

Chapter 2

Is European–U.S. Science and Technology Cooperation “Fit” to Working Jointly on “Grand Challenges”?

Abstract European–U.S. science and technology (S&T) cooperation takes place in an “ecosystem” with an abundance of so-called “grand challenges,” typically major challenges of global dimension and in a setting of ever-increasing complexity at all levels. In this chapter, the wider context and major developments are described as they are important with their potential to affect, influence, or even shape transatlantic S&T cooperation, for instance, in the form of strategically joining S&T efforts, pooling resources, or developing new S&T-driven approaches to grand challenges issues. The wider context of transatlantic S&T cooperation is characterized by the economic crisis that is not just economics, innovation-related trends and their links to grand societal challenges, the competition for the best “brains,” and the need to concentrate on core competencies in an increasingly networked world. In economic and several other dimensions, Europe and the U.S. are each others’ most important partner; even though not commonly perceived as such, facts and figures provide an overview. Finally, the background and framework of European–U.S. S&T cooperation are summarized and described.

2.1 The Wider Context: “Grand Challenges” at All Levels

We do not “suffer” from a lack of “grand challenges,” this seems to be a given fact of our times. On the contrary, there is an abundance of so-called “grand challenges”, typically major challenges of global dimension—with even the wording becoming “inflationary” as everyone seems to talk about “grand challenges”—in a setting of ever-increasing complexity at all levels.

In this chapter, the wider context and major developments are described as perceived by the author. They are important as they have the potential to affect, influence, or even shape transatlantic S&T cooperation, for instance, in the form of

strategically joining S&T efforts, pooling resources, or developing new S&T-driven approaches to grand challenges issues.

The Economic Crisis: not just economics...

The financial crisis that started in the second half of 2008 was not only substantial in dimension but also had significantly broader impact, going way beyond economics. As Joe Quinlan, Fellow at the Transatlantic Academy put it recently “The ‘Made in America’ crisis also undermined the capacity and credibility of the world’s economic architects—the United States and Europe, or the transatlantic partnership. After years of living beyond their means and after amassing mountains of debt, the music finally stopped for an economic alliance that had long set the tune for the global economy and grown accustomed to standing at the pinnacle of the global economic order.”¹

The most significant impact resulting from this financial crisis has been a developing substantial loss of credibility of so far perceived global economic governance mechanisms, projecting along this line, a likely loss of credibility of more general global governance mechanisms and models, summarized best as follows:

The financial crisis accelerated a number of key long-range trends that were already in motion before the crisis struck. The relative economic decline of the developed nations and the rising influence of the emerging markets in general and China in particular were fast-forwarded by the crisis and have, in turn, accelerated the move toward a less U.S.-centric, more multi-polar world. While the global economy has recovered from the crisis, we are not going back to “business as usual.” The new world before us will be more complex, fluid, and disruptive—notably for the architects of the post-war economic system. The United States and Europe have lost control of the global economic agenda and, critically, no longer control the key inputs of economic growth—labor, capital, and natural resources. These inputs are increasingly concentrated in the developing nations, who have emerged from the crisis more confident and emboldened. The future of globalization will be less U.S.-centric and more encompassing of Chinese, Turkish, Brazilian, and other characteristics of the developing nations. This phase of globalization heralds both promise and peril for the transatlantic partnership.²

Innovation, “Open” Innovation and grand societal challenges...

Innovation and societal challenges have become central points and a defining framework in almost every discussion on future orientations, competitiveness, or jobs.

In Europe, the course was newly set in 2010. The adoption of the “Europe 2020” strategy³ conveys a clear signal as it is focused on “smart, sustainable and inclusive growth,” linked to concrete objectives and goals. Seven so-called “Flagship Initiatives” are foreseen in order to implement the Europe 2020 Strategy.

¹ Quinlan J (2011) Losing control: the transatlantic partnership, the developing nations and the next phase of globalization. Transatlantic Academy.

² Quinlan J (2011) Losing control: the transatlantic partnership, the developing nations and the next phase of globalization. Transatlantic Academy.

