

1

Predicting the Future is a Necessary Part of Business

Almost all activities in the world of wireless communications require a forward-looking assessment. Operators who are deciding whether to buy spectrum at auction need to assess the likely services and revenue they can expect over the lifetime of their licence – often 20 years or more. Manufacturers need to decide which areas to focus their research activities on and which technologies and devices to develop into products. Academics and other researchers need to understand which areas will require the greatest advances and hence be most amenable to research. With the development of standards taking 5–10 years from inception to commercial product, those developing the standards need to predict what types of product will be needed and technologies available during the lifetime of their standard. There are many examples of poor forecasting – for example Iridium over-forecast the number of users who would be prepared to pay for an international satellite phone; and some examples of excellent forecasting, such as Vodafone's decision to enter the mobile communications marketplace when it was in its infancy. Getting these forecasts right is one of the most critical factors in building a successful business.

All of these players – manufacturers, operators, researchers, investors, regulators and more – make their own predictions of the future in developing their business plans or other business activities. In doing so, they sometimes draw upon available industry information such as analyst and consultant reports which forecast the uptake for specific technologies or services. But these often take a very narrow view of a particular segment or technology. As a result, they can forecast that a particular technology will be successful when compared to its direct competitors, but may not notice the advent of a disruptive technology which will change the entire competitive playing field. The track record of such forecasts, particularly over timescales of three years or more, is generally poor.

It is the role of this book to provide a broad and long-term forecast, looking across all the different elements of wireless communications and into related areas such as wired communications where appropriate. This forecast can then become an overall roadmap under which those involved in wireless can build their more specific forecasts.

I prepared such a forecast in 2000: *The Future of Wireless Communications* (Artech House, 2001). Despite the tumultuous time that many communications companies have experienced between 2000 and 2005, the predictions have proved surprising accurate, as discussed in more detail in Chapter 2. Equally, much has changed since then. New technologies or standards such as WiMax and IEEE 802.22 are being developed. New approaches to using radio spectrum such as ultra-wideband and cognitive radio have been proposed. Services predicted in the previous edition, such as combined home and cellular systems, have actually started to be deployed.

The approach adopted in this book is very similar to the successful approach I adopted in 2000. The book starts with a careful analysis of the current situation, looking at underlying technological drivers, user demands, existing and emerging standards and technologies, and business drivers among the key players. It then turns to gaining views from a range of eminent experts in the field, ranging across different types of stakeholder and from different parts of the world. This range of views, coupled with the earlier analysis of constraints and drivers, is then brought together into a single vision of the world of wireless communications in 2011, 2016, 2021 and 2026. Such a single vision is much more valuable than a wide range of different scenarios which readers need to interpret and come to their own conclusion as to which, if any, they consider likely.

So, in summary, five years after my previous book, it is an appropriate time to have another look at the current environment, gather some fresh opinions and make another prediction 20 years into the future. This book provides a credible, broad prediction of the future which will aid all those involved in wireless communications in their most important task – making the right decisions themselves as to their best investments of time and effort.