

Interactive Media— What's that? Who's involved?



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Interactive media - what's that?

For those people that have been part of the digital revolution this query seems rather trivial. But it is experience and expertise that allow people to discuss terminology without actually defining the terms. It is easy to forget how long it takes to get up to speed! For those people starting off on the quest or for people like career advisors trying to offer initial advice on the subject, there appears to be no easy way into this unmapped territory.

The relevance of this paper is not just for new entrants: many in the industry have a fragmented perspective without realising it. So in an attempt to clarify the position, we take an aerial perspective related primarily to the UK.

The definition

Interactive media is the integration of digital media including combinations of electronic text, graphics, moving images, and sound, into a structured digital computerised environment that allows people to interact with the data for appropriate purposes. The digital environment can include the Internet, telecoms and interactive digital television.

No wonder it is difficult for new entrants to understand. The important concepts to hold on to are 'interactive' and 'media' across a range of 'delivery channels' or 'platforms'.

What causes the confusion?

The terms used ...

There are many terms used to denote the interactive nature of digital applications—multimedia, new media and interactive design are common examples. Because the interactive sector has quickly evolved through phases, the terms have often been coined to reflect a phase that then gets surpassed. A quick historical overview will give the background that causes confusion for those joining the dynamic sector.

The word Multimedia used to have a specialist connotation for the audio-visual industry. Uses of multiple or mixed media in such analogue systems as slide shows or overhead projectors were known as 'multimedia'. But this specialist use was superseded by the arrival of digital technology. Integrated digital media was termed interactive multimedia and usually shortened to plain multimedia for convenience.

The need to differentiate between analogue (linear) and digital (interactive) uses of media spawned other terms like New Media and Digital Media. The term 'New media' carries its own problems as the media associated with the original term are replaced with newer instances of the 'new'. Obsolescence is endemic in the interactive arena. However, the term remains in use although Digital Media and Interactive Media are more stable terms and are being used increasingly. The term Interactive Media highlights the interactive connotation that is a key characteristic of the difference between the older style media and the new.

'Social media' has evolved to describe the more recent success of digital social sites such as Facebook and MySpace, and would include the phenomenon of mobile texting, especially Twitter. The success of these

built on the social aspects of 'blogs' on the Internet. The more recent social sites are interactive but even the denotation of interactivity has become 'accepted' and dropped so that social media with its inherent interactivity is considered the norm.

When the Web quickly became the largest hardware platform, and development for it became the most common form of interactive development, the emphasis on 'media' was dropped in a similar way. This may have been because the capacity for using media other than text on the Web was limited at that time. Skill sets such as Web Design, and Web Development came to the fore and these more specific terms overshadowed the more general terms like Digital Media and Interactive Media.

The irony is that 'multimedia' was the preferred term used by telcos (telecommunications companies) because when they entered the interactive arena they did not have any previous use of the term and did not find it confusing. That has changed now. The term 'apps' meaning 'applications' has taken over since the development of 'apps' for mobile phones and has been popularised amongst the whole use community, rather than just being used by some programmers as a shorthand.

In the wider technological context, terms like ICT (Information and Communications Technologies—favoured in the education sector), the Digital Revolution, and Convergence began to be used in an attempt to define the pervasive changes that interactive technologies were causing within traditional business sectors. They were used in a strategic way, since as soon as a particular delivery channel is mentioned—DVD, iTV, Web or mobile for example—the emphasis shifts from trends to specific forms of production. This shift in perspective is important because it explains why some people see connections across forms of digital media and skill sets while others only relate to a particular area of specialism. This will be developed further during this paper.

At the moment the strategic buzz word remains 'Broadband'. This refers to an upgrade in the communications infrastructure needed to allow faster more media-rich access to digital content and, as we have seen with other terms, its exact meaning has evolved; becoming ever faster over the years. It will be explained more fully below.

Why do the terms seem to keep changing?

