

Annex 1: Sample horizon scanning and futures material

Introduction

This annex contains sample outputs from a number of futures processes. They are included to illustrate what the outputs can look like and to help design your own futures activity. They are not definitive.

The following pages contain

- Two horizon scans in different formats
- An example of a 7 Questions interview
- An extract from an issues paper
- A drivers map
- Sample slides for introducing scenarios
- One scenario from a group of four
- A vision
- A SWOT analysis

Some of the context is taken from recent projects, some from projects delivered further back. Text has been lightly amended or redacted in some cases to protect confidentiality. The samples are taken from a mix of organisations in government, higher education and business.

Two horizon scanning formats

Two formats - long and short – are set out to show the options.

The internet of things

► H3

The Internet of Things (IoT) – also described as Industry 4.0 or the fourth industrial revolution - is the network of physical objects embedded with electronics, software, sensors, and network connectivity which can collect and exchange data. At its core, IoT is simple; it's about connecting devices over the internet and letting them communicate with users, with each other and with applications. Its implications are more profound. IoT will change production - processes, practices, CRM – as much as the development of social media will change consumption.

IoT has been waiting in the wings for a couple of years but is now expected to take off. Accenture has published research suggesting IoT could be the biggest driver of productivity and growth between now and 2031, adding an estimated \$14 trillion to the global economy. It is currently expected to be worth half a trillion dollars to the UK. While these figures can be treated with some caution – actual value will depend on momentum, scale of roll out and unforeseen shifts in the market – the big issue in 2031 is likely to be which industries and institutions are ahead of the game because they took the risks.

IoT is not simply going to fall into the world's lap. Rather than incremental change to business models, IoT will challenge organisations to conduct a fundamental review of practice and instigate significant transformation, quickly. Like other technologies, IoT will make some jobs redundant but it will create new jobs and demand for new skills. Businesses and economies are still moving slowly, trying to understand the significant investment they need to make to develop the right processes and skills but they will soon require education, training and skills development on a significant scale. [Flexibility and adaptability are likely to determine economic success](#) for everyone.

Broad implications

[Speaking at Davos](#), Professor Alice Gast, President of Imperial College London said that university research will be at the heart of the fourth industrial revolution - but only if fundamental research is embedded at its core. Private sector R&D cannot drive it alone because of business's focus for short and medium-term applications so, she said, 'Universities [will] provide the crucible for completely new areas of science and technology to emerge, like biomedical engineering, data science and synthetic biology; and the business opportunities will follow.'

Universities are clearly drivers of the new technologies that underpin the fourth industrial revolution, but they are only one part of the equation – it is the combination and application of these technologies in commercial settings that will drive Industry 4.0 forward. Here, therefore, effective collaborations and commercial ventures will be critical to individual institutions' success.

[Flexibility and adaptability are likely to determine economic success](#) in Industry 4.0 and high skill labour (scientists, engineers, lawyers, for example) will need to be able to adapt their skills to the world of extreme automation and connectivity that will shape future economic structures. Being skilled in change, as well as being qualified professionally will be crucial for success in Industry 4.0 and will need to be taught.

Implications for [policy area]

[Redacted]

Political		▶ BIS underestimating value of student loans that won't be repaid	
Key words: student loans, debt, BIS, government policy		Last updated: 14 February 2014	
Impact on the business	★★★★☆	Certainty	★★★★★
		Timescale	short medium long
Baseline measure: unrecoverable student debt currently stands at £18 billion			
Student experience: ●		University plan: ●	Flexibility and efficiency: ●
Summary: The Public Accounts Committee (PAC) report published on 14th February 2014 highlights that government consistently over-estimates annual repayments on student loans and consistently under-estimates the debt that will never be repaid.			
Implications for [Client University]: Government efforts to tighten administration of loans might lead to student numbers reducing or to higher student numbers staying at home. Perhaps more likely, students will want to make their money go even further. They may wish significant differentiation of services or increased choice at the budget end; they may seek higher flexibility in accommodation packages or in accommodation bundled together with other services.			

