Using Standards to reduce Technical Barriers to Digital Trade

UK International Development

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Commonwealth Standards Network

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1. Introduction

The traditional frameworks of international trade regulation and Quality Infrastructure (QI) face unprecedented disruptions from the rapidly evolving digital landscape. Conceived in the pre-internet era, the World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT Agreement) was designed to navigate the complexities of product regulation and trade in an analogue world. At the same time, the supporting QI systems, including standards, conformity assessment, accreditation, and metrology, pre-date the internet revolution. As the digital transformation sweeps through all facets of society, from commerce to governance, these frameworks are also undergoing significant transformations and trying to keep pace. This paper explores the opportunities and challenges of the digital trade transformation for national standards bodies (NSBs), in the context of the TBT Agreement.

1.Introduction

The COVID-19 pandemic served as an accelerant for digital trade. Yet, while digital trade has experienced exponential growth, the benefits have not been evenly distributed, particularly among least developed countries (LDCs) and Low-Middle Income Countries (LMICs). These countries, lacking the necessary infrastructure (e.g. telecoms infrastructure), standards, and regulatory frameworks, find themselves on the sidelines of the digital boom, unable to fully capitalize on the opportunities it presents (UNCTAD 2021).

Compounding the challenge is the dynamic nature of modern digitally connected products, which are no fixed but rather undergo continuous updates and customization throughout their lifecycle. The risks posed by these products, whether to privacy, safety or cybersecurity, likewise evolve. Apps, software updates, and product personalization are creating a range of new questions and complexities for regulatory systems designed ill-designed to handle such fluidity. These questions include how to ensure continuous compliance, how to conduct surveillance of online marketplaces, or how to address liability issues associated with constantly evolving products (National Board of Trade Sweden, 2023). For instance, how can a regulator ensure conformity or conduct market surveillance of a toy or cosmetic product purchased online through cross-border e-commerce? Or, how to assign liability in the case of accidents with a car or a medical device that update and optimize performance over time?

Across the globe, countries in all region and stages of development stages are grappling with how to strike this delicate balance between fostering trade, innovation and growth while safeguarding public health, safety, security, and privacy. This is leading to growing fragmentation of digital standards and regulation for digital products. This struggle underscores the urgent need for alignment with international standards and regulatory frameworks that are agile, adaptable, and conducive to digital trade.

Within this context, the Commonwealth Standards Network (CSN) helps Commonwealth countries to address non-tariff barriers by enhancing participation, adoption and implementation of International Standards.

LMICs, can leverage emerging opportunities to leapfrog and embrace digitalization in their standards, QI and market surveillance systems.

International standards play a pivotal role in this endeavour, providing a common language and benchmark for regulatory harmonization and interoperability and de-risking investments in digital infrastructure, see companion CSN Publication *'Digital Trade - Guidance for National Standards Bodies.'* The WTO TBT Agreement strongly pushes for the use of international standards, including in the realm of digital trade and products.

The advent of transformative technologies such as Blockchain, Artificial Intelligence (AI), and the Internet of Things (IoT) holds immense promise for enhancing efficiency, inclusivity, and facilitating global trade. These technologies have the potential to lower compliance costs and break down barriers to trade, empower micro, small, and medium-sized enterprises (MSMEs) and foster greater value chain integration of LMICs, helping close the gap between developed and developing countries. On the other hand, they could risk exacerbating existing inequalities and compound existing technical barriers to trade facing exports of LDCs and LMICs (OECD, 2023). The extent to which these promised benefits materialize hinges partly on the standards and regulatory frameworks governing their deployment and utilization.

In this evolving digital landscape, NSBs and wider QI institutions assume a pivotal role in shaping regulatory frameworks and seizing opportunities for trade, innovation, and growth, including through compliance with the TBT Agreement. This paper reviews key trends and challenges for LMICs, and concludes with a discussion of actions that could considered by NSBs.

2. Technical Barriers to Trade and Digital – State of play

Technical Barriers to Trade and Digital – state of play

Regulating the digital realm is a challenge facing governments worldwide. Confronted with concerns around security, privacy, or competition, governments are taking different approaches to intervening in the digital economy and the innovations it generates *'Digital Trade - Guidance for National Standards Bodies.'*. The area of product standards and regulations – also referred to as technical barriers to trade (TBT) – is one avenue through which governments are acting, through requirements on products like ICT equipment, medical devices, drones, or autonomous vehicles, or on broader technologies such as AI or the internet or things.