Originally the expensive niche collections of hardware that allowed interactive application of multimedia depended on innovators from many fields. The systems such as interactive videodisc, CD-i and proprietary computer-based training solutions were expensive and (as a result) exclusive. They did not win a large-enough market to arouse the interest of mainstream business and the main business processes were unaffected by the technology.

The spread of computers, combined with the success of the CD-ROM format, started a process of consolidation. As prices became affordable and computer literacy increased because of wider general use of the computer within businesses, the use of computers for leisure, games, reference, training, general education and home-based education increased accordingly.

The successful games sector grew. Driven by its particular needs and audience, it formed a stable and lucrative market. It needed specialised hardware to provide the speed, quality and media versatility in the form of games machines like the Playstation, Nintendo and X-Box. The younger market continues to demand constant media innovation and interaction. Games developers respond to this market need. They work in an intense, creative, high-tech industry which has more in common with the music business than with information technology. Their methods of defining a product and their methods of production differ from many other parts of the industry accordingly. The creativity and intensity of the gaming environment had its spin off in the film industry where digital animation effects have grown tremendously now culminating in 3D digital animation films such as Avatar and Tron.

Meanwhile, although CD-ROMs appeared to promise the emergence of a market substantial enough to splinter into healthy industry segments, the World Wide Web spread faster, overtook CD ROMs and established itself as the first global, accessible, affordable, computerised hardware and software solution. Businesses and the public were happy to sacrifice interactive media components in return for access to (at the time) mainly text-based information such as instant news, electronic mail, reference data and archive material among others. As bandwidth improved and there was faster access to the Internet, the integration of graphics, audio and film became easier. This World Wide Web experience proved to be the ground work for the take-up of mobile interactivity and the platforms such as the iPhone and Blackberry allowed access to people for information on the move: such devices being more like pocket computers than telephones.

The web has become part of general business for communications, sales and services. It is changing business practices. Its technical limitations have affected the amount of material and speed of access to it. The importance of Search Engines needs to be documented. As the Internet became bigger and populated with data, it became harder for people to access the information they were looking for. Search Engines such as Google and Bing (and Yahoo and AltaVista before them) gave a much-needed boost to allow people to access the information they wanted in the form that they wanted. Search algorithms that decode a user's query then scan, catalogue and rank information in a way that people appreciate became big money earners in their own way because businesses paid to have their information ranked higher than others to get viewed more often. Advert campaigns interspersed with information searches, have come to rival traditional advertising spend in businesses. The Search Engine expertise and specialism spawned new roles such as Search Engine Optimisation (SEO) companies, Banner Advert and Viral advertising developers, and so on.

The training community is a good case study to demonstrate how quickly the digital revolution can spread. It had always had its small group of devotees to technology-based training and great resistance from the majority of traditional trainers. But the World Wide Web forced a rapid conversion across the industry fired by the overwhelming need for more training in the IT sector. They had to use any and every means for training to keep up with demand and they had to offer the same accreditation for courses across all delivery platforms in order to gain acceptance. The web offered logical access for IT personnel who were already computer literate.

As general computer literacy and access to the web spread to the general business population, the model of training delivered across the web has spread like wildfire. In just a few years e-learning became a major sector worth a serious amount of money.

The web is becoming part of general business for communications, sales and services. It is changing business practices. Its technical limitations affect the amount of material and speed of access to material. The web primarily depends on phone line connections so the better these are across a territory, the more reliable the service. The inherent limitations of passing large amounts of digital information down phone lines have affected the type and quality of the media that can be used effectively. These limitations also affected the nature of the interaction allowed by the web. There are ways to increase the performance by improving the technical limitations but this depends on having a readily available infrastructure that can deliver more data faster and reliably. The infrastructure necessary is called Broadband.

Access to Broadband has spread rapidly in the developed world but has caused an even bigger gulf between the developed and undeveloped world – which brings social and economic problems of its own.