Technological		▶ Crowdsourcing energy	
Key words: energy saving, user community, crowdsourcing		Last updated: 19 February 2014	
Impact on the business	★★★★★	Certainty	★★★☆☆
		Timescale	short medium long
Baseline measure: Gauge interest and progress by following EnergyDeck on twitter: @EnergyDeck			
Student experience: ●		University plan: ●	Flexibility and efficiency: ●
Summary: EnergyDeck is a community-based platform that helps organisations and individuals save resource costs. The driving idea behind EnergyDeck is to leverage the collective intelligence of its users in order to provide relevant benchmarks and help identify the most suitable savings opportunities via an easily accessed web platform.			
Implications for [Client University]: EnergyDeck allows property owners and managers to track the impact of energy usage across individual buildings and portfolio, Benchmark buildings performance across an entire portfolio, against other buildings or industry standards, provide clear and consistent data provided to tenants to better understand energy usage and track the benefits of energy efficiency investment. Furthermore, by doing this, it increases trust with tenants.			

An example of a 7 Questions interview

Interview with the Chair of a Professional Services Association

If you could speak to someone from 2025 who could tell you about the Association and what it is doing, what would you ask?

How is it funded? Does it receive money from the EU?

Is there free mobility of [profession] around the EU?

Are the members active? How do they promote the Association internally and to others? Has [professional] education been developed and qualified?

What is your vision for the Association?

My vision is that the Association works across the industry to develop a shared strategy for change and to develop the education and training resources it will need. I'd like to see lots of activities and drive - both from individual members and organization members.

I'd also like to see fewer talking shops and less documentation being produced.

This is not only important from a professional practice point of view. There's going to be a lot of calls from regulators across the EU for cost-benefit evidence and for increased focus on quality of service. I want the Association to be an acknowledged leader in practice and partnership.

What are the consequences for the Association if your vision is not realised?

It may slowly get obsolete. We may see a drop in the number of members if they perceive we are irrelevant and not delivering for them.

What needs to change (membership, relationships, structure, for example) to make your vision a reality?

We need to have a strategy for the Association itself and for how we can lead change across the profession. We need a strategy for helping both individual members and organization members and to support the network at a global level.

We urgently need to address our information gathering and how we translate it into knowledge and better practice. One way is to systematize evidence based practice. We need to gather and manage evidence urgently - our customers are already several steps ahead of us in their practice and they are noticing that we're lagging.

We need to engage the individual members. They don't see the broad agenda and we have to help them engage with it and drive practice forwards.

Looking back, are there particular lessons – successes, failures - from the last 10 years that we can learn from?

Our annual conferences always seem successful, but we should do an evaluation to see how they actually make a difference to working practice.

We could learn a lot more if we followed up on the site visits to see what has actually happened with regard to quality improvement.

We have to be better at showing the value in what we do.

We need to support networking and the promotion of the Association.

What needs to be done now to make sure your vision is realised?

This is a challenging question.

We have to work on different levels and to learn from experience to make sure [our practice] improves [customer experience]. How can we evaluate the sustained impact of [practice] on behalf of our customer base?

Research has highlighted new ideas about [practice] that can help us think about what we do. Some [members of the profession] are still old fashioned in the way they deliver services and a challenge for us is to develop a stronger customer-centered approach across all our membership.

We need to continue to work with the EU so that they can see the benefits of the work we are doing; but we also need to be open to and learn from good practice globally.

We need tools to encourage members to take responsibility for practice. We need to share good practice more - I'm not sure we have a good enough strategy at sharing.

If you had the power to make anything happen, is there anything else you would do?

I would like a physical centre where all members could be welcome and could come for advice on strategic action planning, for networking, for learning evidence based-practice and where we promote quality and life-long learning.

I would like to have very direct contact with governments and legislators – and given the chance to be a part of strategic decision making.

An extract from an issues paper

The bullet points on this page and the next are quotes extracted from a series of interviews with senior managers in a multinational manufacturing business.

