IEMA Transforming the world to sustainability

wsp

Future Megatrends

How to Identify and Integrate These into Your Environmental Systems

June 2017

About IEMA

We are the worldwide alliance of environment and sustainability professionals, working to make our businesses and organisations future-proof. Belonging gives us the knowledge, connections and authority to lead collective change, with IEMA's global sustainability standards as our benchmark. By mobilising our expertise we will continue to challenge norms, drive new kinds of enterprise and make measurable progress towards our bold vision: transforming the world to sustainability

Join us at www.iema.net

About WSP

WSP is one of the world's leading environmental, engineering and professional services consulting firms, provides services to transform the built environment and restore the natural one. Our expertise ranges from world class environmental systems to developing the energy sources of the future. From engineering iconic buildings to designing sustainable transport networks. We've around 36,500 staff worldwide, including 4000 environmental experts working in more than 500 offices across 40 countries worldwide.

www.wsp.com

Working Group

This briefing note was authored and edited by Rachel Jones, Claire Hicks and David Symons (WSP), with peer review and contributions from Nick Blyth (IEMA), Martin Baxter (IEMA), Hayley McDowall (Greater Manchester Fire and Rescue Services), Jonathan Foot (EDF Energy), Nigel Leehane (SLR Consulting and Chair ISO environmental auditing sub-committee) and Toby Robins (Office Club).

Contents

1 Outline

Why read this guide?

We know the future is going to be different. From future climates to energy prices. From future customer expectations to new laws and policies.

Yet although we know the future is going to be different, it's also hard to think beyond the present, to think out of the world we're living in today. But think back ten, fifteen, or twenty years. Our phones, the internet, how we shop have all changed significantly, yet other elements – human nature, work-life patterns and our homes haven't changed that much. Understanding how the world might look in the future and taking action to prepare for this future is a key role for senior management, as well as near term budgets and operations.

To support this, the revised environmental management system standard, ISO14001:2015 now also requires organisations to consider how the world around them will change, and to include these future trends in their planning.

This paper gives a practical view of three things:

1. How and why are future trends important to organisations and their environmental systems:
2. How to practically identify what future trends are relevant to your organisation; and
3. A practical overview of some of the key trends that we're expecting.

How to use the guide

This guide has been designed to be a practical tool to help all organisations understand which future trends are relevant to them and to help integrate these practically into your system.

- Section 2 gives the background to the changes in ISO14001:2015 and the business benefits of considering future trends. Read this first for the background.
- Section 3 provides a practical overview of how to identify what future trends are relevant and sample questions to be asking key teams. These can be used both at identifying key issues and also potentially as internal audit questions
- Section 4 provides example case studies from four organizations across different scales and sectors
- Section 5 provides information links along with an annex checklist of some of the key trends that we're expecting. Use this as part of your conversations with key teams and also to inform your conversations and briefings to senior management.

2 Future Trends Are Important For Organisations

What are future trends and why are they important?

We know the future will be different than today. Look back over your organisation's history for the past twenty years. Consider how its products, operations and customers have changed over this time. Now think forward twenty years. Think about the environment that your organisation will be working in. How will technology have changed? What might your customers expect? How could supply chain and prices have changed as well? What about your competitors? How might future regulation and UN Sustainable Development Goals (SDGs) impact?

Future trends are the changes we predict happening over the near to long term, or may already be happening now, that present opportunities and challenges that will change the way a business operates. They may be slow, gradual changes, or fast, disruptive change. Small year on year sea level rise, or the flying car.

The role of senior management is to plan and manage both for the near and medium to long term. And organisations that keep looking beyond the near term numbers perform better, get ahead of competitors and keep nimble.

Of course, some of the forecasts will prove wrong and other trends will emerge that we don't know about today. But thinking ahead with clear thought and practical actions is key. We all know the future is going to be different, but it's taking practical and appropriate action that is most important.

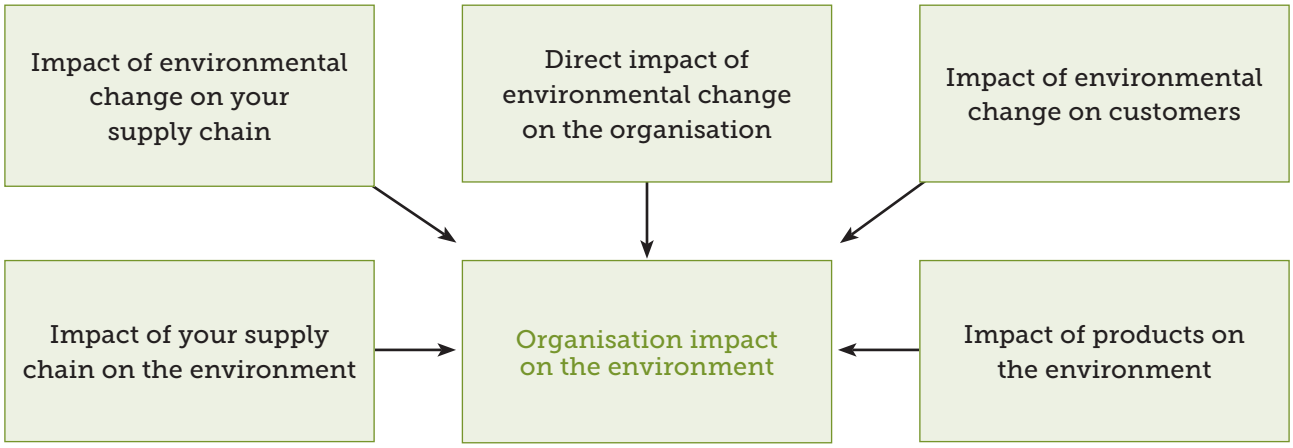
ISO 14001:2015 as a driver for considering future trends

Figure 1 requires organisations to look up and down their value chain and also to consider both how environmental change could impact them as well as how they impact the environment.

