GLOBAL BENCHMARK REPORT

2020

ICT Product Safety Regulations and their Impact on the Ease of Doing Business

ITI Promoting Innovation Worldwide

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Executive Summary

The Information Technology Industry Council (ITI) has published the 2020 Global Benchmark Report, *ICT Product Safety Regulations and their Impact on the Ease of Doing Business* to assess the impact of international product safety regulatory practices that affect information and communications technology (ICT) products. This report recommends positive steps for governments to identify, prevent, and reduce impediments to trade, manufacturing, and supply chain operations. With inspiration from the World Bank's annual Doing Business Report, ITI has scored 38 countries and the European Union (EU) according to how their product safety regulations for ICT equipment, with respect to international standards, impact the ability to do business for manufacturers seeking to import and sell their products in these markets.

The World Trade Organization's (WTO's) Technical Barriers to Trade (TBT) Agreement has been an essential tool to raise awareness of and address barriers to trade resulting from technical regulations aimed at ensuring ICT product safety. The TBT Agreement provides an appropriate framework for good regulatory practices and we have used it to form the basis for scoring countries on their ease of doing business. Based on their knowledge of and experience with various compliance systems around the world, senior compliance managers from ITI's member companies scored each country's or region's product safety requirements using criteria identified by the TBT Committee as non-tariff measures that have a critical impact on companies' abilities to sell their ICT products in the global marketplace. In order to compare ICT product safety regulations of a similar type, ITI divided the scoring into two categories: 1) requirements that impact a broad range of IT products and 2) those that impact a select narrow scope of IT products, such as consumer products, rechargeable batteries, AC adapters or power cords.
Based on ITI's scoring, we found:

- Morocco ranked as one of the highest scored countries in the broad scope category, with a total of 28, mainly due to their increased transparency efforts, incorporation of international standards, and acceptance of international test reports. Other countries in Africa also scored 28 for similar reasons, including Nigeria, Rwanda, Tanzania, Uganda, and Zambia.

- With a total score of 7, India ranked last in the broad scope countries, due to onerous and country-specific requirements in its Compulsory Registration Order.

- Among the countries that impose safety requirements for a narrow scope of IT equipment (for example, AC adapters or power cords only), Australia, Ecuador, Hong Kong, New Zealand, and Singapore led with perfect scores of 30 while Chile ranked lowest with a score of 13. The median score for this group of countries was 26 out of 30.

ITI compared the scores tallied in this 2020 Ease of Doing Business report with those reported in 2017:

- The European Union and Mexico saw the largest drops in their scores. The EU's score dropped by 8 points, from 28 to 20, because of decreased scores in every criterion except for regulatory impact analysis/assessment. Mexico's score dropped 13 points, from 24 to 11, mainly due to

decreased scores in transparency, impact assessment/avoiding obstacles, predictability, and surveillance activities.

- Although India's score remained the same, it should be noted that their score on transparency increased due to enhanced stakeholder communication and participation. However, India's score in the international standard criterion decreased from 5 to 3 because of the numerous country-specific deviations that India is incorporating into their standards, rather than incorporating internationally recognized standards by reference.

- In the narrow scope category, Brazil's score improved from 20 to 22, due to an increased score in regulatory impact assessment. We applaud the Brazilian Foreign Trade Council's (CAMEX's) 2018 resolution that establishes good practices for the preparation and review of regulatory measures affecting foreign trade.

- Two countries in the narrow scope category saw decreases in scores: Cambodia and Colombia. Cambodia's score decreased due to a lack of regulatory notifications through the WTO TBT Enquiry Point for several years. Colombia scored zero in surveillance and low in international standards and portability of conformity assessment.

ITI concludes that the ease of doing business in most countries could be greatly improved by following good regulatory practices, including early and transparent notifications, incorporation of international standards and acceptance of international test reports, adequate transition times, risk-based approaches to regulation and conformity assessment, and avoidance of unjustified impediments that impact trade, manufacturing and supply chain operations. When considering a new regulation, we recommend that a government consider multiple objectives:

- Foremost, establish a clear and objective safety goal that can best be achieved through regulation.
- Assess and seek to minimize the impact of the regulatory measure on both market access and on the manufacturers and importers that are subject to the regulation.
- Encourage investment and the creation of an open environment for innovative and new technologies and foster competition among the players in the sector, all of which have the desired effect to improve consumer choice and lower costs.

Drawing from the WTO TBT Agreement, which governs the process by which countries enact technical regulations, ITI provides industry recommendations for national policymakers to improve their scores while still achieving their public policy and safety objectives. With many countries planning to transition to a new international safety standard for IT equipment in the coming months and years, following these steps may be essential to prevent further growth in non-tariff trade barriers (NTBs) resulting from unnecessarily complex and burdensome requirements.

About ITI. ITI advocates for public policies that promote innovation, open markets, and enable the transformational economic, societal, and commercial opportunities that our companies are creating worldwide. Our members represent the entire spectrum of technology: from internet companies, to hardware and networking equipment manufacturers, to software developers. ITI's diverse membership and expert staff provide a broad perspective and intelligent insight in confronting the implications and opportunities of policy activities around the world. Visit http://www.itic.org/ to learn more. Follow us on Twitter for the latest ITI news.

Introduction

Information and communications technology (ICT) companies seeking to do business globally must contend with a complex landscape of technical regulations. Not surprisingly, regulatory compliance poses one of the greatest challenges to the ease of doing business and is a critical factor in whether companies succeed or fail. This report, *ICT Product Safety Regulations and their Impact on the Ease of Doing Business*, is the second in a series of ITI benchmark reports that score governments based on their national technical regulations on ICT products.[1] This report is intended to be a yardstick and a guide for policymakers to better understand the impacts of their technical regulatory requirements on the ease of doing business. We also share recommendations based on global norms and best practices to promote the creation of policies that promote, rather than hinder, ICT trade and investment.

Every year, the World Bank publishes its *"Doing Business Report"* which ranks economies around the world according to their ease of doing business.[2] The report provides a helpful snapshot and longer-term benchmark of how "business friendly" countries are. Policymakers use the report to evaluate whether regulations are meeting their objectives and to determine where policy changes are needed. The ranking is a measure of how their respective countries stack up against others in terms of creating an environment in which entrepreneurial efforts are likely to succeed and where foreign businesses are drawn to trade and investment opportunities.

Similarly, our report is intended to provide an evaluation of countries' requirements for ICT product safety and to share industry insights to help regulators achieve their public policy and safety objectives through good regulatory practices that eliminate unnecessary and unjustified impediments on trade, manufacturing and supply chain operations.

The Importance of Safe and Compliant Products

This report focuses on mandatory ICT product safety requirements in 38 countries and the European Union (EU). Governments seek to protect their citizens from products that could cause injury or property damage (such as electrical shock or fire). As a result, product safety requirements are commonly one of the first types of technical regulations that a government is likely to place on products, and they are the most prevalent type of technical regulation with which ICT companies must comply.

A manufacturer's fundamental product safety objective is for its ICT products to be safe for their intended use and compliant with the applicable standards and government regulations of those countries in which the company markets and sells them. A company gains assurance that its products are safe by identifying potential hazards and risks associated with its products, applying adequate safeguards for each identified hazard, and then demonstrating that the applied safeguards mitigate these hazards.

1 The first in the series of reports was the 2017 Global Benchmark Report, ICT Product Safety Regulations and their Impact on the Ease of Doing Business

2 The World Bank scores countries using 10 criteria: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency.

Prior to a product release, a company ensures its products are legally compliant by identifying which regulations apply to a particular product or family of products. For each country where the company plans to deliver a product, manufacturers ensure the completion of all necessary product regulatory testing and evaluation to demonstrate its products comply with applicable product regulations, including any relevant standards cited in regulations. A company employs engineers, procures laboratory resources, invests in testing facilities, and bears the costs of product testing and, where required, certifications by third-party organizations.

A company that fails in its commitment and delivers products that are unsafe or that do not comply with legal requirements will likely compromise its access to markets, diminish its relationships with government authorities, adversely impact its customers, and potentially face legal action. Manufacturers recognize that regulations serve a critical role in protecting consumers from harm and setting baseline requirements to preserve and advance public interests. However, manufacturers also believe that governments' regulatory measures should be consistent with achieving legitimate regulatory objectives, avoid imposing unnecessary burdens on society, and minimize adverse impacts on citizens and business. Companies support product regulations that follow appropriate regulatory practices for establishing essential safety requirements that are risk-based and necessary conformity assessment procedures to fulfill those requirements. Well-designed and implemented product regulations can set an essential baseline for manufacturers, create a growth-enhancing competitive environment, and establish a level playing field among both domestic and foreign companies.