Growth

- The business is not growing as fast as it could. Product line 1 is growing, but it is organic growth – about 5 or 6% a year. With Product line 2, there is much more opportunity to grow faster, an increase of 10 to 15%.
- If we do not continuously grow, then we will lose who we are. If we don't deliver this continuous growth we will spiral downwards and it will be hard for the business to survive. It may not be the mega growth of the technology sector, but if we can't deliver a steady 2% growth, we won't continue as a business.
- If we keep doing what we've done well for the last 6 or 7 years – which has been very aggressive – I believe we'll have a very good future. But it all depends on the strategy for growth. If we stop growing, I believe we'll be threatened by our competitors. We have to be big, strong to compete.
- Investment in major acquisitions is something we're not good at. We pay over the odds for businesses; they're purchased on the basis of being available rather than if they can grow; we had an aggressive strategy to double size of company in a short time, but it didn't work... So how do we grow in future - boring steady rate, no acquisitions for 2 years?
- What's our expectation for Asia? We should grow the business by 10% over the next 5-8 years. That's a very different proposition from Europe and the US. Our business growth is not aggressive enough today. It's not very exciting. Getting from 4% to 10% is the difficult bit...
- We've had problems with organic growth – so I'd like to see faster growth in the emerging markets.

Customers

- Put customers in the middle of our circle. We don't now.
- We have to develop relationships with customers that are more concrete than today, rather than looking at this and that in emerging markets without a clear plan to move forwards.
- We should periodically meet customers - whether big and global or small and local - to talk about performance and ask what their vision for their market is. The more we can communicate, the more we understand each other and can build relationships.
- Are we really focusing on and increasing the satisfaction of customers, increasing our quality in great manufacturing plants?
- We are very concentrated on a few customers - and they are able to negotiate strongly.

Culture

- We reinvent the wheel because we lost the people and the expertise. We love initiatives! The flavour of the year was innovation, now its balanced scorecard. By the nature of my job, I love initiatives, but I find even I'm saying 'here we go again!' Do we have initiative fatigue?

