

2007 - 2013

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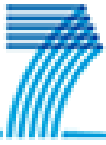
# Advanced **S**ensors and lightweight **P**rogrammable middleware for **I**nnovative **R**fid **E**nterprise applications

RFID Middleware Architecture  
Requirements for RWI

# ASPIRE

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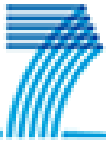
**ASPIRE**



# Overview

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- Introduction
- EPCglobal
- ASPIRE
  - Middleware Architecture
  - Requirements for the RWI reference model
- Conclusion



# Introduction

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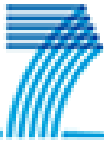
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## ➤ ASPIRE...

*"... will research and provide a **radical change** in the current **RFID deployment** paradigm through **innovative, programmable, royalty-free, lightweight and privacy friendly middleware.**"*

## ➤ Workpackages:

- Requirements and Specifications.
- RFID Middleware Infrastructure.
- RFID Middleware Programmability.
- Ubiquitous, Added-Value Sensing.
- Application Integration, Trials and Evaluation.



# Introduction

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Lower the SME entry cost barrier and Total Cost of Ownership (TCO) for RFID technology solutions:

- Royalty Free Middleware
- Lower effort for developing and managing applications

*Enable RFID scenarios (based on ASPIRE middleware and added value sensors) that improve business results*

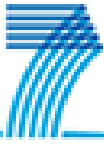
## ASPIRE

*Develops and will deliver a lightweight, royalty-free, programmable, privacy-friendly, standards-compliant, scalable, integrated and intelligent*

*middleware platform*

*Validate the above developments in RFID trials*

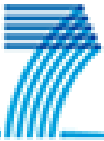
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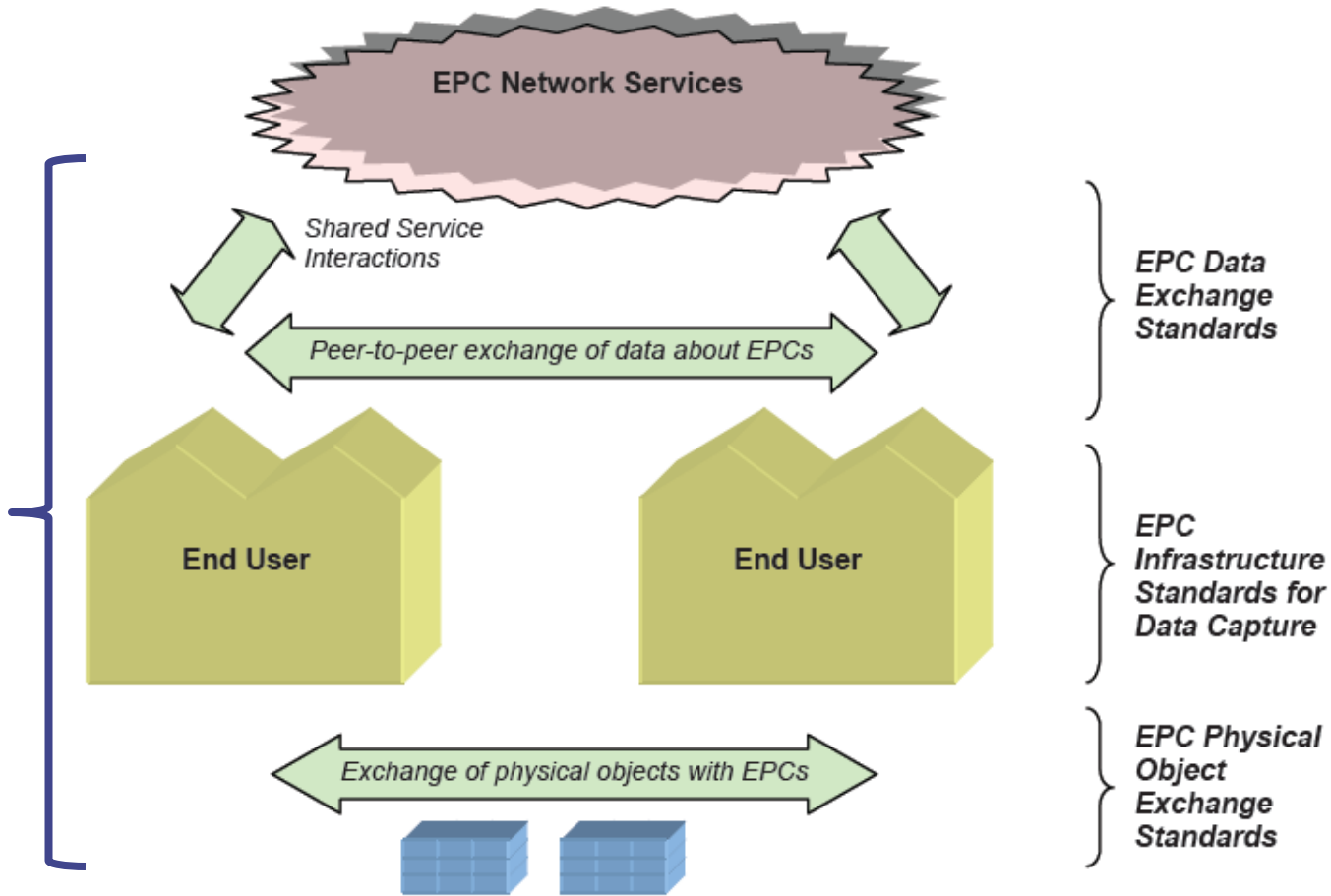
*“EPCglobal leads the development of industry-driven standards for the Electronic Product Code (EPC) to support the use of Radio Frequency Identification (RFID) in today’s fast-moving, information rich, trading networks.”<sup>1</sup>*

