Grant Agreement Number: **248113/O70**

Project acronym: **IoTSec**

Project full title:

**Security in IoT for Smart Grids**

**D 0.5**

**Scientific Paper**

**Due delivery date: M12**

**Actual delivery date: M12**

Organization name of lead participant for this deliverable:

**UNIK**

|  |
| --- |
| **Dissemination level** |
| **PU** | Public | **X** |
| **RE** | Restricted to a group specified by the consortium  |  |
| **CO** | Confidential, only for members of the consortium  |  |

|  |  |
| --- | --- |
| **Deliverable number:** | D 0.5 |
| **Deliverable responsible:** | UNIK |
| **Work package:** | WP0 |
| **Editor(s):** | Seraj Fayyad |

|  |
| --- |
| **Author(s)** |
| **Name** | **Organisation** |
| Josef Noll | UiO |
| Seraj Fayyad | UNIK |
|  |  |
|  |  |
|  |  |
|  |  |

|  |
| --- |
| **Document Revision History** |
| **Version** | **Date** | **Modifications Introduced** |
| **Modification Reason** | **Modified by** |
| V01 | 22.09.2016 | Final version | Seraj Fayyad |
|  |  |  |  |

|  |
| --- |
| **Abstract** |
| This deliverable presents one of the scientific papers of IoTSec. Internet of Things, People and Services (IoTPS) systems have become increasingly popular in modern times. And this popularity increases the importance of measurable Security, Privacy, and Dependability (SPD). One of the crucial aspects for system SPD enhancement is reliable evaluation for system SPD level. The evaluation of SPD level for IoTPS system has many challenges, such as the heterogeneity among the components. Considering the challenges of IoTPS system, several approaches are proposed to evaluate system SPD level. One of these approaches, is Multi Metrics (MM) approach. This approach is considered as comprehensive approach, because of its features. Some of MM approach features target the scalability and applicability within the architecture of unlike systems. To enhance the comprehensiveness of MM approach, we propose an extension for the approach to consider the impact of components interconnection on SPD level.The information on the paper is available at IoTSec.no/publications, 1. S.Fayyad and J.Noll. "Components Interconnection Consideration In Multi Metrics Approach", CENTRIC 2015, pp 21-27, ISBN: 978-1-61208-440-4

ConclusionsThis paper considers systems of systems in the Internet of People, Things and Services (IoPTS). It provides an extension of the Multi Metrics approach including interconnections of components in the system. The Multi Metrics (MM) approach assesses the security, privacy and dependability (SPD) triplet of a component, a sub-system and the total system. The specific use case analysed is the privacy analysis of a medical system for diabetes measurements. The system consists of a glucometer interacting with a mobile device over Bluetooth, and a host application for mointoring of the application. The example is based on two metrics, authentication and encryption, being applied both for the application and the mobile operating system. The result of applying the MM method leads to privacy levels of the system, providing a privacy level between 40 and 70 for the application. The proposed extension considers interconnections between components. In the envisaged use case, the interconnection is explicitly dominant for the mobile operating system (OS). The OS is surrounded by 4 components, and has 6 reachable components. The analysis using the interconnection extensionof the MM approach leads to a reduced privacy level being between 28 and 50 for the Mobile OS.  |