The UK has lagged behind many other developed countries in having good access to Broadband but it has finally invested in the infrastructure with extensive roll-out to what is called ‘fibre to the cabinet’. This moves the fibre-optic and high-speed end of the network from the telephone exchange to ‘the end of the street’, dramatically reducing the amount of old-fashioned copper in the local part of the infrastructure. The next steps take the fibre to the kerb outside your house and then finally directly into your home.

Phone lines alone cannot be upgraded sufficiently to create access for all, so any infrastructure that relies on the ‘final mile’ of the connection being over phone-system copper wires will be limited. There are patches of broadband capability in the UK linked to cable TV connections, and satellite connections are also possible (if expensive) as, in theory, are local radio-based networks. But there is no quick way to achieve extensive, cheap broadband connections to allow better quality interactive web and TV services. The UK is less broadband-ready than many other countries and this is seen as a barrier to the interactive market particularly for the embryonic interactive/connected television sector.

Who is involved in multimedia?

The short answer is everyone and anyone! If you found the shifting terminology used to delineate interactive media something of a mish-mash then defining the people in the interactive arena is even harder. In terms of development of interactive media, there are the widespread group of specialists as well as specialist management roles overseeing these teams (see Figure 1).

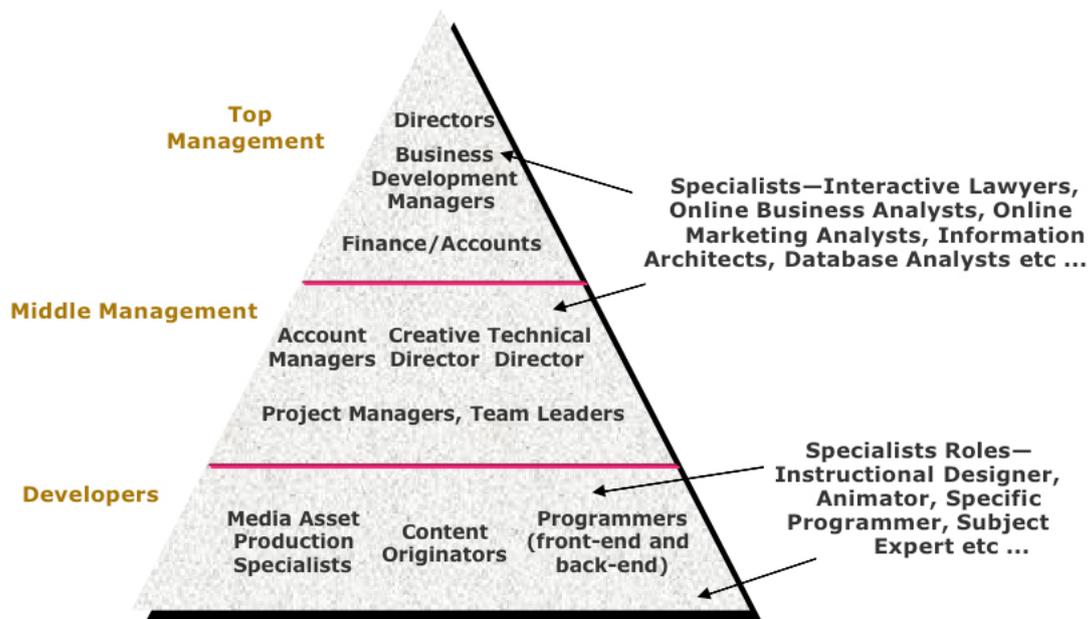


Fig 1—Interactive Media

Management roles can include all levels from Directors in interactive media companies to Heads of Departments in large corporates who may need to devise company-wide strategies for interactive media as part of their general responsibilities for communications, marketing, training and so on (see Figure 2).

