ICPHSO 2017 International Symposium Plenary Session Summary – Day 1 - November 14, 2017

The first day of ICPHSO's International Symposium in Tokyo, Japan included two plenary sessions involving the use of technology in product safety as it relates to assuring data is secure and using technology to assure the safe design of products.

Plenary Session # 2:   Sending Products to School – New Technologies and Product Safety

Mark Deem, Cooley, Moderator

Mark introduced panel and noted that new technologies are developing at ever increasing paces largely based around the data explosion we are experiencing. Artificial Intelligence (AI) and IoT offer an ability to achieve technological and societal growth Panel featured discussion about new technologies and their use in product safety to assure that there is a basic understanding of what the technology is attempting to achieve and whether it allows for a safe or safer performance of the product and to the extent that artificial intelligence can even be used to assess the performance of consumer products.

Frederique Mittelstaedt - Automorph

The panelist featured a discussion on using Artificial Intelligence (AI) to automate software development and business processing in the entire product life cycle. AI allows machines to do smarter things – knowledge, learning and understanding. AI provides opportunity to reduce costs and time. AI should be used to amplify human ability. It won't replace humans but improve it.   The use of AI requires data. Companies need to organize their entire process to assure adequate data. Gathering a lot of data has certain consumer risks – data security but another big risk is misinterpreting the results of AI analysis. It's important to assure security of the models being used to offer consumer protection and ensure the information being used is reliable and will be of benefit.

Ken Kayayama, Microsoft

Security will always be a concern. Cybersecurity attacks are a problem. Need to 1) raise awareness of best security practices and guidelines; 2) develop enhanced guidance for safety critical sectors; and 3) invest in IoT security training, education and raise public awareness. Doesn't involve just one single industry but a multi stakeholder approach is appropriate.

Brigitte Acoca, OECD

New technologies and its impact on safety – these issues are multidimensional and borderless. Safety implications of growing consumer adoption of connected devices, always on and increasingly automated decisions. OECD continuing to look at complimentary technologies that are converging now and support consumer products. In 2016 there was a Ministerial meeting in digital technology. OECD ministers were asked to examine issued raised by IoT by specific areas. Need to look at and develop a more proactive approach to assess risks and policy changes affecting consumer protection. Two weeks ago, there was a conference on AI. With the large amounts of data, AI seems to be at a high point with application that sound like science fiction and that are already or soon part of our daily life.

One interesting issue discussed was a new concept – the concept of explainability. At the moment we don't know why autonomous machines take decisions. If they take bad decisions we need to interrogate computers on their decisions. Organised joint round table on connected consumers. There were some papers presented at the last meeting on 3D printing and IoT. The core of these two policies is data – a raw material and a capital.

3D printing

- Can take design and print – low cost, availability will accelerate
- 3D printing benefits|: easier and cheaper ways to refine product prototypes, repairing products more easily, will bear product tracking and traceability. It can be used to remotely fix product fixes through product patches. May be another way of improving product safety

IOT

- No internationally agreed
- Range of devices is increasing – toys, connected cars, medical devices.
- Smart phones are a hub for using and controlling these devices.

IoT: case in 2014 in USA involving defective smoke detector, software patch fixed remotely issue. 400,000 products from the consumers. They were also recent cases re consumer injury and death of driver of connected car where it failed to track a tractor crossing the road vs blue sky.

Keeping in mind most product regulatory regimes and liability regimes were constructed at time when intangible products didn't exist – do these regimes capture these new products? What does consumer mean? How do we assign responsibility and improve? How do we deal with new safety risks when the manufacturer put their products first on the market? This is one of the issues being discussed by EU review of PLD.

There is a need for an international multi-stakeholder dialogue to understand how these policies work, and what policies may require specific attention, not just product safety consumer/protection but also from privacy, competition, trade. This means that we should ensure we have a stakeholder such as governments, business, and civil society. This might influence interaction.

Standards, regulation policies are always trailing new developments. Two questions were asked:

Can you use AI to make future policies?

- Haven't considered that yet, but might be a possible route. This is all very emerging, especially in consumer protection area. Need to better understand the technology. I don't think we have a good idea of the benefits, how it works and what policy implications exist now.

Can we use AI to develop better policies for better lives?

- First, can you reduce harm for consumer
- Second, can you allocate cost of injuries
- Third, can you incentivise innovation.

Need to have a balance between concern for safety on one hand and innovation on the other.

Plenary Session # 4: Time is Not on Your Side: Compression Within the Product Life

Belinda May, Dentons, Moderator

Belinda May moderated this panel that included discussions about how technological advances are speeding up; to be competitive, innovative products require compressed product development timelines that challenge current safety processes and tools. The panelists bring manufacturing, regulatory and product safety expertise to the discussion.

Dochul Choi, Samsung

- Different paces of innovation
- Samsung is now the biggest chip provider – it is providing IoT
- Safety is not optional – faster innovation cycles require the incorporation of safety at all stages of design and manufacture
- Safety is a pre-condition to innovation, product safety issues should be identified and solved prior to going to market
- Innovation vs regulation – chlorinated drinking water reduced mortality rates by 43%, Dr John Leal (physicist) who introduced it was first accused of terrorism at the time. Innovation does this sometimes – government needs to recognise innovation for good and understand the risk to it, to show information is important.
- Innovation vs regulation: autonomous vehicles – outdated regulations may delay vast potential lifesaving benefits, requires regulators to change their timeframe.
- Partners in accountability in a safety relationship: government, manufacturer, media (important role – like to write sensational articles about smaller issues) – these groups need to work together for the benefit of the consumer.
- Samsung, any other manufacturers, are for consumers – unless you keep consumers safe and happy you won't survive for long.

