

ESSENTIAL RADIOCOMMUNICATIONS RESEARCH BEYOND 2003

1. Introduction

Research has played a vital part in the operation of the Radiocommunications Agency (RA) and during the past two years the inception of the Radio Research Advisory Committee (RRAC) has further consolidated the research support. More recently the RRAC has generated various research proposal initiatives including in particular a response to the Cave recommendations and the requirements of the Technical Forum. The RRAC has in due course acquired an expansive awareness of the radiocommunications research requirements into the future and 'over the horizon'.

The formation of **Ofcom** necessarily invokes a period of transition when the precise role of the RRAC has yet to be decided. As such it is important to note the foundation work on future research requirements that is currently being formulated and examined by the RRAC.

The purpose of this paper is to summarise this essential radiocommunication research that needs to be addressed beyond 2003 and the likely cost. Further details are given in the Annexes.

2. The value of research in Radiocommunications

The complexity of the scientific, engineering, economic, political and sociological factors involved in the exploitation of the spectrum can only be understood through relevant research activity.

Some of the immediate benefits of research are:

- provides the services to the end user
- quality of service perception
- maximises the financial return to Treasury on the investment
- ensuring the optimum technologies to achieve these objections while allowing operators maximum freedom within limited guidelines

3. Areas needing research priority

The use of the radio spectrum is undergoing change on a global basis and research areas relating to these changes that attract priority are:

- Cave recommendations

- Interference management
- Spectrum trading
- Re-farming
 - Mobile service bands
 - ISM bands
 - Drivers (technical & market) relating to re-farming
- Broadband roll-out
- Wireless in the home environment

Guidelines on the above are urgently sought and can be expected to lead to greater clarity for spectrum managers, operators and users alike. For instance:

guidelines for interference protection by

- service
- frequency band

(The aim being to develop guidelines (band-by-band) for prospective interference managers.)

- QOS
- utilising software radio

guidelines for assessment of spectral efficiency

- to ensure the above criteria can be met

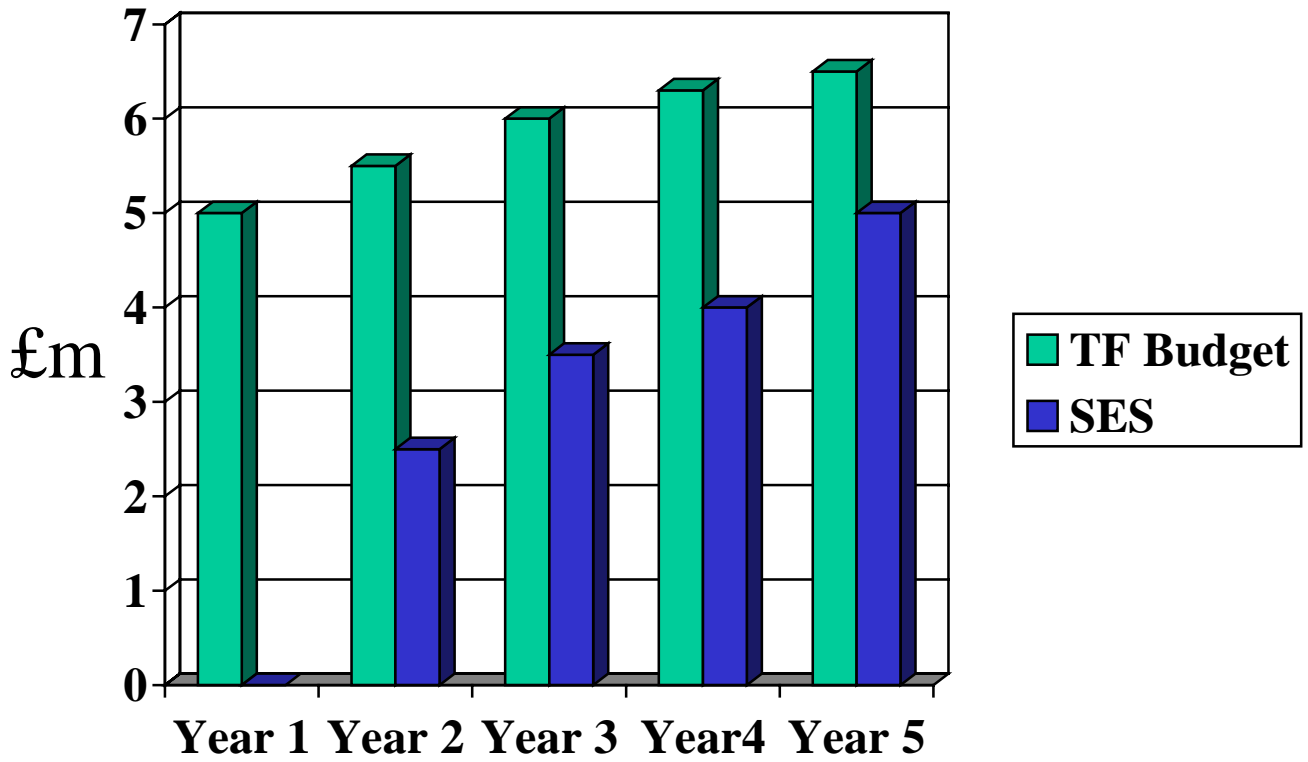
4. Research for future planning

There is a significant lead-in time and planning backed by research needs to start now for implementation in ten years time. Areas requiring particular research attention are:

- Exploitation of the higher frequency bands
- Creation of further unregulated bands
- MOD sharing opportunities and plans
- Re-alignment of broadcasting frequencies and consideration of an efficient cellular distribution network for broadcast delivery

5. Forward cost predictions

It is considered that the above essential radiocommunication research activities will require costings during the next five years beyond 2003 as outlined below.



6. Recommendation

That the essential nature of this forward-looking radiocommunication research be noted and its implementation considered.

7. Annexes (TBD)

Finances

- A future budget needs to be proposed

Key future objectives

- The direction of technical research needs to be set (in terms of a top-level strategic view). Although a range of market, global and technology development factors set the pace and direction, vital pre-competitive research work is required to understand, map and derive the regulatory impact and future interaction of electronic communications.
- As well as radio related technologies there may need to be other additional research areas.

Evaluation and Value for money

- A co-ordinated approach to integrating research results and influencing roll-out of new systems
- The need for a 'body or source of expertise' that can provide advice, direction and interchange of information.

RRAC
March 2003