File name: global_megatrends_-_webinar_1_-_our_trend_universe (240p).mp4

Moderator questions in Bold, Respondents in Regular text.

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Speaker 1: So, with that, let's move into the first part of this presentation, which is our mega-trends universe. Let us understand first what is mega-trends all about, and, and why it is so important for businesses, economies, individuals, and everybody belonging to, to this global ecosystem. So, mega-trends research is a long-term futuristic approach to understand certain vital forces, and these forces have the capability to transform any business, economy, or, or even our way of living. And by 'mega-trends', we mean those vital transformative trends that can actually shape the future, and these trends also act as key drivers for growth across social business, economic, political, environmental, and technological fields (ph 01.14). Now, what is the significance of these mega-trends, and, and why do we even need to take into account these transformative forces? So, if you go back and track for the last five-, few years, we have seen the emergence of several disruptive global forces, like geopolitical shifts, and we have seen a, a world situation going o between Ukraine and Russia, then we have seen the growing impact of climate crisis, like, there has been a lot, lot of floods going on, and then, there has been a lot of earthquakes coming in, and then, also, we have seen events like food shortage, water shortage. So, all these are leading to the growing concern around climate crisis, and then, we have also seen a lack of resilience in our supply chain, because of-, because the world was exposed to certain events, like the global pandemic, and then, of course, within the technology sector, we have seen the rapid advancement of generative AI, how generative AI has actually taken over the world, in last two to three years.

So, all these events actually highlight a very real need to grow future global scenarios, and so, there is always a constant question and important, important-, constant and important questions that come up. That is, how our future world and it's inhabitants will evolve in next few years, or in next ten, ten to fifteen years? And what would be the appropriate actions that can be taken to ensure the best possible outcomes for businesses, citizens, economies, and the environment? And that gives us the motive to build the mega-trends research, and so, we began examining the transformational mega-trends to 2040 that are influencing the creation of value networks. So, the pie that you see here on the left-hand side of the slide is our mega-trends universe that includes 23 mega-trends, which are categorised across five major themes called the BEETS framework. So, when you see along the periphery of the pie, you will see each of these has-, each of these BEETS framework has been put in place. B stands for the business model transformations, E for economic and political shifts, E for environmental priorities, T for technology advancements, and S for social trends.

Also, across each of these 23 mega-trends clustered that you see within this circle, we have gone further and dog deeper and identified over 70 sub-trends, which have a very strategic and operational importance,

and can be applied across various major industries. For example, if they have to take economic and political shifts, that is the P from the BEETS framework, and understand the mega-trends that is near both centres of the global economy, which means economies that have the growth impetus larger than any other economies in the world, then we would see all sorts of trends, like Africa emerging as a economic battleground and, and the central of the global economy shifting from Western side towards the Asian countries. Now, this particular framework of mega-trends and sub-trends have been built by us through intense research work done all year round, by constantly monitoring, analysing, and trying to conceptualise our observation within each of these themes. From this investigation, we have identified ten transformational shifts that are of strategic importance to all industries and, and recognising and leveraging, based on formation of trends, businesses can actually unlock new opportunities and, and, and that will ensure them a long-term success strategy in a rapid-changing world. So, let's talk more about these transformative mega-trends.

Captions by Verbit Go

File name: global_megatrends_-_webinar_1_-_megatrend1_-_education_&_skilling_evolutions (240p).mp4

Moderator questions in Bold, Respondents in Regular text.

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So, we begin with unlocking one of the most important, you can say, shifts or trends within the learning ecosystem. So, now before I deep dive into each of these mega trends, let me explain the structure of these slides a little bit so that it would be easier for the audience to understand. So, we have organised information in a-, in similar manner across all mega trends slides. So, within each mega trend slide you can see the respective sub-trends being highlighted and it's supported by certain notable data-driven or qualitative signals which demonstrate how these sub-trends are emerging, or how they are going to evolve in future. Then we have included the future trend outlook for each of these mega trends starting from what it is going to be in the short term. that is in the time between today and within next three years. Then what it would be in the midterm, that is in the next four to eleven years. And what it would be in the-, in long term, that is in next twelve to sixteen years. So, now if we have to look into the future growth trajectory of the mega trend, education and skilling development we clearly observe there are two main shifts or trends. That is the growth of lifelong learning and also the escalation of adaptive learning. By lifelong learning, we mean the need for workforce or employees to continuously learn through their-, throughout their professional careers. Now, why, why do they need to do that? Why do they think they need to continuously enhance their skill or continuously upskill their knowledge? This is because we have seen an expanding influence of technologies like AI robots and AI VR in future job roles. And this will actually drive the need for the employees to adapt to a lifelong learning part (ph 02.32).

