"Indifference is not an option"

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Transcript of a unit at Salford University "Trends in IT" Module - Guest Speaker: Graham Whitehead

E-Wave

I do a lot of work with Universities, but most of my life I spend in commercial organisations. What I want to do today is to reflect to you what is happening out there in the real world. The world with all the pain, and believe me there is a lot of pain.

BT a couple of years ago was…the monolithic dinosaur, old incumbent telecom. Today, and you can see it in the share price as well, we are not. We are now a grouping of companies. So we have BT Retail, which is the part that looks after customers and sells services, connections, and things like that. We have BT Wholesale that owns the telephone exchanges, the cables and the infrastructure. We have BT Affinitis which is basically the command and control of the company, BTexact Technologies which is the old research labs, and BT group which is now only about two hundred people around the new CEO, the new finance director and the whole company is beginning to turn round. So, it is ceasing to be a telecom company and it is becoming a multimedia company. BT wireless is split into $mm\mathbf{O}^2$, MM is multimedia and the idea is that everybody is connected all the time to everything, effortlessly, seamlessly, ubiquitously. How on earth that is going to happen, nobody knows. So, lets spend an hour looking at what might start happening. Because what I see and hence the title, 'Indifference is not an option'. I did a conference about a year ago now, it was a well known provincial newspaper chain, they did the Halifax Herald and Todmorden Tribune, things like that.

And the CEO stood up and said;

 "A year ago I put in front of you the challenges of E-commerce, it is now a year later and the dot com bubble has burst. I'm proud to announce we have survived."

Twenty minutes later I stood up to do the keynote speech in his conference and he stopped smiling. Because it hasn't all gone away, we are at the moment on what's known as the e-wave. It started 1990-1996 as the World Wide Web started to happen. Has anybody read Bill Gates 'The Road Ahead', in the original version? He wrote two books with the same title. One in 1991 that said the World Wide Web will never catch on, and one in 1994 (2nd edition) fully revised with a complete new chapter pointing out how he invented the World Wide Web because by that time it had caught on. It caught most people by surprise. We then (after 1996)

zoom off into a great big peak. That great big peak has nothing to do with technology, that peak has everything to do with greed. At the top of that peak BT shares were £15.00 each, yes I held onto mine hoping for nineteen like everybody else did. An that's where the dot com bubble crashed out, and it crashed out because it was a bubble, it crashed out because everybody was in there for greed. Boo dot com failed for three reasons, it was called the three C's, Champagne Cocktails on Concord. These young kids had all this money, they went whizzing round, and they hadn't a clue how to build a business. People put so much money in and it all crashed down, and we are now down in the 'trough of disillusionment'. Everybody's got fed up about it, a lot of people have lost a lot of money on it, and people are wondering what on earth to do. But it will come back up; the left hand side of the graph is the real work, the real business that is going to start to be done over things like the World Wide Web in the near future. Last year one percent of GDP was traded over the web, so it is beginning to become very commercialised. Unfortunately, beginning of September, the World Trade Centre and all that, I think what that is going to do, is make that trough dip, it is going to go in deeper and certainly going to go a bit longer. But I am also predicting there is another effect of this, because it deepens, because it goes longer, there are lots of people out there who are very good, very innovative and I see what might happen is the innovation might actually make it happen in the distance better than we were predicting in the future. Because the original graph is one from Garner Consulting. So things are changing very rapidly indeed.

Disruptive Technologies

Have you come across the concept of Disruptive Technologies? These are technologies that disrupt everything, they change the way you live, they change the way you socialize, they change the way you work, and they change absolutely everything. If you go back to the industrial revolution at that point people were working with the power of their hands, with the power of animals, the intellect in their heads, the skill of their hands. They made products, they bartered them, and very few people in those days sold things and exchanged money. But everybody was happy; they lived in little cottages with roses growing round the door in rural areas, until some 'prat' invented the water wheel. Suddenly what then happened was that all the power started being harnessed. Suddenly factories started happening, because water flows down, the factory went to the bottom of the valley. People then started being taken out of the rural areas and being put into the urban area and the urban sprawl started with these tiny little houses built up around the factories. Changed the way they lived, worked and socialized. Then another 'prat' invented steam power so you could now build the factory absolutely anywhere and the industrial nature of this country started to happen. While we've got the water down there we might as well use it, and a canal system started up, so now instead of carrying just a few pounds of material on a horse and cart for a couple of miles you can now carry tonnes and tonnes of it right away across the country. This made a total difference to the way we started looking at the distribution of merchandise. Then some 'prat' invented the steam engine and the railways started and they were so successful and had so much money that the railways started buying up the canal system, filling them in and putting railway lines down them. They then started having marshalling yards and commercial distribution started

