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Moderator questions in Bold, Respondents in Regular text.

KEY: Unable to decipher = (inaudible + timecode), **Phonetic spelling** (ph) + timecode), **Missed word** = (mw + timecode), **Talking over each other** = (talking over each other + timecode).

Moderator: Good morning, everyone. My name's Colin Graham and I work in the technical advisory unit within Investment Northern Ireland. I'd like to welcome you all to our Global Technical Compliance webinar, where we're gonna focus this morning on technical compliance requirements in the major global markets beyond Europe. As some of you will know, we've been running these events for some years now, but since moving to the webinar-based format a few years ago, we've-, we're very happy to be able to continue to offer the webinar free of charge, and we hope that's helpful to everyone. We, we have over 50 people registered to attend the webinar this morning. That's excellent, and we're pleased to have companies from all over Northern Ireland and beyond on the webinar. So, this is gonna be a half-day event, we'll have a break at about 11:00. We're also gonna have regular, regular question round-ups throughout the morning, and we're hopeful that we'll finish around about 13:00. So, I would encourage you, if you've got a question at any point during the session, just note it down, type it into the panel at the side of the screen, and we'll round those up at the end of each section and try to address as many as people for you.

The, the other question that, obviously, people ask is, 'Can we get a hold of the, the presentation,' and the good news is, we're gonna be recording this webinar, and we'll make that available, plus the presentation, and email that out to you when we've had a chance to put it all together, so, keep an eye on your, your email for that, and that will be sent out as soon as we can. So, our presenter today is Simon Barrowcliff, from Element Materials Technology. Simon's a chartered electrical engineer with over 35 years of experience working in product testing, assessment, and certification. Simon's currently a senior technical specialist at Element, and he's got extensive global technical compliance experience, and has worked with many companies in Northern Ireland over the last 25 years, probably, to support their product compliance work. So, he's, he's familiar with the, the global technical compliance scene, he's also familiar with the Northern Ireland SME and larger company set-up, so, we're very pleased to have him presenting this morning. So, that's about it. Thanks for joining us this morning. I'll hand you over to Simon to get things underway.

Simon Barrowcliff: Thank you, Colin, and, and hello everybody joining for us for the-, for the webinar. Going to start off with an introductory session, just looking at the, the general compliance for export scenario, then we'll go through, over the morning, looking at various key markets, just highlighting some of the pitfalls, advantages, of, of, of different markets and perhaps give some pointers as to where you can look for, for more information. I won't re-introduce myself as, as Colin's already done that, but my details are there, if anybody's got any questions after. Element, as a business, we're a global testing, inspection, and certification business, headquartered in, in, in London, but we have-, we have locations in 30

countries around the world, 200 locations, and about 6,000, 7,000 colleagues who, who I work with on various compliance issues, electrical, mechanical, materials testing, across a whole range of, of markets that we work in. And of course, the-, you know, the, the key thing with all of these-, all the work that we do is the experts that, that sit behind us, and, and my colleagues are working in these various areas. Advice, testing, certification, in, in all of the fields that we talk about today, and including, you know, support in accessing some of these global-, these global markets, where-, where you need additional support to do that.

I think, looking at the-, the thread of what I'm gonna be talking about today, that-, that blue thread, the, 'Making tomorrow safer than today,' it's the company-, it's the company ethos, and certainly, it runs through with my ethos, as well, as what I've been going over the last 35-plus years, to try and help manufacturers meet their requirements for, for regulatory purposes, but also, to help you reach those markets that you need to, so you can sell more products, and obviously make more money on, on that basis. So, hopefully, what we're gonna be talking about today will give you some pointers for some of those key markets. So, we're gonna focus on electrical safety, mechanical safety, Radiant (ph 05.42) and EMC regulations across the globe. We're gonna try and really contrast those with the regulations that we are familiar with. So, we're looking at compliance frameworks, and that's what this first session is gonna focus on. So, let's start with, with where we are, and where we are in terms of the United Kingdom, Great Britain and Northern Ireland. We've had a, a CE regime that, that existed for many years, and then has been diluted somewhat with, with, with, with, with Brexit, and added to confusion in some areas about what conformity assessment marks there are, and apply in different parts of, of the country, and how those relate to what goes on in the 27 members states of the EU.

Well, since, sort of, August of this year, the Westminster government have decided that the-, that CE marking would be continued to be accepted across the whole of the UK for an indefinite period. So, whilst UK CE mark exists for the Great Britain market, and the intent originally was that become-, to become the only acceptable mark, that decision's been reversed and, and it will now sit alongside the CE mark. But, effectively, anybody who's selling in the wider UK and European context, where CE marking will be applied anyway, effectively, CE marking is, is the route most people will follow, and UK CA will be a mark of choice, people will choose to do it if they wish, but for most of the markets we've been talking about-, will be talking about today, it will continue to be CE marking, which will greatly simplify things for, for manufacturers.

Whether it's CE or whether it is UK CA, in the global context, the conformity assessment regime that we follow for CE marking is predominantly first-party, what we call self-declaration, with third-party assessment by notified bodies, or approved bodies for UK CA, is only limited to those areas where there's higher risk, so dangerous products, or areas not defined by harmonised or designated standards. So, we're very used to the concept of compiling files of technical documentation, filling out the EU declaration conformity, sticking the CE mark and, and, and going. And, for most people, that is done as the manufacturer, under their own responsibility. And that works great for the 27 EU states and, and, and

Great Britain and Northern Ireland, but outside of those areas, the regimes for conformity assessment and regulatory compliance are not necessarily as benign. And that shouldn't come as a surprise. Just when-, as when we're travelling as individuals, we may have a passport that takes us out of our own country and gives us, at least, theoretical access into others, but for many, many places, there are additional requirements, visas, to enable us to enter and, and, and, and visit or, or work in those countries.

So, it's not-, it shouldn't be a surprise that there are different regulatory regimes and rules, rules to follow elsewhere, but I think it's really important to-, you know, to recognise that that's-, is gonna require us to do different things than we would just do for our domestic or near-neighbour market. And if we look for evidence of that, a whole plethora of approval marks, which you'll see on documentation, people's websites, claiming compliance with these, and then, more significantly, if you have a look on the (inaudible 10.18) , something like your humble laptop, you'll find there's hardly enough space for the, the, the, the rating markings, never mind the-, anything else. And a lot of that space is used up by various safety, EMC, environmental approval marks. So, this is a real-world scenario of the complex approval regimes when we are thinking about exporting outside of the EU.

So, the first rule of global conformity assessment is, it will be more difficult than CE or UK CA. So, where-, whatever you're planning to do, whenever you're thinking about, about exports, carry that in, in, in-, ahead of you, because there are going to be complexities, it isn't gonna be as simple. And, for those who think it's going to be simple, is where they miss out on opportunities, because they're not prepared. So, where do we export to? Well, this chart here is-, represents UK-, total UK exports for the twelve months to the end of March 2024, so actually quite, quite recent figures. And these are the top twenty countries that we export to, ranked in order. To make this a little easier, I'm just going to highlight the non-EU countries in this list. So, ahead of the game, we have the US market, which is the largest economy in the world, so you would expect, you know, us to-, a successful exporting economy to be-, to be sending goods to there. When you go down through that, you're then-, you're then looking at Germany, Republic of Ireland, the Netherlands, France, etc, the key European countries then come into that fold. And the next non-EU country is China, and that's only 3.5% of our exports by the time you, you start looking outside of the EU, and then you work your way down the list even further, and the next country you get to is India, at less than 2%, or Canada, at less than 2%. But these are the-, these are the key markets, but you can see from this that a lot of what we do is, is EU and CE mark-focused.

But, that doesn't mean there's not opportunities when we look elsewhere. So, this is like the whole UK picture. If we have a look at Northern Ireland specifically, this data is 2021, 2022, but draft figures, it's not that different. You can see, Republic of Ireland is largest single export market, and quite understandably, and then the US, following the, the trend for the rest of the UK, by some margin, above the third and the fourth and the fifth places, the Netherlands, to Canada, to Germany, but definitely exporting going on. And then, those areas which you do export are machinery, dairy products, pharmaceuticals, transport equipment, and general industrial machinery, not for specific industries. So, a very interesting set of figures there, and the Northern Ireland economic trade statistics are collected on, on

a regular basis and updated as they track, you know, who's exporting what, what to where.

So, the where to we, we-, where should we export to? We've seen where we do export to, but where should we be thinking about exporting to? Well, I suppose the answer-, one of those answers to the question is, 'Follow the money.' Money is to do with, in this context, the, the relative wealth of target export countries. So, in this slide here, I'm looking at the G20, the G20 have just met or are just finishing meeting this week, and that's-, the G20 is the countries with the, the largest GDPs across the globe, and you can see the members of that on, on the slide there. Sub-sets of that, we have the G7, which are the top seven exporting countries, Japan, US, UK, Germany, Italy, France, and Canada. The G8, which involves-, is, is another group, involving Russia, and then the other countries on that list, and most of those countries, we'll, we'll address later on in this presentation. But, certainly, if you're gonna start exporting, you need to be thinking about exporting to people that have actually got money to buy your products.

And to help with the export drive, the UK government has a number of free trade agreements which are either in force, about to come into force, or are under negotiation. I thought it'd be quite useful, at this stage, just to list those out. In the left-hand side, the trade agreements in force, over 70 of those, most of which are replicating the UK's trade agreements for when we were in the EU, so largely filling in the gaps left by us leaving the EU, but those agreements include the agreement between the UK and the EU in regard to trading cooperation. And then, agreements that have been signed subsequently, but not yet in force, and, and the key one of those is the Comprehensive and Progressive Agreement for Trans-specific Partnership, the CPTPP, and this was much heralded last year, earlier this year, because it means we've got trade agreements, at least outlined trade agreements, with many of the specific countries. That includes those in, in Asia and South and Central America. So, it's really giving us a, a, a different reach in those markets. And it, it was heralded as being an agreement that would show that the UK was still open for global trade. So, as that comes into force, there will be opportunities, advantages, for having those agreements signed. Like all of these, though, the, the, the devil is in the detail, so to speak, so how that affects you as an-, as an individual company, you will have to see.

Then there's other agreements, the UK-Ukraine digital trade agreement, and then the SA-UK economic partnership for Eastern and South-, and Southern African countries, as the UK government increases its focus on the developing markets in, in Africa. And then, last but not least, there are trade agreements under negotiation. Some of these are extensions of very, very broad existing agreements, to try and make them more effective, and they include India, the Republic of Korea-, South Korea, that is, Switzerland, Israel, the Gulf Cooperation Council for Middle Eastern countries, Mexico, and Canada. These agreements are at different stages of the progress, I think the Canadian one has slipped further down the list due to disagreements on certain aspects of this. And, of course, the one that's missing on here is where people are talking about potential agreements with the US and (inaudible 18.46) , which might be something for, for negotiation when the presidency changes in the US in January. So, I think the important thing is that, that agreements do exist which are designed to, to smooth the process for exporting in those countries.

However, less than 12% of small and medium-sized enterprises export. So, in figures from 2022, 12%, that's higher than it was in 2016, which is good, but is low compared to more than 40% of larger companies, so a-, for a, a larger business, that's one with more than 250 employees, and a much larger export focus than those with less than 250, due to complexities of, of it. But, this 12% figure is something that the trade departments are trying to encourage to improve, as they aim to grow the, the UK-wide economy. Now, in the Northern Ireland context, nearly 20% of all Northern Ireland business, including SMEs, are exporters, but that's acknowledged that there's a, a significant proportion of exports, as we've seen, are destined for the Republic of Ireland, so it slightly distorts the behaviour. But, if you take that out, then even in that case, Northern Ireland still has a good focus on, on export, particularly for, sort of, high-technology goods, machinery and such like. The last survey by the Department of International Trade and Registered Businesses in 2021 highlighted issues people found with, with exporting. 45% of those surveyed experienced significant barriers when entering overseas markets. Nearly half of them had some level of difficulty with exporting. A third had specific difficulties with customs, legal, or regulatory issues, which was restricting or preventing them from exporting, and then a, a lower amount, about 14%, had issues-, technical issues related to the product or production, its suitability, or the way that it was made, or what it was made of, was unsuitable for the market that they were selling into.

So, if we expand from those, sort of, key headline areas, typical barriers to trade could be customs procedure, lengthy procedures that delay getting goods to market, problems enforcing international rules and regs, for example, World Trade Organisation rules that are supposed to limit restrictive practices which are enforced properly in individual countries. Environmental safety or quality regulations, particularly local environmental issues that may not be the same as they are in, in Europe. And then, import quotas, packaging label or design regulations that, that are specific to individual markets, poor protection of intellectual property rights, so, failure to respect the legislation of patents, trademarks, or industrial design, will put people from, from trading. And then, there's all things which governments control, including rules of origin issues, what will be accepted into markets, and then state-granted monopolies, or testing inspection and certification procedures that are specific to that country, and we'll see, as we go through the, the presentations today, where they impact upon the markets we're looking at.