Regulations and standards have an important role to play in addressing legitimate public policy concerns, by addressing risks to privacy, safety or security. At the same time, they may have an impact on businesses by increasing costs or hampering innovation. Moreover, if standards and regulations diverge between countries, this can create obstacles to international trade. Harmonization towards consensus international standards is an antidote to these challenges. By referring to a global benchmark that reflects the world's collective state of the art in addressing a particular problem, international standards enables governments to strike the right balance between achieving public policy objectives while minimizing impacts on trade and innovation.

This is where the World Trade Organization Agreement on Technical Barriers to Trade (TBT Agreement) comes in. This multilateral trade agreement, signed by the 164 member countries of the WTO, sets out global rules for the preparation, adoption and application of technical regulations, standards, and conformity assessment procedures. Recognizing the problems that uncoordinated and incompatible standards and regulations pose for cross-border commerce, the TBT Agreement promotes the use of international standards as one of its guiding objectives. The Agreement promotes harmonization by requiring that member governments of the WTO align their national requirements with relevant international standards. Beyond the legal obligation, there is a strong incentive for harmonization, with a presumption of compliance for measures that are in accordance with international standards. While the Agreement does include limited exemptions if international standards are not pertinent to the policy problem at hand, or not appropriate to the situations facing developing countries, the push for harmonization is clear. The TBT Agreement define what is an international standard, or relevant international standardizing bodies, but instead a decision by WTO Members clarifies principles that should be followed in the development of international standards to ensure global relevance.

The TBT Principles

- Transparency
- Openness
- Impartiality and consensus
- Effectiveness and relevance
- Coherence
- Development dimension

There are other important disciplines, for instance, that technical regulations, standards, and conformity assessment procedures are non-discriminatory. This measure that requirements should not treat products differently (give a competitive disadvantage) on the basis of their origin, without justification. In some cases, different treatment of competing products may be necessary to achieve the legitimate objectives pursued, but this would need to be justified. The Agreement also requires that technical regulations, standards, and conformity assessment procedures not be more trade restrictive than necessary. This means that they should be proportional to the risk addressed by the measure at hand, with a commensurate impact on trade. This implies that a light approach (in terms of strictness, burdens on business or trade impact) be followed with respect to low risk products, while a heavier approach could be justified with respect to high risk products.

1 WTO | Principles for the Development of International Standards, Guides and Recommendations

The TBT Agreement has an active transparency system based on notification of certain draft technical regulations and standards. This allows for a global public consultation on new or changed regulations that are not aligned with international standards and may impact trade. It gives trade partners the chance to share comments and views before measures are finalized. It also provides traders with predictability and advance notice of changes in regulations, which lowers costs and reduces the risk of trade disruptions. The WTO has created an ePing platform for the public and private sectors to find out about these notifications, and engage. The TBT transparency system and ePing is global public good which allows LMICs, and MSMEs, to navigate and comply with standards and regulations. Building on the transparency system, The WTO TBT Committee provides a forum where Members discuss trade problems that their business are encountering with respect to standards and regulations (referred to as specific trade concerns).

While the TBT Agreement covers trade in goods, it does not cover services. Many regulations and standards for digital trade may deal with both goods and services. So, in what cases does the TBT Agreement apply? The TBT Agreement definition of a technical regulation covers requirements on products characteristics, while the definition of a standard refers to characteristics for products. In an analog world, products characteristics could be things you could touch and see, while in the digital world, these may be invisible or intangible characteristics, such as the cybersecurity protocols or software installed on a medical device which relate to the objectives pursued. There is ongoing discussion in the TBT Committee about how far these definitions may be extended, and what they may encompass. To the extent that digital standards and regulations address physical products and set related requirements or characteristics of those products the TBT Agreement may apply.

TBT Agreement definitions

1. Technical regulation

Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

Explanatory note

The definition in ISO/IEC Guide 2 is not self-contained, but based on the so-called "building block" system.

2. Standard

Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not usually mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

Explanatory note

The terms as defined in ISO/IEC Guide 2 cover products, processes and services. This Agreement deals only with technical regulations, standards and conformity assessment procedures related to products or processes and production methods. Standards as defined by ISO/IEC Guide 2 may be mandatory or voluntary. For the purpose of this Agreement standards are defined as voluntary and technical regulations as mandatory documents. Standards prepared by the international standardization community are based on consensus. This Agreement covers also documents that are not based on consensus.

3. Conformity assessment procedures

Any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled.

Explanatory note

Conformity assessment procedures include, inter alia, procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; registration, accreditation and approval as well as their combinations.