As a rule, ICT companies prefer to manufacture products for the world market instead of "localized" products for a specific country. This provides economies of scale for product design, manufacturing, and delivery. When governments pursue unnecessary regulatory requirements that are unique and burdensome in comparison to global norms, companies lose these economies of scale and struggle to navigate, innovate and adapt to different requirements. Unique and burdensome regulations are not just an inconvenience – they challenge profitability with new costs and create uncertainty about market access.

In response, a company may decide to pass these costs to consumers in the form of higher product prices. Or a company may decide to stop selling certain product models or reduce local investments because of the high regulatory costs and unwarranted delays due to interrupted shipments or other penalties. This is especially relevant for small- and medium-sized companies that may not have the resources to address such problems. In turn, consumers and both developed and developing economies are disadvantaged when regulations drive up the cost of ICT products and limit access to cutting-edge technology. For consumers this means a lack of access to critical technologies that bring important economic and social benefits.

Overview of the 2020 Scores

The ITI member company representatives that contributed to this report agreed that regulatory uncertainty poses some of the greatest challenges to their companies' abilities to succeed in markets around the world, in addition to hindering global economic growth. To address this issue, we encourage the development and adoption of globally aligned, internationally recognized standards and regulatory best practices to help prevent an expanding patchwork of localized rules and regulations.

Based on their knowledge of and experience with various compliance systems around the world, senior compliance managers from ITI's member companies scored each country's or region's product safety requirements using criteria identified by the World Trade Organization's (WTO's) Technical Barriers to Trade (TBT) Committee as non-tariff measures that have a critical impact on companies' abilities to sell their products in the global marketplace. Among other factors, these criteria include an evaluation of a country's regulatory impact assessments, a determination of whether product safety regulations are based on relevant international standards, and whether the compliance process is predictable for those seeking to import and sell in the market. The full set of criteria and scoring explanations are described in more detail in the "Criteria and Scoring" section.

In order to compare ICT product safety regulations of a similar type, ITI has divided the scoring into two categories: 1) requirements that impact a broad range of IT products and 2) those that impact a select narrow scope of IT products. The narrow scope might be limited, for example, to consumer products, rechargeable batteries, AC adapters or power cords.

Some highlights of the 2020 scores:

- Within the group of countries that have product safety requirements for a broad range of IT equipment, the median score for ease of doing business was 23 out of a perfect score of 30. No country scored a perfect 30 points.

- With a total score of 7, India ranked last in the broad scope countries, due to onerous and country-specific requirements in its Compulsory Registration Order (CRO).

- Morocco ranked as one of the highest scored countries in the broad scope category, with a total of 28, mainly due to their increased transparency efforts, incorporation of international standards, and acceptance of international test reports. Other countries in Africa also scored 28 for similar reasons, including Nigeria, Rwanda, Tanzania, Uganda, and Zambia.

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Broad Scope

Table 1 summarizes our scoring of product safety regulations and programs in countries that regulate a broad scope of ICT products, including servers, consumer equipment, computers, tablets and mobile phones. Arrows indicate where scores have increased, decreased or are unchanged from our 2017 scoring. Table 3 in "A Closer Look" provides a detailed breakdown of the scoring for each of the criteria for each country.

Table 1. Product Safety Regulations Scoring - Broad Scope

Country	Regulatory Program	Ease of Doing Business Score	Change from 2017 Score
Morocco	Mandatory marking for low voltage equipment	28	New in 2020 report
Nigeria	Preshipment Verification of Compliance	28	*
Rwanda	Preshipment Verification of Compliance	28	*
Tanzania	Preshipment Verification of Compliance	28	*
Uganda	Preshipment Verification of Compliance	28	*
Zambia	Preshipment Verification of Compliance	28	*
Israel	Standards Institute of Israel (SII) product and system certification Group 1: certification for AC Adapters and UPS Group 2: declaration for all IT equipment	26	New in 2020 report
Taiwan	BSMI	26	↓
Uzbekistan	EuroAsian Commission (Customs Union) - in process	26	↔
Canada	Consumer Product Safety Act and Mandatory Electrical Standards (SCC) (including associated national certification programs that are common under the regulatory program)	24	↔
Kazakhstan	EuroAsian Commission (Customs Union)	24	↔
Kenya	Preshipment Verification of Compliance	24	↔
Russia	EuroAsian Commission (Customs Union)	24	↔
South Africa	NRCS	23	*
Belarus	EuroAsian Commission (Customs Union)	22	↔
South Korea	KC Marking (Electrical Appliances Safety Control Act) (including associated national certification programs that are common under the regulatory program)	22	↔
Ukraine	MEDT NAAU	22	↔
EU	LVD; RED; Machinery Directive (including associated national certification programs that are common under the regulatory program)	20	↓
USA	OSHA (Workplace safety) (including associated national certification programs that are common under the regulatory program)	20	↔
China	China Compulsory Certification (including associated national certification programs that are common under the regulatory program)	18	↓
Argentina	S Mark certification for IT products (HSE exempt)	17	↔
UAE	LVE	17	New in 2020 report
Saudi Arabia	SALEEM and CTIC	16	New in 2020 report
Turkey	Risk-Based Trade Control System (TAREKS)	16	New in 2020 report
Mexico	IT products (HSE exempt)	11	↓
India	Compulsory Registration Order (CRO); Mandatory Testing and Certification of Telecom Equipment (MTCTE)	7	↔

**2017 score was based on incomplete information. As a result, a comparison between the 2017 and 2020 scores is not included.*

Narrow Scope

Table 2 presents our scoring of product safety regulations for countries that regulate a narrow scope of products, such AC adapters or batteries only or consumer products only. Arrows indicate where scores have increased, decreased or are unchanged from our 2017 scoring. Table 4 in "A Closer Look" provides a detailed breakdown of the scoring for each of the criteria for each country.

Table 2. Product Safety Regulations Scoring - Narrow Scope

Country	Regulatory Program or Product	Ease of Doing Business Score	Change from 2017 Score
Australia	Electrical Equipment Safety System (EESS)	30	⟷
Ecuador	Power cord, batt, AC adapter, charger	30	⟷
Hong Kong	Electrical Ordinance Law (Home use products)	30	⟷
New Zealand	Electrical Equipment Safety System (EESS)	30	⟷
Singapore	Consumer Protection Regulation (AC adapter)	30	⟷
Cambodia	Safety regulation 2004 (Consumer products connected to AC mains)	26	↓
Japan	Denan (AC adapter, Battery)	26	⟷
Brazil	IINMETRO Certification - Power cord, Phone batteries and chargers (HSE exempt)	22	↑
Malaysia	Suruhan Jaya (adapter below 20V is categorized as low risk product); IPv6; Secondary battery standards	22	⟷
Thailand	TISI Mandatory Standards (rechargeable batt, UPS)	20	⟷
Colombia	UPS only	19	↓
Vietnam	MIC Technical Regulations - Secondary lithium batteries; conformity assessment	16	New in 2020 report
Chile	System 2 (S mark) Scheme for smartphone power adaptors and low voltage chargers	13	New in 2020 report

A Closer Look

To better understand the wide range of scores for each criterion, we provide a more detailed look at product safety regulations in several countries and in the EU. We highlight best practices and areas for improvement in both broad and narrow scope programs. As regulatory systems continue to evolve, we note some recent changes to these programs and expectations for the future.

Broad Scope Detailed Scores and Highlighted Countries

Figure 1 provides a graphic representation of the detailed breakdown of scores for each of the countries listed in Table 3. This section provides detailed discussions of countries that are new to this 2020 report and those whose scores changed significantly since our 2017 report.

Morocco (Overall Score: 28)

Morocco has been newly evaluated for this 2020 report. The country's mandatory marking program for low voltage equipment received perfect scores for all criteria except avoiding regulatory obstacles. Member companies appreciate Morocco's incorporation of EU standards (with only minor differences in renumbering), acceptance of international test reports, and timely notifications through the WTO TBT inquiry point. Morocco is kept from a perfect score of 30 due to its unique marking requirements and the requirement to provide declarations in French or Arabic.