The revised framework of ISO14001:2015 standard for an environmental management system now includes:

- Understanding the context in which the organisation operates and identifying the environmental conditions, including events, that can affect the organisation.
- The environmental management framework should contribute to the long-term success of the organisation and to the overall goal of sustainable development.

FIGURE 1: ISO14001:2015 requires organisations to think wider than the impact of their site on the environment



Beneath these two headline points, there's five main ways which ISO14001:2015 requires organisations to consider and include future trends in their systems:

1. Context of the organisation – the requirement to determine external and internal issues relevant to an organisation's purpose.

Organisations do not operate in isolation; all organisations need to engage with their internal and external stakeholders to understand where issues are material and to enable the organisation to prioritise its resources to develop a plan to either address or mitigate these issues.

To understand which issues are important, ISO14001:2015 encourages each organisation to consider those issues that:

- Are key drivers and trends
- Can present problems for the environment or the organisation
- Can be leveraged for beneficial effect
- Offer competitive advantage, including cost reduction, value for customers, or improvement of the organisation's reputation and image.

ISO14001:2015 requires that the relevant issues are clearly identified in terms of how these issues can affect the organisation's purpose and ability to achieve the intended outcomes of the EMS. This should include regulatory changes, customer's demands, cross-departmental needs and external influences.

These context issues then need to be addressed in planning and the identification of opportunities to improve environmental performance.

2. Understanding the needs and expectations of interested parties.

ISO14001:2015 requires an organisation to identify the interested parties or stakeholders and their needs and expectations that are relevant to the EMS. An interested party's needs and expectations can change over time and will be impacted by changing trends.

The requirements of interested parties need to be considered to determine the compliance obligations for the organisation. These will include mandatory regulatory requirements but also need to include requirements of, for example shareholders/investors interested in key risks which can result from environmental constraints.

3. Consideration of life cycle perspective of environmental aspects

ISO14001:2015 requires a lifecycle perspective to be considered in determining the scope of the EMS. The key reason for this is that the lifecycle impact of an organisation's products or services can be many times greater than that of its direct impacts. The intent is that the EMS is to define how control and influence will be applied, taking a life cycle perspective, including within its organisational boundary/EMS scope, and outside. The intent is very much to maximise value from sound environmental management, with benefits to all involved throughout the life cycle.

Lifecycle is defined under ISO14001:2015 as the consecutive and interlinked stages of a product (or service) system, from raw material acquisition or generation from natural resources to final disposal. Lifecycle stages include acquisition of raw materials, design, production, transportation/ delivery, use, end-of-life treatment and final disposal.

Organisations cannot directly control but can often readily influence the lifecycle of their products and services. This influence can be for example through supply chain partners to include specifications that minimise environmental impacts with the use and end-of-life issues associated with the product or service; this should include the provision of relevant information to the customer or end users to ensure they know how to safely use the product and dispose of it.

Consideration of a life cycle perspective requires input from the different functions of an organisation. For example:

- Procurement - must specify environmental requirements as appropriate and communicate them to suppliers, including contractors.
- Design and development - consideration of environmental aspects in design and development, in all life cycle stages of products and services, from raw materials to end of life.
- Communications - Communications of impacts in delivery of services and products, and in use and end-of-life.
- Outsourcing – any services outsourced are under operational control and environmental impacts management can therefore be a shared responsibility.

4. Extending the scope of an environmental management system and linking to wider sustainability strategies.

It is no longer acceptable for an organisation to restrict the scope of an EMS to self-determined areas of an organisations activities, products or services without a clear understanding of what the organisation can control or influence. The scope of the EMS must not exclude activities, products, services or facilities that have or can have significant environmental aspects, or in a way that evades its compliance obligations, or misleads interested parties. Consideration must be made to the lifecycle and the ability of an organisation to control and influence in the supply chain. Such examples can include the need to consider air emissions from vehicle fleet or modern slavery in supply chains.

This requirement also has the positive benefit of driving an EMS to better link to wider business strategies. For example, many organisations now have in place sustainability strategies which consider the economic, social and environmental sustainability of an organisation. The environmental strategy is a subset of this wider integrated strategy and should not be considered in isolation. The issues to be managed by the sustainability strategy influence the scope and requirements of an EMS.

The success of the EMS is dependent on commitment from all levels and functions of an organisation and improved accountability and management of environmental issues will be achieved where environmental issues are seen as integral to core business strategies.