The TBT notification process illustrates some examples where Members consider that digital trade standards and regulations fall within the scope of the Agreement. For instance… (e.g. cybersecurity of network equipment; software on a computing device on phone). These show that TBT can be triggered when there are specification/requirements on characteristics of a physical product. Of course, there may be other elements of a regulation that fall within the scope of other WTO rules, such as the General Agreement on Trade in Services of the Agreement on Trade Related Aspects of Intellectual Property Rights.

Why then does it matter to if TBT is applicable or not? When a measure falls within TBT, this means that the procedural and substantive disciplines apply, which can be quite strict and specific. For instance, this requires that international standards should be used as a default. For NSBs, and other QI bodies, it is therefore important to help regluators to identify the tools and guidance available to them to through international standards on digital matters. Coverage by TBT also implies a notification to the WTO for consultation and comment. After adoption, a transition period of at least 6 months should be provided, when TBT applies. All of this involves the TBT Enquiry Point, and the national notification authority. National coordination and discussion are important to ensure transparency of national measures, since there is a potential for being challenged at the WTO if you fail to notify.

The potential coverage of TBT then also opens up a number of questions on how to tackle these challenges in the context of regulatory systems set up for a pre-digital world. The brick and mortar quality infrastructure that underpins traditional product regulation needs to stretch to new realities, and the underlying multilateral trade rules themselves may need new interpretations and understandings in face of new challenges.

To help shed light, a number of these issues have been addressed by the WTO TBT Committee in recent years in the context of policy discussions on regulatory cooperation. These have touched on issues like cybersecurity and regulating digitally connected products. Other discussions have focused on digital opportunities and challenges for conformity assessment procedures, both in terms of facilitating trade and how to deal with potential gaps in product regulation exposed by e-commerce.

3. Trends and challenges for CSN countries

As digitalization and e-commerce have grown in recent years, there are several trends and challenges in the area of standards and regulation that are of relevance to LMICs. Some of these are outlined below. Those countries that are best prepared to address these challenges and seize opportunities, will be well positioned to come out ahead in this new frontier of digital trust in trade.

3.1 New economic and trade opportunities

Digital technologies are creating new economic and trade opportunities for LMICs, and standards and regulation are worthy of policy maker's attention as they provide the enabling environment for capturing these potential gains. The COVID-19 pandemic led to a spike in the adoption of digital technologies by firms in LMICs, including in Africa (AUC/OECD, 2021). Getting standards and regulations right for these technologies, and the products in which they embedded, can have bearing upon the further uptake of the latest digital technologies, which in turn serve as drivers of innovation, growth and business/trade opportunities for LMICs. For instance, MSMEs can better integrate into value chains and tap into opportunities provided by the digital economy, thanks to the efficiency and trade facilitation gains of digital technologies (OECD, 2023). Moreover, digitally connected products are creating new economic and trade niches for MSMEs (WTO, 2023b). Efficient and effective regulatory frameworks can allow the small firms and startups in LMICs to fill these niches and exploit data as a resource to drive new economic opportunities, including around the use of AI (UNCTAD, 2021). Digital technologies like robotics, AI and IoT can be stepping stones for LMICs, and their firms, to integrate and move up value chains from simply supplying raw materials to adding value (OECD, 2023).

International standards provide a vital foundation for seizing the opportunities of the digital economy, and for promoting greater inclusion of LMICs and MSMEs (BSI 2021). Digital products and technologies depend upon one another and function together in an ecosystem, and the foundational standards need to be in place to set up entrepreneurs for success domestically and in international markets see companion CSN Publication *'Digital Trade - Guidance for National Standards Bodies'*. The adoption of international standards supports the digital transformation and positions firms to meet market requirements in different countries for digital products and technologies. Moreover, as discussed in the next part, they also help to counteract the trend of regulatory fragmentation on digital products that could harm the prospects of LMICs.

3.2 Regulatory fragmentation

The digital economy is subject to important trends of fragmentation, which extends into the realm of product regulation and standards. Major markets, such as China, Europe and the United States, are adopting divergent approaches to regulating the digital space (UNCTAD 2021), as are smaller economies. These approaches in some cases reflect distinct societal values and preferences to questions like personal privacy, ethics, security or governance. However, incompatible regulatory approaches for digital technologies and products can create barriers to entry into nascent industries (e.g. in AI space) and hamper market opportunities in digital trade. This can undermine societal benefits associated with such novel products, harm public trust, and worsen the digital divide (WTO 2023b). The costs associated with navigating this complexity could preclude LMICs and their MSMEs from gaining a foothold in these new market segments, which are already dominated by the large players.

