European technological protectionism and the risk of moral isolationism

The case of quantum technology development

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Editorial

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ABSTRACT

In this editorial, we engage with the European Commission's 2023 recommendation calling for risk assessment with Member States on four critical technology areas, including quantum technology. A particular emphasis is put on the risks associated with technology security and technology leakage. Such risks may lead to protectionist measures. Mobilising European normative anchor points that inform the "right impacts" of research and innovation, we argue that a protectionist approach on the part of the European Union can lead to moral isolationism. This, in turn, can limit Europe's contribution to global development with respect to technological advances, sustainable development and quality of life. We contend that decisions on protectionism around quantum technology should not be made with a protectionist mindset about European values.

Introduction

In this editorial, we critically engage with the European Commission's (2023) recommendation for risk assessment on four critical technology areas – and focus in particular on quantum technologies (European Commission, 2023a). As researchers in the Quantum and Society action line of the Dutch quantum ecosystem, Quantum Delta NL, we have an interest in supporting and advancing the responsible development of quantum technologies. Here, we express our concern about the narrow framing of the risk assessment within the economic and security domains. This narrow framing for the risk assessments represents an unwanted moral isolationism that ignores other central European Union (EU) values in research and technology development.

The Commission Recommendation of 3.10.2023 on critical technology areas for the EU's economic security for further risk assessment with Member States is part of the EU's 'European Economic Security Strategy', published in June 2023. In its recommendation, the European Commission (EC) identifies four technology areas with the greatest likelihood of posing significant risks as regards technology security and technology leakage. Technology security and technology leakage, in turn, concern risk to the EU's technological advances and competitiveness (European Commission, 2023b) including through malicious practices. The four technology areas include advanced semiconductor technologies, artificial intelligence technologies, quantum technologies and biotechnologies. These areas are defined as 'critical' for the EU's economic security; the risk assessment seeks to "identify and analyse vulnerabilities of a systemic nature according to their potential impact on the EU's economic security and the degree of likelihood that the negative impact materialises" (p.2). The four critical technology areas were selected according to the following characteristics: their enabling and transformative nature; the risk of civil and military fusion; and the risk of misuse of the technology for human rights violations. The assessments are intended to contribute to the development of EU policies that are supportive of innovation and industrial development for the four areas, including through international initiatives. The Commission recommended that Member States, along with the Commission, carry out collective risk assessments of these four areas by the end of 2023.[1] The risk assessments are intended to lay the foundation for any measures that the EU may take to reduce the risk of technology leakage, although it remains unclear as to the kind of measures.[2]

It has been speculated by observers, however, that such risks may lead to protectionist measures for these technologies, such as export controls and limiting development support.[3] On a conceptual level, 'technology protectionism' derives from established notions of trade protectionism. Technological protectionism, then, can refer to the implementation of specific measures or regulations to limit international transfer of knowledge through migration of researchers and foreign ownership of technological companies, in order to secure the development of domestic research, development and manufacturing capabilities. Such protectionism tends to be implemented with a view to technological sovereignty. Technological sovereignty refers to the capacity of a state to provide the technologies it views as critical for its welfare and competitiveness, and to its ability to access and develop these technologies or source them from international partners without

[1] There is, as of writing in April 2024, no publicly available information regarding the status of the risk assessments.
[2] https://www.euractiv.com/section/economy-jobs/news/stricter-eu-controls-on-critical-technologies-possible-from-spring-2024/
[3] https://www.euractiv.com/section/economy-jobs/news/stricter-eu-controls-on-critical-technologies-possible-from-spring-2024/

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one-sided dependency (cf. Edler et al., 2023).

While future measures adopted on the basis of the risk assessments may not be 'protectionist' in intention, they may, nonetheless, have protectionist effects (cf. Aaronson, 2019). We suggest that there is another pertinent risk for the EU and its global position; if the EC and Member States base their decision on whether to develop critical technologies in a protectionist manner with a view to economic and security values, the global aspiration of other European values such as those enclosed in responsible innovation are ignored or interpreted in a narrow EU-focused sense. To give it a name, let us call the interpretation of moral EU values as values that apply to only the EU, its member states and citizens as *moral isolationism*. It is our position that even if technological protectionism is inevitable, this moral isolationism should be avoided.

