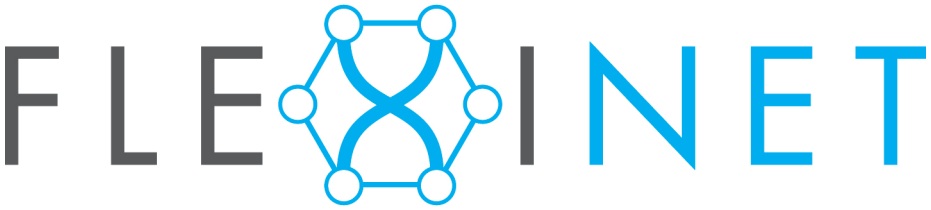
FLEXINET

FP7-2013-NMP-ICT-FOF (RTD) Project 608627



The FLEXINET project public website is http://www.flexinet-fof.eu

Contact Point: The FLEXINET project co-ordinator is Prof Bob Young, Loughborough University, UK. Email R.I.Young@lboro.ac.uk Telephone +44 1509 227662

Disclaimer:

The FLEXINET project is co-funded by the European Commission under the 7th Framework Programme. This document reflects only authors' views. The EC is not liable for any use that may be made of the information contained herein.

FLEXINET Partners

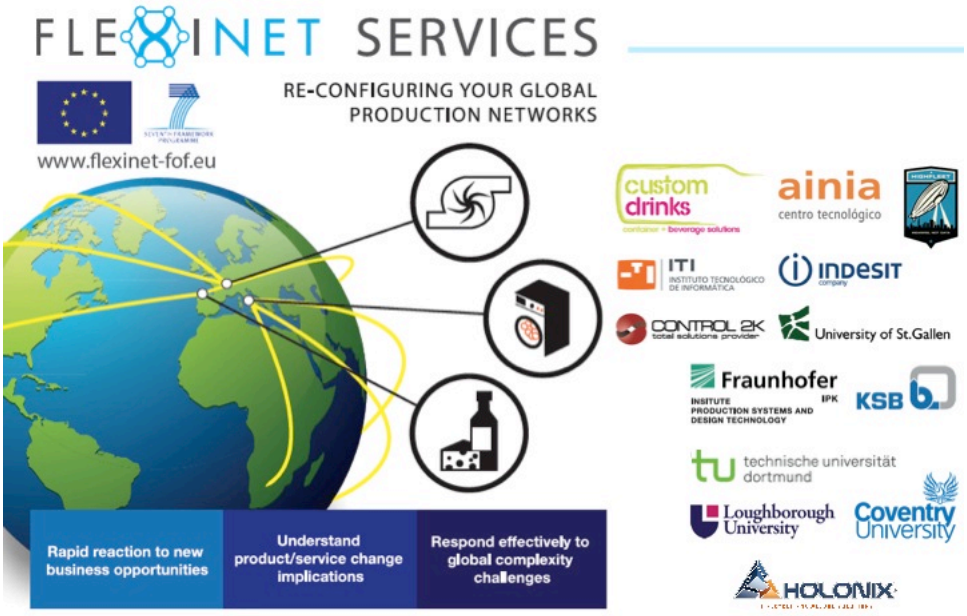
Loughborough University	Loughborough University, UK
Coventry University	Coventry University, UK
ITI INSTITUTO TECNOLÓGICO DE INFORMÁTICA	Instituto Tecnologico de Informatica, Spain
Fraunhofer IPK INSTITUTE PRODUCTION SYSTEMS AND DESIGN TECHNOLOGY	Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung E.V., Germany
ainia centro tecnológico	Asociacion de Investigacion de la Industria Agroalimentaria, Spain
CONTROL 2K total solutions provider	Control 2K Limited, UK
University of St.Gallen	Universitaet St. Gallen, Switzerland
INDESIT company	Indesit Company S.P.A., Italy
KSB	KSB AG, Germany
custom drinks container + beverage solutions	Customdrinks SL, Spain
HIGHFLEET	Highfleet INC, United States
HOLONIX LIFECYCLE KNOWLEDGE SOLUTIONS	Holonix S.r.l., Italy
technische universität dortmund	Technische Universität Dortmund