These physical tools will also lead to new experimental ways in which companies can actually implement this lifelong learning programmes. To substantiate this particular fact we have brought certain research-, certain research estimates from companies like IBM who-, which recently estimated that by 2022 as many as 120 million workers in the world's two largest economies were reskilled because, because of AI and intelligent automation drive. And World Economic Forum further estimates and adds another 85 million to this already existing 120 million to be reached by 2025. So, we already see an increase of, you can say, infusion of digital technology and tools which are enhancing the learning ecosystem. That is where we get our second sub-trend within this education and skilling evolution mega trend is the adaptive learning. Which means the use of adaptive learning tools like AI algorithms (ph 03.58), streaming videos, gamifications, and online collaborations to personalise and enhance the overall learning experience. Now, we, we already-, today we already see the infusion of these AI-enabled learning tools being used across various sectors like, like the military. The US military, for example, is increasingly embracing this adaptive learning technologies to modernise their training and education curriculum. And by doing this they have found tremendous benefits like they have seen a reduction in what the person training time and more effective skill acquisition and retention.

Again, we also see AI power tools being used by educators today for providing personalised feedbacks like grades, assessments and also are using to provide more guidance to the learners. For example, the AI-powered grading tools such as Grade School are increasingly being adopted in educational sites to enhance efficiency and, and also reduce the time that the educators are spending on grading. And research has indicated that these tools can actually decrease the grading time by more than 70% compared to the use of traditional grading methods. Next, if you had to understand what would-, what is the evolution of these mega trends. When we see that in this short term because of the accelerating pace of technology innovation, it will be reshaping both the workplace, workforce as well as across industries. And this continuous learning and skilling adaption will not only be used for getting certain beneficial-, certain benefits but it will be an essential thing for the workers in order to thrive in this new landscape. In the mid term adaptive learning will be adopted to a more personalised teaching methodology that will allow learners to progress at their own pace. And this will, again, this will take place by integrating both virtual and in-person experiences. We also observe a societal shift towards lifelong learning in mid-term. And by 2040 we expect that there will be a greater access to tech-intensive tools such as augmented reality, virtual reality, 3D printing and sophisticated coding software. Micro-credentials will be as common as diplomas and majors and we will also see the mindset that we move towards viewing these academic learning as a concise and focused experience, as opposed to what it is now being a lengthy and time-consuming process.

And so we can see the rise of mini mesters which are mini semesters and are the condensed session that typically take less time as compared to the conventional semesters. So, we can conclude that this educational landscape will undergo a significant transformation which will be driven by factors like technology advancement, changing preferences of young generations and also the evolving demands of the workforce. Now, since this education ecosystem will be highly impacted by the technology advancement and innovation we see that technology advancement and innovation will also play a huge role across all industry.

File name: global_megatrends_-_webinar_1_-_megatrend2_-_advanced_computing_&_communication (240p).mp4

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Moderator: Advanced computing and communication. This particular trend is very broad, because we include both software as well as hardware-oriented technology when we talk about advanced computing and communication. So, we have technologies like artificial intelligence and quantum computing, brain-machine interfaces, among others. Now, advanced computing and communication technologies will continue to evolve, and it will grow more in terms of sophistication and capability because we already are seeing how ChatGPT is growing. It has already come out with four and fifth versions, and also we are now looking towards 5G being upgraded towards more-, towards 60 wireless connectivity. So, we see, globally, all these elements within advanced computing and communication technologies growing-, are, are, are growing very strongly, and we expect this to continue in the next ten to fifteen years. So, here are some of the notable technological signals within the mega trends, are that the profitability of achieving artificial general intelligence will be increased by the use of tools like ChatGPT, and we also see a strong investor interest as global venture capital investment, investment-, investing towards generative or GenAI is expected to reach dollar 12 billion by 2024. And this is mainly coming from major players like Microsoft and Amazon. Again, integrated quantum systems, which can address extremely complex computations in a more efficient and faster way than traditional computing, and we expect this market size to grow at a compound annual growth rate of 28% from 2030 to 2050.