³ European Commission (2010) A strategy for smart, sustainable and inclusive growth. COM(2010) 2020.

One of them, the “Innovation Union”⁴, lays out the strategic plan for research, technology, and innovation for the coming years. It represents a radical shift to innovation at all levels by concentrating on strengthening the innovation pipeline, with the overarching goal of improving the financial framework for research and innovation. More specifically, in the words of the responsible EU Commissioner for Research, Innovation, and Science: “the Innovation Union aims to do three things: First, transform Europe’s world class science base into a world-beating one. Second, make coherent use of public sector intervention to stimulate the private sector. Third, remove the remaining bottlenecks to the commercialization of good ideas. The Innovation Union dedicates an entire chapter to boosting international cooperation, recognizing that working better with our international partners means opening access to our R&D programs, while ensuring comparable conditions abroad”⁵

Furthermore, innovation plays an important role in several of the other Flagship Initiatives, including the “Energy 2020” strategy,⁶ the “Digital Agenda for Europe”⁷, and has been highly relevant in already existing activities such as the seventh Framework Program, and Joint Technology Initiatives combining EU and Member States efforts in areas such as innovative medicines, embedded computing systems, and nanoelectronics.

The new multiannual EU Framework Program for Research and Innovation “Horizon 2020” currently under preparation is a bold statement in “challenging” economic times. Proposed by the European Commission with a budget of €80 billion for the years 2014–2020 it has been set up to deliver jobs and strengthen competitiveness through funding for research and innovation. As such, Horizon 2020 complements the efforts of EU Member States to increase investment in research and innovation. More specifically, Horizon 2020 will provide investment to raise the level of excellence in Europe’s science base, industrial technologies, and topics related to societal challenges. As its predecessor programs Horizon 2020 will be broadly open for international cooperation.⁸

In the U.S. innovation is high on the political agenda, also driven by importance and urgency. Or as Fareed Zakaria put it recently:

Innovation is as American as apple pie. It seems to accord with so many elements of our national character—ingenuity, freedom, flexibility, the willingness to question conventional wisdom and defy authority. But politicians are pinning their hopes on innovation for more urgent reasons. America’s future growth will have to come from new industries that create new products and processes. Older industries are under tremendous pressure. Technological

⁴ European Commission (2010) Europe 2020 flagship initiative innovation union. COM(2010) 546 final.

⁵ EU commissioner for research, innovation and science Maire Geoghegan-Quinn Speech on 18 January 2012, Washington DC.

⁶ European Commission (2010) A strategy for competitive, sustainable and secure energy. COM (2010) 639 final.

⁷ European Commission (2010) A digital agenda for Europe. COM (2010) 245 final.

⁸ European Commission (2011) Horizon 2020: the framework programme for research and innovation. COM(2011) 808 final. http://ec.europa.eu/research/horizon2020/index_en.cfm.

change is making factories and offices far more efficient. The rise of low-wage manufacturing in China and low-wage services in India is moving jobs overseas. The only durable strength we have—the only one that can withstand these gale winds—is innovation.⁹

The U.S. President Obama himself is perceived highly interested in science, technology, and innovation, as reflected by a key stakeholder's statements in the course of the study presented here, as well as by the policies put forward by the Obama administration. The 2009 "Strategy for American Innovation"¹⁰ as well as the 2011 update provides the direction and has been developed with a broad vision: "Our vision of America's future is one where prosperity is built by skilled, productive workers and sound investments that will spread opportunity at home and allow this nation to lead the world in the technologies, innovation and discoveries that will shape the 21st century."

It comprises three elements that cover a large part of what could be called the "innovation value chain," including investments in the building blocks of American innovation, the promotion of competitive markets that spur productive entrepreneurship, and catalyzing breakthroughs for national priorities.