Katsumi Arai, NITE

- Number of accidents by product – gradually reduced over time. Fire accident related with gas-cooking stoves have greatly reduced. That is one of the reasons for the overall trend. Since October 2008 gas stoves have been required to be stored with 2 safety mechanisms. Because carelessness caused most accidents – so safety mechanism fixed them.
- Increase of accidents associated with increase of number of products in market (lithium ion battery products)
- Smartphones (77), portable battery charger (131) and laptops (127) are the most dangerous
- Number of accidents by country of origin for these three products – Chinese products have majority; Japanese products are worse for laptops however. Revision of standards may be needed.
- "Silent change" /counterfeiting – whether this change can be understood:
    - Sole of shoes and slipperiness with man who bought shoes and fell over twice in two days. NITE found that it had different material between original and fake. Overseas supplier had changed the materials without notice to reduce the cost.
    - Power cord – reduce cost by using different materials which made it hard and brittle.

George Borlase, CPSC

- "If you don't have time to do it right, when do you have time to do it over"? John Wooden, Hall of Fame Basketball Coach
- Pace of innovation.
- Compression in the exponential age – ability to change design over time. How do you change that? It all starts with an idea, go through design spirals, as the idea matures, and you get to manufacturing and especially where shipping out there's no ability to change the design. How do we get early in that period, what happens with compression in exponential age? When you have the idea you still have same ability to change the design.
- Designing for safety is necessary, regulation provides performance standards for covered products, but regulation can't keep up. "What could go wrong", lessons "it's good to learn from your mistakes, it's better to learn from others."

Gene Rider, Exponent

- Speed to market is a huge market differentiator – commercial drive to bring new products and innovation to market place (also quality, 2 years of delay for 787 because technology of lithium ion batteries not there).
- Currently safety processes rely heavily on standards – standards take a long time to produce.
- Innovation is across all industries however, it's not a specific product. Can't create a standard for it.
- Fast pace of innovation and lack of standards results in gaps.
- It's not product name, it's product characteristics – features and property damage, innovative products often package product characteristics and features in new and exciting ways.
- Product description – all standard things, but talking about things that are, who are the ones who are going to use your product, what vulnerabilities are there of that population, what is the foreseeable use: data analysis - what's method of interest that have these characteristics, do they represent a serious injury? What was the victim behaviour, what was the character's behaviour, how did they respond to an obvious or not obvious hazard, how a human interacts with the product?
- It's about data, information, knowledge – no safety intelligence, it's all about data. The good news is there are many data sources. Products, standards, there are recall information, failure root cause analysis, there are injury databases. These are the best in the world (US), Australia also good. What happens in the US is typical about what happens in non-developed countries, industry publications, build a prototype, put it out in the market, understand use and hazards, laboratory, and field studies
- Safety is multi-disciplinary – you need people who are specialised (regulatory compliance, behaviour science, physical hazards, engineering, chemical, toxic, psychologists).
- Product safety is a process – have business and safety mechanisms, most important part is the feedback loop, virtuous cycle
- Consensus standard for new products
    - The process
    - Characteristics – not the product
    - Recall data
    - Injury knowledge bases
    - Behaviour knowledge basis

- Multidisciplinary team work
- Design for safety
- Manufacturing critical control points
- Traceability of materials, components, and final product
- Market surveillance

A number of questions were posed to the panellists by the Moderator:

How do you envisage the app of the product and its effect on behaviour (distracted behaviour)?

- Dochul Choi: Government proactively engage with app developers such a way that they can discuss together.
- George Borlase: Apps have created health effect, for the next app designer does the app designer know what's happened before (based on previous experience get knowledge and can foresee issues).
- Dochul Choi: Individual developer cannot individually – the reality is that they can't read regulations.
- Gene: I wouldn't have had psychologist on there 30 years ago, VR and some of health effects with videogames, children (Japan) going into epilepsy, psychologists have been left out and they must be brought in.

IF we understand motive, we can get behind the result. What is key driver of consumer innovation?

- Dochul Choi: Skin the potatoes in a washing machine, you can't always predict. 17 billion for R&D. More than 30,000 engineers directly working for Samsung
- Information collected by us and reflected, company, manufacturers, and very good collaborations. Expectations aren't any different.

Regulations sometimes hamper and hamper industry, how can we make sure industry makes safe product? Manufacturers did silent change to reduce cost – I would like to know what encourages business to make safe but cheaper product

- Dochul Choi: Stick or carrot. Rewards for safety of the product. Every country should have that.

Is it possible that NITE, ICPSHO, etc. bring together experts and supports start up accelerator, given a common pool of resources?

- Belinda: Workshop style format for Orlando conference and bring this together in next step of the conversation
- We need to be going out there now and need to go ahead of things now, people who have the processes in place. Your idea of incubator and find it?
- Common understanding

I appreciate the assistance of Board Member and Symposium Chair Rod Freeman and his team from the Cooley law firm (Alex Radcliffe, Carol Roberts, Sarah-Jane Dobson, Fergal Duggan and Mark Deem), who helped plan and implement our Symposium. The notes provided by the Cooley team are much appreciated as I report on the activities that took place during the Symposium. Any observations included about the Symposium are my own and don't necessarily reflect the views of Cooley or ICPHSO.