Again, brain-machine interfaces, which will be directly link the human brain to computers, are also being explored through some of the start-ups such as Neuralink and Synchron. This is where the idea of cyborgs, or the-, or the true blending of computers with human, really accelerates. Now, this-, now, this idea of cyborgs, or this, this area of cyborg, actually extends (ph 02.55) the role of these technologies in both security-, securing and threatening global stability and our everyday lives. Looking into the future evolution of this trend, we observe that, in the short term, obviously AGI's capability will further enhance and, and will-, and could automate some of the very complex processes in various sectors like healthcare, transportation, consumer services, which obviously is going to result a significant productive gains for businesses implementing this AGI capability. Now, moving towards the mid-term, we expect more and more leveraging of advanced computing and communication technologies, because we see that more and more nation states will be increasingly leveraging these technologies in order to, you know, gather, or in audit, in business surveillance service, or military operations in cyberspace, and this reflects a significant shift in modern warfare.

Again, the quantum hardware and software will continue to advance and we can-, and so we expect to see quantum computing having an increasingly transformative impact on areas like financial modelling, pictography (ph 04.26), climate science, and, and many other fields. Looking into the long term, so we expect to see more advanced brain-computer interfaces, and these advanced brain-computer interfaces will be more sophisticated in terms of application, and so it will be including devices that can seamlessly integrate with the human nervous system in order to enhance the cognitive function. This particular capability will be used to treat various health issues, like paralysis, depression, or even early stages of Alzheimer's disease. Again, we also see this brain-computer interface being seamlessly integrated within our daily lives as well, where, where the users would be allowed to control devices or, or interact with digital environment through their thought alone. This is where we see the potential of non-invasive brain-computer interfaces to become the commonplace and to-, become the commonplace and see them growing by 2040.

Captions by Verbit Go

File name: global_megatrends_-_webinar_1_-_megatrend3_-_emerging_carbon_economy (240p).mp4

Moderator questions in Bold, Respondents in Regular text.

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Within this particular mega-trend that is emerging, carbon economy, we have explored some of the significant trends that will actually shape the transition, the global transition towards a low-carbon future. Now, as we spoke about the technology advancement in the previous mega-trends, so we also see that the growth of green technology will continue, focusing mainly on renewable energy, advanced energy storage, and carbon capture technologies. So, some of the notable trend signals that we have captured today are, currently, there are eighteen direct air capture plants in operation worldwide, which are primarily located in, in Canada, Europe, and United States. Now, these plants are capturing carbon dioxide directly from atmosphere, using either solid or liquid direct air capture technologies. Plans are already in place for, for at least 70 additional direct air capture facilities that are in various stages of development, and has the potential to capture around three metric ton of carbon dioxide by 2035, if, if all the projects, if all the 70 projects are successfully completed by then. So, the key emphasis here is on creating a true economy that will move beyond carbon neutrality, and so we also see the emergence of carbon marketplaces. So, by carbon marketplaces, we mean those platforms where carbon credits can be sold or bought. This-, marketplaces, this carbon marketplace actually allows investors, enterprises, and even individuals to trade their carbon credits, and the goal of these marketplaces is to reduce the overall carbon emissions over time.