Taiwan (Overall Score: 26)

Although Taiwan scores high in the broad scope category, its score decreased 2 points from our 2017 report. Taiwan's use of best regulatory practices ensured high scores in criteria on international standards, transparency, and avoiding obstacles. However, the country currently scores only a 3 on portability of conformity assessment due in part to the Bureau of Standards, Metrology and Inspection (BSMI) accreditation requirement for international safety labs that goes beyond direct acceptance of certification body (CB) test reports from all IECEE[3] CB testing laboratories. There are concerns that Taiwan's score in this area may drop further because the government is proposing to require local testing and may no longer accept CB test reports. Surveillance activities have room for improvement, as ITI members report that BSMI surveillance processes for safety have deteriorated. In the past, customs officials did not open boxes for inspections; however, packages are now being opened, products removed and opened, and critical components matched with report criteria. In addition, it is not clear that all of the inspections are needed because issues with custom's recordkeeping may be leading to duplicative or repeat inspections. This surveillance process is especially problematic for niche products because the inspections can cause product damage and create quality concerns for the consumer.

3 IECEE, the IEC System for Conformity Assessment Schemes for Electrotechnical Equipment and Components, is a multilateral certification system based on IEC International Standards. Members use the principle of mutual recognition (reciprocal acceptance) of test results to obtain certification or approval at national levels around the world.

Figure 1. Global Scoring of ICT Product Safety Regulations – Broad Scope

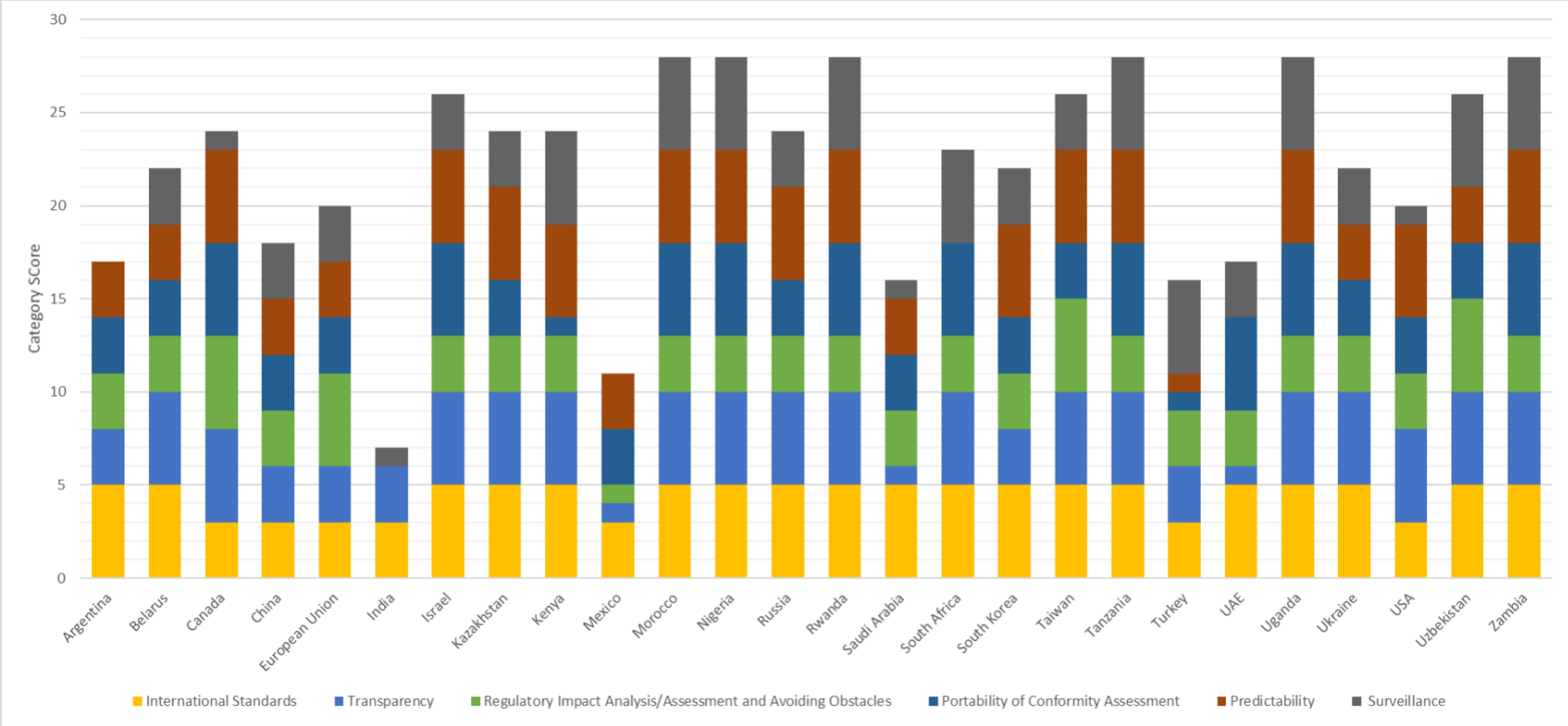

Table 3. Ease of Doing Business Scoring for Broad IT Product Safety Requirements

Country	International Standards	Transparency	Regulatory Impact Analysis/Assessment and Avoiding Obstacles	Portability of Conformity Assessment	Predictability	Surveillance	Total Ease of Doing Business Score
Argentina	5	3	3	3	3	0	17
Belarus	5	5	3	3	3	3	22
Canada	3	5	5	5	5	1	24
China	3	3	3	3	3	3	18
European Union	3	3	5	3	3	3	20
India	3	3	0	0	0	1	7
Israel	5	5	3	5	5	3	26
Kazakhstan	5	5	3	3	5	3	24
Kenya	5	5	3	1	5	5	24
Mexico	3	1	1	3	3	0	11
Morocco	5	5	3	5	5	5	28
Nigeria	5	5	3	5	5	5	28
Russia	5	5	3	3	5	3	24
Rwanda	5	5	3	5	5	5	28
Saudi Arabia	5	1	3	3	3	1	16
South Africa	5	5	3	5	0	5	23
South Korea	5	3	3	3	5	3	22
Taiwan	5	5	5	3	5	3	26
Tanzania	5	5	3	5	5	5	28
Turkey	3	3	3	1	1	5	16
UAE	5	1	3	5	0	3	17
Uganda	5	5	3	5	5	5	28
Ukraine	5	5	3	3	3	3	22
USA	3	5	3	3	5	1	20
Uzbekistan	5	5	5	3	3	5	26
Zambia	5	5	3	5	5	5	28

Israel (Overall Score: 26)

Israel has been newly evaluated for this 2020 report. The Standards Institute of Israel (SII) product and system certification programs score 5 of 5 on international standards, transparency, portability of conformity assessment, and predictability. However, there is room for improvement in terms of avoiding regulatory obstacles. This score is a 3 of 5 due to the requirements for printing labels and other materials in Hebrew, which can cause issues with shipping the same products to other countries in the region.

Israel's surveillance score is lower in comparison due to its requirements on power supplies and cords. For these products, SII take samples several time per year to monitor compliance. A more business-friendly approach is to rely on a complaint-driven system for market surveillance.

European Union (Overall Score: 20)

The 28 EU Member States have put in place a single product safety framework under the EU's Low Voltage Directive (LVD) that greatly facilitates the ease of doing business. LVD requirements are based on European safety standards that are mostly aligned with commonly accepted international safety standards. However, there are additional technical requirements, in the form of group and national differences, that have caused problems for companies and are reflected in the EU's scoring on its use of international standards. The EU's LVD program scored high in all other categories, except for surveillance due to the annual factory inspections required under the program. The region's transparency score was very good, as there is ample time for a company to learn and prepare for changes to the requirements. Transparency could be improved, however, through earlier notification and publication of the standards to be used in support of new regulatory requirements.

For products regulated under the LVD, manufacturers can use a competent lab (including their own) anywhere in the world to test their products, and they can issue a Supplier's Declaration of Conformity (SDoC), where manufacturers test and provide documentation to regulators as proof. Third-party testing and certification, performed by an independent lab, are optional and undertaken at the discretion of the company. This factor contributed to the EU's score in portability of conformity assessment. EU Member States participate in market surveillance via the Rapid Exchange of Information (EU RAPEX System), which is used to exchange their audit findings. To provide clear direction and help companies understand the rules and requirements, the EU provides readily available information through publications such as "The Blue Guide", which enhances the EU's predictability score.

