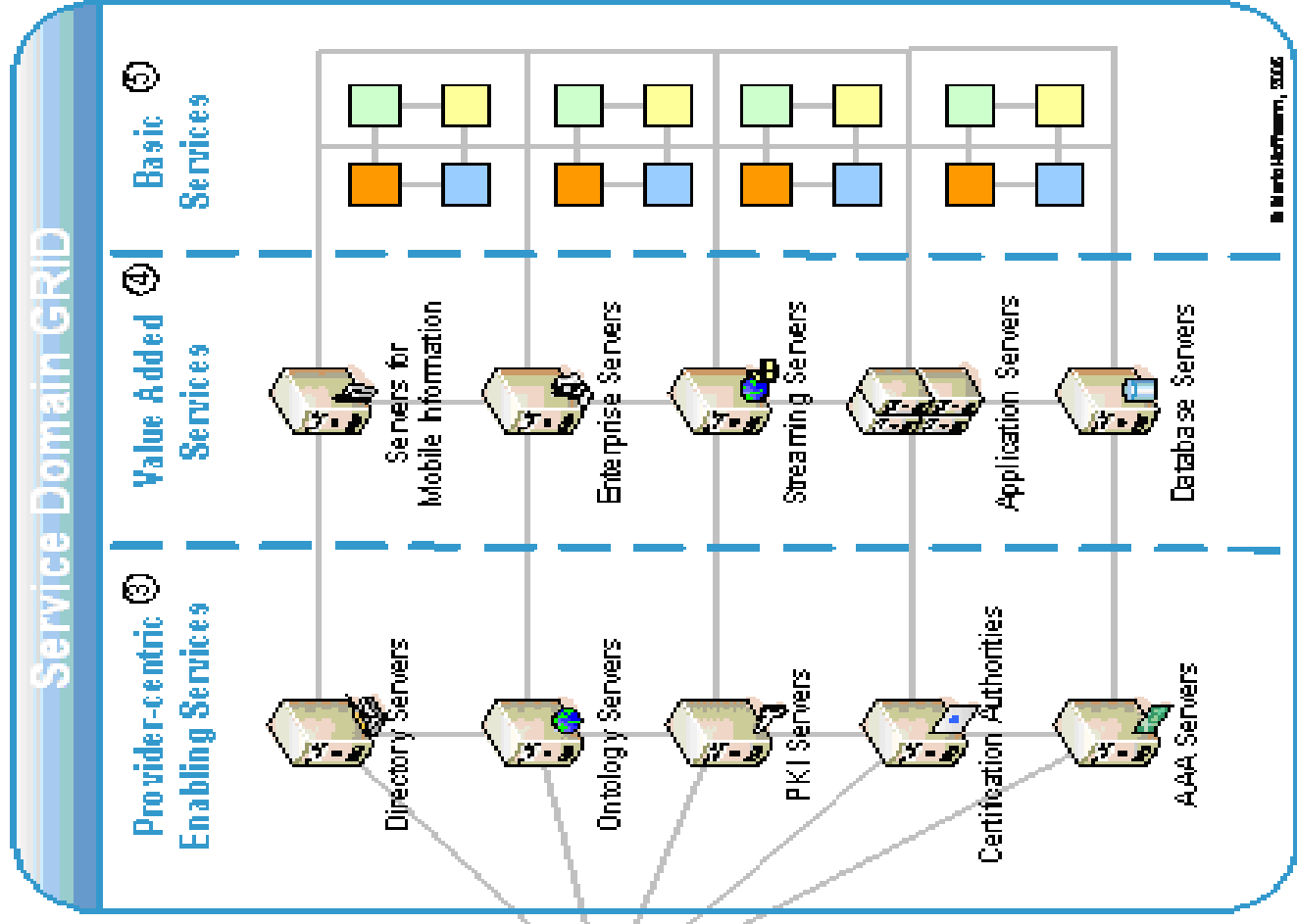