Some of the imminent trend signals that point towards its strength are the compliance-based carbon market has seen a significant growth, and the total value of these markets to date are estimated to exceed more than dollar 270 billion. As of 2024, there are at least 38 compliance-based carbon markets in operation around the world. Now, these markets are also known as emission trading system and have primarily focused on trading carbon credits. So, some of the major, major ones are the European Union Emission Trading System, which is supposed to be the largest, and this accounts for around 90% of the entire global carbon credits turnover today. Some of the other compliance market include the, the California Global Warming Solution Act in US, The Chinese National Emission Trading System, Korean Emission Trading System, The Kazakhstan Emission Trading System, The New Zealand Emission Trading System, The Japan Emission Trading System, The Canada Emission Trading System, and The Mexico Emission Trading System. So, the future part of this particular mega-trend will mainly be governed by the type of initiatives and efforts that are being put in place by businesses, as well as by the economies, to reduce carbon emission.

So, in the-, in the short term, we expect the integration of carbon capture utilisation and storage hubs to be increasingly recognised by businesses and economies as a vital strategy for reducing greenhouse gas

emission, but equally within the industrial cluster. Further in the mid-term, this approach is expected to witness a significant shift towards adapting more innovative business models, like the carbon capture as a service model. Now, this particular model will be able to address the end-to-end carbon capture utilisation and storage value chain. We also see that the growth of carbon marketplaces will increasingly move into consumer space, and it will provide a market-based model not only for carbon management, but also management of certain other forms of environmental impact. For example, offsetting other pollutants, or maybe creating new forms of waste valorisation. And so, 2040, there will be a growing emphasis on not only achieving, achieving carbon neutrality, but also moving towards carbon negativity, which, which will involve actively removing carbon from atmosphere in order to restore to the pre-industrial level of carbon dioxide. Again, by 2040, we'll see that the concept of carbon currency will be emerging as a, a potential global initiative, which is already being encapsulated by the Global Carbon Reward Agency. Which has already proposed a market-based policy that will utilise a carbon currency to establish a reward system for some of the evident climate mitigation effort. And we expect this particular idea to become mainstream by 2040. So, clearly, we expect to see a more sustainable-driven future and we all can well imagine a world that can achieve limitless energy.

Captions by Verbit Go

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Moderator questions in Bold, Respondents in Regular text.

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Now I'll be sharing some thoughts on the remaining transformational mega-trends that are shaping the future of our industries. Since we are on the topic of sustainable future, let's talk a bit more about limitless clean energy. So, what exactly do we mean by this? Limitless clean energy is characterised by clean and abundant energy, and in the present times, it is being better harnessed by (1) a widespread of easy adoption for passengers, as well as commercial vehicles. Secondly, transition to renewable energy sources. Thirdly, development of hydrogen and green hydrogen infrastructure and, lastly, advancements toward nuclear fusion technology. Now, energy transition mostly focuses towards replacement of internal combustion engines, that we call as ICE, with electric-powered vehicles. And as, as for the recent numbers, China tops the list of countries with highest number of EVs sold in 2022, which is followed by US and the European Union. Many countries are also focusing on 100% clean energy goal.

In the short run, we will observe European countries leading this trend and, among top five nations that have already achieved 100% renewable energy generation, European countries like Iceland and Norway have made to the list. While, in the mid-term, other European countries like Portugal, Netherlands, and Austria, are committed to achieve 100% clean energy by around, say, 2030. Already, Portugal has phased out coal from its energy mix as of 2021, and currently about 60% of Portugal's electricity comes from clean sources. So, that's how European countries are leading the trend. Also, to cast more light, Netherlands is focusing on offshore wind power, with plans to double its capacity by 2030. Now, another form of limitless energy gaining significant attention recently is hydrogen. We all are aware of the current geopolitical situation, and that's why energy-dependent nations are using hydrogen as a fuel, which will not only replace the need for traditional carbon-intensive fossil fuel, but also reduce energy dependence to a certain extent. Apart from the national-level progression, businesses are also progressively investing towards green hydrogen production projects.

