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Scientific Cooperation is Key: An Interview with Ambassador Zappia, Italy’s Ambassador to the United States

Mariangela Zappia is the Italian Ambassador to the United States of America. A career diplomat with over 35 years of experience, she is the first woman in her country to hold this position, just as she was the first female Permanent Representative of Italy to the United Nations in New York and to the North Atlantic Treaty Organization (NATO). She was also the first female diplomatic advisor to the Italian Prime Minister and G7/G20 Sherpa.

Ambassador Zappia spoke with Kim Montgomery, Director of International Affairs and Science Diplomacy at AAAS and Executive Editor of *Science & Diplomacy*, on Italy’s science diplomacy strategy. This is the tenth interview in the Ambassador Interview Series.

Kimberly Montgomery (interviewer): *Last year, Italy and the United States celebrated 160 years of diplomatic relations. Included in this strong relationship are shared science and technology interests, which are detailed in the Agreement on Scientific & Technological Cooperation, signed in 1988. What can you tell us about the future of U.S.-Italy collaboration in science, technology, and innovation (STI)?*

Ambassador Zappia: Cooperation between Italy and the United States in STI is very solid indeed. Nothing points to this more clearly than the over 1,000 bilateral agreements signed to date between our academic and research institutions on a broad range of topics, not to mention the community of over 14,000 Italian scientists and visiting professors in the United States. As trusted partners sharing the same values and visions for our future, we are working to strengthen this collaboration even further in the most cutting-edge fields of science and technology.

At the end of this year, we will have the next renewal of the 1988 Italy-U.S. Agreement on Scientific & Technological Cooperation, defining the new strategic priority sectors for our two countries, which will include physics and astrophysics; quantum technologies; natural disasters and climate change; agrifood; health and life sciences, in particular aging and non-communicable diseases; and information and communications technology (ICT). In particular, we are strengthening cooperation in the field of emerging technologies, including big data, robotics, machine learning and artificial intelligence (AI), advanced manufacturing, and autonomous vehicles and systems.

The embassy in Washington, D.C., plays an active role in strengthening bilateral S&T collaboration and facilitating cooperation between public and private subjects of the two countries. Furthermore, we strongly support the Italian scientific community in the U.S. and important networks like the Italian Scientists and Scholars in North America Foundation (ISSNAF), which was established in 2007 and brings together more than 3,000 scholars, researchers, and technologists.

Montgomery: *Last month, the Italian Embassy celebrated the 4th edition of the Italian Research in the World and hosted a workshop with the Science Diplomats Club on the role of science, technology, and diplomacy on the challenges of the COVID-19 pandemic. In your opening remarks, you highlighted the value of Italian scientific research while at the same time acknowledging the necessity of global S&T efforts to solve the pandemic and other challenges. What does the increased role of global scientific collaboration mean for diplomacy?*

Ambassador Zappia: International scientific collaboration is growing at an exponential pace and will reshape both how we view ourselves as humans as well as how we relate to each other in society. Scientific cooperation is key for responding to cross-border challenges from the pandemic to climate change and beyond. Science is also the source of disruptive technologies, from big data to AI and the internet of things (IoT), that are radically transforming our economies and societies, albeit in ways that can substantially differ, depending on the vision and objectives that drive governments.

Diplomacy must be fully engaged: scientific collaboration requires the joint efforts of scientists and science-minded diplomats. Diplomacy, bilaterally and in multilateral fora, is the key to fostering scientific cooperation aimed at tackling global challenges. At the same time, diplomacy is fostering closer cooperation among scientists, researchers, and businesses of countries like Italy and the United States, to ensure that disruptive technologies develop according to our values and vision.

