovation Cell within the Executive Directorate. Since the beginning of 2019, she is the EASA Drone Programme Manager and Senior Air Traffic Management Advisor within the Executive Directorate and reporting directly to EASA's Executive Director.

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Marjorie Vanbaelinghem is the deputy director of the Institute for Strategic Research of the École militaire (IRSEM). She is an alumna of both the Ecole Normale Supérieure (1998-2003) and the Ecole Nationale d'Administration (2010-2012). She had also previously completed a PhD in History, Culture and Literature of the English-speaking world (focusing on British modern and contemporary art) as well as studied as an exchange student at the University of Berkeley, California. She taught at several universities, in France and Great Britain. Dr Vanbaelinghem started her career in the French Ministry of Foreign Affairs in 2009 as desk officer for arms control and OSCE military dimension in the strategic affairs directorate, and then took charge of the dossier of military operations in the Middle East and Afghanistan. She then moved on to become Head of the Business Support and Innovation Office, in the Global Economy and Business Directorate. As far as embassy positions are concerned, she has her first experience in the French diplomatic network when she worked as Second Secretary at the French embassy in Tokyo, in 2010, as part of her professional training at ENA. She also held the position of First Secretary, in charge of defense affairs, at the French Embassy in London, on a short-term support mission, in 2012. She was later appointed as Second Counsellor, political advisor, in charge of EU and defence affairs at the French embassy in Madrid, Spain (2015 to 2017), and then became the Head of the Press and Communication office in the same embassy (2017-19). She was Consul general of France in Bangalore, India (2019-2021).

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



A career diplomat, **Caroline Vinot** has been Deputy Secretary General of the Secretariat General for European Affairs since September 2020. This department reports to the Prime Minister and is responsible for interministerial coordination in the development of France's negotiating positions within the Council of the European Union. Ms. Vinot is in charge of the Protection, Borders and Justice Unit, and also covers part of the European Union's external relations sector as well as European security and defense issues.

Caroline Vinot pursued a European career in Brussels, at the Permanent Representation of France to the European Union, between 2012 and 2015, as Counsellor in charge of the EU's external relations with the Eastern Neighbourhood, Russia and Central Asia (COEST group), and the EFTA countries on the other hand. Ms. Vinot was then seconded to the European Service to chair the COEST (Eastern Europe and Central Asia) and COSCE (Council of Europe and OSCE) Council Working Group between 2015 and 2017. She was then appointed, within the European External Action Service, Head of the South Asia and Regional Affairs Division in the Asia and Pacific Directorate of the EEAS between 2017 and August 2020.

Previously, Ms. Vinot served at the French Embassy in the Czech Republic (1998-2002), where she returned in 2008, as an exchange diplomat seconded to the Czech Ministry of Foreign Affairs during the French and Czech Presidencies of the European Union (2008-2009).

Diplomatic advisor to the Minister of Higher Education and Research in 2011-2012, Ms. Vinot was previously in charge of 2011-2012, Ms. Vinot previously held the position of Head of the European Policy and Development and Development Policy at the Global Economy and Development Strategies Directorate at the Ministry of Foreign Affairs at the Ministry of Foreign Affairs from 2009 to 2011.

Ms. Vinot joined the Ministry of Foreign Affairs in 1995 through the Oriental Cadre (Hindi language). She began her career at the Asia and Oceania Division of the Ministry of Foreign Affairs.

Mother of two children, Caroline Vinot is a Knight of the National Order of Merit (2018).

SYMPOSIUM

European Governance of Emerging Technologies: Concepts, Challenges and Practices

SPEAKER'S BIOGRAPHIES



Christophe Vivier joined the French Air Force in 1987, first as an air traffic controller and then as a fighter pilot. During his career, he has held several positions of responsibility and command within fighter squadrons and operational units. He flew 3000 hours mainly on Jaguar and Mirage F1 aircraft, and flew about 2800 hours and 120 war missions in hostile territories. After his operational career, he held several advisory positions for high civil and military authorities, first in the State Aeronautical Security Directorate where he was responsible for international affairs and the drone file and then in Brussels in the French military representation to the European Union and the French Permanent Representation to NATO. In 2017, he joined the European Defence Agency as head of the Single European Sky unit whose mission is to ensure that, within an airspace shared between civil and military users, the implementation of the Single European Sky program, led by the European Commission, integrates the needs of European military aviation and preserves their freedom of action.



Océane Zubeldia holds a PhD in Contemporary History from the Sorbonne University. She is a research fellow "Drones, Industries and Innovation" at the Weapons and Defense Economy domain, Institute for Strategic Research of the École militaire (IRSEM). Her work interests include disruptive technologies, drones, employment and industrial policies, as well as green tech and energy efficiency issues. For the past two years, she has co-organized a monthly seminar on *New Military Technologies and Democratic Powers*, which aims to put into perspective the organizational, operational, strategic, ethical, political and social issues surrounding present and future technologies. She is the author of the recent chapter "Quelles convergences entre l'UE et l'OTAN face au changement climatique ? Le cas du défi énergétique" published in *La guerre chaude, Enjeux stratégiques du changement climatique*, edited by Nicolas Regaud, Bastien Alex and François Gemenne for Presses de SciencesPo, Paris, in March 2022.