

## THE EU – CHINA COOPERATION IN THE FIELD OF RESEARCH, DEVELOPMENT, AND INNOVATION

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**Abstract:** The EU and China enjoy one of the most fruitful relationships of cooperation in the world. In time, this cooperation has evolved into a strategic partnership created in 2003. A central part of the development and consolidation of the Strategic Partnership was that of the cooperation between these two actors in the field of research, development, and innovation. This paper intends, on the one hand, to analyze the cooperative relationships between the EU and China in the field of research, development, and innovation, and on the other hand to offer a bigger picture of the present day relationships in the field. This paper uses methods of quality research, more precisely document analysis.

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### Introduction

Considering that nowadays the world faces deep, complex changes, the states of the world have started to pay more attention to the international cooperation in the field of research, development, and innovation (RDI). That is because “by international cooperation, the financial and human resources in the field of RDI that exist in the developed and developing states can be allotted more effectively to subfields which are very important for humanity. Moreover, international cooperation is an important factor that gives states or groups of states easier access to the information and knowledge needed for solving the problems that exist on the planet” (Stanculescu, 2016).

The EU promotes the enhancement of the relationships of cooperation in the field of RDI, stating that the challenges of the third millennium affect both the developed and the developing countries and that the access to information in the “Century of Speed” is much easier and faster, thus contributing to the fight against such challenges. Furthermore, the European Commission underlines the fact that “the international relationships of cooperation promote the production of new knowledge, increase scientific quality and improve the competitiveness of the research and innovation systems” (the European Commission, 2016). To that effect, the EU has international cooperation activities in the field of RDI with the US, Russia, China, Brazil, South Africa, Canada, Israel, Turkey, etc. In this context, this paper intends to offer a complex image of the cooperative relationships between the EU and China in the field of research, development, and innovation. Considering this, the paper has the following structure: section 1- Introduction; section 2 – The positions of the EU and China in the field of research, development and innovation – where we will briefly present the positions of the two actors in the field of RDI; section 3 – Bilateral cooperation relationships in the field of research, development and innovation – it is meant to analyse the EU – China relationships in the field of RDI; section 4 – conclusions.

### The positions of the European Union and China in the field of research and development

It has been 42 years since the EU established cooperation relationships with China. In time, these relationships have developed into a strategic partnership whose main pillar is the RDI cooperation. During the past few years, the EU has increased its relationships with China in the field of RDI, thus becoming one of the most important partners in the field at an international level. The two actors promote a relationship based on mutual interest and common benefits. Right now, China holds the third place in the top of international partners in research, development, and innovation, after the US and Russia. Before analyzing the RDI cooperation between the EU and China, we will study the positions of the two actors in this field.

“Europe is one of the most important areas of the world in the field of research, development, and innovation. Even though the population of the EU is only 7% of the population of the world, the EU is

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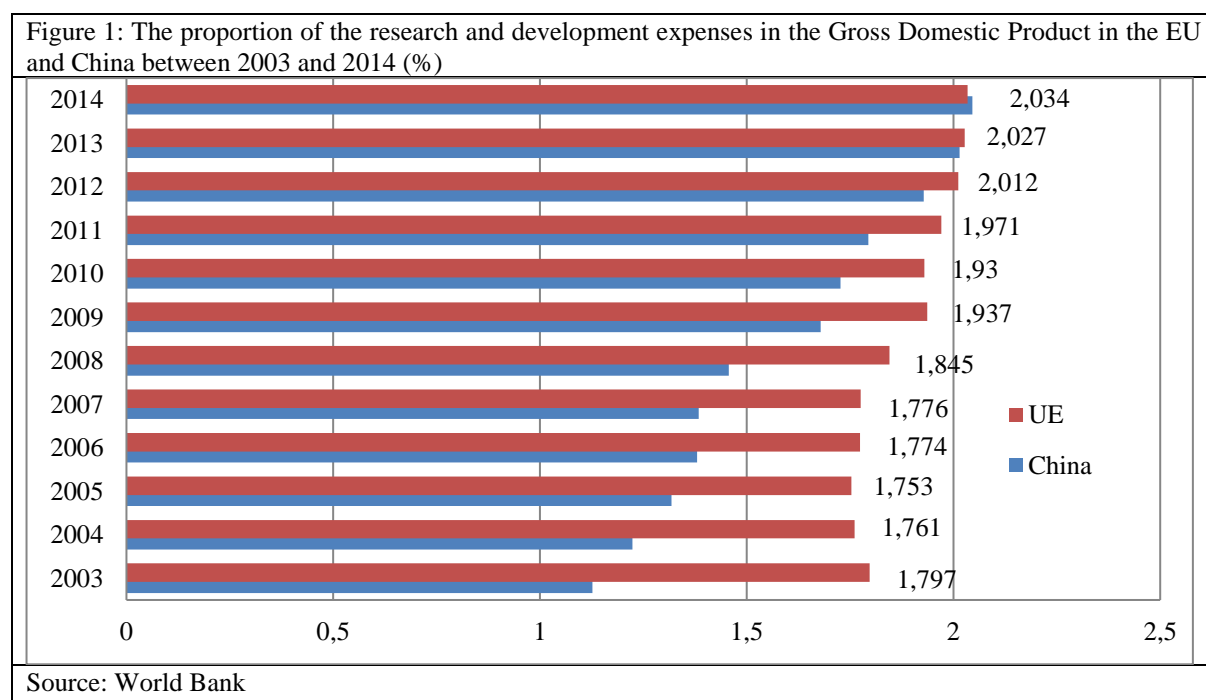
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now the main center of knowledge production worldwide, yielding almost one third of the production of science and technology on the planet. At the same time, the European Union is responsible for 24% of the world's expenses for research, 32% of the publications with great impact and 32% of the invention patent requests". (Delegation of the EU to China, 2016a).