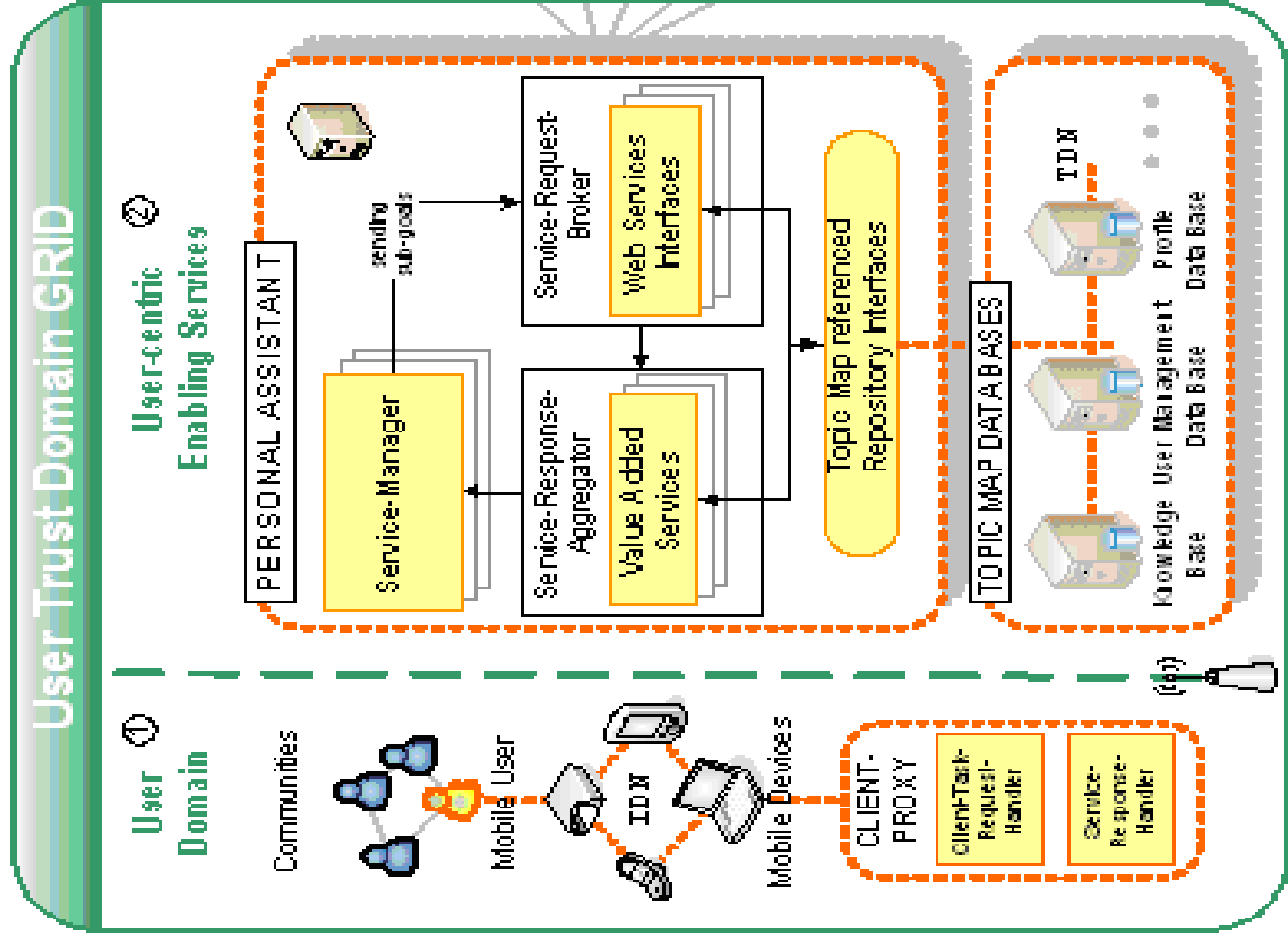


