

## International Update

International items of interest for January/February 2016 are as follows:

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1. New global platform to help cities become sustainable and smart [More>>](#)
2. WTO releases new statistical profiles on global value chains [More>>](#)

ISO items of interest for January/February 2016 are as follows:

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1. New work item proposal on natural bitumen [More>>](#)
2. New work item proposal – Urban pedestrian bridge (footbridge) assemblies - location [More>>](#)
3. New work item proposal - Sustainable non-sewered sanitation systems [More>>](#)
4. New Field of Technical Activity – Safety Management of Complex Technical Systems [More>>](#)
5. Global service standard workshop – June 2016 [More>>](#)
6. New version of ISO Standard on Medical device quality published [More>>](#)
7. Workshop on 'Interoperability of Microfluidic devices: Guidelines for pitch spacing dimensions and initial device classification' [More>>](#)

IEC items of interest for January/February 2016 are as follows:

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1. Printed electronics - The challenge of Systems Integration [More>>](#)
2. The wearable future - Keeping track of ourselves [More>>](#)
3. Standardization Management Board meeting – February meeting [More>>](#)

**\*\* For further information about any article please email: [mail@standards.org.au](mailto:mail@standards.org.au)**

## International

### 1. New global platform to help cities become sustainable and smart

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To help city stakeholders worldwide make their cities smarter, the first World Smart City online community launched on 18 January. This new community aims to identify top pain points that are holding city development back.

Given that by 2050, an estimated 66% of the world's population will live in urban areas, supplying these populations with basic resources like safe food, clean water and sufficient energy, while ensuring overall economic, social and environmental sustainability, will be a major challenge. Cities need to substantially increase the efficiency in which they operate and use their resources.

However, many of the systems used today in cities originate from different suppliers and they are maintained by various agencies, sometimes working in isolation. To connect them both physically and virtually, standardized interfaces need to be put in place.

The community launch is part of the lead up to the first World Smart City Forum, which is organized by the IEC, in partnership with ISO and ITU. The Forum will be held in Singapore on 13 July 2016, co-located with the World Cities Summit [www.worldcitiessummit.com.sg/](http://www.worldcitiessummit.com.sg/) and Singapore International Water Week [www.siwww.com.sg](http://www.siwww.com.sg).

The World Smart City community [www.worldsmartcity.org](http://www.worldsmartcity.org) will gather relevant city stakeholders globally and engage them in value-add discussions and high-level networking. This will help to crystalize some pain points of Smart City development in areas such as mobility, water, energy, cybersecurity and privacy.

### 2. WTO releases new statistical profiles on global value chains

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The WTO has released new statistical profiles on global value chains (GVCs) for 61 economies. These profiles, available on the WTO website, bring together a set of indicators on trade taking place within GVCs.

Using data from the OECD-WTO database on Trade in Value Added (TiVA), these profiles provide insights into the value-added content of exports, the interconnection between economies within GVCs and the role of the services industry in exports. Other indicators related to GVCs include trade in intermediate goods, trade facilitation and foreign direct investment.

The number of profiles made available reflects the current coverage of the TiVA database, which will be gradually expanded.

Australia is included as one of the economies.

The statistical profiles are available here:

[https://www.wto.org/english/res\\_e/statis\\_e/miwi\\_e/countryprofiles\\_e.htm](https://www.wto.org/english/res_e/statis_e/miwi_e/countryprofiles_e.htm)

## ISO

### 1. New work item proposal on natural bitumen

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ISO has received a formal proposal from ISRI (Iran) for a new work item proposal to develop a Standard on natural bitumen.

The scope of the proposal is to develop a standard to determine the specifications and test methods of natural bitumen extracted from mines, used for different purposes in industries.

Standards Australia will be submitting a vote on this proposal. The options available are to approve, disapprove or abstain. Standards Australia will also be required to indicate whether an Australian national committee will participate in or observe the ISO work if approved. This position will be developed from the stakeholder feedback received.

For more information or to make a submission please contact [daniel.chidgey@standards.org.au](mailto:daniel.chidgey@standards.org.au) by 19th April 2016.

### 2. New work item proposal – Urban pedestrian bridge (footbridge) assemblies - location

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ISO has received a formal proposal from ISRI (Iran) for a new work item proposal to develop a Standard on urban pedestrian footbridge assemblies.

The scope of the proposed standard to be developed by the project committee is as follows: This standard specifies location requirements of Urban pedestrian bridge (footbridge) assemblies in cities. Pedestrian bridges outside of cities are not covered by this standard. This International Standard is also intended to facilitate the understanding of installers of urban pedestrian bridges and municipalities.

