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In Support of Market-Driven Standards

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EXECUTIVE SUMMARY

The EU published its new Standardisation Strategy in 2022. The strategy contains some good ideas to improve the way European standards are set. However, in its attempt to gain more control over technical standards, the EU risks killing the goose that lays the golden egg.

The primary motivation behind the strategy is the belief that the process governing the way CEN, CENELEC, and ETSI – the three European Standardisation Organisations – take decisions over EU standards favours non-EU multinationals. To address this perceived imbalance, EU National Standardisation Bodies will have the exclusive power to accept standardisation requests, and adopt, revise and withdraw European technical standards. These changes are particularly significant for ETSI, Europe's Standardisation Body in charge of telecommunication standards and one of Europe's most successful organisations. ETSI is a prime example of EU normative power since it hosts companies from more than 60 countries, while retaining a large membership of EU firms.

The regulatory changes included in the strategy are not risk-free. There could be unintended consequences that may undermine a standardisation system that has delivered significant economic benefits for the EU and the world. First, giving more responsibility to EU's National Standardisation Organisations will turn a European discussion into 30 (EU and EEA) national debates. As a consequence, small companies will not be able to contribute to each and every one of the National Standardisation Organisations, diluting their contribution, while multinational companies, with the resources needed to cooperate with a larger number of bodies, will benefit from an expanding role in the EU standard setting process. Second, if standards are fragmented along national borders and companies must multiply their efforts to take part in several Standardisation Development Organisations, there will be less resources for Research and Development spending. Finally, if each and every National Standardisation Organisation needs to have a position with regards to the acceptance of a standardisation request, or adoption, revision and withdrawal of European technical standards, the time period required to adopt a technical standard may be extended rather than shortened, which is the exact opposite of what the European Commission wants to achieve.

The regulatory changes included in the EU Standardisation Strategy are akin to cracking a nut with a sledgehammer. If the European Commission is concerned about the influence of non-EU companies in European Standardisation Bodies, it does not need to overhaul their governance systems. Supporting greater participation of European firms in the European standard system will ease EU's concerns without the downside risks associated with changing the rules of the game that govern Europe's Standardisation Bodies.

The success of the European standardisation system, which is market-driven and based on consensus, has had significant economic benefits in the development of specific industries, like the European Information and Communication Technologies (ICT). Technical standards in ICT have shaped a European industry that is not only dynamic and international but also enjoys some of the highest levels of wages and Research and Development spending. Moreover, if

technical standards are not developed through an open, consensus-based, and industry-led voluntary process, they will be developed in different ways. For instance, governments and private companies can develop standards by themselves. Both solutions are inferior to the current market-driven approach that governs European standards. However, the European market-driven approach to set standards is voluntary, and its success and continuation must not be assumed. European policymakers should be worried about tinkering with a European standardisation system which has produced economic specialisation and innovation to the benefits of EU firms and consumers.

1. INTRODUCTION

Traditionally a technical domain led by engineers, technical standards have recently become part of international politics with many powers cajoling to control the standard setting of new technologies. There are good reasons for countries to be mindful of standards. Standards are the foundation of future industries: augmented and virtual reality, smart cities, remote healthcare, or smart transport, are all being built with technical standards at their core. Moreover, standards are fundamental for national security because they will govern the technologies inserted into the future defence products and services.

The growing importance of technical standards for economic success is reflected in numerous media reports and various strategies of governments to utilise standards for political purposes. For instance, China wants to establish itself as a powerful standard setting force. In 2020, China announced its 'China Standards 2035' strategy to set global standards for emerging technologies by increasing the number of Chinese-led international standards and leading well-established international standardisation bodies.

The race for global technical standards is not limited to China. The EU and U.S. are also positioning themselves at the centre of this race. The EU-U.S. Trade and Technology Council (TTC) is a case in point. Within the TTC, they have established a working group on 'Technology Standards' in order to boost cooperation and establish standards based on joint values. The importance of current and future standards was highlighted in one of the TTC joint statement, which included 44 references to standards and 11 to 6G[1]. Despite the rising importance of China, European and American companies remain the main engine behind new technological standards. For instance, even though Chinese companies in the 3rd Generation Partnership Project (3GPP) – a standards organisation that develops protocols for mobile telecommunication – made up for 15 percent of the total membership in 2022, companies from the EU and the U.S. still represent 28 and 21 percent of the total[2].

However, there are clear geopolitical challenges associated with China's rise in the world of standards, particularly in terms of the attempts to subject standards to stronger political control. In response to the risks posed by China's public policy choices and its growing technological prowess, the EU published its new Standardisation Strategy in 2022. The strategy takes a

[1] EU-U.S. Joint Statement of the Trade and Technology Council. 16 May 2022. Paris-Saclay, France.

[2] ETSI (2023). 3GPP Membership. Retrieved from https://webapp.etsi.org/3gppmembership. Original data has been adjusted to avoid double-counting subsidiaries belonging to the same company. The country of origin for each company refers to the country's parent company headquarters.

rather defensive stance on technical standards, leveraging European standards and European Standardisation Organisations (ESOs) to further Europe's industrial and technological interest. The most radical aspect of the strategy is a regulatory change by which it grants National Standardisation Organisations (NSOs) the last word in the acceptance of standardisation requests, and the adoption, revision, and withdrawal of European standards.

The EU goal is to continue to play a crucial role in the development of technical standards. However, the new EU's Standardisation Strategy weakens rather than strengthens Europe's hand in the race for global technical standards. At the core of the strategy lies the presumption that the decision-making process in ESOs allows for an undue influence of non-EU multinationals. The EU Standardisation Strategy acknowledges that cooperation with non-EU companies is welcome, but the European Commission wants to limit this cooperation. In its own words "European standards, which support EU policy and legislation, must be decided by European players[3]". However, limiting the role or excluding some companies from the standardisation process will not make EU standards stronger. The success of the EU standard-setting system is partly due to its openness which allows a wide-range of experts to collaborate in pursuit of the best solutions to the benefit of consumers, innovation and the EU as a whole.

Instead, limiting the role of non-EU companies is likely to lead to the fragmentation of technical standards, without making the EU a more prominent player at the global level. Firms volunteer to participate in the development of European standards which also encourages them to adopt the approved standards later. Discriminating against some companies in the EU standardisation process might push them in the opposite direction: to develop their own standards, or to adopt standards from other countries. This will contribute to technological fragmentation and as a result it forgoes the significant benefits of having global technical standards.

The changes in the governance of ESOs introduced by the new EU's Standardisation Strategy risk altering a system that has delivered significant economic benefits for the EU and the world. Unfortunately, the European Commission does not acknowledge these potential risks. Yet, they are difficult to miss. In sectors such as Information and Communication Technologies (ICT), standards have contributed to market specialisation and innovation. Moreover, many of the standards used worldwide in the ICT sectors have been written by ESOs. If the effectiveness of ESOs is weakened as a result of the regulatory changes included in the strategy, technical standards will be weakened too. This will undermine the ability of industries such as ICT to deliver technological change and economic growth.

The EU wants European technical standards that can be used globally, produced quickly, and in sectors where the EU wants to have a comparative advantage. At the same time, it wants to preserve the benefits of a market-driven and consensus-based system that has benefited Europe disproportionally. In other words, the EU wants to have its cake and eat it. And that's simply not possible. This policy brief presents some of the trade-offs resulting from the policy choices included in the new EU Standardisation Strategy.

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[3] European Commission (2022). New approach to enable global leadership of EU standards promoting values and a resilient, green and digital Single Market. Press Release.

Yet, to fully grasp the potential consequences of the new EU Standardisation Strategy on the EU economy, it is necessary to define what a standard is and explain the economic effects that make them key ingredients in well-functioning markets (Chapter 2). Standards have real impacts across multiple economic sectors and are associated with industries that are hosts to a diverse ecosystem of companies and enjoy a large degree of specialisation. The European ICT sector, as a substantial user and contributor to market-driven standards, is taken as an example of the impact of technical standards (Chapter 3).

Moreover, the European technical standards that shape markets and support innovation are not designed in a vacuum. They are the result of complex interactions between governments and private firms that cooperate within European and national standardisation bodies. More importantly, these interactions are codified in a system of rules that form the governance of the ESOs. Firms play a vital role in this process, since they loan their expertise to the ESO and use these bodies as a room for discussion until the technical standard is agreed. In this process, technical standards need to pass through several milestones where NSOs cast their votes to grant approval (Chapter 4). The economic impact of standards and the complexity of their elaboration not only highlight their importance but inform us about the potential impact of the new Standardisation Strategy on the governance of ESOs and the EU economy. The proposed changes could lead to the fragmentation of standards, lower levels of innovation and competition, and even slowing down the development of European technical standards (Chapter 5).