The EU's score on international standards has decreased in this report because of the European Commission's consultation review process. In order to give legal effect to standards used in support of regulatory requirements, those standards must first be published as harmonized European Standards (ENs) in the Official Journal of the EU. For ICT product safety, these European Standards are often based on existing IEC standards. The Commission's recently instituted Harmonised Standards (HAS) Consultant system slows adoption of international standards, greatly reduces predictability of timeframes, and in some instances results in ENs that substantially and substantively deviate from internationally accepted IEC standards. The HAS Consultant system also affects the EU's transparency score because input from HAS consultants precludes input from industry stakeholders, which gives authority to an individual

consultant who has not participated in development of the standard and may be uninformed of specific technical issues and decisions.

To the extent that EU standards diverge from existing international standards, they may lead to unnecessary region-unique regulatory requirements. In addition, delays in the publication of harmonized ENs may generate significant compliance uncertainty, as was the case in 2016 with delayed publication under the Radio Equipment Directive (RED) and in 2019 with delayed publication under the LVD. Where the Commission requests the development of new European Standards to be used in support of regulatory requirements, these standards are not available for notification or public consultation prior to the entry into force of the corresponding new regulatory requirements.

Post-Brexit Expectations

In preparation for post-Brexit product safety regulation, the UK has published a UK conformity assessment (CA) mark as an alternative to the EU CE mark. The UK will continue to accept CE mark for an undefined period of time. It is expected that the UK will transition to using only its own mark at some point in the future.

In 2021, regulatory changes to market surveillance and compliance of products will have a direct impact on the Machinery Directive and the LVD. EU member states will be obligated to provide their market surveillance authorities with a minimum range of powers, including the power to carry out unannounced onsite inspections and physical checks of products. It is not yet clear how the member states' various market surveillance authorities will undertake activities within the expanded frameworks and with their new powers. For this reason, the market surveillance score for the EU has decreased.

United States (Overall Score: 20)

There is no unified U.S. regulatory approach for ensuring the safety of all ICT products marketed or sold in the country. Instead, the U.S. Occupational Safety and Health Administration (OSHA) regulates ICT products used in the workplace under its Nationally Recognized Testing Laboratory (NRTL) program. OSHA NRTL regulations cover a wide range of ICT products and are based on a range of U.S.-developed and other international safety standards, some of which deviate significantly from their base international safety standards. As a result, the U.S. scored lower in the criteria of international standards and portability of conformity assessment.

OSHA's policymaking is very transparent, with a public commenting process strictly followed through notices in the Federal Register. ITI members report that OSHA performs a limited, obligatory regulatory impact assessment. Most importantly, OSHA's NRTL program is unique to the U.S., which prevents manufacturers from leveraging third-party test reports and certifications already obtained outside of the NRTL program. Even with these shortcomings, respondents rated OSHA high for predictability; if a company follows the rules in this unique U.S. regulatory program, then a company has high confidence that the products can be tested and certified on time. However, OSHA scored very low on market surveillance, as OSHA requires two or more NRTL (third party) factory audits of certified products per year.

China (Overall Score: 18)

China's score in 2020 is 2 points lower than its 2017 report score. The country's score on transparency accounts for this decrease, because China typically only allows comment periods of a few weeks, rather than the standard of at least 60 days recommended by the TBT committee. However, there have been some improvements in China. From 2018 to 2019, the State Administration for Market Regulation (SAMR) removed some devices from the China Compulsory Certification (CCC) scope and also changed the conformity assessment requirements for some devices from mandatory certification to supplier declaration. SAMR allows some products that require a declaration of conformity (DoC) to be tested in the manufacturer's test lab, thus avoiding in-country test requirements. Although this DoC practice does not apply to most ICT products at this time, this method does align with regulatory best practices and portability of conformity assessment. We encourage China and SAMR to use risk-based assessments and expand the scope of this DoC scheme to cover more ICT products. Finally, although China has robust participation in international standards bodies, the government continues to rely on country-specific standards, thus affecting their international standards score.

Argentina (Overall Score: 17)

In 2019, Argentina adopted Resolution 836/19, which governs the mandatory certification of compliance with safety requirements for low-voltage electrical products marketed in the country. For the final resolution, Argentina took into account industry concerns with a draft that had been published in 2018. The regulation provides clarity on use of the S-mark for product certification by both local companies and importers, thus improving predictability of the certification process. It also allows the import of notebooks, tablets and cameras with power cords from other countries as along as an Argentina power cord is included. This flexibility is beneficial to the logistics of manufacturing as it avoids the burden of power cord removal from products imported into Argentina. The government's willingness to review its regulations, to streamline and align with international practices, and to follow good regulatory practices are commendable.

Argentina requires electric and electronic products to be certified to the Argentina safety standard or the international standard. Their regulation covers a broad range of IT products, which must be certified using S-Mark certificates. These can be issued based on recognition of foreign certificates under mutual recognition agreements (MRAs) or certificates issued under the IECEE CB Scheme. However, there is uncertainty about which agreements apply and which products must be tested, certified, and marked. Therefore, Argentina's transparency and predictability could improve.

For mark certification, manufacturers are required to undergo surveillance within 18 months from the issuance of the certificate. Argentina rated low on its surveillance program because of the requirement to have a sample product tested every year by a lab located in Argentina to verify compliance.

United Arab Emirates (UAE) (Overall Score: 17)

The UAE's low voltage equipment (LVE) program is evaluated in this 2020 report under programs with a broad scope; however, it should be noted that our understanding of this new program and its implementation are still evolving. The scope of the UAE LVE program is aligned with the EU LVD program.

ITI members find that the UAE government is working independently even though the country is part of Gulf Cooperation Council (GCC) agreements, which impacts the country's predictability score. In addition, in cases where a manufacturer has a GCC mark, they still are required to obtain a unique UAE certification. The UAE regulatory program is moving forward with a scope and standards for consumer products ahead of the GCC implementation for these products, further lowering the UAE's predictability score.

Saudi Arabia (Overall Score: 16)

Saudi Arabia has been newly scored for this 2020 report. There is room for improvement in the criterion of portability of conformity assessment because the government is working independently with their own Standards, Metrology and Quality Organization (SASO) Certificate of Conformity (CoC) scheme rather than GCC standards even though they are part of Gulf States agreements. Direct recognition or full harmonization between SASO and GCC standards would be beneficial and would enhance Saudi Arabia's portability score.

We recommend that Saudi Arabia address obstacles created by the new importer registration requirements under the Saudi Product Safety Programme (SALEEM) that mandate unnecessary registrations for multiple importers. Every importer must submit a test report to the SABER system, when this could be done once for each product by the brand manufacturer. Furthermore, the recent introduction of regulatory scope controls based on HS or HTS Codes is not helpful given that tariffs and safety risks are neither dependent nor related.

Turkey (Overall Score: 16)

Turkey has been newly scored for this 2020 report. Although Turkey, like Morocco, references EU standards, Turkey incorporates some national differences that lead to a score of only 3 on international standards. For example, Turkey does not accept the EU regulations that "maintenance operations are basically excluded from the scope of Union harmonization legislation" (Blue Guide, section 2.1). Instead, Turkey presses for spare replacement and maintenance parts to be updated to latest revision standards, even though the parts are used to maintain products that were sold in Turkey before the standard was added to the standards harmonization list. This causes significant challenges in servicing and maintaining products in Turkey over their expected lifetime.

Turkey's predictability score is 1 due to inconsistencies in enforcement. While some inspectors are overzealous in checking documentation and are second guessing markings and certifications, others are satisfied with products that clearly meet the regulatory requirements at the point of import. There is also room for improvement in Turkey's transparency score, and we encourage the country to provide timely notifications of regulatory changes and ample opportunity for stakeholder participation.

Mexico (Overall Score: 11)

Mexico's score has decreased significantly from our 2017 report. The country's score on regulatory impact analysis and avoiding obstacles decreased from 3 to 1 because certain exemptions have been removed, thereby inhibiting market access. For example, in June 2019, Mexico's External Commerce rules were amended so that Numeral 10 of Annex 2.4.1, clauses VII and VIII can no longer be used for

products under the scope of Normas Oficiales Mexicanas (NOMs) 001, 016, and 019. In the past, the rules allowed manufacturers to forgo NOM certification, as long as a transaction was business-to-business (Clause VII) or used to deliver services considered highly specialized (Clause VIII). With the rule change, Mexico now requires that a third-party certifier registration with HS code or HTC (harmonized tariff code) be included in a manufacturer's registration and certificate.