Discussions in the WTO TBT Committee show that different approaches to regulation of cybersecurity, 5G network equipment, or autonomous and connected vehicles, amongst others, are already creating trade frictions. For instance, according to the WTO, its Members have raised around 26 specific trade concerns on cybersecurity measures, most intensively during recent years (WTO, 2023a)[1]. These measures address cybersecurity of ITC products and network equipment, vehicles, civil aviation, banking, and insurance, and more than half of them (16) were raised against measures proposed or adopted by *China*. Various specific trade concerns were recently raised on 5G network equipment including on testing, certification and labelling,[2] as well as with respect to autonomous and connected vehicles and related technologies.[3]

The use of international standards, as required by the TBT Agreement, would be a preferred approach to overcome such divergences. This is particularly important for LMICs, that might otherwise encounter significant divergences across major markets that they may wish to enter. International standards, representing global consensus, can promote trustworthiness and confidence in emerging technologies, enable interoperability across markets, and thereby facilitate innovation and trade (WTO 2023b). As mentioned above, digital technologies and products pose various novel regulatory challenges and divergences may reflect different societal values. Nevertheless, international standards are still a tool for greater regulatory alignment on areas that can be subject to standardization, such as terminology, classification or systems, that provide a common technical basis for regulators to pursue their policy preferences.

The pace of technological development can also pose challenges and tend to regulatory fragmentation. Regulators and standards development organizations may struggle to keep pace with market needs, and the new challenges posed by digital products. As a result, individual companies, or private consortia, may end up setting private standards that establish defacto market requirements to fill the vacuum. These challenges speak to the importance of ensuring that international standards are developed in line with the TBT Principles. They also highlight the broader need to reinforce international standards setting in the digital landscape (UN, 2019).

1 G/TBT/GEN/357

2 Source: *epingalert.org*, for example: *United Kingdom - Designated notice and Designated vendor direction; Viet Nam - Draft national technical regulation on 5G user equipment - radio access; draft national technical regulation on non-standalone 5G user equipment - radio access; Belgium - Draft law introducing additional security measures for the provision of mobile 5G services*

3 Source: *epingalert.org*, for example: *Russian Federation - On Safety of Wheeled Vehicles (TR CU 018/2011); European Union - Draft Commission implementing regulation laying down rules for the application of Regulation (EU) 2019/2144 of the European Parliament and the Council as regards uniform procedures and technical specifications for the type-approval of fully automated motor vehicles with regard to their automated driving system (ADS); European Union - Uniform procedures and technical specifications for the type-approval of motor vehicles with regard to their emergency lane keeping system (ELKS).*

3.3 Digitalization of conformity assessment procedures and the QI

A third key trend is the growing application of digital technologies and solutions to certification and conformity assessment, and other aspects of the quality infrastructure, as well as related border and customs measures. There is significant potential for digital technologies to ease burdens, cut red tape and lower the costs of conformity assessment. Today, one of the most costly and prevalent barriers to trade for LMICs is conformity assessment. This arises both from the complexity of procedures, and the duplication of costs and multiplicity of certifications required.

Digital solutions, including remote conformity assessment or electronic certificates, could cut time and costs associated with getting access to markets by promoting the acceptance of conformity assessment results. They could also improve the objectivity and transparency of procedures, as well as enhance supply chain integrity (WTO, 2022). Provided that data and systems are interoperable, digital conformity assessment can create efficiencies for manufacturers, including in LMICs, that can facilitate international trade.

However, some LMICs may not be positioned to benefit, not only due to the digital divide, but also due to an overall less developed quality infrastructure. Gaps in the QI ecosystem and quality policy, and poor domestic coordination, can make it difficult for governments to promote uptake of digital technologies. Moreover, many LMICs have weakly developed markets for private sector conformity assessment, which can slow the pace of digital transformation. While conformity assessment is still largely paper based, the wider adoption of electronic certification and related digital tools and technologies (e.g. blockchain technologies, IoT, big data, cloud computing, real-time information) may become a requirement in export markets.

To the extent that systems and capacities are still being developed in LMICs, this represents a chance to leapfrog to a digital approach. Beyond cost and time efficiencies, there are opportunities to enhance trust in CAPs and CABs of LMICs for export purposes through digitalization, and automatic data collection and validation (for instance by cutting out fraud). Part of this transformation is about enabling the collection of relevant data domestically (through standards, technology dissemination, adoption of IoT, sensors, QR codes etc.), which may become necessary for conformity assessment. The adoption of international standards, guides and recommendations, digital-related as well, will buttress the digital transformation process and ease the recognition of data and results.