One such example is of a major retail giant, Amazon, which has partnered with Plug Power to deploy hydrogen-powered forklifts in its warehouses, just to start with, and enhance the process efficiency at an overall level. Apart from these three clean energy sources, nuclear fusion is the best form of limitless energy but, right now, it's still under development. It is anticipated that, by 2040, at least one commercial nuclear plant is likely to be operational, with many others following the lead. And, by this time period, wealthier nations will have already switched to primarily green and clean energy sources. Also, once the nuclear fusion technology is developed, these wealthier nations and developed economies will be the first one to have access. Looking at the future outlook within this trend, we anticipate that, in the mid-term and the long term, focus will be more on green hydrogen and nuclear fusion. To sum up, this mega-trend is

gaining a lot of traction due to strong focus on sustainability at a macro level, where the public and private sectors will come together to implement various blends of clean energy and implement them into their energy mix. That was all about limitless energy.

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Speaker: In this slide, we will discuss the new global growth centres, that is Africa and Asia. African and Asian countries will be in limelight in the years to come, and increased investment in these regions will, will open up many new B2B opportunities. Let's talk about Africa a bit. Africa aspires to be central economic background from a multiple growth perspective. The main ones are increasing working age population, its mineral resources, and better access to renewable energy sources. When we talk about working age population, when other economic powerhouses, like US and European Union, will face talent shortages, Africa will emerge as a contributor to the larger share of workers. The share of workers to the global workforce will account to an estimated number of around 1.1 billion by around 2040. In addition, Africa's richness in mineral resources will accelerate the economy and drive competition around investments. We are aware the North African countries are one of the largest oil-producing regions. When it comes to also renewable energy sources, the continent is resource abundant and many countries are seeking to harness its hydro, solar, wind, geothermal, and bio energy sources from the region. But, however, the continent's current energy mix is still relying on fossil fuels, because it is relatively cheap, but we hope that, in the future, when these technologies mature, there will be-, that they will be more affordable and cheap, relatively. Now, along with Africa, Asian countries shall also experience significant growth, and accelerated growth is expected to come mainly from India and China because of the increasing number of commercial projects in this region. Let me go to a few interesting statistics representing how this region is growing.

So, out of around 5,000 largest companies in the world, 40% are Asian-origin. High digitalisation is another factor that is contributing to its growth, and this region has high digital penetration which is-, which accounts for around 50% of the world's internet users. This region, being the hub for outsourced services, as we all know, its services trade is growing 1.75-, sorry, 1.7 times faster than the rest of the world. Now, another (inaudible 03.20) apart from these is the abundance of skilled labour in this region. Now, all these factors that we just discussed together contribute to the accelerated productivity, which promotes intra-regional as well as international trade. Now, Asian countries are also laying a high emphasis on sustainability. Let me give you a brief overview of the timeline of these growth centres. In the short run, we already are observing certain developments in Africa in the form of economic trade agreements, such as AGOA, that is African Growth and Opportunity Act, and AFCDA, that is Africa Continental Free Trade Area. This will make trade easier within the regions, and also offer increased benefits to businesses that are investing in the-, in the region. The mid-term is for Asian countries, where focus will be more on sustainable initiatives which will create many employment and business opportunities. Both these regions are growing at an increasing rate in terms of skilled workforce, availability of resources, and technology adoption. So, in conclusion, I'd say that, while the businesses in this-, in these regions are proving to be fast followers and catching up pace with other developed

economies, in the long run, they are expected to transition as industry leaders, leading the other countries.

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File name: global_megatrends_-_webinar_1_-_megatrend6_-_reimagining_value_networks (240p).mp4

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The last trend of the session would be reimagining value networks. We all know that multiple crises have been faced globally, like COVID-19 pandemic or geopolitical chaos, which is still not over yet. Climate change, the threats have started to be suffered in many regions, and so on. These have-, these crises have highlighted vulnerabilities in the global value networks, and that's why businesses are working very hard towards reshaping and risk-proofing their value chains. One of the approaches within this trend if value chain compression, where the objective is to cater to the customer ecosystem. So, basically, this method is more consumer concentric, and it eliminates intermediaries, which significantly reduce the number of-, I mean, as a result it reduces the total number of steps in the customer journey. One example to quote here is Nike, and its initiatives to push into the direct to customer market. And as a result, this company has seen revenue growth increasing from 16% of overall sales in 2011 to 35% in 2020.