The "America Competes Act" in its reauthorization version 1010 was signed by the U.S. President in January 2011. It is seen as a milestone in the path to building "an innovation economy for the 21st century—an economy that harnesses the scientific and technological ingenuity that has long been at the core of America's prosperity and applies that creative force to some of the biggest challenges we face today. Whether it's developing new products that will be manufactured in America, or getting and using energy more sustainably, or improving health care with better therapies and better use of information technology, or providing better protection for our troops abroad and our citizens at home, innovation will be key to our success."¹¹ As such, the America Competes Act specifies activities in line with the mentioned objectives.

In his State of the Union Address 2011, President Obama put a strong focus on innovation, underlined by the fact that the words "innovation"/"innovate" were mentioned 11 times, with one of the strongest statements as follows:

"We need to out-innovate, out-educate, and out-build the rest of the world... The first step in winning the future is encouraging American innovation. None of us can predict with certainty what the next big industry will be or where the new jobs will come from. Thirty years ago, we couldn't know that something called the Internet would lead to an economic revolution. What we can do—what America does better than anyone else—is spark the creativity and imagination of our people. We're the nation that put cars in driveways and computers in offices; the nation of Edison and

⁹ Zakaria F (2011) The Future of innovation: can America keep pace? Time U.S.:<http://www.time.com/time/nation/article/0,8599,2075226,00.html>.

¹⁰ A strategy for american innovation: driving towards sustainable growth and quality jobs (2011) <http://www.whitehouse.gov/innovation/strategy>.

¹¹ America competes Act, 2010, <http://www.whitehouse.gov/blog/2011/01/06/america-competes-act-keeps-americas-leadership-target>.

the Wright brothers; of Google and Facebook. In America, innovation doesn’t just change our lives. It is how we make our living.”¹²

The concept of “Open Innovation”—which has become a buzzword in recent years—summarizes another major development: innovation processes representing a complex interaction and exchange of various actors, including companies, academia, markets, and users. Initially published by Henry Chesbrough in 2003, and based on his research into the innovation practices of large multinational companies, “Open Innovation” describes a new paradigm for the management of industrial innovation in the twenty-first century. According to this paradigm, firms work with external partners to commercialize their internal innovations and to obtain a source of external innovations that can be commercialized.¹³

The paradigm of “Open Innovation” has influenced almost every sector. “Open Innovation” has become a symbol for active exchange and interaction with the entire surrounding field and its respective “markets.” Most of today’s strategy reflections rely on “Open Innovation” implicitly or explicitly. “Open Innovation” is discussed in various forms in education^{14,15} as much as with regard to universities, funding agencies, etc., even though it is not necessarily new in every field as can be demonstrated by the role of the “innovation benefactor”.¹⁶ “Open Innovation” even has become an issue in very different cultures and settings such as China.^{17,18}

Taking it all together, the bottom line of current trends is that while the aim of basic research still is to discover new knowledge and as such plays an essential role, applied science and technology seem to become more oriented toward innovation. Science, technology, and innovation themselves are more and more understood as having to deliver answers to societal questions and challenges.

People and diversity, the real “battlefield”...

What really matters is always people, particularly in dealing with creativity and inspiration as required and found in education, science, technology, and innovation. The competition for the best brains has become a global one; expressions like “brain drain, brain gain, brain circulation” have become common and reflect what has become the name of the game.

¹² U.S. President Obama’s State of the Union Address 25 January 2011: <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address>.

¹³ Open Innovation Community: <http://www.openinnovation.net>.

¹⁴ Oliveira Santos C (2011) Open innovation in education: the open design innovation project: <http://library.iated.org/view/OLIVEIRASANTOS2011OPE>.

¹⁵ Flagship Initiative, Collaboration: Open Innovation Web Portal: <http://www.ed.gov/open/plan/flagship-initiative-collaboration>.

¹⁶ Chesbrough H (2003) The era of open innovation. *Sloan Management Review*, 44(3): 35-41

¹⁷ Liu X, Lundin N (2006) Toward a market-based open innovation system of china: <http://www.globelicsacademy.net/2007/papers/Xielin%20Liu%20Paper%201.pdf>.

¹⁸ Fu X, Xiong H, (2011) Open innovation in China: policies and practices. *Journal of Science and Technology Policy in China*, Vol. 2 Iss: 3, pp.196–218.

