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**Cellular planning and optimization for 5G heterogeneous networks**

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**H**eterogeneous networks include femtocells, picocells, microcells, macrocells etc. It deals with different types of wireless networks like, WiFi, LTE, WSN above which Internet of things is implemented. It is required to have the cellular planning in order to eliminate interference and optimize power requirements. There are various ways we can analyze the cellular division theoretically which may be converted into practical deployment of tower or access point. Planning helps capacity enhancement and better spectral management as well. The evolution of smartphones has navigated the user's concern towards more mobile based services and utilities including conversational services, internet, navigation services, personal networking, automation and control using various applications, sensing applications, media etc. The cellular networks need proper planning, roll-out and optimization. Various techniques, mathematical models, and tools are used for attaining the common minimum requirements of optimization between coverage, capacity and cost. Some of the soft computing techniques are also used. Few points which are to be covered in this paper: deployment strategies for LTE and LTE-A, heterogeneous network architectural studies, quantitative study on deployment algorithms, optimization and its impact on radio networking dimensioning, few mathematical models for division of area for cellular planning along with co-operative communication support

**Biography**

Upena Dalal is an Associate Professor and Associate Dean in Faculty welfare, at SVNIT, Surat, India. She is an ex-Head of Department, Department of Electronics Engineering and Ex-Chair, IETE Surat Chapter. She is an author of a number of books and 150 plus papers published in international journals and conference proceedings. She has also delivered keynote speeches at various international conferences. She has recently published a book on Wireless and Mobile Communication from Oxford University Press, India and currently working for a book on 5G Technologies.

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