Standards Australia will be submitting a vote on this proposal. The options available are to approve, disapprove or abstain. Standards Australia will also be required to indicate whether an Australian national committee will participate in or observe the ISO work if approved. This position will be developed from the stakeholder feedback received.

For more information or to make a submission please contact [tim.wheeler@standards.org.au](mailto:tim.wheeler@standards.org.au) by 21<sup>st</sup> April 2016.

### 3. New work item proposal - Sustainable non-sewered sanitation systems

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ISO has received a formal proposal from ANSI (United States) for a new work item proposal to develop a Standard on sustainable non-sewered sanitation systems.

ANSI previously submitted a proposal to develop an International Workshop Agreement (IWA) on this subject which was approved recently and they plan to hold the IWA workshop in late June 2016. It is ANSI's intention to begin the process of converting this IWA into an ISO standard as soon as possible after its publication. ANSI aim to publish the Standard in August 2016.

The scope of the proposal is to define criteria to qualify sanitation systems sufficiently especially in terms of safety, functionality, reliability, maintainability, usability, and that the discharge (treated effluent) are compliant with leading practices. The aim of the standard is to ensure safety aspects related to the operation of the sanitation systems in the intended areas of use and that the treated discharged products pose no user, operator health or environment risks. The standard is applicable to individual and community sanitation systems which are self-contained, meet defined discharge requirements, and aim for sustainability regardless of the on-site treatment technology.

Standards Australia will be submitting a vote on this proposal. The options available are to approve, disapprove or abstain. Standards Australia will also be required to indicate whether an Australian national committee will participate in or observe the ISO work if approved. This position will be developed from the stakeholder feedback received.

For more information or to make a submission please contact [daniel.chidgey@standards.org.au](mailto:daniel.chidgey@standards.org.au) by 12<sup>th</sup> April 2016.

#### 4. New Field of Technical Activity – Safety Management of Complex Technical Systems

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ISO has received a formal proposal from GOST (Russia) on a new field of technical activity on Safety management of complex technical systems.

The scope of the proposal is:

Standardization in the field of complex technical systems, such as aerospace systems, including all their constituent elements (operators, manufacturers of industrial products, industrial infrastructures, maintenance and repair organizations, training centres, etc.) throughout the full Life Cycle – definition, classification of threats and risk factors, procedures for determining Safety Efficiency, including predictive risk modelling; recommendations on the practical application of risk management.

Standards Australia will be submitting a vote on this proposal. The options available are to approve, disapprove or abstain. Standards Australia will also be required to indicate whether an Australian national committee will participate in or observe the ISO work if approved. This position will be developed from the stakeholder feedback received.

For more information or to make a submission please contact [varant.meguerditchian@standards.org.au](mailto:varant.meguerditchian@standards.org.au) by 10<sup>th</sup> May 2016.

#### 5. Global services standard workshop to be held June 2016

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ISO is hosting an interactive workshop to explore how ISO standards can help design, assess and measure service excellence, benefitting both businesses and consumers in Geneva in June.

The program will be broad and will include consumer issues, business to consumer (B2C), business to business (B2B), and other viewpoints.

This directly precedes COPOLCO's working group and plenary meetings to facilitate consumer participation in this important event. For the first time, COPOLCO and the Technical Management Board are working jointly on an event which will gather a wide variety of stakeholders together on an issue of common interest.

#### 6. New version of ISO Standard on medical device quality published

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All information Quality and safety are non-negotiable in the medical devices industry. ISO 13485:2016, Medical devices - Quality management systems – Requirements for regulatory purposes, intends to help keep that level of quality up to scratch.

ISO 13485 sets out the requirements for a quality management system specific to the medical devices industry. It has recently been revised to respond to the latest developments in quality management, technology and regulatory requirements that relate to the industry.

With the standard applicable to so many types of products, the revision was no easy task. A medical device is any product intended for use in the diagnosis, prevention and treatment of medical conditions.

They range from simple products like wound dressings to dentist chairs, cardiac pacers, life-support machines and even in vitro diagnostic reagents.

More information available at:

[http://www.iso.org/iso/home/news\\_index/news\\_archive/news.htm?refid=Ref2046](http://www.iso.org/iso/home/news_index/news_archive/news.htm?refid=Ref2046).

## 7. Workshop on 'Interoperability of Microfluidic devices: Guidelines for pitch spacing dimensions and initial device classification'

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ISO received a proposal from the National Physical Laboratory (NPL) in the UK to develop an International Workshop Agreement (IWA) on 'Interoperability of Microfluidic devices: Guidelines for pitch spacing dimensions and initial device classification'. A workshop will be held on 19 April 2016 in London to develop the agreement.