Montgomery: *The scientific hub of Trieste is Italy's largest scientific and technological park with an important concentration of international researchers. It hosts important scientific institutions, including the International Center for Theoretical Physics (ICTP) and The World Academy of Sciences (TWAS),¹ which have strong connections to the global South. How does Trieste's international nature connect to Italy's science diplomacy strategy, which is led by the Ministry of Foreign Affairs and International Cooperation, particularly from a "science for diplomacy" perspective?*

Ambassador Zappia: Trieste's AREA Science Park hosts national and international research centers and institutes which carry out basic and applied research from physics to biotechnology, from genomics to advanced materials, from pharmaceuticals to agrifood, and from microelectronics to information technology. Their staff and students include thousands of researchers from emerging countries who boost their careers through collaboration with world-class scientists.

Italy strongly supports the Trieste System, and benefits from it in terms of technological progress and innovations applied to entrepreneurship. Moreover, Trieste represents a medium and long-term foreign policy investment. Scientists from developing countries are provided with unique educational and research opportunities in many areas of basic and applied sciences. Most bring back the skills and experience to their countries of origin, increasing those countries' overall capabilities. Trieste is therefore a powerful instrument to promote capacity-building in many countries of Africa and Asia and a driver of South-South and South-North cooperation in STI. This is key in our promotion of the role of science in diplomacy and highlights the importance of scientific cooperation in maintaining relations with our international partners. We fully support AAAS activity in connecting science and diplomacy, and its partnership with TWAS for the prestigious summer course which trains young scientists from developing countries on key diplo-scientific concepts.

Montgomery: *Fermilab, the U.S. National Accelerator Laboratory in Illinois, is named after Enrico Fermi, the famed Italian-American physicist. Fermilab collaborates with numerous countries, including Italy, on physics experiments, and is an example of a large-scale experimental facility that fosters international scientific collaboration, often advanced by diplomatic agreements. What is the diplomatic value in participating in large-scale research infrastructure laboratories, such as Fermilab?*

Ambassador Zappia: Italy has a longstanding tradition in particle physics and is at the forefront of international cooperation today, with thousands of researchers collaborating in national and international laboratories like Fermilab, CERN in Geneva, and the underground Gran Sasso National Laboratory in Italy. Scientists from all over the world are committed to advancing fundamental science, in a trustful and respectful work environment. Science is the basis for communication and to better understand one other, and thus these international collaborations play a key role in promoting peaceful relations. Therefore, participation in large-scale research infrastructure projects clearly shows how scientific cooperation can improve international relations between countries, both at bilateral and multilateral levels.

Montgomery: *Italy has placed science attachés in diplomatic representations since the 1960s. To strengthen Italy's international presence in the space sector, Italian officers for space issues have been posted to select diplomatic representations, including at the Italian Embassy in Washington, D.C. How has the role of Italian science and space attachés evolved throughout the years? How do they engage with each other and with the rest of the Italian S&T ecosystem?*

Ambassador Zappia: The role of scientific attachés is particularly important at this time of technology transition that has impacts across cultural, social, economic, and political fields and is changing scientific research and higher education. On the one hand, emerging technologies require a multidisciplinary approach which involves multiple scientific and cultural areas; on the other, to face the challenges posed by the new frontiers of scientific and technological research, we need a critical mass of researchers and leading industrial players to be fully involved. This also affects relations between universities and research centers. At the national level, the most advanced countries, and notably Italy through the National Recovery and Resilience Plan, are promoting unprecedented strategic investments in human resources and research infrastructures. International collaborations, previously based mainly on relationships among research groups or even individual researchers, are now progressively structured through institutional agreements among universities, national centers, and the private sector, which involve many researchers and professionals from different disciplinary fields.

The scientific offices of the embassies play a pivotal role in promoting and consolidating such agreements, which are complex and require more significant investments than ordinary bilateral agreements and MOUs. This is why the Ministry of Foreign Affairs and International Cooperation, in accordance with the Ministry of University and Research, has recently decided to expand the network of scientific attachés, particularly in the United States. Indeed, we have one space attaché and soon we will count a total of seven scientific attachés (three in the Embassy and four in the General Consulates of San Francisco, Boston, Chicago, and Houston).