Another interesting trend identified within the value networks is presumption economy. In this approach consumer plays a significant role having a direct impact in the market. Why do we call this as presumption? Because the presumer here is both producer as well as consumer. Currently, the presumer economy poses (ph 01.56) mostly within the energy market. It is just an initiating level. The most common technology for presumers right now is rooftop solar panel. So, this is something that has been trending around consumers, and there there is more to come in the future. Let's talk about the sustainable side of these value networks. Concerns around environmental degradation have made sustainability the focal point, and the importance of circular value chain among businesses has increased. Globally, businesses are moving from a linear model to circular value chain as it characterises sustainable initiatives. Just to give an overview for those who do now know. So, clarity refers to the ability to retrieve a product at its end of use cycle through recycle, repurpose, resell, or maybe reuse of the product.

This eliminates waste generation giving a second life, kind of, a second life to the products. Nowadays companies are forced to adopt circular supply chain model due to pressure from government, as well as the consumers. Last but not the least, platformisation. This enables the exchange of goods, or services by connecting multiple ecosystem contributors online. These could be many buyers and sellers. Platforms can connect wide range of different contributors. Already basic examples for this trend would be of Uber, which is considered as a three-way platform. It combines users, couriers, and businesses. With respect to the trend outlook, in the short-run presumption has already boosted the influencer economy, apart from the energy markets that we just discussed. Influencer economy is a place where this trend is seen rising significantly. In the influencer economy, consumers are also content producers on social media platforms like YouTube, TikTok, Instagram, etc. And in the mid-term, we anticipate that the circular supply chain

model will be an essential part of all the businesses as there will be a media push towards sustainability from initiator (ph 04.33) economies like the European Union.

And there is also a high stress on the reporting, ESG reporting, and investing situation. In the long-run, a hyper distributed value chain is anticipated to emerge where all the ecosystem participants will interact simultaneously, while traditional participants like distributors would shrink. So, in this mega trend we have covered various aspects of value chain capturing the technology aspect, sustainability aspect, and how the consumer behaviour is changing, or bringing about a change in the dynamics of value network. So, this was all about mega-trends. Let's discuss some potential threats that can arise in the future with regard to the-, a few of the mega-trends that we have just discussed. We're not talking about advanced computing and communication. With greater reliance on modern technology comes higher risks. As we all know, advancement of AI is shaping up character of businesses, and industries. But one of the major cons of this technology would be unethical use, and there will be a pressing need from government side to set some uniform regulatory standards around the use of this technology.

Moreover, a high risk of data security will continue to (inaudible 06.10) consumers. So, for these reasons, economies of US, and European Union, are working towards developing a standard-, a standard framework around the use of AI while the emerging economies are busy working (ph 06.28) towards these technologies. Now, apart from cyber attacks, there is another threat this technology is leading to. That is a huge gap among economies, as well as businesses. The gap will exist between businesses that have access to this modern technology, and those which cannot afford to access this technology. Now overall the role of government, policy makers, and businesses come to play here to define the AI utilisation frameworks, and to build a robust cyber security network. Also, job displacement due to automation is another risk that this trend is posing. But for this reskilling, or for this particular threat reskilling and upskilling can be conducted to-, which can avoid-, which can be avoided to a certain extent.

Now another trend that will cut down the employment opportunities are specifically in the oil and gas sector, is rising adoption of limitless clean energy. This is posing major threat to related companies in the oil and utilities industries, and for this also individuals might need to upskill, and possess skills relevant to green jobs. Again, there is also a risk of bifurcation of societies based on access ability to clean energy sources. Now when it comes to global growth centres, Africa is the-, at the focal point currently, but there is a risk of geopolitical tensions aggravating and higher resource exploitation from increased FDI inflows. This will-, this balance-, the-, could disbalance the economy a bit when it comes to-, from, from an environmental perspective leading to environmental degradation, and over-exploitation of resources. Okay, that is all from my end for this session. We will continue to enlighten you with rest of the mega-trends in the next session. But for this session, I would like to hand over this conversation to Malabika for her concluding remarks. Thank you for listening patiently.