If we look at four specific markets, which is what the DIT looked at in 2021, this is looking at the USA, Australia, China, or New Zealand, USA, Australia, New Zealand should be relatively benign, easy markets to export to. China is a-, is a big market, but very well established. And, when they looked at this, they found that customs procedures were still causing problems for over half of all respondents. 20% had certification, testing, and inspection issues, and 7% meeting environmental and quality regulations. So, it's not just small markets where you can have a problem, sometimes some of these big and important markets also can cause issues. So, I suppose, I've answered the first question, 'Why don't we export more?' Well, it's too hard. I think it can be if you're not prepared for (audio cuts out 24.16) the market will expect. 'It's too foreign, we don't understand the customs and, and the rules.' 'It's too far away, too difficult to export to, it's easier just, just to sell to our near neighbours than it is to go to the, the, the extra length to, to pick up quite lucrative markets elsewhere.' 'Too scary, lots of stories of problems exporting.' I think

the intellectual property issue is, is hot, and it just frightens people away from doing it. But, more often or not, it's because it's too late, it's because we haven't thought about exporting early enough in the process, so we're not ready for export, and therefore, when an export opportunity arises, when someone says, 'I'll have 500 of those, 1,000 of these,' we haven't got enough information to make it a viable export proposition.

And so, it's really important that people understand the potential pitfalls from being locked out of global trade, because that's what happens if you don't-, if you don't prepare, if you're not ready, then, when those opportunities arise, you know, you, you won't know what to do with it. And then, effectively, you've closed off opportunities for exports. And that's really critical, you know, we, we have a-, quite a stable domestic and near-neighbours market. If we're going to grow our businesses, we have to be looking at selling into those, those markets which have got money to spend, so we're back to that G20 slide earlier on. Who's got money to spend, how can we use that to, to grow our business, and we'll look a bit more about how countries are growing later on. So, resources to help support global trade. So, global trade's not new, and certainly, in the electro-technical sector that we're talking about, there are well established routes for supporting that trade. I've already mentioned the WTO, the World Trade Organisation, which sets rules for its members to follow to minimise restrictions on trade, particularly technical restrictions on trade, that can exist. Free trade helps everybody.

So, in terms of the technical regulations, which is really what we're talking about here, there are two organisations, the International Standards Organisation, ISO, and the International Electro-Technical Commission, the IEC, that produce globally recognised standards that the World Trade Organisation recognise as being standards that should be used as the basis for compliance of specific products across a global market. So, the WTO, working with these standards writers, tries to provide a framework of standardisation, which means a product that you test, design, manufacture, in Northern Ireland would be to similar standards if you were selling it to, say, Indonesia. So, they should be no-, it shouldn't be a complete set of, of different standards for you to meet. It's the same standards, and that at least eliminates some of the technical barriers that you may come across. So, for those of you not familiar with the IEC, it's a global organisation, the dark blue on this map here, with 174 countries who are either members or affiliates. So, the members are dark blue, affiliates are in this-, in lighter blue. Offices all over the world, to support local standards writing, so for example, in the UK, BSI are the national standards body, they are member of the IEC, work with the IEC to write globally relevant standards which then get adopted as British standards, with deviations particular to the markets in the United Kingdom. And in fact, the way these IEC standards work, we work with those on a European level with SEN and SENLEC (ph 29.08), so that the standards actually are used wherever possible right across the EU. So, you get EN standards, which are the ones called up by, by a lot of the EU directives and UK regulations, and they're, they're often based upon IEC standards, so they're written internationally, with the Japanese, the Americans, the Chinese, the Brazilians, South Africans, the, the Saudis.

So, they're written in conjunction with global organisations, and then they're adopted, regionally in this

case, for us to use, knowing that, if you meet those requirements, those same standards can be used elsewhere. So, that's the IEC family. Similarly, for ISO, 164 members, 120 of those are full members, and a further 40-odd associate members. ISO concentrates on mechanical areas, principally, also on the 17,000 series of standards and 9,000 series of standards, so ISO 9,000 and one (ph 30.26), 17,000 series of standards for conformity assessment testing. So, widely used standards in the mechanical sector, contrasting with the IEC, which is mostly looking at electrical products. So, what we end up with is global standards, IEC, ISO, European, UK standards which are based upon a common theme, and that doesn't mean it's universally utilised, so, taking two examples, the US and Canada, the US still develops through its standards bodies principle, and see a lot of national standards that are developed not an international basis, but a purely national basis. So, they, they don't derive commonality with the IEC or ISO standards, which makes them more difficult to meet and to follow. Canada has a history of doing the same, but is migrating towards adoption of ISO and IECs in preference to developing their own standards with their-, with the United States. So, this idea of global standards, it still isn't, isn't there, and, and the US being a huge market, leading market in the world, the fact that they don't fully adopt IEC and ISOs is a little bit of a disadvantage. So, you just need to be aware of that when you're thinking of exporting (ph 32.00).

The IEC goes beyond standards, it has conformity assessment schemes. So, these are certification schemes that not only say, 'We use common standards,' but also share expertise, knowledge, and recognition of how we test and certify to those standards. So, the IEC has been going for 40 years, nearly, certifying all sorts of electrical equipment, medical equipment, instrumentation, domestic appliances, for, for safety, functional safety, cyber security, more recently, and EMC. And that allows testing in one country to be automatically recognised by the other members of the IECE. IECQ looks at chemicals and looks at other components, and, kind of, chemicals for environmental issues, so they're moving into carbon footprint, again, establishing global criteria for that. IECX is oil and gas, IECRE is the latest one, and that's looking at renewable energy, wind, wave, solar, etc. And, and these are conformity assessment schemes that help you access some, some of these global markets, because there's already a, you know, a well-trod path for you developing your products, having them tested, certified to standards in your own country, and then being able to use that information directly into the markets of, of other countries. So, a very valuable set of schemes.

So, why are these schemes-, why is conformity assessment needed? Well, any market, the stakeholders in that market, and those stakeholders will be, you know, governments, insurers, buyers, investors, user groups, consumers, they want to be sure that what they're buying is safe and performs as it should, it should be energy-efficient, reliable, sustainable, whatever criteria you, you want to apply. And conformity assessment supports those stakeholder groups, giving them some confidence that those requirements have been met. And so, by engaging with some of these global schemes, you're able to give that confidence and thereby get over some of the barriers to market entry. But it's really important you understand the compliance requirements before any idea of exporting is, is started. As I said, it'll end up being too late unless these are well researched in advance. Designed to meet international standards, because that's gonna give you the global coverage, and there may be deviations, slight differences, in different countries, but by and large, those international standards, and the use of them, are gonna help

you in-, as you move into those overseas markets. Plan ahead. A lot of people, when they're thinking about exporting, and they, they, they come to Element and they say, 'We want to have this product tested and certified for global markets.' And you say, 'Which markets?' And they say, 'All of them.' And then we have to have a conversation about whether they actually mean that. Because of the complexities for exporting, the different rules and regulations, we need to focus down, it's best to focus down on specific markets rather than trying to be open to all markets in all locations. So this is where the planning ahead comes in, the more that you plan ahead you can then focus your attention on, on, on specific, the most lucrative markets really. Because you give you the, you know, opportunities missed, opportunities taken, if you try and target too many markets you'll never meet all the criteria, so you will miss opportunities. If you plan ahead, focus on key markets where you think there's the most opportunity, then, you know, there's, there's an opportunity to be taken there. But as with all of these things expect the unexpected, it's not the same as CE marking or UKCA, there will be differences, whether they're in technical documentation, needs for third party recognition within that country. So it's part of that planning process is really to research what the requirements for these markets are (audio distorts 37.21) so that you know what to expect. So in the remainder of this webinar we're gonna-, we're gonna split the world up into different bits and pieces, so in the second session shortly we're gonna have a look at the US, then we're gonna have a look at the BRICS groups, session 4 is MINT, Middle East and Australia, and I'll explain what those acronyms are in a minute, APAC, South America, and Africa, key countries in those regions. And then we get to session 6, we'll have just a summary, give you some pointers for further reading. So at this stage as we've covered the, sort of, general introduction, we'll go see whether there are any questions which have been raised at this stage (talking over each other 38.15).

Moderator: Yes no one has asked any questions yet, well apart from a couple people asking just if the slides and presentation etc. will be shared post webinar, so I think Callum (ph 38.28) just mentioned that at the start in the introduction, so absolutely, just give a little bit of time for the team to chapterise the sessions and we will then upload, and you'll get an email from us just with a link to view. So if you do have any questions we'll be pausing regularly, as Simon says, and I'll pop on after each session and put any questions to Simon. But are you happy to, to move on to the next session Simon?

Simon Barrowcliff: Yeah, yeah we can do that, yeah I think just, just to say again, questions we'll try and answer if you've got any live ones, but also, you know, if there's anything in more detail quite happy to answer those after the event as well.

Moderator: Perfect, that should you with control again of the second set of slides Simon, so I'll pop myself on mute and whenever you're ready it's back over to you.

Simon Barrowcliff: Okay, right. Thank you, Barry. Okay so the first trading group we're going to look at is US and Canada, and this, these groupings are largely forced by the technical similarity or geographical proximity, and actually the US and Canada there's a touch of both in that there as we will see. If you also recall from the previous presentation, the US is the largest global market and therefore has the most opportunities. To some extent, Canada piggybacks on the side of that because they're-, because they're

next door with, with a common language. So, we'll deal with those two groups together. So, let's have a look. We are looking at accessing US and Canada. Good cooperation between the countries. They are-, they are good neighbours but they have different conformity assessment machines. Very specific local rules and local standards, with similarities between them but also, some differences. And if anybody has ever confused an American with a Canadian or vice versa, you'll know that they're very proud of their differences, as much as they are all of the-, all, all of the similarities. So, let's start looking at electrical safety for the US market. (Audio distorts 41.03) electrical equipment and components compliance is one of UL series of standards required. UL are a conformity assessment and testing body, certification body. You see their markets on products but they're also a standards writing body. So, a bit like BSI. So, we're-, in, in the context of writing standards, UL standards in electrical technology are the ones we-, you're most likely to find for electrical safety. And for in the US market for electrical safety for non-domestic products in series production. There's something called NRTL compliance. So, OSHA, which is the Occupational Safety and Health Administration, requires that non-domestic products for use in, in, in the workplace shall be third-party certified by a national recognised testing laboratory. So, that means tested by one of these NRTL's and then subject to regular audit of the production processes.

So, this isn't the only route in but for series produced products, for non-domestic markets, that's what you would expect to follow. For-, and, and as an NRTL, there's a, a large choice of NRTL's that you can-, that you can use for that purpose. I think there was about eighteen in the last count of which Element (ph 42.35) are one of those. Non-domestic-, for domestic products, sorry, these OSHA rules don't apply but that-, stakeholder groups in the-, in, in, in the US, so, distributors and retailers, are very keen to make sure that the products are fully compliant, and so will tend to follow the same route of NRTL compliance. So, where NRTL is only mandatory for non-domestic products, you will see NRTL certification being used quite often for domestic and commercial products as well. Now, we talked about the IEC conformity assessment scheme and the EE scheme for electrical safety. The CB scheme is often accepted as the basis for an NRTL certification. Fortunately, a lot of the electrical standards in the US are, are harmonised with IEC. There's a few that aren't but those that are, you can use CB certification, not have any further testing done, just (audio distorts 43.46) for Canada. Different set of standards, CSA standards. Again, CSA are a test certification standards writing body. In this context, we're looking at them as a standards writing and issuing body. Just like the US, the series produced products, normally you'd require some form of third-party testing as an SCC, Standards Council of Canada recognised laboratory, and regularly audited (ph 44.21) factory. The rules in Canada are, are different to the US. They're, they're not federalised, there's, there's individual, provincial rules and also, they don't limit the requirement for third-party testing to just industrial products. It, it quite commonly covers domestic products as well.