The overall digitization of the QI is likely to continue to advance, as will the imperative to digitize trade processes and cut out paper. LMIC countries and their businesses may need to choose between various platforms put forward by private sector groups. There may be resistance from domestic constituents with entrenched interests or business models which are dependent on paper-based conformity assessment and trade procedures. As explored in the next section, the use of digital tools for CAPs can also help address the challenges of regulating novel intangible and customizable digital products (WTO, 2022) and thereby unleash this economic potential for local MSMEs.

The digitization of standards is another key part of the overall digital transformation of the QI. The *ISO/IEC SMART initiative* is poised to fully digitize standards and allow them to be more accessible and useable by stakeholders (economic operators, regulators, conformity assessment bodies and other QI entities). By replacing paper-based standards, SMART standards could be updated in real time. This could facilitate certification against a standard or make references to standards in technical regulations more effective. This can also open new business opportunities for standards bodies, for instance, by selling subscriptions that aggregates parts of different standards relevant to a specific consumer or application.

3.4 Mind the gap – when regulating intangible digital products

Novel intangible/connected products are exposing important regulatory gaps in all countries, developed and developing. Regulators and standards bodies are facing pressure to move faster on digital issues, and contend with the new risks that these products are posing, melding security, privacy and resilience into traditional regulatory concerns (National board of trade Sweden, 2023). Referring to previous sections, these may arise due to novel risks around privacy, ethical or safety, which may change over the lifecycle of a product and vary in relevance across countries (WTO, 2023b). To give an example, a software update on a pacemaker, or an automous vehicle, may introduce new risks that were not addressed in the original conformity assessment required for placing on the market.

Contemporary regulatory approaches are struggling to address these challenges. This is not surprising, since it involves addressing risks and benefits in an uncertain environment, where legitimate societal concerns (privacy, safety, ethics) bump up against the needs of businesses, economic growth and innovation, as well as consumer choice. In most countries, these concerns are addressed by a range of different approaches and laws, in an unclear and uncoordinated manner (National board of trade Sweden, 2023). LMICs, which may already experience limited regulatory capacity and gaps in the quality infrastructure, may face additional challenges to protect their citizens from risks arising in the digital space, while providing an enabling environment for their economies to thrive.

Learning from experiences of other economies, especially in terms of how to account for the specific characteristics of digital products such as in the areas of cybersecurity, personal integrity and resilience, is one step to addressing these gaps (National Board of Trade Sweden, 2023). In addition, it is important to understand how to best harness private sector expertise for effective regulatory design vis-à-vis intangible digital products. Public-private partnerships are vital for addressing regulatory gaps.

Digitalization of the QI, certification and standards (see above on ISO/IEC SMART) can contribute to more effective regulation of intangible digital products. Uptake of digital technologies for conformity assessment and certification can support new approaches to regulation of digital products, providing data that is needed for continuous monitoring of compliance (WTO, 2022). In this respect, the use and reliance on international standards is important to ensure interoperability and cross-border regulatory cooperation.

The use of good regulatory practices, including transparency and stakeholder consultation, regulatory impact assessment, and a coherent 'whole of government' approach, are another touchstone for tackling digital product regulation. This can include capacity building for regulatory authorities, to develop skills and techniques for market surveillance and enforcement of product safety and security across a digital product's lifecycle (National Board of Trade Sweden, 2023).

3.5 E-commerce upending market surveillance

The explosion of cross-border eCommerce, particularly since COVID-19, is undermining the traditional role of conformity assessment and market surveillance to deliver quality and safety to consumers. Products purchased through online e-commerce platforms may not ultimately comply with the regulations or standards of the market where the product will be used or consumed, which puts consumers at risk. This is because these small shipments may slip through conformity assessment and market surveillance systems, which are not tailored to deal with online commerce (WTO, 2023c).

In response, regulators in some countries are taking a more active approach in verifying product compliance through online platforms, such as removing listings without product compliance information or those that were unsafe or hazardous. Inversely, governments are promoting online labels and certification of platforms and business to enable consumer trust. Enforcement tools are increasingly being exercised by regulators in cooperation with online platforms and the private sector. Databases of certificates are being used to support more effective market surveillance and enforcement (WTO, 2023c).

LMICs, which typically have limited regulatory and market surveillance capacity, will need to quickly adopt approaches and best practices to regulate product in the growing e-commerce space. In this respect, international standards see companion CSN Publication *'Digital Trade - Guidance for National Standards Bodies'* and guidelines provide important resources for governments and stakeholders to cooperate and address these challenges. This includes a lifecycle approach to regulation and market surveillance. In addition, product liability laws and enforcement may not be adapted to e-commerce, and better deal with intangible digital products. Resourcing and capacity building for market surveillance and the enforcement of product safety and security need to be tailored to a digital approach.