Diagrams illustrating the work of the project:

Intelligent Systems Configuration Services for Flexible Dynamic Global Production Networks

FLEXINET project no. 608627 is funded under the Seventh Framework Programme FP7-2013-NMP-ICT-FOF (RTD). Duration: 1st July 2013 – 30th June 2016

For further information contact the project coordinator,
Prof Bob Young. Email: R.I.Young@lboro.ac.uk



FLEXINET 608627
FP7.2013-9.NMP.ICT.FOF (RTD)

The FLEXINET start point – July 2013

"The overall aim of the proposed research is **to enhance the ability of manufacturing organizations to rapidly and successfully re-configure their product-service global production networks through the provision of configuration design services that can intelligently evaluate the likely business and technical integration issues as production networks dynamically evolve"**.

DoW quotation:
"The metaphor underlying FLEXINET is 'to start with a new business idea in the morning and have all the required data and networks understood by the afternoon' "

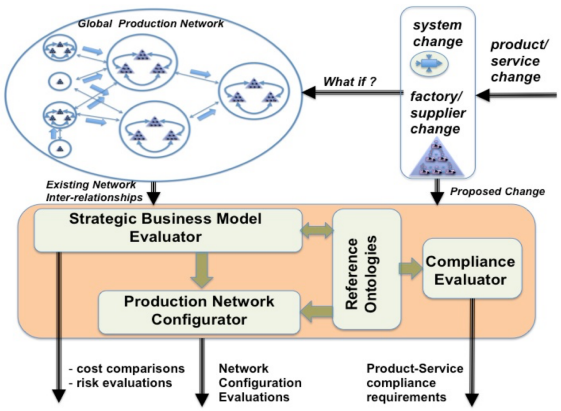
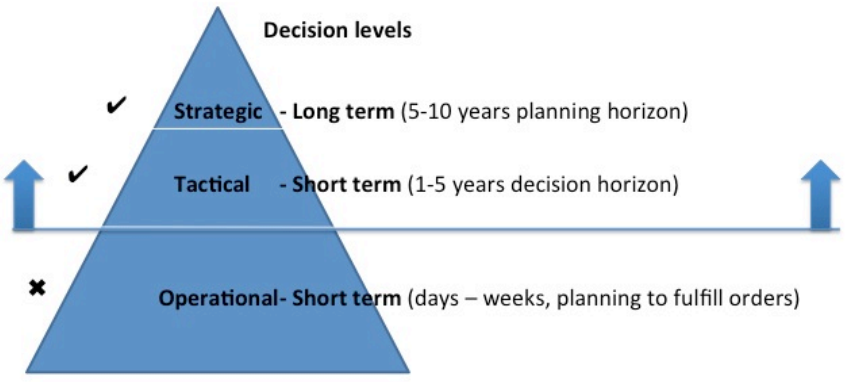


Figure 1: The FLEXINET Concept: Intelligent Production Network Configuration Services

The Enterprise Context for FLEXINET

The enterprise is a business oriented organisation of human capital with various skill sets and assets required by the Business Objectives



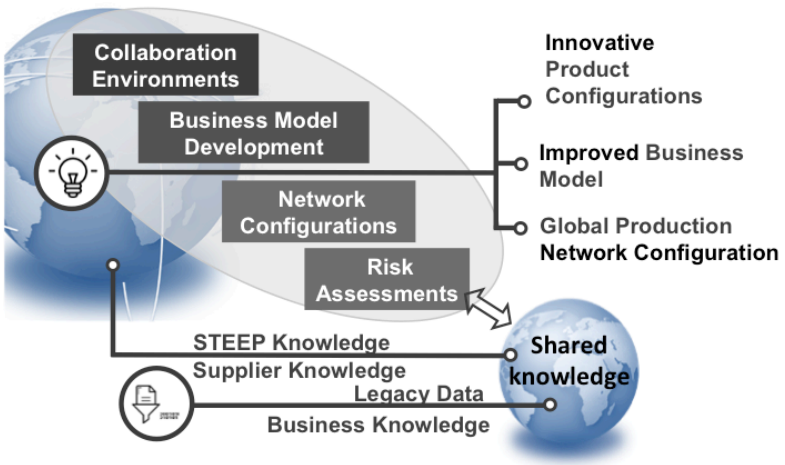
Today – the FLEXINET Vision for Business Innovation