So, for the Canadian market, you would expect some sort of third-party evidence to be required, and once again, the CB scheme can be used very usefully for that purpose and there are specific differences for, for the Canadian market. Noticeably language requirements but otherwise, the technical requirements are very similar because their electrical system, plugs and sockets system, is very similar to that in the US. So, if it's not series produced, if it's bespoke or low volume equipment that's going to be installed in, in the US or Canada, then there's a option for on site inspection. And this can be done either by a local authority, so, in the US, that would be an AHJ, an authority having jurisdiction. So, that could be a local

authority. Or in Canada, it could be a, a, a province. Or it can be issued with an inspection certificate by one of the NRTL or SCC laboratories. This type of inspection, because it's for permanently fixed equipment, has a-, can have a lower level of testing. It's very difficult to do destructive testing on something once it's installed, for example. So, a much more heavy reliance on third-party approval of components. So, in the example here, we can see US and Canada recognised and approved components, and so, when these inspections are taking place, it'll often be based upon an assessment of those components and those components include wiring, plugs and sockets, enclosure materials etc. So, it's a subset of the rules for a series-produced product for electrical equipment. So, we look at mechanical equipment for the US. OSHA, the Occupational Safety and Health Administration has rules and regulations.

So, OSHA are a bit like the HSE in the UK. They have regulations and they rely on domestic standards to support those regulations and in addition, there, there may be state or local requirements that apply for specific types of machinery. They all require use of those US-certified electrical parts, just like the inspected products we talked about earlier and often, you'll have to have large machinery inspected before it's allowed to be switched on. Whilst there are lots of domestic standards, these aren't mandated by OSHA and sometimes, aren't quite as extensive as European standards, for example. So, there's been recent litigation in the US where a US-designed machine to OSHA requirements, a US standard, has injured somebody and it's become apparent that there was a CE compliant machine for Europe, same type, which had different protection methods on it and in that scenario, the, sort of, concept of due diligence was that the manufacturing in the US hadn't been as duly diligent, as they applied the minimum US standards rather than the standards appropriate for the safety of the people using it. So, therefore, our EU seen machinery safety standards are useful in supporting but not replacing some of the rules in the US. We'll just cover a bit of that in a minute. You want to have a look at the, the, the rules and standards, then the central federal register, the CFR, published by OSHA in part nineteen, (audio distorts 48.46) specific details. And it's a bit like the Machinery Directive, essential health and safety requirements. Quite generic, (audio distorts 48.55). Difference to the EU and OSHA replaces the responsibility for safety, whether it be for electrical or mechanical, actually, on the employer and employee, not on the supplier.

So, whereas CE marking is something that the manufacturer has to meet before they place a product on a market, in the US, a supplier can sell a machine or electrical equipment without any safeguarding and it's up to the end user to establish whether adequate safeguarding is fitted or not. However, for the litigation reasons that I've said, it's now common for machines to be supplied with safeguarding. For the same reasons in the-, in the EU. The manufacturer of the machine has the most knowledge of what the risks and hazards are and they are the best people to decide on effective safeguarding measures, rather than the end user having that responsible. So, the law in the US is different but in terms of how we supply into the market, I think by following the, sort of, European approach to things is a, a much more sensible way of doing things. There are parts of the Code of Federal Regulations that deal with machine guarding and, and some of the references are, are on the screen now. But it's the same principles. You know, we must-, you know, avoid ingoing knit points (ph 50.50), rotating parts, flying chips and sparks. So, all the work that we put into CE marking for the Machinery Directive has direct benefit when you start looking at the regulations for-, so, you'll find a lot of similarities in, in (audio distorts 51.06). So, when we look at the

Canadian market, each province has its own regulation for industrial safety made or enforced locally. Health and safety rules, largely common but different ways of reflecting that. So, for example, Ontario has an Occupation Health and Safety Act that details the requirements that you may follow.

So, for example, they now say that any newly rebuilt or modified piece of machinery must have a report from a professional engineer before it can be put into service. So, Ontario requires third-party inspection of machines before you can use them. In Canada, you must use Canadian-approved electrical parts wherever possible, with some exceptions to that I'll come to in a minute. Also, note the requirement for French language instructions and on warning labels on the machine, which you'll be expected to follow. And then, in terms of pre-inspection, they will check for specifically for guarding and (audio distorts 52.24). And in the Ontario context, they will recognise ISO standards and also certified-, certifications by EU-notified bodies, which is really helpful. So, if you are using certified PLC's or safety circuits or safety curtains, guards, east ops (ph 52.48), then a lot of those certifications would be recognised for use. But you do need to be-, make sure you are fully familiar with those local regulations because they do vary between provinces. So, moving on from machinery to have a look at EMC and radio. Which way that you-, that, that, that you go. Now, here, there are quite a lot of, of similarities, so, if we compare the two. In the US, they have what we call federal rules and regulations and then a knowledge database that, sort of, helps interpret those rules and regulations and these are publicly available. So, when you're thinking about EMC or radio design for the use, meeting those local requirements, there's plenty of information available to you. In Canada, they have something called the ICES (ph 53.48) rules and then those are supported by ICES procedures or RSP procedures. Again, publicly available documents that help you ensure your design meets local requirements. Within the US, we have EMC rule parts and radio rule parts. So, they separate EMC and radio, just like we do in, in the EU and the same in, in Canada. Although, in Canada, they tend to use EMC standards and RSC standards for radio to help define those requirements rather than rule (audio distorts 54.26). So, in the US, part 15B is for EMC. So, if you see someone saying they're compliant with FCC Part 15B, they're referring to EMC. Radio rule parts, there's many but 15, 22, 24, 27 and (audio distorts 54.45). Within Canada, you have ICES documents, ICES003 and 4 for EMC and, for example, (audio distorts 54.54) for specific types of, of radio product.

Test standards tend to use a common set of standards. So, ANCC63.4.63.10, for example, used very commonly to demonstrate compliance for EMC and radio requirements. And then, for EMC in the US, it's self-declaration. For radio products, it's mandatory certification through the FCC. For Canada, for EMC, self-declaration and then for radio product once again (audio distorts 55.34). So, for self-declaration, you get to see the FCC logo and, and various FCC statements in your product. If it's a certification, the product carries and FCC ID to identify the certification and the process that it's been through. For Canada, it's an ICES statement that says, 'I meet the requirements', and then for radio product, it's certification (audio distorts 56.06) Industry Canada identification mark. So, if we look at our responsibilities for radio, because that's more complex, you have to determine what rule parts apply. You need to establish what authorisation procedure you need to do, and perform testing at an FCC authorised testing laboratory. So, you can't just use any old lab, it has to be registered with the FCC, obtain the required approval, label the product and put any necessary information in the manual. It's your responsibility to do that. With Canada, it's generally the same but note that the radio spectrum in Canada

is not necessarily the same as the US, so, you may have different test frequencies. There's different registration requirements, something called an HVIN or Unique Model Number, as well the Industry Canada (audio distorts 57.02). The language requirements, we talked about earlier as well. And also, for Canada, you need some form of registered in-country representation for, for the, the, the import of radios, approved radios, into the market. So, again, subtle differences between the two (audio distorts 57.24).

So, here's a summary slide which I will not go through at this stage but this basically compares what we do for CE and UKCA, more broadly reflects that across to the US and Canadian markets. So, hopefully, you can look at that (audio distorts 57.45) useful source of information. So, accessing the US and Canada. Common features within the free, free trade area between Canada and the US but there isn't the same level of commonality. It isn't harmonised in the same way as you would find between countries in the EU. So, it's a-, it's a trading agreement, a recognition of others, of some parts of the regulatory regimes in other countries but very distinct certification requirements, documentation requirements for each country. So, quite often, for electrical and mechanical equipment, they're done as a pair. So, because their requirements are relatively similar but just be aware, just because you get US approval, it will not be automatically accepted in Canada or vice versa. So, don't get caught out by those differences. It's, it's, it's work the two in parallel, decide which your biggest market is and then run through the rules for the-, for the second market in parallel to that. Even if you're not gonna sell. So, if you-, if your big market is the US, then it's worth reviewing what's going on in Canada, just because if you get a, a, an opportunity for that Canadian market, you've already considered those differences. You don't need to go through a redesigning process at the time, which would, you know, potentially cause delays, which might lose you a sale or an, an, an export opportunity.

Okay, that's the end of the brief introduction for US and Canada. Barry, do we have any questions at that point-, stage?

Moderator: Either you're covering things in such detail, Simon, that no-one has any questions or we just have a very shy audience this morning, so, so far, no questions have been submitted but, I suppose, as a reminder, we do have plenty of opportunity as, as the morning goes on. So, feel free to pop, pop any questions into the chat and, and yes, we will get around to it. So, nothing in yet. Simon, are you happy if we move onto our, our next session and then we have a break due at around eleven o'clock or so for about fifteen, twenty minutes, just depending on how we get on time-wise.

Simon Barrowcliff: That's right. Okay, good. Yes, let's, let's, let's go onto the next, next trading group.

Moderator: Brilliant, and that should be the next set of slides, thanks, Jordan. And if you just click on the screen, that should be you, Simon, with control again.

Simon Barrowcliff: Okay, right, thank you, Barry. There we are. Right, right, this, this, this presentation's going to cover the-, what we call the BRICS countries, Brazil, Russia, India, China and South Africa. And these BRICS are what they call emerging markets. So, markets that are developing lots of opportunities there. There's a second set of, of countries called frontier markets, or a term has been applied to them and these are effectively emerging markets but with smaller volumes associated to them. So, frontier markets and emerging markets. So, we'll cover the frontier, what we call, in the MINT countries of Mexico, Indonesia, Nigeria and Turkey in, in a later presentation. So, for now, we'll focus on the-, on the BRICS markets, which historically, have been established as the (audio distorts 01.01.55). The Brazil, Russia, India, China and South Africa markets are what they call the BRICS countries. BRICS has been established for quite some time as a-, as a group. But, as of last year, other countries were proposed as new members. So, those countries are Saudi Arabia, Egypt, Ethiopia, Iran and the UAE. Actually, Argentina were part of this as well but (audio distorts 01.02.26). So, the BRICS group, I don't think they'll change the acronym, but could become a larger group of cooperating countries as, as times move on. We'll focus just on those initial five countries for the purposes of our presentation today, but perhaps in the future we'll have to have a look in more detail at some of these other countries in the context of BRICS. We will actually touch on a little bit on Saudi Arabia and UAE in the context of the Gulf States in a later presentation. So, let's have a look at the economics for BRICS. So, this is just the original five. These are statistics from an organisation called Statista, online availability. If we look at-, first, look at the G7 countries and we can see that this year, apart from the US, growth is actually quite poor. You know, sometimes virtually non-existent, as in Germany and less than 3% even for the US as the largest load (ph 01.03.48) markets. Project forward five years, some improvement in those areas but, but we're still talking about growth of, you know, 2%-ish. Whereas you compare that with the-, with the BRICS markets, then we can-, we can see that they are looking at completely different sets of growth.

So, for Brazil, for example, we're looking at, you know, 2% roughly this year, 2% in 2029 and then if we go forward to-, and look at-, and look at something like China, 5% virtually this year. India, nearly 7%. Russia, again, despite its, its, its issues, we are looking at more like 3%, still higher than the US. And South Africa, out of the BRICS countries, is, is the only one that's, sort of, really underperforming. If we look at 2029, then we can see some changes on that. Brazil looks to be the same. China slightly reduced. India still ploughing well ahead at 6.5%. Russia declining. Some improvements expected in South Africa. But if we ignore South Africa and we look at the, the situation today and, and going forward, actually the BRICS countries are offering quite good opportunity to their economic growth and therefore, opportunities for, for export. So, if we look at first Brazil, we have long-, long-standing trading ties with, with Brazil with the UK. The largest South American economy. Obviously, an oil producing nation and we have, you know, had a, a lot of exports and basic goods (ph 01.06.04) representing nearly two-thirds of total exports to Brazil on a historical basis. Obviously, political uncertainty with-, in South America. New president in, in, in-, and changes in Brazil, which, which, which causes issues, potentially, but a good opportunity and if we look at the export-, goods exported to Brazil in the end of 2022, power generators, pharmaceuticals, machinery among the key areas that are suitable for that market. So, lots of opportunities there and Brazil's a relatively friendly market to, to work into. We look at the regulations for Brazil, most Brazilian standards are based on IECI, so, mechanical models. In some cases, third-party factory inspections are required and-, if, if product is tested outside of Brazil, they would normally ask for some kind of internationally accredited test house. So, (inaudible 01.07.13). So, any UCAS test house or

NSI test house in the UK and Ireland would be able to provide you with a, a test, test report that would be accepted as accredited (audio distorts 01.07.25). Certification is available for the Brazilian market. Third-party certification is required and a lot of the European (audio distorts 01.07.38) Brazilian (audio distorts 01.07.43).