2. WHY STANDARDS MATTER

In very general terms, a standard can be defined as "a formula that describes the best way of doing something"[4]. Standards harmonise products and processes to ensure compatibility among inputs or intermediate products, raise the quality of outputs, and offer a platform for further innovation. A significant part of the standards produced by ESOs comprises technical standards. These kind of standards are documents that provide requirements or specifications to ensure products and processes are fit for their purpose[5].

It is important to note that standards and technical standards in particular are different from regulations. While compliance with technical standards is voluntary, compliance with regulation is mandatory by law. However, governments also have the power to make a technical standard obligatory by referencing the standard in a law or regulation. In the EU, for instance, ESOs have the power to produce technical standards at the request of the European Commission, and these standards are often referenced in EU regulation. For this reason, at least in the EU, the terms 'standards' and 'regulations' are sometimes used interchangeably.

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[4] ISO (2022). Standards. Retrieved from https://www.iso.org/standards.html#:~:text=ISO%20standards%20are%20internationally%20agreed,a%20huge%20range%20of%20activities.

[5] This definition of technical standards is a simplified version of the ISO definition which define a technical standard as a "a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose." National Science Board (2018). Retrieved from: https://www.nsf.gov/statistics/2018/nsb20181/assets/1178/technical-standards-invention-innovation-and-economic-growth.pdf

Technical standards matter because they bring with them different economic effects. Most often, the economic effects of technical standards relate to their objective to achieve compatibility. This compatibility enables 'network effects' where firms and consumers prefer to choose a system that is widely used by others. These network effects incentivise suppliers to conform with the prevailing standard, find their position in the supply chain, and increase product specialisation, making the market larger. Technical standards, thus, shape the industry structure and support innovation.

Some technical standards however go beyond merely allowing compatibility and help companies develop technical solutions that move the technological frontier forward. Once interoperability is achieved, companies continue working on developing standards which help the industry to provide new innovations that were not available under the previous standards. In cellular standards, for instance, interoperability was achieved in 3G but the industry has continued working to achieve other capabilities in subsequent standards (4G, 5G) that enable innovative technologies, such as self-driving cars and the Internet of Things (IoT), that were not possible under the earlier standards.

These economic features are what make technical standards relevant in a modern economy. The relation between technical standards, network effects and innovation may feel relatively abstract, but it comes to life when seen through the lenses of the economic sectors where standards are more prevalent. For instance, through the emergence of Global Value Chains (GVCs) across industries like ICT where the number and importance of market-driven standards have grown accordingly. For that reason, it is important to show how the economic effects of technical standards manifest and influence the development of specific industries.

BOX 1: HOW TO SET A GOOD STANDARD

A technical standard can be set by the government, a leading firm, or by consensus among market participants. Each system has its pros and cons.

1. Proprietary standards

A proprietary standard is controlled by a single firm, or a small group of firms, which has the power to decide when and how the standard changes. For example, the iPhone operating system iOS is a proprietary standard owned by Apple. Proprietary standards have the power to become the de facto standard for the industry when the firm(s) owning the standard enjoys market power over that industry. The most fundamental advantage of proprietary standards is speed. This is because a single firm can take a swift decision about the direction of a standard and change it without consultation.

However, proprietary standards also have drawbacks. First, they are more likely to lead to standards wars, which can be inefficient. Even though multiple standards can bring competition of standards which should results in the best standard coming on top, when

network effects become important, standard wars can lead to fewer incentives to join and contribute. Second, a firm sponsoring a proprietary standard, particularly when it becomes a de facto standard, may have weaker incentives for radical innovation because it replaces itself rather than replacing a rival. In fact, a company owning the technical standard may use its superior knowledge of the standard to displace suppliers of complementary products and deter innovation in the ecosystem.

Therefore, proprietary standards can lead to uncompetitive market structures that could harm competition. The incentives brought by proprietary standards and the advantages enjoyed by the firm owning the standard tend to support markets which are more vertical integrated than otherwise.

2. Government set standards

A technical standard is set by the government when it plays a central role in the standard development process. In the age of analogue TV, for instance, standards were mostly determined by governments. In principle, government standards can provide a strong steer towards a single standard, avoiding the inefficiencies of multiple standards, and select the optimal standard as governments do not have incentives to promote a standard that leads to an inferior technology.

However, government standards may favour particular domestic firms, which may lead to monopolies and geographic fragmentation across national or regional borders. Governments may also pick the wrong standards because they lack the technical expertise or ignore commercial considerations. Moreover, as a result of the lack of technical expertise, technical standards set by governments tend to develop slowly.

3. Market-driven and consensus-oriented set standards

Standards can also be developed by standardisation bodies through an open, consensus-based, and industry-led process. These standards are industry-led in the sense that their development is driven by industry participants, but governments are also active participants in this process. The EU system to develop technical standards falls in this category. They are voluntary in the sense that firms agree on a process for collaborating in developing, establishing, and adopting standards, and they are open since everyone can participate in the development and implementation of the technical standard.

3. THE VALUE OF EUROPEAN STANDARDS

The European way of developing technical standards is market-driven and based on consensus. Market-driven standards enable markets to develop in a very specific way, allowing for market specialisation which has positive effects on innovation. Thanks to standards, companies can specialise in what they do best and invest in innovation because they can rely on a system of compatible solutions protected by Intellectual Property (IP).

The arguments that relate the use of market-driven and consensus-based standards with a diverse industry structure, and higher levels of market specialisation and innovation are not just theoretical. This chapter presents the ICT sector as a way to illustrate the power of technical standards to achieve these outcomes. Other economic sectors are also users of standards, either market-driven or proprietary standards, but several studies have pointed out that the growth of ICT and technical standards have gone hand-in-hand[6]. Moreover, ESOs have played a fundamental role in the development of these technical standards, many of which are widely used beyond the EU and have become global standards (See Box 3).

The subsequent analysis uses publicly available data to compare the performance of the EU ICT sector against similar sectors along three dimensions: market structure, market specialisation, and Research and Development (R&D) spending. The ICT sector is chosen because, as one of the largest users of market-driven standards, it epitomises how technical standards enable an industry to grow, remain open, and specialise so thousands of companies can work together and innovate.

3.1 Technical Standards and Market Specialisation

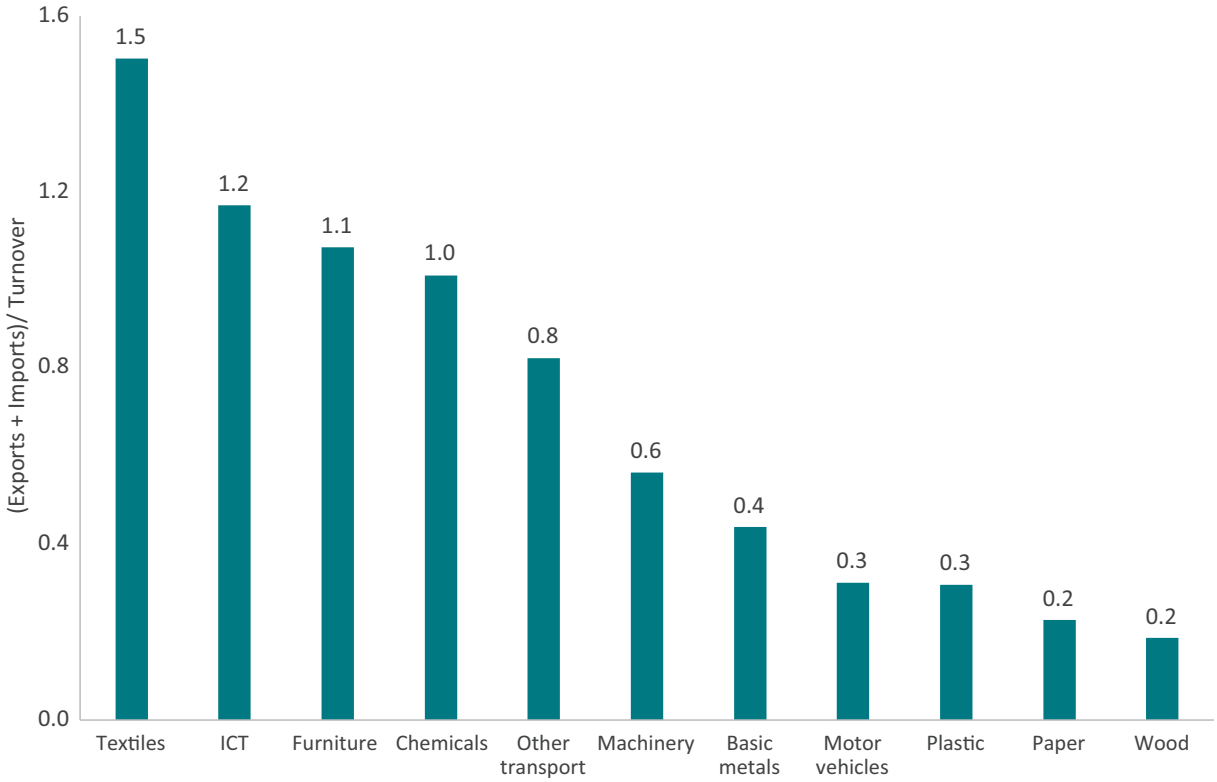
Technical standards have clear benefits for firms that sell standard-compliant products. When a company sells products that conform with global standards, it can access a larger market of consumers. And by facilitating the entry of new firms and the access of consumers, internationally-recognised technical standards support the expansion of companies' business regionally and globally. For example, 5G technical standards in the cellular industry allow companies to sell the same product across countries, without having to make adjustments, because 5G phones will work all over the world.