Mexico's transparency score substantially decreased, from 5 to 1, because no concrete information has been provided about when the new version of NOM 019 will be published. Furthermore, if the latest NOM 019 draft provided to industry is adopted, businesses will see substantially increased burdens because the updated NOM will eliminate an exception for products rated with input voltage less than 24V dc and will additional restrictions for certification via the 'Dictamen', such as additional paperwork for equipment or systems priced greater than US $25,000. In addition, several manufacturers have had issues with inconsistent interpretations of standards and certification requirements by customs officials at the US-Mexico border, thus affecting Mexico's transparency and predictability scores.

Finally, Mexico's score on market surveillance is now zero, because NOM 001 (released in 2019) includes new market surveillance requirements for annual sampling, and NOM 019 (expected to be released in 2020) is likely to include the same.

India (Overall Score: 7)

Since its implementation in 2012, India's Compulsory Registration Order (CRO), administered by the Ministry of Electronics and Information Technology (MeitY), has created major obstacles to doing business in the country's rapidly growing market. Among the companies surveyed for this report, all believe that the CRO has created a unique, overly burdensome, and unnecessarily complex regulatory environment for product safety. Although India's overall score is unchanged from our 2017 report, the country's score on international standards has decreased from five to three, mainly based on the government's incorporation of country-specific deviations from international standards such as IEC 60950.

India's score on portability of conformity assessment remains zero, because manufacturers must still submit products from each factory for testing and registration by government-approved labs located in India. Limited capacity and technical expertise of the Indian labs have led to bottlenecks, and manufacturers have been forced to switch labs quickly following various lab suspensions, which contributes to India's predictability score of zero. Direct acceptance of international reports from IECEE accredited labs would improve ease of doing business and enhance India's scores in portability of conformity assessment and predictability.

Unfortunately, India has not taken a risk-based approach to regulating product safety, as evidenced by the inclusion of professional products such as servers and storage equipment in the CRO. As a result, manufacturers are struggling to comply and they have repeatedly asked MeitY to align its conformity assessment requirements with international norms, to exempt or reduce the burden on low-risk products, and to focus on improving the safety of products that pose the greatest risk to the Indian public. However, the Indian government has not made any such fundamental changes, which keeps their score on avoiding regulatory obstacles at zero. Furthermore, MeitY is moving forward with expanding

the scope of CRO without first addressing existing issues with the regulation that have been repeatedly raised by stakeholders.

MeitY has enhanced their stakeholder communication and participation since 2017, which has resulted in an increased transparency score. However, there is still room for improvement by making the stakeholder meetings truly participatory and even collaborative, rather than simply a means of information dissemination.

Opportunities in Indonesia for Good Regulatory Practice

Indonesia's first venture into product safety regulation has been in the area of audio products. In 2018, the Indonesian Ministry of Industry published Regulation № 15: Enforcement of Mandatory Indonesian National Standards for Audio Video and Similar Electronic Apparatus. The regulation mandates that products in scope fulfill requirements specified in National Standard SNI 04-6253-2003 Safety: Requirements for Audio, Video and Similar Electronic Equipment. Importers and manufacturers must obtain a Certificate of Conformity and affix the SNI Mark to product packaging. Manufacturers are currently experiencing the requirement to undergo factory inspection before certificates are issued, which causes delays in bringing products to the Indonesian market.

As Indonesia seeks to expand its safety regulatory program to ICT products, the government has an opportunity to undertake good regulatory practice that will ensure Indonesian consumer access to the latest technologies that are safe and compliant. ITI encourages Indonesia to:

- Engage stakeholders, via written and globally published notifications and stakeholder meetings, well ahead of publication of requirements.
    - To help ensure transparency, we encourage Indonesia to publish a notice at an early stage when an agency proposes to adopt a technical regulation or conformity assessment procedure. We recommend the notification include a brief indication of the purpose of the proposed measure. A "reasonable time" of at least 60 days for stakeholders (domestic and foreign) to comment on proposed technical regulations and conformity assessment procedures is in alignment with good regulatory practice.
    - Indonesia can learn from experiences of product safety regulatory authorities around the world, where industry has provided valuable input on risk-based approaches to classifying products for safety regulation. ITI is pleased to be of assistance in this endeavor.
- Include international standards by reference, thereby ensuring compliance with standards that are risk-based and developed globally by consensus.
    - A regulation that references international standards for its technical requirements improves the ease of doing business by harmonizing product requirements across borders. Avoiding country-specific requirements can greatly enhance the rate of compliance, as manufacturers do not have to spend extra time developing their knowledge of new requirements. This ensures that products are pushed out to the Indonesian public safely and quickly.
- Accept international test reports that have been performed by accredited laboratories and are recognized internationally. This gives the Indonesian government a sense of security that tests have been performed according to rigorous standards and eases the financial and time burden on manufacturers seeking to place their ICT products on the Indonesian market.
- For products that are deemed to be a low risk to safety, allow compliance with safety regulatory requirements based on a supplier's declaration of conformity (SDoC) that aligns with ISO/IEC 17050 Part 1. Under a SDoC-based system, the manufacturer or supplier must undertake required testing before issuing a legal attestation of conformity.
- Employ market-sampling and/or complaint-driven surveillance. Sampling products from the marketplace, rather than performing factory inspections or taking samples for production lines, ensures that the products in the marketplace, as they are sold in the marketplace, are being tested and verified for safety.
- Allow at least one year after the final regulation and requirements are published for manufacturers and suppliers to prepare for any changes in product design, manufacturing, inventory management, repair and warranty services, and other considerations.

Narrow Scope Detailed Scores and Highlighted Countries

Figure 2 provides a graphic representation of the detailed breakdown of scores for each country listed in Table 3. This section provides detailed discussions of countries that are new to this report and those whose scores changed significantly since our 2017 report.

Cambodia (Overall Score: 26)

Cambodia's 2004 Ministerial regulation No. 115, which regulates consumer products connected to AC mains, was evaluated in the 2017 and this updated report. The country's score fell from 28 to 26, due to a decrease in transparency. This change for Cambodia's score is based on the country providing no WTO TBT Enquiry Point notifications from 2011 to 2017, none in 2018 except the month of June, none in 2019, and none in 2020 as of the date of publication of this report. The score for this criterion is keeping the country from having a perfect score of 30, as Cambodia receives top marks in all other categories. We applaud country's use of the ISO/IEC guide 21-1 and 2:2005 as guides for adopting international standards as national standards or technical regulations. However, we encourage the country to fully participate in stakeholder notification via the WTO TBT Enquiry Point.

Brazil (Overall Score: 22)

The score for Brazil's INMETRO certification program for power cords, phone batteries and chargers has increased 2 points since it was first evaluated in our 2017 report. Brazil already received top marks in international standards and transparency and this increase is in the criterion of regulatory impact assessment/avoiding obstacles to trade. This improvement is attributed to the Brazilian Foreign Trade Council (CAMEX)'s publication of Resolution 90 in 2018, which establishes good practices for the preparation and review of regulatory measures affecting foreign trade. The resolution encourages Brazilian regulatory bodies to develop regulatory agendas, conduct regulatory impact analysis, evaluate regulatory alternatives, use international standards, conduct transparent public consultations of a minimum of 60 days for all regulations with international trade effects, ensure all regulations comply with Brazil's international trade commitments, notify regulations to the WTO via the inquiry point, use evidence-based decision making, coordinate with other relevant regulators to ensure coherence and compatibility with other regulations, and review and manage regulatory stock. We applaud this incorporation of good regulatory practice.

Brazil still has room for improvement, especially in the area of portability of conformity assessment, where the country's score is 1. Generally, product safety testing must be performed in-country, unless the necessary capability does not exist in Brazil. This type of local testing requirement brings more costs to manufacturers and delays products coming to the Brazilian market. INMETRO is a signatory to the Mutual Recognition Arrangement (MRA) of the International Laboratory Accreditation Cooperation (ILAC), which can facilitate acceptance of test results from US laboratories that are accredited by US organizations and are also signatories. However, it is uncertain if test results will be accepted, which leads to a predictability score of only 3 for Brazil.