- Can you start with a new business idea in the morning and have all required business data and your production networks identified by the afternoon?

- Why not?
  - ❖Access to the right people
  - ❖Access to the right information
  - ❖Need for appropriate analysis tools

The key result – the FLEXINET platform

FLEXINET SERVICES
From new idea to new business understanding



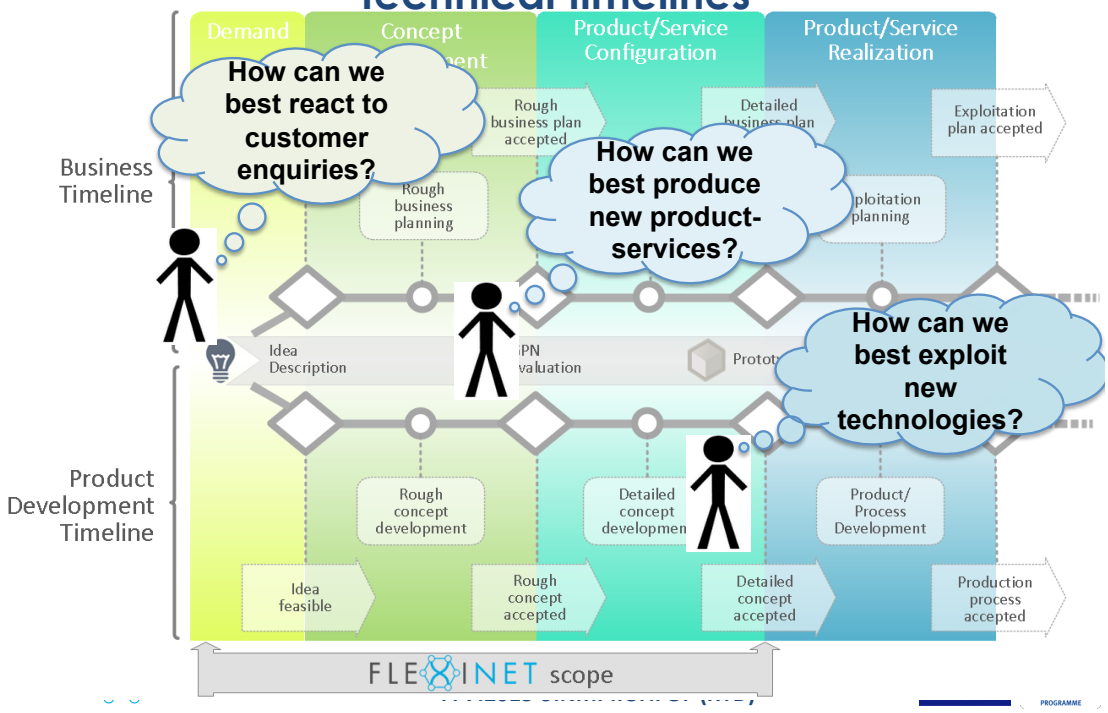