The risk of moral isolationism

Let us, for the sake of argument, assume that the risk assessment by the EU Member States leads to the conclusion that quantum technology should be developed in a protectionist manner. Technology security will then be maintained, and technology leakage avoided. This conclusion, however, would ignore other impacts of protectionism on Europe's interests, specifically of its basic values. The criteria for singling out the four critical technologies already mentioned the wider European value of human rights. In the following, we show that there is more.

Adopting a responsible innovation approach, we take our lead from von Schomberg (2013), who argues that the normative anchor points of the European Treaty on the European Union (2007) – and their interlinkages – offer a legitimate basis from which to define the "right" impacts that research and innovation should pursue. Crucially, as he notes, the Lund Declaration of 2009 advanced an assumption that innovation should be oriented and governed beyond economic justifications towards societally beneficial objectives underpinned by broadly shared values. Furthermore, the Lisbon Treaty (signed in 2007 and implemented in 2009), speaks to the aims of the EU within the wider world, seeking, amongst other aims, to "contribute to peace and security and the sustainable development of the Earth", along with "solidarity and mutual respect among people, free and fair trade, eradication of poverty and the protection of human rights".[4] Von Schomberg distills the normative anchor points as follows:

A. promotion of scientific and technological advance;
B. competitive social market economy;
C. promotion of social justice, equality of women and men, solidarity, fundamental rights;
D. sustainable development;
E. quality of life, high level of protection, human health and the environment.

We now consider the impact of technological protectionism on these five values. We envisage two 'cases', centring on a global and narrow interpretation of the values, A-E. If these values are interpreted globally, protectionism clearly may imperil most of these values. It may slow down scientific and technological advancements by obstructing global collaboration on quantum technologies and the flow of talented researchers to the locations where advancements take place. Protectionism would moreover shrink the market for quantum technological products, which may lead to higher investment risks for companies. In addition, support for sustainable development and the quality of life would be hampered; for instance, it may impede the application of quantum technologies developed in Europe elsewhere in the world. Pharmaceutical research on non-Western diseases, more effective sensing, and more efficient analysis of sources of pollution in the Global South, are then delayed. This in turn, would ignore that health or environmental crises, say an outbreak of a more volatile variant of the Ebola virus outside of Europe, may also damage the quality of life and environment in Europe. It is only for value C that a case can be made that protectionism with respect to quantum technologies may support social justice by limiting the use of big data analysis – facilitated by quantum computing – for nefarious purposes, e.g. the surveillance of populations by totalitarian regimes (de Wolf, 2017).

If, however, the EU interprets its values in the narrow sense of being applicable only to the citizens of its Member States, protectionism seems to imply fewer value risks. Scientific and technological advance is then seen as European, and protectionism serves to support research. The competitiveness of European markets and the protection of social justice, equality and human rights become a European affair that can be arranged internally. It is only realising value E of the quality of life that remains hampered, since a moral isolationist approach of taking European values as applying to Europeans only still ignores the risks for Europe of health or environmental crises taking place outside of Europe.

Conclusion

We contend that, while technological protectionism seems inevitable in the contemporary landscape of international relations, it does require careful consideration with respect to its impact on European values. Decisions on protectionism around quantum technology should not be made with a protectionist mindset about European values. The EU should base such decisions also on its envisaged contribution to global development in terms of technological progress, sustainable development and quality of life, and not in a moral isolationist framing in which it takes its central values as being only of relevance to the EU region.

CRediT authorship contribution statement

Clare Shelley-Egan: Conceptualization, Writing – original draft, Writing – review & editing. **Pieter Vermaas:** Conceptualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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[4] https://european-union.europa.eu/principles-countries-history/principles-and-values/aims-and-values_en

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