Guest Interview:
Toy industry President and CEO

LEGO builds on ISO standards
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Our kids, our future

Prime motivations for developing standards

When you were a child, were you ever told, “If you lean back on your chair, you’ll fall and hurt yourself.” Or, “Look both ways before crossing the street”? We are born into this world without prior knowledge, experience or judgement – we are blank pages. We progressively gain insights from our parents, family, friends, the media and the world around us.

Adults hope that their words of wisdom will help guide children through life, avoiding, to the fullest extent possible, all injury, pain, illness, discomfort and sadness. But their advice only goes so far.

According to the 2008 United Nations Children’s Fund and the World Health Organization (UNICEF/WHO) World report on child injury prevention, every day the lives of more than 2000 families are torn apart by the loss of a child to an unintentional injury that could have been prevented.

Once children reach the age of nine, the biggest threat to their survival comes from unintentional injuries. Among the leading causes are road traffic crashes, drowning, burns, falls, and poisonings. Nearly all of these injuries could have been prevented. The price of failure is high. On current estimates, unintentional injuries claim the lives of around 830 000 children worldwide every year. For children who survive an injury, many will suffer long-lasting, if not permanent, disabilities.

No amount of preparation and safe behaviour can avoid all potential terrible outcomes. In standardization, I have seen no more compelling argument for change than to save the life of a child.

Setting and improving standards for children pushes us to consider the more personal and human side of our daily life. This is natural. The hope and potential of our society rests with them. We do what we can to ensure our children are safe, secure, happy, confident, educated and eventually successful – however you define this.

ISO is playing a central role in injury prevention by providing proven measures. From its guidelines on child safety (ISO/IEC Guide 50) to specific standards related to child restraints, bicycles, child-resistant packaging, water safety and toys – ISO ensures the safety and security of children through its portfolio of International Standards.

Time and again, ISO standards are proving effective, in reducing the incidence of injuries and the severity thereof, as well as saving lives. The impact of some of these far-reaching standards are highlighted in this edition of ISO Focus+.

Although International Standards are not a substitute for parental supervision, considerable savings to the health care sector and society could be made if all countries adopted similar standards.

It may sound like a cliché, but children are the future – they represent our dreams and aspirations for this world. Their unspoiled, unbiased judgement means they also have the potential to see things that we do not, or cannot, because of daily preoccupations. What child has not asked, “Why is there war?”, “Why are the animals dying?”, “Why are those children starving?”

In effect, children help to remind us of what’s most important for the future, the big global challenges that we all need to address: climate change and the environment, social justice and responsibility, education, food safety and security, etc.

Hope for our children and future generations are prime motivations for developing standards that address these challenges, standards where the impacts are not seen in next quarter’s production cycle, next year’s software release or next season’s equipment retooling.

Children also cause us to change and improve. The 10th anniversary of the ISO 14000 Kids Programme shows how children can readily understand the environmental aspects and impacts of our daily behaviours (see World Scene).

The programme also demonstrates how informed children are often the best teachers. Their newfound conviction for sound everyday environmental management means they bring their ideas home – ensuring that Mom and Dad use appliances effectively, turn off lights and don’t drive when they can walk.

In an effort to harness the energy, imagination and initiative of the world’s youth in overcoming the challenges facing humankind, from enhancing peace to boosting economic development, the United Nations proclaimed an International Year of Youth starting on 12 August 2010. It’s appropriate that this edition of ISO Focus+ highlights the efforts of ISO and the effectiveness of its standards in providing proven interventions for our youngest.

I hope you enjoy this edition of ISO Focus+. It’s a departure from our normal technical and sectoral approach to standardization – but one which reinforces the important things in life – our kids, our future.
Kids success with ISO 14000 continues

It has been more than nine years since ISO signed a Memorandum of Understanding with ArTech, a Japanese non-profit, giving permission for the use of its name in the title of the Kids’ ISO 14000 programme, and allowing them to use ISO’s logo to demonstrate its support.

At the ninth award ceremony of international certificates of the programme, which took place in January 2010 in Tokyo, Japan (photo below), ISO Vice-President (policy) Mr. Sadao Takeda congratulated some 500 children on their achievements under the guidance of Prof. Kawabe and his partners, “You are making a practical contribution to the environmental protection of our planet.”

The programme aims to develop environmental awareness among children from around the world. It teaches them to put into practice the Plan-Do-Check-Act cycle which is the operating principle of the ISO 14000 family of standards on environmental management.

By 2009, more than 210 000 children worldwide had participated. The Kids ISO 14000 programme is co-organized by the UN University and the UN Environmental Programme, and is supported by ISO.

Haiti underlines importance of standards

Some 250 000 residences and 30 000 commercial buildings are estimated to have been destroyed in Haiti following a 7.0-magnitude quake in January 2010 that killed some 200 000 people.

Could ISO building standards have helped? An article entitled, “No surprise killed some 200 000 people. Some 250 000 residences and 30 000 commercial buildings are estimated to have been destroyed in Haiti following January’s earthquake.” commented Stefan Tangen, Chair of ISO/TC 223 (societal security), “Standardization and regulation often work together.”

Some of the technology reflected in ISO standards, such as elastomeric isolators, has already saved many lives in earthquake-prone areas.

Building codes and emergency preparedness standards are not the only contribution that ISO can make. An ISO 9001-certified geospatial company (RapidEye AG) supported Haiti relief efforts by carrying out imaging of all of the regions most affected.


Head of Marketing and Sales Michael Prechtel commented: “The scope of our certification covers our data, which gives us a clear protocol when dealing with customers who are requesting images of natural disasters. Haiti is the most recent example of an emergency situation which we imaged quickly, so that relief organizations could quickly react to the situation.”

A full article on RapidEye’s Haiti response is freely available at www.iso.org/iso-focusplus_online-bonus-articles.htm.

First academic week

The first academic week organized by the World Standards Cooperation (WSC) will take place on 5-9 July 2010, in Geneva, Switzerland.

Conceived by the WSC members – ISO, IEC and ITU – the week aims to promote dialogue between academic institutions and the international standardization community, to raise awareness and to foster cooperation and possible joint initiatives.

Not only do ISO, IEC and ITU, recognize the fundamental contribution that educational institutions can make to promoting understanding of international standardization, they also fully appreciate how the work of academia on cutting edge research and technology can benefit the development of standards.

To support these institutions in their efforts, the three organizations have developed a variety of initiatives to further encourage them to share their knowledge, experience and expertise.

Rethinking, redesigning and rebuilding the world

ISO standards offer global solutions to many of the global challenges discussed at the 2010 World Economic Forum (WEF) Annual Meeting in Davos, Switzerland, whose theme this year was, “Rethink, redesign, rebuild.”

This was the conclusion reached by ISO Secretary-General Rob Steele who participated and met with a number of senior business and government leaders among the 2 500 attending.

A key objective was responding to the recent financial meltdown and economic crisis, and rebuilding a more efficient system. Mr. Steele commented, “To do so, International Standards offer a basis for understanding and a clear description of how you do the ‘what.’” They help businesses become more efficient from an economic, environmental and societal perspective.

“Issues such as social responsibility are not only important – they are integral to the solution,” emphasized Mr. Steele.

“When I pointed out to people that I met during the week that ISO was developing a standard on social responsibility, the universal reaction was one of real interest and enthusiasm.”

The ISO Secretary-General also highlighted the importance of simultaneously stimulating the economy while responding to climate change by creating green jobs and green technologies. ISO already has an extensive portfolio of standards in this area and is developing more, especially for energy efficiency.

Mr. Steele noted an underlying need, reinforced by speaker after speaker, for global solutions based on mutual understanding – such as those offered by ISO standards.

Doris Leuthard, President of Switzerland, called for International Standards to address the gaps between rhetoric and reality.
Arnie Rubin has been active in the toy industry for over 40 years. A native of Los Angeles, California, he began his first job working in the toy industry at Chemical Sundries’ west coast plant as a “bubble” mixer before graduating from Fairfax High School in 1965. Only four years later, in 1969, he co-founded Imperial Toy Company. In 1987, Arnie Rubin formed Funrise Toy Corporation (see Box). Funrise Toys are known to parents throughout the world as being synonymous with Tonka “light and sound,” the company’s most popular toys being emergency vehicles with working sirens and lights. In 2003, Arnie Rubin returned to his roots with the introduction of the “one and only” Gazillion Bubbles line, which has become the number one bubble brand in the USA. Arnie Rubin serves on the Toy Industry Association’s Toy Safety Certification Programme Oversight Council. He is also a past Chair of the Toy Industry Association (TIA) and the Toy Industry Foundation (TIF). Mr. Rubin is a major supporter of a number of charitable organizations.

In June 2009, Arnie Rubin was unanimously elected as the new President of the International Council of Toy Industries (ICTI) – an association of toy trade groups from 21 countries (see Box).

ISO Focus+: What set of goals would you like to accomplish in your term as President of the International Council of Toy Industries (ICTI)?

Arnie Rubin: I have three major objectives I would like to pursue, and the common denominator of them all is to keep ICTI and the toy industry focused on looking ahead, not back. The first, and likely most important priority, is standards alignment. In early 2009, ICTI commissioned a study of the three major toy safety standards – ISO 8124, EN 71 and ASTM F963 – and found that roughly 85% of the technical content in these documents is already aligned. Moving forward, we expect that technical alignment will be the easy part. The difficulty will be navigating the regulatory machinery in each nation or region. Our goal is to have one set of standards rather than three – or more.

Another top issue to tackle is ethical marketing to children. Some countries have already made all marketing to children illegal. It would be a tremendously harmful blow to our industry if those laws were to stick in the USA and other countries. We need to legislate ourselves before governments make laws that are oppressive.

Environmental sustainability is the third pillar. We need to turn our attention to what we can do as the toy industry to become more earth friendly. An issue such as product packaging comes to mind first. As we learn how to become greener, we will develop best practices that can be shared with the entire toy industry. There has been some hesitancy in the past, but being green may not mean more expensive – it could be a way of saving money.

ISO Focus+: With the globalization of trade, toys are more and more exposed to international competition. Expectations of parents on the quality of toys are also growing. How important is it for the industry to adhere to and participate in the development of toy safety standards? What are the main obstacles to achieving international harmonization of standards?

Arnie Rubin: Assuring the safety of children has always been our industry’s top priority. And because our products are designed specifically for children, we
always hold ourselves to the highest possible standards. The development of globally relevant toy safety standards is a vitally important activity and one to which our industry is firmly committed.

The safety of children has always been our industry’s top priority.

The biggest challenge to international harmonization and alignment, however, is the simple fact that laws and regulations vary so greatly among countries. The alignment of standards needs to be a collaborative effort among regulators, industry, standards organizations, consumers and others. To avoid further divergence we must sit at the same table with the various stakeholders and look at newly emerging requirements. This needs to be a global initiative, not one that is driven by a single nation or region.

Differing regulatory requirements are challenging for toy companies that are trying to do business in multiple markets. We have already spent much of the past year dealing with the implementation requirements of the Consumer Product Safety Improvement Act in the USA and the new safety directive from Europe. There is no question that testing, ethical manufacturing, chemical regulations, etc. are all global issues that must be addressed. But it makes no sense to have different standards and different testing requirements in each market where we try to do business.

Toy companies are not alone in this respect. I am confident that companies in every industry want one standard, one test and one certification of compliance that can be accepted everywhere.

ISO Focus+: A recent ISO survey of 46 countries on ISO 8124, Safety of toys, highlights the use of the standard and the reasons for its non-use in some cases. What, in your opinion, should be done to increase and enhance its implementation worldwide? What actions would you recommend be implemented to raise awareness and capacity for toy companies to benefit from this ISO International Standard?

Arnie Rubin: There is no question that ISO 8124 is a cornerstone of the global toy safety network. We rely on the ICTI-member trade associations in each country to provide information and educational materials to their member companies about the importance of this standard and to encourage its use.

But the future of toy safety standardization and compliance activities must be focused on alignment among the various national and regional standards. This will be beneficial to all – not only from the perspective of an improved safety system...
About Funrise

Founded in 1987, Funrise is an adventurous innovator of superior toys and an industry leader in the manufacturing and distribution of the most popular children’s toys. Simply put… we create fun! Funrise’s core property portfolio includes Gazillion Bubbles, HEADBANGERS, Home Arcade, Tub Town, Lil’ Cupcake, Sassy Stables, Shelcore’s Shake ‘N Bobbles, Sunny Steps and Play & Imagine with leading licensed power brands such as Tonka, Disney, Sesame Street and more, making our product offerings diverse and full of fun for kids of all ages! Funrise Toy Corporation is a wholly-owned subsidiary of Matrix Holdings Limited. Funrise US headquarters are located in Van Nuys, California, with offices in Hong Kong, United Kingdom, and France, and with additional showrooms in Dallas, and Bentonville, Arkansas. Funrise is operated by Arnie Rubin, Vice Chairman of Matrix and president of Funrise. Funrise’s success results from its commitment to quality manufacturing, progressive marketing and a values-based corporate culture.

ISO Focus+: Even the smallest of companies are competing for a share of the international toy industry. What would you say are the key challenges for these companies? How do you see the role of International Standards as a key to competing in global markets?

Arnie Rubin: Small and mid-size toy companies – my own included – are challenged by resources to keep up with all the information that is required to stay on top of emerging standards issues. As I mentioned previously, the ICTI member associations will play a valuable role in information dissemination to their company members.

ISO Focus+: You mentioned that ethical marketing of toys is one of your key priorities. How do you see the industry dealing with this challenge, and would the development of an ISO standard be a possible solution? Are there areas you would like to see more International Standards?

Arnie Rubin: International and domestic NGO campaigns and legislative/regulatory action against marketing to children continue and will increasingly be focused on the Internet and online where children are spending more time. While critics are not currently focused on toys, our industry is included and could at any point be targeted.

ICTI has drafted an industry-wide code to cover commercial communications and the toy industry’s responsibilities when marketing to children. This draft was approved in June at our last meeting. Our next step will be to develop a supplement to these principles for Internet-based communications. The key issues include commercial exploitation, privacy and safety.