5. Top Management Leadership

Leadership from the 'top management 'of an organisation is important for effective implementation and continual improvement of an organisation's EMS. There is a specific requirement in ISO14001:2015 for 'top management' to demonstrate their leadership and commitment by":

- Communicating the importance of effective environmental management and of conforming to EMS requirements,
- Directing and supporting staff to contribute to the effectiveness of the EMS,
- Supporting other relevant management roles,
- Promoting continual improvement, and
- Ensuring that the staffing resources needed for the environmental management system are available.

Top management leadership is also key to leading organisations to identify and consider the impacts of future trends and to incorporate the management of these into their environmental and wider business management systems.

Overall, IEMA, and many of its members, believe that the resulting improvements to EMSs will bring genuine business benefits:

- Greater integration into business processes will be more effective
- EMSs will help organisations achieve operating efficiencies and reduce costs
- Strategic consideration of environmental issues will identify business opportunities
- New requirements will improve compliance and reduce risk

3 How to build future trends into your management system

Identifying relevant trends

The relevant environmental trends for an organisation will vary dependent on a number of factors. Including, the design life of an organisation's products, the location and size of an organisation, the activities, strategic direction, culture and the supply chain of an organisation.

Your organisation may already have carried out significant thought on future trends and how they'll affect it. Your organisation may also have a process that can be used to identify long term environmental risks. If not, or you are looking for a different way to engage teams on future megatrends you could follow a simple seven step process:

1. **Convene a small group** from across your organisation and drawn from representative departments to be your project team. This team should have sufficient knowledge and input to cover:

a. The organisation, its activities, products and services, strategic direction, culture, and capabilities (people, processes, systems, technologies)

b. External environmental conditions

c. External cultural, social, political, legal, regulatory, financial, technological, economic, natural and competitive context (including international, if applicable).

2. **In parallel, run a workshop with your senior management team** to get their input on future trends that matter to them. Use the questions in this chapter as key points.

3. **Work with each of your working group to identify the future trends that are relevant** to their teams

a. Use the questions in this section as an aide memoir. Use the checklist as a prompt to the key trends.

b. You may also find that other sources, such as trade associations and published reports could be useful as well.

c. Stakeholder sessions could also help identify future trends relevant to them. Work done on materiality for corporate reporting purposes can help to identify key areas of stakeholder concern. Questionnaires and interviews with customers and suppliers can provide useful input to the changing needs and expectations of these stakeholder groups.

d. You could also draw on external research and expertise, where useful. Research can be commissioned into particular sector specific or locational issues. For instance it may be important to understand the local impacts of climate change to a particular geographical location or supply chain impact.

e. Consider if codes of conduct, future customers, and other policies which the organisation has signed up to are relevant to future trends.

In all of this work, try to avoid using hearsay and 'typical' memes about the future though – often there's not enough practical evidence to back up hearsay. From this identify which are the future trends that are most relevant to that team.

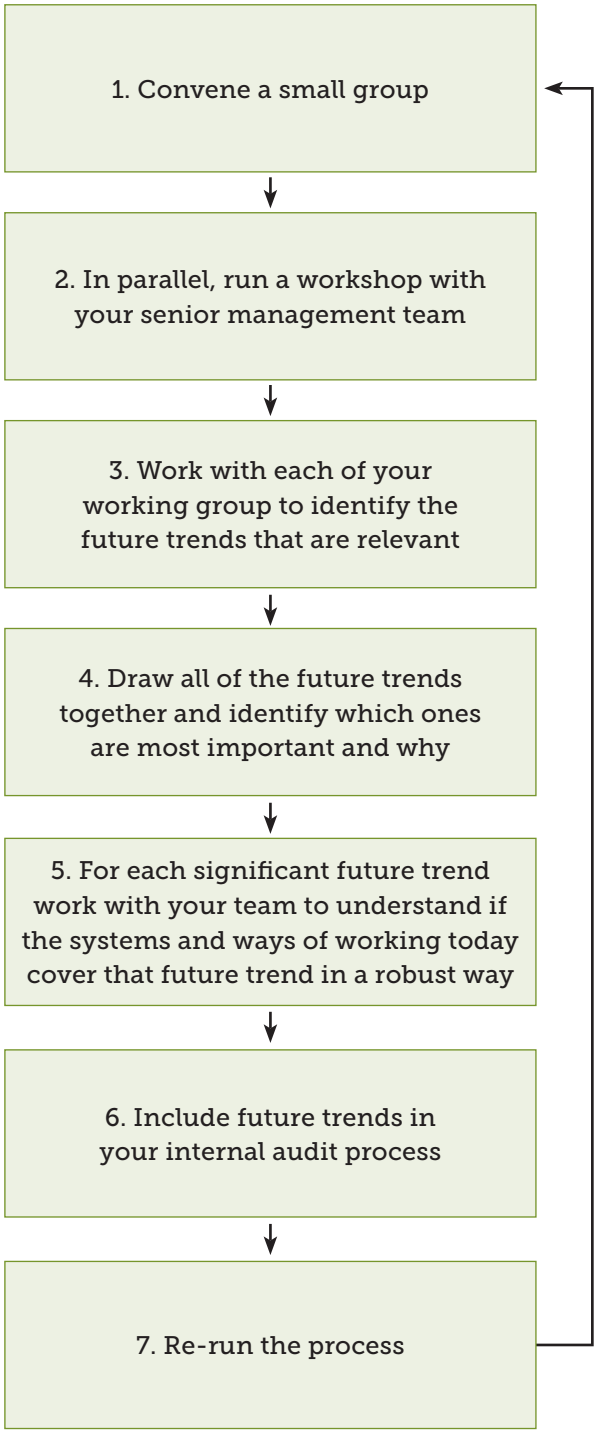
4. **Draw all of the future trends together and identify which ones are most important and why.** You could also take this opportunity to consider whether there are cross-cutting trends that affect the organisation as a whole, not just a department.