hubbing like American airports do now. Suddenly we are taking thousands of tonnes at enormous speed across continents, massive change in only a few years. Then we came to the road system, the car, gave us the freedom of the open road. We could now not deliver things station to station or depot-to-depot, we could now deliver door to door. Again it made enormous difference to the way industry was put together. Unfortunately then congestion started, we started pouring more concrete on this little island and it is actually tipping up at the moment. (Think tank with the government is now saying, no more roads. We can have roads but expensive roads and start rationing the capability of movement.) And that's going to have an amazing knock on to the way people work. Do we still commute to the middle of the City? Incredibly expensive, time consuming and annoying process to sit in a desk next to someone they never talk to during the day, and then go home again. The whole of that area is about to start opening up. But not everybody thinks that the road system is a bad system. This guy (picture of a kestrel) thinks it is wonderful. He's now living in the biggest wildlife refuge in the world, the verges and central reservations of our motorway systems. There is so much food down there that there is no point flying anymore, he's adapted into the system. What I'm saying is that commercial systems are going to have to start adapting to the new methods of computing and information technology connection in the next few years.

Nobody is going out of business slowly.

High street names are crashing, Marks and Spencer. For one hundred years Marks and Spencer second-guessed every single social change. Then in 1998 it started going wrong and nobody could work out what was going wrong, they sacked the board a couple of times, brought new MD's and CEO's in and still they haven't got it right. So high street names are failing, the giants are beginning to fail. The people who have dominated commerce for a hundred years are beginning to fail. And they are failing for very simple reasons; they are looking after their existing customers and not thinking about new customers coming in. They are only developing existing products, they are only looking at existing technologies, only looking at existing markets, and they are looking for a return on capital today. How dare you invest money this year to make money next year! What I'm suggesting to them is they don't do it better, they do it differently, to start looking at different ways you can use the new technologies in order to maximise the capability for your corporate entity out there. This is another example, the Encyclopaedia Britannica; They sent me a personalised email the other day…would you like to buy the books for only £600 (1998 version), I said no and bought the DVD version of 2002 Britannica for £39.00. Fully up to date, full multimedia. There is something like seventeen and a half hours of movie clips that the books never had. I still have a copy of the books, that's how they knew I existed in the first place, coz I like the tactile feeling of the books. In 1992 these people proudly boasted that they had put information on paper for two hundred years, and that they weren't going to take on any of this new stuff. By 1993 they didn't even file their accounts, they damn near went bust and have only just managed to turn around and come back out the other side. Because what is actually happening is the whole change in the way we connect things together. For a hundred years or more since Alexandra Graham Bell (1876), we gave people telephones, they dial a number, the number was translated and routed through the network and you had a physical connection from one end to the other and people talked, that's all you could do. …. Then in 1983 PC's started to become general commodities, we took modems and put them in computers to make them squeak at human voice frequencies, so they could dial phone numbers and talk down the

line. I've got news for you, computers hate being treated like humans. They want to put all the information they have got into IP packages…(Internet working Protocols – the Internet is only the first step on a very long journey). . spray the packages through the network. The machine at the other end orders them and hands them back to the human. That's how the machine wants to work. And it was on the 12th November 1998 that was the first day that the BT network had more data calls (machines talking to machines), than voice calls (people to people). While the number of voice calls will rise steadily, the number of data calls is taking off like a rocket, that is what is making the difference and the exciting part of the future.

Everybody is talking about IP, ADSL - government getting aggressive about BT the big luddite machine, not rolling it out fast enough. But we have enable over 60% of exchanges, 78% of the population capable of having service and why are they not buying it? Because they look at it and go, you're charging me 50 quid, for what?! What can I see? Because you don't get fast Internet access, you get Internet access, which is limited by the Internet like every other access in there.