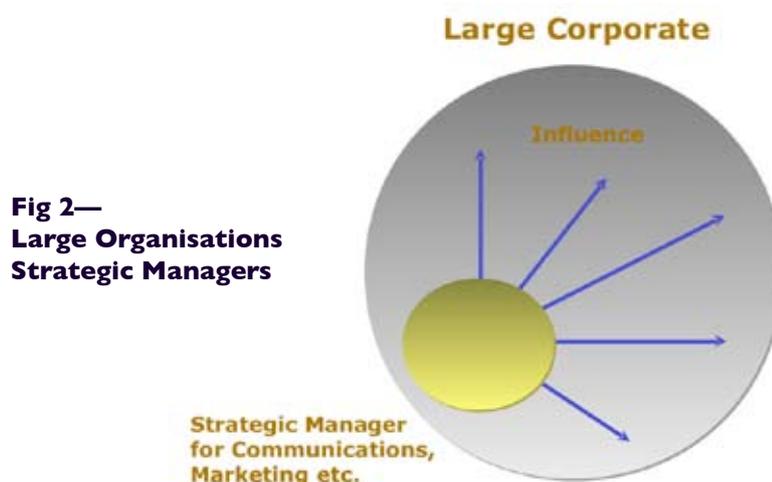


Fig 2—Large Organisations Strategic Managers

On the other hand, there is an increasing number of people inside traditional businesses who are responsible for commissioning new media work from external contractors. These commissioners may not have any formal knowledge of developing interactive media although it becomes part of their responsibilities (see Figure 3).

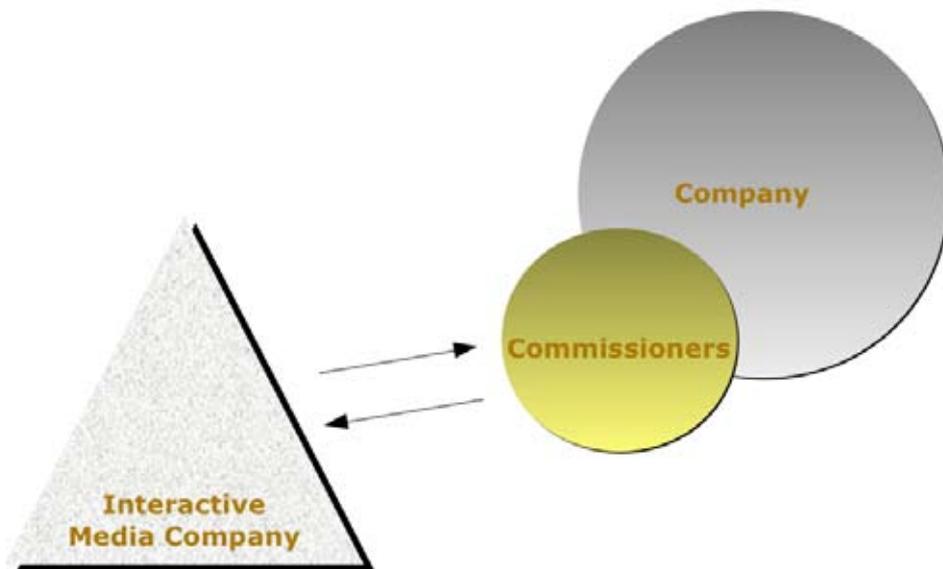
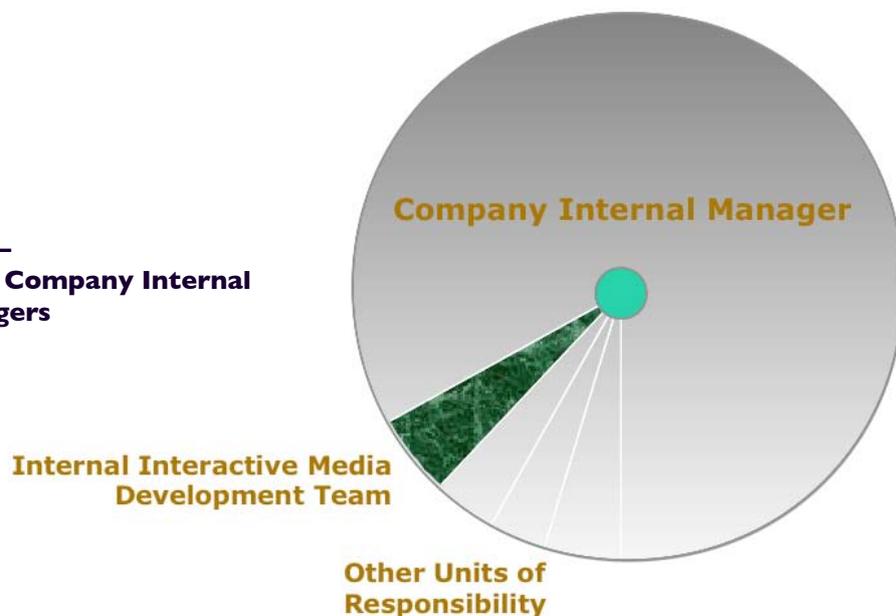