Companies in every industry want one standard, one test and one certificate.

The toy industry is a relatively mature market and our companies are looking outside their own national borders to explore and develop new markets for their products. It’s more important than ever to be aware of issues around the world – no matter where we manufacture and where we sell. Toy companies need to know what is happening worldwide and we need to look out for the entire industry. What’s good in Europe could also be good for the USA. We need to learn from what’s being done in other countries, find what works best, replicate it, and build upon it to make it even better.

ISO Focus+: You mentioned that ethical marketing of toys is one of your key priorities. How do you see the industry dealing with this challenge, and would the development of an ISO standard be a possible solution? Are there areas you would like to see more International Standards?

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Is an ISO standard needed? At this point, I think it’s too soon to tell. But I do know that self-regulation – rather than government-imposed mandates – is the direction we’re heading.
Special Report

Fit for kids

by Elizabeth Gasiorowski-Denis

More than 2,000 children die every day as a result of an accident. Every year, tens of millions more worldwide are taken to hospital with injuries that often leave them with lifelong disabilities, according to a 2008 report by the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF).

The World Report on Child Injury Prevention concludes that many injuries are preventable. According to its findings, if proven measures were adopted everywhere, at least 1,000 children’s lives could be saved every day.

Interventions to prevent unintentional injuries have traditionally been considered in terms of the “three E’s”: education, enforcement and engineering. Engineering here refers to product modification. Changing the design and manufacture of products can reduce the risk of an injury, reduce access to a hazard and reduce the severity of an injury.

A shining example, and one which is highlighted by the WHO/UNICEF report, is ISO/IEC Guide 50:2002, Safety aspects – Guidelines for child safety, an exceptionally practical and useful guide. It deals with hazards to children and how to deal with them, noting behaviour and developmental characteristics, looking at the world through a child’s eye (e.g. the need to explore).

To draw attention to the role of standards in child injury prevention, ISO Focus+ is devoting the Special Report of its March 2010 edition to children.

With the theme of “Fit for kids”, this feature is dedicated to the vast amount of work done by ISO to make the world safe for children. It brings together a portfolio of articles that showcase ISO standards as proven prevention measures, as well as areas of particular concern for children and how they are being addressed by ISO.

A selection of these far-reaching standards is highlighted in this edition of ISO Focus+, from ISO/IEC Guide 50, to specific standards for individual products such as child restraints, bicycles, child-resistant packaging, and toys.

Beyond the primary “safety” benefits, ISO standards improve the well-being of children and contribute to making their lives healthier and more convenient. Because of their very nature, they give international best practice guidelines to manufacturers and regulators and, in so doing, bring parents peace of mind.

For those involved in standards development, children can have an important, but “invisible” bearing on their work. Children can be a source of inspiration by encouraging dialogue and understanding across different cultures and promoting the ideals of peace, respect for human rights and the environment.
Children are our most precious possession, on whom we channel all our love, hopes, dreams and our vision of the future. But children can’t be kept in a protective bubble. Serious injury can result in just nanoseconds from seemingly innocent objects and can occur under the most watchful supervision.

Statistics confirm that childhood and adolescent injuries are a major source of death, long-term disability, injury and harm. Children interact with products via a natural curiosity that may lead them to use them in an incorrect way. Unintentional injury and poisoning is the leading cause of childhood death and serious mishap.

According to the World Health Organization (WHO) fact file statistics on child injury prevention, 2300 children die each day from accidental incidents, and 830,000 die each year. More than 1000 a day could be saved with preventive measures.

From cribs to pacifiers, amusement devices to playground equipment, nightwear to packaging, parents rely on what they assume are inherently safe products and services. Guides and standards play a vitally important role in ensuring that this is the case.


The guide provides a framework for significantly reducing risk of injury to children. It details potential sources of unintentional harm and hazards, from products, services or processes, which children may come into contact with, even if they were not designed or intended for them.

Relevant and exceptionally useful

Kids suffer different injuries from adults. The guide offers an injury prevention strategy that takes into account children’s specific characteristics that puts them at greatest risk.

Children have obvious developmental disadvantages such as body size, mass and weight distribution, immature metabolic and organ development, impaired motor, sensory and cognitive development, undeveloped hand/eye coordination and biomechanical disadvantages.

They cannot judge speed and have tunnel vision, and they cannot comprehend instructions and assess dangerous situations. Children have an inability to make decisions, to act appropriately and respond in sufficient time to hazardous situations.
Initially, the ISO/IEC Guide 50, was intended for standards writers, so they could play a key role in injury prevention and control risks to children. However, use as a reference and as a precautionary tool has extended to designers, architects, manufacturers, service providers, communicators, buyers and policy makers. Although broad in content, the prevention or reduction of moral or psychological harm are not covered in this publication.

It is a relevant and exceptionally useful and practical guide, which can be employed and referenced to protect children. The guide provides guidance to manufacturers about acceptable performance levels and measures, and hence reassures parents in making safe decisions.

How it works

The ISO/IEC Guide 50 defines a product as any good, service, building, installation or a combination thereof. It details various categories of hazards posed to children.

The ISO/IEC Guide 50 adds clarity and uniformity to hazard analysis. It addresses ergonomic considerations and human factors, flammability and thermal injuries, toxicity and the ingestion or inhalation of foreign bodies, chemical, microbiological, mechanical and physical hazards, construction, electrical safety, fire, explosion and noise plus radiation hazards. Furthermore, inadequate protection and lack of information are discussed. Suggestions on marketing, packaging, markings, instructions and labelling are also included.

Annex A to the guide provides a generic checklist overview detailing injuries and possible preventable measures, such as size limitations. It highlights defective areas and gaps where there is an inadequate protection factor, or when information for adults is insufficient to understand possible dangers to children.

Annex B provides a checklist for drafting standards that ensure children’s characteristics and safety are taken into account.

The guide was revised in 2002 and further updating is being considered.

Mighty team

The ISO/IEC Guide 50 should always be considered in conjunction with the ISO/IEC Guide 51:1999, Safety aspects – Guidelines for their inclusion in standards. The latter guide assists standards writers to recognize and include safety aspects in their standards. It is applicable to any safety concern involving people, property or the environment and any combination of the three.

Whereas ISO/IEC Guide 50 focuses on hazards, ISO/IEC Guide 51 takes a risk reduction approach. It deals with intended use and reasonably foreseeable misuse throughout the complete life cycle of a product, process or service, to achieve a tolerable risk level.

ISO/IEC Guide 71:2001, Guideline for standards developers to address the needs of older persons and persons with disabilities, completes the safety series, so that children with disabilities or minor impairments (as well as their elders) can be accommodated by small adjustments in the approach standards writers take.

Not mini-me’s

Children are not miniature versions of adults. They respond very differently to stimuli, and have a different appreciation and perception of danger and risk. Power outlets are ideal holes to fill with small objects such as hairclips or pins; sucking on painted cot bars or toys provides relief from teething; climbing onto glass...
Special Report

Robyn Easton is Co-Chair, Product Safety working group, at the ISO Committee on consumer policy (ISO/COPOLCO). With a background in organic chemistry, Ms. Easton has worked in the pharmaceutical industry, at Harvard University, in a lobbyist organization – the Federation of Australian Scientific and Technical Societies, and with the Commissioner for Sustainability and the Environment. For the past 16 years, she has represented, in a voluntary capacity, the Consumers’ Federation of Australia.

She has served as consumer advocate on Standards Australia technical committees, at the National Association for Testing Authorities, at the National Industrial Chemicals Notification and Assessment Scheme, and as Vice Chair of the Technical Advisory Council for the Joint Accreditation System of Australia and New Zealand. She has also been the consumer representative on ISO/TC 217, Cosmetics.

About the author

Down under and the nursery pilot

In Australia, parents rely on over 30 national standards that detail minimum safety performance requirements for goods and services, all of which have been drafted from a hazard/risk based focus, employing ISO/IEC Guides 50 and 51.

The list of standards includes cycle helmets; kids’ clothing; cots; electrical plugs and sockets; child restraints in vehicles; babies’ dummies; prams and strollers; high chairs; playground equipment; toys; trampolines; basketball backboards and hoops; portable soccer goal posts; children’s nightwear; barriers around pools and flotation devices; glass in furniture.


Revolutionary

Australian injuries involving nursery equipment alone resulted in 6,500 children under three-years of age requiring medical treatment, 540 admissions to hospital and 10 deaths each year (Up magazine, Standards Australia, Vol 2, 2006). To address this issue, a revolutionary new pilot on a product safety framework (PSF) was designed, and initially tested on nursery products.

Specifically focusing on hazards and a new horizontal way of developing standards, project leader, Mark Bezzina, Managing Director of StanCert Pty. Ltd., states, “We did have a look at ISO/IEC Guide 50 as part of the development of the PSF, where we tried to extend the content and make it useful in the assessment of product by adding limits and test methods. We could also see an opportunity to develop a modular approach to developing new standards.

“I have also used it in my business in the development of software to assist firms conduct a risk assessment for product safety.

“From the perspective of a consumer or someone new to product safety, I think ISO/IEC Guide 50 is an excellent tool for raising awareness of potential hazards.”

topped furniture is great fun; drinking cleaning products may be cool; hanging from a basketball hoop is neat!

Children have a basic right to a safe and secure environment. Identifying, removing and reducing exposure to hazards can prevent injury. Dr. Elizabeth Nielsen, Chair of ISO/PC 243, Consumer product safety (which is currently developing ISO 10377, Guidance Standard – Consumer product safety: A practical guide for suppliers), has summarized the situation aptly, “Childhood injuries aren’t ‘accidents’– they are predictable and preventable!”

Standards and guides can be used in conjunction with legislation and regulation, education and market forces, to decrease risk and positively influence society to prevent mishap, injury, permanent disability and death to our children.

All children have a right to well being, a safe environment and deserve protection from injury. It is up to us as adults to ensure and safeguard these rights.

About the author

Robyn Easton is Co-Chair, Product Safety working group, at the ISO Committee on consumer policy (ISO/COPOLCO). With a background in organic chemistry, Ms. Easton has worked in the pharmaceutical industry, at Harvard University, in a lobbyist organization – the Federation of Australian Scientific and Technical Societies, and with the Commissioner for Sustainability and the Environment. For the past 16 years, she has represented, in a voluntary capacity, the Consumers’ Federation of Australia.

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In a manner of speaking, play is a child’s work. Play is a way for children to actively learn and develop social skills. Toys have always been present in all cultures, and there is no doubt that they are vital tools for healthy growth. Toys are developed to suit specific stages and ages of child development, and are also labelled with appropriate warnings and recommended user ages as information to caregivers.

According to the United Nation’s Children’s Fund (UNICEF) there are 2.2 billion children in the world. Approximately 85% of these children live in developing countries and over one billion live in poverty. Children’s opportunities to play with toys vary greatly around the world, but it is a basic requirement that toys sold for use by children must be safe and of high quality.

ISO’s international reach

ISO technical committee ISO/TC 181 is responsible for ISO 8124, Safety of toys. The committee presently has 23 participating member countries with another 23 as observers. The experts represent industry, authorities, consumer organizations, test houses and other stakeholders.

According to the International Council of Toy Industries (ICTI – see interview with its President, Arnie Rubin, on page 3), the worldwide toy market in 2008 amounted to more than USD 70 billion. North America, Europe and Asia accounted for approximately 30% each, or 90% of total toy sales. The 10 countries with the highest sales represented 65% of total toy sales. It is estimated that 70% of the world’s toy volume for 2008 was produced in China.

ISO 8124 is a vital safety standard used in many regions around the world. It is fully or partially referenced in Argentina, Australia, Brazil, Chile, China, Indonesia, Japan, Malaysia, New Zealand, Peru, Philippines, Russia, Thailand and Vietnam. Other important standards that are referenced in various regions are EN 71 ASTM F963.

Continual improvement

ISO 8124 is a living document, continually updated to reflect new toy designs and new potential hazards. Accident data is closely monitored and, together with risk analyses, is used as a basis for improvements in the standard. In addition, the amendments made to other important toy safety standards are often considered for inclusion in the ISO standard.

It is recognized that “zero risk” is not a realistic ambition, and that parental supervision is necessary to some degree, especially in large families where younger children may have access to toys that are intended for an older age group. The ambition of ISO 8124 is to lay down technical requirements that will minimize potential toy hazards arising from their use in intended play modes (normal use), as well as unintended play modes (reasonably foreseeable abuse).

Even as the existing parts of the standard are continuously updated, new parts are also being developed to meet the needs of consumers, manufacturers, authorities and other stakeholders.

Relationship with regulations

Toys are subject to extremely widespread international and regional trade. This increases the importance of establishing and maintaining International Standards with satisfactory safety requirements, and test methods for determining their safety.

Systems are in place around the world to ensure that toys are as safe as practically possible. These can include legislation, regulations and rules, as well as references to standards.
One standard used globally

The fact that various safety standards and regulations are applied in different parts of the world is a complicating factor for manufacturers that sell toys worldwide, not to mention test-houses, consumers and authorities. The concept of a single, global toy safety standard has been discussed on numerous occasions, and continues to be the ideal the market should strive for.

Toy safety at a glance

Published under the generic title, Safety of toys, ISO 8124 is presently available in three parts:

- Part 1: Safety aspects related to mechanical and physical properties
- Part 2: Flammability
- Part 3: Migration of certain elements (a new edition is expected in 2010)
- Part 4: Swings, slides and similar activity toys for indoor and outdoor family domestic use (expected to be published in 2010).

Work has been initiated recently to develop three new parts in the series. Their working names are:

- Total concentration of certain elements in toy materials
- Determination of phthalate plasticizers in plasticized material
- Fingerpaints.

A consolidated version of ISO 8124-1, Mechanical and physical properties, was published in early 2009, replacing the previous 2000 version and its amendments.

However, work is already underway on new amendments to ISO 8124-1, both to cover emerging issues related to new features, such as magnets in toys, and to improve existing sections of the standard such as projectiles, rotors and propellers, and cords in toys.