Brazil is currently looking at its rules for product certification and they're looking at moving to something less regulated. So, less local rules and third-party requirements and something more like the (mw 01.07.59) regime, with a more-, with a greater emphasis on self-declaration and just focusing on higher risk products with the third parties. So, that would be something that's-, again, would be very useful and (audio distorts 01.08.14). For now, the rules are covered by various Brazilian regulations and within the regulations for machinery and electrical equipment, there's mandatory certification operated by government department, INMETRO, and you'll see the INMETRO certification mark on many products. This includes domestic electrical equipment, switches, plugs, plugs and sockets and voltage regulators, medical devices, equipment for hazardous locations, flexible (mw 01.08.54). So, the INMETRO rules are, are quite clearly set out and where they apply, and quite often, you'll find you need to have some form of third-party (mw 01.09.05) or certification of those parts (audio distorts 01.09.09). Machinery for Brazil, again, they follow IC standards or ISO (ph 01.09.19) standards or equivalent. That's with some regional deviations but a lot of the work that you would use for-, where you've used ISO standards for the EU, you can carry forward. Some of these mechanical products, again, may require INMETRO certification. At least, in theory. However, there's no current INMETRO machinery list for mandatory certification but there are rules being created for more dangerous equipment like presses and, and, and the like. So, once again, I think this is-, this is aligning with, you know, changes that move towards a more (inaudible 01.09.59) focused style regime. Although Brazilian legislation does tend to move fairly slowly.

So, whilst they're talking about it now, it could be-, could be many years before these changes. If we look at EMC for Brazil, its mandatory for some products. It changes. So, IT products, handheld tablets (audio distorts 01.10.18) mandatory, mandatory EMC compliance. Fortunately, a lot of those requirements are based upon on IEC or SISRA standards, which is the same basic documents as we use for CE market in the (audio distorts 01.10.32). If its a telecommunications product, then at the moment, EMC testing needs to be (audio distorts 01.10.42). There's an organisation called Anatel (ph 01.10.45) which regulates that market and the Anatel regulations would need to follow for telecoms equipment and they produce regular updates. There's a-, there's a website available (audio distorts 01.10.55). So, at the moment, in country testing to local standards for radio equipment and they issue certificates which have a general validity for two years. Requirements for radio products, usually a manual must be in Portuguese for Brazil by law and a local representative is required for all radio equipment. So, someone in Brazil needs to take responsibility for the product once its imported. So, accessing Brazil, generally you'll need local representation, for your certifications. Labelling and safety instructions need to be in Portuguese, but do note this is Brazilian Portuguese, not Portugal Portuguese. There's differences in the way the language is, is written and spoken, so do make sure it's a Brazilian Portuguese translation. For now, some third party testing and factory inspections are required, but that regime is, is potentially changing. So, moving on from Brazil to look at Russia. We used to talk a little bit more about Russia, but in summary, for Russia at the moment, because they're subject to sanctions after the invasion of Ukraine, there are practical

difficulties and lots of legal restrictions on who and what you can trade with Russia, and, and, I think all I'm gonna say on the Russian market is that businesses should seek legal advice if they plan to, to continue trading with Russia. There are some products that are allowed for that, but they are few and far between. So, what we will do is we'll actually look at the Eurasian Customs Union, of which Russia is one part of those, but includes Republic of Armenia, Belarus, Kazakhstan, the Kyrgyz Republic, and, as well as the Russian federation. They have a common framework for conformity assessment. Now, this is very much based on the CEEU model, and in fact many years ago the EU provided a lot of advice and consultancy for, for Russia, to enable it to introduce this conformity assessment regime, that largely mirrors CE marking, but it doesn't mean that you can-, your CE mark will automatically allow you to sell into the, a Eurasian customs union country, because there is this EAC mark, which is their local mark, equivalent to the CE mark, but it does allow a lot of commonality.

So, the technical requirements are so similar, you'll be able to use the same evidence that you use for CE for EAC marking. So, they have technical regulations, these TR documents, they have one for low voltage equipment, one for EMC, one for machines, one for (mw 01.14.22). There's a whole variety of them that you-, that you need to do. The different rules will require you to provide different levels of evidence. However, all conformity assessment can only be done by local certification bodies based in one of the Eurasian custom union countries, and, but there is some commonality, there is some acceptance of some of these broader international schemes. So, let's look at that in a bit more detail. So, they're aligned with European directives. A series of documents is required for a certificate, and if you are CE marking your product then an EU declaration of conformity must be provided if it's the basis of meeting some of these technical requirements. So, there is some definite usage there. Specific things for these markets are that you need a local representative in each of the countries within the EAEC that you're going to sell, and that instructions, markings, and certification paperwork, should also be filed in Russian. I think if you're, again, if we're talking about other countries, other than Russia, that you might find that, that, that they'll want translation into, into their local language as well. Certainly for, for EAC marking, having some sort of quality system in place, and accredited ISO 9001 system, can simplify and accelerate any certification procedures that you're going through. So, if we look at electrical safety, for electrical safety it's based upon IEC standards. So, many, many, are aligned with the EN. Medical files, the EU has, like, as for CE marking. You must use accredited test labs for your test report to go in your technical file. You may need to send a sample or, more often than not, the test report and the technical file will be good enough.

Certainly an IEC CB scheme certificate will help you meet the technical evaluation requirements for the EAC mark, and then your declaration conformance will last for up to five years, but you do need to-, you still need to register what you've done, you provide your evidence pack, and then you get signed off for EAC. For EMC, EMC is linked in with, with electrical safety, so basically the same rules follow. So, EMC and safety are considered as being, you know, one and the same things. So, you compile the same technical file as you would for CE marking (audio cuts out 01.17.29) CB certificate and EMCE is compulsory alongside electrical safety, so they're, they're two sides of the same coin. For machinery, there's a dual conformity assessment route, as we have in the-, as we have in the EU, and for more dangerous machinery, third party certification is required, and by and large that would need to be carried by a certification body registered in one of the EAEC countries. If it's not the more dangerous type then

it's a technical file, and registration very much is the same for electrical equipment and for EMC and safety. So, the simplest case self certifies, and, and provides a registration in an EA country, and there are various lists, which you can see on the EAC website (audio cuts out 01.18.32) which are considered to be least dangerous products. So, the EAC, because it operates very similarly to CE marking, you can utilise a lot of your CE files to make EAC more of a paperwork exercise. Noting requirements for, for having accredited (audio cuts out 01.19.02) where testing is conducted (audio cuts out 01.19.06) plenty of support available with-, from agencies in the UK and overseas, on processing the paperwork for you, and they can also help with translations. This is one of those situations where third party compliance organisations are really useful in getting you into this market, in, in guiding you through some of the paperwork that you need to fill in, because this is a paperwork and tick box exercise for most products using your CE technical file.

So, under normalised trading conditions, there could be good opportunities for the selling into these markets. If we look at India, it's a size of market that makes it very attractive for sales. They have similar approaches to business as we do in the UK. English is widely used, so it does make a good opportunity. Those historical links between the two countries, can make it easy, easier, to sell into that market. It is a huge market, and if we remember the stats we looked earlier, it's the market that's gonna be growing fastest, even faster than China, over the next five years. So, plenty of opportunities, certainly (audio cuts out 01.20.29). They've worked, over the last twenty years, on aligning their compliance standards and processes with those of more established markets. Government departments are leading this, so their regulatory organisations coordinate those aspects. Most important of those, as far as product certification goes, is the Bureau of Indian Standards, who are not only standards writers, but they're also responsible for quality regulation markings and certification (audio cuts out 01.21.03) within the-, within India. If we look at safety compliance from India first, the Bureau of Indian Standards Act has requirements for safety certification, so mandatory certification, for (audio cuts out 01.21.24) equipment (audio cuts out 01.21.28). So, mandatory third party certification for electrical appliances, including irons, room heaters, immersion heaters, stoves, cable, water heaters. A list, actually, that you'll find will be quite common for third party certification, because they're dangerous within people's homes. You get a lot of fires and electrocutions due to these. So, it's quite common for this group of products to be the ones where third party certification is required. But, even when third party certification is required, frequently there's a requirement to have your testing conducted in country.

So, for example, information technology equipment, to import it you need a safety testing certificate, and in general that would have to be a certificate from a body present in India. This has placed the Bureau of Indian Standards in conflict with the CB scheme, because they are members of the CB scheme, but don't recognise the test reports and certificates that the CB scheme produced. So, unfortunately, this is evidence of where regulation is being used for protectionism, and it's being carefully monitored by the CB scheme, and others. I know the UK government are very keen to work on a free trade deal with India, but this aspect of not recognising testing and certification conducted in the UK could be a stumbling block to that. So, it's a good example of regulation being used to protect (audio cuts out 01.23.10) domestic industry, to prevent imports, and it's not a balanced approach. This is a protectionist approach. Where you do need certification in India, these are the certification marks. You increasingly will see these on product.

However, when you do apply for certification in India, there's a lot of paperwork. Application forms, test flow charts, factory layouts, machinery forms, details of staff, outgoing inspections, management composition, production processes, authorised representative in country, raw material components, critical components lists, label lists, very, very bureaucratic. So, even with the CB certificate, you have to provide a lot of additional information (audio cuts out 01.24.04). EMC and radio in India, no regulation on EMC compliance, but there is a voluntary EMC compliance certifications team (ph 01.24.18) to help Indian manufacturers meet various requirements. These are largely based upon IEC, EMC, standards, fortunately. So, as these regulations develop, technically we would expect the requirements to be the same. Whether we end up with a protectionist route, in terms of local testing, is yet to be seen.

For radio equipment, there's a mandatory Indian WPC approval that's needed, but they will, surprisingly, accept the credited EU radio reports with indefinite validity on those certificates. So, for radio equipment, actually, getting into India is, is, is relatively straightforward, providing your testing has come from (audio cuts out 01.25.04). You will also need local representative (audio cuts out 01.25.08). For machinery safety, the department of heavy industry is responsible for technical regulations here, and they're developing new regulations, but they're looking very closely at the framework we use for the EU machinery directive machinery regulations, as it develops its own regulations. In the meantime, the Bureau of Indian Standards are specifying a list of ISO standards that have been-, are going to be adopted as Indian standards, to help people have a measure of requirement for, for India. So, at the moment, no regulation, although customers buying your products may want to see some level of compliance with international IEC or ISO standards, but because of the way in which it's-, the Indian government are looking at CE marking, you may find the machinery directive compliance pack will help you in this market, for machinery. So, another one of these situations where, with a bit of close inspection, you can use your CE files to your advantage, certainly with machinery, but be prepared for local retesting (audio cuts out 01.26.24), because (audio cuts out 01.26.26) the approach the government are currently taking in, in India, (audio cuts out 01.26.32). Okay, we're just coming up to eleven o'clock. We need to cover China and South Africa, as part of this presentation (audio cuts out 01.26.53). So, what I'm going to propose, Barry, is that we break at this point, 'cause we're at, at an appropriate point.

Moderator: Yes.

Simon Barrowcliff: Just for fifteen minutes, give everybody a comfort break, as we've been going for an hour and a half, and return at 11:15, if that's alright?

Moderator: Yeah, 11:15 sounds great. I'll come on a couple of minutes beforehand, just to give everyone a few minutes heads up, but yeah, we're, we're bang on target, and this seems like a, a natural point to break. So, thanks very much, Simon, and we'll see everyone back here at 11:15.

Simon Barrowcliff: Okay, see you then.

Moderator: Folks, it has just gone quarter past. You've hopefully all had a coffee during the break, and Simon as well. Did you get a chance to, to rest your voice and get ready for the second half?

Simon Barrowcliff: Yes, all ready here (ph 01.27.50), ready to go.

Moderator: Excellent, well that should be you with control again and, as usual, you just click on the-, click on the screen, but I'll hand over back to you now.

Simon Barrowcliff: Right. We're going to pick up with the fourth country in the BRICS group, which is China. Now, China, huge potential market, as we all know, still with a, an, an expanding economy. So, a very interesting place, lots of opportunities there, although I think it's fair to say that trading in China has been difficult since Covid. Some of the established routes that worked previously perhaps don't work as well now. So, it, it requires thought, before going into this market, but, again, huge opportunities for selling a range of products. I think it's worth noting as well that not all Chinese standards are fully aligned with ISO or IEC, although there is-, they're very active in, in, in both circles. So, many of the standards, particularly technical, will be closely aligned with ISO or IEC standards, but not necessarily to the latest editions that perhaps we would use in the EU. So, it's important to check laws and regulations that apply to your business. You'll certainly need local representation in China to be able to operate, both legally and effectively. So, let's have a look at some of the requirements. So, there is an established regulatory regime, which is triple C marking. This is quite a common mark on all sorts, types of products, and there are perhaps, at last count, 22 categories of more than 160 products that are subject for triple C marking. Implemented by two government bodies, AQSIQ, which is responsible for, sort of, customs, and, and the quality of the product, and then CNCA, which is the accreditation body responsible for the quality of the testing (audio cuts out 01.30.11). So, for electrical equipment, the list of products required in triple C, quite a long-, a long list. Not exhaustive, but electrical wire, switches for circuits, electrical apparatus, small motors, tools, welding machines, domestic appliances, AV apparatus, information technology equipment, lighting, telecoms equipment, all require triple C marking, but this isn't an exhaustive list, so other products may require it as well. And there are, for example, quite detailed regimes for medical equipment, and also for equipment to be used in potentially explosive atmospheres.