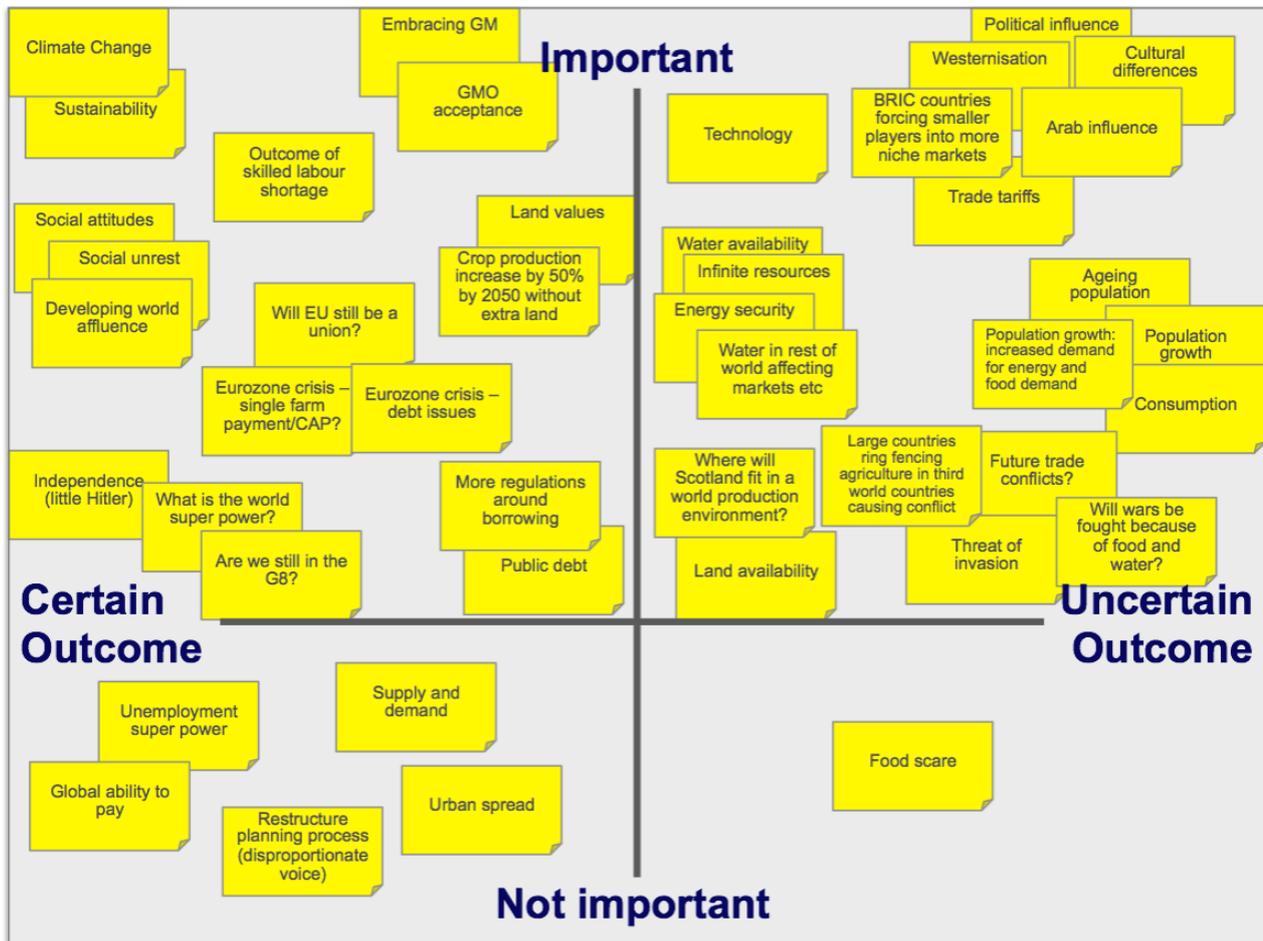
- There are still parts of the business, particularly where it is unionised where the allegiance is more to the union than it is to the company.
- The majority feel appreciated by the business, but there are still too many “living in the past” who make it difficult for us to move forward.
- We must make sure our employees are really satisfied so that every day they wake up and want to come to work, that they love working at the business. Are we good at these things or not?
- Corporate people don't have such a good reputation, they point out problems. They have to work in a different way – proactively - and find ways to help the plant deliver. They have to be part of the solution rather than saying 'just do it' and then going back to corporate.
- We are too micro managed and it needs to be macro; leaders should not be involved in the day to day operations but lead by task, objective and example (so they can focus on the long term and strategy).

Creating value

- Markets will be very, very connected in the future and our customers will demand sustainable solutions. We have to think very hard about this, all the way along the value chain.
- We need to try and develop new products with our customers in a more collaborative way. Many of the projects we have developed here have come from good experiences in Europe – but it is always our customers who have seen something they like in Europe and who ask us to copy it. It is reactive. We have to be more integrated within their supply chain and manufacturing process. This is how we will create value – if we end up competing only on cost, we will find it very tough.
- We can maximise quality and minimise cost by working more closely with the customer to understand their requirements in more detail.
- We should choose the business areas carefully. Innovation will be essential to meet the tight margins – especially so the customer can see how we create value.
- Product line 2 is good at working with clients, at creating new ideas to put on the table. They have good processes, lots of ideas, meet customer demand. We should investigate this for the Product line 1 side of the business. I don't know the process, but it would be good to develop relationships with Product line 2 to see how they do it.