3.6 Cybersecurity

As economies grow, they may become more vulnerable to cybersecurity attacks, and related risks from digital technologies. Cybersecurity is identified as one of the top challenges to the next decade (WEF, 2023). Business and trade, especially the prospects of small businesses, can be significantly harmed by cybersecurity incidents, and these are affecting both developed and developing countries (WTO 2023a). International cooperation and global solutions are needed to address cybersecurity threats, which are inherently cross border, and international standards have a foundational role to play in this connection. (UNCTAD 2021, 130). While national and regional cybersecurity frameworks also play an important role, international standards such as those for information security management see companion CSN Publication *'Digital Trade - Guidance for National Standards Bodies'* are crucial for building trust. Indeed, international cooperation can help to address cybercrime and facilitate electronic evidence sharing between countries (WTO, 2023a). On the other hand, incompatible unilateral measures can, in some cases hinder security by weakening monitoring and lowering transparency of possible threats (UNCTAD, 2021).

Cybersecurity concerns arise with digital products (see 4 above), and these pose challenges for regulators to address, due to adaptable nature of these products which can expose different cybersecurity risks. For instance, cybersecurity vulnerabilities exist in vehicles or trucks, medical devices and mobile phones, and governments are addressing these through technical regulations (National Board of Trade Sweden, 2023).

As LMICs develop and expand into markets for digital products and technologies, enhancing digital literacy will be an important part of protecting against cyber threats. The more the digital divide is bridged and the more people in LMICs have access to mobile broadband networks, vulnerabilities to cyber-attacks can increase without the right infrastructure and capacities in place, including adoption of international standards and best practices. Public private partnerships can also help bring relevant expertise to bear in managing cybersecurity risk in the digital transformation of the economy (WTO, 2023a).

4. Implications and Recommendations for National Standards Bodies (NSBs)

In the rapidly evolving landscape of digital trade, National Standards Bodies (NSBs), together with other QI institutions, are vital but often overlooked stakeholders in supporting the digital transformation and helping governments and businesses address the challenges and trends identified above. As custodians of international standards, guidance and best practices which support policymakers and facilitate trade, the NSB and QI are cornerstones for building trust in the digital economy (BSI, 2021a). To realize this potential, NSBs need to have a solid value proposition and provide sound guidance to policymakers on the use of international standards for the digital economy. In supporting the digital transformation, NSBs must proactively engage with stakeholders, regulators, and international standards bodies to address emerging challenges and facilitate effective solutions. This section outlines implications and recommendations for NSBs to effectively navigate the complexities of digital trade.

4.1 Embrace digital transformation!

NSBs must integrate digital considerations into all aspects of their work to remain relevant and effective in the digital age.

Digital technologies present various challenges to NSBs' traditional business models. These may stem from the transformation of standardization and the QI due to digital technologies, or the reliance on the sales of standards as a form of revenue.

Starting internally, NSBs should prepare for the digitalization of standards, and note and engage in the work of the ISO/IEC SMART initiative. To make their voices heard, NSBs should join and follow the *ISO DEVCO SMART WG*. The transformation of standards from paper to digital can make them to more accessible and useable by stakeholders, and increase the overall value provided by the NSB to the national economy. NSBs can build up capacities and digital skills, together with other parts of the QI. However, in some LMICs, reaping benefits from this shift will depend on further efforts to overcome the digital divide.

The rapid pace of technological advancements and the global nature of digital commerce necessitate agile responses from NSBs. Challenges such as resource constraints, lack of expertise in emerging technologies, and the need for continuous adaptation to changing digital trade dynamics pose significant hurdles. To address these challenges, NSBs must embrace innovative approaches to standards development and collaboration with stakeholders.

4.2 Promote national coordination on digital matters

NSBs have a unique opportunity to promote and engage in national coordination efforts on regulations and standards for the digital economy.

As ministries beyond traditional counterparts are responsible for digitization and digital trade, NSBs can facilitate collaboration across sectors to ensure cohesive and strategic approaches to digital transformation. By fostering partnerships with relevant stakeholders, NSBs can leverage their expertise to drive national digital agendas and promote interoperability and efficiency in digital trade.

In this respect, NSBs play a crucial role in engaging with regulators to develop laws, regulations and policies that support digital trade, by referring to international standards and best practices. It is imperative for NSBs to update their policy support outreach efforts and frameworks to encompass evolving digital needs, building on existing good practices (ISO, 2023; BSI, 2021b). Ideally, this support will be reciprocated by regulators, when they initiate or participate in the development of standards for digital products and trade.

