
Microsoft Response to Developing the Future 2007

June 28th 2007
Matthew Bishop

Foreword

The software sector plays a significant part in the Knowledge Economy of the UK. This is where science, engineering and design combine with investment to drive innovation and create prosperity for the UK.

It is one year since the first Developing the Future (DtF) report outlined the initial challenges that faced the UK software development industry. The significant research and analysis for DtF 2007 explores, in depth, four main themes that are having an impact on our competitive position globally and provides six key points that require immediate action to secure the UK as the pre-eminent software economy in Europe. Microsoft UK's response to these is outlined in this document.

The report highlights that the growth of the Knowledge Economy is central to our Government's economic strategy and vision; and successful exploitation of innovation within the information & communication technology (ICT) sectors will provide a means for developing economic stability and prosperity.

This response to the issues and actions identified, provides insight into the commitment that Microsoft is making to ensure a vibrant and successful software industry in the UK. Our vision for research and innovation is translated into actions that count through our work with Government, academia, schools and industry partners.

Over the last twelve months we have made substantial announcements for new products, services and platforms that we believe will transform and accelerate the growth of the software sector. Additionally, Microsoft is continually investing in programmes with Government and academia, supporting the UK skills agenda and promoting the excitement and opportunity that exists in our industry to students in schools.

In this document you will gain a real sense of the passion and commitment Microsoft has for developing a vibrant, exciting and successful UK software economy. I invite you also to think about the role you or your organisation could play in driving growth in the UK ICT sector and how we can work together in partnership to develop the future.

Developing the Future of a vibrant UK Software Economy

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The New Knowledge Economy

Over the last year DtF 2006 has generated significant interest and action within Government, academia and industry. Both the DtF Report and the Microsoft response have been instrumental in challenging assumptions, accelerating change and driving the debate on how the UK could establish itself as the leading Knowledge Economy in Europe. The reports are seen as influential within the UK and have had an impact on the debate for the software sector in Sweden.

As a result of the challenges identified in the first DtF report, Microsoft chaired the initial working party of the Department of Trade and Industry (DTi) IAP i2010 working group. The first report from this working group was successfully launched in May 2007 with the support of Minister of State for Industry and the Regions the Rt. Hon. Margaret Hodge MBE MP. That report was the basis for a Ministerial workshop in June 2007 which explored the issues, challenges and calls-to-action that are needed to ensure the conditions for an innovative, inclusive and competitive UK Knowledge based Economy.

DtF 2007 is an action-oriented report that goes significantly beyond highlighting the issues and engaging initial debate. It raises the game and provides considerable analysis into the complexity of the issues facing the industry, focusing on four main themes:

- Globalisation
- Innovation
- Education and Skills
- The Future (emerging technology)

In the report, there are six significant findings from the research that explain the impact of the software sector on the growth and prosperity for the UK. These not only provide the insight into this crucial sector but also highlight actions that need to be taken if we are to accelerate UK economic growth and place us at the forefront within Europe and the rest of world.

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Six Key Findings from Developing the Future 2007

1.

The UK economy is fast approaching a point where the 'Knowledge Economy' will contribute 50% of UK Gross Domestic Product (GDP).

The Knowledge Economy, which includes sectors such as financial services, IT, business services and creative services, is the fastest growing component of the UK economy. The software sector is the most significant contributor to the growth and prosperity for the creative industries, and is therefore vital to the growth and prosperity of the UK as a whole.

2.

London's growing role as an innovation hub and the emergence of new global markets will drive economic growth in the UK.

With its unique overlap of financial services, technology, media, venture capital, and government interests, London is rapidly becoming a global hub for a new class of entrepreneur as well as being an international capital for creative industries.

The emergence of rapidly expanding economies in developing countries such as China and India are simultaneously creating new business opportunities for UK-based enterprises.

3.

Private sector investment of £127bn a year on intangible assets now equals that of tangible assets.

According to recent figures, investment from the private sector on intangible assets such as software, research and development and brand value, is approximately £127bn. Of the £127bn, 15% is spent on software alone (£19bn). The importance of the IT sector to the creation of wealth and business opportunity is significant.

4.

The UK IT industry faces potential skills shortage.

Will there be enough people working in the primary IT sector to develop the tools, applications and technologies that will be needed in other sectors that are heavily IT dependent such as financial services?

Despite numerous industry initiatives, currently only around 20% of the UK's IT workforce is female. If it is to fill its skills gap, the IT industry needs to recruit from the entire talent pool.

5.

There is growing pressure on the UK Government to reform the National Curriculum to allow students to study computing at GCSE level.