In 2007, large quantities of toys were recalled from the market due to excessive levels of lead in paint and hazardous magnets that could come loose from toys (if two or more strong magnets are swallowed by a child, they can stick together across the intestines, causing serious infections).

Stakeholders pointed out that some of these recalls may have been caused by confusion over differences between standards and regulations for different regions of the world. High-level requests have been submitted for harmonization – or at least better alignment – of standards and regulations.

Calling for closer cooperation

Closer cooperation among the organizations that develop toy safety standards around the world is key to successful future harmonization and alignment of requirements. Progress was made toward improving collaboration at the last plenary meeting of ISO/TC 181 in November 2009 with the following actions.

Chairs and secretaries of toy safety committees from CEN, ASTM and ISO held a meeting aimed at identifying ways to achieve increased cooperation among the three organizations.

The worldwide toy market in 2008 amounted to more than USD 70 billion.

A meeting of ASTM committee F15.22 (responsible for ASTM F963) was held in conjunction with the ISO/TC 181 plenary meeting allowing ISO experts to participate and discuss emerging issues.

ISO/TC 181 established an advisory panel to monitor emerging issues and make recommendations on preliminary work items or proposals for new work to the technical committee. The panel, composed of experts from around the world, will ensure that emerging issues from different parts of the world can be identified and monitored.

The steps taken will facilitate cooperation between standardization organizations on new work items, which will hopefully lead to a high degree of convergence for new requirements introduced in the main toy safety standards. This may also be the starting point for retroactive harmonization of existing toy safety requirements in the main standards. It is only natural that ISO play a leading role in harmonizing toy safety standards in the global marketplace.

A two-way street

After the major toy recalls in 2007, new regulations have been put in place both in the USA (through the Consumer Product Safety Improvement Act) and in Europe (through the new Toy Safety Directive). Therefore, it is necessary that regulators see an interest in harmonized requirements since they will need to endorse any changes that are proposed to the European and American toy safety standards.

As concerns products sold globally, regulators in several parts of the world recognize that regulatory alignment simplifies matters for all stakeholders, including consumers, and improves the safety of children worldwide.

On the agenda

Many organizations are already doing their share to facilitate global harmonization, among them the Organisation for Economic Cooperation and Development (OECD), the Asia Pacific Economic Cooperation (APEC), the International Consumer Product Safety Caucus (ICPSC) and ICTI.

ISO/TC 181 clearly has solid support around the world for meeting its most important future challenges – increased alignment and harmonization of global toy safety requirements.

About the author

Christian Wetterberg, Director, Governmental Affairs, LEGO Group, serves as Chair of ISO technical committee ISO/TC 181, Safety of toys. He has been the Convener of the European Committee for Standardization CEN/TC 52, Safety of toys, working group WG 3, Mechanical and physical properties, since 2005. Mr. Wetterberg is also a member of the CEN/TC 52 Advisory Board and represents CEN together with the Chair of CEN/TC 52 in meetings of Notified Bodies for Toys Directive and in meetings with the European Commission and with its Toy Expert Group.
Building blocks
A global effort for safe and fun play

by Joan Lawrence

Though play differs from culture to culture and generation to generation, it is a universal, instinctual and essential component of human development. Much more than simple entertainment, sociologists consider play to be the primary way in which children learn about themselves, others and their world. Given its many benefits, parents and caregivers naturally want to encourage a safe, fun and positive play experience for their children. Toys are an important factor in this developmental equation.

Beyond our own backyard

The toy business is a notoriously competitive industry. How then do toy manufacturers see beyond the threat of competition to sharing advancements in the field of toy safety? Because our industry’s products are designed specifically for children, we hold ourselves to a higher standard.

Toy safety is the one arena in which toy companies put down their competitive “arms” and share information for a greater cause. The industry sees that the greatest way to protect its all-important, vulnerable young consumers, is through global cooperation in the area of toy safety. It is a rare and remarkable condition in which competition comes second.

Members of the toy industry use the most current statistics on injury patterns and physiological data to regularly review and update safety standards that:

• Incorporate developments in child safety and play patterns into the toy design process
• Shepherd advancements in design, production methods and materials that will increase the safety and play value of products
• Utilize incident data and hazard identification and reduction techniques to further enhance already sophisticated risk-based safety standards.

These innovations, as well as advancements in the overall consumer product safety arena, continue to keep toy safety at the forefront of global standardization initiatives.

The US Consumer Product Safety Commission (CPSC) – the federal agency responsible for enforcing safety regulations on more than 15,000 consumer products – has consistently ranked toys among the safest consumer products in the home. This is a credit to the constant attention paid to the maintenance and improvement of safety standards.

Toy safety is a global interest.

Indeed, the CPSC and other government experts work alongside interested parties including industry representatives, pediatricians, consumer groups, retailers and other safety experts to combine their expertise for the purpose of maintaining the high level of safety for toy products.

Swift action and change

In 2007, when lead in paint was found to have tainted some of the world’s toy supply, the toy safety standards community responded immediately by proposing ways to strengthen toy safety standards and the process for assuring safety. Though the number of affected products totalled less than one percent of the US total domestic market, the actions taken were pervasive and introduced an improved safety network for the entire industry. Our quick response was lauded by members of the US federal government, consumer organizations and the media.
Special Report

Toy industry figures

Global retail sales of toys in 2008 totalled more than USD 70 billion. US sales account for over 27% of this total.

Data from the first three quarters of 2009 indicated signs of growth in the top 11 toy markets worldwide.

One year later, in August 2008, the US government signed into federal law the previously voluntary toy safety standard, ASTM F963. Today, this document is an integral element of the federal mandatory standards for toys.

ISO/TC 181 was created in an effort to move towards a global standard for toys.

These requirements cover more than 100 separate tests and design specifications to reduce or eliminate hazards with the potential to cause injury under conditions of normal use or reasonably foreseeable misuse. ASTM F963 has served as a model for other countries developing or improving their own standards and has frequently been adopted in various standards abroad.

Coordinating global toy safety efforts

With an eye towards global harmonization, the US toy industry has become an advocate, key player and active participant in the development of the international family of toy safety standards known as ISO 8124, Safety of toys. Members of the US toy industry also serve as observers in European toy standards discussions within the European Committee for Standardization (CEN). Indeed, the ISO technical committee ISO/TC 181 on toy safety, known for the ISO 8124 family of standards, was created in an effort to move towards a global standard for toys.

Members of ISO/TC 181 met in November 2009 for plenary and working group meetings in New York, USA. “Like other industries, toy companies find themselves competing in an increasingly global market,” said the Toy Industry Association (TIA) President Carter Keithley in his opening remarks to the ISO/TC 181 plenary.

He added: “To the extent that standards can be harmonized across borders, a toy manufacturer will have one set of specifications to follow instead of a few … or more. This will be beneficial to all – but especially for the smaller and mid-sized manufacturers who are just entering worldwide markets. And ease of compliance will simplify the ultimate goal of making toys safe for children.”

In conjunction with the November meeting, nearly 30 toy safety experts from 17 countries joined with members of the ASTM technical subcommittee on toys to explore technical standards that could address potential toy hazards related to impact, magnets, and projectiles.

Representatives of Consumers International, CEN, Toy Industries of Europe, and the International Council of Toy Industries (ICTI) attended the ISO meeting as liaisons.

Meeting face-to-face with colleagues from ISO member countries, standards bodies, regulatory authorities and consumer groups from different regions provided an invaluable opportunity to consider common issues, and the latest
In the early 1930s, a Safety Standards Committee of US toy industry executives was formed to address the issue of product safety and the safety of children. Their efforts led to the industry’s first voluntary safety standard.

Cooperative efforts between this committee and the National Safety Council (NSC) led to the formation of a National Accident Reporting Service and a National Clearinghouse for Toy Injuries. Work between industry and the American National Standards Institute (ANSI) began in the 1950s and resulted in a joint move in 1955 to establish a standard for surface coatings on toys.

In 1971, the US toy industry association drafted its first comprehensive voluntary toy safety standard. Five years later, the association led a cross-sector public and private-sector initiative to publish a comprehensive standard under the auspices of the National Bureau of Standards.

In 1986, the standard, revised and updated, earned designation as ASTM F963 – Consumer safety specification on toy safety; it was later approved as an American National Standard.

In 1980, TIA and the US toymakers supported the establishment of ISO/TC 181. This support continues today through ongoing efforts to promote the alignment of toy safety standards across borders.

In 2008, the previously voluntary ASTM standard became a part of the USA federal law when the Consumer Product Safety Improvement Act (CPSIA) was approved.

The purpose of the APEC initiative was to deepen understanding of toy safety programmes among all interested groups in order to ensure a high level of consumer product safety, while also increasing transparency and reducing unnecessary impediments to trade.

The programme focused intently on problems caused by differing toy standards around the globe and on mechanisms that might be used to promote standards alignment.

Toy safety is a global interest – and it is an interest that must be addressed not only by toy companies, but also by regulators and consumer representatives. There is no better place to bring these stakeholders together than within the standardization arena.

Another coordination initiative has been proceeding under the auspices of the Asia Pacific Economic Cooperation (APEC). The governments of Chile, China, Chinese Taipei, Japan, Malaysia, Vietnam and the USA – along with the US Toy Industry Association as a private sector partner – co-hosted an Open Dialogue on Toy Safety for all stakeholders in January 2010, in conjunction with the Hong Kong Toy Fair. The one-day workshop was a follow-up to the successful APEC Toy Safety Initiative Regulator Dialogue that took place in Singapore in 2009.

The panel will help to make meaningful progress on harmonization objectives focusing first on emerging standards; then promoting consistency or mutual acceptance in conformity assessment schemes, and reconciling historical differences among existing standards if opportunities emerge.

About the author

Joan Lawrence is Vice President of Standards and Government Affairs at the US Toy Industry Association (TIA), a not-for-profit trade association representing more than 530 toy companies in North America. TIA’s members represent more than 85% of the US domestic toy sales. In addition to her management of TIA’s Toy Safety Assurance Programme, Ms. Lawrence chairs the ASTM subcommittee on Toy Safety, serves on the Board of the International Consumer Product Health and Safety Organization (ICPHSO), and is a member of the Consumer Interest Forum of the American National Standards Institute. She also serves as Executive Administrator of the International Council of Toy Industries, Inc., an association of 21 national toy associations from around the world.
Wheels of change
Children’s bikes take new turn
by Stefan J. Berggren

The bicycle industry has always been fierce in its design and development of new products, as manufacturers pursue every advantage that can help them gain market share. ISO works to define performance requirements and limits with bicycle manufacturers, and to develop test methods by which these factors can be measured.

Qualifying standards such as ISO 4210:1996, Cycles – Safety requirements for bicycles, and ISO 8098:2002, Cycles – Safety requirements for bicycles for young children, have proven to be essential in development of competitive, safe, and reliable products.

Bicycle safety standards were greatly improved with the creation of these two important standards. Now there is once again a resurgence within ISO’s cycle standards community to revisit and update ISO 4210 and, even more urgently, ISO 8098.

Keeping with market changes

Two of the factors that have dramatically intensified the focus on safety for children’s products are the actions of the US Consumer Products Safety Commission and the litigious nature of product liability claims aimed at the USA cycling industry.

The number of children cycling has increased dramatically around the world, with growing consumer interest in green transportation. This, in turn, underlines the need for standards to ensure adherence to material quality and manufacturing process requirements.

In addition, available types of children’s bicycles have increased in number and intended uses, and technical design has been dramatically transformed. Therefore, now is the time for updating children’s bicycle standards, and the members of ISO technical committee ISO/TC 149, Cycles, subcommittee SC 1, Cycles and major sub-assemblies, comprise the group of experts that can make this happen.

The subcommittee came together to discuss future actions on ISO 4210 and ISO 8098 in June 2009, in Japan. One of the main goals of the meeting, which included members from France, Japan, the Netherlands, Sweden, and the USA, was to rework ISO 8098, which centres on the safety requirements of bicycles for young children. A high priority was the need for progressive and precise standards that allow manufacturers and test houses to measure products’ performance.

Next generation

The first meeting of working group WG 9, Revision ISO 4210 and ISO 8098, will take place in the spring of 2010. The group is comprised of industry experts, both new and old, who have the ability to make the necessary changes and bring improvements to global standards. It is great to be part of the group at this stage, during which we hope to usher in a new era for global bicycle standards.

The goal for the next generation of standards is to arrive at defining durability and safety in practical terms. If well-written, these standards will have profound implications for global safety, and could provide a roadmap for future legislation. With hard work and dedication, ISO/TC 149/SC 1/WG 9 is ready and willing to make this possible – for the benefit of all bicycle riders – the young and old alike.

About the author

Stefan J. Berggren, an avid cyclist since childhood, is an engineer with Trek Bicycle in the USA, specializing in bicycle testing and compliance. He is Convenor of ISO technical committee ISO/TC 149, Cycles, subcommittee SC 1, Cycles and major sub-assemblies, working group WG 9, Revision ISO 4210 and ISO 8098, and liaison to the European Committee for Standardization CEN/TC 333. Mr. Berggren is also Vice Chairman of ASTM F08.10, Bicycles and accessories.
ISO technical committee ISO/TC 188, Small craft, working group WG 14, Personal safety equipment, has concentrated on protective equipment against drowning since 1989.

This includes a variety of products, from personal flotation devices (PFDs) and buoyancy aids for white water canoeing, to immersion suits and harnesses. WG 14 deals with a wide range of applications on and in water, with products intended for use in both leisure and commercial applications.

The work programme covers the set of standards for personal flotation devices, ISO 12402, Personal flotation devices, Parts 1 to 10, published in 2007. In Europe, these standards replaced European standards EN 393 to EN 396 and EN 399.

ISO 12402 specifies various performance levels, from buoyancy aids to offshore lifejackets (Parts 1 to 5); products for special applications (Part 6 in correlation with one of the first five parts); requirements for material and component testing; additional items and performance testing (Parts 7 to 9), plus a guidance paper for application and use (Part 10).

Other key safety standards developed by the working group include ISO 15027, Immersion suits (Parts 1 – 3), which covers abandonment suits and constant wear suits / winter gear (currently under review), ISO 12401:2009, Deck safety harness and safety lines, and ISO 10862:2009, Quick release system for trapeze harness.