5. **For each significant future trend work with your team to understand if the systems and ways of working today cover that future trend in a robust way.** From that consider whether you need to do more to make management of these issues systematic. Be this by operational control or by objectives and targets to either gather more data or to improve.

6. **Include future trends in your internal audit process** and make sure your auditors have the skills to both understand future trends and to ask relevant questions. Again, the questions in this section could be useful.

7. **Rerun the process** on a regular basis to keep future trends up to date

A "systems thinking" approach, as featured in April 2017's *Environmentalist* can be useful in understanding that an EMS is part of a larger, more complex business system. Systems thinking considers the links and interactions between the components that form a system and cause change over time. This approach can be used to look at megatrends from a broad perspective to assess the impact to an organisation.



Questions to ask key teams

This section sets out a selection of key questions to ask each team and guidance for running a successful session.

Senior management

Most environmental managers will get an hour to review environmental futures as part of a larger meeting. Celebrate if you get more and you'll be able to get into more detail. Your aim should be to introduce the workshop and then get your senior managers talking and giving their opinion as fast as possible.

Give a quick background and context on the types of future trends that could be relevant. Then get the senior management team talking. Go round the table if the conversation dries up.

Key questions you could ask include:

- What are the things that keep you awake at night?
- Are there future trends that you see as especially important to the long term success of our organisation? What are they? Why is that?
- Do you as a team of business leaders spend enough time talking about the big trends? If no, what might we do differently?
- Is the balance right of short term vs long term considerations right in our business? If no, what might we do differently?
- What is our organisation (and you?) going to be remembered for? What is our legacy?

Design and product Development

- What is the typical design life of the products we're working on? Is this getting longer or shorter?
- What are the products we're working on today?
- In looking at the design how far ahead do we look?
- What do we anticipate will change between our designs today and when they're launched? What do we anticipate will change over the design life of the products once they're in the market? How strong is our data on these trends?
- How / are these future changes considered? Consider some worked examples of where these future trends have been considered.
- Is the process effective in your view? Could it be more effective – how?
- Are competitors further ahead / behind in looking at future trends? Who is a role model in your view?

Facilities management / operations

- What are the key decisions / activities we're carrying out? What is the lifecycle for each?
- As well as the day job, are there key projects we're working on? How long will the decision remain with the organisation?
- What are future trends that are relevant to these decisions?
- Are they / how are these future trends being considered? Consider some worked examples.
- Is the process effective? Could it be more effective – how?

Utilities

- How will our demand and spend on energy / water change in a business as usual world?
- What future prices for energy are we using? Is this realistic? Do we have a view of future renewable energy?

Finance

- How do we make money today? What are our key costs, who are our most profitable customers?
- What are the key risks / opportunities to our business today? Are there key trends which could affect our profitability?
- How are we managing these key trends? Give examples.
- Is the process effective? Could it be more so?

Marketing and communications

- Which of our key stakeholders are interested in environmental issues today? What's especially important to them and why?
- Do you see this changing in the future? What trends become more / less important? Are there particular markets / customers that this is relevant to? Why?
- Are there questions that customers or stakeholders should be asking about environmental performance, if they knew that they should be asking this?
- Are competitors ahead / behind us on considering future trends and including environmental issues in their marketing mix?

Buying / procurement

- What are the key things that the organisation buys and how does this work today?
- What is the lifetime of key buying decisions? Are they long term contracts?
- What future trends are relevant to what the business buys and from where? Why? Consider especially risk of supply chain disruption, future price volatility and future changes in disclosure or supply chain transparency.
- How / are these future trends considered in the buying and supply chain process. Consider some examples.
- Is the process effective? Could it be more effective?

4 Case Studies

Hayley Mcdowall
- Manchester Fire And Rescue

GREATER MANCHESTER FIRE AND RESCUE SERVICE

How have you identified and considered environmental megatrends for your business?

We held several workshops with members of our senior leadership team and representatives from the most relevant departments (the Sustainability Leads Group). One of the Fire Authority's Councillors who champions sustainability at authority level within GMFRS was also present. The first exercise carried out was to identify any issues that could affect the Fire service's context. To support this process we used the service's PESTLE analysis and Risk Register, both of these processes already horizon scan for any external issues that may affect the service's ability to deliver and include an environmental category.

Many of the issues identified from this exercise are environmental megatrends, examples include increasing frequency of hazardous weather events and the impacts of removing government subsidies on renewable technologies.

How are they integrated into your management system and business processes?

A second part of our workshop exercise was to assign risks and opportunities to every issue (or megatrend) identified. Participants were split into small groups and each assigned several of the issues to highlight relevant risks and/ or opportunities against. All the newly identified risks and opportunities were then ranked using the methodology used for the service's broader risk register (severity x likelihood) and added to it. Every risk or opportunity has a mitigation or enhancement action against it and the register reviewed by the Sustainability Leads group on a quarterly basis.