Did you notice two weeks ago our new chairman (ex-BBC) started talking about BT becoming a broadcast authority?   We are not going to make the programmes but we are going to start carrying them because the rulings, the licensing that stopped us carrying entertainment were taken away about six months ago. Suddenly you have a hole in the wall, you plug it in, whether phone calls come out of it, whether Internet access comes out of it, whether or not interactive TV, you don't care. That's what it should be about, you just plug in. When was the last time you took a 13amp plug, stuck it in the wall and marvelled that electrons came out? When they don't come out you complain to somebody, you don't care how it gets there, you just want it and that is the kind of connectivity that is going to start happening because behind ADSL there is SDSL (2Meg in, 2M out), then VDSL (14-24M in, 10M out) multiple high quality interactive TV channels arriving all at the same time, behind VDSL there is going to be FDSL, suddenly it is going to be there as ubiquitous, seamless, effortless access. And you are not going to care how it happens, it is just going to be there and there is a whole generation beginning to start growing up…they are not going to see any of this as magic and they will demand services and capabilities like these things.

EXAMPLE SHOWN ON POWERPOINT: Three screens put in the political conference. Screen 1 is a 56k modem, Screen 2 is ISDN, and Screen 3 is ADSL. All pulling images off the Internet as fast as they can, and you can see the difference (ADSL fastest)…delay is the killer for the human being.

…If you start designing systems, which have delays believe me, I will not use them…. There is a whole generation of people who have no experience that things can't happen so they just go and do it. A thirteen year old set himself up as a day trader in his bedroom, and made eight hundred thousand dollars in four months. The regulators sued him for half a million dollars…and he still can't work out what he did that was any different to the big bank traders…nobody ever thought of an individual trying to do that. Then there was a fifteen year old in the USA set himself up offering free legal advise over the Internet and he beats the trained lawyers 95% of the time…a few years ago you wouldn't even know he was there.now instantly you can connect bond it is making a huge difference. Also information is not an age thing….young kids ……to silver surfers. The Internet has gone bimodal 12 to 65 and

above…but most of the senior managers in most of our industries have never, ever switched a machine on. When they first came out in the eighties I bought the first PC in the BT labs. It was an IBM…it had a ten meg Winchester in it….you had to write your own programmes and they were so expensive, I paid about £8,500 for this thing….senior members and senior management committees have never switched a machine on. I was asked the other day what is the one piece of advice you would give to the IT director of any big company? My advice was employ a new IT graduate and just listen, don't give them any control over your business, they'll probably bankrupt you in four days. Listen to the possibilities that are out there….because things are going to change, the TV set will become a portal with artificial intelligence agents…little packages of software that learn your preferences…(also future) instant access to (programmes) when you want them. And the agents will have faces…and natural sounding voices…and they will listen to you, we have engines that can do that…it is making all the systems so human like that it is like talking to a human.

Anybody used the 'call me' buttons yet? The idea is you hit the button and it says where do you want to be called and when do you want to be called…Instant access, instant capability.

DEMONSTRATION: BT labs generated voice in real time to locate directory enquires. People will be talking to machines.

Stress

Have you noticed the more technology, the more questions you have to answer? People are getting more and more information and having to do things faster and faster. ..So what we are doing is looking at a way of bringing this information to a human in a way a human can deal with it. Humans are brilliant in the analogue world. (Human eyes can process one gigabyte of information every second). But computers are brilliant at digital, what we are doing is making the power of computers to deliver the information into the analogue world. ..You can ask a question of an intelligent agent…and it will grow a (visual) tree and the branches show bits of information. Branches that are black you have read some time ago…branches in brown you read more recently, the ones in red you haven't read at all and the ones that are waving up and down, everyone else is reading so it might be a good idea if you did. This is a way of going back into enormous amounts of information…not in Google style (page one of two thousand) but in a way that a human can deal with it. We are going to start carrying information with us, 'smart cards' – banks are flooding six billion of these across Europe in the next five years, just as credit cards. (On the card) is a chip, I can put any information on that chip, driving licence, passport, everything you have every known and still have space. But what happens when you lose it. I do see smart card as being on machines everywhere…you go out to buy a holiday and all details simply pass from card. Now there is project Gabriel, a web site where you can talk details in….the problem with loosing the card is something so I'm suggesting the chip is surgically implanted in your ear…..Glaxo Smith Kline now looking at year 2007 for the human Gnome, they will then be able to classify genes…when a doctor prescribes a drug often there are adverse reactions. They are looking at a chip implanted in the body to show the right drug, dosage etc…All seems very science fiction until you think 12months ago a man in the USA who was blind….had an organic eye remove and replaced by a false eye with a video camera, wires ran over the ear down to a

computer on a belt and back to the visual cortex in the back of his head. Black and white vision occurred.