Empirical data confirms the benefits that the conformity to global standards provide to companies. The figure below presents trade in several European manufacturing sectors as a percentage of their respective turnover. The data shows that manufacturing sectors that rely extensively on standards, like the ICT manufacturing sector, have a higher level of openness, than other sectors where the use of standards is not prevalent. This higher level of openness, measured as the sum of imports and exports as a proportion of turnover, is not due to low levels of turnover in the ICT manufacturing sector, since they were similar to sectors like chemicals or other transport equipment, but because ICT manufacturing is global and therefore it enjoys higher levels of

[6] Schmidt & Steingress (2019).

imports and exports than other European industrial sectors – thanks to, among other things, the role of technical standards.

FIGURE 1: EXPORTS AND IMPORTS OVER TOTAL TURNOVER ACROSS EUROPEAN ECONOMIC SECTORS IN 2019



Source: Eurostat. Author's calculations.

3.2 Standards and Market Structures

By increasing the size of the market, technical standards enable a richer and more vibrant ecosystem of companies. Most innovations provide value to consumers when they are incorporated into a product – usually but not always into a physical product. Selling a product that incorporates an innovation is an obvious way for the innovator to be rewarded for his or her efforts. However, it is not the only way. If the innovation itself can be traded – through technology licensing – then innovators do not also need to be manufacturers.

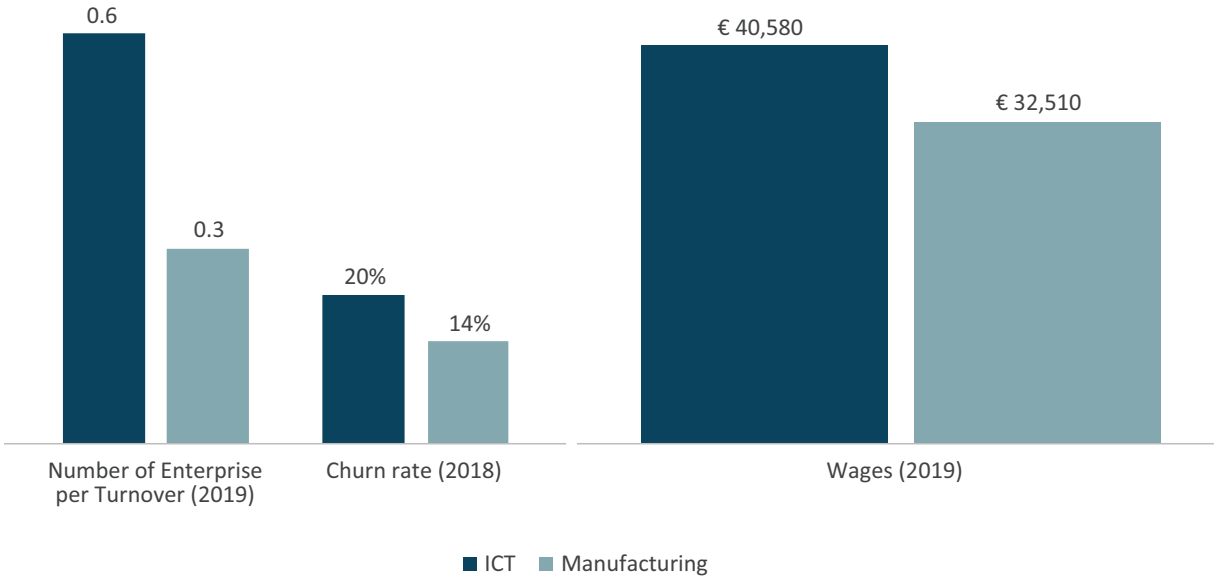
Industry structure will be fundamentally different if innovators typically produce and sell their own products than if they licence the technology underlying them. In the first case, innovation and production will be based in vertically integrated firms. In the second case, licensing of technology allows a more varied industry structure with competition between innovators in the upstream side of the market. This is the case of companies like Nokia, Siemens, and Ericsson which in their corporate strategies have shifted their focus towards their core activities, producing innovations used by other businesses (like consumer-oriented ICT companies or telecommunication companies). This change in strategy would have been impossible without the widespread use of

standards. These companies are good examples since they had previously developed consumer goods where their innovations were embedded, and standards have enabled them to change their corporate strategy (See Box 2).

In other words, technical standards encourage the creation of markets because thanks to standards, licensing, and IP protection, companies can work at arm's length rather than having to integrate different activities within the firm. For instance, nowadays, a single firm will find it extremely difficult to produce each and every component of a mobile phone. Thanks to technical standards, a producer of cellular technology does not need to master every component and a user does not need to fully understand every technology inserted into its products. As a result, ICT benefits from an increasing division of labour and the development of generic or modular technology. In The Wealth of Nations, Adam Smith wrote "the division of labour is limited by the extent of the market". In the case of ICT, technical standards not only allow the market to expand globally but also shape it in a way that encourages higher labour specialisation.

The impact of standards on market structures can be noticed in the business statistics. For example, the European ICT industry, where the use of standards is prevalent, has a larger number of firms per turnover and a higher level of wages than the average manufacturing sectors. Moreover, the European ICT sector is competitive and dynamic. The rate of creative destruction or churn rate – measured as the proportion of companies entering and exiting the sector – is much larger in ICT than in other manufacturing sectors. This is because technical standards, as publicly available and easily accessible documents that describe the technical specification of a product, lower information costs reducing the barriers to entry for new firms into an industry.

FIGURE 2: NUMBER OF COMPANIES OVER TURNOVER, CHURN RATES, AND WAGES IN EUROS FOR EUROPEAN ICT AND MANUFACTURING



Source: Eurostat. Author's calculations.

BOX 2: SIEMENS, NOKIA AND ERICSSON, FROM BEING VERTICALLY INTEGRATED TO SPECIALISE IN CORE ACTIVITIES

The effects of standards can be seen in the European ICT sector. Companies like Siemens, Nokia, and Ericsson have shifted their focus from mobiles phones to other goods or services that they can sell to other ICT companies without having to reach consumers.

Nokia has been in the cables and telecommunications sectors for a long time but rapid success in the mobile phone sector in the 1990s allowed Nokia to become the best-selling mobile phone brand in the world by 1998. In 2011, however, Nokia began to face increasing competition from iOS and Android operating systems and entered a strategic partnership with Microsoft. Unable to keep up, in 2014 Nokia sold its mobile and devices division to Microsoft. Instead, it focused on transforming into primarily a network hardware and software provider with the creation of Nokia Networks[1].

Similarly, Siemens made its first mobile phone in 1988 and in 2002, it was the No. 4 maker of mobile phones, with 9 percent of global market share. Its position slipped rapidly however, in 2005 to No. 6, and it was forecasted that Siemens would record a loss of €500 million in its mobile phone business during that year. In order to cut future losses, Siemens sold its mobile phone division to the Asian rival BenQ to focus instead on specialising in its area of expertise[2].

To face tougher competition, Ericsson and Sony merged their handsets divisions in 2001 and the joint company had a significant market share before the smart-phone market took off. It saw the pace of growth in subscriptions to mobile service slackening and Ericsson decided to focus on introducing a new array of next-generation digital services[3]. Currently, these services include 5G, cloud solutions, and IoT. Ericsson is working with some of the largest mobile operators to deliver 5G[4].

[1] Nokia. Our History. Retrieved from https://www.nokia.com/about-us/company/our-history/
[2] O'Brien (2005). Asian Rival takes over Siemen's cellphones. NY Times. Retrieved from https://www.nytimes.com/2005/06/08/technology/asian-rival-takes-over-siemens-cellphones.html
[3] Kapner (2001). Ericsson plans to stop manufacturing mobile phones. NY Times. Retrieved from https://www.nytimes.com/2001/01/26/business/ericsson-plans-to-stop-manufacturing-mobile-phones.html
[4] Ericsson. About Us. Retrieved from https://www.ericsson.com/en/about-us/history/shaping-history#:~:text=Humble%20beginnings,and%20install%20the%20new%20invention.