<sup>1</sup> <http://www.epcglobalinc.org/>

# EPCglobal – Architecture Framework<sup>2</sup>



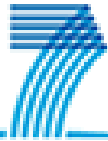
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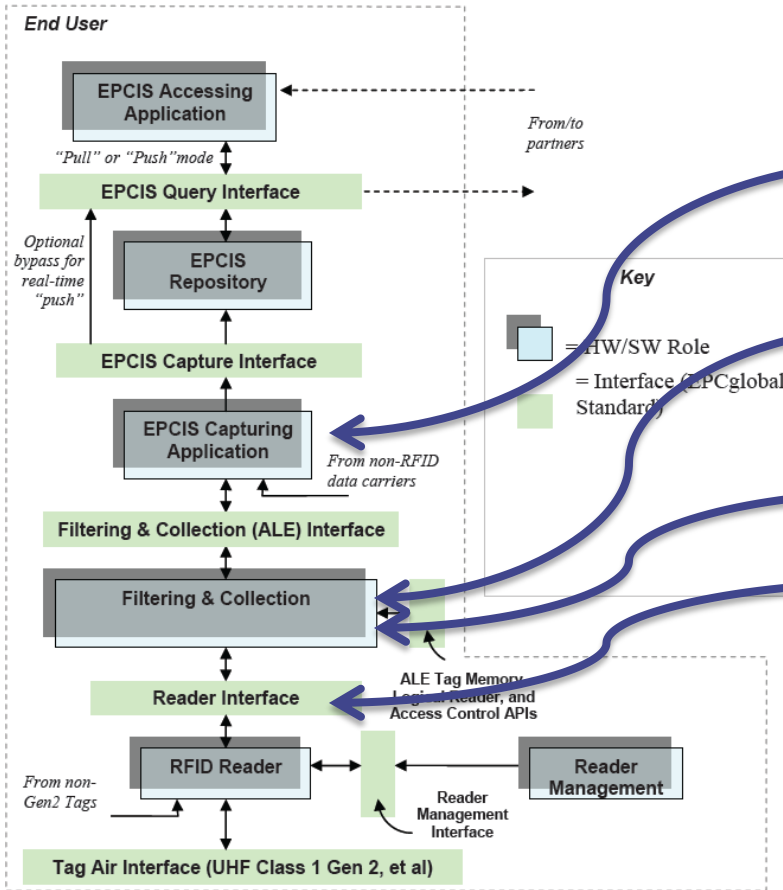
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<sup>2</sup> The EPCglobal Architecture Framework 1.3 – chapter 2

# EPCglobal – Architecture Framework<sup>3</sup>



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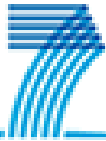


## ASPIRE:

- Configurable Business Events Generation
- Support and Integration for Sensor Data
- Integration of Actuators
- Reader Connectors and Virtualization