The key result – the FLEXINET platform

FLEXINET SERVICES

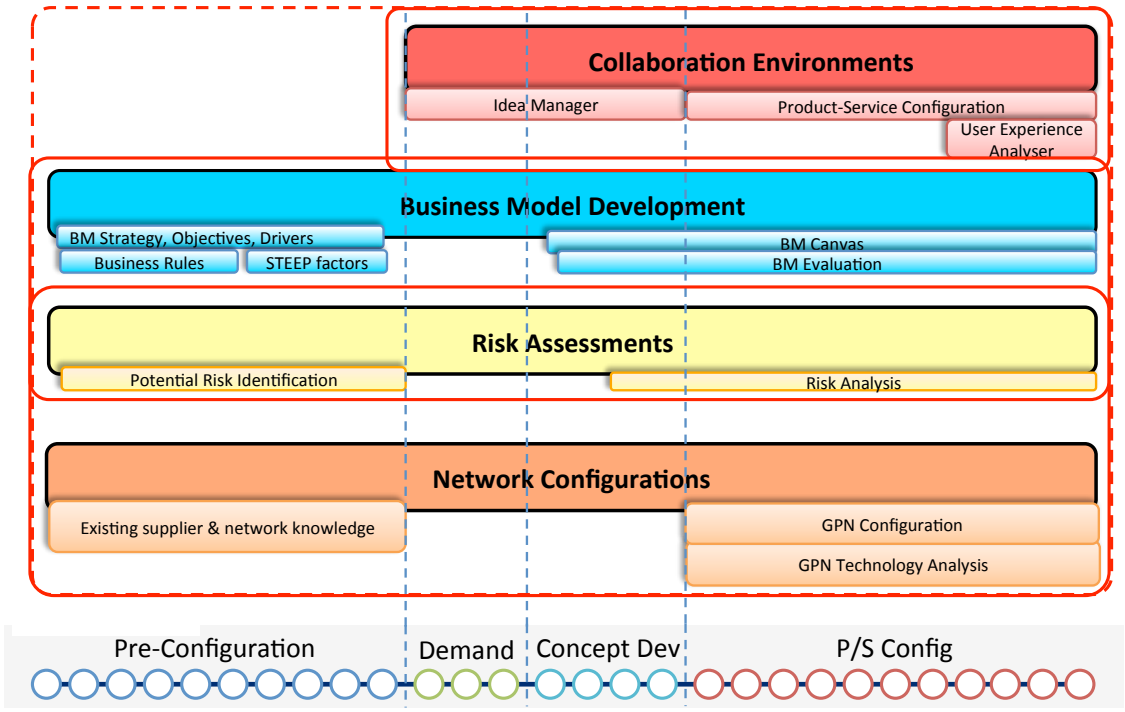
FLEXINET has demonstrated and validated a platform for manufacturing industry that goes well beyond currently available commercial tools in terms of its ability to be flexibly configured to capture and share knowledge across a wide range of heterogeneous decision support software applications