3.3 Standards and Innovation

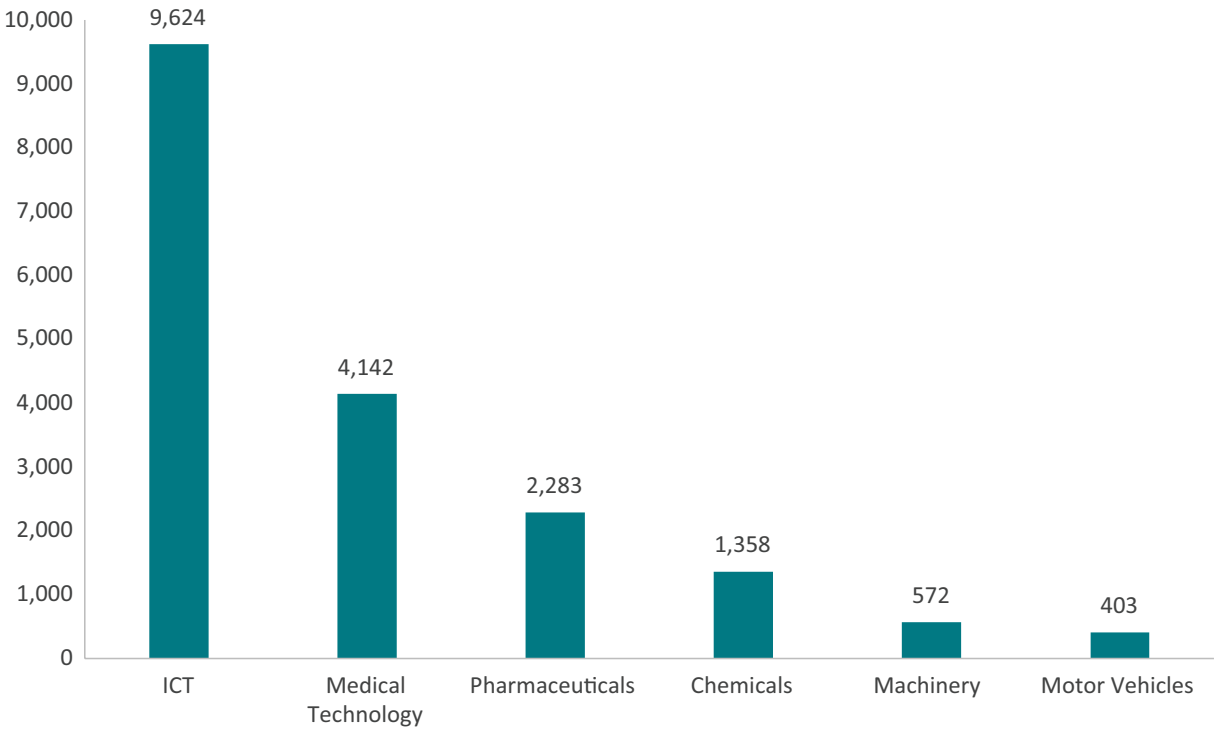
A crucial benefit of a market-driven and consensus-based standards system is that it encourages innovation. As shown in Box 2 and explained previously, companies can specialise in what they do best because they rely on a system of standards and IP which enables firms to license their technologies without having to develop the final product that reaches the final consumer. A critical by-product of this system is the emergence of more specialised R&D firms. This kind of

company emerges because innovations can be licensed, and their technologies can be applied to many downstream firms and products. A larger demand for innovation is a powerful incentive for researchers and engineers to innovate and standardisation bodies offer a platform to ensure that the agreed solution is compatible with other systems.

Moreover, since standards allow for a larger market, they also contribute to a richer eco-system of producers and users of related goods and services which supports higher levels of R&D spending. While it is true that companies like Microsoft and Apple – owners of proprietary standards – are highly innovative, an ecosystem supported by voluntary technical standards also sustains substantial amounts of aggregate R&D spending – that is, R&D spending by the entire ecosystem. Indeed, empirical data shows that there is a positive correlation between the pace of technology deployment and market structures, with quicker deployment being associated with more competitive markets[7].

Standards can therefore result in higher levels of R&D and innovation. This is reflected in the large number of patent applications in the ICT sector compared to other manufacturing sectors over the years. In 2018, the ICT sector was the leader in patent applications to the European Patent Office (EPO) with more than nine thousand patents filed. The following sector, medical technologies, filed less than half of those by the ICT sector. Pharmaceuticals, chemicals, machinery, and motor vehicles had considerably lower numbers despite being innovation driven sectors.

FIGURE 3: PATENTS APPLICATIONS TO THE EPO BY SECTOR (2018)

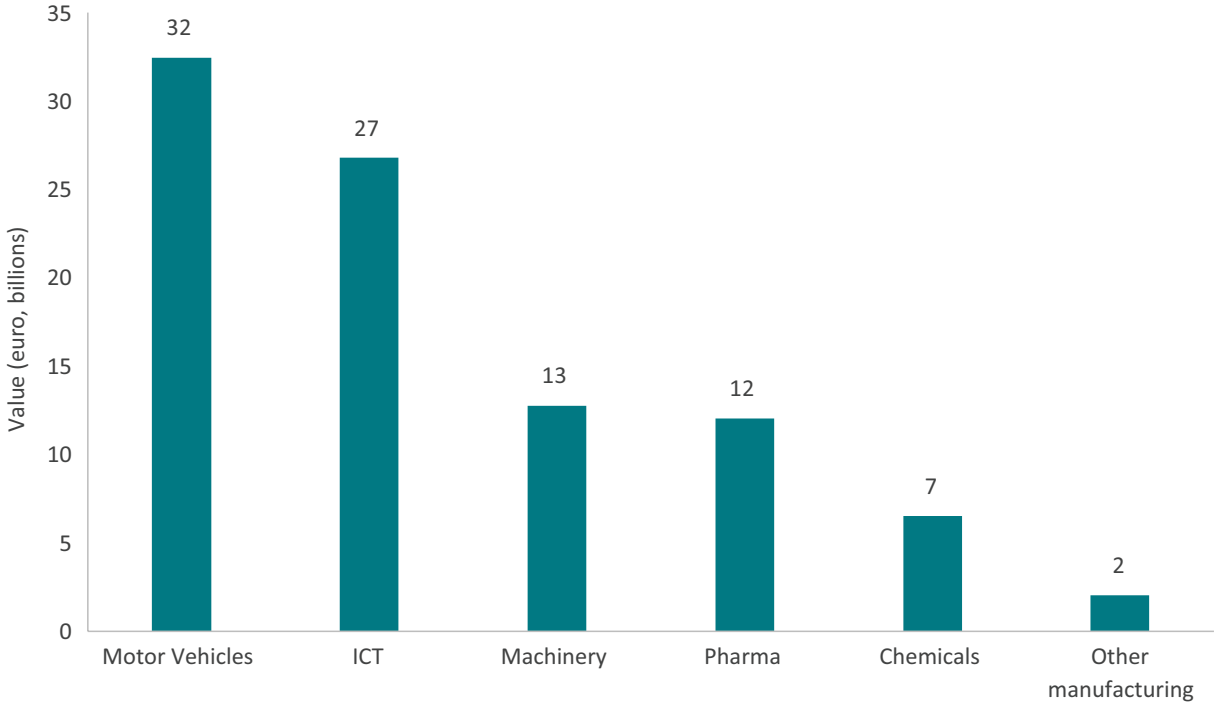


Source: OECD Data, Author's calculations

[7] Shelanski (2000).

Higher IP activity generally comes as a result of a larger spending in R&D. The European ICT sector spent in R&D almost as much as the powerful motor vehicles sectors. In fact, ICT was the sector with the highest R&D spending in all EU countries but Belgium, Denmark, Germany and Romania, where it was the second highest. There are multiple factors explaining the significant investments in R&D in the ICT sector, but technical standards are an important one as they help to shape a market structure conducive to R&D and innovation.