Our Environmental Management System (EMS) and in particular any new environmental aspects, compliance obligations, risks and opportunities are raised with the service's senior management team as part of an annual Management Review meeting. Generally this is to ensure management awareness on any updates but also so that high level decisions can be made for necessary issues.

What are the barriers to integrating/managing key trends with your supply chain and customers?

For the fire service this is mainly a case of considering how we can engage our suppliers to deliver their service or manufacture their product in a more environmentally sustainable and socially ethical way considering the whole life cycle of that commodity. One of the main barriers to this is finding suppliers who can make these commitments (and prove them) whilst also providing the goods at the best value and highest quality.

What future trend is of most concern for your business and what impacts do you think it might have?

As an emergency service we are increasingly on the front line in responding to weather related incidents. The service's mission statement is clear – to protect and improve the quality of life for communities in Greater Manchester. However, this is becoming more difficult for us to achieve as 'freak' flooding events, storms and other weather based incidents are becoming more and more common. The Boxing Day floods in 2014 led to 1,000 emergency calls to the fire service in 24 hours and with rainfall in the North West set to increase by another 35% by 2050, responding to flooding will become the norm for fire services. More violent weather leads to an increase in road traffic collisions and fallen trees (and in some cases buildings). In February 2014 winds speeds of up to 90 miles an hour caused trees to keel over and resulted in more calls than ever received on a Bonfire night. Conversely hotter and drier summers cause wild fires, which quickly spread across the moorlands. The changes in our climate driving extreme weather events are one of the biggest environmental concerns for GMFRS as our ability to respond to this has only just begun to be tested. To be resilient to these events additional resource will be needed and this is an uncomfortable reality during a time of austerity.

Toby Robins - Office Club

Office Club Ltd is a company operating in the office supplies sector. It has just over 200 member companies to whom it provides a range of services including consolidated procurement, marketing services and management consultancy. Member companies are predominantly SMEs with revenues below £5m and often operations in a retail environment.

How have you identified and considered environmental megatrends for your business?

At Office Club we have a role identifying emerging trends that will affect the viability of members' businesses and to support members with awareness and planning so that threats can become opportunities by applying the responsive adaptability for which SMEs are renowned. These trends can be social, economic or environmental as all are required to create a sustainable business.

Through publications, webinars and seminars from professional bodies such as IEMA, PwC and EY we seek understanding of the global trends. We then consider what they will mean to our membership and what our response should be. In considering the trends we do not seek to separate the environmental thread from the other pillars because they are inter-related. Increasing urbanization, for example, has implications for air quality. What sounds like a benefit with regard to more potential customers may therefore have a negative economic outcome by keeping people away and also expose staff to greater health hazards.

What future trend is of most concern for your business and what impacts do you think it might have?

Globalisation, whilst promising reduced pricing and social development in less advanced nations also makes it harder to control supply chain environmental and social impacts such as deforestation, pollution or slavery. The reputational risk for the company is therefore exacerbated.

Technological change with increasing automation may drive efficiency but it also replaces many jobs. Together with increasing digitization and home delivery, it allows lives to be lived from the comfort of one's home. What will be the impact on mental health if all communications are digital? How will this modal change affect our members and what is the opportunity?

Understanding the impact of these trends on our membership supports our advice within the account management process and allows us to highlight to the regulatory authorities what will be the impact on our industry. The recent business rates review, for example, punishes the High Street and supports the automated warehouses with the associated social impacts on employment levels.

All mega trends change the way business is conducted and it is great news that they are increasingly being taken into account in business planning. Not only does this allow adaptation and resilience to be incorporated but it also supports a move away from short-term thinking to a depth of perspective that permits issues such as climate change to be addressed.

Jonathan Foot - EDF Energy

How have you identified and considered environmental megatrends for your business?

Our assessment of future megatrends has not just been limited to environmental issues;we've looked at how societal issues may impact our business and therefore change demand for energy (i.e. aging population, modes of travel and future housing) and therefore directly or indirectly affect the environment as a result of our future operations. The Climate Change Act (2008) and the directions from the government require us to understand how the essential services and infrastructure we operate may be impacted by future predictions of climate change. We have worked in conjunction with our peers in the energy sector to use the internationally recognised Met office models to predict future climate scenarios and to help us understand the risks for our business.

For EDF Energy the future provides us with many opportunities to improve the supply and distribution of low carbon electricity through SMART grids, SMART meters and demand supply improvements. We are also investing heavily in life time extensions for our existing nuclear stations, new low carbon nuclear and renewable energy to ensure that we can supply safe, secure and affordable energy for our customers, and to provide the basis for the UK to meet its international obligations.

How are they integrated into your management system and business processes?

Having reviewed the key risks and opportunities for EDF Energy we developed the EDF Energy strategy to address all of the megatrends that we have identified. This was developed into the Better Plan. The Better Plan is EDF Energy's framework for being a sustainable and responsible energy business. It is an integral part of EDF's 2030 vision – to be the efficient, responsible electricity company, champion of low-carbon growth. We want to be known as the energy company that is leading the delivery of three big improvements for society:

Better Lives: innovating to transform lives with skills and job opportunities

Better Experience: innovating to help all customers manage energy better

Better Energy: innovating to lead the UK's transition to safe low-carbon energy.