Figure 2. Global Scoring of ICT Product Safety Regulations – Narrow Scope

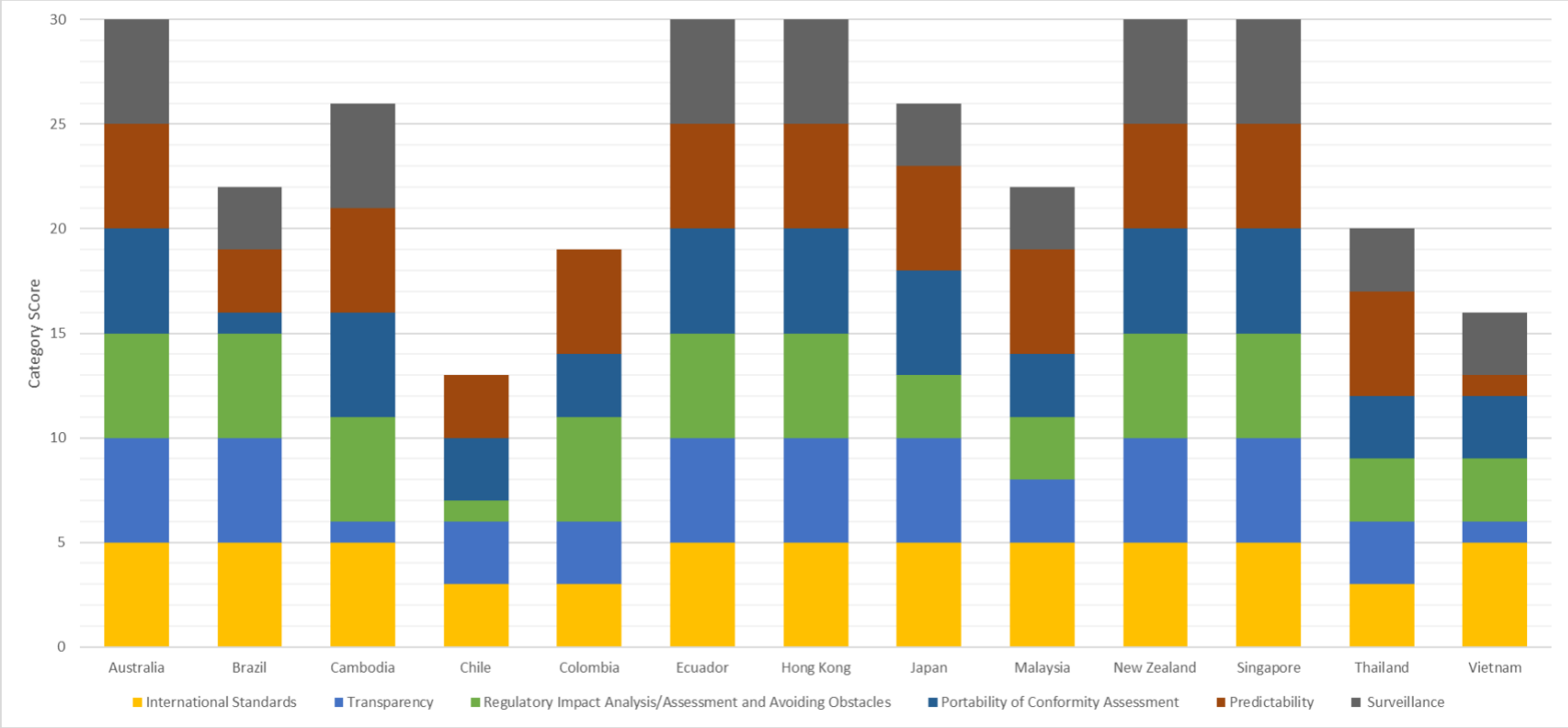

Table 4. Ease of Doing Business Scoring for Narrow IT Product Safety Requirements

Country	International Standards	Transparency	Regulatory Impact Analysis/ Assessment and Avoiding Obstacles	Portability of Conformity Assessment	Predictability	Surveillance	Total Ease of Doing Business Score
Australia	5	5	5	5	5	5	30
Brazil	5	5	5	1	3	3	22
Cambodia	5	1	5	5	5	5	26
Chile	3	3	1	3	3	0	13
Colombia	3	3	5	3	5	0	19
Ecuador	5	5	5	5	5	5	30
Hong Kong	5	5	5	5	5	5	30
Japan	5	5	3	5	5	3	26
Malaysia	5	3	3	3	5	3	22
New Zealand	5	5	5	5	5	5	30
Singapore	5	5	5	5	5	5	30
Thailand	3	3	3	3	5	3	20
Vietnam	5	1	3	3	1	3	16

Colombia (Overall Score: 19)

Colombia's score dropped from 20 in our 2017 report to 19 in 2020. Despite perfect scores in the criteria of avoiding regulatory obstacles and predictability, Colombia scored zero in surveillance. For uninterruptible power supplies (UPS), market surveillance is an annual activity. Colombia's score in this area can increase by moving to a complaint-driven system of market surveillance.

Colombia's scores on international standards and portability of conformity assessment are unchanged from 3, and we urge the country to adopt international standards rather than develop country-specific requirements and to accept international test reports, rather than requiring in-country testing. Finally, Colombia is urged to provide timely notifications and robust stakeholder participation opportunities to increase their transparency score.

Vietnam (Overall Score: 16)

Vietnam's technical regulations promulgated through the Ministry of Science and Technology (MOST) and Ministry of Communications (MIC) are evaluated for this 2020 report. The country is regulating a narrow scope of products, such as secondary batteries. Vietnam received a top score in the area of referencing international standards. However, Vietnam scored lower than most countries in aspects of transparency due to the short timeframes provided between publication of regulations and their effective dates. Generally, industry is seeking a one-year timeframe for compliance with new or revised regulations. Whereas MOST has generally provided adequate notification timeframes under TBT, MIC has not provided the 60-day review and comment period recommended by WTO TBT for proposed technical regulations and conformity assessment procedures. Vietnam also scored low for predictability of certification timeframes and requirements and costs associated with proposed conformity testing. We do appreciate responses from MIC and MOST when we have requested clarifications and visits with the agencies, and we encourage the agencies to continue on a path towards enhanced stakeholder communication and participation. Above all, we encourage MIC and MOST to adopt more advanced notification practices in accordance with the WTO TBT and other international norms.

Chile (Overall Score: 13)

Chile is newly evaluated and scored for this 2020 report. ITI members who reviewed Chile's regulations find room for improvement in the requirements and implementation of Chile's System 2 (S mark) for smartphone power adaptors and low voltage equipment. The program requires that all power adaptors for smart phones be certified by SEC (the Chilean Safety Regulator) and be displayed with the product that contains the charger. This regulation has created implementation challenges and cost increases due to the Chile-specific requirements.

Chile's surveillance score is low because, rather than accepting existing international documentation issued by international bodies under CB schemes, they require factory inspections designed just for the Chilean market.

With the finalization of Resolution 31313, Chile expanded the scope of the regulation to power adapters used for personal computers including desktops, all-in-one (AIO) technology, and notebooks, effective January 2, 2021. The regulatory process for this resolution included some very short timeframes for

response. Chile's score on transparency would increase with longer notification timeframes and increased stakeholder participation in the development of risk-based regulatory schemes. In addition, Chile has proposed legislation that is expected to require provision of numerous samples for market surveillance as well as special labelling requirements such as a 2D bar code and special markings of problematic size.

Opportunities for a Risk-based Approach as Japan's DENAN Scope Expands

In Japan, the Ministry of Economy, Trade, and Industry (METI) implements the DENAN product scheme to ensure compliance with Japan's Electrical Appliance and Material Safety Law. Local Japanese companies must notify METI when production starts, and importers must provide proof of conformity prior to entering the Japanese marketplace, including having the proper PSE safety approval markings that include the name of the importer. For products classified as "specified" electrical products, importers must obtain a third-party product conformity assessment report or secure an official equivalency certificate from the "specified" product's manufacturers. Products classified as "non-specified" must follow a self-declaration and label scheme. Japan is a member country of the IECEE's Certification Body (CB) Scheme, therefore CB-type reports can be utilized to demonstrate compliance if the testing addresses Japan's unique AC voltage and current requirements.