Montgomery: *You have had a vast diplomatic career marked by many firsts. You are the first female Ambassador of Italy to the United States, were the first female Permanent Representative of Italy to the United Nations in New York and to the North Atlantic Treaty Organization (NATO), and were the first female diplomatic advisor to the Italian Prime Minister and G7/G20 Sherpa. Additionally, you are an active member of the International Gender Champions Network. How, if any, have these “firsts” impacted your diplomatic career? I would welcome any additional reflections based on your distinguished career on how to increase representation, especially in leadership positions, something both the scientific and diplomatic communities struggle with.*

Ambassador Zappia: Being the first woman in a leadership position can pose challenges, to both the leader and the team. I was lucky enough to work in highly professional environments, where all team members were united by the same North Star: the commitment to serve the state. This has been the key to swiftly overcome those challenges.

I agree that in both science and diplomacy the gender gap is particularly and unacceptably wide. Until not long ago, both fields were perceived as reserved for men. The gap can only be filled through a whole-of-society approach. Governments and big corporations must reform their mechanisms for recruitment, promotion, and compensation. Governments must invest in women's empowerment, from STEM skills in schools to female entrepreneurship.

Italy has placed gender parity at the core of its post-pandemic recovery strategy. Women's empowerment is one of the three cross-cutting priorities of Italy's National Recovery and Resilience Plan, a plan mobilizing 200 billion Euros of investment and transformative reforms that Italy adopted in July 2021 to “build back better” after the pandemic. Cultural and societal change is equally important, to overcome die-hard stereotypes. In this respect, I strongly believe in the importance of role models and mentorship. I personally try every day to be a mentor to younger generations. Role models prove that female success is possible, boosting other women's confidence.

Montgomery: *Italy, the home country of Leonardo da Vinci and Galileo Galilei, is one of the most visited countries in the world thanks to its rich history, world-famous museums, and wine and food, among other things. What places would you recommend people to visit that showcase the present and future of Italy, particularly in science, technology, and innovation?*

Ambassador Zappia: It is to some extent inevitable that with such an immense cultural heritage and the highest number of sites on the UNESCO World Heritage List, Italy's past sometimes overshadows all the rest. However, Italy's present and future has so much to show, and always in perfect harmony with its past.

Italy has excellent universities, with a very high quality of education and research that places it among the top countries worldwide in terms of scientific publications. I encourage people to visit the campuses of prominent universities, most of which are open to the public, and the laboratories of leading research centers.

If I had to limit my suggestions to just two institutions—a difficult feat considering our country's many marvels!—I would say the Italian Institute of Technology and Human Technopole. The Italian Institute of Technology is a research center jointly established by the Ministry of University and Research and the Ministry of Economy and Finance, which has gradually become an international center of excellence in emerging technologies, particularly robotics. Human Technopole, located within the Milan Innovation District (MIND) in the 2015 Milan Expo venue, is the beating heart of Italian life sciences, a world-class integrated research infrastructure established to enhance, connect, and support the life science supply chain.

Furthermore, shortly it will be possible to visit the five centers of excellence, financed through the National Recovery and Resilience Plan, which involve the entire Italian research and higher education system, focusing on topics of vital strategic interest: i) high-performance computing and data analysis; ii) agricultural technologies (agri-tech); iii) drug development with RNA technology and gene therapy; iv) sustainable mobility; and v) biodiversity.² **SD**

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This interview has been edited for length and clarity.

Endnotes

1. TWAS, “The World Academy of Sciences” for scientific advancement in developing countries, signed a MOU with AAAS in 2011. Since 2014, they organize annual courses to introduce science diplomacy to participants from the global South and explore key contemporary international policy issues relating to science, technology, environment, and health. More: <https://www.aaas.org/program/center-science-diplomacy/training>
2. For more information on the 5 National Centers of Excellence please see: <https://www.mur.gov.it/it/news/martedi-28062022/pnrr-mur-limpatto-della-conoscenza-grazie-un-nuovo-modo-di-fare-ricerca-e>