The Better Plan will help us to ensure that we continue to drive innovation, achieve profitable business growth, save costs and manage the risks of doing business in an increasingly volatile world – and, importantly, that we do all these things in a sustainable and a responsible way.

What are the barriers to integrating/managing key trends with your supply chain and customers?

By 2030, our goal is to be ahead of the Government's ambitious trajectory to deliver the UK's 2050 climate targets (i.e. less than 50g/kWh by the end of the fifth carbon budget), and to keep our position as the UK's largest low-carbon electricity generator. However, we do not anticipate a straight-line reduction in the carbon intensity of our generation fleet between now and 2030. What will be important will be the steps that are taken to have in place by 2032 the generation fleet that will deliver the right carbon intensity and scale of low carbon electricity.

We work hard to protect our customers from energy price volatility by reducing our costs and investing in safe low-carbon energy. We also need to ensure that new digital technologies can help our customers to better understand how they use energy, and the costs associated with the energy they use. Our Bridgwater College partnership includes the Cannington Court project (our new training facility) which demonstrates how a Grade 1 listed building can be refurbished as sustainably as possible while preserving the protected parts of the building (including bats and architectural features).

What future trend is of most concern for your business and what impacts to do think it might have?

Like IEMA, EDF Energy has been leading on the development of an environmental education and skills strategy: Tackling a growing shortage of young people studying the skills needed to run and develop our new low carbon energy assets. Inspiring the next generation of energy consumers to reduce the energy consumption. In 2016, we published our Education and Skills Strategy focusing on company-wide investment in education activities on two key themes: 'Building our future workforce' and 'Building stronger communities'.

Our 'future workforce' theme focuses on:

- building interest in STEM studies and careers with young people
- building advocacy for STEM studies and careers with parents, teachers, employees and other influencers of young people
- and reaching diverse groups with education and skills activities to build a diverse future workforce.

Our 'community goals' focus on:

- investing locally in education and skills activity to build relationships and trust with local communities;
- engaging employees in education volunteering to develop skills and engagement in our existing workforce
- and better preparing young people for some of the wider challenges they will face in the future.

Kirsten Mclaughlin - WSP

How have you identified and considered environmental megatrends for your business?

Through the upgrade of our Environmental Management System (EMS) to meet the requirements of the new ISO 14001:2015 standard we took a wider view of our environmental impacts. The new standard asks you to consider not only how you as an organisation impact on the environment but also how the environment will impact on your organisation. We built on our already detailed Environmental Aspects Registers, adding Risks, Opportunities and External Factors / Trends.

ISO 14001:2015 defines risk as "potential adverse effects (threats)" and opportunities as "potential beneficial effects" so we developed a risk and opportunity plan. For each risk or opportunity we detailed the impact, whether positive or negative and the proposed action to be taken to implement or rectify.

PESTLE stands for:
P – Political
E – Economics
S – Social
T – Technology
L – Legal
E – Environment

To cover the external factors we conducted a PESTLE Analysis to understand what factors could impact business activities, both present and future. When conducting PESTLE analysis you ask certain questions relating to each category. Our organisation already has an overarching business risk process, so in this exercise we were focusing on factors that would affect our environmental performance, effectiveness of EMS, meet client requirements and our ability to continually improve.

The key environmental trends that came out of our PESTLE analysis were Climate change, Land use, Population, Catastrophes, Biodiversity and Ecosystems. The results of this analysis including forward planning will be added into risk and opportunity plan.

How are they integrated into your management system and business processes?

The designs and advice our teams provide is by far our largest opportunity, especially because many of our projects can have design lives of over 100 years. Future Ready, our flagship innovation and sustainability programme, aims to give all our design teams a practical view of the future and challenges them to engage with our clients and to work with them to design both for this long term future and for today's code. It's unique in our sector and is really helping set our business apart and being at the heart of positioning WSP at the heart of supporting a future ready, resilient, one planet economy.

Beyond Future Ready, the new standard has a lot more emphasis on engaging senior leadership and establishing their commitment to environmental protection and improvement. Throughout all our EMS upgrades we have tried to involve senior leadership to get their input, such as through cross functional groups including the involvement of Corporate Real Estate, Finance, Human Resources, Procurement and Corporate Sustainability. New environmental and sustainability objectives are being drawn up which will take us up until 2025 which take all these factors into consideration.

What are the barriers to integrating/managing key trends with your supply chain and customers?

The main barrier to managing key trends with our clients or suppliers is helping them understand that future ready designs often have a lower total cost of ownership, even if first capital cost can sometimes be higher. This barrier is exacerbated during times of economic downturn. We will work hard to ensure these issues don't fall down the agenda and work collaboratively with our stakeholders to manage our performance in the face of changing political, economic and environmental trends.

What future trend is of most concern for your business and what impacts do you think it might have?

The future trend causing us the most concern is climate change. It has the potential to affect not only how we operate but also our clients, suppliers and the wider population. Climate change impacts could be far and wide and could cause other trickle effects such as resource shortages, increased frequency of natural catastrophes, food shortages, changes to land use and biodiversity, increased demand on energy supply and so on. Our Future Ready work is at the heart of this, and we are also only one company working in this area – there is much more to do.

I don't believe Climate Change should be the only focus, the inter-connections of climate change with other issues such as future societies and resources are just as important.