Fig 3—Commissioning Managers

Yet other people at middle management levels of business will have an in-house development unit amongst other units as part of their responsibilities. These development units might be found in any of the business departments from IT, marketing, communications, advertising, to media, training and e-commerce (see Figure 4).

**Fig 4—
Large Company Internal
Managers**



You only need to read through several job descriptions across all job sectors to see how pervasive experience and knowledge of working with particular interactive media and platforms has become.

The development environment

The core team members for developing interactive media come from programming, media production—or asset production as it is increasingly known—and interactive content development. The programmers decide and develop the technical structure for a project. The media production specialists concentrate on the design and development of the relevant text, audio, video, graphics and animation assets. These need to work effectively within the technical structure. The content definition determines the type and amount of information that will serve the specific purpose for developing the application. Defining the interface—exactly how the users will access the pieces of information—is often negotiated between members of the core team because it is such a key part of development.

Some people can straddle two or all three of these skillsets up to a certain proficiency level so there are graphic artists who can manipulate packages to produce web pages, and programmers who define the content to go into applications. But, as soon as more complex developments are needed, specialists become necessary across the sets

At this higher level, none can operate effectively without the other. This highlights a key characteristic in the sector: it is inter-disciplinary. Traditional sectors have in the past been represented by single disciplines. Single disciplines define their boundaries while interdisciplinary sectors blend together and so the skills blend as well.

Although there is a core development team, there are many other people who feed into the process. Specialist advice from interactive lawyers can be essential, for example, and specialist skills might be needed for market sectors like e-learning, online marketing, information architecture, precise technical testing and so on.

Meanwhile, because the use of new technologies is becoming part and parcel of general business, yet more people are involved in the development cycle. Some manage interactive teams as part of their overall remit; others commission interactive developments for their companies as part of their general responsibilities, as previously explained. These people—particularly if they are non-specialists—need enough understanding to make informed decisions about the complex process they are trying to manage.

How do the core team line up with subject specialisms?

Many people see themselves in terms of the subject areas that they have studied rather than the role they take. But the interactive media industry is breaking down such distinctions.

Those concerned with tailoring information for different purposes approach the idea of multimedia from a traditional subject boundary perspective such as graphics, broadcasting, sound, education, training, publishing, games, advertising, music, law, marketing and so on. They all have been and continue to be affected by the digital revolution but each has a specialist perspective as well as digital needs. They tend to approach the technology from the stance of ‘how can I utilise it as a carrier of information?’

Others from subjects like IT, computer science, telecommunications, broadcasting and engineering approach the idea from the hardware or the technologies involved in the content’s delivery. They tend to have

deeper technical knowledge about the major hardware platforms and their perspective is affected accordingly. They understand the limitations of a delivery system in terms of what it will allow on a scale running from 'easy and cheap to produce' to 'hard and expensive to produce'. They tend to approach the technology from the stance of 'what is this system technically capable of doing?' and 'does it allow me to add to it and if so to what extent?'