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Speaker 1: To conclude, we bring in this slide the directions on how one can take forward the learnings from this particular presentation. So, Frost & Sullivan has identified five steps to consider. The first one being identify your business challenge, that is businesses can identify their challenge by evaluating the megatrend themes which ranges across sectors like social, economic, technology, business models, and environment, and sustainability. Next is setting up a learning management framework, that is after the identification of the challenges it becomes critical to build certain mitigation strategies. And the first step would be to upskill and reskill the human resources and build a, a very robust and efficient human capital. And for this it needs to have a appropriate understanding of the futuristic macrotrends that would be impacting the businesses as well as will have the right digital competencies, then draw up a clear transformation roadmap.

So, the next step would be the integration of this megatrend literature within strategy planning to achieve business transformation. So, here what is required is that-, to shortlist and prioritise the trends, technologies, as well as business models that, that would be critical for any company to achieve the foreseen transformation. Then it's enable or integrate into an ecosystem. So, once you have the roadmap in place the next action would be to understand the position that would be-, that the organisation or institute, or any company, will hold in the new ecosystem. After-, and in order to understand that position, one needs to evaluate and integrate some of the new trends, technologies, or business models that are already being identified in the-, in the transformation roadmap step. And then finally, build, scale-, pilot, scale, and build knowledge. That is having a good knowledge base is really important before taking any critical business decisions. And in order to create one, one needs to have (mw 02.48) understanding of the future scenarios. So, Frost & Sullivan can be that partner who can assist any organisation in all of these five steps with the help of knowledge base that we have created by this Megatrends 2040 study. So, on that note, I end this presentation and I thank everybody for listening to this session.

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

Monica McGarry: Hello, my name is Monica McGarry from Invest NI. Thanks to both our presenters from Frost & Sullivan for an informative presentation. Obviously, mega-trends are very important for businesses to be aware of, and our trying to keep up with the trends is very challenging. It's important to identify how they-, how they impact your business, but also to identify any opportunities that might evolve from them. Just to let you know that this webinar is available on Invest NI website, and we will email you with the details when it becomes available online. Now, it's time for the Q&A session with the presenters, and thank you to everyone who's already submitted a question. If there has been a specific question now, please use the questions tab on your webinar control panel to send it through to us. We've got a few questions through today, some of them pre-submitted and some have come through during the session this morning. So, if you're both happy, we'll make a start. So, the first question is, what are the most critical indicators or early signals businesses should monitor to effectively align with and capitalise on the mega-trends?

Malabika Mandal Ray: Yes. I'll go with that, Monica. So, thank you for this question, this is really an interesting one. So, one, a figure that is coming to my mind right now, that why are you doing this mega-trends research? I have come across statistics that show that approximately 60% of small businesses fail to attain their ten years of operation, that is around only 40% of small businesses manage to celebrate their tenth year anniversary, but this particularly statistic highlights the significant challenges that companies face in sustaining their operations over a decade. Now, some of the key reasons for this failure could be, like, business fail to understand, number one, what their customer needs, number two, what is the market dynamics. Business could even struggle to find new areas of growth, which we call as white spaces, or companies do not have any, any ways to foster their culture of innovation. So, these are some of the reasons that-, reasons that we see that a company typically fails, when it comes to achieve their goals, and that is why it is very important to understand-, to have a deep understanding of future, future, and that is why companies need to understand the early signals within their businesses to leverage the mega-trends for successful future. Some of the early signals, I would say, would be, number one, yes, understanding the shifts in consumer preferences, which is very essential for businesses to, to, to align their strategies with mega-trends. Second, emerging technologies. So, keeping an-, keeping an eye on, on emerging technologies is, again, very crucial, as they often drive several important mega-trends.

So, businesses should track innovation in areas like automation, artificial intelligence, digitalisation, as well of these technologies have the potential to reshape industries and create new opportunities. Third would be monitoring the demographic changes. Yes, it is very vital for identifying the new market opportunities, because populations are ageing and they are shifting geographically. So, all of these need to

be taken into consideration and businesses must adapt their offerings to meet these kind of evolving needs of diverse consumer groups. So, by focusing on these very elementary indicators, I would say businesses can better position themselves and seize emerging opportunities to mega-trends. Yes, so, thank you for this question.