It is vital to put excitement for computing and science back into the curriculum and motivate new students to study these subjects.

6.

There is a loud and clear call for the UK Government to develop appropriate Intellectual Property Rights (IPR) for the 'digital age' to support innovation.

By adopting the recommendations from the Gowers Review, the Government has an opportunity to stimulate the growth in the ICT sector that is now required to support UK's future wealth and prosperity.

There is also a specific call for the UK Government to examine how it might devise a model for UK businesses, particularly small-to-medium businesses (SME), to benefit from IPR - in the same ways that the USA has seen benefit from such a strategy.

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Supporting the Benefits of Globalisation

Globalisation widens competition and the research for DtF 2007 shows that it also provides greater opportunity, resulting in accelerated innovation. It demonstrates that globalisation can be facilitated by the products of the IT industry, for example the development of collaboration tools, and that counter to popular belief, is also positive for the UK knowledge economy. In fact, today, the UK exports more in IT services than it imports.

If we are to retain this export benefit, again as the report describes, there is plenty to keep us occupied. This section describes part of Microsoft's contribution to the positive benefit of globalisation, through collaboration in its software products.

Enabling Collaboration

Microsoft is a global organisation and although its primary software development centre is housed in Washington State in the USA, it also has development and research centres in different parts of the USA and around the world. Microsoft's UK subsidiary is spread across six locations employing more than 2,000 people. Microsoft Research in Cambridge, England was set up in 1997 and is one of its five computer science research facilities.

As an organisation it is acutely aware of the benefit of collaboration, diversity and of supporting multiple modes of working. The DtF report highlights that through globalisation, UK businesses have been able to accelerate product development times, take advantage of cost reductions and still provide an on-shore UK software development capability that focuses on innovating new solutions.

One example of where Microsoft is enabling global working is in overcoming the hurdles of managing global software projects, using the collaboration features in its software development tools. For software developers, project sponsors, architects and project managers there are huge challenges. A global team, distributed worldwide, still needs the same level of management and control that a localised software project would.

Microsoft® Visual Studio® Team System provides a set of tools targeted at increasing the successful outcome of software projects, including those that are globally distributed. Microsoft Visual Studio 2005 Team Foundation Server specifically enables collaboration, reporting and control of software projects. For example, a global project that includes project management and architectural design in the UK and software development and testing in different countries can be run using the same tools as an entirely local project.

Driving Innovation in the UK

DtF 2007 detailed how the SME sector is core to UK growth strategy; it can take advantage of technology to provide innovation that is cost effective, competing with overall project costs from the emerging economies.

For example the right-shoring model adopted by the innovative Web 2.0 start up, MoreNet, illustrates how that vital economic growth can be achieved. MoreNet is using Microsoft's latest platform and development tools to provide innovative Web 2.0 solutions, rapidly and locally. Delivering solutions to clients at project costs that rival most off-shore models is only part of the story. The tools and technologies are simultaneously allowing MoreNet to innovate themselves, and using the Microsoft .NET Framework and Visual C#[®] they are extending and developing a new platform that offers UK software companies a leading edge over global competition.

In fact, working in partnership with organisations like MoreNet is at the heart of Microsoft's business, and innovation has to occur here through relationship and business models. Partnering for the Future represents a new strategy for creating next generation partnerships that take advantage of emerging technologies and emerging business models; helping existing partners evolve in a Web 2.0 world, forming new partnerships, encouraging entrepreneurship and supporting start-ups.

Microsoft Fostering Innovation

In 2006, in partnership with Library House, Microsoft sponsored the East of England Development Agency's investment competition Running the Gauntlet that attracted over 200 entries from start-up companies in the region. Microsoft provided the shortlisted software companies with training and guidance on both business and technology issues. As a result one of these companies, Airetrak Ltd, secured an additional £280,000 of funding from private and institutional investors, enrolled in the Microsoft partner programme, and hired two new staff to handle the growth they are experiencing. In 2007 Microsoft will again sponsor the EEDA Running the Gauntlet competition.

In 2006 Microsoft ran a pilot for a new type of facility called 'Microsoft Innovation Centres'. A number of activities, including the one-day Software Business Management Course, were delivered at Microsoft's Reading and Cambridge offices and at three universities. Starting in 2007, this programme will be expanded and a number of Microsoft Innovation Centres (MICs) will be established in universities around the country. The MICs will promote links between universities and industry in the area of software development; provide students with additional skills and experiences that will ease their entry into the IT job market, and support small and start-up software businesses.