So, for mechanical equipment, again, triple C rules apply. Originally, triple C was supposed to be a safety mark, but it's been expanded to cover non-safety items. So, alloy wheels for cars is a good example. So, the list we have here, motor vehicles, safety parts, tyres, safety glasses, latex products, medical devices, fire fighting products, security protection, decoration products, agricultural toys, oil and gas machinery. So, a long list of equipment that needs triple C. So, it's a very well established routine, it's a very, very well understood, very effective, and enforced, set of regulations. So, what is triple C? Right, well it's an application acceptance of that application. So, you apply to a CCC issuing body, and they will process that application. If any testing is required, they will arrange that, but they will also accept IEC CB scheme, and IECEx certificates, where there is commonality between the Chinese standard and the IEC standard, of which we said there's quite a lot. So, that's a really good thing, and the Chinese are very

active in all of the, the sectors for-, within the IEC conformity assessment scheme we looked at earlier. So, a good opportunity to utilise the scheme to simplify things like having testing done in China. There's factory inspection to make sure that the products that you make conform with the requirements for, for China, on an ongoing basis, depending on the length of the certificate. So, that factory inspection, it used to be conducted by Chinese inspectors. These days they have local representatives across Europe who'd be able to do that for you, so that's very helpful. Once the factory inspection is complete, you get certification by triple C, and then this ongoing surveillance of production. So, a very tried and tested procedure when it comes to electrical equipment and for machinery. For radio products, a different regime. They only accept local testing, and you have to send a minimum of signed (ph 01.33.31) samples.

There's a different agency, the SRRC, where you have to register with them before you can have any testing on it. There's a fast track service available, and they issue certificates that run for five years. Radio compliance in China, that certification generally needs third party support to help you get through, through the process. In terms of China, the application will include much of the documentation prepared for CE and (mw 01.34.12), particularly where you, you're based upon ISO or IEC standards. CB certificates are really useful in circumventing the need for local testing of electrical equipment, and if you have ISO 9001, or are already triple C inspected in your production process, that's a great help in speeding up acceptance into the Chinese market. But with China, understanding the market and business culture is really important. Government control still affects many areas of the economy, and you may need specialist help, legal advice, and marketing. The legal process can be expensive, but it's worthwhile getting your, sort of, house (ph 01.35.02) in order before you-, before you embark on this market. Once you get it right, there's lots of opportunities, lots of commercial partnerships that can be entered into, which will help in this quite potentially very lucrative market. And that brings us to the, the last of our, sort of, traditional BRICS countries, South Africa. South Africa is a very promising market. The Department of Trade described it as sophisticated and promising. Obviously we have historical links, a good use of English, which makes it easier. It is also one of the key countries in Africa, and certainly in Sub-Saharan Africa, is one of the leading-, the leading nations, and it's, in terms of non oil rich nations as well, it certainly stands out. The South African government in 2022 projected economic growth of 2.1% ongoing. However, the South African economy struggled to return to pre-pandemic levels, and whilst it says here growth is expected to average 1.5% over the next three years, that latest set of statistics we looked at earlier shows they're not going to reach 1.4% for at least another four years.

So, it's a, certainly a market that's emerging and has got lots of potential, but isn't growing as quickly as perhaps some of the other BRICS countries. So, if we look at electric safety, there's rules dating back 2008, which sets out the requirements for electrical safety and the electrical safety of products for sale, and for use in, in South Africa. Any product that's regulated under the electrical safety regime requires a letter of authority from the South African body, NCRS, which determines what's accepted in the market or not. Test reports in support of electrical safety don't need to be conducted in South Africa, but they do need to be accredited by an ILAC accredited body, or be a CB scheme member. So, ILAC UKAS report, or a CB certificate. Once again, that CB certificate proving very useful, 'cause it can cover South African national deviations as well, is a requirement for, for that market. So, for EMC, a range of consumer

electronic products now require certificates of compliance for EMC. So, sound and television receivers, household appliance, electric tools, computing systems, home alarm systems, are requiring some form of evidence of, of EMC compliance, before you can sell in the market. The rules state that all of these devices do not have radio frequency modules in them, require EMC certificates recognised by the South African Bureau of Standards. So, therefore, you should be able to use UK accredited test reports, as you would for electrical safety, to meet this requirement. So, it's about, again, getting your testing done, getting it done by accredited laboratories, and then being able to, to send that off to SABS for (audio cuts out 01.39.15). For machinery safety, South African has general machinery regulations, and these are to ensure machinery is suitable for use, and doesn't expose users or people around the machines to risks. So, again, general requirements about guarding, rather than specific. So, nothing that would be unfamiliar to use from a CE viewpoint.

Many of the ISO standards that we use for machinery safety, for CE marking, have been adopted, and hence the regulation will look very similar to CE marking, machinery (audio cuts out 01.40.04). For radio equipment, type approval is required. ICASA accept test reports, and ICASA, again, another South African government body covering communications. Again, they're looking for testing from an accredited test facility. So, all radio products for South Africa must be marked with an ICASA label, but be aware, ICASA can be a slow process. It's a-, it's a very variable experience, as it's a very variable thing. Sometimes it can be a few weeks, sometimes it can be a few months. It just depends on which route it goes once it gets into ICASA (audio cuts out 01.40.48). Use of local representatives to help drive it through the ICASA bureaucracy is beneficial here. Once again, because of similarity with CE, you can use a lot of your CE requirements and CE files to help meet your South African requirements. I think the main difference here is the requirement for (audio cuts out 01.41.20). So, when you're planning your CE marking, if you're-, when you're looking at your programme of testing, then actually if you're thinking about markets like South Africa, having an accredited test report will, will give you advantages, and saves you going back again at a later date and paying to have it done twice. It still requires local testing and approval for (audio distorts 01.41.48) these areas. So, you know, be aware, it's not an open market into South Africa. There's a lot of registration and a lot of bureaucracy that needs to be done, but it's feasible, using the documentation that you've already compiled from, from your work on CE. So, if we have a look at some of the economics here. Again, it's pre Covid and the Ukraine war. All of the BRICS countries were predicted to have better growth than they were from-, than the UK, and the USA, and the EU.

Again, the, South Africa is the outlier here. Russia's market is picking up, but I think it's fair to say the highest growth opportunities are gonna be in India and China. Although, again, looking at the data here, which was predicted for 2027, we are gonna be a long way off that in terms of Chinese growth. Chinese growth would be lucky if it gets to two thirds of that. Indian growth, again, it's been fairly consistent. So, I think, of all of the BRICS country markets, India seems to have the most stable growth prospects, with others perhaps struggling a little bit as they-, as they adapt to a post Covid marketplace. So, cautionary BRICS. The BRICS economies face their own political and structural problems and challenges. We've, highlighted, you know, specific differences in the different markets that we've looked at, at the moment, and of these, we said India's a very strong economy, but we've, we've also identified restricted practices, in terms of exporting into India. So, a growing economy, but not as open as some of the economies of the

other BRICS economies. So, because of the political and structural problems and challenges that these countries can have, you really are recommended to have expert help when entering these markets. Then-, sorry about that, I pressed the wrong button. Go back. Right. The regulation regimes in these countries can seem bureaucratic. Again, thinking (audio cuts out 01.44.50) to some extent, Russia and South Africa as well. So, you know, be prepared for lots of-, lots of paper pushing. I think local representatives really, here, at the key thing. Having people with knowledge of the local markets, who can deal with things in local time zones, certainly helps with this. And, you know, trade wars, actual wars, are a reminder that global politics is often as important as economics, when, when dealing with, with, with BRICS countries, and in, in a time of global tensions, you know, that's a factor to be taken into account when addressing these markets.

As we look at BRICS in its expanded form, particularly with the addition of UAE and Saudi Arabia, that could give a different impetus to some of these markets, and it will interesting to see how that develops, and how the, those newer entrants into BRICS, and what they are looking out of-, out of BRICS to provide to them, as countries. Is it an economic alliance, or is it political alliances that they're looking for? So, worth keeping your eye on this. So, that brings us the, to the end of the BRICS presentation. So, have we got any questions, Barry, or are we, sort of, working our way through these?

Moderator: Yeah. Yeah, no, someone's put a question, an interesting question. So, Simon, you've mentioned that, in some markets, you require a representative in the country.

Simon Barrowcliff: Yeah.

Moderator: Do they have to hold a copy of the technical file in the country as, as the EU would require?

Simon Barrowcliff: I think it's a bit-, it, it, it's, it's a good question, I think it varies from country to country. They're the ones listed as being responsible for the product in those-, in that country, the same way as authorised representatives are in the EU. So, whether there's a legal requirement to hold the file or not, that individual or organisation's gonna have to be fairly confident that they're going to be able to produce whatever documentation is required on demand. So, it, it, it may be that you don't need to actually provide the documentation at the time that you appoint them as a representative but they will have a right to, to, to, to access the files, should they be asked for it. I think you'd have to look at the individual, individual rules for that, I don't think it's universal, like with, with CE, where you-, you're supposed to have access to the file. It's probably something along the lines of, 'Should be able to obtain the file within a reasonable period of time,' rather than actually hold it directly themselves, I'm thinking about intellectual property rights and such like, think that's probably-, would be the best approach but generally, I would-, I would advise people to check on the-, on, on the specific regulations for that but yeah, really, really important aspect for it.

Moderator: Super, great questions, thanks for submitting and we've a couple more question sessions as the, the rest of the morning goes on, so please do submit any questions, into the chat, that you have but I think, if you're okay, Simon, we'll move onto the next session? Just give us a sec while I bring up your slides for this part. There we go.

Simon Barrowcliff: Yeah.

Moderator: Thank you, Jordan and as usual, Simon, just click on the screen and that should be you back in control, so over to you.

Simon Barrowcliff: Lovely, right. Thank you, Barry. Okay, we're gonna have a look at another trading group and again, this is a-, what have-, what have MINT, Middle East and Australia got in-, (audio distorts 01.48.51) Australia got in common? Nothing really. They're, they're-, it's just a convenient way of grouping them into the-, into the slide deck, so, sorta, broken my own rule on this but don't try and draw too many conclusions on the commonalities here because it's-, it-, it's just a, a, a, a slide pack of convenience. So, let's start with the MINT, these frontier markers, we just looked at BRICS, emerging markets and the opportunities there and the, the-, this term MINT, because people love acronyms in economics, is Mexico, Indonesia, Nigeria and Türkiye. So, these are very much a different set of countries, I don't think there's any formal links between them, in, in the sense of being a MINT group, unlike BRICS, which is a-, which is a proper group but it's a way of looking at, what we're referring to as, frontier markets, so emerging economies that-, where there's potential, perhaps smaller potential, than the BRICS countries. So, the MINT or MINT countries, it's the economies of Mexico, Indonesia, Nigeria and Türkiye, they've got potential for rapid economic growth but perhaps, you know, struggle for other reasons, that makes them, you know, less attractive than, say, the BRICS countries. So, political instability, unpredictable economics, corruption can be reasons why these economies haven't grown or haven't come to attention as quickly as-, as high as they, they should be.

However, you know, with-, they're all, all getting there, all got potential and certainly, if you're looking for opportunities, then these markets are, are good ones to, to work into. So, we'll, we'll quickly whizz through them. So, let's start off with Mexico, now Mexico used to be part of the North American free trade agreement, I think it still is, so still has agreements with the US and Canada for, for, for trade. Mexico is part of North America, as are the, the Caribbean countries, rather than Central or South America and it is a huge manufacturing base. An awful lot of product destined for the US and Canada is manufactured in Mexico because of cheaper labour rates on there and that makes it a potentially good growth market, it's the 42nd largest export market, it's only half a percent of total exports but the government have identified Mexico as one of those countries it'd worth having greater agreements with 'cause there are opportunities for greater sales there. We did have a free trade agreement or continuity agreement post leaving the EU and we're now developing a more in-depth agreement with Mexico, that's currently being negotiated. So, if we look at electrical safety from Mexico, NOM, normality in Mexico, is the regulatory approval safety mark for Mexico, similar rules to OSHA in terms of what you need to do

and in terms of process but, but, but, but not the same thing. So, different product categories are subject to NOM standards and one of the issues with it is identifying which standards require NOM approval and, and which don't. If you need to apply a NOM standard and don't, then that's where you, you infringe the market rules.