The standards are being continuously improved by working group members, which comprise manufacturers, consumers’ representatives, test bodies and representatives of regulating organizations.

For every situation

The most important goal of the work group is to reduce the risk of drowning. All standards aim to improve the performance of water safety devices, without differentiating between leisure and commercial applications, onshore or offshore, surfboard or cruise ship, passenger or master mate. Safety specifications must meet the needs of all situations.

ISO 12402 aims to ensure safety, while maintaining wearer comfort during
use on, and in, water or onboard a craft. Comfort, sizing and fit requirements are important, with special attention paid to devices for children.

The size of adult devices is mainly determined by user height, body mass and chest sizing, with constant relationships between measures across age ranges. As every parent knows, body shapes vary significantly from baby, to toddler, to a five-year-old child. This means that careful consideration must be given to the size and buoyancy distribution of flotation devices designed for small children or babies.

The most important goal is to reduce the risk of drowning.

To address these issues, the European Commission’s Standards Measurement and Testing Programme initiated a research effort aimed at developing mannequins that would simulate small children in water. The mannequins would provide a standard test tool to improve the approval of children’s devices designed for the European market. A consortium of five research and testing organizations, one consumer organization and one mannequin manufacturer carried out the what was known as the BAMBI project.

The project took into account the experience of test bodies, market research on PFD use in children, the incidence of drowning, and specific boating accidents involving children (although in this case, little useful data was found). Target age groups were established, with mannequins developed to simulate children of 18 months (9.4 kg body weight) and three years (14.5 kg body weight), using 50th percentile anthropometric data drawn from a number of sources.

Modified crash-test dummies

The original mannequins were based on established child crash-test dummies, but were then highly modified to suit the needs of marine mannequins, with a solid trunk, flexible limb joints, a specially designed neck joint, and all body segments designed to specific density values.
Rolf Popp holds degrees in mechanical engineering, naval architecture and offshore engineering from the Technical University Aix la Chapelle. Since 1985, he has served as health and safety inspector at the Institution for Statutory Insurance and Prevention in the vehicle operating trades, in Germany. Since 1993, he has been Convenor of ISO/TC 188/WG 14, Personal safety equipment, and CEN/TC 162/WG 6, Lifejackets.

Sue Coleshaw is an independent physiologist/ergonomist specialized in the field of personal safety equipment who is working primarily with the offshore industry. She was project manager of the BAMBI project, responsible for developing child mannequins as a test tool. Ms. Coleshaw chairs the BSI (ISO member for the United Kingdom) committee responsible for buoyancy equipment and is the UK principal expert on CEN/TC 162/WG 6.

Ingunn Holmen Geving, MSc, is a senior scientist at the SINTEF Group in Norway, where she is responsible for testing life-saving appliances according to standards from ISO, the International Maritime Organization and the European Union. She works with projects to improve health and safety in extreme work environments and at sea. SINTEF is a non-profit research and development organization with 2100 employees (www.sintef.com). Ms. Geving represents Norway in CEN/TC 162/WG 6.

These alterations reproduced the correct floating position in water. The mannequins were validated by motion analysis and comparison with child swimmers. They proved successful at identifying good and poor device design. Moreover, some of the problems recognized had not been seen during the simple observation of children wearing a device in water.

Once the design was finalized, new test procedures were written to be used with mannequins. Test methods and requirements were then incorporated into relevant parts of the ISO 12402 PFD standard. These additional tests help improve the quality of information gained on the safety and performance of new products.

The development of BAMBI has provided a tool for manufacturers to test certain properties of life-saving appliances without exposing children to potentially hazardous tests such as falls from heights. However, complete evaluation of a PFD’s performance requires water testing with a representative selection of children.

The ISO 12402 series calls for evaluation of self-turning properties, stability, the distance from the water surface to the mouth (freeboard), and face and body angles when floating in a face-up position. Protocols also include observing the child’s comfort and behaviour wearing the lifejacket while moving in the water, as well as entering and climbing out. A donning test (children can be assisted by an adult) must also be performed – a well-designed PFD should enable donning within one minute.

Testing must be fun

Experience shows that it can be a challenge to conduct tests with babies, toddlers and older children, but care is always taken to ensure that they feel safe and remember the test as a fun experience in the pool.

A child is never pushed to repeat exercises it does not feel comfortable with. The tests require that the child is willing to properly don the PFD before entering the water and that he or she relaxes in the water. A parent is allowed to stay in the water close to the child.

ISO 12402 also spells out that the procedures may be adapted to each child’s performance level in the water. Evaluation of PFDs for children thus comprises observations of children playing, jumping and floating in the pool.

However, certification must also be based on accurate measurements of the basic functionalities of the PFD and, in this respect, mannequins can be used as a supplementary tool to provide reproducible test results.

ISO 12402 supports the development of PFDs that are safe at a high performance level, and also comfortable for children to wear.

About the authors

18-month-old mannequin wearing SOLAS-style lifejacket, in relaxed floating position.
Child-resistant packaging originated in the USA, following a call from the Consumer Product Safety Commission in the 1960s. It asked that potentially harmful products be packaged in containers difficult to open by children under the age of five, but still accessible to adults.

The creation of this new packaging necessitated the development of a test method – a task assigned to a joint government-industry committee that brought forth a set of child/adult test protocols.

After modification by the US Food and Drug Administration, these protocols were adopted by the Code of Federal Regulations (part 1700-1750), which included the Poisons Prevention Packaging Act of 1970.

80 % fail to open

The basic test protocols require a panel of up to 200 children aged 42 to 51 months, evenly divided between boys and girls, tested in pairs and challenged to open the package within 10 minutes. If after five minutes they have failed to gain access, they are given a visual demonstration and given a further five-minute test period in which they are urged to open the container.

There is also an adult test, which has changed over the years, and now comprises elderly adults aged 50 to 70 years of age with no physical impairments. The test involves giving subjects a package and written opening instructions, and asking them to open and properly reclose the container within five minutes. Those who are successful are given another test package which they must open and properly re-close in one minute for the test to be considered a success.

The package is classified as child-resistant if at least:
- 85 % of the children failed to open it after the first five-minute period
- 80 % still cannot gain access after the full 10 minutes
- 90 % of the adults opened and properly re-closed the package without a demonstration.

The reason the child panel test has an overall 80 % “fail to open” pass result is that it was recognized that the age group of children tested was older than those at greatest risk (approximately three years old), and were hence stronger, likely to be more intelligent, physically adept and capable of understanding instructions during the test period.

In search of standards

No package is to be considered “child proof”. The term “child-resistant packaging” (or CRP) is preferred. All subsequent standards for child resistance have adopted the same child and adult test protocols.

The unique requirements of these test protocols has led to the establishment of specialist test centres, which must be either registered or accredited, depending on local governmental regulations. The development and adoption of standards for child-resistant packaging is ongoing, with the latest updates and revisions scheduled for publication in the near future.
ISO 8317 provides an internationally recognized test method for assessing the child-resistant characteristics of packages before they are put on the market for consumer use. The standard allows manufacturers to develop CRPs that offer an adequate physical barrier between a child under the age of five and a range of hazardous products, including certain medicinal products, liquid fuels and solvents, strongly acid or alkaline preparations, and some garden products.

While CRPs have proved effective in preventing children from opening or gaining access to hazardous contents, they have also raised concerns over the difficulty of adults in opening the package, particularly among the elderly and the physically disabled.

ISO 8317 was updated in 2003 to include a new test method for adults between the ages of 50 and 70 – thereby providing not only a measure of the effectiveness of the package in restricting access by children, but also in permitting access to its contents by adults. The standard introduced the concept of “sequential” child testing, which reduces the number of children required to achieve a result. In the revised version, the “evaluation of a series of packaging of the same design” was introduced to reduce the number of protocol tests required.

Overcoming weaknesses

One of the weaknesses of the current testing system is that ISO 8317 specifies a one-off test. Granting conformity to ISO 8317 is open-ended, with little or no control of the quality of packaging revisions.

Prior to the introduction of ISO 8317, the UK system involved issuing a certificate of conformity limited to three years.

As CRPs have proved effective in preventing children from opening or gaining access to hazardous contents, they have also raised concerns over the difficulty of adults in opening the package, particularly among the elderly and the physically disabled.

ISO 8317 provides an internationally recognized test method.

ISO 8317 was updated in 2003 to include a new test method for adults between the ages of 50 and 70 – thereby providing not only a measure of the effectiveness of the package in restricting access by children, but also in permitting access to its contents by adults. The standard introduced the concept of “sequential” child testing, which reduces the number of children required to achieve a result. In the revised version, the “evaluation of a series of packag-

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The draft standard for using mechanical test methods (the parameters being set by testing CRPs which conform to ISO 8317) may be a way to introduce a more scientific means of ensuring compliance, without always resorting to child/adult panel testing.

Agreement in sight


The draft ISO 13127 has recently been circulated for comment at the enquiry stage. Twenty-three countries voted for acceptance, five abstained and one voted against. While further work is required, it appears that a standard can be achieved.

While some participants claim that only child/adult panel testing is acceptable, data is no longer available showing the success of CRPs in reducing accidental child poisonings.

There is a need for better control of the quality of CRPs, and modifications made to them that are considered “not significant” by their manufacturers. These changes could be in construction material, change of component supplier or container shape. Such changes currently require full child and adult protocol testing, but manufacturers may ignore this and rely instead on inadequate policing of the system.

About the author

**Colin Scaife** has been actively involved in child-resistant packaging (CRP) since the 1975 introduction of legislation for CRPs for some categories of pharmaceutical products. He is a mechanical engineer and Convenor of the Joint ISO/TC 122/SC 3/WG 3 and CEN/TC 261/SC 5/WG 27, and he serves as Chairman of the BSI (ISO member for the United Kingdom) committee for CRP.

**René Frigière** is an expert member of ISO technical committee ISO/TC 61, Plastics, working group WG 1, Lighters.
Restraint systems

Improving safety of children in cars

by Lotta Jakobsson*

Children are not small adults. The head of a newborn accounts for approximately one-fourth of its total body mass, while for an adult it is about one-twentieth. The neck of a small child lacks the strength of an adult’s, in respect to both skeletal structure and muscles. It is not until puberty that the pelvis gains a shape appropriate for lap seat belts. The specific needs of children must be understood to give children optimal protection as car occupants during a crash.

The development of child restraint systems for vehicles started in the mid-1960s, and has evolved in the decades since. Although the general principles of design have not changed much over the years, there is still substantial room for improvement. Here, the issues needing further addressing include usage aspects, such as properly restraining the child and attaching the restraint to the vehicle.

ISO technical committee ISO/TC 22, Road vehicles, subcommittee SC 12, Passive safety crash protection systems, working group WG 1, Child restraint systems in road vehicles, was established in May 1989 with a Swedish Secretariat and Convenorship. The group’s aim is international harmonization and standardization in the field of child restraint systems in passenger cars in order to improve safety for children in cars.

Addressing misuse and compatibility

From an early stage, misuse and compatibility were identified to be the most important topics in the field of child restraint systems in passenger cars. Numerous studies have identified misuse as a significant contributor to increased risk of injury. Misuse includes aspects such as improper attachment of the child to the restraint system, or restraint system to the vehicle. Compatibility between child restraint systems and the car is essential for safety.

ISOFIX is a great step forward for child safety.

In general, consumers require that a child restraint system should fit in any passenger car. Since this affects the design of both the child restraint system and the car, the legal requirements need to be supplemented by specifications in standards. Both misuse and compatibility aspects can and should be addressed in various ways, as demonstrated by the work item portfolio during the last 20 years (see Box, next page).

The standardized universal attachment of child restraint systems to vehicles was identified as the optimal way of addressing misuse. By determining standardized attachment points for both the child seat and the vehicle, the attachment procedure would be identical for all child restraints.

Overall, crash performance is improved due to more rigid attachments, reduc-

*With contributions from Peter Claeson and Björn Lundell, Secretary and former Convenor of ISO/TC 22/SC 12/WG 1.
All aboard! Get ready to sail!

Cut the boat from the top right-hand corner of the opposite page, and use it to navigate through the board (you'll need pen and paper to mark your score). Be careful, don't get pulled down by anchors!

How to play

1) Go to the first question. Answer. Then check your answer on the bottom right-hand corner. Repeat for each question.

2) For each right answer, your boat moves forward to the next question. Skip any red boxes in between!

3) For each wrong answer, add an “anchor” to your score and move to the next box. If you land on a red box, you will be asked to complete a challenge or to add anchors to your score. Once completed move to the next box.

4) When finished count your anchors and check the score chart on the right.

2) To date ISO has produced some:
   a. 16 000 standards
   b. 17 000 standards
   c. 18 000 standards

9) ISO 8124 addresses:
   a. Bicycle safety
   b. Safety of toys
   c. Safe lighters

10) ISO has standards for preparing spaghetti and sampling tea:
   a. True
   b. False

11) What project developed child mannequins for flotation devices?
   a. MICKEY
   b. DUMBO
   c. BAMBIII

8) The ISO Café is:
   a. Standardized coffee
   b. The ISO cafeteria
   c. A user-friendly overview of ISO at www.iso.org/thewisocafe

Your freight container is too large, add 3 anchors!

Inefficient management makes you waste time and effort: add 2 anchors!

GO!

Game concept by Maria Lazarte and Elizabeth Gustarowski-Denis, graphic concept by Alexane Rosa.