Voices for Innovation (<http://www.voicesforinnovation.org/>) is a very different approach to supporting IT innovation. Here, Microsoft is aiming to provide a voice for the IT industry to positively influence IT policy and practices around the world. The initiative is sponsored and actively promoted by Microsoft and membership continues to grow. Alone, many small organisations have found it difficult to affect positive change in support of IT innovation however Voices for Innovation helps to provide them with a voice and a way of sharing their experiences.



Inspiring Innovation through Emerging Technologies

The importance of innovation is vital for the UK to successfully compete in the global knowledge economy. Microsoft's own innovation comes through facilities such as Microsoft Research in Cambridge which in turn works with leading academic institutions, governments, and industry partners across the UK and Europe to advance the state-of-the-art in computer science.

For Microsoft this advancement leads to the development of new software products and emerging technologies in which we actively invest in order to inspire innovation in the customers and partners with which we work.

For example, one of the broader emerging technologies this year has been Microsoft Windows Live™. Working with online businesses in the UK, Windows Live has generated an excitement among many organisations. A common area of interest is how social networking facilities can be used to help distribute products and services. Through areas like this, Windows Live is bringing key Web 2.0 facilities to mainstream business with the ability for website visitors to connect and participate online.

How Technology Creates Opportunity

RightMove, the UK number one property website, uses Virtual Earth™, a Windows Live product, to help house buyers make the right purchase choices in terms of location by enabling what-if type analysis. For example, 'what impact does buying this house have on my commuting time/distance?' 'Are there schools, or other facilities such as hospitals close by?' And 'how close are the nearest rail links?'

AWS, a Microsoft partner, worked with the RNLI to develop an innovative software solution to help with their incredible work saving lives at sea. The solution locates people who have fallen overboard and sent a distress signal by combining admiralty maps with Windows Live Virtual Earth maps to scramble a lifeboat.

Zopa, a financial start-up previously with a disruptive business model, now uses the Microsoft Windows Live social networking technology to extend their offers to friends of their customers, creating additional business opportunities.

Smart Devices – Seamless Connectivity

Eight out of nine computing devices are embedded devices with non-PC form factors – such as phones, PDA's, cash machines and vehicle engine management systems. The number of embedded devices is set to proliferate as the price of computing hardware continues to plummet.

It is intended that the Microsoft work in connected digital experiences across PC & non-PC devices, both in the home and at work, will allow us to connect with friends, work colleagues and public bodies in a way that is natural and empowering.

To stimulate and support the skills development necessary for embedded device development, Microsoft is actively partnering with universities and businesses. Six UK universities are already delivering or planning to deliver device development modules as part of their computing degrees, with Microsoft and its business partners providing the content and hardware.



Developing the Online Economy

Secure identity, trustworthy authentication and authorisation are essential ingredients for taking the online economy to the next level. Windows CardSpace™ is the strong security platform provided by the Microsoft .NET Framework for Windows XP® and is included in Windows Vista® to meet the challenges of online identity. Windows CardSpace is also core to the work Microsoft is engaged in with the UK Government on the next generation of the Government Gateway.

The Government Gateway is the website and service used in the UK to register for online government services. It is an important part of the government's strategy of delivering 'joined up' government, enabling people to communicate and make transactions with government from a single point of entry.

Kick-starting Success

To stimulate growth in the SME sector, Microsoft has developed the Empower partnership programme and the Startupzone (microsoftstartupzone.com). Together they are designed to help new software development businesses be more successful in their work with the Microsoft platform, giving them a kick-start in creating innovative software at a key, early point in their business lifecycle.

Using Startupzone, Microsoft's Emerging Business Team helps connect high-potential start-ups and small, young companies to the investor community and ensures investment readiness. Technology may be an enabler – but Microsoft is also providing, and brokering, business enablement which includes partnership with the British Chambers of Commerce.

With Empower, for a minimal investment, small software development organisations receive Microsoft's full suite of software development tools and platforms together with additional support and resources designed to help lower their development costs, test their software and speed their solution's time-to-market.

Engaging with the Regions

In July 2007 Microsoft UK shared its intention to invest more in the UK regions working closely with the Regional Development Agencies. In the past, Microsoft has operated on an assumption that all regions are the same. In fact, a broader positive impact can be made with ICT by focusing on what's really important in specific regions.

For example, the impact of increasing ICT adoption in the West Midlands could result in an uplift of 3 – 4 % of Gross Value Added (GVA – the UK measure of contribution to the economy of an individual producer, industry or sector) equivalent to £2.9bn. Microsoft is proud to be working with Digital Birmingham and other members of the DC10 – a fine example of public sector, voluntary and private sector in partnership – to ensure more connectivity and connectedness for business people and citizens, leveraging EU investment.