So, NOM certification ends up with a mark on the products, you will have seen the certification mark and it comes with, with certificates, those certificates can only be issued to Mexican-registered companies. So, we had that question before about local representatives, well, in Mexico, not only is your local representative there in case of an issue, they are actually the holder of the certificate. So, they would meet to make the application on your behalf and they would hold the certificate, so, in that case, a lot of documentation's gonna have to pass through that representative. In-country testing for NOM approval is often required, once again, CB, IECEX certification is available to, to, to, to, you know, to shortcut round those routes from there. A lot of NOM standards are based upon ISOs and IECs and whilst the regulations are very (audio cuts out 01.54.12) bespoke to, to Mexico, compliance with standards, a lot of those standards are IEC and ISO-based, which makes it an easier market to, to progress (audio cuts out 01.54.24). For mechanical safety, there is again a, a, a federal regulation on occupational safety (audio distorts 01.54.37) and, and it's similar to OSHA, the HSE but it says that machines shall comply with related standards and that machines, movable parts and safeguarding shall be inspected regularly, maintained and repaired properly, so, again, very similar to the regulations we'd have in the-, in, in the EU. And then there's a NOM document, which is a regulation, that defines the requirements, protection systems and safety devices of machinery, which, overall, gives you a regime that's very, very similar to what we'd find in the-, in the EU.

So, using (ph 01.55.20) of standards for specific safety-critical parts, there's a requirement for risk assessment on machinery, to identify the hazards and hence, links them to suitable, approved parts for, for components. Lots of regulations for guards and safety features, again, exactly the same as we get in, in, in, in the EU and then a detailed regulation, so what you need to put in safety instructions and what marking you need to put on equipment. So, this is a combination of using these NOM regulations, that NOM-004 document, alongside supporting ISO standards to demonstrate compliance, so very, very similar to what we would do to the machinery directive in principle but not the same requirements, so you do need to work through them. EMC and radio for Mexico, EMC standards are applied for domestic appliances, with requirements for both emissions and immunity, like the EU, mission standards or adoptions of IEC CISPR standards, the same for immunity. So, we're looking at, at, at, at, at, at standards that, that, that are very familiar for those we would've used for our EMC requirements. Radio equipment, there's-, very specific rules apply. They're all radio products that have Wi-Fi, Bluetooth and wireless-, and wireless telephones and therefore, telecommunications devices, there is in-country testing as a mandatory (audio cuts out 01.56.51). So, opportunities for Mexico, some similarity with what we're doing for CE. Use, again, of CB schemes, certificates and reports, accredited test reports for EMC and radio. So, let's move onto another one of the, the MINT countries, this time, Indonesia. Indonesia, 275 million people, the largest Southeast Asian nation and really important that the potential market (audio cuts out 01.57.37) for us.

1.6 billion total exports during Q2 of 2024, they're the 57th largest export market but with a population of that size, it's got to be a potential future growth market for, for us in the-, in the UK. Now, electrical safety for Indonesia, they have (ph 01.58.09) what they call, the SNI and it's a mandatory certification for electrical safety. According to UL, they have a route for providing this, to undergo testing, inspection and certification in Indonesia, through a third-party CAB (ph 01.58.29) accredited by the National Accredited Body of Indonesia. So, it's one of those markets where it's still very, very regulated and that you have to put the SNI mark on it for it to be-, to be sold anywhere in the Republic of Indonesia. Indonesia are in the CB scheme but they have a very limited scope and there's ongoing discussions with CB about trying to open up the market, so that you can have your testing done locally and use a CB certificate but it's not the case at the moment. So, this market, attractive but not as easy to get into, unless you're actually going to have testing done in Indonesia. So, for EMC testing, it's usually to the same, sort of, CISPR standards or EN-, on what-, on which our EN standards are based. Mandatory for many products for that market and particular those with telecoms or wireless applications. So, be prepared for, for the, the testing for that as well and note that the safety testing, there will be factory inspection for the SNI mark, as well as a type test, so quite a complicated regime. So, there'll certainly be registration with the Ministry of Industry, so it depends on the, the category of product but certain categories will require that registration as well as, as compliance with SNI requirements.

When importing Indonesia, if-, you know, evidence supporting the SNI mark, so even if you've got the mark, you may need to still be asked to provide evidence of the test reports and certification that you used to get that mark in the first place. So, for machinery safety, there are government regulations, very, very similar in terms of the risk assessments and safety measures that we would see elsewhere in the world and, and we've noticed, so far, there's a lot of commonality on the machinery safety side, even if the rules and regulations are different, the way of achieving it is different, it's the same risk-based approach to machinery safety, which is-, which is really, really good. So, manufacturers for the-, need to meet those similar requirements. So, if you're a-, an employer, then you are obliged to conduct a risk assessment before machineries are put into, into place. That risk assessment will identify what hazards there are and then, therefore, people installing machinery in Indonesia will be asking for machines which have measures to mitigate those requirements. Quite often, compliance with SNI standards is required and, and, and also product certification of the parts that go into them. Other aspects of machinery safety which will filter through to the design of the product is to do with training, which impacts what you put in your instruction set, your instruction sets need to be clear enough to allow suitable training for operators.

You would need suitable guarding and preventative methods and suitable emergency stop systems, all of which is, is very familiar, from a CE perspective. So, I think, once again, for machinery, using your CE files to carry forward but just recognising that Indonesia's a highly-regulated market and therefore, you would need local approvals for many of the parts and the final equipment before you could sell it to them. So, let's move onto Nigeria. Now, Nigeria, all-producing nation, one of the top African economies and predicted to be in the top 20 global economies by 2035. Widely-spoken English and similar business and legal practices, they are the 36th largest export nation but plenty of opportunities there and there's a lot of

talk, in government circles, about, again, increasing the amount of exporting to, to Nigeria. So, for electrical safety, the Standards Organisation of Nigeria plays a key role. INC (ph 02.03.36) requires that certain products, including electrotechnical items, so our standard domestic appliances (audio distorts 02.03.42) undergo conformity assessment before import and you must have a SONCAP certificate of conformity to be presented at the point of input. This means product testing (audio distorts 02.04.01), again, accredited laboratories, against either Nigerian standards or related into national standards, Nigeria are very active in IEC and ISO, so again, the standards we use for the EU, with necessary deviations, will, will be useful there and the certificate conformity allows you to clear customs once you import into the country.

You'll also need to demonstrate that you have some form of quality management system that ensures that all of the products are-, do conform to type. So, again, ISO 9001 or something like that would be useful there. When applying for SONCAP certificate of conformity, you will be expected to provide your test reports, factory assessment reports or witness testimony reports, CB or UCAS, in order to obtain that certificate to import into the country. So, last of the MINT countries is also, possibly, one of the easiest, strong commercial ties, good growth within-, in Europe, more so than, than many European countries and we're working, as the UK, on a trade deal with Türkiye. £9.5 billion total exports at the end of Q2 of this year, which is good, making them the 17th largest UK export market, you know, 1.5% of total exports, so a growing market for exporting to, so an interesting market and more interesting because it-, it's relatively easy. Compliance for Türkiye, Türkiye is an applicant member of the EU, has been an applicant member for many, many years but has never crossed into becoming a full member but what that means is that they have, for probably a decade now, adopted all CE regulations into Turkish law. So, CE marking is, is acceptable within Türkiye, so you can use-, your EU files that you use for the EU 27 and the UK now, will also be good for, for Türkiye as well. So, in terms of compliance, an easy market to get into and not that far away, so probably one of those countries worth giving some attention to 'cause it's certainly the easiest of the MINT countries to, to gain access to.

I suppose the, the importer's responsibilities, the importer has responsibility for meeting the regulations and they may need to provide documentation demonstrating conformity but that could just be the declaration of conformity and as we said earlier, do they need access to a file? They would need access to it if required, so-, but they don't need to, to, to actually hold it. Turkish (ph 02.07.23) authorities (ph 02.07.23) do conduct market surveillance to ensure that, that products are-, do continue to be conforming. So, let's have a look at the next grouping, as I said, not related at all to-, in particular, to, to MINT, although you could argue that it's next door to, to Middle East but I think that's a bit of a-, bit of a cheat on my behalf. So, looking at this group separately, the Middle East, some of these countries may not be considered to be ideal (ph 02.08.10) trading partners, particularly those where there's ongoing wars or regimes that, you know, we, we, we don't have good relationships with, with the UK. However, you know, the region also includes some extremely wealthy markets, particularly the Gulf region, you know, Saudi Arabia, UAE and Qatar, good opportunities there for us to, to sell and previously, I would've said Israel, as well, is a good market. Again, more difficult at the moment but Israel is a-, is, is a, a highly-developed country with lots of opportunities there, for those who feel able to trade there. So, if we look at the, the Gulf states, the Gulf states have something called the Gulf mark or the G or GCC mark for, for

products sold in the GCC member states.

So, the UAE, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait all have an agreement on regulations and common (ph 02.09.26) regulations within their-, within their markets and all the G-mark does is make sure that products conform to a set of common technical regulations and standards and must display the GCC mark and you'll see the GCC mark quite often on, on common product, lot of toys have it on, for example. Regulations don't apply to medical equipment or oil and gas equipment but there are separate regimes that are available for those, those specific markets, for individual countries and it's been a slow-burn in getting the GCC mark going, it's been around, probably, for about eight years but it's beginning to pick up in importance, so you will find much greater use of it. So, if we look at the regulations, a bit like EEC (ph 02.10.25), the GCC took advice from the EU and have modelled their regulations, quite extensively, on the EU's directives. So, for their electrical safety, their regulations are based, very heavily, on the low voltage directive, so the same ranges, the difference is that they have a, a differentiated risk grouping, so they have a list one, which is equipment which is self-declared to meet the Gulf technical regulation, that displays the G-mark and then they have a list two, which is higher risk equipment, which requires third-party certification by a GCC-notified body. Now, a GCC-notified body is not the same as an EU-notified body, again, unfortunate choice of common names, so you can have a, a notified body for the GCC countries but they are not the same things, necessarily, as those for the EU.

So, of these two lists-, are supposed to exist, however, there is no list one but there is a list two, for certain products, if we look on the slide. So, the assumption is-, being-, is that anything that's not on list two is a list one product, so you can self-declare using the self-declared route of the GCC system, I said, which is similar, not entirely the same but similar to CE marking, unless your product is on list two. List two equipment, again, a common, you know, theme in this, domestic electrical fans, refrigerators, clothes dryers, food grinders and mixers, toasters, hairdressing apparatus, electric heating apparatus, microwave ovens, cooking appliances, water storage, smoothing irons, plug sockets, adaptors, air conditioners, all what you'd consider to be high-risk equipment in any, sort of, consumer marketplace. So, for other than those equipment, you are very much following CE rules and using the same test reporting and documentation for that. For radio certification, all have different regulators, so there is no commonality for that but you would-, but they will accept EU-accredited reports, so UCAS-accredited reports would be acceptable as part of your application. Most don't need a local representative, which is good but the UAE will ask for a sample and, noted here, it's a non-returnable sample as well.

So, in terms of the Middle East, some of those economies face political problems, huge wealth and a move away from oil dependency, which means there's opportunities there, can be bureaucratic and there may not be as much cooperation between one country and the next as the rules imply there should be. But I think, for a lot of products, where there's a-, where it's based upon CE marking, as it is for most EMC and most safety, I think the opportunities for exporting to this market, it's worth considering these markets and making sure you take account of any local deviations or rules when you're CE-marking work conducted (ph 02.14.31). Right, the last of this group, definitely not geographically close, Australia and

New Zealand. Looking, first, at Australia, common language, very, very similar business and legal practices, we have a comprehensive free trade agreement with Australia, its major disadvantage is, whilst it's 20 million people, it's also a very, very long way away to get to but offset by some of the advantages, in terms of those common brief (ph 02.15.12) business and legal practices. New Zealand, much smaller population, probably nearer to 4.5 million, 5 million but again, it has the same, sort of, common business practices than us (ph 02.15.29), once again there's a free trade agreement (audio distorts 02.15.32) with New Zealand. So, quite often, when people are exporting to, to Australia, they'll export to Australia and New Zealand (audio distorts 02.15.43) your goods that far, getting it across the Tasman Sea is a relatively small, small leap.