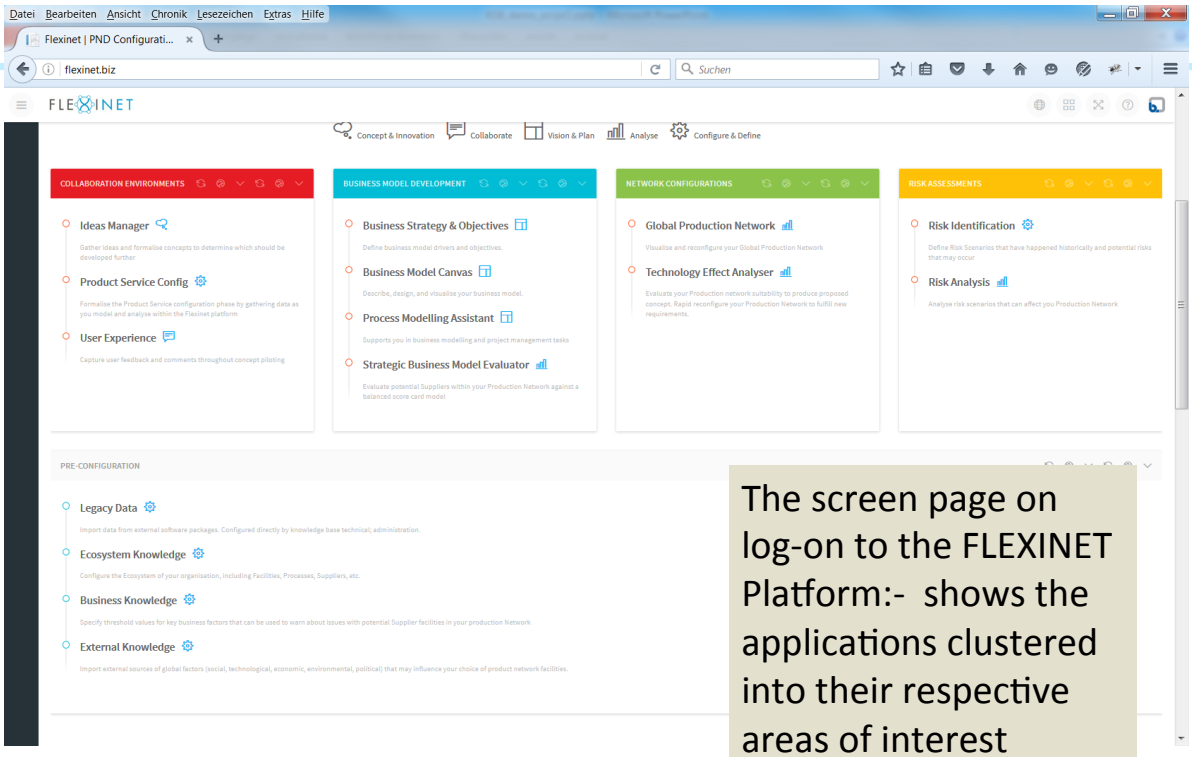
Lesson Learnt:
Building the platform is a very time consuming process
- ensuring a capable ontology
- ensuring a consistent understanding across application developers