NSBs should promote transparency of standards, technical regulations, and conformity assessment procedures on digital products, including notification to the WTO, in line with the TBT Agreement. In many countries (more than half of WTO members), the NSB is designated as the TBT Enquiry Point, which means that it is responsible for responding to stakeholder questions on TBT measures and notifications, and in some submitting *notifications*. Coordination at the national level, including through existing mechanisms (such as "national TBT committees"), is often necessary to ensure that the right measures are notified, at the appropriate time. In the context of emerging digital technologies that cut across traditional regulatory boundaries, it may be even more challenging to identify which measures are subject to TBT notification requirements. The NSB can provide expertise and support to help ensure appropriate transparency and notification.

4.3 Contribute to Regulatory Capacity Building

NSBs should seek to build capacity of their regulatory counterparts on the solutions provided by international standards for digital trade and digital products.

Many LMICs, including CSN countries, are in a continuous process of developing and upgrading their domestic regulatory capacities. This can be related to reforms such as the transition from “mandatory standards” toward the use of “technical regulations”, the development of national laws and policies on better regulation or a national quality policy, or the application of regulation making techniques such as Regulatory Impact Assessment (RIA).

The challenges posed by digital products and digital trade, as outlined above (section 3), are likely to stretch the capacity of countries and their regulators to respond (Sweden National Board of Trade, 2023), layering further complexity on top of these ongoing transitions in regulatory capacity. NSBs need to support their regulatory counterparts with expertise on relevant international standards and guidance that can provide technical solutions to make regulators more effective and efficient, and help them achieve the right balance between trade and innovation versus protection of public policy imperatives like safety, privacy or security. To the extext that the NSB can also develop and house expertise on digital technologies at issue (see point 5 below), or tap into such expertise through its technical committees or private sector linkages (see point 4 below), it can add significant value to its regulatory support function.

NSBs and the QI in general should explore how to contribute to new regulatory approaches tailored to digital products and trade, including with respect to conformity assessment or market surveillance (as appropriate in light of national QI set up), or providing input and alternatives into the implementation of Regulatory Impact Assessments (RIA) adapted to challenges posed by digital products (Sweden National Board of Trade, 2023). In their capacity as champions of international standards, NSBs should promote the use of Good Regulatory Practices (GRP) across the regulatory lifecycle adapted to the specificities of the digital space, in order to deliver continuous surveillance across product lifecycle.

4.4 Expand Outreach with the Private Sector

NSBs should seek to proactively respond to the challenges their national stakeholders encounter in digital trade by forging collaboration with a broader range of private sector actors, and offering effective guidance and solutions.

Strong links with the private sector, namely those businesses engaged in digital trading, e-commerce or digitally connected products, is an important source of intelligence to help NSBs anticipate and address the challenges that national stakeholders face in the digital realm. The outreach and stakeholder engagement efforts of NSBs should be expanded to bring in businesses in the digital products and trade space. These sectors and firms may not form part of the usual stakeholders of the NSB, and in turn these industry players may not be aware of the NSB or its role in promoting standards for digital trade. By broadening their outreach efforts with the private sector, and MSMEs in the digital space, the NSB can foster collaboration and promote adoption of international standards. Reaching out to MSMEs, which form the bulk of the private sector in many LMICs, and are at the cutting edge of digital trade, should be a priority for the NSB.

Through engagement with industry stakeholders, NSBs can gain valuable insights into industry-specific challenges and opportunities in digital trade, and needs and priorities for standardization. This collaboration can underpin development of standards (or participation in international or regional standardization) that respond to needs to domestic industry, enable innovation, and give a foundation for competitiveness in the global digital marketplace.

4.5 Seek capacity building/technical assistance on Digital Technologies

NSBs should become a repository of expertise on digital technologies and digital products, to complement their knowledge of relevant international standards, guidelines and best practices.

NSBs should actively seek capacity building and technical assistance from trading partners, standardizing bodies, and international organizations on digital technologies and Technical Barriers to Trade (TBT). By investing in training and skill development, NSBs can build internal expertise to effectively navigate digital trade complexities and provide valuable support to national stakeholders and policymakers.

This can ensure that the NSB stays abreast of emerging technologies, trends, and best practices in digital trade standardization. For instance, NSBs through their government representation, can request technical assistance from other WTO members under Article 11 of the TBT Agreement.

4.6 Monitor digital trade standards development

NSBs should track standards development in different forum on digital trade and digital products.

In order to be prepared to offer the right tools to policymakers and businesses, and know where to participate (see 4.7 below) the NSB should take a broad view of standards that may be relevant, for digital trade including international, regional and national standards of other countries, as well as private standards see CSN companion publication *'Digital Trade - Guidance for National Standards Bodies'*.