2) ISO has been operating for:
   a. 35 years
   b. 44 years
   c. 63 years

3) ISO is the ISO member for:
   a. Uruguay
   b. Ukraine
   c. Uganda

4) UNIT is the ISO member for:
   a. CAR FIX
   b. ISOFIX
   c. CHILD FIX

5) The latest ISO 9001 was published in:
   a. 2007
   b. 2008
   c. 2009

6) ISO/IEC Guide 50 is used to:
   a. Test child-restraint systems
   b. Incorporate child safety guidelines
   c. Find the top 50 ISO/IEC committees

7) What committee addresses toy safety?
   a. ISO/TC 8
   b. ISO/TC 181
   c. ISO/TC 234

8) ISO’s helping tackle organizational risk through:
   a. ISO Guide 31
   b. ISO 31000
   c. IWA 130

9) The top two causes of accidental deaths of children are:
   a. Road accidents & drowning
   b. Poisoning & burns
   c. Drowning & falls

10) UNIT is the ISO member for:
     a. Uruguay
     b. Ukraine
     c. Uganda

11) What project developed child mannequins for flotation devices?
    a. MICKEY
    b. DUMBO
    c. BAMBI

12) A great step for child car safety:
     a. CAR FIX
     b. ISOFIX
     c. CHILD FIX

Score

Between 0-4 anchors
Congratulations! You are a master of the ISO seas! Not even the thickest storms daunt you, and your knowledge is the stuff of legend. You deserve the ISO five stars (not to be confused with the ISO 5 photography standard, but of course, you knew that!).

Between 5-10 anchors
You faced some rough waters, but your skills pulled you through. You are either familiar with the ins and outs of ISO, or have read this issue carefully. You are on your way to becoming an ISO pro.

More than 11 anchors
Don’t leave the port without an ISO conforming life-vest, clearly the waters are not made for you. Your knowledge of ISO needs brushing up. Go without delay to the ISO Café at www.iso.org/iso/theisocafe.

Tells us how you did at isofocus+@iso.org!
A child restraint system should fit in any passenger car.

20 years on

A wide spectrum of issues has been covered by the ISO working group responsible for child restraint systems, including:

- Universal attachment systems (ISOFIX)
- Specification of top tether attachments
- Classification of child restraint dimensions and vehicle space
- Comparing regulations and standards related to child restraints and vehicles (including definitions)
- Reducing the risk of misuse (covering forms for the collection of data in field studies and test methods as well as instructions and labels)
- Compatibility (determination of adult belt anchorage locations and belt length with respect to the attachment of a child restraint system to a vehicle, child restraint support leg to car floor interaction and more); this is an active work item
- Report forms for accidents involving child passengers
- Usability evaluation forms (of the child restraint systems, vehicles and the child restraint-to-vehicle interaction)
- Side impact method development
- Child restraint systems (CRS) interaction with airbags (deactivation standard)
- Discussions and recommendations regarding dummy development and injury criteria.

The standard is now incorporated in the regulations of the United Nations Economic Commission for Europe (UNECE) (applied in Europe, and in several countries outside Europe), the USA and Canada. All car manufacturers have developed ISOFIX anchorage systems according to the specifications of the standard. Many compatible ISOFIX-equipped child restraints, of various types and sizes, are available as well.

**Crash performance is improved.**

The legal implementation of ISOFIX in the USA was in force in 2002, prescribing the flexible version, called LATCH (Lower Anchors and Tethers for Children). At about the same time, a similar legal requirement, known as universal anchorage system, was introduced in Canada. In Europe, the legislative process resulted in final legal requirements published in 2004. The UNECE version refers to the rigid ISOFIX attachments on the child restraint. The experts in WG 1 firmly believe that ISOFIX is a great step forward for child safety, helping to reduce misuse and thus improve safety for children in cars.

Methods and criteria for usability evaluation of child restraint systems and their interface with ISOFIX/LATCH/UAS (Universal Anchorage System) have been developed to measure the success of ISOFIX implementation. The usability of a child restraint system – in both correct installation and day-to-day use – is of utmost importance. This ensures that a...
Reducing risk of injury from airbags

by Elizabeth Gasiorowski-Denis

Car air bags save thousands of lives each year. But they have also been known to cause injury, and, even death, – with young children at greatest risk. A three-part ISO technical specification is contributing a solution by reducing the risk of an airbag being deployed against a child seat in the event of a crash.

The specification defines requirements for a child seat presence and orientation detection system (CPOD). Such a system enables child seats placed on any CPOD-equipped passenger seats to be automatically detected whenever a child is at risk from an active airbag. It uses radio frequency identification (RFID) technology to obtain information on the following:

• Presence of a child seat
• Orientation of the child seat (forward facing or rearward facing)
• Child seat type identification
• System diagnostic.

Falk-Hagen Bräming, the CPOD project leader comments: “The purpose of this detection system is to improve the overall safety performance of passenger restraint systems, particularly by reducing the risk of airbag deployment.

“This life-saving detection system has been made possible thanks to an international group of experts under the leadership of ISO’s technical committee ISO/TC 22, Road vehicles.”

The new technical specification ISO/TS 22239, published in 2009 under the general title, Road vehicles – Child seat presence and orientation detection system (CPOD), is intended to ensure that all CPOD systems are compatible with one another. To improve ease of use, the specification has been divided into three parts.

ISO/TS 22239-1 specifies a child seat presence and orientation detection system (CPOD). It describes the main system functionality and provides design recommendations and requirements, as well as compatibility measurement requirements.

ISO/TS 22239-2 describes the CPOD resonator. It defines the electrical and environmental requirements to be met by the resonators as a condition for CPOD compatibility.

ISO/TS 22239-3 specifies instructions for use as well as labelling requirements of child restraint systems and vehicles equipped with the CPOD.

The three-part technical specification does not encourage the placing of children on the front passenger seats of cars. However, in view of the fact that the following scenarios do occur in real life, children can be placed on front passenger seats in these cases:

• In two-seater vehicles, which have no rear seats
• When there are more than two or three children in one vehicle
• When back seats are folded down for the transport of cargo
• When rearward-facing child restraint system (CRS) is installed and the driver wants to see the baby and have easy access to it.

ISO/TS 22239 was developed by ISO technical committee ISO/TC 22, Road vehicles, subcommittee SC 12, Passive safety crash protection systems, working group WG 1, Child restraint systems in road vehicles.

ISO/TS 22239:2009, Road vehicles – Road vehicles – Child seat presence and orientation detection system (CPOD), Part 1: Specifications and test methods. Part 2: Resonator specification, and Part 3: Labelling, are available from ISO national member institutes (listed with contact details on the ISO Web site www.iso.org). They may also be obtained directly from the ISO Central Secretariat through the ISO Store (www.iso.org/isostore) or by contacting the Marketing, Communication and Information department (sales@iso.org).

About the author

Prof. Lotta Jakobsen is Convenor of ISO technical committee ISO/TC 22, Road vehicles, subcommittee SC 12, Passive safety crash protection systems, working group WG 1, Child restraint systems in road vehicles. She is Technical Leader in Biomechanics, Injury and Accident Prevention, at the Volvo Cars Safety Centre and Adjunct Professor at Chalmers University of Technology in Gothenburg, Sweden.
Indonesia’s most precious resource are children. But as every parent knows, children lack the skills to protect themselves. It is the responsibility of adults to safeguard and teach them to be safe. Child safety standards also help protect them against risks that may ruin their lives.

As consumers of products, children encounter a staggering array of choice. Companies compete to fulfil their consumer preferences in designs, formats, colours and packaging. For instance, many toys employ relatively sophisticated technologies such as remote controls, robotic functions and electronics that mimic talking and singing. These toys are available at reasonable prices in any number of retail outlets.

But toys designed to be interesting in form, colour and function, as well as colouring materials and paints, can be hazardous to children. Most consumers, however, give little thought to where toys are manufactured, focusing instead on whether their children enjoy playing with them.

Yet Indonesia has seen any number of cases that call into question the safety of products – and sweets (candy) and toys are among the highest concerns. Recently, it was discovered that sweets containing drugs had been consumed by children in the country, many of whom became ill as a result. And while all children like toys, many of the latter do not meet the requirements of standards.

But child safety is the responsibility not only of parents, but also of industry, including food producers and toy manufacturers. Their products should be safe for children and meet standards and regulations.

In many countries, toys are strictly controlled by public authorities. The European Union, for instance, applies requirements mechanisms through EN 71-1:2001, Safety of toys. Mechanical and physical properties, and EN 50088:1996, Safety of electric toys.


The toy safety standards have been adopted by Argentina, Australia, Brazil, Canada, China, Chinese Taipei, the European Union, Hong Kong (China), Jamaica, Japan, Malaysia, Mexico, New Zealand, Saudi Arabia, Singapore, South Africa, Thailand and the USA.

Safe fun and sweets

Toys should fulfil safety, security and health requirements to avoid negative physical or mental impacts on children. Parents must be selective in choosing toys that are free of dangerous substances.
In Indonesia, a number of national standards have been adopted by the ISO member for the country, the National Standardization Agency (BSN). Among them, standards targeting sweet candy have been revised to reflect the latest economic, social, scientific and technological developments.

The results are SNI 01-3547.1:2008, Hard sweet candy, and SNI 3547.2:2008, Soft sweet candy. Another proposed standard for bubble gum is currently in balloting. Indonesia has also endorsed SNI 12-6527.1-4:2001, Standards on safe products for children, which deals with raw materials and additives used in products.

BSN made learning about standards fun with this version of the popular snakes and ladders game.

**Inspection and testing**

All standards endorsed by BSN are used as references in trade. BSN encourages industry to adhere to standards for the selection of raw materials, additives, designs, electrical security, noise, metal contents, hazardous elements and labelling. The organization also works to ensure that inspection and testing units are up-to-date so that goods placed on the market are safe for children.

BSN has conducted research on toy safety aimed at verifying that toys marketed in particular geographic locations, such as Jakarta, meet the specifications set by standards. The results of this research show that only 63% of toys produced fulfil the requirements of SNI standards.

BSN has also developed programmes to make children aware of the importance of standards, including a version of the game “snakes and ladders” and a poster entitled, “Standards around us”. Painting contests have been held to promote standards for children and to teach children about standards in early education.

More standards on food and toys are still under development. The government of Indonesia is considering endorsement of mandatory child safety standards through regulation.

**About the authors**

Dewi Odjar is Deputy Chairman for Information and Promotion of Standardization at BSN (ISO member for Indonesia). She is a member of Indonesian Society of Standardization (MASTAN). Prior to getting involved in standardization in 2008, she worked at the Ministry for Research and Technology. She is a participating member of the ISO Committee on consumer policy (COPOLCO).

Tisyo Haryono is an editorial member of SNI Valuasi, a standardization magazine in Indonesia. He is also a member of the Technical Committee of Standard Development on Books and Librarianship and of MASTAN. He has spent the last 10 years managing the information, documentation and promotion of standards. He is now Head of the Centre for Training and Promotion of Standardization at BSN.
Each year over 700,000 children die from unintentional injuries. Of these, 260,000 die in road crashes, 175,000 drown; 96,000 die from burns, 47,000 children fall to their deaths, 48,000 die from poisonings, and the list goes on.

Although rates vary with age, gender, race, socio-economic status, and country of origin, unintentional injuries are the leading cause of death among children globally.

The causes and consequences of injuries further vary considerably by age and development level, reflecting differences in children’s cognitive, perceptual, emotional, motivational, social and motor/language abilities, as well as environment and exposure to hazards.

The fact remains: accidents are killing our children. In addition to the enormous financial impact not only on the child and the family, but the community and society as a whole. These facts are alarming and unacceptable, and actions must be taken to change them.

Learning the ABCs

By definition, unintentional injuries are predictable and preventable. Underwriters Laboratories (UL) as a 115-year old independent, product safety testing, certification and standards development organization recognizes that standards, certification, regulations and legislation alone are not sufficient to address all aspects of injury prevention.

Too often, injuries are the result of a poor choice due to lack of knowledge, or incorrect information relating to the cause and effect of the decision. What’s more, all too often, decisions are made without consideration of their consequences.

Throughout history and around the globe, education has existed as a means to provide formative effect on the mind, character or physical ability of an individual. Education, in general, is the process by which society deliberately transmits its accumulated knowledge, skills and values from one generation to another.

Whether formally structured in classrooms or passed down by mouth, the subjects of reading, writing and math are successfully taught through education. So it is through education that Underwriters Laboratories chose to reduce unintentionally injuries and deaths.

A partnership for success

In partnership with the Walt Disney Company, UL developed the Safety Smart Programme – an initiative aimed at improving a child’s awareness and understanding of safety, health and well-being, thereby helping them to manage themselves and their surroundings by conscious action, not chance.

Using a curriculum-based approach, children are taught safety in the same manner in which they are taught reading, writing and math.

As a standards development organization, UL uses hazard-based safety engineering (HBSE) as an approach to pre-
Safety Smart choices

The Safety Smart guiding principle is that unintentional injuries are avoidable and preventable through Safety Smart choices. The Safety Smart choice of not playing with matches, will avoid the start of a fire. The Safety Smart choice of using hand rails will avoid a fall. Washing your hands, will avoid the spreading of germs, and wearing a life jacket will avoid drowning. Such choices are conscious efforts to consider or anticipate the result of specific actions, and then selecting a behaviour to avoid unwelcome consequences – an injury, for example (see Figure 2).

The premise of HBSE is based on a “three block energy transfer model for injury”. The three block model depicts how a product causes injury through the transfer of thermal, electrical or kinetic energy to or from a body part. An injury occurs only when energy flow of sufficient magnitude and duration is imparted to a body part. The energy transfer model is developed into the HBSE standard injury fault tree for analyzing injury events.

Hazard-based safety engineering

The HBSE approach is an engineering process that focuses on the causes of injury and anticipating them. Appearing to be simplistic, the three block model helps quantify hazardous situations. By quantifying the energy sources, the transfer mechanism and the effect, one can predict whether or not injury will occur. Once a hazard is identified and understood, the next step is to safeguard against the hazard.

This generally occurs in the product design stage through either: (1) eliminating the potential hazard; (2) designing to guard against the hazard; or (3) providing adequate warnings about the hazard (see Figure 1).

For example, to protect your toes when hiking, executing HBSE, you would: (1) remove all rocks and stones from the path; (2) wear protective hiking boots; or (3) highlight all hazards with bright yellow “caution” tape.

Safety Smart applies HBSE concepts in designing its youth safety education. Safety Smart focuses on the causes of injury and safeguarding against the injury. The three block model can be adapted to suit Safety Smart.