Virtually every organization, region, and nation is reaching out for the “best and brightest” and does so with specific initiatives and programs, several of them devoted particularly to their national “diaspora” abroad. Cultural “imprinting” seems to play an important role and obviously differs in comparison to industrialized countries and Asia, of whom a bigger share of their researchers seems to be highly inclined to return home after years of training/working abroad. Particularly, China is more aggressively pursuing this strategy, because these are the people who represent the truly limiting factor in striving for sustainable competitiveness.^{19,20,21,22}

The issue of the “best and brightest” is directly linked to diversity and its appreciation. Diversity understood as differences in gender, age, social context, culture, ethnics, or religion will have to be more actively embraced as a key opportunity in terms of societal values as well as the success factor for competitiveness. Society as a whole—even in the short run—will just no longer be able to afford not taking advantage of diversity. This is particularly true for the role of women in S&T in many countries.

Western, industrialized societies seem to “loose” their young generation.²³ Education and knowledge orientation seem to loose in relevance, particularly in STEM disciplines (Science, Technology, Education, and Mathematics). Both in Europe as well as in the U.S. massive initiatives to tackle this development have been put forward and are on the way of being implemented at all levels. However, there seems to be a huge difference in the appreciation for education, for instance, in Asia as compared with industrialized countries, strikingly as well as controversially described in the “Tiger Moms”,²⁴ but evidently obvious for everyone traveling through Asia.

Particularly, in the light of societal as well as demographic developments, countries will improve their chances for future competitiveness that are capable to offer

- Attractive opportunities for the “best and brightest,”
- Societies welcoming intercultural exchange,
- Proactive management capabilities at all levels for diversity in its various appearances.

¹⁹ Cao C, Suttmeier R (2001) China’s New Scientific Elite: Distinguished Young Scientists, the Research Environment and Hopes for Chinese Science. *The China Quarterly*.

²⁰ Xiaoming L (2011) Rise in scientists returning to China. *Nature* 475, 296. doi: 10. 1038/475296d.

²¹ LaFraniere S (2010) Fighting trend, China is luring scientists home. *New York Times*. <http://www.nytimes.com/2010/01/07/world/asia/07scholar.html?pagewanted=all>.

²² Wadhwa V, Jain S, Saxenian A, Gereffi G, Wang H (2011) The grass is indeed greener in India and China for returnee entrepreneurs. Ewing Marion Kauffman Foundation.

²³ European Commission (2010) Youth on the move: an initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the European Union. COM(2010) 477 final.

²⁴ Chua A (2011) *Battle Hymn of the Tiger Mother*. The Penguin Press.

While already today leading knowledge-based organizations have trouble finding highly qualified people, this trend will intensify substantially and globally with the demographic and societal (for instance on how to deal with migration) developments ahead of us.²⁵

Core competencies in a networked world...

“Networking” is another keyword of our time. Globalization in the sense of interconnectedness and cooperation across regions, nations, sectors, disciplines, and organizations has become the daily practice, even more so in the “knowledge arena” of science, technology, innovation, and education. For those who are capable of doing so, it has become extremely easy to get connected to everyone around the world.

To use Thomas Friedman’s words: “In the Cold War, the most frequently asked question was: ‘Whose side are you on?’ In globalization, the most frequently asked question is: ‘To what extent are you connected to everyone?’”²⁶

Excellence in its various expressions frequently develops in crossing disciplines and sectors, and thus is significantly influenced by networking. At the same time, interdisciplinarity, cooperation of companies and academia are still issues of concern, at least attention, and still prove to be challenging.

As much as the level of interconnectedness increases, the trend to concentrate on core competences is also reinforced. Organizations, regions, and nations think about their strengths as well as weaknesses, and embark on comprehensive strategy development processes in order to invest limited resources in a more targeted way, strengthening core competences, and thus trying to increase their competitiveness. Likewise, this is true for companies, universities, and research organizations.

One of the most important questions in this setting of vast global opportunities is “who are the right partners to cooperate with,” that are matching best their own core competences and hence contributing to mutual benefits.