Some key business questions along business and technical timelines

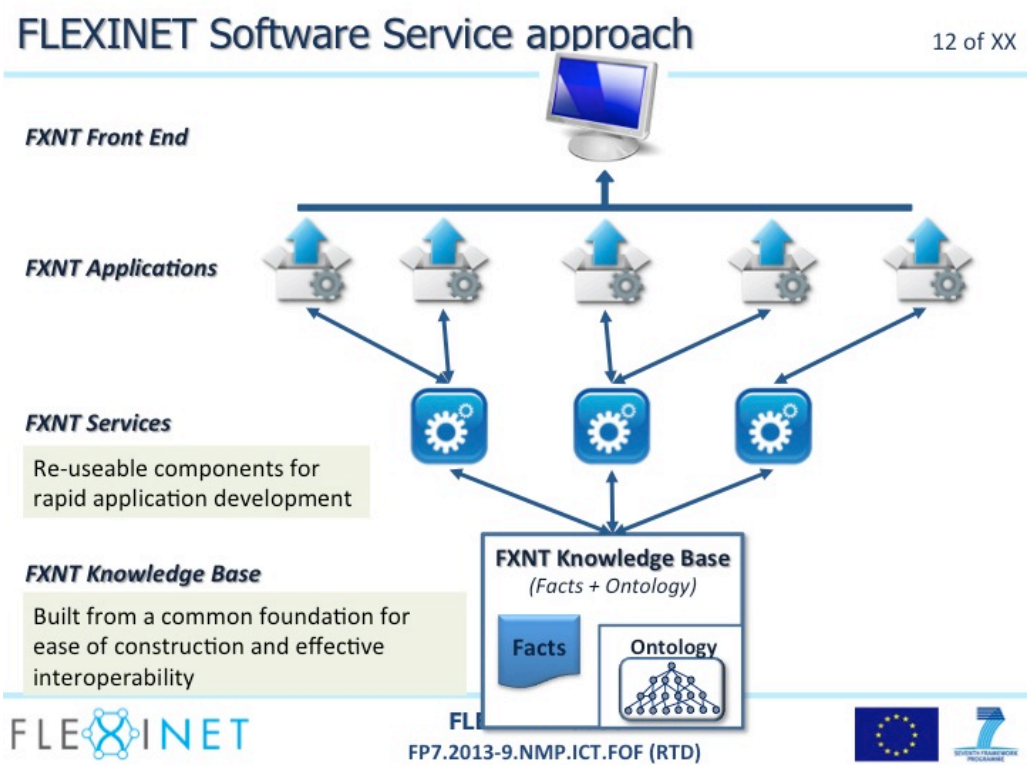


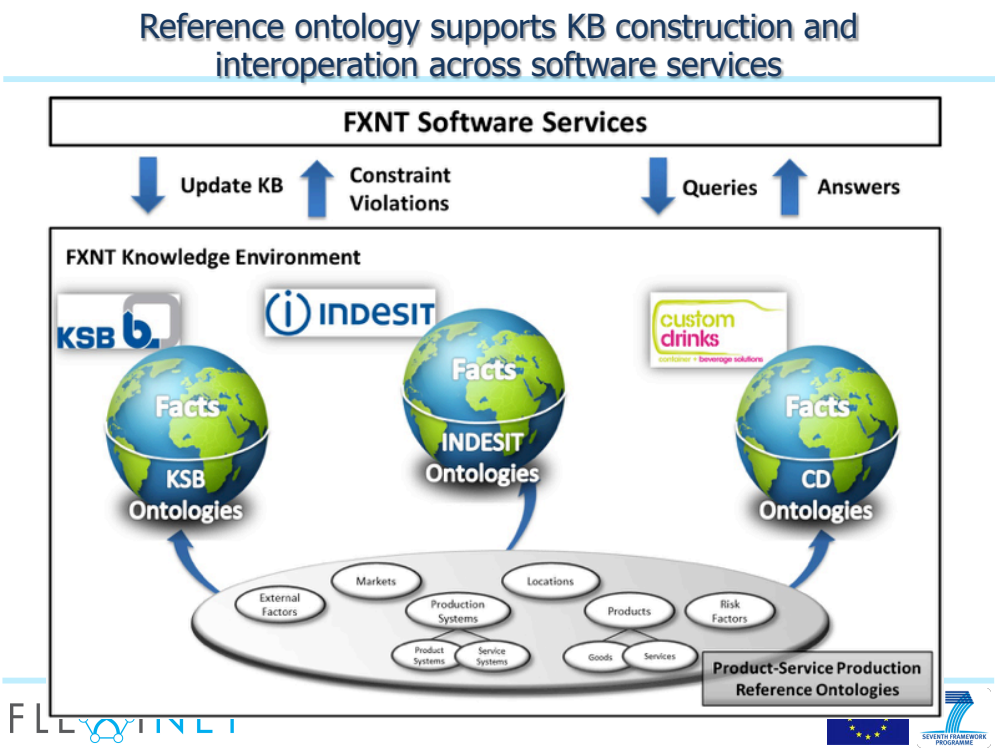
The FLEXINET applications shown against application area and timeline phase