The Running the Gauntlet competition mentioned earlier is another example of how Microsoft is encouraging entrepreneurship in the regions. And in partnership with BT, Microsoft is also exploring the feasibility of regional innovation centres.

Education & Skills, Inspiring the Next Generation

It's clear from the report that in the UK there is a decline in the number of school and university students following an IT-oriented education path – though we are not seeing a reduction in the number of IT based roles that need to be filled each year. Just looking at the demand for computing-skilled individuals at over 150,000 per year and the most recent university graduate statistics showing less than 16,000 IT graduates (which has been reducing year on year since 2001) may not give a full picture, but it does give a strong indication that boosting the number of people following IT-oriented education would benefit the UK in the long term.

Microsoft UK is supporting teaching and learning in schools and universities to encourage students to obtain the IT skills that are so important to the future success of our country. Specifically Microsoft have a range of programmes and investments to stimulate excitement for computing and Information Technology. For example, the Think Computing programme will deliver support for education, in partnership with schools, colleges and leading universities.

Microsoft is also working with key strategic partners such as the e-skills UK organisation and leading universities to encourage partnerships between IT businesses, Government and academia, with the goal of working together to develop a highly skilled knowledge based economy. This section includes examples of that work.

Stimulating Excitement – Working with Young Technologists

Through support for programmes like the government sponsored Computer Clubs for Girls (CC4G) led by e-Skills UK, Microsoft UK is providing teachers with some of the knowledge and materials needed to enable them to inspire this vital sector of the future workforce.

In 2007 Microsoft has also been able to add support for the First Lego League, an exciting international technology competition that stimulates teams of young people from any affinity group to create sophisticated technology solutions. With Microsoft's help, the group is now able to support more teams and significantly grow the number of young people being inspired to the power of technology.

Schools Sponsorship Programme

Microsoft is sponsoring 100 Specialist Schools, one Trust School and two Academies, helping schools to use IT as part of the transformation of education through the Government Building Schools of the Future programme. In addition the Enquiring Minds programme with Futurelab is helping develop a new pedagogy for 21st century learning.

Entrepreneurship Skills

While the number of students taking IT degree courses has gone down, more universities are exploring Entrepreneurship as a subject. There is certainly room for a more structured approach to encouraging innovative thinking while giving young people the confidence and collateral to turn their ideas into a profit-making enterprise.

Microsoft is active in regional development agencies, with universities and incubation centres, with NESTA and Enterprise Insight, with the British Chamber of Commerce and the Institute of Chartered Accountants in England & Wales, all aiming to support this goal.

Learning In and Out of Class

One very practical way to increase the opportunity to learn is by ensuring that students can get access to the latest technology. Microsoft is supporting games development, a sector in which the UK is counted amongst the world leaders, by providing some universities with Xbox 360™ consoles and the XNA™ Game Studio software to enable the development of games through modern tools and skills – skills which can also be used in many other areas of software creation.

These resources enable the academics to focus on key areas of learning while inspiring students to the potential of what can be created with that knowledge. This is further supported outside of class through the Imagine Cup, a Microsoft competition aimed at students worldwide. The Imagine Cup provides the opportunity for students to take their passion, knowledge and skills and apply them in a structured way that goes beyond 'just programming.'

One element of the Imagine Cup is focused on software design. Here student teams imagine solutions that have impact on global issues, and then develop the real world skills needed to persuade a team of industry and academic judges that their solution can work. In 2006/7 over 700 UK students took this challenge and the number continues to grow.

Developing the Workforce - New Skills, New Opportunities

Another critical area of investment is continued education. As a business Microsoft is clearly responsible for supporting the continued development of its own staff, and as a provider of software solutions and platforms it is committed to providing support to business and IT staff who want to keep their skills up-to-date.

Two programmes designed to help IT Professionals and Developers keep their skills up-to-date are MSDN®, the Microsoft Developer Network and Microsoft TechNet. Microsoft continues to invest in these programs which fulfil multiple goals including helping individual developers and IT professionals move their skills forward through two supporting strands of work.

- Direct, free access to a wealth of information, including patterns and best practices via a website, events, blogs, newsletters and video library
- Active support for community groups with a local and/or specific technology focus to ensure that there is grass roots sharing of emerging technologies and working practices

Microsoft is also continually working on lowering the barriers to entry for software development and software operations. Often the additional time made available to software teams through simplification and the lowering of barriers is rapidly taken up by more advanced requirements businesses and consumers – which is one of the elements that drive advancements in our industry.