Wild about learning

By joining UL’s knowledge of safety with Disney’s creative storytelling abilities, the team developed an award-winning series of educational and entertaining – “edu-taining” – safety DVDs/CD ROMs. These materials have been designed to meet academic standards. They empower children to make Safety Smart decisions by applying a decision-making process as an essential element of safety, health and science instruction, i.e. utilizing the HBSE approach which has been proven successful in safety standard development.

Elementary-aged children learn from Disney’s The Lion King characters, Timon and Pumbaa, through cause and effect scenario-style education. The DVD’s are produced in 17 languages: English, Latin Spanish, Castilian Spanish, French, Portuguese, Danish, German, Italian, Hindi, Kannada, Marathi, Tamil, Chinese (traditional and simplified), Japanese, Korean and Vietnamese.
When the animated stories are used with the curriculum-based educator’s guide, in-classroom projects, flash cards, take-home activities, colouring pages, Web-linked additional references, and sing-alongs; together they form a comprehensive, repetitive, engaging, and empowering vehicle to provide safety education to children around the world.

To further encourage children to be “wild about safety” and bring the Safety Smart Programme to children everywhere, Disney and UL implement a systems approach to delivery. The system approach relies on formal classroom curriculum-based instruction coupled with community involvement, leadership, influence and advocacy.

Injuries and deaths are predicable and preventable.

UL employees and Disney cast members around the world volunteer as safety ambassadors bringing the programme to classrooms, camps, youth groups, and community events. Since the programme launch in 2007, UL and Disney together have conducted 460 Safety Smart Super Challenge school assemblies, which last for 60 minutes and usually involve 300 students. In addition, 213 three-hour community events have also been performed.

Further, both Disney and UL produce and deliver online and on-air safety messages, interactive safety games, and Safety Smart Public Service Announcements. Over 34,000 30-second Safety Smart messages have been shared with children on Radio Disney over the past two years.

Through a multitude of means, utilizing all facets of communication available today, UL and Disney are reaching the world’s children.

Predictable and preventable

Unintentional injury remains the leading cause of death for our children; however, Underwriters Laboratories and the Walt Disney Company believe these injuries and deaths are predicable and preventable and together will continue to work to reduce these injuries and deaths until… all children die of old age.

As community, industry and government leaders, parents and grandparents, individuals and good corporate citizens, we are all responsible for helping our children make the right choices and decisions regarding safety. Please join us in working for a safer world.

To learn more about the Safety Smart Programme, visit www.safetysmartdvd.com.

About the author

Barbara Guthrie is Vice President, Consumer Affairs, Underwriters Laboratories. A graduate electrical engineer, Ms. Guthrie began her career with UL in 1984 testing and certifying products for safety. Obtaining a Masters Degree in business administration, Ms. Guthrie worked to implement UL’s reciprocity agreements contributing to the free movement and global trade of certified products. Later, she moved with her two young boys to Europe serving as Executive Director for UL Demko and UL’s Director of European Operations. Upon returning to UL’s headquarter facility in the USA, Ms. Guthrie combined her engineering, standards development and conformity assessment expertise with the mindset of a dedicated mom to create, design and execute UL’s Safety Smart Programme.
Children are vulnerable consumers who cannot be expected to understand the dangers they face. They have a natural curiosity and have not yet learned to avoid hazards. Children are unpredictable in their behaviour as they are developing their skills and gaining understanding of their environment. This must be taken into consideration when designing products for small children, such as toys.

The Danish Consumer Council has participated in the development of ISO 8124, Safety of toys, since the early 1990s. What’s particularly interesting about ISO 8124 is the requirements set out according to a child’s age.

Take, for instance, the risk of a child choking on small parts. This is a particular problem for children under three, as they often examine objects by putting them into their mouth. Whereas the risk of choking and suffocation from uninflated balloons on the other hand, is a danger until the age of eight. This is because balloons are held in the mouth while being inflated.

With major recalls in 2007 over concerns of hazardous magnets and lead in toys, ISO 8124 became even more pertinent to both consumers and manufacturers alike.

Assessing risk levels

Consumer representatives suggest proposals for child safety standards based on anthropometric data, accident data, consumer complaints and the behaviour of children, bearing in mind foreseeable use and misuse.

Anthropometric data includes measurements and dimensions of children at different ages, such as neck size, body height and weight, reach distances and forces that can be managed by a child. These dimensions can vary in different regions of the world and it is of course important to take into account the worst-case situation in order to protect children of all sizes and ages.

It is important to remember that the absence of an accident history does not imply low risk levels. Other factors should be taken into account, particularly when the potential severity of injury is high. This often leads to lengthy discussions between manufacturers and consumer representatives.

Appropriate data may not be available for many reasons, including the absence or ineffectiveness of a data collection system, the time delay in collating and presenting statistics, and changes in product design and use conditions. For example, information related to a product or material used in a hot climate may not apply to its use in colder countries or vice versa.

ISO/IEC Guide 50:2002, Safety aspects – Guidelines for child safety, is an important document to take into account when writing child-related standards. The guide covers most horizontal issues relating to child safety, and all technical committees should use the guide even when the work is not directly linked to children.

An example of this is the use and contact of electrical household appliances for
Special Report

domestic use by children. The safety of children and people with special needs has often not been taken into account in standards for electrical domestic household appliances.

For example, allowable temperatures on surfaces likely to be touched are much too high, as research has shown that children and the elderly have longer reaction times, and will not be able to move their hands quickly enough. This can result in very serious and unnecessary burns.

For many years, consumer representatives at both the European and international levels have worked to change this situation. Following the expenditure of considerable resources, small steps forward can be discerned – even if this takes time.

Patience, repetition and cooperation are keywords for consumer representation in standardization.

How Denmark participates

The Danish Consumer Council has a history of participation in standardization that dates back to at least 1970. In the beginning, this was mostly at a national and Nordic level, but when the New Approach was introduced in Europe in the late 1980s, participation became even more important for consumers because legislation often led to voluntary European safety standards.

The Danish Consumer Council makes it a high priority to enhance the quality and safety of children’s lives by influencing the standardization work aimed at providing improved protection and decreasing the number of accidents in which children are involved.

In Denmark, we are very fortunate to receive funding to be able to participate, as the Danish government understands the importance of having consumers at the table to ensure that standards reflect the views of the society as a whole. In many other countries, however, consumers do not enjoy the same protection, and consequently few consumer representatives participate in standardization.

Standardization is a democratic, consensus-based process open to all stakeholders to participate. Unfortunately, consumer representatives have limited resources, which affects the extent of their participation in standards development.

In order to match industry’s resources, various consumer groups often join force-

by Stephen Russell

ANEC study

ANEC is in the process of assessing whether it is feasible to propose a streamlining of the legal and standardization frameworks for toy safety that exist around the world. This move is a result of its study commissioned in 2009.

The study was undertaken at the invitation of the then European Commissioner for Consumer Affairs, Meglena Kuneva, in June 2008, after her discussions with Chinese authorities on measures to improve product safety in the wake of the 2007 toy recall.

According to the Chinese authorities, manufacturers in China need to conform to up to 15 different sets of legal and technical requirements in order to export toys to markets around the world.

This differentiation makes compliance a challenge, even for manufacturers with the most disciplined means of production and stock control. Although a non-compliant toy may not be unsafe, it is a fact of life that most unsafe toys are non-compliant.

The ANEC study was established to assess essential differences among toy safety standards (ISO 8124, EN 71 and ASTM F963) in scope and technical requirements. Moreover, within the constraints of the budget available for the study, an appraisal was made of the key requirements of legislation on toy safety in the European Union and in the USA.

In the former exercise, ANEC must acknowledge a contemporary study by the International Council of Toy Industries (ICTI) whose research provided the ideal foundation for constructing our study.

The study aims to identify whether there are enough similarities in the legislative approaches of particular countries, the technical standards that support their national markets and their cultural approaches to toy safety. Our objective is for recommendations to be made for a simplified international framework able to support trade, increase compliance and raise levels of consumer protection.

A first evaluation shows that this is indeed an ambitious objective. But we believe there may be the possibility to work towards a more simplified framework for toys through a harmonization of test methods in the first instance.

We plan on keeping the ISO Committee on consumer policy (ISO/COPOLCO) informed of our further analysis.

Stephen Russell is Secretary-General of ANEC, the European association representing consumer interests in standardization, conformity assessment and related legislation.

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ISO Focus+ March 2010
Survey reveals uptake of ISO toy safety standard

Investigating the uptake of ISO 8124, Safety of toys, was the goal of a survey, carried out by the ISO Committee on consumer policy ISO/COPOLCO, in 2009.

The survey aimed to evaluate what use had been made of the standard, and where appropriate, the reasons it was not being adopted.

The sample was geographically broad and representative, including developing countries and economies in transition (in addition to ISO/COPOLCO member countries, the survey was extended to the members of the ISO Committee on developing country matters, ISO/DEVCO).

The responsiveness to the survey was significant, with 47 countries participating. Under half of the countries surveyed (19) used the ISO standard. Almost all of these countries had fully or partially adopted ISO 8124 as national standards or regulations.

The survey indicated that out of the respondents who had not adopted the ISO standard, 21 had national standards and legislation on toy safety, and the great majority were based on the European standard EN 71, Safety of toys.

Overall the results showed that most of the countries surveyed either implemented ISO 8124 or EN 71. The latter had the widest uptake among European countries, for which it is mandatory, while the former was more prevalent in other regions.

Full results are available upon request (copolco@iso.org).

A call for action

Every child injury is a tragedy that underlines the importance of standards for safety requirements and test methods. For this reason, it is crucial for toy manufacturers to follow the development of safety standards concerning mechanical and physical properties, flammability, chemical properties and labelling.

With major recalls in 2007 over concerns of hazardous magnets and lead in toys, there is an increased awareness of the importance of toy safety, nationally, regionally and internationally.

Children all over the world deserve the same level of protection. Their safety and well-being inspire us to aim for greater harmonization of toy standards.

About the author

Helen Amundsen, Mechanical Engineer/Senior Technical Adviser, has been working for the Danish Consumer Council since 1990. Her main interests are product safety including children’s safety and standardisation. From 1990 to 2007, Ms. Amundsen acted as Nordic co-ordinator of consumer influence in standardization of consumer products (very focused on child safety) and, from 1990 to 2000, she worked with comparative testing of consumer products for the magazine Tænk. She is a member of a number of standardization committees at the national, European and international level, including ISO technical committee ISO/TC 181, Safety of toys.
**Next ISO President**

Dr. Boris Aleshin has been elected ISO President for 2011-2012.

Dr. Aleshin has more than 30 years experience in the Russian industry. He has also held several senior positions in the Government of the Russian Federation, and has been at the forefront of reforming technical regulation and standardization in Russia.

Currently, Dr. Aleshin is Advisor to the Chairman of the State Corporation “Russian Technologies”, which promotes development, production and distribution of high-tech products on domestic and international markets. He is also Director General of the Central Aerohydrodynamic Institute (TsAGI).

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**ISO Focus+**: Just how important are project editors to developing good standards, and what are the top three attributes and skills they should possess?

**Farias**: Project editors and co-editors are a crucial element for developing good standards. Experience shows that many of the delays linked to the development of some ISO standards can be partly attributed to a far from optimal task management carried out by project editors.

In my experience, the top three attributes and skills that could help editors and co-editors facilitate an effective and efficient outcome are: first, the ability to encourage teamwork and to ensure that all participants in the different work meetings are given the opportunity to contribute.

Second, being self-organized and efficient in terms of time management, prioritization, project planning and meeting management, in addition to good oral and written communication skills.

Third, being knowledgeable in the subject area of the project, while maintaining an open mind to consider alternative ideas or points of view.

If applied effectively, these attributes and skills, among others, will ensure that each project is consistently and progressively developed in a high quality manner without undue delays.

**ISO Focus+**: Can these be transposed to other functions, such as ISO/TC/SC Chairs or Secretaries?

**Farias**: Absolutely. These attributes and skills can also be applied to Chairs, Vice Chairs, Convenors, Vice Convenors and Secretaries.

**ISO Focus+**: How did you become involved in standardization? What keeps motivating you to participate and how do you fit it in with your regular job?

**Farias**: My wife always tells me, “You are a standardization person,” and I believe she is right.

Looking back, it has been almost four decades since I first got involved in standardization, when I was but a young engineer contributing to the development of a national technical standard.

After a long training course (45-days!) on the ISO 9000 family for quality management systems I became, in the 1990s, a delegate to ISO/TC 176/SC 1, Concepts and terminology. Years later, in 2000, I became Head of the Brazilian delegation to ISO/IEC JTC 1, Information technology, SC 27, IT security techniques, as well as Chair of the SC 27 mirror committee in Brazil.

All this has taken me to some 26 ISO meetings since 1995!

Recently, ABNT (ISO member for Brazil) appointed me Brazilian delegate to the new ISO/TC 247, Fraud countermeasures and controls. And I am also collaborating with the ISO/TC 176 Brazilian mirror committee on the revision of ISO 19011 for quality and environmental management auditing.

Currently, in my position as an information security (ISO IEC 27001) and quality (ISO 9001) senior advisor, my job is heavily based on these standards.

Being part of their development process allows me to be up-to-date with the latest thinking of international experts, while giving me the opportunity to contribute the lessons of my own professional experience to the international community. And that, simply put, is my main motivation.

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**Note**: Ariosto Farias Jr. is the author of Project editors and co-editors: Attributes, skills, roles and responsibilities. The full text is freely available at www.iso.org/iso/iso-focusplus_online-bonus-articles.

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**Emmy Award-winning partnership continues**

Leading standards bodies, ISO, the International Telecommunication Union Standardization Sector (ITU-T) and the International Electrotechnical Commission (IEC) have launched a new project that seeks to better the Emmy Award winning MPEG-4 Advanced Video Codec (AVC) embodied in ISO/IEC 14496-10 and ITU-T Recommendation H.264.

The announcement on the new Joint Collaborative Team (JCT) accompanies finalization of a recent call for proposals on a successor to the MPEG-4 AVC that has been widely adopted by the telecom, broadcast, and digital storage media industries.