Monica McGarry: Thank you very much for that answer. The next question that's been sent in is, what are the anticipated changes to the social media landscape, for example, in regards to the growing channels and trends?

Sukriti Mahna: Thank you, Monica, for the question, I'll answer that. Well, we all are aware of the impact of social media on newer generations, and that's why businesses are capitalising on online communities to rive sales, as consumers usage of social media is at an all-time high. So, we expect companies to significantly invest towards technology, such as AIVR for immersive shopping experience, or data analytics for sentiment analysis, and AIML, to understand the consumer behaviour. Major social media platforms are incorporating shopping features, to create a seamless buying experience. Let's say, for example, (inaudible 05.16) TikTok shop, and (mw 05.20) in-app shopping feature for various brands, and not only this, there are other apps as well, Instagram and Pinterest, that are doing the same. Now, speaking of customer experiences, businesses are collaborating with technology providers, offering automated customer service experiences. Oher than these, there are a few anticipated trends witnessed, like rise of business influencers, more of variable gadgets for consumers, and community commerce. So, basically, community commerce means that social networks are shifting from broad networks to smaller and more focused communities of users that are having similar interests towards specific products or services, yes.

Monica McGarry: Okay, brilliant, thank you very much for that answer. I think due to time constraints, I think this might be our final question. It's with regard to mega-trends of advanced computer and communication that you spoke about. The question is, how are the governmental laws and regulations on AI and brain computer interfaces going to be? Will they become obstacles against the application of those technologies to society and businesses?

Sukriti Mahna: Okay, I'll take that question. Thank you so much, Monica. So, governmental laws and regulations on AI and BCI will definitely be evolving in the future, to address mainly the ethical and legal implications of these technologies, and as we talked about this, in, in the potential threats slide, it'll be mostly initialised by the developed countries. Now, several regulations have been introduced by regions like the European Union, US, China, and other countries from Asia and Africa are still in the process of introducing these regulations. Now, between 2025 to 2030, we expect to see a lot of countries either initiating or accelerating the process of introducing AI regulations that will play a significant role in shaping the technical-, these technologies of A, AGI and BCI. Now, speaking of these regulations becoming obstacles, the main motive of thee regulations will be to ensure that these technologies can be used ethically, with data transparency and privacy, but most importantly, government frameworks, globally, will work towards balancing the need for regulation with the need for innovation and responsible use of these technologies. Now, global bodies like UN, OECD, G20, and regional alliances

have started creating working groups and advisory boards to develop principles and standards around AI. Groups like OCD-, OECD may prove useful, creating regulatory consistency across different regions. So, these governmental bodies, these global bodies will work towards balancing the regulations and innovations of technologies.

It is important to mention that collaboration between technology developers, regulators, and stakeholders is, is essential for addressing the complex regulation and ethical issues surrounding these technologies of BCI and AI. This also includes engaging with institutional review boards, ethical review boards, and IT (ph 08.54) stakeholder groups to ensure that BCI technologies are developed and used responsibly, in the future.

Monica McGarry: Thank you, that's a brilliant answer. Thank you to both of you for answering those questions. I think we have to conclude the session now. I hope that it's been right beneficial to our audience and businesses that are with us today. I'd very much, much like to thank both our speakers for presenting today and for being put on the spot there for those questions. We tried to get through as many questions as we could. If we weren't able to answer your question-, answer it today, we'll provide an answer by email to you shortly. To receive business updates, if you haven't already, please sign up to the email newsletter, on nibusinessinfo.co.uk. Also, do please keep an eye on Invest NI website, where you can register for forthcoming events and webinars. I look forward to seeing you all at our next mega-trends webinar, next Tuesday, 1st October, at 10:00am, where mega-trends such as emerging demographic patrons, advanced materials, and cyberpolitical systems, to name a few, will be discussed. So, that's for today's session. I'd like to thank you all for attending today, and I hope you have a great day, thank you.

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