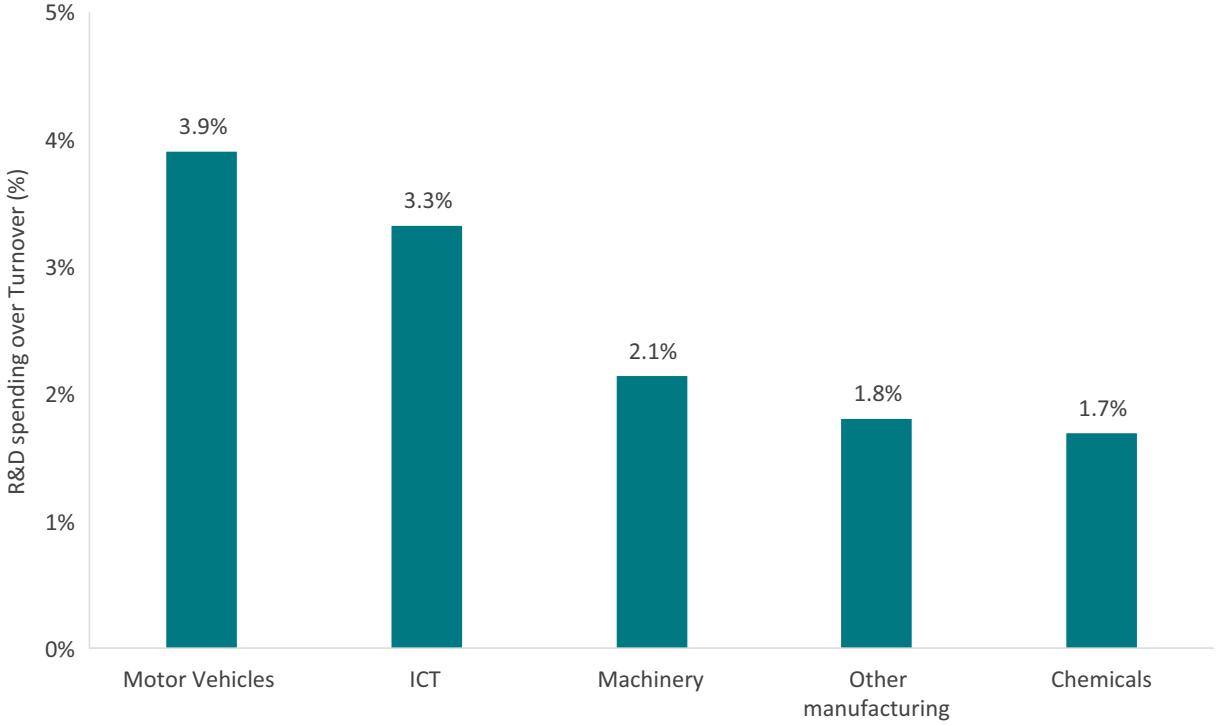
FIGURE 4: BUSINESS SPENDING ON R&D ACROSS EUROPEAN ECONOMIC SECTORS IN 2019



Source: Eurostat, Author's Calculations. France, Estonia, Cyprus, Latvia, Lithuania, Luxembourg, Netherlands, Poland, Slovakia, Sweden not included due to missing data.

The ratio of business spending on R&D over turnover helps us understand the relative effort made by each sector to push the technological frontier. Figure 5 below shows a relative ranking of sectors similar to the previous graph. Motor vehicles and ICT are not only two of the sectors with the largest spending on R&D (see Figure 4) but also the two economic activities with the highest spending on R&D over their total turnover. Despite this similarity, motor vehicles and ICT have markedly different industry structures. Motor vehicles is a relative integrated sector with suppliers selling mostly to one car manufacturer. The ICT sector is characterised by compatibility and a market for technology which supports a diverse ecosystem of companies with multiple business relationships. And while R&D in motor vehicles was boosted by the significant spending done in Germany, mostly by the large car manufacturers, R&D by the ICT industry was one of the highest across all member states. Technical standards can partly explain this outcome: because standards reduce information costs and trade barriers, they support a more uniform distribution of R&D activities in which firms, across all EU member states, can participate.

FIGURE 5: BUSINESS SPENDING ON R&D OVER TOTAL TURNOVER BY EUROPEAN ECONOMIC SECTORS IN 2019



Source: Eurostat, Author's calculations. Bulgaria, Estonia, France, Cyprus, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Sweden not included due to missing data. The Pharmaceutical industry was not included due to missing data.

Market-driven and consensus-based standards do not come out of thin air. They are developed in standardisation bodies across the world. In the case of European technical standards, national and European public entities and firms interact to develop these standards. These rules are as important as the economic effects of standards. Without a system of governance that incentivise companies to participate in the standardisation process, there will be no market-driven and consensus-based standards. The next chapter describes the rules and the governance behind European standards.

4. THE EUROPEAN STANDARDISATION SYSTEM

There is something special about European technical standards and how they are set as compared to other regions and countries. European standards are developed and maintained by European standardisation bodies which are participated by EU and non-EU companies. These companies offer their time and expertise to find, as members of one of the committees at the European Standardisation Organisations (ESOs), the best technical solution to a problem which is later written down as a technical standard. These committees are open to all industry participants and the adoption of the agreed standard is voluntary. Crucially, the decision-making process or governance to agree on a standard is typified by a number of rules that encourage consensus.

In the new EU Standardisation Strategy, the European Commission raised concerns about the governance of ESOs. The strategy claims that, given the wide range of stakeholders involved in the standard setting process, including those from non-EU countries, there is potential for gamesmanship. As mentioned, the European Commission is concerned that some non-EU multinationals have acquired too much power within ESOs and therefore influence over European standards. Therefore, before evaluating this claim, it is important to understand the governance of the EU standardisation system. For a more detailed explanation, Annex I presents additional information on the EU standardisation system.

There are three ESOs: European Committee for Standardisation (CEN) with 34 members consisting of National Standardisation Organisations (NSOs) from across the European continent; the European Committee for Electrotechnical Standardisation (CENELEC) also with 34 members consisting of National Electrotechnical Committees; and the European Telecommunications Standardisation Institute (ETSI) with over 900 members across 65 countries and 5 continents, although slightly more half of ETSI's members are from the EU[8]. These three private organisations are the only bodies eligible to work on standardisation requests issued by the European Commission.

CEN and CENELEC share a similar governance structure and decision-making system. Approximately 30 percent of CEN/CENELEC standards are developed in response to the European Commission requests. This specific subset of standards that ensures products and services comply with EU regulation is referred to as Harmonised Standards (HS)[9]. To approve a standardisation request, there should be both a simple majority of members in favour in addition to 71 percent (in the case of CENELEC) and 65 percent (in the case of CEN) or more of weighted votes cast in favour. The weighted vote was introduced to ensure that small countries do not out-vote larger populations. The weights follow the same system as in the Council of the EU: countries with the highest populations have 29 votes, medium-sized populations are weighted between 14-7 votes, and the smallest countries have 3 or 4 votes.

Once a new work item is agreed, the Technical Body secretariat produces a working document that is circulated for comments. National members are encouraged to study the text and submit questions. The Technical Body – supported by the working groups where private companies provide their inputs – takes national member's comments into account and finalises the working document. Once consensus is reached, the text is sent by the Technical Committee secretariat to the CEN-CENELEC Management Centre (CCMC) and distributed to the ESO's members for public comment as a draft standard.

Approval of the final draft of a standard takes place during an eight-week voting period by the ESO's members. The same voting procedure described before is applied and negative votes must include a justification. If the vote is positive, the Technical Body notes the approval of the standard,

[8] ETSI (2023). ETSI Membership. Retrieved from https://www.etsi.org/membership. Original data has been adjusted to avoid double-counting subsidiaries belonging to the same company. The country of origin for each company refers to the country's parent company headquarters.

[9] Harmonised Standards are a subset of European standards that ensures products and services comply with EU regulation. The regulatory changes introduced in the EU new Standardisation Strategy refer to Harmonised Standards. For simplicity, the terms Harmonised Standard and European standards are used interchangeably in the main text. Annex I explains the differences between both terms and their approval process within ESOs.

establishes a target date of availability and agrees to the dates for national implementation. Implementation of the CEN and CENELEC developed standards means the standard is given the status of a national standard and conflicting national standards are withdrawn.

ETSI standardisation work includes other activities apart from developing Harmonised Standards requested by the European Commission. In fact, only 15 to 20 percent of ETSI's funding comes from the EU[10]. Yet, when it comes to developing Harmonised Standards, ETSI follows a similar pattern of drafting, public enquiry, voting, and implementation than CEN and CENELEC. However, there are some important differences. A new work item should be proposed by four or more full and/or associate members. Full members participate in the Technical Body work and have the right to vote, while associate members cannot vote on European standards. Taking decisions "on matters concerning documents intended for regulatory use by the European Union" and "setting down standardisation policies intended to meet the needs of the European Union" is subject to the approval of a weighted vote of all full members, not only EEA national standardisation organisation[11] as it is the case in CEN and CENELEC.