5 Where Can You Go For More Information?

Below are a few suggestions for where to get further information on sustainability issues.

- IEMA: www.iema.net
- BSI for information on ISO14001:2015: www.bsigroup.com/en-GB/iso-14001-environmental-management/
- Behavioural Insights Team: www.behaviouralinsights.co.uk
- Business green: www.businessgreen.com
- BEIS www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy
- BP Energy Outlook: www.bp.com/en/global/corporate/energy-economics/energy-outlook.html
- Climate Projections at the Met Office: ukclimateprojections.metoffice.gov.uk
- Committee on Climate Change: www.theccc.org.uk
- DEFRA: www.gov.uk/government/organisations/department-for-environment-food-rural-affairs
- EA: www.gov.uk/government/organisations/environment-agency
- Edie: www.edie.net
- Ellen MacArthur Foundation: www.ellenmacarthurfoundation.org
- European Commission Environment: http://ec.europa.eu/environment/index_en.htm
- Forum for the Future: www.forumforthefuture.org/our-work
- IPCC: www.ipcc.ch
- Natural Capital Committee: www.gov.uk/government/groups/natural-capital-committee
- ONS wellbeing: www.ons.gov.uk/peoplepopulationandcommunity/wellbeing
- Project everyone: www.project-everyone.org
- RSA: www.thersa.org
- UNFCCC: unfccc.int/2860.php
- UKGBC: www.ukgbc.org
- UN SDGs: sustainabledevelopment.un.org/?menu=1300
- World Economic Forum: www.weforum.org

Annex
Future Trend Checklists

The following checklist gives a practical guide to some of the key future trends that are likely to be relevant to many organisations. This list is not intended to be a comprehensive summary – every organisation is different after all – but is aimed to give a starting point for considering which future trends could be relevant to your supply chain, operations and customers.

We've designed this checklist to be copied and used as a simple checklist for management and key departmental conversations. Some trends will be more important than others. In all, consider what the design life of decisions are and – practically – how future trends could impact on these in assessing relevance to your organisation.

1. Society

- Demographic change - population becomes larger and older
- People are better connected but more lonely
- Attitudes and expectations towards environmental issues change

2. Policy and politics

- Impact of new regulations and policies?
- New regulators of the future?

3. Resources

- Energy trends
- Water efficiency
- Circular economy and resource efficiency
- Trend to long life, flexible, modular solutions.

4. Climate change (UK)

- Wetter milder winters
- Hotter drier summers
- Extreme events and regional variability
- Natural Environment and Ecosystem Services

5. Technology

- Smarter technology
- New materials become available and mainstream

1. Society

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
By mid-2039, more than 1 in 12 of the population is projected to be aged 80 or over.			
UK population is projected to increase by 9.7 million over the next 25 years to reach 74.3 million in mid-2039 (highest % change is in England). UK population is projected to reach 70 million by mid-2027.			
One person households are the largest area of growth in the United Kingdom.			
Homeworking - Technology lets people 'work' everywhere, not just the office. % of workers age 16+ working from home reached 11.2% in 2010.			
Increase in online shopping - From 2000 to 2010 online grocery sales increased by over 900%.			
Growing interest in health and healthy living year on year.			
Air quality - A growing societal issue.			
Future customer expectations – Will customers become more aware of environmental issues in key markets in the future? In what specific areas?			
Competitors – Will competitors change the competitive dynamic by radical environmental innovation?			
Change in investor and stakeholder views of environmental risks - Increased disclosure requirements (e.g. Non-Financial Reporting Directive, Conflict Minerals reporting, UK Modern Slavery Act, ISO updates becoming stricter etc).			

2. Policy and politics

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
Devolution of cities and regions, more importance placed on local issues.			
Future regulations, relevant to products and supply chain.			
Future government policies that reward 'good' and penalise 'bad'.			
Greater reliance on international standards, both up- and down-stream, resulting from wider trading relationships globally.			
Increasing expectations for 14001 EMSs to address broader sustainability issues, etc, as approaches to 14001:2015 mature.			
Impact of a carbon price?			
Retailers with their global reach, long term thinking and reputation become the regulators of the future?			
Leasing of EPC F and G properties to be banned from 2018 Consumers choose energy efficient buildings.			

3. Resources

Annex

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
Smart grids, decentralisation of power, low carbon - SMART metering and smart appliances will enable us to use energy when it's most efficient to do so.			
Digital solutions and new solutions to store energy will become more cost effective, enabling low carbon energy to be used when it's most needed, and to provide new low carbon solutions for balancing the national grid.			
Mains electricity becomes more expensive (UK Govt forecasts 40% higher than 2014 by 2030), renewables become virtually free.			
Battery storage becomes cost effective for all.			
Heat pumps become lower cost heating (and cooling) systems than gas boilers.			
Grid energy prices forecast by DECC to be 40% higher than 2014 by 2030.			
Long term projects will need to operate in a very low or near zero net greenhouse gas emissions.			
Water resources will become more variable and less predictable. UK summer river flows could be 50-80% lower by 2050, while the Water Framework Directive restricts river and groundwater obstruction.			
Abstraction licence trading will be more common.			