…..The 18 hundreds were the years of chemistry, the 19 hundreds were the years of physics, the 20 hundreds are going to be InfoTech and biotech and the two are going to start merging. Everything in the near future is going to go mobile so instead of, browsing for information on a computer screen…it will be on a palm top or a hand held, I'm predicting that by 2010 this thing (a mobile phone) will have ten times the computing power of the biggest…..desk top machine and you will still call it a mobile phone. You will also be able to ask it questions like, What is the balance in my cheque account, and it will be in your hand, what is on at the cinema, just in your hand………just imagine third generation, you have got your shopping list on here. Everything will have chips in it, as you put the bottle of milk in the fridge there will be a chip behind the label that not only says it is a bottle of milk, but also it has been stored at this temperature for this amount of time, quality information as well. The fridge will interrogate the chip. It knows, ok I'm going shopping what do I need? You get a list carried on your phone, you walk into Tesco.…the shop goes, what do you need then? Baked Beans, two down, three over…the sheer convenience.

One thing I saw six months ago in Japan is a thing called the Flexi book….little silver thing with a tab, you pull the tab out and you get a map, inside its got GPS, it's a map of where you are….information must be given to the human in the way they can deal with it. We are even looking at sun glasses, in the lens there is an active area we are going to put a video camera on the side, the camera relays a face to a network machine to compare and contrast features and we have got one of those running at the moment…the data comes back through a little plug in the ear (relays persons name and details).

Lets go one stage more, full length, full colour, full motion Hollywood movies into the palm of your hand. Do you think it will ever happen? I hope it does…..what I do see happening is that moving information will arrive in your hand; visual information will arrive in your hand.

This is one of Nokia's models for third generation handsets, notice it stands sideways, no buttons, voice dial, big screen, good quality graphics. You will have a wealth of personal information in your hand all the time…

CHALLENGE; deliver me a pint of beer down the Internet. Will mater transport ever happen? I doubt it…….The question is when a company goes out into the Internet where does it go..hypermarket..supermarket…street corner market...how you differentiate yourself is important, you must be e-friendly.

E-friendly

(Power point slide with error message) Try to log on; get an error message with a dozen or more characters. Why the hell are they telling me that? It means nothing to me…….Amazon, they have your details and you don't have to keep filling it in all the time. Argos were one of the first people in the commercial area in 1996, in 1993 people started looking at doing business over the Internet…high level of detail, they send you an email with arrival time of product. That's another thing I see happening, more and more home deliveries, I see more

deliveries during the hours of darkness, there is going to be a whole sector of industry dealing on a 24hour clock…chest freezers outside houses, a public key on the outside… like the old bank safe…..a chip in it that does the automatic data receipt…complete new delivery, logistics industry building up….

Next one, Barclays Bank and the Bradford and Bingley Building Society……..instant access bringing the customer in….Vauxhall website last year 493 people bought a car on-line.

Euro star use to go on the website that gave you a timetable and a phone number….now fully dynamic paperless ticketing on the way through.. And a real time timetable. FedEx carry parcels around, you can track your parcel through the system and get a picture, a bit map of the last person who signed for your parcel…
Microsoft of course, if you want anything off there you just download the next package…connection back into the customer at all times.

And probably the best one of all Tesco. The site that makes more money than any other in the commercial area….unlike Sainsbury…Tesco supply from the local store…what I do see them doing in the future is you have the on-line purchasing so you buy all the boring stuff (toilet roll, soap, all that sort of stuff) is picked for you probably in the background, but you still go into the store, you browse the interesting stuff like the wine, when you arrive at the checkout the parcel is pre-packed ….and you just take it away with you…and there is the connection back into the customer.

Security

….There is no security…..what we have got to start doing is making security part of the system. …One of the things that is being looked at is fingerprints, so I do see the hologram on your credit card in the near future being a finger print reader…another thing is the Iris, the colour part of the eye. I do see in the future you walk up to the machine and the machine recognises you, the machine brings your information to you wherever you are. You no longer need an office, you can work from anywhere, you can work from home…You can work as I do, my car is a complete office it has printers, scanners, everything. Instant access anywhere, anytime and you want adequate security and once people get the confidence…..then we will start passing enormous amounts of information in the future….Look at this (power point) we haven't yet put in third generation, this is fourth generation, this is called parasitic networks, everything is active, computer, desk, chair, walls and floor is active. You send a message through the computer, along the floor, through the wall, outside, outside street furniture like lampposts are active, cars are active so they pick up the message drive it down the road and hand it back on again, it is a completely anarchic system……chips will be in everything.