The proposal is part of a large pan European (ENIAC Joint) undertaking project, MFmanufacturing (MF). One of the goals of the project is to identify items that are in need of standardisation and would ultimately bring manufacturing of microfluidic devices to the same level of maturity/industrialisation as those of electronic devices.

Although a number of different items have been identified, the consortium highlighted two that are in immediate need of standardisation. This concerns the need to have guidelines in place for pitch spacing dimension and initial device classification, as well as any associated terminology of relevance. It is envisaged that the adoption of such standards will ultimately increase interoperability among the different microfluidic component and devices and subsequently reducing manufacturing and production costs.

The meeting will offer a chance to discuss amongst experts from the community, to ultimately reach a consensus on what has been proposed by MF manufacturing. This is an exciting time for MF manufacturing as it is the first time that ISO has approved an initiative for an IWA in the field of microfluidics. Undoubtedly, the realisation of an IWA document will pave the way future standardisation activities within the microfluidics community. As microfluidics falls under Technical Committee of ISO/TC 48 *Laboratory equipment, WG 3 Microprocess engineering*, the meeting will be hosted with the support of ISO/TC 48 Secretariat, Dr. Renata Koefer from Deutsches Institut für Normung (DIN).

For more information or for registration information please contact [bronwyn.walker@standards.org.au](mailto:bronwyn.walker@standards.org.au). Please note that pre-registration closes on 25<sup>th</sup> March 2016.

## 1. Printed electronics - The challenge of Systems Integration

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The IEC covers technologies at many phases of industrialization. Printed Electronics is still in the very early stages of introduction into industry – a good time to start the standardization process. IEC TC 119: Printed electronics, is a relatively new Technical Committee, created to lead the standardization effort. However, like many new technologies, printed electronics cannot make the transition into industry in isolation. The IEC configuration of TCs and liaison structures is poised to help facilitate this transition. One field in which printed electronics could make a significant contribution is that of wearable smart devices (WSDs).

Over the last 3 years, IEC TC 119 has developed into a significant community, with membership across 21 countries and with over 100 accredited experts. A number of standardization projects are in progress, with the aim of producing a solid foundation of test methods to facilitate industrialization. In many cases the technology will produce printed components that will be integrated with other electrotechnical and material components to produce a physical manufactured product. In order to produce International Standards that reflect this reality, IEC TC 119 has embarked upon a series of liaisons with other TCs and external organizations.

The liaison model used by the IEC community is also of interest to industry, as systems integration across multiple horizontal technologies is seen as a significant challenge. Academic collaborators, together with their government and industrial sponsors, are seeking ways to access communities that can add value to individual technologies through integrating components upwards through the value chain. In early February, the liaison structure used within the IEC was presented as a model for systems integration at a conference on Large Area Electronics (innoLAE 2016). The proposition is to build upon an existing IEC community across various technology platforms, so gathering together the stakeholders needed to work on systems integration. The concept seems to be a strong one and worthy of testing on an industrialization project.

There may also be benefits beyond pure systems integration; once again an example from electronic display devices may help illustrate this. Some years ago an early implementation of printed displays was appearing at trade shows. It set high levels of customer expectation with what turned out to be an over-optimistic roadmap for systems integration into a product family. Obtaining a wider consensus from the various stakeholders in the systems integration process might have served to produce a more realistic technical appraisal of the technical challenges and a better setting for customer expectations.

### **Wearable Smart Devices**

One topic of high interest to printed electronics is that of WSDs (wearable smart devices). This is a field that provides a very good illustration of a systems integration challenge that requires input from a substantial number of horizontal technologies.

WSDs can be categorized in a variety of classes, such as “in body”, “on body” and “near body”. Of particular interest to the field of printed electronics are flexible electronic components. One example of these would be electronics printed onto textile substrates that are flexible and/or stretchable, giving rise to flexible displays integrated into garments. These could then be integrated into conformable wearable devices that could fit into everyday life in a variety of implementations.

The IEC Standardization Management Board (SMB) has recognized the potential of Wearable Smart Devices and the wide number of IEC TCs that have stakes in the applicable technologies. The response in 2014 was to set up an ad hoc Group, ahG 56, to review pertinent activity in the IEC in this field and to identify the needs for further standardization. The ahG 56 report resulted in the decision to start a Strategy Group, SG 10: Wearable Smart Devices, with the intention to report back to the SMB on strategy options for standardization. SG 10 has been set up with the same liaison model as described above, with representation from semiconductor devices (TC 47), assembly (TC 119), applications (IEC TC 62: Electrical equipment in medical practice, and IEC TC 100: Audio, video and multimedia systems and equipment) and health, safety and environment issues (IEC TC 77: Electromagnetic compatibility, IEC TC 106: Methods for the assessment of electric, magnetic and electromagnetic fields associated

with human exposure, IEC TC 108: Safety of electronic equipment within the field of audio/video, information technology and communication technology, and IEC TC 111: Environmental standardization for electrical and electronic products and systems).