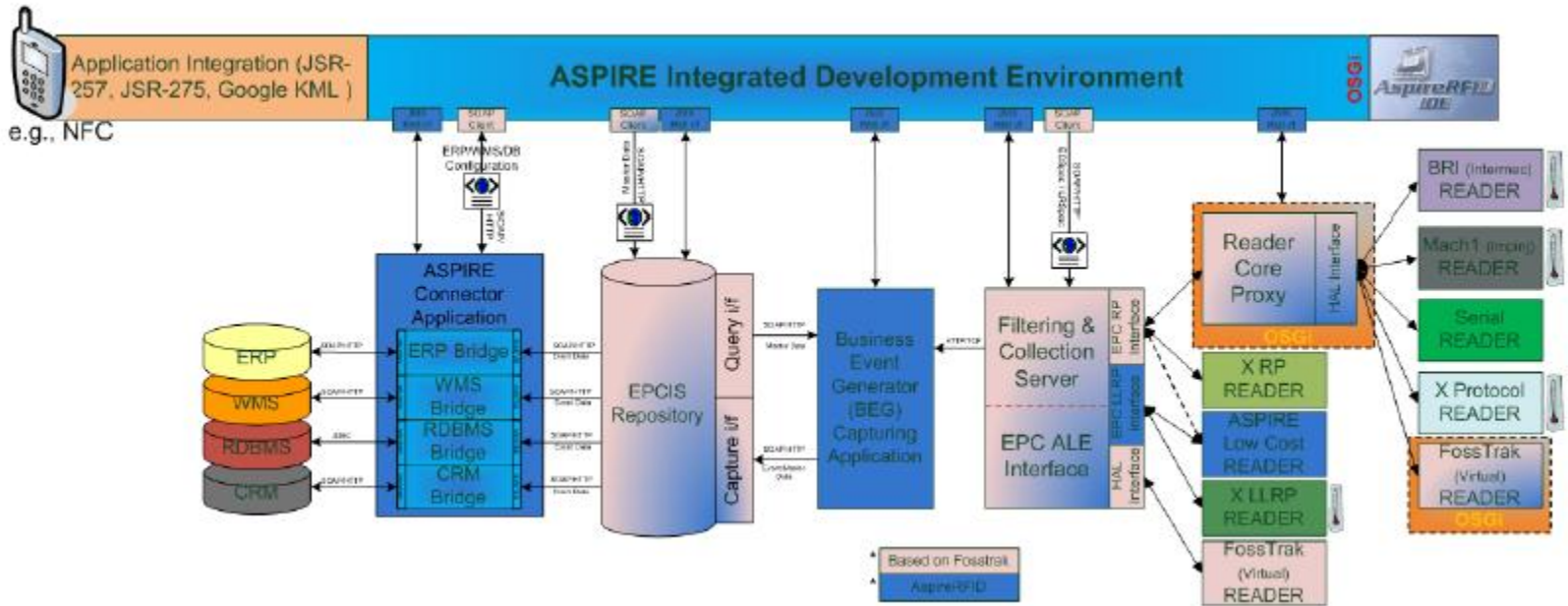
**ASPIRE**

<sup>3</sup>The EPCglobal Architecture Framework 1.3 – chapter 9



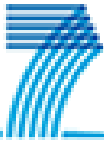
# ASPIRE Middleware Architecture

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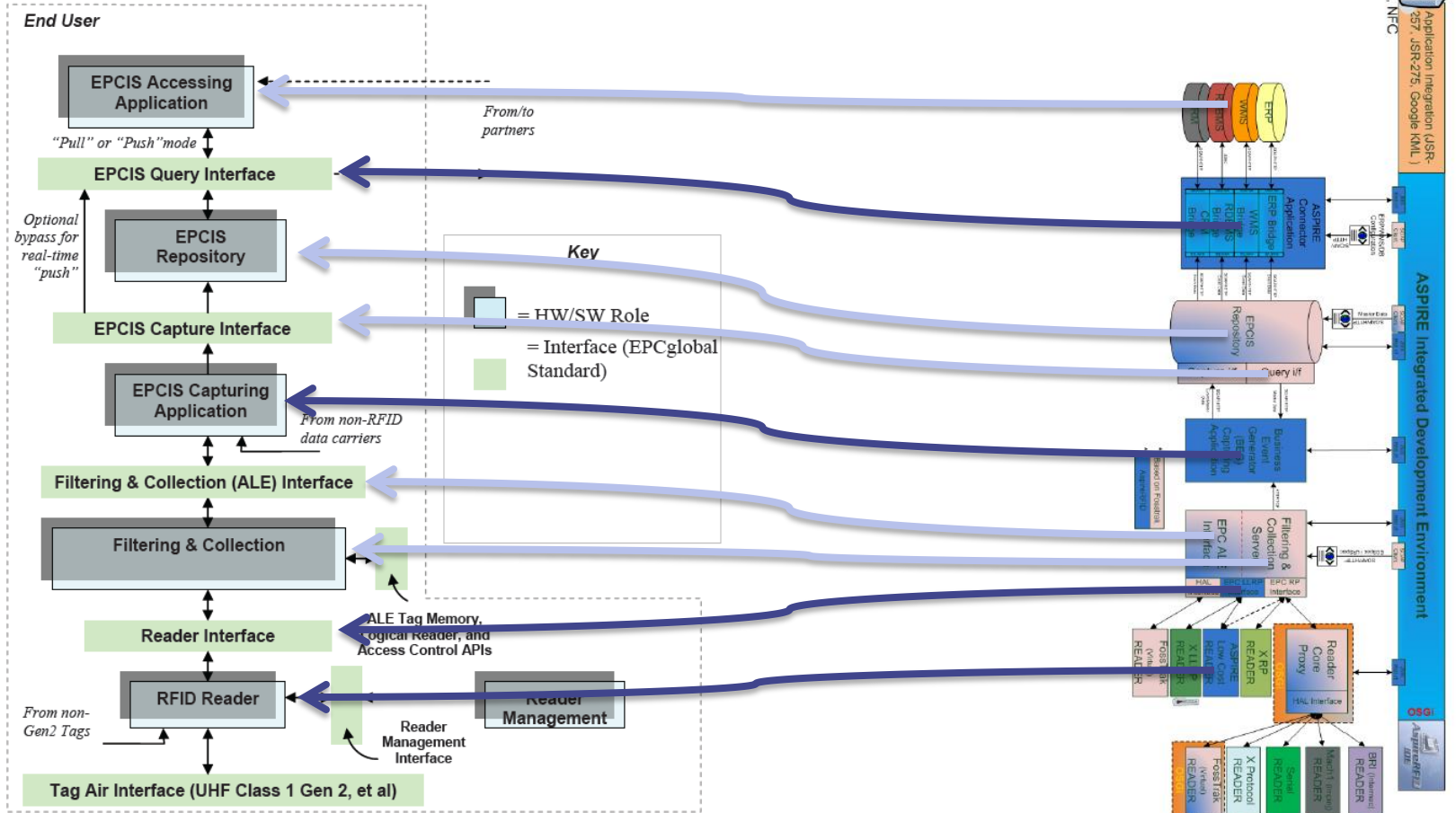


# ASPIRE

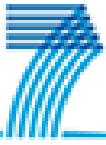
# ASPIRE Middleware Architecture



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**ASPIRE**



# ASPIRE Requirements for RWI

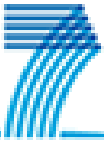
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- Privacy friendly
  - Transparency
  - Minimalist data generation
  - Anonymity, Blurring, Cleanup, Encryption, Separation, etc.
  - Open to public scrutiny
- Total cost of ownership (TCO)
  - ASPIRE Middleware will “... *facilitate low-cost development and deployment of innovative fully automatic RFID solutions.*”
  - Avoid ruling out business areas or segments beforehand due to entry or operational cost
  - Keep cost in mind for every aspect of the architecture / reference model

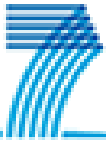
# ASPIRE Requirements for RWI

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- Multi-vendor
  - Standard-compliant
  - Technology-neutral
  - Lightweight – ASPIRE will run on “... *low-cost, legacy systems (standard sensors, general-purpose microcontrollers, and GSM modems).*”
- Open source
  - Royalty-free
  - Transparency
  - Wider adoption
- End-to-end management



## Conclusion

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- The ASPIRE middleware builds on the EPCglobal framework architecture
  - ASPIRE enhances and extends the functionality of the EPCglobal framework
  
- The ASPIRE requirements for RWI:
  - Privacy friendly
  - TCO
  - Multi-vendor
  - Open source
  - End-to-end management

**ASPIRE**