Unfortunately, I mean, New Zealand's a-, is a small economy but then for conformity assessment purposes, they have a lot of-, share a lot of commonality with Australia, a bit like the Canada and the US though, it's common, sort of, principles but not necessarily the same rules. So, it's-, and also, like Canada and the US, don't confuse an Australian with a-, with a-, with a Kiwi, they can take offence at that. So, Australia and New Zealand, they have a common regulatory regime for EMC, safety and radio requirements, again, similar to what we would recognise from a CE viewpoint and they have something called the RCM mark, which is this mark in the middle here, which replaces a, a number of previous marks and brings them all into one, one shape. So, the RCM mark covers EMC, radio and safety, it differentiates products between a level one or two or three electrical equipment, which has to be offered (ph 02.16.54) sale by registered, responsible suppliers. So, the-, effectively, the retailer or distributor within Australia/New Zealand has the responsibility for compliance of the product and the level of compliance depends upon the degree of risk associated with it and there's a joint Australia/New Zealand standard, AS/NZS 4417.1, which tells you all about the mark and how you apply it, so, like the CE mark, there's rules for size, placement, visibility, etc. So, authorisation to use the RCM mark will only be issued to an Australian or New Zealand based company, so-, hence there's-, they have to-, you, you need some form of authorised representative available to you and there's a supplier database that identifies that person.

So, again, a, a different regime to-, we have in the EU, the person who's marketing or selling the product, who's taking that responsibility, has to be registered on a database and, as I said, for EMC and safety, they use this three-level risk assessment. So, if we look at safety level one, this is the lowest-risk equipment. All your (ph 02.18.20) requirement is the responsible supplier, so that's the person registered in Australia and New Zealand as being responsible for the product, must keep documentary evidence, in English, that the items meet the relevant standards at the time they were manufacturing (inaudible 02.18.34) and then they, effectively, self-declare them to be safe or otherwise compliant. (audio distorts 02.18.41) they must either keep the documentation or must have access to it with ten days. So, if we are in Australian context, you don't need to have the file in Australia for a level one product, or New Zealand but you must-, the, the person must have the ability to get hold of that documentation if required to (audio cuts out 02.18.59) have a requirement to, to have access for five years after (audio distorts 02.19.05) manufactured product or the last time the product was imported. And level products are-, again, their default situation is self-declaration for any electrical item not falling into the list of level one or level two products and the marking is basically the RCM mark and the brand name and the product and that's all that you're required

to do.

So, level two products, which is the net (ph 02.19.37) level, these are medium-risk products and same thing, they're required to keep a compliance folder, which must be available within ten days or, optionally, can be uploaded to a national database and the compliance folder records evidence that the equipment meets the relevant standards. So, there's specific requirements for this, the file must be in English, include a description of the equipment and have all the compliance test reports completed by an approved testing entity or a suitable, qualified person and a declaration that the item is safe. So, an approved testing entity would be, because of the agreements between Australia and New Zealand, a UCAS-accredited test lab that's been assessed for compliance for those countries. So, annually, UCAS assess our comp (ph 02.20.30) capabilities element to issue test reports to Australia and New Zealand standards. Marking requirements, again, RCM mark accompanied by the name and the, the, the model. So, high-risk equipment requires a third-party certificate of approval, so-, but it doesn't require that that certificate be issued to the local representative, it can, in fact, be issued to the, the manufacturer outside of Australia and New Zealand but must be available, the same as before, to the appointed representative in the country.

These category three or level three products are known as declared articles and you can get at those declared articles that there's a standard called AS/NZS 4417.2 and that lists about 50 products that are considered to be level three and that list includes household appliances and domestic appliances, plugs and sockets, TV sets, power tools and garden equipment, so (audio distorts 02.21.50) common product. So, if you are selling into Australia/New Zealand, then, really, that list of-, is, is really important to check if you're selling into, particularly, that consumer marketplace. So, for all equipment for electrical safety, the supplier is held responsible for ensuring they-, that, that they're, they're, they're safe and assurance, for all levels, would be achieved by having an independent (audio distorts 02.22.31) issue a test report for that. Whilst that's only required, from a mandatory viewpoint, for level three, for level two and level one, you know, it, it, it, it forms part of that level two documentation pack and gives you confidence, for level one product, that you are-, that you have the means to declare compliance. And because you're going to be doing this, compiling a file, for CE mark and DLDD (ph 02.22.54), for levels one and two, you should already have that information (audio distorts 02.23.00) level three, you just need to make sure that any testing you had carried out covered the Australia/New Zealand requirements, so that it would fit into that pile and enable you to apply for that third-party certification. So, the CB scheme, really useful for that, if you get a CB certificate for your electrical safety, then that will help you when you apply for a level three. EMC, very similar to CE marking, or then noting there is no immunity requirement. It's admissions only. Some exclusions, so equipment sold directly to end-users, military equipment, spare parts, etc, but otherwise EMC is mandatory. So, fundamentally the same rules as we would apply in the CE. The main difference is that the importer must register with the Australian Communications and Media Authority to use the RCM mark. So, again, registration scheme just so we don't have the CE mark. EMC levels for Australia and New Zealand, again, they use this grading system. Level 1 products are EMC benign. Hence can be sold without the RCM mark, but an RC, or an Australian declaration of conformity, not the same as an EU declaration of conformity, but effectively you declare the product to be benign.

So, Level 2 products are medium risk, like for safety, must carry the RCM mark. It can be based on manufactures testing your design. Detailed (ph 02.24.35) in test reports within TCF and on the declaration of conformity. So, once again, you're looking at very similar to CE marking. Level 3 are what they call higher risk from an EMC perspective, supported by accredited third party testing within the technical file. So, a higher level of conformity, but basically, if you have your testing done through EMC at an accredited laboratory it will carry for both Level 2 and Level 3, and obviously Level 1. Level 3 includes industrial, scientific, and medical products, and information technology equipment. So, if you are selling into those high tech markets then you will need an accredited third party testing that covers Australia and New Zealand requirements for you to be able to sell. For radio testing, again, your declaration of conformity will cover most New Zealand and Australia, because they have common harmonised frequencies, which is good, in most areas. Where there isn't harmonised frequency then you have to issue a separate document for each country, which I think is fairly, fairly obvious way of doing things. But otherwise, the RCM mark's the same. It's the same mark regardless of the product.

So, like a CE, for radio EMC or safety (ph 02.26.08), it's one mark, and then your declaration of conformity details what that mark applies to, and how you comply with that. So, who your approved supplier is, etc. For machinery, Australia has implemented new work health and safety legislation, which applies across all of Australia. A lot of common elements to, to the Machinery Directive. However, there's no presumption of conformity that compliance with Australian standards means compliance with the law. So, standards in Australia are, are deemed to be expert opinion, or state of the art knowledge in Australian court. And that's actually not-, it's not far from where we are in-, from the EU really. You know, standards are only-, give you a presumption of conformity providing you've applied them properly, and within their scope. And so the, the difference in Australia is, is, is slightly-, is slightly different, but more or less the same.

So, in summary, the EMC in safety is mandatory with varying levels depending on risk. Most of the standards for electrical and mechanical safety are based on ISO IEC (mw 02.27.39) for standards, and (mw 02.27.40) files are useful for that. Higher risk electrical equipment must be third party certified prior to sale. The RCM mark applies to most, most electrical equipment. Okay, that brings us to the end of that particular section. If you have any questions-,

Moderator: Thanks very much. Simon is just having a look. No, I can't see any questions submitted for this on. So, we again, we do have time towards the end if anyone does have any burning questions they can pop into the chat, okay. In the meantime, we'll just get the next set of slides up as well. So, let me just get that done. Hopefully, you're seeing that now. And again, just the usual, if you wanna just click on the screen, Simon, that should give you control. Thanks, Jordan, for doing that. And, yes, we do have-, we still have a question section scheduled for after this, and then we have a summary session with time for questions as well. So, still two more chances if you do have any questions. Just pop them into the chat. But other than that, Simon will hand back to you, and

we can get going again.

Simon Barrowcliff: Okay, thank you. Right, so this, this is the, the last of the training groups. I'm going to cover Asia-Pacific, South America, and Africa. Again, a group-, a loose grouping for the purposes of presentation rather than having anything in-, we have covered some of these countries within these regions in individual presentations. So, these are really the, sort of, the other countries of, of importance that we haven't covered. Starting off with Japan. Japan, highly industrialised nation. Third largest economy in the world. We have a free trade agreement between the UK and Japan. So, lots of opportunities there. Lots of commonality in terms of standards as well. Japan's a very active participant in IEC and ISO. Active participants in the IEC conformity assessment schemes. So, in terms of technical compliance relatively easy to, to deal with. So, if we look at electrical safety, and mechanical safety, and EMC, they have specific regulations for power supplies. So, plug top power supplies, lump in the line power supplies, for all types of electrical equipment.

The Japanese regulations see that as being the, the, the, the, the nub of all electrical safety. And therefore, there's something called the PSC regulations which require third party testing, and certification for the product. Fortunately, PSC can be based upon an IEC CB certificate, but if you are making external power supplies for equipment, or supplying those into Japan, you need to make sure you meet the, the PSE requirements. RENC (02.30.55), again, very light touch on regulation. There's a voluntary certification scheme for EMC called BCCI. Based on testing, it's similar to SFRA standards. So, quite often you can have your VCCI certification done alongside your European EMC testing providing you tell your test lab at the time that you're doing it, without having to go through a completely different suite of tests. Machinery safety, very similar to the EU requirements, with the main requirements placed on plant operators rather than importers. So, I think a lot of these schemes, both in, in, in Asia, and the ones we've looked at where-, for machinery, the regulation is placed upon the, the, the employer, or the person operating them, rather than the importer of the machinery.

Safety in EMC, it tends to be on the importer, or the manufacturer. For machinery safety, it tends to be placed upon the, the, the plant operator at a minimum. There's something called geisha (ph 02.31.57) rules, which is for health and safety for machinery. For radio there's a very, very well established radio regime, and UK MRA. For all radio products third party certification is required. Radio testing routines are different to the EU or US. So, you can't just use your US testing, or your EU testing for Japan. You have to go through a specific set of requirements. Although, the documentation pack is similar to that you would need for, for EMC. The-, there are a number of bodies, including Element (ph 02.32.40), that can issue certification for radios, products for use in Japan. And there's also a similar regime for telecoms equipment as well, because there are telecoms requirements in terms of ability to communicate with the network to make emergency calls, etc. So, things like mobile phones, and such like, need a telecoms requirement, which is the same mark as we have here, but with a little T instead of the R in the process. Two different certifications. But that can be provided again outside of Japan.

So, I think it's noting with this that the-, it's a fairly open market for electrical safety in EMC. You need to have some evidence of compliance, generally, but limited third-party testing required, except the power supplies. Radio is all third-party testing, but you can have that testing done at specified laboratories outside of Japan. South Korea, or the Republic of Korea as it's referred to elsewhere, one of the largest economies in the world. We have a free trade agreement based upon our EU, EU agreement with Korea, and we're currently negotiating a more detailed agreement with Korea. It's a really dynamic economy, Korea, an active participant in IEC, ISO standards writing and IECE conformity assessment. So, a really important economy, lots of opportunity, because of the high growth in technology in Korea, for that particular, particular market.

Regulatory regime is, is very similar. Third-party testing for electrical products is specified by the Korean safety management system, under their Electrical Safety Control Act. Third-party approval very commonly required for electrical safety. Uses similar voltage limits to the EU, so, again, different perhaps to, to parts of Japan. And, again, CB certificates are accepted for electrical safety and for EMC compliance, so can be very useful in how you meet those requirements. So, the general regime, so, some similarities with Japan, but a slightly different approach to it. For mechanical safety, very similar to EU, UK requirements, and Japan, with the responsibility mainly placed upon plant operators, but for the most dangerous equipment, so a bit like the Annex 4 (ph 02.35.36) in the machinery directive, you need KC certification, and there are rules called kosher rules that are-, so, if you are making machinery that falls under the Annex 4 list for the machinery directive, that sort of levels of dangerousness, then you may need KC certification. It's worth checking before you're exporting machinery, to make sure that your product doesn't fall within the, the list of products requiring third-party certification. If it does, then you can still use a lot of your CE file as evidence to help get through that process.

For radio compliance, in-country testing currently required for radios at the moment, different radio testing routines to elsewhere, so they're, they're Korean-specific. So, different testing, but a similar documentation pack to what you provide for FCC. So, it's just really about arranging for the testing to be conducted by an appropriate body that's recognised by the Korean regime. So, for Southeast Asia, for electrical safety, they have something called the ASEAN Harmonised Electrical Equipment-, Electronic Equipment Regulation Regime for safety and EMC. It's a, sort of, very general agreement, but it's, it's not a common application. We've already looked, in Indonesia, in some detail, about-, and that's quite a regulated market for electrical safety. So, in addition to the, sort of, general principles that the ASEAN countries have agreed, there is existing third-party certification schemes in countries like Singapore, Malaya, and the Philippines, and Indonesia, some of whom will accept CB certificates, and, and some won't. So, there's a-, whilst ISO and IEC is widely adopted, there-, there's very little commonality between it, certainly on electrical safety.

