**ETM 58D Assignment 1**

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I have been working at Vodafone Turkey as a Radio Access Network Engineer for three years. Our team is accountable for managing radio access network investments across the country. Basically, we are planning installation of base stations including 2G, 3G and LTE technologies according to many KPIs in order to improve our mobile network coverage, quality and also customer experience. We have possible topics that could be related with R programming usage.

**Examples about R related to our work**

**1. Demand Analysis and Investment Plan**

Demand analysis is the first step to create investment plan quarterly and annually. In this step, site selection is completed according to many technical, customer and financial based KPIs. Firstly, technical KPIs such as population coverage, signal quality, voice and data traffic rates are collected for all regions in Turkey and these technical inputs are matched with customer data including number of LTE devices, LTE penetration rates, customer complaints etc. and also financial KPIs such as ARPU (average revenue per user), ROI (return of investment). After that, we create several clusters that need new sites which mean base station investment. However; there are no enough budget or equipment resources to cover all requirements. That’s why; we have to prioritize our investment plan according to demand analysis. R programming could be useful for our manual demand analysis.

**2. Network Modernization and Equipment Delivery Plan**

Apart from investment plan for new sites**,** upgrading existing base stations is another important topic for Vodafone’s mobile network to implement new technological advances. In this purpose, active equipment reports are collected periodically from network management tools in form of csv excel format. After that, some legacy components are detected and swap plans are created for them. By using R programming, data collection and equipment swap plans could be created automatically.