SEMAFOUR

POLICY-BASED SON MANAGEMENT

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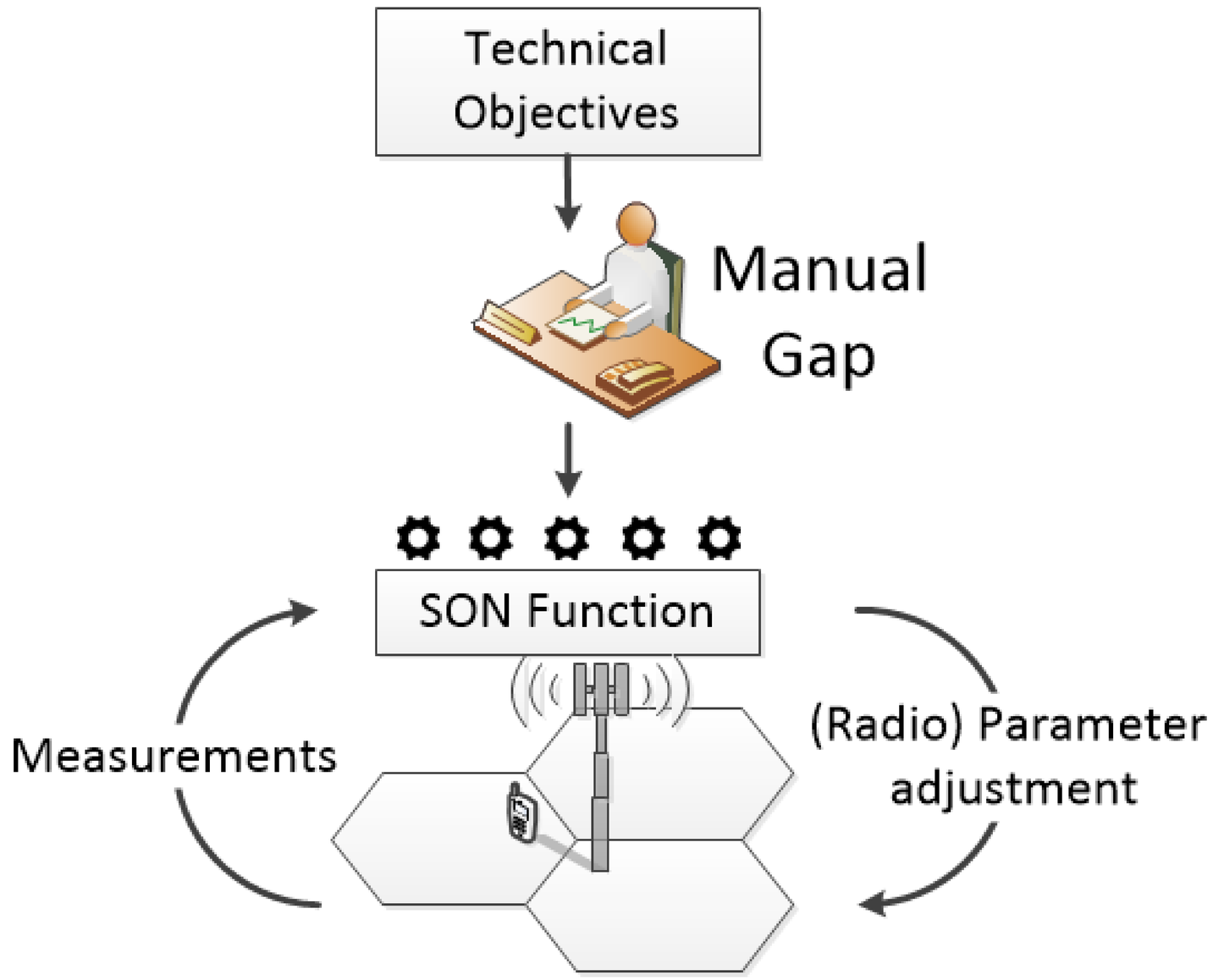
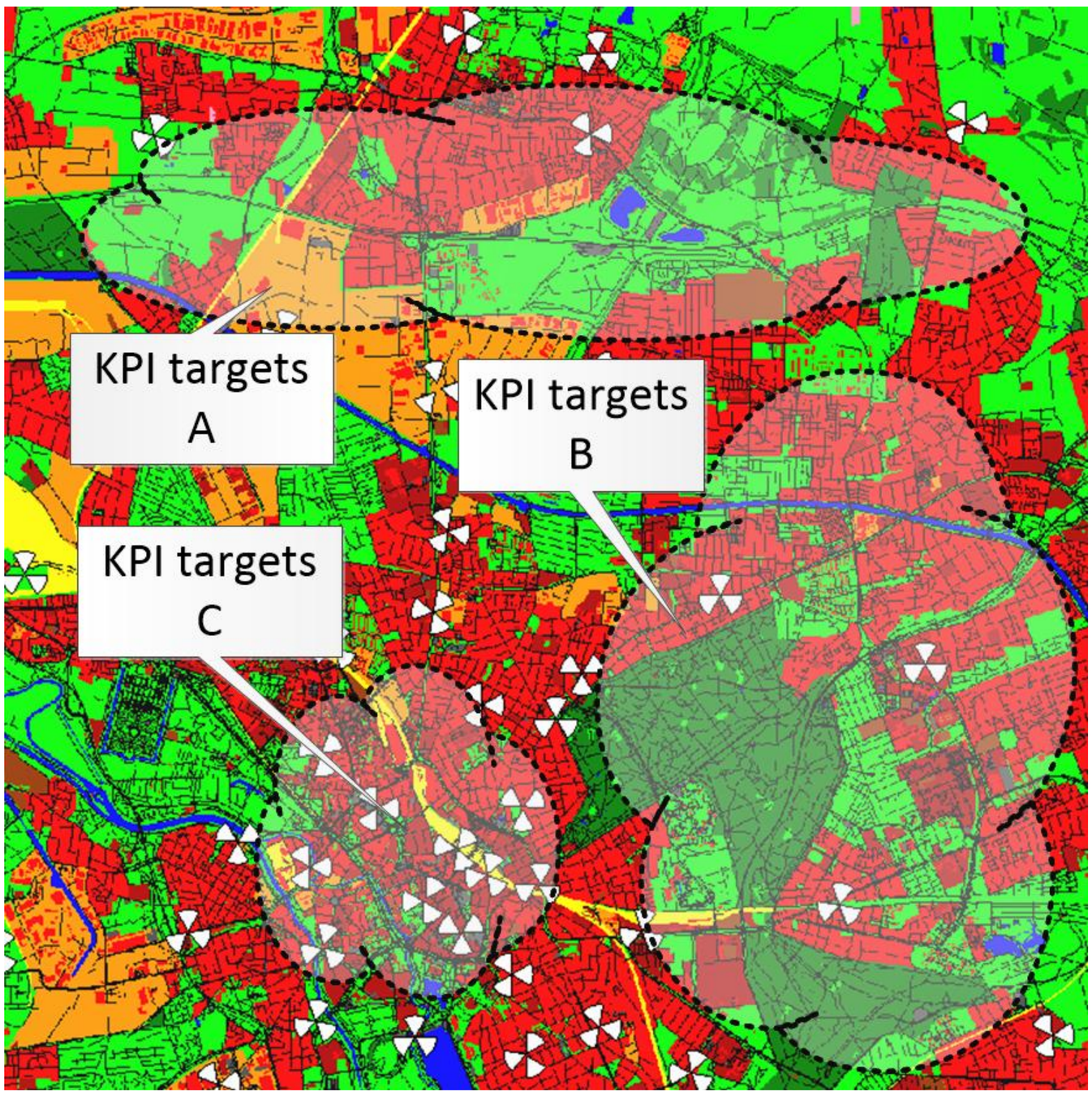
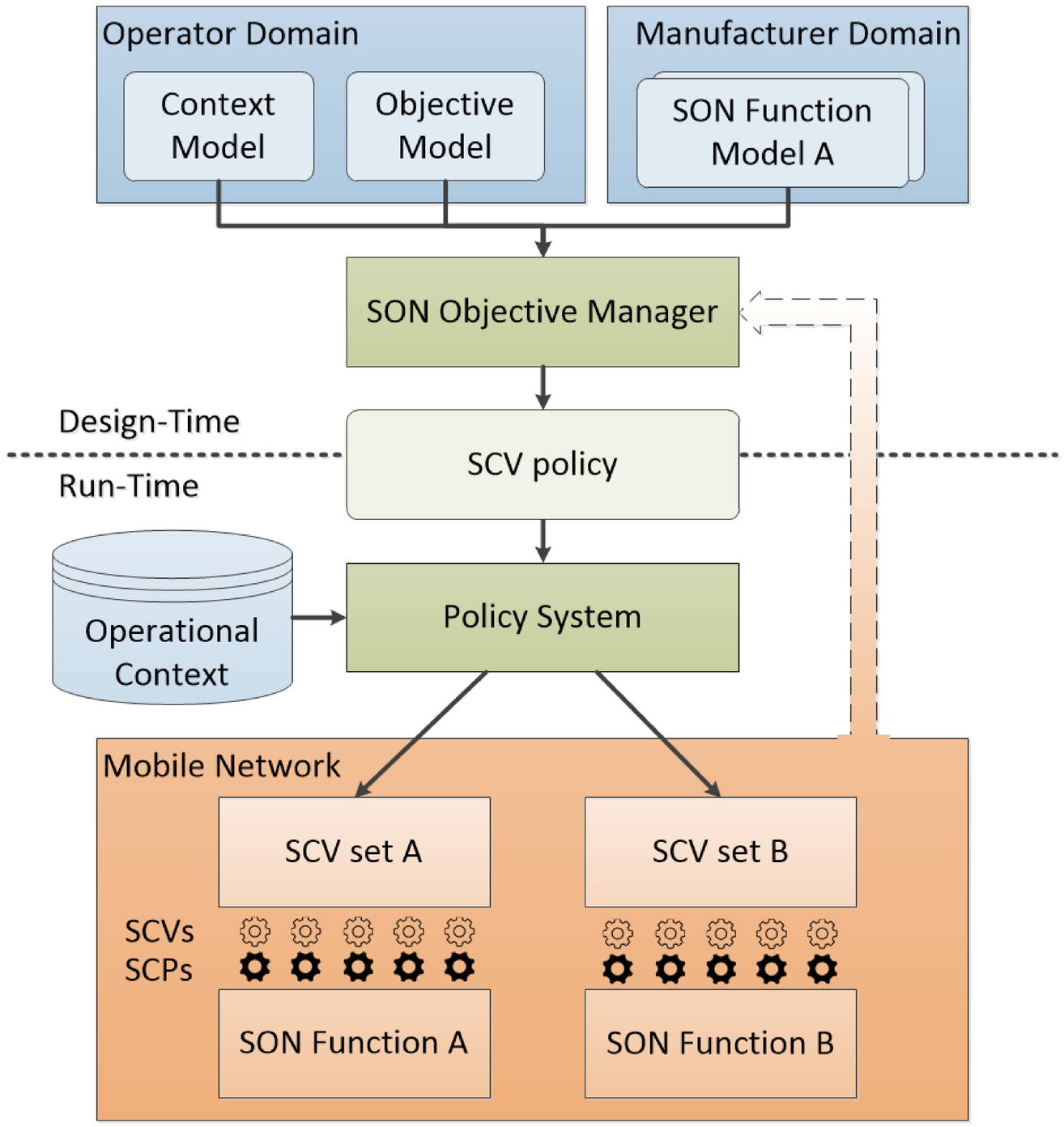
The Self-Organising Network (SON) paradigm represents an approach that automates a number of dedicated tasks in network configuration, optimisation and fault handling. Self-optimisation SON Functions can thereby be seen as autonomous closed control loops that monitor the network, adjust a set of (radio) network configuration parameters, and usually focus on the improvement of solely one or a few Key Performance Indicator (KPI). Consequently, several SON Functions need to work together to achieve the desired overall network performance.





