### Option 1 A Management Application for Internet of Things
The growth of wireless networks and the Internet of Things (IoT) has the potential for making building more pleasant and energy efficient places to live and work. Several protocols exist for wireless sensor networks (ZigBee, Bluetooth, Z-Wave etc.). In this project you will examine if there is an existing candidate (e.g. SNMP) for managing an indoor wireless sensor network for monitoring the built environment, e.g. how to initialise and configure sensors and how to manage performance and faults. The question: is it practical and useful to manage an indoor wireless sensor network using an existing network management protocol?

### Option 2 Monitoring and Configuration Management for Linked Data
Linked data describes a way of structuring data so that it can be exposed, shared and interlinked using URIs and the Resource Description Framework (RDF). RDF structures data as triples, which consist of subject, predicate and object, e.g. 'John is 25'. A triple (or RDF) store is a purpose-built database for storing and retrieving triples. This project will examine whether existing protocols (e.g. SNMP) are appropriate for monitoring and configuring an RDF triple store. Typical questions your management application should be able to answer are, whether the database is up (or down)? How to initialise and configure aspects of the store, e.g. configure whether to use a persistent/non-persistent dataset, configure one or more service endpoints, set port number, etc. The question: Is there a benefit to using network management principles to manage this kind of monitoring and configuration?

### Option 3 Managing Smart, Sustainability Districts
Managing energy efficiency across cities is a major challenge in Europe and across the world. A district can be considered as a large network of nodes, some generating energy, others storing energy, the majority consuming energy, or alternatively, some combination of these. Monitoring and configuring the network so that energy is consumed when it is most cheaply available requires consideration of a number of factors related to generation and storage (especially when integrating green energy devices). This project will examine whether an existing protocol (e.g. SNMP) can be used to support the monitoring and configuring of a ‘smart district’ so that energy can be consumed at the optimal times. The question: Is there a benefit to using network management principles to manage this kind of monitoring and configuration?

### Option 4 Network Management and Social Networks
While network management is principally concerned with the management of telecommunications networks and data networks, there are similarities with other networks, such as networks of people. The objective of this project is to examine online social networks and to
apply network management principles to them. You will be looking at whether you can consider the stream of content generated by a user on a social network in terms of FCAPS, for example, if you consider whether monitoring and configuring networks can help identify unwanted behaviour and alert and protect users against such behaviours. You will examine the use of an existing protocol (e.g. SNMP) to achieve this, and of course, you will need to develop a model of your network. The question: What are the benefits and drawbacks of applying network management principles to manage this kind of monitoring and configuration?

**Option 5 Propose your own project!**

Define your own domain area where you would like to explore the application of an existing network management protocol. For this you must:

* build a network model
* use a network management protocol (new or standard)
* investigate the benefits/drawbacks of applying network management to a domain.