As a first best, the NSB should focus on and promote the use of ISO/IEC international standards. These international standards have certain advantages due to their global application which opens a wide range of potential markets, and the fact that they are developed using a national delegation principle where members (NSBs) have influence and achieve consensus. However, with respect to fast-moving digital technologies and products, these types of standards may not readily be available – and other standards should therefore be considered.

For instance, standards developed by US-based standards bodies (IEEE, UL, etc.), private consortia, regional or national bodies might be relevant

As elaborated above See section 4.3, the novel regulatory challenges posed by digital technologies and products raise tricky questions of social values and preferences. International standards may be not always be appropriate to deal with national objectives around personal data privacy, ethics, security or governance. At the same time, the rapidity of technological developments is pushing

NSBs should push for other relevant standards (private, consortia) to become ISO/IEC standards.

Drawing from models such as national multi-stakeholder platforms for voluntary *sustainability standards*, NSBs can establish mechanisms to track and assess the impact of digital standards on trade and regulatory frameworks.

4.7 Participate in international standards setting

NSBs should actively participate in and adopt international standards on digital trade, technologies and products wherever possible

International standards play a crucial role in promoting interoperability, reducing fragmentation, and supporting policy makers in a way that facilitates trade (see companion piece). However, NSBs may not have resources to follow all relevant TCs, so they will need to prioritize. In this respect, support from ISO/IEC/ITU and other standards bodies, or donors, can help to participate in the most important processes for the country in question.

NSBs also need to recognize the flexibility in the TBT Agreement and consider pros and cons of other international standards versus other kinds of standards. As discussed above, international standards may not always be suitable for certain digital technologies, such as AI, due to unique societal differences and regulatory requirements.

5. Conclusion

The digital trade transformation presents a complex landscape of opportunities and challenges for national standards bodies (NSBs) in low - and middle - income countries (LMICs). As the world increasingly embraces digitalization, NSBs play a pivotal role in shaping regulatory frameworks that facilitate trade, innovation, and growth while ensuring public health, safety, security, and privacy. This paper scoped out the opportunities and challenges of the digital trade transformation for national standards bodies (NSBs), in the context of the TBT Agreement.

The dynamic nature of digitally connected products poses new challenges for regulatory compliance and market surveillance. LMICs must navigate these other trends and challenges such as those elaborated in this document:

- New economic and trade opportunities
- Regulatory fragmentation
- Digitalization of conformity assessment procedures and the QI
- Mind the gap – when regulating intangible digital products
- E-commerce upending market surveillance
- Cybersecurity

In addressing these challenges, several implications and recommendations for NSBs can be identified:

- Embrace digital transformation!
- Promote national coordination on digital matters
- Contribute to Regulatory Capacity Building
- Expand Outreach with the Private Sector
- Seek capacity building/technical assistance on Digital Technologies
- Monitor digital trade standards development

By embracing digitalization, and adopting international standards to support this transformation, NSBs can position their stakeholders to thrive in the digital trade era and contribute to inclusive and sustainable economic development.

6. Supporting and reference documents

BSI, 2021a, Allan Mayo and Cindy Parokkil, "BSI Whitepaper: The role of standards in supporting the transition to a digital economy and facilitating digital trade. Transforming systems using standards." *bsi-transition-to-a-digital-economy-whitepaper.pdf (bsigroup.com)*

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ISO, 2023, Standards and public policy: a toolkit for national standards bodies, *ISO - Standards and public policy: a toolkit for national standards bodies*

National Board of Trade Sweden 2023: Innovation, AI, Technical Regulation and Trade - Questioning the Invisible Hand in the Digital Economy.

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For whom the data flow *Digital Economy Report 2021 | UNCTAD*

WEF 2023: Global Risks Report

WTO 2023a, "Thematic session on regulatory cooperation between members on cybersecurity – moderator's report", G/TBT/GEN/357

WTO 2023b, "Thematic session on regulatory cooperation between members on intangible digital products – moderator's report", G/TBT/GEN/356

WTO 2023c, "Thematic session on conformity assessment and e-commerce – moderator's report", G/TBT/GEN/366

WTO 2022, "Thematic session on conformity assessment procedures (digital solutions) – moderator's report", G/TBT/GEN/324.

About the Commonwealth Standards Network (CSN)

The CSN is a collaborative network that supports trade, economic growth and prosperity throughout the Commonwealth by promoting increased awareness, development and use of international standards.

To find out more about the network please see **www.commonwealthstandards.net** or contact the CSN Senior Programme Manager, Ben Hedley **ben.hedley@bsigroup.com**

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