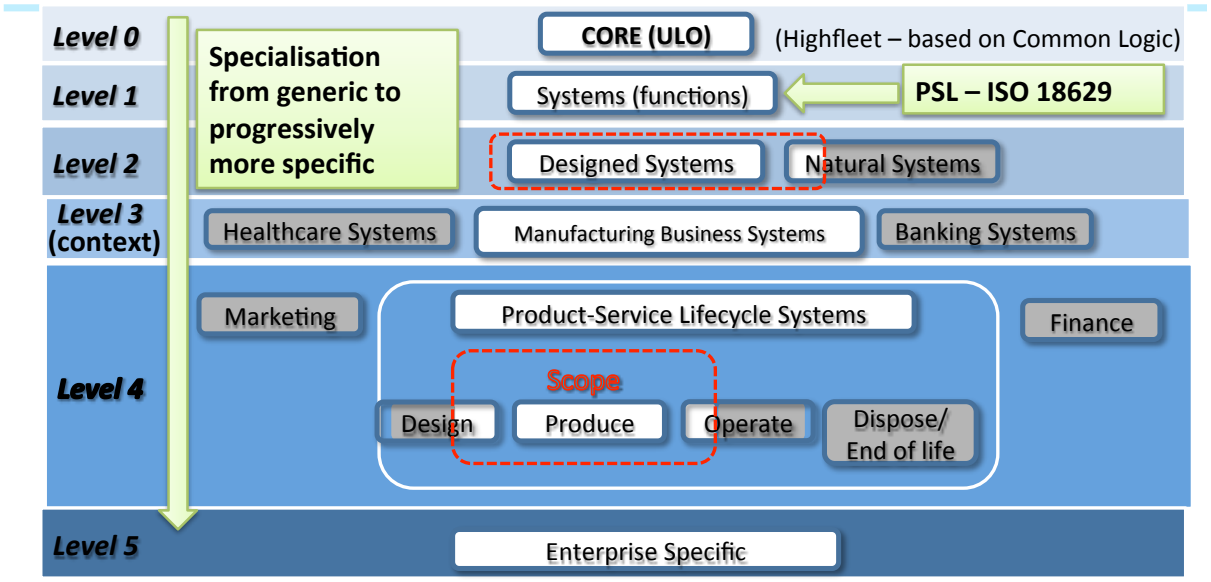


The screen page on log-on to the FLEXINET Platform:- shows the applications clustered into their respective areas of interest


FLEXINET Software Service approach
12 of XX
FXNT Front End
FXNT Applications
FXNT Services
Re-useable components for rapid application development
FXNT Knowledge Base
Built from a common foundation for ease of construction and effective interoperability
FXNT Knowledge Base
(Facts + Ontology)
Facts
Ontology
FLEXINET
FP7.2013-9.NMP.ICT.FOF (RTD)


Reference ontology supports KB construction and interoperation across software services
FXNT Software Services
Update KB
Constraint Violations
Queries
Answers
FXNT Knowledge Environment
KSB
INDESIT
custom drinks
Facts
KSB Ontologies
Facts
INDESIT Ontologies
Facts
CD Ontologies
Markets
Locations
External Factors
Production Systems
Products
Risk Factors
Product Systems
Service Systems
Goods
Services
Product-Service Production Reference Ontologies

Ontology Layers

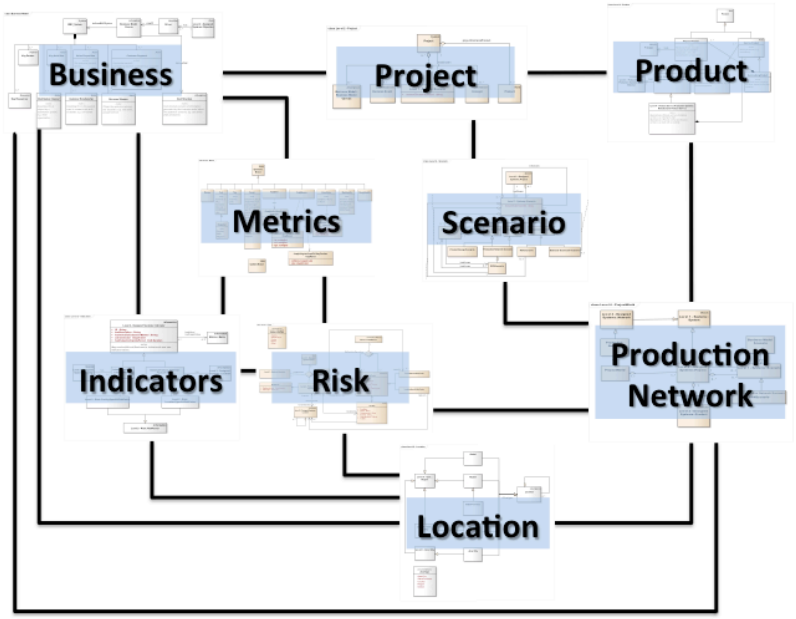


Everything from level 0-4 should be standard and be used to readily configure enterprise specific ontologies