Intercultural cooperation is an essential component and a decisive competitive advantage; it is the key to unlocking and effectively using this capability in developing cooperation across sectors, disciplines, nations, genders, and cultures. Intercultural cooperation itself is driven by factors such as globalization and the increasing complexity and speed of interactions in all areas, from economics to society to technology, to name only a few.

The bottom line in a globalized world—particularly in science, technology, and innovation—with ever-increasing opportunities and challenges is the ability to effectively build, manage, and expand a network of key partners and to identify the most suitable partners based on their expertise. This has become THE competitive advantage.

²⁵ The Economist (2006) The battle for brainpower.

²⁶ Friedman T (1999) The lexis and the olive tree, understanding globalization. Farrar, Straus and Giroux.

2.2 Europe and the U.S.: Each Others' Most Important Partner, Yet

A number of highly relevant reports on the transatlantic cooperation, its potentials and requirements have been published recently. As the general “ecosystem” of transatlantic relations is considered an important framework condition for S&T, key facts, figures, and trends are presented here, not only in essence but through strong convincing quotes summarized in this chapter.

The Transatlantic Economy 2011²⁷ analysis provides a comprehensive overview on the status of the transatlantic cooperation as follows:

“The United States and Europe remain each other’s most important foreign commercial markets, a fact still not fully appreciated by opinion leaders on both sides of the transatlantic. Put simply, no other commercial artery in the world is as integrated and fused together as the transatlantic economy. Ties are particular thick in foreign direct investment, portfolio investment, banking claims; trade in goods and services, onshore jobs, and flows of ideas in terms of mutual R&D investment; patent cooperation; technology flows; and sales of knowledge- intensive services. These deep economic bonds have been critical to prosperity on both sides of the Atlantic. Yet as both the EU and the United States struggle to recover from the economic and financial crisis, such ties can also amplify the challenges of slow growth.”²⁸

Europe and the U.S. in economic terms: some facts are summarized in Box 2.1.

Box 2.1: Facts and Figures on European–U.S. Cooperation in Economic Terms, based on^{29,30}

- Despite the recession, the U.S. and Europe remain each other’s most important foreign commercial markets. No other commercial artery in the world is as integrated and fused together as the transatlantic economy
- The transatlantic economy is the largest and wealthiest market in the world, accounting for over 54 % of world GDP in terms of value and 40 % in terms of purchasing power.

²⁷ Hamilton DS, Quinlan JP (2011) The transatlantic economy 2011: annual survey of jobs, trade and investment between the united states and europe. Washington DC: Center for Transatlantic Relations.

²⁸ Hamilton DS, Quinlan JP (2011) The transatlantic economy 2011: annual survey of jobs, trade and investment between the United States and Europe. Washington DC: Center for Transatlantic Relations.

²⁹ Hamilton DS, Quinlan JP (2011) The Transatlantic Economy 2011: Annual Survey of Jobs, Trade and Investment between the United States and Europe. Washington DC: Center for Transatlantic Relations.

³⁰ Hamilton DS (2011) Europe 2020, Competitive or Complacent? Center for Transatlantic Relations, Washington DC.

- Ties are particularly thick in Foreign Direct Investment, portfolio investment, banking claims, trade, and affiliate sales in goods and services, mutual R&D investment, patent cooperation, technology flows, and sales of knowledge-intensive services.
- North America is the largest regional destination of EU Foreign Direct Investment (FDI) and the largest regional source of FDI in the EU. The EU is the top destination of the U.S. FDI around the world. The U.S. FDI in the EU of over €1 trillion is more than the next 20 investors combined.
- The EU FDI of €1.25 trillion in North America is more than the next six destinations combined.
- The U.S. and Europe are the two leading services economies in the world. The U.S. is the largest single country trader in services, while the EU is the largest trader in services among all the world regions.
- Of the global top 20 companies spending on innovation, nine are in the U.S. and seven in Europe.
- 18 of the top 20 knowledge regions in the world are in the U.S. and Europe.