Since the SON Function algorithms are “black boxes”, i.e. the operator has no insight, they can be controlled only through a set of SON Function Configuration Parameters (SCPs). For example, a Mobility Load Balancing (MLB) SON Function might have SCPs such as upper and lower cell load threshold, step size and load averaging time. By setting different SCP Values (SCVs), the operator can change the behaviour of a SON Function and, thus, the achieved KPI values. The operator’s goal is to achieve specific values for all KPIs, referred to as KPI targets, e.g. the Call Drop Rate < 1% from 07:00 to 09:00 am. Those KPI targets may also vary on the actual location in the network.



The configuration of the SON with a collection of SCV sets according to a set of technical objectives induces to two *manual gaps*. The human operator has to a) manually translate the objectives into SCV sets, i.e. selecting SCV sets for SON Functions that are in line with the KPI targets, and b) dynamically change the SCV sets according to the operational context, e.g. going from a normal traffic situation into the busy-hour and thus changing operator objectives.

Policy-Based SON Management (PBSM) describes an approach for managing a Self-Organising Network (SON), consisting of a number of independent SON Functions that are running in the mobile network to overcome such manual gaps.

To allow for a common configuration of the SON Functions according to performance objectives (KPI targets) formulated by the network operator, models for describing the objectives, the SON Functions, and the network context are introduced. A SON Objective Manager component merges and transfers these models into a policy, which is then executed at run-time. The rules in this policy configure the implemented SON Functions in such way that they optimally work towards the formulated objectives. With this approach, the manual effort required to manage a SON-enabled network can be reduced considerably.

The poster shows the major work of the SEMAFOUR work-package “Integrated SON Management”. Integrated SON Management stands for an automated network management framework that allows the network operator to alter and steer the radio network towards their defined goals and objectives. These goals and objectives may vary over time and location in the network. Examples will be given of how the SON Management SEMAFOUR-approach would look like in a realistic scenario setup.

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