Following the adoption of the new work item, the Technical Body first tries to reach consensus on the approval of a draft Harmonised Standard. If this cannot be achieved, the Technical Body calls for an anonymous vote. In this vote, at least 71 percent of the Technical Body members must vote in favour to approve the draft. If not, a second count of only full members is done. When the vote to adopt or withdraw a draft Harmonised Standard has taken place, a separate counting of the votes of the EU and EFTA NSOs takes place. The result of this separate counting determines whether or not the standard shall be adopted (or withdrawn) in the EU and EFTA countries. If approved, the standard is submitted to the NSOs to begin its approval process. NSOs have to undertake public consultations of the draft standard before taking a decision on whether to support or reject the draft standard. ETSI members – including EU NSOs – are encouraged to promote ETSI standards in other organisations such as the International Telecommunication Union (ITU), which further supports its dissemination worldwide (See Box 3).

As a summary, the process to develop a standard can be understood as a public-private partnership in which companies offer their expertise and time in exchange for the endorsement of the agreed standard by ESOs and NSOs. The approved standard can be referenced by national governments and the EU in their regulations which reinforces the popularity of the technical standard and boosts the positive economic effect associated with its used. In this process, NSOs and ESOs are not bystanders but play a crucial role. In the case of CEN and CENELEC, NSOs have the final vote to approve a standardisation request and the final standard. Moreover, throughout the course of the process, the system has in-built safeguards for NSOs to provide direct input into the development of the standard. In the case of ETSI, safeguards for European NSO are not as prevalent as for the other two ESOs. For instance, the approval of a standardisation request is voted by all members, not just by European NSOs. However, safeguards do exist and the final approval of a Harmonised Standard in ETSI can only be done after a positive vote of EEA NSOs. Moreover, while ETSI membership is international, half of the participating companies are

[10] ETSI (2023). Retrieved from: https://www.etsi.org/about

[11] ETSI Directives, 21 December 2021, pg. 114.

European. For example, only 16 Chinese companies are members of ETSI representing 2 percent of ETSI's total membership.

BOX 3: ETSI STANDARDS THAT BECAME GLOBAL STANDARDS

Several ETSI standards have been adopted as global standards by industry and international standard setting organisations. For instance, in the late 1980s, ETSI created specifications for the first Subscriber Identity Modules (SIMs) card which was later adopted globally. Under different technical committees ETSI has continued this work, maintaining and upgrading the technical specification for this technology which can be found not just in mobile telecommunication but also in credit and identity cards.

ETSI standards on Broadband Wireless Systems are also ubiquitous. ETSI has several technical committees active in this field. Among them, the Technical Committee on EMC & Radio Spectrum Matters responsible for the Harmonised Standard covering Radio LANs or Wireless LANs is widely used for demonstrating the conformity of Wi-Fi, and similar licence-exempt data communications equipment[1].

Given the advent of IoT and possible security risks to consumers, governments have been introducing cyber laws which will protect their citizens. ETSI released the technical standard 303 645, designed to prevent large scale attacks against smart devices[2]. This standard has become a reference for securing IoT devices all over the world and is already found in several cybersecurity regulations[3]. This standard is also being adapted into pending domestic legislation, including Part 1 of The Product Security and Telecommunications Infrastructure Bill (PSTI) introduced in the UK[4], and a similar bill which is currently in the legislative process in Australia[5].

[1] ETSI. Broadband Wireless Access. Retrieved from https://www.etsi.org/technologies/broadband-wireless-access

[2] Sophia Antipolis (2021). ETSI releases test specification to comply with world-leading Consumer IoT Security standard. ETSI. Retrieved from https://www.etsi.org/newsroom/press-releases/1983-2021-10-etsi-releases-test-specification-to-comply-with-world-leading-consumer-iot-security-standard

[3] ETSI. Consumer IoT Security. Retrieved from https://www.etsi.org/technologies/consumer-iot-security?highlight=WyJpb3QiLCJzZWN1cml0eSIsIidzZWN1cml0eSIsIidzZWN1cml0eScsIiwic2VjdXJpdHknLCIsInN0YW5kYXJkcyIsInN0YW5kYXJkcyciLCInc3RhbmRhcmRzIiwiJ3N0YW5kYXJkcyciLCJzdGFuZGFyZHMnLCIsInN0YW5kYXJkcyculiwiaW90IHNlY3VyaXR5IiwiaW90IHNlY3VyaXR5IHN0YW5kYXJkcyIsInNlY3VyaXR5IHN0YW5kYXJkcyJd

[4] UK Parliament (2022). Product Security and Telecommunications Infrastructure Act 2022. Parliament Bills. Retrieved from https://bills.parliament.uk/bills/3069

[5] Justin Hendry (2022). Gov pledges to mandate IoT cyber security standards. IoT Hub. Retrieved from https://www.iothub.com.au/news/gov-pledges-to-mandate-iot-cyber-security-standards-579966

5. AN ASSESSMENT OF THE EUROPEAN STANDARDISATION STRATEGY

The new Standardisation Strategy will give the EU more control over the process behind European standards. The strategy includes some good ideas. Among them, improvements in the European Commission's own decision-making process with respect to the prioritisation of its own requests; identification of gaps on the technical expertise required to continue the standardisation development work; and the building of bridges between EU research and standardisation initiatives by identifying future standardisation opportunities.

On the other hand, the regulatory changes announced in the strategy will alter the way ESOs, particularly ETSI, operate with potential implications for the industries using these standards. Unfortunately, the European Commission does not sufficiently acknowledge these unintended consequences, nor does it attempt to understand or quantify them. The proposal for the regulatory changes that accompanies the EU Standardisation Strategy does not include any impact assessment as the European Commission argues that the proposed changes are just administrative adjustments over governance and therefore there is no need for it. However, as shown previously, standards have a direct relation with market structures and innovation.

This section provides an assessment of some of the most salient regulatory changes included in the strategy and their potential consequences for the EU.

5.1 Changes in the Decision-Making System in European Standardisation Bodies

The European Commission believes that the process governing the way CEN, CENELEC, and ETSI take decisions over EU standards allows for an uneven voting power that favours non-EU multinationals. The EU Commission, therefore, wants to limit this cooperation – in particular with regards to the acceptance of standardisation requests, and the adoption, revision, or withdrawal of European standards – so key decisions are taken by EU and EEA national standardisation bodies[12]. The new regulation presented in the EU Standardisation Strategy, bestows the power over European standards to NSOs to "avoid any undue influence of actors from outside the EU and EEA"[13].

The governance of CEN and CENELEC is not likely to change much as a result of these regulatory changes since NSOs already hold the key – through voting – to each of the milestones that a standard has to pass before it is approved. The situation is different in the case of ETSI. As explained, even if European NSOs have the final say over the adoption of Harmonised Standards,

[12] Paragraph 2a of the amended regulation "'2a. Each European standardisation organisation shall ensure that the following decisions concerning European standards and European standardisation deliverables referred to in paragraph 1 are taken exclusively by representatives of the national standardisation bodies within the competent decision-making body of that organisation: (a) decisions on the acceptance, refusal and execution of standardisation requests; (b) decisions on the acceptance of new work items; (c) decisions on the adoption, revision and withdrawal of European standards or European standardisation deliverables."

[13] European Commission (2022). New approach to enable global leadership of EU standards promoting values and a resilient, green and digital Single Market. Press Release.

the green line over a standardisation request – including a Harmonised Standard requested by the European Commission – is done by all ETSI's members not just by the European NSOs. This is partly the result of ETSI's own success. ETSI's membership and reach is global rather than European as many of the standards approved by this ESO are adopted worldwide (See Box 3). Moreover, ETSI standards are a crucial part of the architecture that underpins the ICT sector and the economic features described earlier. These considerations are important since the regulatory changes approved in the governance of ESOs could have negative consequences over the EU economy and the role played by ETSI over global standards.

Consequence 1: National debates undermining the global reach of European technical standards

Giving more responsibility to NSOs risks turning a European discussion into a national one. At the moment, the bulk of the standardisation work is done at the level of ESOs. However, because of the legislative changes introduced in the new Standardisation Strategy, NSOs will become the representatives of their respective national interest. As a result, the strategy risk substituting a European discussion by 30 (EU and EEA) national debates plus an additional one at the relevant ESO.

There is also a risk that the legislative revisions will undermine the ability of small companies to contribute to the EU standardisation process. As mentioned earlier, the development of European technical standards is supported by the work of private companies in the technical committees. If the new system is approved, private companies – EU and non-EU companies alike – will have to provide their input to NSOs prior to any vote at the ESOs. This will confer an advantage to multinational companies that have the resources needed to cooperate with a larger number of NSOs. In contrast, SMEs are more likely to channel their input into a single or a few national NSOs, losing influence in the European standardisation process.

As a result, national standardisation authorities are likely to receive inputs which lean more heavily towards specific national considerations or considerations advanced by large enterprises. The result will be a move away from merit-driven standardisation process toward a more political discussion within ESOs. This change risks taking away what makes the current system attractive to EU and non-EU companies – and therefore geographically successful – its broad participation. The European approach is a voluntary approach, so companies need to feel comfortable participating in the system. If policies tilt the balance in favour of some businesses or countries over others, European and foreign companies will be less active and might even stop participating in ESOs.