Sample drivers map

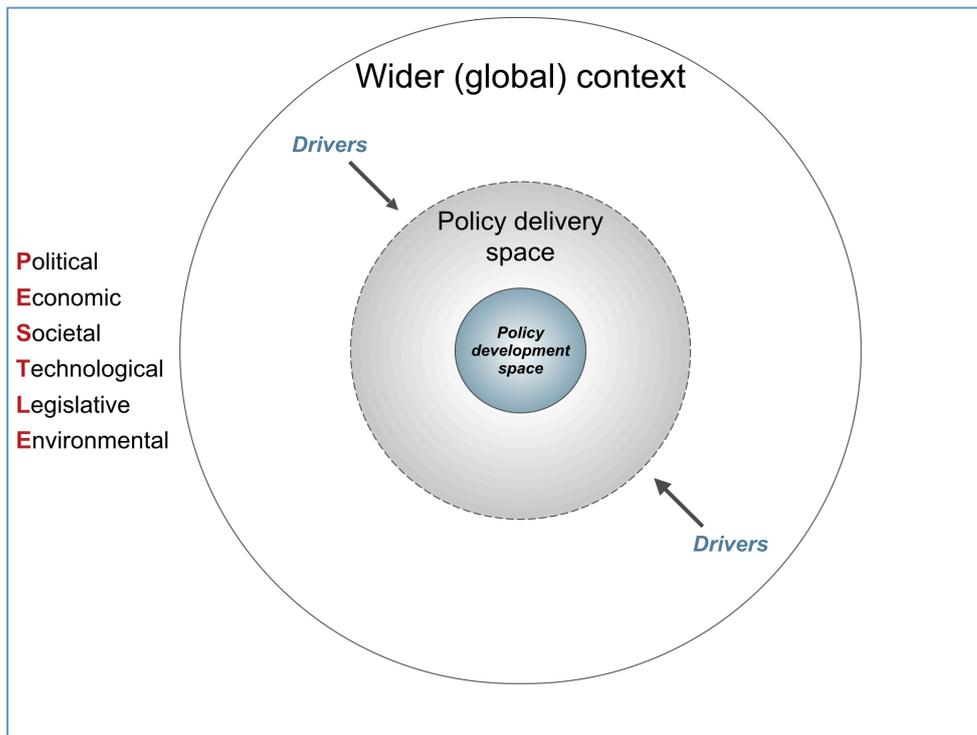
Taken from a stakeholder workshop exploring resource futures.



Sample slides for introducing scenarios

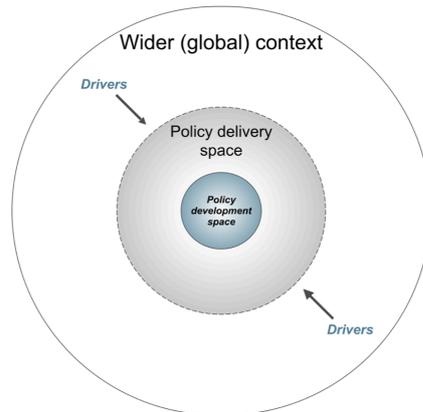
Scenarios...?

- Stories that describe how the world might look in the future
 - What's different from today
 - what we need to do to be successful
- Based on an analysis of **drivers**
- ...and on looking at **critical uncertainties** and **predetermined elements**
- Not predictions or forecasts
- Help you imagine how the conditions for success might vary in the future
- ...and anticipate some of the important decisions you might need to make about policy, resources and key activities
- Simplify some of the apparent complexity in the world



A 5 step process

1. Identify change drivers
2. Decide which change drivers are critical and uncertain for the future of [the policy area]
3. Construct a scenario matrix
4. Develop storylines that explore what the future might be like
5. Explore the implications for policy and strategy making



A sample scenario (one from a group of four)

The main characteristics of this scenario were developed in a half day scenario workshop. The narrative was written drawing on that conversation and on interviews with senior internal and external stakeholders.

The scenario - **Trading Places** - describes a future where economic power has shifted to the eastern economies and where markets and cultures are open to each other.

The global economy

Global economic growth averages 4% per annum. China, with growth of 7%, has steamed past the US and is now the world's leading economy. India is lying in third place.

China's current success is built on the introduction of market based competition and efficient allocation of capital to firms. This has unlocked entrepreneurial potential and allowed wealth to flow throughout the economy.

State run enterprises have fallen away and the banking system has become regulated, open and trustworthy. The state remains watchful, but for the right reasons, and has withdrawn from direct intervention in most aspects of the economy.