For machinery safety, non-specific regulations, more to be developed in the future, but in the absence of local regulations, they're gonna look at your CE mark-, your CE mark, your technical file for machinery safety, as a way of demonstrating compliance, before you place it on the market, before anybody will buy

the machine from you. Radio regulations, we'll look at in a minute, are not harmonised, so you have to apply a different set of rules for each country that you go into. So, for example, in Thailand, Bluetooth and short-range products, you-, it's a self-declaration route, but as soon as you go into cellular product, you're requiring 17-, ISO 17025 accredited testing, and for satellite equipment or radio equipment, in-country testing is a mandatory requirement. For Vietnam, anything with an output power of under 60 milliwatts, so really low, short range doesn't require certification, but anything else does. In the Philippines, they don't allow modular approval, and the regulator insists that each end device is certified. So, if you stick a modular device, say, into a washing machine, to turn the washing machine into a radio or Wi-Fi or Bluetooth-connected washing machine, then you'd need to conduct testing on the end device, to prove compliance. And for Indonesia, in-country testing, as we've looked at, it's a-, it's quite a restrictive regime, in that sense.

South America, we already looked at Brazil, but if we look at Colombia, Ecuador, Chile, and Argentina, as separate entities, we can note that, again, South America struggles to-, with, with growth, it's a very uppy and downy region, and they've struggled post-COVID to find the, the growth they were seeing before. Little common trading practice between countries, which means you're really dealing with countries on an individual basis, but within those countries, you know, there's, there's very strong established conformity assessment regimes. We've already looked at the INMETRO regime in Brazil, but Argentina and Colombia have established product conformity regulations with third-party certification requirements, quite often of the safety, EMC, radio, and telecommunications. Largely based upon IEC and ISO standards, but it really is a case for those countries of dealing with each, each national regulation on, on a-, on a case-by-case basis. Radio compliance is no different, and a bit like the Southeast Asian countries, different rules, so for example, in Chile, Bluetooth products must have an output power of less than a watt. In Brazil, cellular technology requires various IP testing, and new requirement for 2006 with increased top-, types of-, type approval. In Colombia, whilst most don't need mandatory radio type approval, anything with cellular or voice (ph 02.41.19) capability certainly does. And, last in all, Ecuador, any equipment broadcasting with a-, with a power of more than 50 milliwatts requires in-country testing. So, I think, for South America, really, it's a case-by-case basis, as how you approach those markets.

So, Africa, again, noting here we've covered South Africa in BRICS and Nigeria in our MINT sessions, but if we look elsewhere, South Africa's got-, or Africa got a, a lot of opportunity. It is the region predicted for the greatest growth in the next twenty years, but at the moment, very little common trading practice between countries, which means your, your export is heavily dependent on local distributors. South Africa and Nigeria, we've already looked at. Kenya also has a very well established product conformity regulation regime, there, other countries do as well, so it's not just Kenya, but other regimes are quite tight. Again, if you look at the North African, Mediterranean countries, like Algeria, Libya, and Egypt, they, they, they have adapted regimes largely around oil and gas. There is a, a developed, kind of, common trading area, with common regulations, again, based on an EU model, but Africa is such a huge geographic area, with so many different countries at different stages of development, it's proving quite difficult to achieve. However, a lot of African countries are planning to join the IECE, IEC conformity assessments scheme for electrical safety and EMC, as a way of regulating products that are being imported in these countries and setting a minimum standard that can be applied.

Now, that was a very brief introduction to, to those regions, just to give you a, sort of, flavour of, of requirements there. So, hopefully that's, that's given some useful background. So, what I'll do now, we can-, if there are no questions specifically on that, I'll move onto the summary session, Barry, and then-,

Moderator: And then we can pick up anything towards the end, then?

Simon Barrowcliff: Yeah, that's it, yeah.

Moderator: Yeah, okay. Just give me two seconds, we'll get the next set of slides brought up. We've covered a lot of ground, as you say. So, hopefully you're seeing those now, and, yeah, just, whenever you're ready, Simon.

Simon Barrowcliff: Okay, right, yes. We've looked at all the major regions, US and Canada, BRICS, MINT, touched on some of the opportunities in Asia-Pacific, South America, and Africa. I think, as I said at the start, the-, it's, it's a very big world, for this, and as we draw, sort of-, sort of, conclusions on this, I think we need to go and think about some of those principles. No one is expecting all of these groups to be targets for specific manufacturers. I think you need to have a look at individual areas with commonality, so US and Canada, BRICS, MINT, which have got common approaches. Looking at those that use IEC and ISO standards, look at those which use aspects of CE marking, will all help inform your decisions on where you might export next, and enable you to prepare, prepare for that approach. We also need to be aware of, you know, these statistics we looked at earlier. Customs procedures, 54% of respondents for the survey for common areas, like China or, or in the US, or Australia, New Zealand, reported issues. 20% with testing and inspection procedures, and problems with requirements, to meet environmental safety or quality regulations. So, there are still issues, even in the top markets, so really important that we understand these things, and, and what we've covered today is largely that second bullet, testing inspections and certification procedures, being aware of what they are, so you can avoid falling down on that.

And, actually, compliance with those tick procedures will often help you fulfil those customs procedures, because the customs procedures will ask for evidence of testing inspection and certification, and if you don't have the right documentation, then you get bogged down, unable either to fill in the forms or complete those procedures when you're asked to do that. So, ensure you understand the compliance requirements before you start. Don't go and try and apply to all 160 countries. The compliance requirements are complex, you have to understand them. If you don't, it'll make the difference between a viable and a non-viable proposition. Sometimes, some of the requirements, you cannot-, you cannot meet at your current stage, in which case, it's worth ignoring and moving on to something else. Sales and marketing teams would be well advised to look and identify what-, the suitability of markets. What can I do and where can I do it and how can I do it? So, if you do get opportunities arising, you can, you know,

dismiss those that are non-practical while taking on board those. And, before you even know where you're going, design to meet international standards, to a-, you know, when you're thinking about having testing done, think about having it cover-, covering the widest range of areas. If you're having safety testing done, get the CB certificate, get the IECX certificate, get the IECRE certificate, at the time you have the compliance testing done. It's a relatively small additional cost, but it could get you into one of these markets that would arise at, at a later date.

And remember that CA or CE files can be useful outside the EU and UK. The files themselves, sometimes, like in the EAC or the GCC, could be presented as they are as part of evidence towards a local certification, or parts of those files can be used to build a file specific to the local market. Utilise the expertise of local distributors in the overseas markets, and support your local importer in clarifying the rules. So, once you've decided where you are going, or if somebody says, 'I'd like to sell your product in Chile,' rather than you trying to work it out, talk to the people in that market and get them to help interpret those local rules. Because the rule-, the law says you do something, doesn't necessarily mean that that's actually how it is done in a particular country and practice, and sometimes, what can look like a very convoluted approach actually isn't that complicated when it's applied locally. So, you know, try not to do these things in isolation from your distributors, so, those local relationships in countries are really important. Recognise that third-party certification, so in other words, third-party accredited testing, CB certification, IECX certification, NRTL certification for the US, it's more common than it is in the EU, and in some regions, you know, Southeast Asia, if you look at Indonesia, it's more common, there are more regulatory regimes coming in. India's regulatory regime, as they expand into different areas, tends to require third-party certification rather than self-declaration. Leveraging that testing that you have done at the start, CE, has advantages later on.

You need to meet the requirements or lose out to sales and competitors. We said early on that, you know, 'Why don't people export more,' well, because it's often too late to meet the requirements, because you-, you're completing a tender which needs to be done in 30 days, but you have no idea where to start. So, actually, a bit of compliance, global approval planning helps you be ready for when those requirements are there, and if you, you know, thought about your testing, your technical files, properly, then you'll have the, the technical requirements, then it's just a matter of filling in paperwork, in many cases. Remember to expect the unexpected. It's not going to be the same, you know, it's not the same as CE everywhere in the world. There will be different requirements, there will be additional things that you will need to fill in, customs declarations, there will be agencies you will need to register with, so-, and, and there always seems to be one more agency that you need to do. So, expect the unexpected, don't underestimate the complexities, and hence why I think the advice is to focus down on key countries where you can really concentrate on, rather than spreading yourself too thinly into areas that might be a possibility, rather than those that are more lucrative.

Now, there's lots of useful resources that you can draw on, with, with specific country advice. So, Invest NI, support the business, develop new export markets. You can go and have a look at different

requirements and how they can help you to trade on an international basis. IEC conformity assessment schemes, a list on here, they'll give you lots of links to in-country providers, to save DMC testing, where you can have things tested in the UK or Ireland or for-, within, within Europe. And then, which countries accept those test reports readily, and what those acceptance requirements are, is all detailed on this-, these free-to-access websites, so do-, do have a look at those. And then, whilst the government keeps changing what they call these initiatives, there's lots of export market information available on the Great.gov.uk website, so the example here is, 'Doing business in Argentina.' It talks about import duties, what VAT is applied, what the size of the market is, what the challenges are, and where you can seek, seek additional help. And this, again, will overlap a lot with what Invest Northern Ireland will do for you in Belfast, so do, do reference this site for, for useful information.

And then, the Institute of Export also has 'doing business' guides for many, many countries, some big, some small, so, do take advantage of this, again, largely free advice that you can get, that will help give you some pointers and help you build up, you know, a picture of, of the market and how you might do, do business there. And then you-, once you've got that concept, you can have a look at how those technical requirements tie in. Also, lots of third-party agencies will provide what they call global market access services, Element do that, there's plenty of companies that, that offer that service, and sometimes, actually, employing a third party to help you get into these markets is the easiest way. People are experienced in managing the paperwork, know what needs to be done, know what needs to be registered where, can find you-, can shortcut what could be a very, very long process, particularly if you're only talking about a relatively small number of countries. They can provide you with the initial advice and then route you through when your products become available. Okay, Barry, we're on-, we're at the end, I think.

Moderator: Yes, well done on cramming all that in in a half-day session, so, a lot of detail covered. We have a question in, thanks very much for, for submitting. It says, 'Hello, can you identify the Australian safety level one, two, or three for decorative textile braided for lamps? This looks more like the flex on a smoothing iron. Thanks very much.' Let me know if you need me to repeat that, Simon, hopefully it makes sense to you.

Simon Barrowcliff: It will be-, a flex on an iron?

Moderator: So, 'Can you identify the Australian safety level one, two, or three for decorative textile braided for lamps? This looks more like the flex on a smoothing iron.'

Simon Barrowcliff: Right. It will-, the-, offhand, no, so, but there are references to go and have a look, and I think it's still a free standard. Let's go back onto my Australasia pages. There is a list of products and the standard. Excuse me a minute while I just find it.

Moderator: Okay, yeah, and let me know if you need me to show up any slides or anything.

Simon Barrowcliff: No, I think it was-, I think it was in the notes to one of these, rather than on the slide itself. Level three. Right, it is Annex E of Australia, New Zealand, SEN, so AS/NZ S4417.2. And there's 50-odd items in that level three declared list. So, I don't know the answer, offhand, what it is, but if you-, if they refer to Annex E of that 4417.2 standard, that will provide the answer to that question. I will actually update the slide for, for future use, I'll add the-, I'll add the list in, so that we've, we've got that as reference.

Moderator: Brilliant. Thanks very much, Simon, and, yeah, small number of questions submitted this morning, but we do appreciate everyone who has, has submitted. That's the only question I can see, so with that, I think, Colin, if you're happy enough, I'll hand over to you, just to do a, a quick closing.

Moderator: Okay. Thank you, Barry. So, just to finish off, I'd like to thank Simon for his excellent presentation today, it's not easy taking us all on, on a literally global tour. I think Simon did that really well, and connected it back into the specifics of company situations in Northern Ireland, as well. So, thanks so much for that, Simon. Thanks to Barry and the team from Eventful for making sure everything ran smoothly, and for posing the questions, and thanks to everyone who registered for the webinar and attended today, and we hope you found it worthwhile and had your questions answered. Before we finish off, just to give a mention for the remaining webinar left in our series of Autumn Technical Compliance Webinars. The next one is the CE Marking Electrical Webinar, which Simon will also present, and that's a half-day event as well, and it's next Tuesday 26 November. That'll be covering things like the low-voltage directive and the EMC requirements, so, I know some of you are already registered for that, but if you're not, or if-, or if other colleagues would like to attend, you're most welcome, and you can register to attend, again, for free at InvestNI.com/events. As we mentioned earlier on, as well, the, the presentation, the slides, and the recording will be sent out whenever we've had a chance to put that all together, so keep an eye on your email for that. So, hopefully we'll see some of you again next Tuesday, when Simon also presents the, the webinar, and that's the end of today's webinar. Thanks, everyone, bye.

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