ISO/IEC-MPEG and ITU-T are the preeminent standards bodies in the area of digital video compression, and have collaborated in the past to produce MPEG-4 AVC and the MPEG-2 Video and Systems Standards (also known as ISO/IEC 13818, ITU-T H.262 and H.222.0).

The new JCT will consist of a group of video coding experts from ITU-T Study Group 16 (Video Coding Experts Group) and joint technical committee ISO/IEC...
JTC 1/SC 29/WG 11 (Moving Pictures Expert Group). The group meetings will coincide with those of ITU-T SG 16 and/or MPEG. Publication is expected for 2012.

MPEG-4 AVC has been the recipient of two Emmy Awards including the Technology and Engineering Emmy Award for innovation (2009) and the Primetime Emmy Engineering Award (2008).

ISO periodically reviews its standards to ensure that they retain their usefulness as state-of-the-art tools for business, government and society.

The need to review the ISO series of customer satisfaction standards was agreed at the last meeting of subcommittee SC 3, Supporting technologies, of ISO/TC 176, Quality management and quality assurance. The review, which will take place late 2010, will cover: codes of conduct for organizations (ISO 10001), complaints handling (ISO 10002) and external customer dispute resolution (ISO 10003).

Bill Dee, Convenor of SC 3/WG 10, Complaints Handling, explains the reasons for this decision.

“It makes sense to have a joint systematic review of the three standards to improve alignment and harmonization. Holding back-to-back meetings with the similar membership of the respective working groups is a very efficient and cost effective way to deal with these standards.”

Anyone interested in providing input into this review should contact their national standards body.

Environmental impact of packaging

Optimizing resources spent when producing packaging, together with the recovery of used packaging are the goals of a series of future ISO standards.

The standards will be developed by a new subcommittee SC 4, Packaging and the environment within ISO/TC 122, Packaging, which met for the first time in December 2009, in Stockholm, Sweden.

At the meeting, 70 experts from 15 countries decided to go forward with the project. The newly elected Chair, Anders Linde, commented, “There is a great demand for standards that give guidance on how the use of resources can be minimized, while maintaining the functionality of the packaging, as well as how used packaging can be recovered. Harmonized global standards on packaging will be an important instrument to support the free movement of products and international trade.”

Among the methods suggested for recovery are reuse, material recycling, energy recovery, chemical recovery and organic recovery. Targeted working groups will address the different topics, and convenors and project leaders were elected at the first meeting.

The Secretariat of SC 4 is held by SIS (ISO member for Sweden) in close cooperation with SAC (ISO member for China).

The next meeting will take place in May/June 2010 in Beijing, China. The standards are expected to be ready for publication in 2012.

Review of complaints handling

Three meetings held in 2009 in Beijing, China, strengthened this relationship: a joint workshop between IEC/TC 44 and ISO/TC 199 and the respective committee’s plenary meetings. The workshop in particular, provided an opportunity for convenors of both committees to get to know each other, exchange information and improve understanding.

Two standards addressing a common topic: safety-related parts of control systems (ISO 13849-1) and functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061) were given particular attention.

Among the key issues discussed at the workshop were:

• Joint activities in the field of control engineering: an IEC/IEC technical report will be included as an informative annex in the relevant ISO and IEC standards
• Harmonization of the emergency stop function: a maintenance team will be established between the two committees to ensure the relevance of scopes and maintain information
• Approach to risk assessment: differences in the definitions of danger, hazard and harm were identified. Further discussions will take place.

The Chair and Convenors of ISO/TC 199 participated at the IEC/TC 44 plenary to facilitate further coordination.

Another important issue for ISO/TC 199 was harmonizing ergonomic issues within the field. To this end, ISO/TC 159 suggested the joint development of a standard addressing ergonomic aspects for safety of machinery. The standard would adopt a practical approach and clearly outline requirements to provide concise and targeted ergonomic support.

Mr. Preusse commented “The active and productive cooperation of ISO/TC 199 with IEC and ISO committees has been a great success, resulting in more precise and straightforward standards and generating new ideas and approaches. Cooperation clearly brings great benefits to both standard developers and users alike!”
Accra kick-off

Regional consultation for developing countries

More than 20 senior officers and decision makers from national standards institutes in Africa attended a consultation meeting in Accra, Ghana. It was hosted by the Ghana Standards Board (GSB) and financed by the Swedish International Development Cooperation Agency (Sida).

The workshop enabled ISO members in Africa to voice their needs and requirements in standardization and related matters, and to exchange with ISO, in an open and informal environment, on how ISO can best contribute to supporting NSBs in their development efforts.

The Accra workshop is the first in a series of regional consultation events being organized between December 2009 and May 2010 to give the opportunity to ISO members in developing countries to participate actively in the formulation of the ISO Action Plan for developing countries 2011-2015.

The other regional workshops include:
- 25-26 January 2010, Amman, Jordan
- 10-12 March 2010, Bali, Indonesia
- 14-16 April 2010, Santiago, Chile

Inputs from the regional workshops will be compiled and used to develop the Action Plan for developing countries 2011-2015. The draft Action Plan is expected to be presented at the next meeting of the ISO Committee on developing country matters (ISO/DEVCO) in Oslo, Norway, in September 2010.

Climate change – How ISO standards help

by Juan Simon


In continuation with ISO’s efforts to raise awareness of energy and climate change in developing countries, the workshop looked at the various schemes used around the world aiming at GHG reduction as part of the mitigation policies addressing climate change. It also highlighted the value of using ISO standards (ISO 14064, ISO 14065, ISO 14066 and ISO 14067) as tools for quantifying, reporting and verifying emission reductions from individual projects or activities.

The participants had an opportunity to discuss and exchange information and, at the same time, provide input to the pub-
Participants in the climate change conference in Stockholm, Sweden.

liciation that ISO is preparing on the subject, with help from facilitator experts.

Following the event, participants attended the “Conference on climate change, trade and standardization – In a development perspective”, organized by the Swedish Standards Institute (SIS) and the Swedish Ministry of Foreign Affairs.

Both events, held in November 2009, received financial contribution from the Swedish International Development Cooperation Agency (Sida).

Juan Simon is Project Manager, ISO Development and Training Services, ISO Central Secretariat.

ISO/CASCO’s interpretation process

by Sean Mac Curtain

ISO Committee on conformity assessment (ISO/CASCO) implemented an interpretation process to meet stakeholder needs for greater clarity of the requirements in its standards and guides.

A task group – which includes members of the ISO/CASCO Chairman’s Policy and Coordination Group (CPC) and experts using and implementing the standards concerned – will develop the interpretations for approval by CASCO members. Once approved, the interpretations will be posted on ISO Online for use by any party at their discretion.

In an effort to ensure a single agreed-upon interpretation, the CASCO interpretation process is recognized by the International Accreditation Forum (IAF) and the International Laboratory Accreditation Cooperation (ILAC).

Requests for interpretations can be made through an ISO member body or an organization in liaison with the committee. They apply only to requirements that are included in a CASCO standard.

The CASCO interpretation process was developed based on lessons learnt by ISO technical committee ISO/TC 176, Quality management and quality assurance, and IEC. To date, CASCO has completed two requests, with an additional six in progress.

Sean Mac Curtain is Secretary, ISO Committee on conformity assessment (ISO/CASCO).

How ISO standards benefit and protect consumers

by Roger Frost

International Standards have a positive influence on an increasingly wide range of consumer goods and services, as highlighted in a new edition of the leaflet, ISO and the consumer.

The four-page, colour leaflet gives a concise overview of the fruitful interactions that ensure consumer interests are taken into account in the development of standards ranging from ones for bicycles, baby carriages and bank cards, to newer areas such as consumer product safety, network services billing, product recall and cross-border trade of second-hand goods.

Standards often define the characteristics of a product or service, and the way to measure or test them. Consumer representatives aim to influence these characteristics so that products and services provide higher levels of:

- Quality and reliability
- Protection of safety and health
- Compatibility between products
- Consistency in the delivery of services
- Greater choice of goods and services
- Transparent product information
- Fairer competition, hence lower prices for consumers
- Suitability of products for vulnerable populations (children, the elderly)
- Environmental protection.

When consumer representatives participate in developing standards, they are able to offer valuable perspectives. They can provide data on safety aspects and ensure that these are properly addressed, give examples of how products and services are actually used (or misused) in practice and give advice on communication issues.

Thanks in part to consumers’ input, ISO’s standardization programme extends beyond traditional product standards to encompass societal concerns such as the environment, social responsibility and standardization of services.

The leaflet concludes: “ISO values stakeholder input. By providing precious feedback and a ‘reality check’ for such characteristics as safety, ecology, reliability, efficiency, compatibility, customer service, transparent information, and reasonable cost, consumers play a vital role in ensuring ISO’s global relevance and market responsiveness”.

ISO and the consumer, which is published in English and French paper editions, is available free of charge (fee for postage and handling of bulk orders) from the ISO Central Secretariat through the ISO Store or by contacting the Marketing, Communication & Information department (sales@iso.org). It can also be obtained from ISO national member institutes. The brochure is also available as a PDF file on the ISO Web site (www.iso.org).

Roger Frost is Head, Communications Services, ISO Central Secretariat.

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Certification and consultancy of management systems

by Randy Dougherty and Alister Dalrymple

Management systems certification and management systems consultancy are two different services that may be used by organizations that implement a management system such as ISO 9001 (quality), ISO 14001 (environment), ISO/IEC 20000-1 (IT service management), ISO 22000 (food), ISO/IEC 27001 (information security) and ISO 28000 (supply chain security). This article is about managing the threats to the impartiality (see Box) of certification when both services are used by an organization.

It is the need to have public confidence and trust that makes certification different from other businesses. ISO/IEC 17021:2006, Conformity assessment – Requirements for bodies providing audit and certification of management systems, is used as a criteria document for accreditation of certification bodies (CBs).

There have been a few attempts by unscrupulous CBs in the marketplace to get around such requirements by re-naming consultancy activities provided to clients as “corporate coaching” or “company orientation” or some such euphemism. But the standard is clear; if any activity proposed together with certification brings into question the impartiality or competence of a CB, then it is clearly in conflict with the provisions of ISO/IEC 17021:2006.

A certification body cannot be a “one-stop shop” for all services that its clients may need; in particular certification and consultancy. Therefore, ISO/IEC 17021 has specific requirements for managing the threat to impartiality when an organization is using both services.

The intent of the requirements is to prevent a CB’s audit or certification decision from being unduly influenced by any relationship with the management systems consultancy body. Some of these requirements included in ISO/IEC 17021 are as follows:

- A CB is not allowed to provide management systems consultancy
- A CB is not allowed to certify an organization that received management systems consultancy where the relationship between the consultancy organization and the CB poses an unacceptable threat to the impartiality of the CB
- A CB is not allowed to outsource audits to a management systems consultancy organization
- A CB’s activities cannot be marketed or offered with those of a management systems consultancy organization
- Any personnel of a CB (internal or external) who, in the past, worked for an organization that provided management systems consultancy to a specific client of the CB cannot participate in an audit or certification of that client of the CB for a reasonable period of time (such as two years) following the end of the consultancy
- A CB is required to maintain up-to-date personnel records, including any relevant consultancy services that person may have provided
- Whenever a CB outsources services, it has to ensure that any individual it uses is not involved with an organization to be audited in any way such that impartiality could be compromised
- And finally, the CB is required to require an organization that is applying for certification to provide information concerning the use of consultancy relating to the management system so that the CB can manage effectively any threat to impartiality.

As other parties (among them customers of certified organizations, consumers, governmental authorities) rely upon impartial and independent third-party certification, a CB cannot provide both certification and consultancy to the same client. In addition, a CB cannot have a relationship with a management systems consultancy organization that influences the objectivity of the CB or its auditors.

Randy Dougherty and Alister Dalrymple are Co-Convenors of ISO/CASCO working group WG 21, Management system certification.
by Valentín Alfaya

Spain’s Ferrovial is one of the world’s leading infrastructure companies. It was one of 15 organizations that shared its experience within an ISO task force to develop the handbook, *The integrated use of management system standards*, published in 2008. This article provides an update of its experience.

In principle, the integration of several management systems (MS) in a context of company management efficiency indicates good governance, resource optimization and business process simplification. At Ferrovial, we have been promoting these integration processes for nearly a decade in all our business units.

Ferrovial is a multinational company with a presence in 50 countries and a multicultural workforce of more than 100 000 people. It operates in a wide range of sectors, including construction, management of airports and other transport infrastructures, waste management and provides an array of municipal services.

While there is no doubt that such diversity is positive in today’s business environment, it is also an obstacle to achieving achievement homogenization and integration of management systems, even when business and organizational components are clearly shared.

Despite this difficulty, we believe that integration processes have served to create value, notably due to the enhancement of our management capability, and also secure increased cost savings and a higher efficiency of the processes managed by these systems.

**Getting started**

The starting point was a quality management system based on the ISO 9001 standard. Soon after, an environmental management system (EMS) conforming to ISO 14001 was developed and implemented. In fact, by the end of 1997, Ferrovial became what we believe to be the first construction company worldwide to achieve ISO 14001 certification, issued in by AENOR, the ISO member for Spain.

The creation and development of this EMS was already fully integrated with the quality system – in contrast to the prevailing practice at that time.

Our first expectations were focused on the optimization of human resources assigned to the quality, environment and occupational safety areas, by providing technical staff with the necessary training to carry out tasks in these three areas simultaneously.

It was also clear for us that integration should make management systems easier. Too much bureaucracy is time and resource consuming and is also the main source of frustration for the people involved in these tasks.

Finally, the integration process allowed us to “re-think” our systems, fine-tune those aspects that we knew were not working, or that were inefficient. This meant some sort of “redesign” of our systems and a great opportunity for improvement.

From the very beginning, it is of paramount importance to define an organization in the light of its pursued goals. At Ferrovial, in the mid-1990s, we decided to integrate, under a single management, all functions related to quality, environment and occupational risk prevention.