Moreover, right now, the EU has one of the greatest research programmes – Horizon 2020 (H 2020). This programme takes place between 2014 and 2020, with a budget of approximately 80 billion Euros. The Horizon 2020 programme is a “financial instrument stimulating the process of innovation inside the EU and beyond, having the role of increasing the global competitiveness of Europe” (UEFISCDI, 2017).

According to the political elites of the EU and the European Parliament, “research is an investment in our future and is essential for us to have an intelligent, lasting growth that favors inclusion and the creation of jobs” (European Commission, 2015a). To that effect, the EU has the objective of increasing the proportion of the RDI expenses to 3% of the Gross Domestic Product – this objective is stipulated in the Europe 2020 Strategy. According to certain estimates, the consequence of this objective could be “the creation of 3.7 million jobs in the EU and an economic growth of the EU by approximately 800 billion Euros by 2025” (Brauner, 2011).

As for China, during the recent years, it has made great progress in research and development, becoming one of the greatest global investors in the field. Thus, we can see in the figure below that the proportion of the research and development expenses in the Gross Domestic Product increased by 81.54% between 2003 and 2014, whereas, in the EU, it has only increased by 13.19% in the same interval.



Moreover, China has set the objective of increasing its R&D expenses to 2.5% of the GDP by 2020. Also, “in 2015, China held the first place with regard to the research and development staff – 2.5 million researchers” (European Commission, 2015b), and, as far as the number of scientific articles is concerned, in 2013, China held the third place with 401,435 articles, following the EU with 605,536 articles and the US with 412,542 articles.

Considering all this, we can conclude that the EU and China are the main actors in the field of RDI. In this context, in the next section, we will analyze the RDI cooperation relationships between the EU and China.

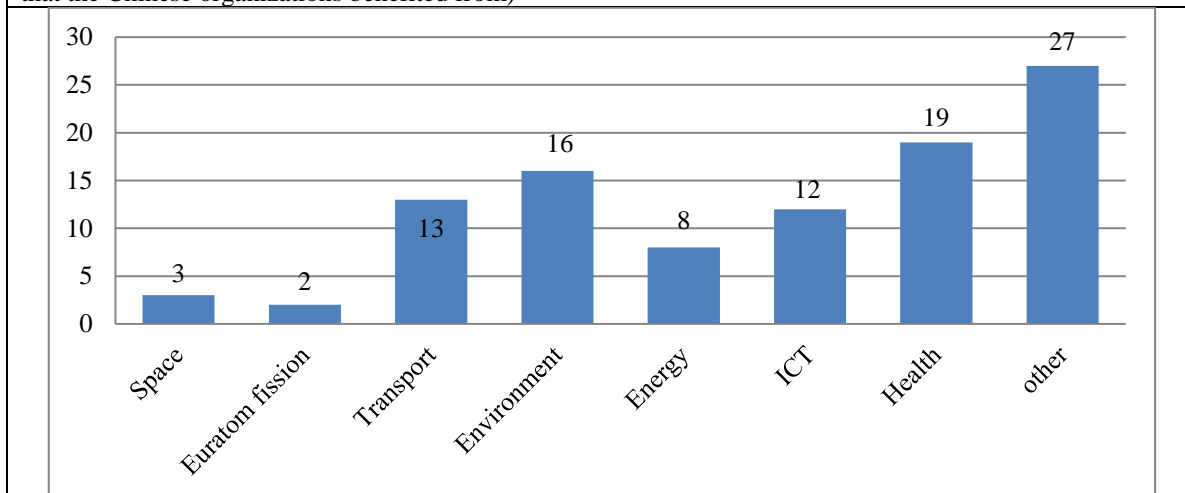
### **Bilateral relationships of cooperation in the field of research, development, and innovation**