Infrastructure and environmental protection are two exceptions, mainly because of the financial risks and the need for sustained effort. It's now almost a decade since ASEAN 2020, when the Southeast Asian Nations launched their 15 year programme to achieve growth within environmental limits. They have made strong progress, committing to the innovation and investment needed to develop a renewable energy infrastructure and to clean up industrial production. The next wave of development will focus on access to clean water and on stimulating local resource ownership and local food production as far as possible.

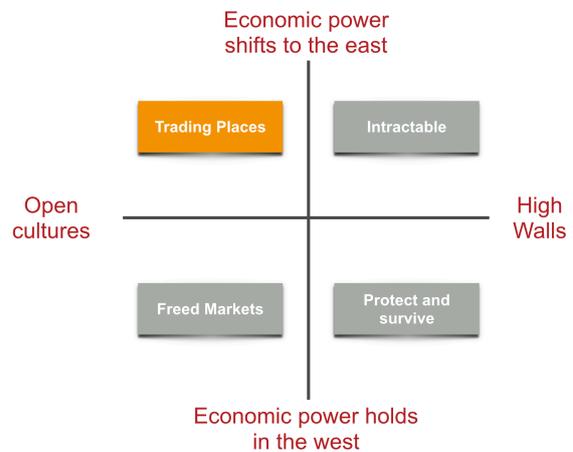
The rest of the world is following Asia's lead, recognising that continued global wellbeing requires a co-ordinated approach to all its challenges – not just global warming, but poverty, resource scarcity and increased security threats from fundamentalist and criminal agencies.

The US economy has steadied, buoyed by China's support for US government bonds and by the globally open approach to trade. It has been encouraged by China which now provides a large and increasing share of US imports. Growth is slow and unemployment remains high, but government support for start-ups is slowly bringing more of the labour force back to work.

While Europe cannot quite be described as resurgent, the early and widespread adoption of circular economy practices has released innovation and created employment. Regulation is strict - businesses and individuals are taxed on resource use as well as on earnings and all goods and services must openly present their environmental footprint – but compliance is high. Assigning economic value to natural resources is changing perceptions of wealth and prosperity. Communities are becoming locally focused and planning regimes across the EU are working hard to rebalance economies and distribute jobs more widely.

Technology helps. Increasing numbers of people work locally for increasing periods of time. Many employers have cut their physical space. Transport infrastructure still creaks, but less so.

China today is the new "New World", attracting migrants from the west and other parts of the southern hemisphere. Scientists, technologists and other highly skilled individuals are particularly in demand – either in person or through collaborations – and many are keen to take up the opportunity. It's not quite a western brain drain, but money talks. China has it.



Britain

Many people thought that the UK was in deep trouble when the financial services sector relocated large chunks to Dublin, Paris and Frankfurt after the UK's 'passport' was revoked – but they were wrong. The last decade has seen the former UK replace financial services with environmental services, effectively swapping out one wealth creation process with another – albeit with different measures of success. 'Old' economy industries such as gaming and medical technologies remain strong in Britain, but the real opportunities are in circular economic development and environmental protection.

It has been a fortunate transition – socially as well as economically - and one which the UK government would like to claim credit for. But they can't. Credit goes instead to the innovative partnership formed by environmental businesses, by the UK's young, talented and compassionate workforce and by an education system that has nurtured them and provided the skills they need to create a sustainable future.

A partnership, of course, that reflects the new reality of Britain and who really runs it.

Perhaps that is why people in Britain smile so much – because they have taken control and are now working hard to deliver what they value and care about. No-one seems that bothered that the economy is still flat rather than growing or that taxation is relatively high and people are less well off financially than a decade ago. Perhaps that's because anything is better than the drawn out and deep recession that cost Britain so much pain post Brexit.

Britain's geography is changing as farms scale up and land is rezoned to achieve optimal productive efficiency. Part of that productive capacity is allocated to food crops (although carbon intensive natural meat has been reduced) and part to energy crops. Ethical biotechnology has increased crop yields and reduced damage to soils.

One continuing challenge is how to tackle the environmental challenges in Britain's major cities quickly and with limited disruption. Electric vehicles and carbon rationing help but continued population growth - particularly in London - is placing huge strains on water availability and contributing to wider environmental stress. Some wonder if cities are about to change fundamentally. Certainly, distributed networks and remote working mean that concentrated population is no longer absolutely required for success and, many would now say, has gone way past what is sustainable.