These developments will not make EU standards stronger. Weakening the current market-driven and consensus-based system contributes to the fragmentation of technical standards and as a result forgoes the significant benefits of having global standards. The EU cannot expect to develop regional standards and assume that these standards will have a global reach. It no longer has the economic size to pull such a feat.

Consequence 2: Lower levels of innovation and competition

The current system of market-driven and consensus-based standard setting has enabled markets to develop in a very specific way. It has led to market specialisation and efficiency gains that must not be taken for granted. For example, as it was shown previously, technical standards in ICT have supported the sector to specialise in different niches of the market, generating a vibrant ecosystem of firms producing and using new technologies. The ICT sector has a larger number of companies paying higher wages in a more competitive environment. It also has globally defined markets and produce a higher rate of R&D per turnover than other sectors.

Changing the way standards are set could have implications on these outcomes. If standards become fragmented along national borders, companies will face higher costs, because they will have to adjust their products to fit with regional markets. In addition, companies that participate in the standardisation process will have to multiply their efforts to take part in multiple Standards Development Organisation (SDOs) rather than a single one. These additional trade costs and inefficiencies will divert resources from R&D spending.

Consequence 3: Slowing down the development of technical standards without improving their quality

The EU Standardisation Strategy wants to speed up the creation of standards. It argues that other countries are pushing for their technological solutions through technical standardisation committees faster than ESOs do, gaining a competitive advantage for their companies. Moreover, thanks to a regulatory change presented in the strategy, if European standards come late, or the process is blocked due to lack of consensus inside ESOs, the European Commission will have the power to adopt a technical specification by itself, effectively bypassing ESOs.

The time required to develop a new technical standard is not an option but a feature of the current system which contributes to its success. Technical standards should be sound, effective, and represent the interest of various industry's players. Therefore, it takes a longer time to agree on them as compared to a situation where one party decides on the technical standard alone. The relevant benchmark for the performance of a technical standard is not the time required to agree on its design but how widespread it becomes.

A closer look at the process in which European standards are approved shows that a substantial amount of time is allocated to NSO to provide comments and vote on the proposed standards. In total, 24 weeks are allocated just to these tasks. Giving more say to NSOs over European standards is unlikely to shorten these timescales. This is because not all NSOs have the expertise to comment on every single proposed technical standard. At the moment, smaller NSOs can rely on the comments provided by the larger ones which can afford specialised in-house expertise. The new strategy may force all NSO to adopt a position on a standard, extending rather than shortening the time require to approve it, without improving the quality of the technical standard.

6. POLICY RECOMMENDATIONS

Active participation of non-EU companies in ESOs is a sign of success not a weakness. Moreover, arguments about ESOs, particularly ETSI, being overtaken by foreign firms are grossly exaggerated. As mentioned, half of ETSI's members are European firms with U.S. and Chinese companies representing a much smaller percentage of ETSI's total membership. Yet, if the EU is concerned about the growing role of non-EU companies in ESOs, it does not need to overhaul the governance of the EU's standardisation system which has produced outstanding results for its economy. There are simpler and less harmful solutions that will ease the European Commission's concerns. For instance, the Commission could encourage the participation of European companies in ESOs. This measure will turn up the voice of European companies in the European standard setting process as well as boost the use and improve the quality of European technical standards.

Moreover, more resources can be spent to support R&D for the standardisation process. The EU Standardisation Strategy rightly acknowledges this issue. However, the contrast between policy ideas and reality is striking. In 2020 the EU spent €311 billion on research and development, equal to 2.3 percent of its gross domestic product (GDP), which is far from its target of 3 percent. EU spending on R&D is lower than R&D spending in comparable economies like Japan (3.2 percent) or the U.S. (3.1 percent).

The same can be said about the importance of training on standardisation and the difficulties to recruit technical experts for the standardisation development work identified in the EU's Standardisation Strategy. There is no question that Europe needs the best standardisation expertise. However, if the EU suffers from a lack of experts, discriminating against foreign companies to gain more control of European technical standards is not the right course of action.

7. CONCLUSION

The current market-driven and consensus-based system in which European standards are set bring a significant amount of value to the EU economy. The use of technical standards is associated with more economic dynamism, higher wages, larger markets, growing market specialisation and higher levels of innovation. Still, the EU wants to change the way European standards are set to reduce the influence of non-EU companies, giving more prevalence to European NSOs. These changes, tough well-intended, risk politicising the standard-making process, drowning the voice of SMEs, and endangering the widespread adoption of European technical standards.

The current open, consensus-based, and market-driven system has benefited Europe disproportionally. Changing this system to acquire more political control over how European standards are set in ETSI might discourage companies from providing the technical expertise needed to write the standards and from participating in the system, ultimately lowering the appeal and adoption of European technical standards across the globe. Inadvertently, the new Standardisation Strategy may contribute to the fragmentation of technical standards and, as a

result, to lower levels of innovation and economic prosperity, at the detriment of the EU economy and its consumers.

Instead, an alternative to limiting the role of foreign companies, could be for the EU to encourage the participation of more European companies in European standardisation bodies, so EU interests are adequately represented. Moreover, in order to fully accrue the benefits of standards, more resources could be channelled to R&D in order to support the standardisation process. However, while the EU Standardisation Strategy rightly emphasises the streamline of R&D into early phases of the standardisation process, the share of Europe's GDP spent on R&D has been mostly flat since 2010.

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ANNEX

European Standardisation Bodies

The three European Standardisation Organisations (ESOs), as officially recognised by EU Regulation[14], are the European Committee for Standardisation (CEN); the European Committee for Electrotechnical Standardisation (CENELEC); and the European Telecommunications Standardisation Institute (ETSI). These three private organisations are the only bodies eligible to work on standardisation requests issued by the European Commission. ESOs are responsible for the work schedule and the elaboration of the European draft standards, as well as the final acceptance of European standards.

CEN has 34 members, consisting of National Standardisation Organisations (NSOs) across the European continent. Since its founding in 1961, CEN facilitates standardisation in air and space, chemicals, construction, consumer products, defence and security, energy, the environment, food and animal feed, health and safety, healthcare, ICT, machinery, materials, pressure equipment, services, smart living, transport and packaging. As of December 2021, CEN has produced over 18,000 living documents consisting of over 16,000 European Standards, 580 Technical Specifications, and 486 CEN Workshop Agreements. It currently has 396 Technical Bodies, including 1,619 Working Groups.

Similar to CEN, CENELEC also has 34 members consisting of National Electrotechnical Committees. For smaller European countries, the same NSOs are members of both CEN and CENELEC, but in larger economies such as Austria, Belgium, Finland, France, Germany, Italy and Switzerland, there are separate bodies which specifically focus on the development of national electrotechnical standards. Since its founding in 1973, CENELEC facilitates electrotechnical standardisation, such as electromagnetic compatibility, primary cells and batteries, electrical equipment, lighting, electric vehicles railways, smart grids and metering, and solar electricity systems. In 2021, CENELEC published 506 standards and currently has 7,713 active standards. It consists of 87 Technical Bodies, including 364 Working Groups.

In contrast with CEN and CENELEC, ETSI contains over 900 members across 65 countries and 5 continents. ETSI focuses on standardisation in the telecommunications, broadcasting, and electronic communications and networks and services sectors. It produces European Standards, in addition to ETSI Standards adopted by the body's membership. Given this large membership and geographic spread, ETSI can be considered a de facto international standardisation body. ETSI publishes between 2,000 and 2,500 standards annually and it currently has 30 Technical Committees.

Even though CEN, CENELEC and ETSI produce standards across a diverse range of industries, the three ESOs maintain close working relationships. They share common policy at General

[14] EU Regulation No 1025/2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council

Assembly level and via the CEN-CENELEC-ETSI Joint Presidents Group, and they coordinate between their respective technical work structures, the CEN-CENELEC Management Centre (CCMC) and the ETSI Secretariat.

Decision-Making In the European Standardisation System

CEN and CENELEC share a similar governance structure and decision-making system. The first step in the process to adopt a European standard (EN) is to identify a new work item. Proposals for new work items can come from business, industry, and other stakeholders via CEN and CENELEC members, partners, and liaison organisations. Approximately 30 percent of CEN/CENELEC standards are developed in response to the European Commission requests. This specific subset of ENs that ensures products and services comply with EU regulation is referred to as Harmonised Standards (HS). Proposals for new work items are approved by the ESO's Technical Board chaired by a President or Vice-President.