Japan is expected to broaden the scope of the DENAN law in the near future. They are expected to further expand this proactive, risk-based approach to regulation of all ICT products. One example of such a model program is Australia's Electrical Equipment Safety System (EESS) which incorporates regulatory and conformity assessment requirements in categories based on a product's risk being low, medium, or high, with increasing conformity assessment obligations as product risks increase. We encourage Japan to continue to incorporate this type of risk-based approach into the future DENAN conformity assessment requirements as they consider expansion of the scope of product safety requirements.

Criteria and Scoring

Since its implementation in 1995 with the establishment of the WTO, the TBT Agreement has been an essential tool to help prevent and address barriers to trade resulting from technical regulations aimed at ensuring the safety of ICT products. The TBT Agreement establishes rules and procedures regarding the development, adoption and application of voluntary product standards, mandatory technical regulations, and conformity assessment procedures (such as testing or certification) that determine whether a product meets such standards or regulations. The TBT Agreement requires WTO members develop and apply standards, technical regulations, and conformity assessment procedures on a nondiscriminatory and transparent basis, using relevant international standards and guidelines, when appropriate.[4] ITI considers international standards to be those developed in accordance with the principles outlined in the "Decision of the Committee on Principles for the Development of International Standards, Guides and Recommendations with Relation to Articles 2, 5 and Annex 3 of the Agreement" as published in the WTO's *Decisions and Recommendations Adopted by the WTO Committee On Technical Barriers To Trade Since 1 January 1995*.[5]

The TBT Agreement provides an appropriate model for many good regulatory practices, and we have used it as the basis for scoring countries on their ease of doing business. Below, we describe each criterion and how the TBT Agreement asks WTO members to apply it. We also provide a metric and guidance on how each criterion was scored for this report.

1. Use of international standards with minimal national deviations

The TBT Agreement calls on WTO members to use relevant international standards, or the relevant parts of them, as a basis for their technical regulations and to use relevant international recommendations and guides, or relevant portions of them, as the basis for their conformity assessment procedures. However, the TBT Agreement does not require the use of international standards, guides and recommendations if they would be ineffective or inappropriate to fulfill the WTO member's "legitimate objectives" (Arts. 2.4 and 5.4).

In addition, WTO members should participate "within the limits of their resources" in the preparation, by international standardization bodies, of

Adoption of IEC62368-1:2018

Although not fully captured in this report, many countries are making an important transition to the IEC62368-1:2018 product safety standard for ICT equipment. For this important transition to be successful, national adoption and applicability plans must be aligned with international best practices for normative adoption and application timeframes. Many countries are now considering moving to IT product safety regulations based on second or third editions of the international standard, ISO/IEC 62368, a hazard-based approach to product safety. Additional weight will be given to this metric in future reports.

4 See: https://ustr.gov/trade-agreements/wto-multilateral-affairs/wto-issues/technical-barriers-trade
5 See: Annex 2 of https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/G/TBT/1R12.pdf

international standards for products for which they either have adopted, or expect to adopt, technical regulations, and in the elaboration of international guides and recommendations for conformity assessment procedures." (Art.2.6 and 5.5).

Score Criteria:

0 National requirements not aligned with relevant international standards.
1 National requirements harmonized with relevant international standards with additional national deviations or group differences having a significant impact.
3 National requirements harmonized with relevant international standards with additional national deviations or group differences having a minimal impact.
5 National requirements fully harmonized with relevant international standards without any national deviations or group differences.

2. Transparency

To help ensure transparency, the TBT Agreement requires WTO members to publish a notice at an early stage and notify other members through the WTO Secretariat when it proposes to adopt a technical regulation or conformity assessment procedure and to include in the notification a brief indication of the purpose of the proposed measure. These obligations apply whenever a relevant international standard, guide or recommendation does not exist, or the technical content of a proposed technical regulation or conformity assessment procedure is not in accordance with the technical content of relevant international standards, guides or recommendations. In such circumstances, members must allow "reasonable time" for other members to comment on proposed technical regulations and conformity assessment procedures (the TBT Committee recommends "at least 60 days" (G/TBT/26)), and take into account comments it receives from other members (Art. 2.9 and 5.6).

The TBT Agreement establishes a Code of Good Practice that is applicable to voluntary standards and obligates WTO members and standardizing bodies that have accepted it to publish a work program every six months outlining the standards it is currently preparing and to give interested parties at least 60 days to comment on a draft standard. Once the standard is adopted it must be promptly published (Annex 3).

The TBT Agreement also requires that all technical regulations and conformity assessment procedures be promptly published (Art. 2.11 and 5.8).

In addition, the TBT Agreement requires each WTO member to establish an enquiry point to answer all reasonable questions from other members and interested parties and to provide documents relating to technical regulations, standards, and conformity assessment procedures adopted or proposed within its territory (Art. 10.1).

Score Criteria:

0 No application
1 Some application but inconsistent or incomplete
3 Adequate application
5 Broad, comprehensive application

3. Regulatory impact assessments and avoiding unnecessary obstacles to trade

When preparing or applying a technical regulation, a WTO member must ensure that the regulation is not more trade-restrictive than necessary to fulfill the member's legitimate objective (Art. 2.2).

The obligation to avoid unnecessary obstacles to trade also applies to conformity assessment procedures. Conformity assessment procedures should not be prepared, adopted or applied with a view to, or with the effect of, creating unnecessary obstacles to international trade. Conformity assessment procedures must not be stricter than necessary to provide adequate confidence that products conform with applicable requirements (Art. 5.1.2).

WTO members are obligated to confirm the need for government intervention and set policy objectives accordingly (Art. 2.2 and Art. 5.1.2). They must identify alternatives to regulation, consider the option of not regulating, and consider the option of improving existing regulations rather than introducing new ones.

Assessing regulatory impact and avoiding unnecessary obstacles to trade also entails using relevant international standards as a basis for regulatory measures; recognizing the equivalence of other WTO members' technical regulations; recognizing the results of conformity assessment in other members; defining available technical infrastructure; and using international and regional systems for conformity assessment. This process should also ensure any proposed measures are non-discriminatory (Art. 2.1, 2.2, 5.1, 5.2).

Performing a regulatory impact assessment requires using data (such as quantitative and/or qualitative) to identify impacts of alternatives; conducting cost-benefit analysis of alternatives (considering both direct and indirect impacts); assessing trade restrictiveness of alternatives; and assessing whether alternatives impose different requirements (including with respect to conformity assessment procedures) on foreign manufacturers (Art. 2.1, 2.2, 5.1, 5.2).

Score Criteria:

0 No application
1 Some application but inconsistent or incomplete
3 Adequate application
5 Broad, comprehensive application

4. Portability of conformity assessment results

The ease of doing business internationally depends on a company's ability to leverage economies of scale, including those for testing and certification. There is great benefit from testing or certifying a product once and using these results to meet requirements in multiple markets, without the need for duplicating this work. In order to promote the portability of conformity assessment results, the TBT Agreement requires that WTO members shall:

- Whenever practicable, formulate and adopt international systems for conformity assessment and become members thereof or participate therein (Art.2.6 and 5.5).

- Give positive consideration to accepting as equivalent, technical regulations of other members, even if these regulations differ from their own, provided they are satisfied that these regulations adequately fulfil the objectives of their own regulations (Art. 2.7).

- Ensure that central government bodies use them, or the relevant parts of them, as a basis for their conformity assessment procedures, in cases where relevant guides or recommendations issued by international standardizing bodies exist or their completion is imminent (Art. 5.4).

- Play a full part, within the limits of their resources, in the preparation by appropriate international standardizing bodies of guides and recommendations for conformity assessment procedures, with a view to harmonizing conformity assessment procedures on as wide a basis as possible (Art. 5.5).

- Recognize "whenever possible" the results of conformity assessment procedures (such as test results or certifications), provided the member is satisfied that those procedures offer an assurance of conformity that is equivalent as its own. Without such recognition, products might have to be tested twice, first by the exporting country and then by the importing country. The agreement recognizes that members may need to consult in advance to arrive at a "mutually satisfactory understanding" regarding the competences of their respective conformity assessment bodies (Art. 6.1).

The TBT Agreement also encourages WTO members to enter into negotiations to conclude agreements providing for the mutual recognition of each other's conformity assessment results (i.e., mutual recognition agreements or MRAs) (Art. 6.3).

Score Criteria:

0 No application
1 Some application but inconsistent or incomplete
3 Adequate application
5 Broad, comprehensive application

5. Predictability of outcome

The TBT Agreement requires consistency over time and between affected parties in application of the rules by the authority and by test labs. Completion of conformity assessment services, such as testing, must be completed on time and at agreed costs.

