## Fundamentals of Cellular Network Planning and Optimisation

2G/2.5G/3G... Evolution to 4G

Author: Ajay R. Mishra



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Author: **Ajay R. Mishra** 



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### Foreword

The ever evolving desire for us all to have, at our fingertips, the immediate ability to see, hear, interact, speak, read and write with all manner of other parties, wherever we are, is one of the most remarkably rapid evolutions ever. It seems that the more we are able to enrich our lives through this enhanced mobility, then the more we demand it. Yesterday's aspirations for mobility have clearly become today's fundamental needs and this trend is strongly set to continue.

Invisible to the vast majority of habitual consumers who enjoy these mobile applications and services, are some of the most complex machines that man has ever made. The networks that have enabled the rampant expansion of mobile telephony during the 1990s continue to expand and are now evolving through the rapid data transmission, to the full video interaction that was the stuff science fiction within the time span of just one generation.

These networks are the result of some of the most intense research and development programmes, which have generated tremendously advanced products that constitute the essential building blocks of these networks. The knitting together of these elements into a fully functioning optimised and high quality network that allows the best possible user experience is a technically demanding and complex discipline.

As the network planning teams that design and optimise these networks are forever at the leading edge of the technology they are dealing with, there is a strong imperative for them to both fully understand the engineering process itself as well as the technology as it develops. This need stretches across all aspects of the network from the radio access, through the transmission and to the core. It also straddles all the technologies from GSM, through GPRS to the WCDMA networks and beyond to 4G.

Ajay R. Mishra is a network planning practitioner. He has spent his career since graduation in this discipline and understands fully the needs of the planning teams. He has used his practical insight to bring together, under one cover, the end to end view of network

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