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UNIVERSITY OF LIEGE

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*Upcoming Doctoral Thesis: Interferences between non-proliferation and science: ‘exporting’ dual-use knowledge and technology in conformity with security imperatives*

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*Thesis Jury:*

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## 1. What is about?

Export controls or, differently strategic trade controls are considered to be as one of the lynchpins of the international non-proliferation enforcement strategy along with the international safeguards and physical protection framework. In the arms control, disarmament and non-proliferation context, export controls function as a trade measure serving security imperatives (security vs. economic interests) and dual-use goods are defined as essentially civil items which may have military applications as well (military vs. civil applications). From the preamble it is clear that export controls of dual-use items are in the centre of ostensibly or actually contrasting principles and notions which necessitate the attainment of fine balances.

This doctoral study draws on another less anticipated ‘competing pair’ namely, the imperative to curb the diffusion of ‘proliferation sensitive’ knowledge and technology without disturbing unduly the conduct of research. Striking a balance between academic principles underpinning the free dissemination of information and non-proliferation imperatives calling for the safeguard of sensitive knowledge and technology from misuse seems to be an extremely difficult task. In today’s world, knowledge and technology that is to say the application of knowledge to the practical needs of societies, is in the centre of both academic and entrepreneurial activities. Apart from the control of raw materials and substances which are available in nature, non-proliferation efforts may concern technology in all its expressions (technological equipment, technical assistance and know-how) including what is deemed as ‘proliferation sensitive knowledge’. The control of knowledge and technology on the basis of proliferation concerns is arduous also from a practical point of view given that knowledge and technology flows are increasingly enabled through intangible means of transfer.

This problematic led me to set a fundamental question pervading the whole reasoning of the study:

How would be possible for a system of norms, rules and decision making procedures to avert the diffusion of proliferation-sensitive knowledge and safeguard it from misuse? This question can be reformulated and answered also as a normative one: Is it acceptable to impose controls in the dissemination of proliferation sensitive knowledge?

The practice shows that risks related to the proliferation of Weapons of Mass Destruction are perceived by politicians and citizens as rather high and, the international and European law deal with this issue by setting some constraints in the diffusion of sensitive information and technologies. Therefore, a pragmatic approach should be adopted in order to come up with a realistic and workable solution. To that end, the study addresses two more specific questions:

First, what are the obligations of scientists and research organisations stemming from the non-proliferation system and how are these manifested in the trade control system of dual-use items of the EU?

Second, how could researchers and research organisations comply with the existing regulations and respond to non-proliferation and export control imperatives?

Quite interestingly, this second question points to the third objective of the study that is to say the exploration and devise of internal measures fulfilling export controls obligations and satisfying at the same time the needs of researchers. Fostering the accountability of research organisations through the adoption of internal compliance mechanisms in concert with further governmental initiatives could reflect an appropriate and workable option for compliance of research establishments with the non-proliferation law. Following from this, I formulated a sort of hypothesis to be explored:

Given the peculiarities of research settings and the challenging application of export controls in technology transfers, the implementation of internal compliance programmes by research organisations may represent not only a fitting response to heightened proliferation concerns but also a compelling one.

Internal Compliance Programmes (ICPs) are useful tools towards both the attainment of a climate of awareness and responsibility within exporting organisations and the fulfilment of export control requirements by the exporters. Effective ICPs may function in synergy with codes of conduct or other agreed guidelines and comprise a clear policy and standardised procedures ensuring that all employees are aware and compliant with any export control obligations relating to their work. Further, the adoption of ICPs constitutes a common practice for industry already for many years. On the contrary, most academic and research institutes do not have in place compliance mechanisms and awareness-raising tools *vis-à-vis* the export control legislation albeit they are not always exempted from legal consequences deriving from this. Enhancing the accountability of the research community and achieving compliance with non-proliferation and other security imperatives may presuppose a mix of self-governance measures tailored to the needs of researchers.

That said, the ultimate goal of this doctoral study is not to validate or refute the aforementioned hypothesis in the view of a theory or the conceptual framework. Instead, the main purpose is to test if an ICP could be adapted accordingly and function efficiently in a research context. This provides me with the impetus to examine such a possibility for the European Commission's in-house science service, the Joint Research Centre (JRC). The JRC constitutes an optimal case to study since it represents a European research organisation undertaking research in a wide range of areas -including proliferation sensitive ones- and employing thousands of researchers in different sites. At the same time, JRC's main mission to provide EU policies with independent, evidence-based scientific and technical support involves a crucial role in shaping policies including those falling in the export controls and non-proliferation realm. In other words, the JRC does not only undertake research in different disciplines relating to proliferation concerns such as in nuclear physics, nanoscience and chemistry but holds a prominent role as contributor to the establishment of a solid policy framework for export controls and non-proliferation in the EU. This is a first class opportunity for a study aspiring to influence both the discussion on the ways through which export control compliance could be achieved by research organisations and the direction that policy reforms could take on this issue.

## 2. What should be expected?

The study is structured along three main parts corresponding to the main research questions described in the introduction:

- I. In the first part, the scope and the objectives of the study are set and the main concepts and problems related to the research thematic are defined. Simply put, the first part represents the ‘what’ and ‘why’ of the doctoral study. In that respect, there are three main points to take note of. The first is the conceptualisation of ‘scientific research’, including the description of the different organisations (e.g. industrial, academic, and research institutes) where research takes place. The second is an analysis of the functioning and the foundations of the non-proliferation system -that is to say the international treaties- with a view to identifying any direct or indirect obligations on the part of research community. Finally, the third point concerns the very heart of the problems in question that is to say the implications of export controls for the academia and research institutions. To that end, the main principles and provisions governing the functioning of export controls as these manifested in the framework of the multilateral export controls regimes and the EU law are discussed. The analysis exemplifies the intricate nature of dual-use trade controls by referring inter alia to the various understandings of the dual-use term as well as to what sort of items and technologies are currently covered under the controlled lists. The main driver behind this is the intention to clarify how ‘dual-use research’ should be understood. The first part is not solely restricted in a first interpretation of the legislation and international norms relating to export controls of dual-use articles and technologies. Instead, it sheds some light on all main issues and subsequent problems besetting the research community and academia in relation to the ‘export control problematic’.
- II. The second part of the study elucidates the concept of export control compliance by focusing on ‘how’, through which means an organisation could operate in conformity with export control law. Why ICPs considered as an effective tool for ensuring compliance with export control requirements as those described in part I? What are the drivers and main motives behind the adoption of ICPs and what one can learn from the experience of industry implementing such programmes already for years? This section will offer an analysis of the ICPs and other compliance mechanisms as currently implemented by industry and academia. The overall objective here is to identify a methodology or, some main principles and key elements for building ICPs tailored to academic and research organisations. To that end, the industrial experience will be used as a source of inspiration and different approaches with regards to research compliance -by authorities and research institutions themselves- will be discussed.
- III. Visibly, the last two parts of the study are closely interrelated since the ultimate goal is to suggest a model for enforcing export control compliance in a research environment, in this case at the Joint Research Centre. What are the components that an export control compliance management system for the JRC should definitely have in place? Should such a system be integrated in the existing compliance structure of the organisation or not? What are the main challenges in implementing such a system and how these could be overcome? How an effective strategy increasing the awareness and responsibility of the JRC researchers *vis-à-vis* export controls could be designed? Apart from providing answers to the foregoing questions, this part will also attempt to conclude on policy initiatives and measures to be taken by governmental

authorities in concert with the efforts of researcher institutions to further export control objectives.

### **3. When will the findings be published?**

The delivery of the doctorate is expected for the first half of 2016. Stay tuned!