Score Criteria:

0 Unpredictable. Companies regularly must escalate issues to address surprises.
1 Mostly unpredictable. Companies are often unsure of outcomes.
3 Mostly predictable. The application of rules and completion of conformity assessment services are generally as expected.
5 Predictable. There are very few unexpected outcomes.

6. Surveillance Program

The WTO member government authority may have a surveillance program to check on the compliance of production units after granting initial approval or certification of a product. Requirements under a surveillance program include marketplace sample verification, visual verification, product test verification, factory audits and periodic renewal of approvals/certifications.

Score Criteria:

0 Annual or bi-annual product retesting by a laboratory in-country (Argentina model).
1 Two or more per year third-party factory audit of products (North American model).
3 Annual third-party factory audits based on quality management (EU model).
5 Market/customer sampling or complaint driven surveillance (Global, EU model).

7. Other considerations

Fees: In this scoring, ITI has not included information about fees directly related to the product safety approval process. For example, fees associated with certificate or license issuance typically range from about $1,000 to $4,000. In addition, there may be fees associated with renewal of third-party certificates or licenses, factory surveillance, or provision of product samples for unit verification testing. These fees are exacerbated when there are requirements for in-country testing of equipment. While such fees may have a cumulative impact, they are generally far less than the indirect costs associated with delays in getting products to market and costs resulting from greater regulatory uncertainty.

Product labeling: Regulatory requirements that include mandatory product labeling can also have a significant impact on the ease of doing business. Rules that require special types of labels such as holograms or those that force manufacturers to obtain labels with serial numbers that must be applied in a specific order to a large number of products are extremely burdensome. Additionally, products may have to be redesigned in order to meet labeling provisions. This often occurs with very small products with limited surface area that must accommodate a wide range of international regulatory marks and information.

This impact can be reduced when there is flexibility to place labels on the product, on the packaging, or in accompanying materials such as user manuals when the products are below a minimum size. Rules that do not include special printing instructions and those that permit manufacturers to mass produce the labels without prior communications with the regulating authority are also beneficial. Optimally, regulations would allow for the use of electronic labeling (e-labeling), where label information can be displayed on a device's screen or via a machine-readable code (such as QR code) or web link on the product or packaging. The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) are developing a standard for e labeling. Once adopted, this standard will help in the effort to have countries align their e-labeling requirements globally.

Recommendations

When considering a new regulation, we recommend that a government consider multiple objectives:

- Foremost, establish a clear and objective safety goal that can best be achieved through regulation.
- Assess and seek to minimize the impact of the regulatory measure on both market access and on the manufacturers and importers that are subject to the regulation.
- Encourage investment and the creation of an open environment for innovative and new technologies and foster competition among the players in the sector, all of which have the desired effect to improve consumer choice and lower costs.

Before drafting regulatory measures, a government should conduct an impact assessment of relevant alternatives based on a balanced consideration of benefits and costs of the measure. The relevant alternatives should include the evaluation of non-regulatory options where feasible, including a "do nothing" option. This impact assessment should be evidence-based using the best available data, and all qualitative and quantitative factors should be considered, including potential economic, environmental, public health and safety, social, and distributive impacts, as well as the degree and nature of the risks involved.

When the impact assessment demonstrates regulatory measures are necessary for ICT equipment, a government has the option to align requirements with local, national, or international standards. Generally, a regulation that references or directly permits the use of international standards for its technical requirements improves the ease of doing business by harmonizing product requirements across borders. Alternatively, national standards can be considered where they have no or limited differences from the base international standard.

A government has a range of options in setting conformity assessment (CA) procedures. If the government employs an approach to CA procedures that is not sufficiently rigorous, it may not adequately ensure compliance. On the other hand, a government that employs an overly rigorous approach adds cost and unnecessary burdens on companies. Ideally, a government should set a flexible CA approach that addresses the risks, minimizes burden, and aims for simplicity to achieve a sufficient level of confidence.

Where relevant, feasible, and consistent with regulatory objectives, the government should consider each of the various ICT product categories and its associated safety risks (such as the likelihood of occurrence, the degree of injury, etc.). For example, a wireless mouse operated by two AAA batteries poses a different level of risk than a notebook and its AC adapter, which are different still to a data server under the control of and operated by engineering professionals. We recommend that governments consider exempting very low risk product categories from regulatory measures while providing for a range of CA alternatives that may include Type Approval models for higher risk products and Supplier Declaration of Conformity (SDoC) for lower risk products.

In setting up its product regulation, a government's choices will either support an open market or hinder trade and competition. Regulatory measures can be designed to avoid unnecessarily divergent or duplicative requirements with other countries. We recommend governments participate in mutual recognition agreements (MRAs) with other governments or, ideally, leverage trustworthy and trade facilitative international schemes by recognizing the testing results and approvals of third-party labs who participate in mutual recognition agreements.

We recommend governments to be open and transparent when drafting new or changing existing product regulations. Governments can benefit by including robust participation by citizens, industry and other stakeholders with adequate time, opportunity, and tools (including the internet) for stakeholder input and public comment at appropriate stages of the policymaking process prior to final adoption. Doing so allows companies to prepare for new or changing requirements, provides an opportunity to provide constructive feedback and voice concerns, and creates certainty of continuous supply chain flow (such as no product holds, on-time changes in design, components, manuals, and labels).

By keeping CA procedures simple, a government can minimize the resources needed to oversee and administer its CA program and assign more resources to appropriate market surveillance programs. The deployment of a good market surveillance program is a key means of controlling product compliance in the market. We recommend that market surveillance programs be complaint-driven and for consumer products, including random sampling of products in the marketplace. A visual inspection of a product can be conducted to determine if required labels and markings are in place. If an authority has doubts, it can contact the manufacturer with questions or require that a market sample unit undergo selective testing. We recommend that governments prioritize efforts on those companies and products that pose serious risks and on those who are most likely to fail to comply, with greater scrutiny placed on repeat offenders. The benefit is two-fold, as a deterrent for bad actors and an incentive for good actors.

When a product is alleged to pose a hazard and/or not conform to the requirements, we recommend that companies be allowed to respond, to provide additional supporting information, or to request further investigation. If the alleged incident is confirmed to be true, the government should impose appropriate intervention actions. Examples include, but are not limited to, formal warnings with a remediation plan, product holds, product recalls, discontinuation of sales and criminal fines and penalties. We recommend that the regulatory authority follow the principle of proportionality in considering the appropriate intervention action. For a non-compliance event that does not result in a safety hazard (such as minor administrative non-compliance or mislabeling) a warning with remediation plan may be appropriate. For a non-compliance event that directly poses a safety hazard, the intervention action should be to quickly to determine which products pose the risk (such as by lot number or date code), remove them from the market, and deter future unsafe products from being released into the marketplace. In a case where a company is purposely circumventing requirements, criminal fines and penalties may be appropriate.

We recommend that governments monitor and evaluate the effectiveness of existing regulatory measures on a periodic basis through a transparent procedure. Governments can benefit when companies and stakeholders are allowed to provide input into these evaluations. Subsequently, the government can modify, expand, simplify or repeal its regulatory measures based on what has been learned in the evaluation, with the aim to minimize burden in achieving its regulatory objectives.

Conclusion

According to the WTO, non-tariff measures imposed by governments have almost twice the impact on ease of doing business as tariffs. Many of these non-tariff measures are the result of countries' unique requirements that, cumulatively, have created a global patchwork of standards and conformity assessment requirements, including those for ICT product safety. Without regulatory certainty and predictability, costs increase for manufacturers as they navigate complex rules and for governments as they expend more resources to manage compliance. Perhaps the biggest cost is the reduced consumer access to technologies that enable fundamental social and economic benefits.

ICT companies rarely manufacture products for a single country; they make products for the global market. Accordingly, to reap the full benefits of trade and investment in IT innovations, countries can choose to forego unique approaches to product safety, keep regulatory intervention to a minimum, follow good regulatory practices, and not impose unjustified impediments on trade, manufacturing and supply chain operations. In this way, improving the ease of doing business in a country supports a stable, global regulatory environment that benefits all stakeholders while creating new societal and economic growth opportunities for their citizens who adopt and leverage the innovations created by the tech sector.

Member Companies

ITI