We also decided to appoint the director of this newly created department as a member of the management committee, the highest executive body of the company. Beyond its formal aspects, this appointment implied that the person responsible for these areas, who is at the same
At the end of the 1990s, the merger between Ferrovial and Agromán, two construction companies, offered us an excellent opportunity to “re-think” our systems and develop their integration. For the first time, we succeeded in integrating several systems in an effective manner, not only at the level of procedures, but also in information flows and resources assigned to each area.

This effective integration coincided with the important efforts devoted to training. It was relatively easy to integrate the capabilities of the technical staff involved in quality and environment matters by establishing a comprehensive training programme.

However, we did not quite succeed in integrating the technical staff involved in prevention matters. This difficulty stems from the different profiles and qualification levels, in relation to management systems, of the technical staff involved in quality and environment matters, compared with those of the staff involved in occupational safety.

Quality, environment and occupational risk prevention conform to radically different standards and are often based on opposite approaches. In Spain, prevention management has traditionally been centred on the strictest observance of the law, taking important aspects such as process systematization and continual improvement for granted.

A Canadian highway complex managed by Ferrovial, which is a leading international infrastructure operator and industrial company in a range of sectors including construction, airports and toll roads, as well as car park management and maintenance.

An organization where responsibilities in terms of quality, occupational risks and environment are placed three or four levels below top management may ultimately perform well, but in my view, it does not say much about the strategic direction of the company with regard to these management aspects.

Prior to tackling the “reengineering” of the systems and their integration in a single system, it is of paramount importance to design a strategic framework that is consistent, as well as ambitious and realistic.

While it is very common today to formulate spectacular policies and strategies at a superficial level, in practice they are difficult to implement and, moreover, they do not bring any added value to business management.

In parallel with the design of our new organization, what we then called “A Strategic Quality Plan” was approved, whereby quality, environment and occupational health were integrated for the first time under a common umbrella, with the distinguishing slogan of Profitability and management efficiency. The objective was that this plan should play a leading role in the sectors where it operated.

Moving forward

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This contrasts with Anglo-Saxon countries, where occupational safety and environment have always moved forward in harmony, sharing common systems.

Since then, we have developed more sophisticated and efficient management systems, always based on International Standards when available.

Thus, we have re-engineered the occupational health and safety system (OH&S) according to the OHSAS 18001 standard (a non-ISO standard), and we are now integrating further aspects of management, such as research and development (R&D – based on the Spanish standard, UNE 166002) and an enterprise risk management systems (based on COSO\(^1\) guidelines and ISO 31000:2009, Risk management – Principles and guidelines).

By the way, I would like to underline that our aim in implementing ISO standards is not to achieve third-party conformity. In my view, ISO International Standards summarize the know-how and state of the art on a given matter, collating the expertise of dozens of the most skilled professionals worldwide.

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1) COSO is the US-based Committee of Sponsoring Organizations, a voluntary private-sector organization dedicated to guiding executive management and governance entities toward the establishment of more effective, efficient, and ethical business operations.
My point is that we should see the ISO standards as guidelines, making sure they can help us to improve the company’s management systems and its efficiency. At the same time, ISO standards provide a common basis and language, which will be a key for the subsequent integration of management systems.

**Some conclusions**

Today, Ferrovial has made important progress in integrating quality management, environment and R&D systems, as well as OH&S, in most of our business areas. This not only concerns the support of documented system, but also and more importantly in terms of definition of common goals, which in many cases are linked to remuneration at management level.

Furthermore, information flows have developed in line with the technologies that enable them, facilitating their implementation. It is a fact that the best way to integrate systems in such a complex organization as Ferrovial depends on the use of information and communication technologies.

So as far as people are concerned, the growing complexity in both technical and legal matters in every area has led us finally to abandon the idea of training “super experts” in all areas. Instead, we have made significant progress towards the integration of management systems, particularly in the areas of quality and environment, by using technical staff and combining their capabilities.

Finally, we have met our expectations in terms of a substantial reduction of bureaucracy and, therefore, of the effort needed to keep the systems working. Moreover, business processes have been simplified, particularly with regard to the documentary records and the feedback process required to provide the information needed to make decisions.

In this regard, simplification and higher accessibility levels have provided better and easier-to-use information for production managers, which is really helpful for making well informed decisions.

Integration has helped to enhance the capability of production centres to solve problems, limit related business risks and identify new opportunities. This also applies to the company’s management bodies, where tools such as integrated indicators provide global and quantitative information about the organization’s performance in the areas of quality and the environment.

In the near future, these areas will probably become more powerful departments integrating more functions, such as innovation and environmental risk management. These departments will benefit from more decision-making power and greater influence on the company’s strategy. They will also incorporate more efficient staff who are closer to the daily business and, no doubt, more satisfied with their jobs.

Valentin Alfaya is Head of Quality and Environment with Spanish multinational, Ferrovial.
In the 80-year history of the LEGO Group, the company has delivered superior products and play experiences by staying true to the motto of its founder, Ole Kirk Christiansen: “Only the best is good enough”. The LEGO Group applies this motto in all of its activities and has successfully made use of several ISO standards to measure, communicate and improve this.

The LEGO System of Play is the result of an aspiration for perfection. This system works with a tolerance of 2/1000 mm and, in order to design and manufacture a toy of such quality, a company needs the highest standards within its processes and products, as well as the best skilled workforce and strong relationships with its many stakeholders.
The LEGO Group is committed to continual improvement and has applied ISO 9001 (quality management), ISO 14001 (environmental management) and ISO 8124 (safety of toys) for managing its environmental policies, employee health and safety, product safety and quality in the production process.

Environmental assurance

The LEGO Group enjoys a number of benefits by using ISO 14001, in combination with the OHSAS 18001 standard, in its environment, health and safety (EHS) management system. Today, all LEGO manufacturing sites globally are certified to these standards.

The requirements of ISO 14001 are actively used and communicated internally through the EHS Website to ensure that all employees are familiar with the LEGO Group’s policies. ISO 14001 also helps ensure that employees are aware of the company’s environmental goals and targets, as well as the most important environmental aspects in their own work area.

Externally, ISO 14001 is used to feed information about EHS performance into publications like the annual report on corporate responsibility which is communicated to LEGO customers, consumers and other stakeholders. Combined with the quality and health and safety certificates, the company experiences an increasing demand for this information by its customers.
Standards in Action

Committed to safety

The LEGO Group is committed to the design, manufacture and sale of safe toys for children. ISO 8124, Safety of toys, is one of the most important standards for the company – with all LEGO toys complying to its safety requirements. This standard is used as the basis for national standards in many countries – including Australia, China, and New Zealand.

Within the LEGO Group, ISO 8124 is aligned with relevant national standards, as well as company-specific product safety requirements, to ensure that LEGO products meet the demands of all markets, regardless of where they are manufactured.

ISO/TC 181 is the vehicle for the harmonization of International Standards on toy safety.

For the LEGO Group, ISO technical committee ISO/TC 181, Safety of toys, which developed the standard, is the vehicle for the harmonization of International Standards. Due to the multitude of benefits, the LEGO Group is, and will continue to be, closely involved in the development of toy safety standards, including participation in, and leadership of, ISO/TC 181. The LEGO Group benefits greatly from cooperation and the sharing of knowledge with the international experts of ISO/TC 181.

About LEGO

LEGO Systems Inc. (LSI) is the Americas division of the LEGO Group, a privately held company based in Billund, Denmark, and the world’s leading manufacturer of construction toys. The company is committed to the development of children’s creative and imaginative abilities through high-quality, creatively educational play materials, and its employees are guided by the motto adopted in the 1930s by its founder Ole Kirk Christiansen: “Only the best is good enough.”

For more information, visit www.LEGO.com.
Internally, ISO 8124 is communicated to relevant teams and departments through the Product safety handbook. The handbook translates the ISO standard into a manual that helps, for example, designers when developing new elements and products. For major retailers in countries whose standard is based on ISO 8124, the LEGO Group develops third-party test certification against the standard.

Quality management

Since 1991, the LEGO Group has implemented ISO 9001, which it regards as the ideal framework for structuring its global quality management system (QMS) – with LEGO factories operating in countries well aware of its requirements.

Using ISO 9001 is an efficient way of implementing the quality management system at new production sites. All ISO 9001 requirements will usually be familiar to quality management staff at new sites, which enable the company to focus fully on the specific internal requirements.

For the consumer, the quality management system ensures that each LEGO box contains the right number and type of building elements, which are crucial to delivering the promised LEGO building experience.

The company’s quality department is in close dialogue with consumer service to ensure that feedback from consumers is used for the continual improvement, for example, of product development or production.

In addition to implementing ISO 9001, the LEGO Group has defined additional product-specific requirements which can be more stringent. These additional demands are typically based on in-depth knowledge of our specific product.

International challenges, international solutions

“Being a global company with manufacturing in several countries and sales in more than 100 countries, the LEGO Group finds International Standards very important. They do not only make our processes and products better but the standards are also a ‘language’ that authorities, customers and employees understand and value,” explains Peter Trillingsgaard, former Chair of ISO/TC 181.

And in an industry noted for its fast pace of innovation, seasonality and unpredictability, the LEGO Group is able to benefit from global standards, such as those developed by ISO, to ensure the highest safety and quality, at all levels. This, in turn, leaves more resources to create new and exciting products and play experiences for both children and adults.

About the author

Jan Christensen is Communication Manager at the LEGO Corporate Communications department in Billund, Denmark, primarily covering corporate stories for both internal and external media. Prior to joining the LEGO Group in 2008, he was Director of Communications at the University of Southern Denmark. Mr. Christensen holds a Master Degree in communication management.
ISO has published a new brochure on the ISO Committee on Reference Materials (ISO/REMCO), whose standardization work supports the accurate measurements that are an essential feature both of everyday life and economic activity.

For example, they are needed to detect critical amounts of dangerous compounds in our food, to diagnose whether our bodies are functioning correctly for a healthy life, and to check whether a batch of steel is strong enough for the safe construction of a bridge.

Such measurements can only be performed when the corresponding measurement instruments have been properly calibrated. This is the same procedure as used when the accuracy of a set of weighing scales is checked by using a known standard weight. Consequently, materials which can be used for instrument calibration – such as the kilogram standard – are required. These are known as “reference materials.”

The ISO/REMCO Chair, Prof. Dr. Hendrik Emons, comments, “Because vital decisions may depend on measurements, there needs to be confidence in the measurement data. Therefore, the correct application of critical measurement procedures must also be controlled by using reference materials which are similar to the material to be tested, and for which the measured value is already known. In consequence, laboratories are able to verify their ability to measure accurately.”

ISO/REMCO carries out a broad international effort for the harmonization and promotion of reference materials, their production and their application. The committee has so far developed six ISO Guides on aspects of reference materials and has contributed to symposia, workshops and congresses.

The new brochure describes ISO/REMCO’s objectives and how it is organized, explains the structure of its Guides, includes basic information on reference materials, provides definitions and lists its current members (33 participating countries and 37 observers).

REMCO – ISO Committee on Reference Materials, which is published in English and French paper editions, is available free of charge (fee for postage and handling of bulk orders) from the ISO Central Secretariat through the ISO Store or by contacting the Marketing, Communication & Information department (sales@iso.org). It can also be obtained from ISO national member institutes. The brochure is also available as a PDF file on the ISO Web site (www.iso.org).

Roger Frost is Head, Communication Services, ISO Central Secretariat.
Shipping freight around the world? Borrowing a library book? Swiping your identification badge at the office? Driving on a highway in Australia, France or Chile with an eToll? Opening your car with a long-range access control? Keeping track of your pet?

A Radio Frequency Identification (RFID) system tracks moving objects (from freight containers to pets). It enables data to be transmitted by a mobile device or tag, which is read by an RFID reader and processed according to the needs of a particular application. The transmitted data may provide identification or location information, or specifics about the tagged product, like price, colour or date of purchase.

The economy is developing rapidly and internationally. The RFID market has seen a major kick start in the last 10 years with many applications ranging from supply chain management, to improving the efficiency of inventory tracking and management. Its applications are constantly expanding. A recent report from the Electronic Communications Committees (EEC) estimates the future market size for RFID to USD 27.59 billion.

The ISO Focus + April 2010 issue reviews the diversity of ISO standards for RFID, and highlights a few of the areas which reap the benefits of its use, from libraries and gas cylinders to animal identification devices and cargo shipment.

Readers will learn how ISO standards for RFID provide a harmonized framework, improve transparency, efficiency and safety in a complex, but growing market, while optimizing business processes and reducing operational costs for companies.

Find out more about RFID standards and how they improve communication and information in the next ISO Focus+. ■

Guest interview

Within the globalization and liberalization of trade, supported by global supply chains and the development of Internet, the delivery of postal services has considerably improved during the last few years.

In an interview, Edouard Dayan, Director General of the Universal Postal Union (UPU) explains how, in a changing world environment for mail delivery, within the introduction of e-commerce, international standards can help postal services to stay in the competition:

“The UPU believe that International Standards, enhanced technical infrastructure and industry policies should be developed in cooperation with all stakeholders in the global supply chain, including customs, airlines, law enforcement, postal operators and e-commerce merchants that could address this critical issue.”

To know more about the close cooperation between UPU and ISO that contributes to develop International Standards to facilitate the evolution of postal services and to faster and easier mail delivery, don’t miss the next issue of ISO Focus+. ■

Edouard Dayan, Director General of UPU
Fortunately, ISO has a system for complaints handling.

Even the best organization can’t expect all its customers to be satisfied all the time. And complaints can provide benefits. Complaints can give an organization valuable information about how its products and services are performing. Positive treatment of unhappy customers can increase their loyalty. Three ISO standards offer a comprehensive framework for complaints management – from prevention, through handling to dispute resolution.

ISO 10001:2007, Quality management – Customer satisfaction – Guidelines for codes of conduct for organizations

ISO 10002:2004, Quality management – Customer satisfaction – Guidelines for complaints handling in organizations

ISO 10003:2007, Quality management – Customer satisfaction – Guidelines for dispute resolution external to organizations

Available from ISO national member institutes (listed with contact details on the ISO Web site at www.iso.org) and from the ISO Central Secretariat Webstore at www.iso.org/isostore or e-mail to sales@iso.org.