The RDI cooperation between the two actors started in the 1980s, but its importance was recognized only during the 16<sup>th</sup> EU – China Summit in 2013. Moreover, during the second high-level dialogue

regarding the cooperation in the field of innovation, the European Commissioner for research, science and innovation, Carlos Moedas, “underlined the importance of the EU – China cooperation in RDI as equal partners in strategic fields of common interest, in order to approach the global challenges and to promote a sustainable growth. He stated that the People’s Republic of China had become a great power in science and technology. Europe needs to engage with China in the context of open science, open innovation and an open world policy” (European Commission, 2015c). Another document showing the importance of the international cooperation in RDI is the EU strategy in the field of research and development. According to this strategy, the European Union needs to pay special attention to the international cooperation in RDI because: “(1) it offers Europe access to the best talent, knowledge and resources, no matter where they are; (2) the EU can approach the global societal challenges in an effective way, that is in a partnership approach; (3) it offers the EU the possibility to establish new opportunities for the high technology European industries, by participating in the global chains of value and by the access to new, emerging markets; (4) it offers the EU the chance to have a leading voice in the debates and evolutions at a global level” (European Commission, 2015d).

The cooperation between China and the EU in RDI was achieved by the Framework Programme 7 (FP 7) and by Horizon 2020 (H 2020). If we take into account FP 7, the cooperation between the two actors covers approximately all the fields of interest, such as space, ICT, health, transportation, environment, energy, etc. (see Figure 2). According to the statistics, the FP 7 (2007-2013) enjoyed the participation of “383 Chinese organizations in 274 collaboration projects, with a cumulative contribution of the EU of 35.24 million Euros. Moreover, the Marie Skłodowska-Curie programme had over 880 Chinese participations” (Delegation of the European Union to China, 2016b).

Figure 2: The main fields of collaboration between the EU and China within FP 7 (% of the total amount that the Chinese organizations benefited from)



Source: Delegation of the EU to China (2016b)

China also remains an important partner in the Horizon 2020 programme, as well. According to the statistics, by February 2016, 116 Chinese entities had participated in 49 projects in this programme.

The cooperation between the EU and China in RDI offers the two actors both benefits and challenges. The benefits coming from the consolidation of the bilateral cooperation in RDI are economic and more. In the case of the European partners, the main benefits of the cooperation enhancement are: (1) “the access of European companies on the Chinese market” (Brauner, 2011, Stumbaum et al., 2010); (2) the effective facing “of the common global and societal challenges, such as pollution and the fact that the population is growing old” (Fan et al., 2014); (3) “the interest in accessing the specialized Chinese staff that is growing from the viewpoint of both quality and quantity; (4) adjusting the European products to the Chinese market; (5) the European researchers are interested in benefiting from the increase in the Chinese R&D expenses” (Brauner, 2011). For the Chinese partners, the main motive has been and will be getting high technology that is essential for the economic, social and military development of China.

But, unfortunately, the RDI cooperation between the EU and China also involves challenges; these pertain to the copyright which is often breached by China, to the introduction of “indigenous innovation policies” by this actor and to the fact that the Chinese entities practice unfair competition.

Synthesizing what we have said, we can conclude that, in order to remain a leader in the field of science and technology, the EU needs to consolidate its RDI cooperation with the main international partners, including China.

### Conclusions

At the present moment, the EU and China are the greatest global investors in the field of research and development. During the recent years, the EU has increased its RDI cooperation with China, an aspect that is shown by the number of participations of the Chinese entities in the Framework Programme 7 and in the Horizon 2020 programme. According to the statistics, the number of participations of Chinese entities in the H 2020 programme has been 116 in 49 projects.

The EU – China RDI cooperation relationships contribute greatly to finding pertinent solutions to global challenges such as climate change, terrorism, migration, food safety, etc. In this context, the EU sets the objective of increasing its R&D expenses to 3% of the GDP by 2020. In order to reach that objective, there is a need for greater transparency in the cooperative relationships between China and the EU Member States and for a decrease in the difference between the Member States with regard to the proportion of the R&D expenses of the GDP. For instance, there is a great difference between Finland (3.17% of the GDP in 2014) and Romania (0.38% of the GDP the same year).

Considering what we have said, the increase in the cooperative relationships between the EU and China is recommended. But, at the same time, the EU should pay greater attention to the challenges coming from this cooperation.

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