To approve a standardisation request, there should be both a simple majority of members in favour in addition to 71 percent (in the case of CENELEC) and 65 percent (in the case of CEN) or more of weighted votes cast in favour. The weight follows the same system as in the Council of the EU. EEA countries with the highest populations have 29 votes, medium-sized populations are weighted between 14-7 votes, and the smallest countries have 3 or 4 votes.

Once a new work item is agreed, the Technical Body secretariat produces a working document that is circulated for comments for a minimum of four weeks and a maximum of three months, depending on the subject. National members are encouraged to study the text and submit questions. The Technical Body – supported by the working groups and the Editing Committee – takes the comments into account and finalises the working document. The working groups are where the technical work is done. CEN members appoint industry experts, including individuals acting on a personal capacity from the private sector within the industries where standards are being implemented, to develop and draft future standards.

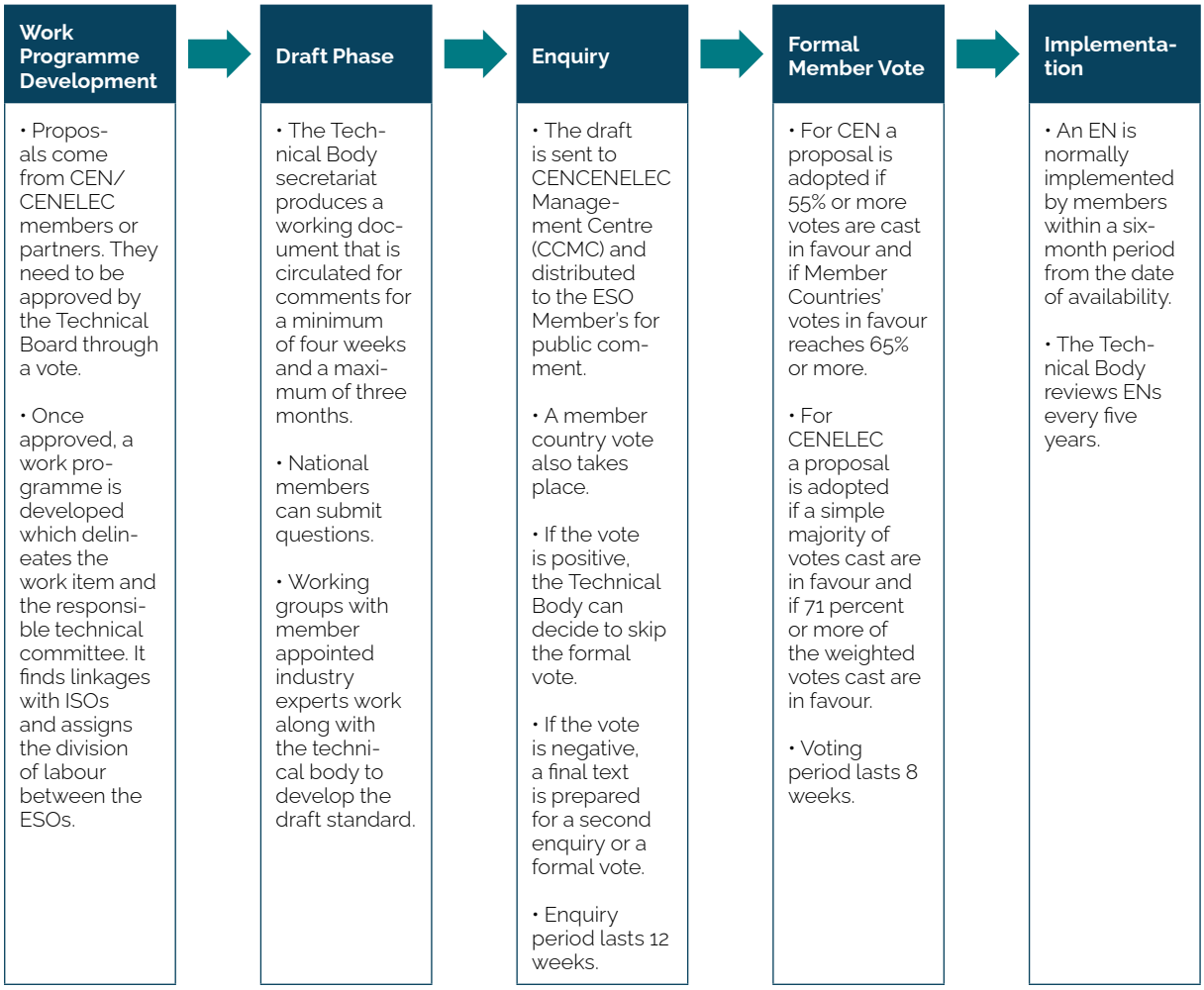
Once consensus is reached, the text is sent by the Technical Committee secretariat to the CEN-CENELEC Management Centre (CCMC) and distributed to the ESO's members for public comment as a draft standard. This is called the CEN/CENELEC Enquiry and lasts 12 weeks. In addition, there is a vote. For CEN a proposal is adopted if 55 percent or more of votes cast are in favour and if the population of the countries of the members voting in favour reaches 65 percent or more of the population of all countries of members which have voted. For CENELEC a proposal is adopted if a simple majority of votes cast (not including abstentions) are in favour and if 71 percent or more of the weighted votes cast (not including abstentions) are in favour. The Enquiry's results (comments received and outcome of the vote) are given to the Technical Body, which analyses and evaluates them and decides on follow up. Finally, the Technical Body may carry out a second Enquiry; if a second Enquiry also ends in no consensus, no further enquiries are allowed and the work item is either abandoned or published as another type of deliverable (i.e., it's downgraded from a standard to a technical specification or technical report).

Approval of the final draft of a standard takes place during an eight-week voting period by the ESO's members. The same voting procedure described in the Enquiry is applied and negative votes must include a justification. If the vote is positive, the Technical Body notes the approval of the EN, establishes a target date of availability and agrees to the dates for national implementation.

An EN is normally implemented by members within a six-month period from the date of availability. Implementation means the EN is given the status of a national standard and conflicting national standards are withdrawn. The Technical Body periodically reviews ENs every five years, although they may be reviewed sooner if requested. Even though national standardisation bodies must adopt the standard, the adoption of the standards by private companies is voluntary.

The figure below summarises the process.

FIGURE 1: CEN AND CENELEC STANDARD-SETTING APPROVAL SYSTEM



The decision-making process in ETSI follows a similar pattern of drafting, public enquiry, voting, and implementation. However, there are some important differences. A new work item is proposed by four or more full and/or associate members. Full members participate in the Technical Body work and have the right to vote, while associate members cannot vote on European standards. Taking decisions "on matters concerning documents intended for regulatory use by the European Union" and "setting down standardisation policies intended to meet the needs of the European Union" is subject to the approval of a weighted vote of all full members, not only full members which are also EEA National Standardisation Organisation[15]. Full or supporting members which are public administrations have an individual vote equal to their contribution, an 11-point scale determined by GDP. For a full or an associate member of any other category, its contribution is determined by the latest published or available figure of its Electronics Communications Related Turnover.

Following the adoption of the new work item, ETSI notifies NSOs and the European Commission so no new standardisation activity which could clash with the new work item is undertaken. The Technical Body first tries to reach consensus on the approval of a draft standard. If this cannot be achieved, the Technical Body calls for an anonymous vote. In this vote, at least 71 percent of the Technical Body members must vote in favour to approve the draft. If not, a second count of only full members is done. If approved, the standard is submitted to the NSOs to begin its approval process.

NSOs have to undertake public consultations of the draft standard before taking a decision on whether to support or reject the draft standard. The weight of each of the 34 countries (the same 34 members which make up CEN and CENELEC) varies. For instance, Germany, the UK, France, and Italy all have 29 votes, whereas Malta, Iceland, Bosnia and Herzegovina, Northern Macedonia, Moldova, and Montenegro all have three[16]. When the vote to adopt or withdraw a draft EN or HS has taken place, a separate counting of the votes of the EU and EFTA countries takes place. The result of this separate counting determines whether or not the standard shall be adopted (or withdrawn) in the EU and EFTA countries.

In the implementation of the new standards, NSOs should withdraw all conflicting national standards and publish the approved EN or HS standard. Moreover, ETSI members should promote ETSI standards in other organisations such as the International Telecommunication Union (ITU). The figure below summarises the process. ETSI standards are freely published and available to the public on their standards library website. The website has over 12 million downloads a year[17].

[15] ETSI Directives, 21 December 2021, pg. 114.

[16] Source: Annex 3 of the ETSI Directives (2022). ETSI, Retrieved from https://portal.etsi.org/Resources/ETSI-Directives

[17] Source: ETSI. Our Expertise. Retrieved from https://www.etsi.org/about/our-expertise

FIGURE 2: ETSI STANDARD-SETTING APPROVAL SYSTEM