# Intelligent Media Systems & Services Research Laboratory (IMSS)



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Legend: IDM = User's Intimate Domain Network  
 TDM = User's Trusted Domain Grid Network

# Relevant Research Activities



## HYDRA - Heterogeneous physical devices in a distributed architecture

The HYDRA project aims to research, develop, and validate middleware for networked embedded systems to enable development of cost-effective, high-performance, secure, fault-tolerant, ambient intelligence networked embedded systems and applications consisting of heterogeneous physical devices. The aim is to hide the complexity of the underlying infrastructure while providing open interfaces to third parties for application development. HYDRA will be developing a Software Development Kit (SDK) that can be used by developers to develop innovative Model-Driven applications. R&D will also be performed for a business modelling framework to analyse the business sustainability of the developed applications. An open source reference implementation will be available that will demonstrate the applicability and quality characteristics of the HYDRA middleware.



# Relevant Research Activities

## MobiPETS Grid - Context-aware Mobile Service

### Provisioning Framework Deploying Enhanced Personalisation and Privacy and Security Technologies

The ambient lifestyle is characterised by users' interactions with each other as well as with the service provisioning platforms in their immediate environment no matter what kind of mobile and wireless sensor, service and network technologies are behind it. The ambient user explicitly expects individualised and seamless cooperation with those technologies depending on his current situation and context. Implicitly he requires transparent but inherently secure communications and trustworthy transactions.

This paper introduces a context-aware, mobile, secure and trustable service provisioning framework to meet and fulfil the expectations of both the mobile users and service providers by deploying enhanced personalisation, privacy and security technologies following the multi-lateral security concept.

Therefore, the domain-oriented architecture is divided into multiple domains broadly comprising the user's trust domains and the service domain as described in detail. This approach is underpinned by (1) a user-centric Java Card enabled authentication and authorisation against user's personal knowledge management system and (2) an event-driven and agent-based management of particular user tasks based on semantic-cooperative reasoning.



## **Group 1 (SMDSOA)**

Model-Driven & Service-Oriented Architectures, Secure, Semantic-Collaborative Social Computing, Agent Technologies, Ontological Networks Engineering and Virtualisation

## **Group 2 (MobiPETS)**

Privacy-enhanced Trusted Personalised Context-aware Interaction, Behaviour Modelling, Dynamic Usability Modelling & Mining, & Usability Relationship Evaluation, Forensics and Surveillance computing, AAA- Identity Management.

## **Group 3 (DMMR)**

Distributed Databases and Multi-modal Multimedia Information Retrieval, Smart Transcoding, and Mobile Media Distribution, (QoS, SLA, DRM), 3D Media Retrieval, Information Visualisation, Digital Film Post-Production



## **Group 4 (*RoboHumatics*©)**

Robot-Human Cooperativity Support Architecture ,  
Speech & Image Processing, Image Tracking, Pattern  
Recognition & Machine Learning, Multi-Level Data Fusion,  
Context-sensing, Scene Analysis & Situational Awareness,  
Natural Language Processing.

## **Group 5 (SAWI)**

Networked Enterprise Collaborative Workflow Integration,  
Semantic Architectures and middle/upper-ware for self-evolving  
Adhoc, BAN, P2P, A2A networks, Security and Dependability  
Architectures including Real-time Intrusion Detection , Dynamic  
Scheduling, Optimisation, Simulation & Decision Support.

## **Group 6 (ESRAS)**

Embedded Systems Design, Lab-on-Chip and Sensor  
Technologies for Real-Time Adaptive Telematic Systems  
exploiting FPGA and Semantic Integration Technologies,  
Telemedicine and Assisted Living Applications





University of  
**Reading**

# Thank you

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**Atta Badii**

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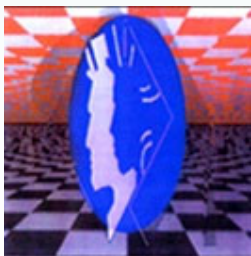
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