

■ **ATDI - skills, knowledge and leadership in TETRA**



**Undertaking modelling,  
 planning and validation  
 Providing software,  
 support and methods**

**The hills are alive to the sound of TETRA**

**Background:**

The rural, scattered population in one of Europe's most mountainous countries needed coverage for its TETRA network.

**The problem:**

Cost, as always, was a limiting factor, as was the geography and the government's decision that there can be only a limited number of base stations.



**The approach:**

Motorola was asked to create a TETRA network for the emergency services and turned to ATDI for the expert planning and modelling advice it needed to make the system a reality. Motorola and ATDI had, then, to work out optimum balances within the context of the maximum number of base stations acceptable and the tough coverage specification requiring that virtually any body, anywhere within the national borders would get a signal.

**Problems to be addressed:**

- How many sites would be needed to provide the service?
- How many existing radio masts could be used efficiently?
- How many new sites needed to be built – and how feasible that was given the constraints?

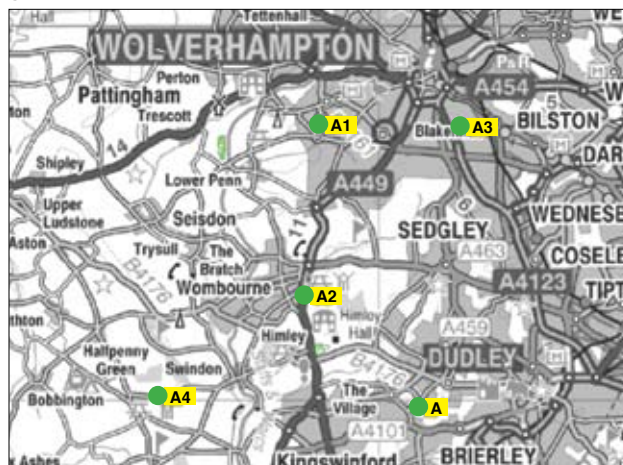
**How this was done:**

ATDI used its flagship planning and modelling software, ICS Telecom, to examine all possible solutions, and continuously updated the results as the parameters – practical and financial – of the proposed network were changed. The network’s shape remained fluid until the end and each change within it had to be planned and modelled afresh. ICS Telecom includes a feature enabling much of this repetitive work to be carried out automatically, freeing engineers’ time for other tasks and saving time overall.

**References**

Mobile Radio Network Design in the VHF and UHF Bands: A Practical Approach  
 Wiley-Blackwell (2006) ISBN-10: 0470029803

**Which site offers the best overall coverage in this general area?**



The following analysis in ICS Telecom identified Callsign A3

Station #	Callsign	Best server area km <sup>2</sup>	Noise limited area km <sup>2</sup>	Unique service area km <sup>2</sup>
1	A	91.03	333.45	16.71
2	A1	211.45	579.41	26.49
3	A2	174.43	544.52	36.63
4	A3	169.82	416.35	35.19
5	A4	482.87	766.74	269.54

This functionality enables the planner to select the best sites to be identified for the network design, resulting in the minimum number of sites deployed to achieve the service level required.

**Auto-selection of sites to achieve a coverage requirement**

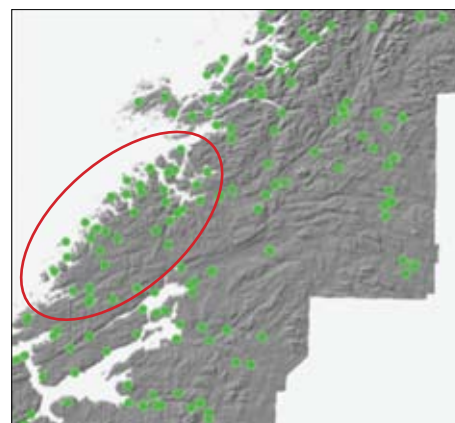
**Sites available**



**Service required**



**Results**



Highlighted area indicates significant reduction in sites required.

**Contact**

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Alternatively contact us directly [sales@atdi.co.uk](mailto:sales@atdi.co.uk) or +44 (0)1293 522052

ATDI Ltd  
 Kingsland Court - Three Bridges Road  
 Crawley - West Sussex - RH10 1HL - UK  
 Tel. +44 (0)1293 522052 / Fax. +44 (0)1293 522521  
[www.atdi.co.uk](http://www.atdi.co.uk) [www.atdi.de](http://www.atdi.de) [www.atdi.no](http://www.atdi.no)  
 E-mail: [enquiries@atdi.co.uk](mailto:enquiries@atdi.co.uk)