The business perspective takes the stance of 'how can this be turned into profitable business streams', or 'what business processes can be made faster, more efficient and/or cheaper by interactive technology?', 'what can it offer our customers?' and 'how can it aid our services or sales?' Specialists from business studies and marketing would take this stance.

Everyone can use interactive media for their own ends in fact. The stances are not exclusive but are used as indicators here. All specialist stances have a tendency to blind the people involved to the commonality that is actually shared between them. They all meet similar dilemmas but try and solve them alone. This possibly holds up progress because the business processes and structure of information depend on what the technology allows. The subject specialists, the business specialists and the technologists need to communicate together to establish what they will achieve for a particular job in a timescale for a given amount of money that will satisfy the business objectives and the users

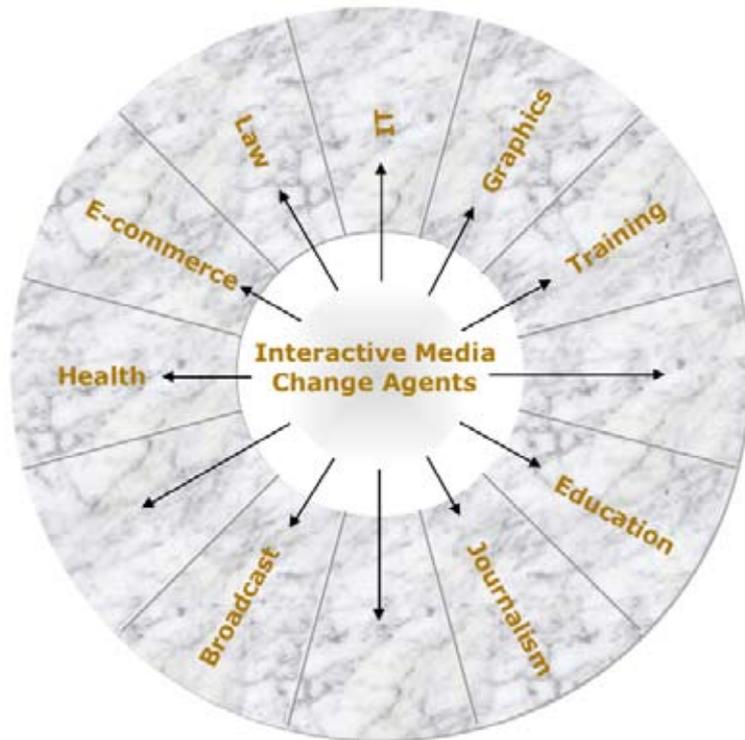
The user often gets left out of the picture but in interactive applications, the response from the user is critical. If they and their needs are ignored you can end up with an acclaimed creative web site, for example, that baffles people. The classic example of this was the rise and fall of Boo dot com. Users found it difficult to navigate to buy the products and would leave the site. The opposite is also true. Too much text and scrolling when the user wants to skim and hone in on a particular item of information in a web site also has the effect of the users leaving the site. It is up to the project manager to focus all the people involved on the needs of the user as a common aim.

User feedback and even involvement in the development and testing of sites has become an accepted process in interactive development. The developers post offerings through the interactive sites and the users respond. This makes the whole process faster and iterative to arrive at a solution.

What is the extent of the interactive media revolution?

Because there are many people involved across all sections of the information industries, media and computer programming together with telecommunications and broadcasting, it is difficult to take an overview. It used to be that each represented a minority within its own sector. Online training development was seen as part of the traditional training specialism although it embraced new skills, production methods and business models. Interactive broadcasting fulfilled the same function for the broadcast industry. Online editing of web site content was the new branch of journalism and publishing. Interactive law, interactive graphics, interactive health and so on followed the same pattern. They shared the important characteristic of being interactive change agents within their areas.