3. Resources (Continued)

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
Embodied carbon and water of designs becomes a normal part of project decisions. All projects could have a contracted embodied water and carbon budget.			
The circular economy becomes mainstream. Products are designed for re-use. Landfilling waste in the UK is much less common and more expensive. Energy from Waste has a role to play, but it's only seen as a short-term solution for diverting waste away from landfill. EU Circular Economy Action Plan (if adopted by the UK), will include amendments to waste legislation.			
Just in time manufacturing replacing just in time delivery.			
Potential growth of secondary materials market in the UK and Europe.			
New digital systems will enable materials to be tracked and their provenance tracked through the supply chain from cradle to grave.			
Cities will be used more intensively – from building above roads to building higher and lower, to buildings having more than one use over the day. In addition, buildings will have more than one use over their life, driving more flexible designs.			
Modular, "plug and play", services allow businesses to respond to real life changes and to design long life, adaptable products.			
Biodiversity becomes mainstream. Net positive for cities and developments.			

4. Climate change

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
It will rain more heavily, causing local surface water and river flooding. 5-10% heavier from 1990 by 2010/39, 20% heavier by 2040/59 and 20-40% heavier by 2060/2115.			
The biggest changes in precipitation in winter, increases up to +33%, are seen along the western side of the UK. The biggest changes in precipitation in summer, down to about –40%, are seen in parts of the far south of England.			
Local water table changes could mean that soakaways don't work as designed.			
UK sea levels could be between 12 and 76 cm higher than today by the end of the century.			
'Multi hazard' events are becoming more frequent (storms bringing wind, rain and flooding), bringing disruption to value chain, operations and have a social cost. For example, 2011 flooding in Thailand closed factories and wiped $1bn profit off Intel in Q4.			
Peak temperatures in towns and cities could be up to 6°C hotter than today by 2050. Fewer very cold days, increased demand on air conditioning and water resources.			
Water scarcity - Drier summers, causing droughts and ground shrinkage. The biggest changes in precipitation in summer, down to about –40%, are seen in parts of the far south of England.			
Impacts on one part of the built environment could impact on another (e.g. a flooded substation cuts power to buildings).			

4. Climate change (Continued)

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
Natural solutions become an important way to manage and address climate change. (see green infrastructure)			
Future climate change could be greater or less than projected, requiring building and surrounding urban realm adaptation.			
Biodiversity impacted, which affects food security, changes to agriculture, loss of amenity or natural capital for society.			
Nature and ecosystems become more valued and better integrated, supporting more sensitive designs and preserving what is there today, along with enhanced restorative compensation approaches. Built assets will improve ecosystems rather than impacting them.			
Natural capital - More stakeholders will want companies to show that they are valuing, protecting or enhancing natural capital. It is likely that the proposed DEFRA 25 year strategy will promote ecosystem services and natural capital as key concepts and principles in the UK regulatory framework for environment.			
Green infrastructure - seen as integral to wellbeing (and climate resilience). Green Infrastructure is multifunctional, it can perform several functions on the same spatial area, from environmental, such as conserving biodiversity or adapting to climate change, social, such as providing water drainage or green space, and economic, such as supplying jobs and raising property prices.			

5. Technology

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
New information and communication technologies provide data that allows quick detection of failure. Intelligent systems, internet of things and big data lead to optimised asset management.			
Technology and social media leads to total transparency whether organisations like it or not.			
Ubiquitous sensors will be the eyes and ears for context aware systems that can monitor and manage all parts of products and process.			
Existing infrastructure may be re-purposed for new uses (e.g. fixed line telephone networks turned into broadband carriers), or used for multiple uses, such as solar roads.			
Autonomous vehicles become more mainstream. This could potentially allow remote car parking, redesign of streetscape, and freight distribution up and down value chain.			
Lighter and stronger materials allow new ways of building and maintaining the built environment, as well as more imaginative design. Likewise, transport sector may benefit from lighter and more efficient aircraft, road vehicles etc.			
Lower carbon materials reduce embodied carbon in products, particularly infrastructure and built environment.			
Self-healing active surfaces help increase building durability and longevity.			
New materials will interact with the environment, cleaning the air, generating energy.			

5. Technology (Continued)

Trend	Relevance (high, medium, low, none)	Considered in EMS?	Key department / internal stakeholders
Sharing economy - new business models (such as Air bnb, Uber, Task Rabbit etc) allow rapid change to align with demand and societal changes.			
Nature and ecosystems become more valued and better integrated, supporting more sensitive designs and preserving what is there today, along with enhanced restorative compensation approaches. Built assets will improve ecosystems rather than impacting them.			
Natural capital - More stakeholders will want companies to show that they are valuing, protecting or enhancing natural capital. It is likely that the proposed DEFRA 25 year strategy will promote ecosystem services and natural capital as key concepts and principles in the UK regulatory framework for environment.			
Green infrastructure - Seen as integral to wellbeing (and climate resilience). Green infrastructure is multifunctional, it can perform several functions on the same spatial area, from environmental, such as conserving biodiversity or adapting to climate change, social, such as providing water drainage or green space, and economic, such as supplying jobs and raising property prices.			

Notes

IEMA Transforming the world to sustainability

wsp

IEMA
+44 (0)1522 540069 | info@iema.net | iema.net
IEMA, City Office Park, Tritton Road, Lincoln, LN6 7AS