Local communities are strong. Government reforms have led to decentralized decision making as far as possible. Public services still have some way to go to achieve the level of integration and efficiency that citizens demand, but the new crop of people coming into local politics have a high sense of responsibility and are making good progress.

A vision

This sample is the output from a visioning workshop with senior members of a UK business.

In 2025...

Protecting the environment is a key concern across UK society

Environmental protection is a key concern to consumers and society. Government policy is focused on ensuring the UK is resilient in the face of emerging resource security and scarcity. Business practices are designed to reduce waste and drive greater resource productivity. Compliance is tightly managed.

[The business] has adapted well

[The business] has adapted efficiently and effectively. This reflects **a creative and forward looking approach** to operations that has led to **new partnerships and increased collaboration** with others in the sector. **Innovation** drives profitability up and initiatives such as [deleted] drive costs down. Sharing best practice is commonplace. The use of recycled materials has increased.

Technology has reduced the size of the workforce, but those who remain - particularly apprentices and graduate recruits - have access to **education and professional development** and to structured career path planning on a par with competitors in industries such as [deleted], [deleted] and [deleted]. Salaries are competitive with those industries too. Productivity is high.

Greater flexibility in working hours and high job satisfaction scores mean **the sector overall has little problem attracting new workers** from both domestic and overseas labour markets. The number of young people entering and staying in [the business] has increased significantly. There are more women at all levels of the workforce.

Industry standards are high in areas of practice ranging from health and safety through quality to [deleted].

[The business] has strengthened its relationships with local communities

The business has **strengthened its relationships with local communities**. We are open about our activities and can demonstrate how they support both infrastructure development and the environment. Public understanding of what we do is high and our reputation is positive.

We have achieved this by being open with communities and sharing [section deleted]. Our **community investment programme** provides [section deleted].

[The business] remains confident in the face of continuing strategic challenges

[The business] remains confident despite continuing strategic challenges, supported by **a shared vision that defines a co-ordinated approach** to long term change and development.

Challenges for the future include the continuing loss of experience through retirement; the continuing pace of technological change; the need to sustain investment in people, equipment and processes; the threats posed by global warming and security of energy supply; and overseas competitors who continue to eye the UK sector enthusiastically.

Our approach to understanding these challenges involves **building our market intelligence** and using it to support our investment and project decisions. [Section deleted].

[Section on relationship with the industry regulator deleted]

A SWOT analysis

This table was produced by one of three groups in a strategy workshop.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Reputation of faculty for being agile and customer focused • Underpinning of [subject] portfolio by research activity • Breadth of activity (subject; UG/PG, PT/FT; FD to PhD) • Strength of partnerships across [Faculty] • High numbers of part-time students – richness & diversity to student body • Leaders in education in field of [Subject area] 	<ul style="list-style-type: none"> • Perceived Reputation of University • Degree to which research underpins [Subject area] professions portfolio • Staff structure required to deliver broad portfolio • Financial reliance on professions education (c 70% of int & ext income) • Lack of appropriate systems and level of resource needed to support large & diverse student body
Opportunities	Threats
<ul style="list-style-type: none"> • Changes to policy may offer opportunities to expand provision • Changes in systems & structures of [professions] drive CPD requirements the Faculty can exploit • High levels of employability linked to portfolio, which may be more attractive in a self-funding (through debt) HE market. • Pressures on [professional] organisations' staffing – driving demand for different models of delivery for education • Expansion of the market could generate a new opportunity • Current climate causing an increase in people seeking good quality advice, debt, housing etc 	<ul style="list-style-type: none"> • Changes to policy may result in provision moving to competitors • Changes in professional education commissioning means some programmes cease to be viable • Public spending cuts reducing the amount available for CPD • Focus of research funding into Russell Group • Future funding models and viability of some portfolio on a self-funding (through debt) model • Strength of the regional competitors in CPD market • Decline in graduate opportunities