The health and safety aspect is of particular importance as the products will by definition be in close proximity to a human or animal. The substrates and functional materials employed must therefore of necessity be non-toxic and bio-compatible. As smart devices, they are likely to include some manner of wireless connection, so electromagnetic compatibility and safety are also important.

Even this simple overview serves to highlight some of the complex issues around systems integration, emphasising the need for involvement of the multiple disciplines found in IEC TCs. The IEC is not the only organization looking at wearable smart devices standardization. ISO/IEC JTC 1/WG 10 (Internet of Things) is also looking into this area. The challenge is to coordinate all these activities but the potential benefit in facilitating systems integration could certainly make the effort worthwhile.

Printed electronics is ready for manufacture and integration with other technologies within the IEC family. There are significant challenges with systems integration and the knowledge available within the IEC community could be useful in helping with this.

Wearable smart devices are of current interest within the IEC family. There are similar systems integration challenges within this platform of technologies and printed electronics looks set to play its part in this.

These are both fields in which the collaboration activities across TCs could add value to industry.

Australia is not currently participating on IEC/TC 119.

## 2. The wearable future - Keeping track of ourselves

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In our mobile world, we carry our lives in our portable devices and expect to be able to access information anytime, anywhere. On a train, in a shop, out walking, we surf the net, communicate through social media and messaging and listen to music on our smart phones. We have also entered the age of continual self-monitoring, be it the number of steps we take, our heart rate, glucose levels or sleeping patterns, because it can help improve our lives and just because we can.

Health and well-being WSDs can be applied directly to the skin; for instance, a temperature reading patch or continuous glucose monitoring system. They can also be implanted in the body in the form of pacemakers, cochlear implants or electrocardiogram monitors which record the heart's activity over extended periods of time. It is expected that many more health monitoring devices will have diagnostic capacities in the not too distant future.

The value of the wearable electronic technology market will rise from USD 20 billion in 2015 to USD 70 billion by 2025, according to research company IDTechEx. This is hardly surprising given that some of the largest technology, medical and sports companies are heavily invested in developing the industry. According to this research, healthcare is the biggest sector, comprising medical, fitness and well-being.

As millions of people use wearables every day to check their health, fitness and to provide a broad array of other services and products, they will want to be sure that this technology is safe, reliable, compatible with other technologies and functions as expected.

The improvement of smart textiles will mean new areas such as fashion, industrial, commercial and military will join the wearables domain.

The IEC Standardization Management Board has set up a Strategic Group (SG), SG 10: Wearable Smart Devices, which is tasked with establishing the terminology, agreed understanding of WSD, market needs, inventory of activities within and outside of IEC, priorities of work and coordination of activities within IEC.

This Group can pool expertise and knowledge from several Technical Committees whose work is relevant to this area; for example, audio/video, electronic display devices, medical equipment, environmental, safety of electric equipment, semiconductor devices including sensors, electromagnetic compatibility and printed electronics, to name but a few.

The IEC will continue to monitor this rapidly expanding industry and develop International Standards for the electronics used in wearables, which cover terminology, dependability and safety. This will allow manufacturers of components to be aligned when it comes to the technology. Additionally, IEC Conformity Assessment Systems, based on IEC International Standards, provide independent testing and certification to ensure the safety, reliability and performance of products and the systems within which they work.

### 3. Standardization Management Board meeting – February meeting

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The Standardization Management Board (SMB) met in February to discuss and agree on several matters. Items of interest include:

- tools and activities of the new Systems Resource Group and the philosophy around what is a systems activity in the IEC versus Technical Committee (TC) work.
- activities affecting the electrical transmission and distribution grid, which is becoming much more widely recognized as a critical part of society's infrastructure.
- a significant review of the processes used in project management of IEC work, and there are several changes happening now. These include a new approach to bring our editing staff closer as you develop the Standards, the importance of stakeholder review and comment on drafts at the CD stage.
- shorter voting and commenting times from early 2016.
- information on TC 1 and on appeals in the IEC.
- using a performance-based approach instead of a design approach when drafting International Standards.

A full report of SMB's latest activities can be found at: <http://www.iec.ch/smbnewsletter/>