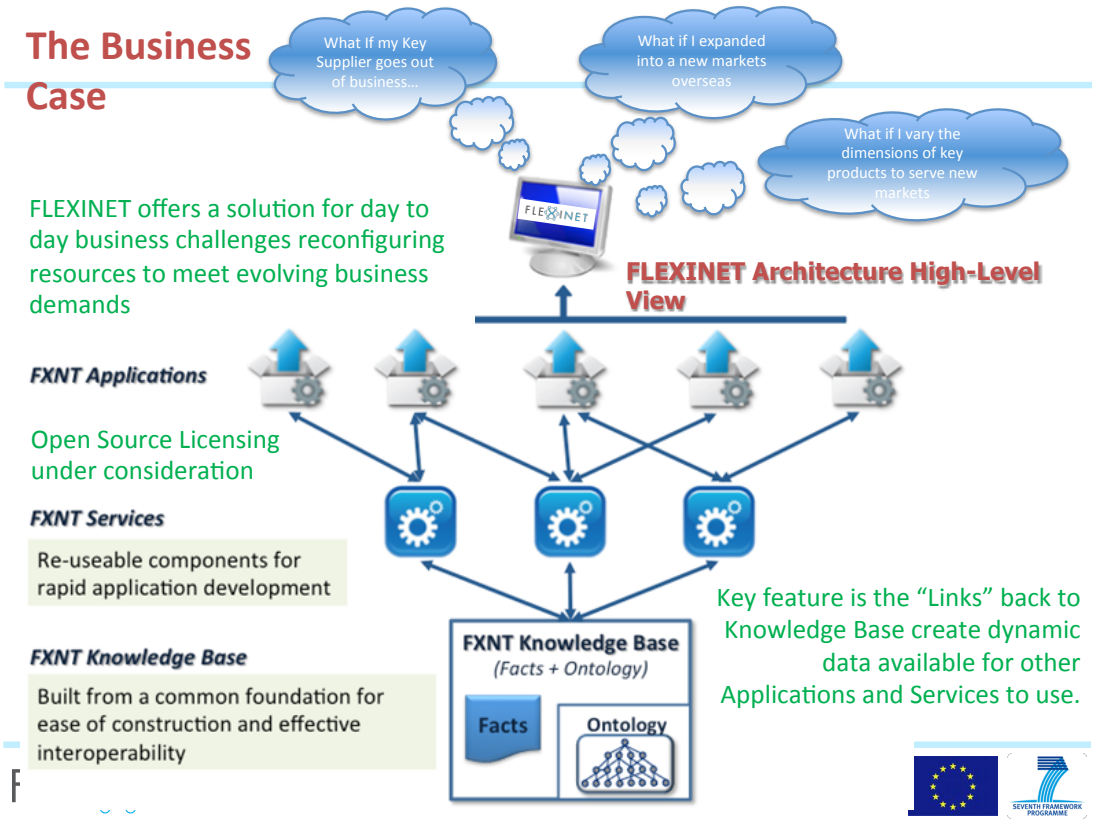
The enterprise specific ontologies form the basis for the knowledge base that can support 'what-if" queries on the potential global production system configurations.

FLEXINET

Main categories of concepts in the reference ontology



FLEXINET



Summary of achievements

- Dissemination:
  - 'Normal' academic dissemination plus "clustered" project workshops and industrial workshops
  - Led the formation of a new Resilient Production Networks cluster with 3 other FoF projects
  - IMS contribution through the CSGPN Manufacturing Technology Platform
  - Listed as a Commission 'success story"
- Exploitation:
  - 2 business plans for exploitation of the FLEXINET platform
    - One based on a TRL8 platform
    - One to build from current TRL5 to TRL8 through a Community Group
  - ISO 20534 standard in progress
  - Many specific partner exploitation opportunities