A Safe and Reliable Internet-of-Things Capable Product Infrastructure

Risks to safety, security, and privacy exist at all levels of development of Internet-capable devices, requiring action throughout the product life cycle to protect consumers. The third-party conformity assessment industry has the necessary capabilities and consumer trust to serve in this role.

The market for consumer products capable of connecting to the internet (e.g., IoT devices) is growing exponentially, thanks in part to innovation and the unique ability of these devices to address consumer needs. As reported in the TIC Council Value of TIC Study[1], the size of the global IoT consumer market is expected to grow from $53bn in 2019 to an estimated $188bn in 2027.

The speed of growth and intricate nature of these products presents unique risks to privacy, safety, and security for consumers. **The independent third-party TIC sector, representing testing, inspection, certification, and other conformity assessment activities, can play a unique role in evaluating and confirming that internet capable devices** and the manufacturers that produce them have implemented appropriate mitigation strategies[2] to address these risks.

Manufacturers and Suppliers – In a recent cybersecurity breach caused by hacked SolarWinds programming, nine federal government networks are thought to have been compromised along with countless commercial businesses. A similar breach to a manufacturer or supplier system without the necessary safeguarding, would jeopardize the security and safety of all consumer products within that infrastructure. Independent third-party conformity assessment, readily available today and in use by many organizations along the supply chain, would provide regulators and consumers with needed confidence that such hacks could be prevented or mitigated.

Product Development – Products must have security and safety designed into them and address risks created by the introduction of internet capabilities. Ensuring security passwords can be set on devices, that they are not visible to roaming signals, and other steps can reduce the likelihood of intrusions and are a commonsense safety measure. Independent third-party TIC organizations are uniquely skilled to support manufacturers during the design process and also to evaluate end products to ensure key performance functions, such as the setting of passwords and partitioning of devices on networks, are available to consumers.

Product Lifecycle – Software updates to IoT capable devices have the capability of compromising safety, compliance with applicable rules and standards, and introducing unknown hazards to consumers. Evaluating updates for potential risks and overseeing the delivery of those updates to internet capable devices create challenges for manufacturers that independent third-party TIC organizations can help address.

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[1] "Value of the Testing, Inspection and Certification Sector," Final Report, December 2020. Contact americas@tic-council.org to receive a copy on the date of publication.

[2] The Internet of Things (IoT) and Consumer Product Hazards, IFIA's recommended guidelines for ensuring the safety of connected devices, https://www.tic-council.org/application/files/5015/5679/7564/IFIA_Recommended_Guidelines_IoT_2018.08.23_RO.pdf

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Secondary Consumers - When a consumer uses an IoT device, they connect that device to their home networks and phones and provide those devices with personal security information such as Wi-Fi passwords, personally identifiable information, and more. These devices may then be sold "as used" to secondary consumers. This presents a unique challenge in ensuring these products are updated, safe, and secure for secondary users and that stored information can be cleared or wiped prior to it being passed on to its next owner. Independent third-party TIC organizations play a unique role in standards development discussing these long-term use applications and working with industry, policy makers, and consumers to identify solutions that are cost-effective, efficient, and will ensure the safety and security of consumers. Due to their close involvement in the development of these standards, TIC organization are best suited to evaluating compliance and certifying products as meeting established requirements.

Why Independent third-party conformity assessment?

There are one million TIC employees (often in high-wage STEM jobs) scattered in more than 160 countries around the globe offering conformity assessment services.[3] The TIC industry supports manufacturers with a highly skilled workforce and capabilities that manufacturers may not have the capital and resources to maintain in-house.

Third-party TIC providers are highly trained in thousands of standards, rules, and regulations and in their application to a wide range of products. This makes them uniquely qualified to evaluate immerging and innovative products not yet encountered on the market.

Independent third-party TIC organizations, by their nature as independent and impartial evaluators, can provide consumers with a level of confidence in products that would not be achieved to the same extent by conformity assessment services performed by first parties.

Independent third-party TIC organizations, such as those represented by the TIC Council, accredited to international standards such as ISO/IEC 17025 for testing and ISO/IEC 17065 for certification, provide an extra layer of confidence for consumers and regulators that TIC competencies and capabilities have been evaluated by an independent external body.

Incorporating the use of independent third-party TIC organizations into oversight programs for internet capable devices is the cost-effective strategy to support consumer confidence and to protect the safety and security of consumers.

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TIC Council is a global association representing over 90 international independent third-party testing, inspection, certification and verification organizations. The industry represents an estimated one million employees across the world with annual sales of approximately USD 200 billion

[3] "Value of the Testing, Inspection and Certification Sector," Final Report, December 2020. Contact americas@tic-council.org to receive a copy on the date of publication.

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