“However, the world that created the transatlantic partnership is fading fast”.³¹
 “If the U.S.-European relationship is to be a progressive force in the world to come, Americans and Europeans must urgently build a more strategic partnership that is more effective in dealing with new partners and addressing transformations occurring all around them. It is a moment of opportunity—to use or to lose.”³²

Recent discussions on prospects for cooperation in the Atlantic Basin are promising:

“Meanwhile Northern Atlantic basin states are the architects of the post-war economic and security order—a liberal order whose foundational ideas remain more widely accepted today than its institutional architecture, which represents a snapshot of the distribution of power in 1945. In the absence of global agreement on reframing institutions of governance, it seems doubly important to examine the Atlantic space as a region ripe for better mechanisms of cooperation....Energy, climate change, and natural resources are a key theme in the Atlantic. The divergence between the most and least efficient producers (and the most and least prolific consumers) is perhaps greater than anywhere else on the planet. The North Atlantic states have technological solutions that are the most advanced in the world. Yet they cannot translate into control of agendas and solutions, or preservation of historical rights and access to common resources. Governance

³¹ Hamilton DS, Barry C, Binnendijk H, Flanagan S, Smith J, Townsend J (2009) Alliance Reborn: An Atlantic Compact for the 21st Century, The Washington NATO Project, http://transatlantic.sais-jhu.edu/bin/i/y/nato_report_final.pdf.

³² Hamilton DS (ed) (2010) Shoulder to Shoulder, Forging a Strategic U.S.-EU Partnership. Johns Hopkins University Center for Transatlantic Relations, Washington DC.

mechanisms for common resources have been devised in the North Atlantic. How can these be translated successfully to other parts of the basin?”³³

“Nothing is more imperative for EU foreign policy than defining a common agenda with the U.S. Regrettably, in recent times transatlantic relations have all too often been marred by ideological divergences that are largely a legacy of the Cold War era. Such dissensions are clearly dysfunctional in today’s multipolar world, which calls for a concerted effort to build broader coalitions that transcend ideological divides.”³⁴

The U.S. economic situation, the massive financial dependence on China, together with the geopolitical judgment has clearly shifted the U.S. perspective during the current Administration to Asia and the U.S. President calling himself the “First Pacific President.”³⁵

On Europe, various comments in this context as expressed in the course of this study can be summarized by: Europe is not part of the problem anymore, but it is not part of the solution either.

In essence, one conclusion can also be that the relationship of Europe and the U.S.—in recognition of the economic interconnectedness and potentials—needs the transition from an alliance originally after World War II set up AGAINST a joint enemy, toward a new identity and alliance FOR the development of joint solutions.

2.3 Background and Framework of European–U.S. Science and Technology Cooperation

This overview is focussed on European activities as represented by the European Union (EU). Although the EU–U.S. relationship dates back to the 1950s, the first formal framework for cooperation was put in place in 1990 with the Transatlantic Declaration, followed by a new Transatlantic Agenda,³⁶ and regular EU–U.S. Summits to assess and develop transatlantic cooperation.³⁷

In the area of S&T, the EU and U.S. concluded an S&T Cooperation Agreement in 1998, renewed it in 2004, and extended it for another 5 years in July 2009. The scope of the cooperation has been enlarged, including security and space research among a range of other fields. However, despite political goodwill on both sides, in the EU and the U.S., it is interesting to see some opposite developments as well,

³³ European Commission (2011) The Atlantic Geopolitical Space: common opportunities and challenges.

³⁴ Kodmani B, Larrabee FS, Lewis P, Pawlak P, Rodrigues MJ, Vasconcelos A de (ed) (2011) The Agenda for the EU-U.S. strategic partnership. The European Union Institute for Security Studies, Paris.

³⁵ Asia Rise Drives Obama Message as U.S.’s First Pacific President, *Businessweek*, 11 Nov. 2011.

