

OpenStand: A Platform for Global Interoperability

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Standards have proven to be a key facilitator in the growth of the Internet, and now lessons learned during the Internet's development are fueling a transformation in standards.

The processes that produced the global standards that have helped render the Internet and the Web the premier platforms for worldwide social impact, technological innovation and borderless commerce have revealed a flexible and efficient model for standards development and adoption. This model is emerging as broadly applicable across more and more technology spaces, and it is this model that the newly announced "OpenStand" principles seek to define. Taken together, the principles create a borderless, modern paradigm for global, open standards that is capable of keeping up with the world's rapid technological advances and interoperability demands.

A Complementary Model of Standards Development and Adoption

Global standards foster interoperability, and, consequently, global standards for centuries have fueled technology innovation, the introduction of more sound and interoperable products and services to consumers, enhanced public safety, and expanded markets for industry. In addition to being fundamental tools of engineering, global standards are fundamental to social well-being. The value and necessity of global standards, in fact, are coming into keener focus in the age of globalization.

In what has effectively become a borderless world of commerce, companies more than ever need global standards in order to cost-efficiently create products and services for rollout to customers all over the



world. Certainly the customers benefit, too—with expanded choice, simpler product implementations and better prices. In this way global standards benefit all of humanity.

But borderless commerce is a relatively new phenomenon.

Markets were historically defined by the world's conventional political boundaries, and so the traditional model of standards adoption was logically constructed to align with that industry reality. Internationally relevant standards were recognized by one of the world's various national standards bodies as created by treaties and other intergovernmental agreements, oftentimes via a one-nation/one-vote scenario. This model of standards adoption is highly familiar and deeply rooted in many technology spaces, and will undoubtedly continue to play a pivotal role in world commerce for many years.

And yet with the fantastic opportunity and pressure to engage in a borderless, globally scoped marketplace, companies have sought more efficient methods for defining the global standards that diminish region-by-region barriers to doing business. In certain key technology areas—the Internet is clearly a notable example—such methods have been honed and have matured. From these methods a market-driven,

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complementary model of standards development and adoption has been defined, one in which the international relevance of a standard is measured by grassroots uptake in real-world product and service deployments.

Proven Practices, New Principles

The Internet operates, behaves, is used, and happens, by and large, in the same way from one market to the next around the globe. For example, no matter where you find yourself in the world, connecting to the Internet is a mostly simple and familiar experience. One of the primary reasons that this user experience is largely consistent is a widely adopted suite of underlying global standards and the wide interoperability that they have fostered.

Over the last three decades industry has invested heavily and consolidated around certain foundational Internet standards: IEEE 802® standards for physical device connectivity, routing protocols and standards for end-to-end global Internet interoperability from the Internet Engineering Task Force (IETF), and browser standards from the World Wide Web Consortium (W3C), among others. The standards were developed with a focus toward technical excellence and consumer demand, and were deployed through the collaboration of many participants from all around the world.

The results? A transformation in the ways the world accesses, uses and thinks about information has been unleashed. Whole new business models have been established. Billions of lives have been touched. And it has been an utterly market-driven, organic phenomenon with an impact across society.

So, in the wake of the Internet's first decades of global development and influence on humanity, organizations responsible for its effective and efficient standardization processes came together to essentially codify them in principles extendible to other industries and technology areas that touch people's lives. This is the origin of the OpenStand principles, and on Aug. 29, 2012, IEEE, the Internet Architecture Board (IAB), IETF, the Internet Society, and W3C announced that they had signed a statement affirming their importance and inviting other international standards organizations, governments, corporations, and technology innovators to show their support.

A modern paradigm for global, open standards is shaped by adherence to the following jointly developed principles:

- **Cooperation among standards organizations:** The principles demand “respectful cooperation between standards organizations, whereby each respects the autonomy, integrity, processes, and intellectual property rules of the others.”

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- **Adherence to due process, broad consensus, transparency, balance, and openness in standards development:** For example, “Decisions are made with equity and fairness among participants ... Public comment periods are provided before final standards approval and adoption ... Standards processes are open to all interested and informed parties.”
- **Collective empowerment:** The principles demand that standards “are chosen and defined based on technical merit, as judged by the contributed expertise of each participant; provide global interoperability, scalability, stability, and resiliency; enable global competition; serve as building blocks for further innovation; and contribute to the creation of global communities, benefiting humanity.”
- **Availability of standards to all:** “Standards specifications are made accessible to all for implementation and deployment. Affirming standards organizations have defined procedures to develop specifications that can be implemented under fair terms ...”
- **Voluntary adoption:** “Standards are voluntarily adopted and success is determined by the market.” When companies are not mandated to conform to certain standards and can instead voluntarily, flexibly leverage the standards-based technologies that yield products and services that their customers actually want, constraints on innovation are lifted.

The principles are available in full at open-stand.org.

Eliminating Duplicated Effort, Empowering the Market

The benefits of global standards are obvious. They include fostering interoperability, ultimately yielding better products at better prices for consumers and diminishing barriers to global markets for industry. One of the primary benefits of the OpenStand principles is that they are proven in their ability to help humanity more quickly realize the benefits of global standards.

For example, in the modern standards paradigm

defined by the OpenStand principles, industry shoulders significantly less overhead of process associated with developing and conforming to standards from one environment to the next. Duplication of effort is eliminated through collaboration among standards organizations and coordination of future standards development. Standards organizations coordinate their work so that time, money and effort—industry’s time, money and effort, ultimately passed on to customers in the form of higher prices—are not expended on needless duplicated processing of a high-quality standard for various markets and communities.

The result is that the global standards environment is made more efficient for all. Industry realizes the global standards it needs to reach global markets more quickly and cost-effectively, and consumers gain access to the interoperable products and technology innovations that they desire more quickly and cost-effectively. The voice of an empowered market rings loud and clear. Consumers are empowered above all else to determine a standard’s relevance and choose the products and services that they want and need, and the cycles of technology innovation and market growth accelerate.

Relevance in Additional Technology Areas

For some technology areas this modern paradigm for global, open standards is brand new. For participants in others the OpenStand principles will feel familiar, almost self-evident and obvious.

For example, many of the electronic-design industry’s foundational standards are market driven (as opposed to being ratified by national-body organizations). SystemVerilog, the Unified Power Format (UPF) and the Universal Verification Methodology (UVM), among others that are essential in contemporary design automation for complex electronic solutions, exemplify the OpenStand principles in action.

The global smart-grid effort, on the other hand, is a mixed bag. While global standards have a successful

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history in the communications and information technology (IT) industries, the standards landscape in the power industry has been historically fragmented. Except for some global standards in the performance technology space, the power industry has largely had to navigate a complex, market-by-market standards landscape. The next-generation smart grid—which seeks to augment regional facilities for electricity generation, distribution, delivery, and consumption with two-way, end-to-end communications and control to expand consumer choice, improve power reliability, allow greater reliance on renewable energy sources, etc.—requires system-level products that seamlessly interoperate with systems elsewhere in the world, including legacy infrastructure. In this way global standards could help accelerate smart-grid rollout by helping manufacturers of smart-grid products to realize a global marketplace and implementers to cost-effectively source smart-grid solutions on a global scale.

By encapsulating the Internet’s successful and borderless model for standards development and adoption, the OpenStand principles create a platform for global interoperability that is broadly applicable across the technologies that people use and the industries that will drive job growth and underpin the modern economy in the decades ahead.