Encouraging Newcomers into the Industry

Microsoft has found that lowering the barrier to entry is an effective way of assisting newcomers into the software development industry. The Microsoft Visual Studio development system is delivered in a wide range of offerings, including the free-of-charge Microsoft Visual Studio Express Editions which are entry-level versions of the Visual Studio tools targeted at hobbyist and non-professional software developers. These free-of-charge products are designed to help people develop their software skills and so help new developers gain entry to the sector.



In May 2007, Microsoft announced Microsoft Popfly which is a fun and easy way for people to build and share web mash-ups, gadgets and web pages using pre-built 'blocks' that connect to online services. Blocks can, for example, allow Microsoft Popfly users to get photos from Windows Live Spaces and Flickr and display them as a slide show without writing any software code. Microsoft Popfly is another example of lowering the barriers to entry in the software development industry and encouraging interest in creating software; it requires no programming skills to accomplish tasks previously needing a deep level of knowledge.

Encouraging Women into IT

DtF 2007 reports that only 20% of the UK IT workforce is female, which means we aren't fully exploiting the resources available to us.

Microsoft UK is proud to be participating in the Women's Enterprise Taskforce created by Minister of State for Industry and the Regions, the Rt. Hon Margaret Hodge MBE MP. Areas to address over the next three years range from education on how to access appropriate financing and using technology, to business support service simplification and supplier diversity programs.

In July 2007, Microsoft and Royal Bank of Scotland, along with the Minister, launched the Ambassador's Network to an audience of over 200 women role models recruited to help inspire the next generation to choose a career in business, and in IT. Microsoft's UK partner program is already home to some of the leading women-owned high-potential young enterprises including Mydeo and Spinvox.

It is also encouraging to read the last Global Entrepreneurship Monitor results, showing that women are twice as likely as men to start a business based on innovative technology available in the last twelve months.

The Future

Predicting the future can be an interesting pastime. On one hand there is no evidence to counter any claims made about the future and on the other, the number of moving parts that contribute to it, even in a defined sector such as ICT, provides such a gargantuan task as to make weather prediction seem trivial.

So, why is there a section on 'the future'? Simple, as the saying goes, 'live for today and plan for the tomorrow,' and it is through that planning that we develop the future. So this section peeks at some of Microsoft's plans for the future through the work of Microsoft Research.

Leading Edge Research

Microsoft Research (MSR) is about advancing computing and using research to drive innovation at Microsoft. Computing is the foundation of our lives in scientific research, industry, business, entertainment, education and healthcare.

MSR anticipates significant advances in computing; one particularly exciting development is the emergence of 'computational science'. It is difficult to overstate the importance of this area as it will underpin our efforts to tackle the most urgent and important global challenges for this century, global climate change, understanding biology and disease. Here the UK has an early lead due to UK Research Council investment and University research.

In this exciting and important new field MSR have already established a unique scientific leadership position. Research already underway as part of its European Science Initiative is pioneering advances in science. These advances have the potential to revolutionise biology and medicine, transform our understanding of Earth's life support system and create the building blocks of the next century of computing.

Working very closely with UK researchers MSR sees public-private partnerships as a growing part of the innovation landscape. It also has a Systems Biology Institute in Trento, Italy and a joint laboratory with INRIA in France.

Creating new business by encouraging technology transfer and supporting Microsoft customers and partners to grow the eco-system, is key to MSR thinking. It is particularly proud of the work with the British Library through the EU Planets project working on strategies for preserving digital documents using Open XML. Also the success of the UK company Skinkers that licensed Peer-to-Peer information-sharing technology from MSR, to extend the reach of its products

MSR depends upon recruiting skilled computing professionals and is concerned about the decline in numbers of UK PhD students and the weaknesses in the UK secondary school system which does little to motivate children to consider computing as a career. So, it is central to the innovative Microsoft Think Computing programme that it believes will inspire and excite a new generation of scientists and technologists. The exciting opportunities that will arise from collaboration with academia and MSR to support teaching and learning will open the door of opportunity for the future.



Microsoft Vision for the Future

DtF 2007 builds upon Microsoft's commitment to the success of the UK software industry, and this response document demonstrates its vision for the future and some of the achievements to support this.

The UK economy for the 21st century will be based on computing that is changing the way we work and live. Enabling new discoveries in almost every field of knowledge, creating massive opportunities for global collaboration, it is at the core of business practices and operations. The future of software-based technologies is transformational with massive potential to drive significant growth and prosperity in the UK economy.