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**The future of the
communications business in
the 21st century**

Dai Davies

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Past predictions

Whoever tries to predict the future of the Telecommunications industry in the Twenty first century would do well to use a crystal ball. As a method of prediction it is likely to beat rational analysis, particularly if the focus is on the European industry. But as astrologers know crystal balls can also suffer from clouds. There are also some lessons that can be learnt from the past twenty years that can be used as a safe basis for predicting the future.

Twenty years ago nearly everybody predicted the convergence of computing and communications. Some exciting acquisitions were made. Telecommunications companies tried to diversify into computing. Computing companies tried to diversify into telecommunications. They all failed. Fifteen years ago ISDN was the rising technology star of European industry. It is not a red dwarf today but it has not changed the marketplace. In the same time frame, in the USA, the Anti trust investigations into Telecommunications and Computing Industry resulted in Computer Inquiry Three and the famous legal decision known as "Modified Final Judgement". These did have a dramatic effect on the market by breaking up the BELL system and defining a regulatory structure which is only now under review. Regulation was the dominant force for change.

Networks are about shared benefit. Nobody seriously advocates a model where each communicating party buys a cocoa tin and shares the cost of a piece of string to all other parties with whom they wish to communicate if only because it does not scale. It is because Telecommunications is about shared benefit that it is in general regulated and it is the regulatory policy that more than anything else which will define the way the industry looks in the twenty first century.

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Technology is not the issue

Historically, technology played an important role in shaping the industry. By insisting on very high levels of service availability the industry stayed with electromechanical technology long after computerisation had changed many other aspects of other industries, but this is no longer the case. Telecommunications has embraced digital techniques and the use of software and predictions in the early 1980's about the development of fibre optics and the availability of advanced computer based technology have been quite accurate. Technology is not a real factor inhibiting the industry. The same pace of technical development that saw the rise of the PC in the last ten years has been apparent in the underlying technology of telecommunications and yet there has not been the level of innovation. This is partly because of the difficulty of innovating in an environment that requires a critical mass to succeed and partly because there is no track record of successful innovation in the telecommunications operators.

There have, however, been major changes in this period. The development of group three facsimile took the traditional pundits completely by surprise. The traditional belief that a telecommunications operator could and should control all aspects of service, including a text based service, was destroyed by facsimile. The regulated alternative of Teletex was stillborn.

The other major development has been mobile telephony. Both fax and mobile have major factors in common. They meet a perceived user demand and they use the ubiquitous voice telephony service as an underlying infrastructure. By contrast attempts to create technology driven new services such as ISDN and Group four fax have failed. Marketing technology is not easy. Intelligent service industries in a competitive market place do not try to market technology. It is the quality of the steward/stewardess or the extra glass of wine or the extra millimetre of leg room that decides a purchasing decision in the airline industry not the quality of the wings that keep the plane in the air.

The new players

Internet aficionados believe that they have invented the wheel that has eluded the Telecommunications operators for so long. They are wrong. The Internet has shown that it is possible to deploy high speed technology quickly but it suffers from very serious weaknesses. The technology is difficult to manage commercially and technically. Internet will survive the commercial distortions whilst somebody else continues to pay but unless it can establish itself as a commercial advertising medium with network usage paid by third parties, the inherent weaknesses of the commercial and technical model will ultimately limit it. The hype bubble may burst and the wheel will be shown to be as octagonal as that of the PNO's.

In contrast technology from the PNO stable is robust and manageable. PNO's do understand quality of service. They have different weaknesses to overcome when compared with the new kids on the block. Cosseted for years by monopolistic revenues from international voice services they are still seriously overmanned in Europe and nowhere (not even in the USA) do they face serious competition.

There is a third force entering the picture - the entertainment industry. Cable television (CATV) is the major potential catalyst to change the shape of the industry in the twenty first century. As we become a world of richer couch potatoes we will spend more on entertainment, and CATV technology can also deliver telephony. It is instructive to note that it is the Cable television industry that has impacted BT's domestic voice revenues rather than the direct competitor (and BT look alike) Mercury. Access to the local loop is the key to access to the mass market. The existing PNO's have this access. The CATV companies are increasingly in it. The jury is still out on the wireless local loop but there are serious questions of quality and capacity. The business market is superficially attractive but it is actually small, populated by commercially literate decision makers, and technically sophisticated. The lessons of fax and mobile should be learned. Provide access to the existing customer base and add value and you can win.

Regulation is the key

The mass market is there for telephony and entertainment. The technology is there for telephony and entertainment. The question is will supply and demand meet. The key is regulation. There

are good reasons to regulate competition in telecommunications. The Internet has proved that anarchy is fine when somebody else is paying, but it doesn't provide quality of service or ubiquitous service. Europe is to deregulate in 1998. The US is reviewing its regulatory structure again.

If a competitive regulatory environment emerges then we will see the Superhighways delivering quality entertainment at least in terms of the presentation. It will also allow cost effective communications on an increasingly world wide basis. A level playing field is not enough. There needs to be aggressive refereeing as well to ensure that it happens. Certainly in Europe there are too many well paid, underemployed workers of PNO's for the current monopolists to want to play the game.

Conclusion

Some things happen as predicted and some things don't. Looking to the future the Information Superhighway life is exciting, but will anything substantial change in the short term? Europe has taken the first serious steps to deregulation but there is no European equivalent of Judge Green, who forcefully oversaw deregulation in the USA, to make sure that this happens.

The future of the Telecommunications industry in the twenty first century will be decided, not by the technology, but by the regulator. The losers in a scenario of aggressive managed liberalisation will be the owners of Video corner shops. The losers in any other scenarios will be all the couch potatoes among us.

Brief Synopsis

The mass market and the technology are there for telephony and entertainment. What is going to happen after liberalisation? This paper addresses the lessons to be learnt from deregulation in the US and the UK and compares it to the European situation. It also looks at the reasons why some Telecoms products have been more successful than others in the past and makes predictions as to how the future industry will develop.

Company profile

DANTE is a not-for-profit company based in Cambridge (UK) organising advanced international computer network services for the European research community. DANTE was established in 1993 and is owned by a number of national research networks. The company's mandate

is to complement the services organised by the national university networks at a pan-European level.

DANTE's main service is EuropaNET, a pan-European backbone network interconnecting all European research networks. DANTE is also coordinating partner in the TEN-34 Consortium, a grouping of all the national networks that, together with the major European Telecoms operators will start the setting up of a pan-European 34 Mbps network in 1996, under a contract with the European Commission.

DANTE furthermore manages a number of applications services at a European level, such as mail and directories. It is also responsible for the project management of networking projects in Central and Eastern Europe, e.g. PHARE Networking.

Biography

Dai Davies has been General Manager of DANTE (Delivery of Advanced Network Technology to Europe Ltd) since 1993. He has degrees in Engineering and Computer Science from the University of Cambridge and twenty years of technical and commercial experience in the telecommunications sector, working at BT, Deutsche Telekom and the UK Department of Trade and Industry.

In 1994 Dai Davies was closely involved with DANTE's work for the EuroCAIRN Committee (European Cooperation for Academic and Industrial Research Networking) which developed a blueprint for the next generation pan-European research network. Subsequently he concentrated on the planning of a 34 Mbps Interconnect facility under TEN-34, an EC Fourth Framework (Telematics for Research) project.