**Fig 5—
Traditional Subject or
Sector Areas**



Change Agents are people with the vision and skills to implement a change in organisational culture or business practice (see figure 5).

Now, the digital revolution has quietly pervaded all business areas and specialisms. It is integrated into each role. All people are expected to have a basic mastery of using interactive media platforms for their jobs. Many need to learn how to use more specialist applications within their work. More people in management roles are expected to be able to direct, co-ordinate, conceive and manage the development or updates to digital programs through internal or external teams.

The digital revolution has affected all facets of life. Each of the specialisms had a digital inroad created by the change agents. But one of the key characteristics of change is that it causes resistance from the traditionalists. They can delay change and even stifle it by building barriers. They tend to have the upper-hand in influence within their own sector and even higher levels such as government and other administrations. Their traditional mindsets work, often unconsciously, against the new ways of thinking that don't fit into what have become the accepted categories.

In the UK, interactive media industry statistical data is not captured by the SIC (Standard Industry Classifications) or SOC (Standard Occupational Classifications) that are fed into government to make decisions about things like what and how to fund. Education and training can help to ensure wider understanding and acceptance. Change agents needed protecting and nurturing within organisations and discipline specialisms as the digital revolution progressed. The traditionalists lack credibility with the change agents because of the mindset clash—and then so much more hinges on this communication barrier.

This may explain why some 'emerging' countries that have embraced the information society have been able to leap ahead with initiatives. They don't suffer with the same baggage!

The process of change happens in waves. When the innovative practices become the norm, the change agents have succeeded. So the measure of change lies in looking at the differences in business practices. In terms of the digital revolution this means checking on how many digital functions have been integrated into core business practice in each of the areas. Now there are lots; but not so many years ago, this wasn't the case.

All the subject specialisms are contributing either to e-business (synonymous with e-commerce), or e-communication. They are trying to sell services or goods and/or trying to get information of different types to people.

However, a lot of the impetus for change came from a completely different direction—not through internal change agents—and the business people had to take stock and react to the market. That is characteristic of revolutions as they happen on many fronts. The amazing speed of growth of such younger generation social media sites such as Facebook and Twitter took the traditional businesses by storm. Word of mouth, exchange of views, recommendations and criticisms in blogs, tweets and Facebook sites drove spending on the better, more socially acclaimed products and services, while negative criticism had its adverse impact. This was a wake-up call for businesses and their marketing departments. Not only are they trying to keep a watchful eye on such grape-vine material in case it puts them in a bad light, they are trying to use it to their advantage by proffering special offers through the social channels.

The social side of messaging together with the feature of allowing others to access the messages has had spin-offs in affecting behaviour, affecting attitudes, affecting much more than sales. It hasn't only been businesses that had the wake-up call. Much as the social media can and had been used positively, it can be used for negative social engagement too, so that 'online grooming', 'online bullying', and 'online slander' have all been utilised detrimentally.

Where does this leave us?

Well, maybe you've been able to decide if and where you fit into interactive media or whether you might become part of it as it engulfs your social and personal life, specialist subject, your profession or your business processes.

It is a dynamic environment that is affecting everyone from those directly involved to those who have to manage it and those who use it. It is not going to go away but it may well change its shape and form as it has in the past: from fixed to mobile, limited media to rich media, limited interaction to real time interaction. There will be new markets to create and old market segments to revamp and build up. There will be new challenges for developers and designers with the still emerging interactive mobile and broadband technologies.

This paper hasn't been able to address all the factors causing confusion but we hope that the issues we have tackled got you thinking more clearly about your present or future position in the interactive arena.

Elaine England and **Andy Finney**, directors of ATSF, are co-authors of the best-selling book '*Managing Interactive Media*', now in its fourth edition