³⁶ <http://www.eurunion.org/partner/agenda.htm>

³⁷ Overview EU-U.S. Summits: <http://www.eurunion.org/eu/Table/EU-US-Summits/>.

particularly with respect to the general orientation toward real international S&T cooperation, and diverging focus on specific thematic areas such as climate change or security. The Economic Crisis and the broader political environment have contributed to more inward-looking attitudes both in the U.S. and in Europe, thus challenging also the transatlantic partnership.

In Europe, since the adoption of the Lisbon Strategy in 2000, the EU has committed itself to building a European Research Area (ERA) that extends the single European market to the world of S&T—ensuring open and transparent “trade” in S&T skills, ideas, and know how. As globalization at all levels demands that European research look outward, international S&T cooperation forms an integral part of EU S&T policy. It includes programs that enhance Europe’s access to worldwide scientific expertise, attract top scientists to work in Europe, and contribute to international responses to shared problems. This openness to international S&T cooperation is also reflected in the Europe 2020 Strategy and related flagship initiatives agreed upon in 2010.

At an operational level, the EU research flagship program—currently the seventh Framework Program for Research, Technological Development and Demonstration (FP) for the years 2007–2013—has been expanded in scope and opportunities for international S&T cooperation, in addition to the massive funding made available under previous FPs. With its broad international perspective, the FP could, in principle, be understood also as a huge “science diplomacy” agent, opening and funding cooperation with all regions of the world. The structure of the successor program, the EU Framework Program for Research and Innovation—“Horizon 2020”—was proposed by the European Commission in 2011. Horizon 2020 is focused on further strengthening Europe’s science base and research infrastructure, expanding Europe’s leadership in key industrial technologies, and facilitating research and innovation that address societal challenges. With a proposed budget of €80 billion, foreseeing a 40 % budget increase despite economic “challenges,” Horizon 2020 will again be open for international cooperation. Following discussions and negotiations, Horizon 2020 will be available for investing in research and innovation projects for the years 2014–2020.³⁸ On the occasion of her recent visit to Washington, D.C., the EU Commissioner for Research, Innovation, and Science stressed on the opportunities to strengthen transatlantic cooperation through Horizon 2020.³⁹

In the U.S., still the world leader in S&T, the reports—despite their differing organizational settings and backgrounds—“Rising Above the Gathering Storm,” the American Competitiveness Initiative, and the “Strategy for American Innovation” had a motivation similar to that of the Lisbon and Europe 2020 strategies. This motivation was reinforced by the financial crisis and major follow-up

³⁸ European Commission (2011) Horizon 2020 - The Framework Programme for Research and Innovation. COM(2011) 808 final. http://ec.europa.eu/research/horizon2020/index_en.cfm.

³⁹ EU Commissioner for Research, Innovation and Science Maire Geoghegan-Quinn Speech on 18 January 2012, Washington DC.

documents⁴⁰ to those mentioned above, as well as by statements including the State of the Union Address 2011 of President Obama where he stressed “the first step in winning the future is encouraging American Innovation”⁴¹ and “we need to out-innovate, out-educate, and out-build the rest of the world.”⁴²

As much as the U.S. S&T system is organized differently and in a decentralized way, truly coordinated international S&T cooperation has not yet come to play a substantial role. In addition, security concerns plus related regulations seemed to have played a role in this respect. But there are promising developments as well. One example is the use of S&T cooperation in the context of science diplomacy as an effective smart power instrument. Moreover, initiatives such as the U.S.–EU Energy Council established in 2009 also indicate the intention to take new routes in strategic energy S&T cooperation. However, as similar approaches have been put in place with other major actors including China and India, the U.S.–EU Energy Council is expected to prove its added value and comparative advantages.

⁴⁰ Members of the 2005 “Rising Above the Gathering Storm” Committee (2010) *Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5*. Prepared for the Presidents of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine: http://www.nap.edu/catalog.php?record_id=12999; America Competes Reauthorization Act, 2010: <http://www.gpo.gov/fdsys/pkg/BILLS-111hr5116eas/pdf/BILLS-111hr5116eas.pdf>, PCAST Reports: <http://www.whitehouse.gov/administration/eop/ostp/pcast/docsreports>.

⁴¹ <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address>.

⁴² <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address>.

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