



# 20. konferenca Dnevi slovenske informatike Predstavitev projekta



*Dominika Oblak, Janez Hrastnik*

*15. 04. 2013*



## ARISTOTELE - Novi pristopi k učeči organizaciji in inovativnosti

### O projektu:



### Ime projekta:

ARISTOTELE - Personalized Learning & Collaborative Working Environments Fostering Social Creativity and Innovations Inside the Organizations

**Datum pričetka:** 01/07/2010

**Trajanje:** 36 mesecev + 6

**Budget:** 6.7 M€ (4.5M€ funding by the EC)

**Ključne besede:** organizational learning, personalized learning, collaborative learning, knowledge management, human resource management, collective intelligence, didactic models



: <http://www.aristotele-ip.eu/>



: [https://twitter.com/Aristotele\\_ip](https://twitter.com/Aristotele_ip)



: <http://www.linkedin.com/groups/Aristotele-4018485/about>



: <http://www.facebook.com/pages/ARISTOTELE-PROJECT/245503055490961>

Call (part) identifier: FP7-ICT-2009-5, Funding scheme: Collaborative project



## ARISTOTELE - Partnerji

### Research and Academic



#### CRMPA

Centro di Ricerca in Matematica Pura ed Applicata,  
<http://www.cmpa.it/>



#### UDE

University of Essen, Germany  
<http://www.uni-due.de/en/>



#### UIBK

University of Innsbruck, Austria  
<http://www.uibk.ac.at/>



#### UNIMI

Università degli Studi di Milano, Italy  
<http://www.unimi.it/>

### Technical



#### ENG

Engineering Ingegneria Informatica SpA, Italy  
<http://www.eng.it/web/eng/home>



#### MOMA

MOMA - Modelli Matematici ed Applicazioni SpA, Italy  
<http://www.momanet.it/>

### Pilot



#### AMIS

Amis d.o.o, Slovenia  
<http://www.amis.net/web3/>



#### PHI

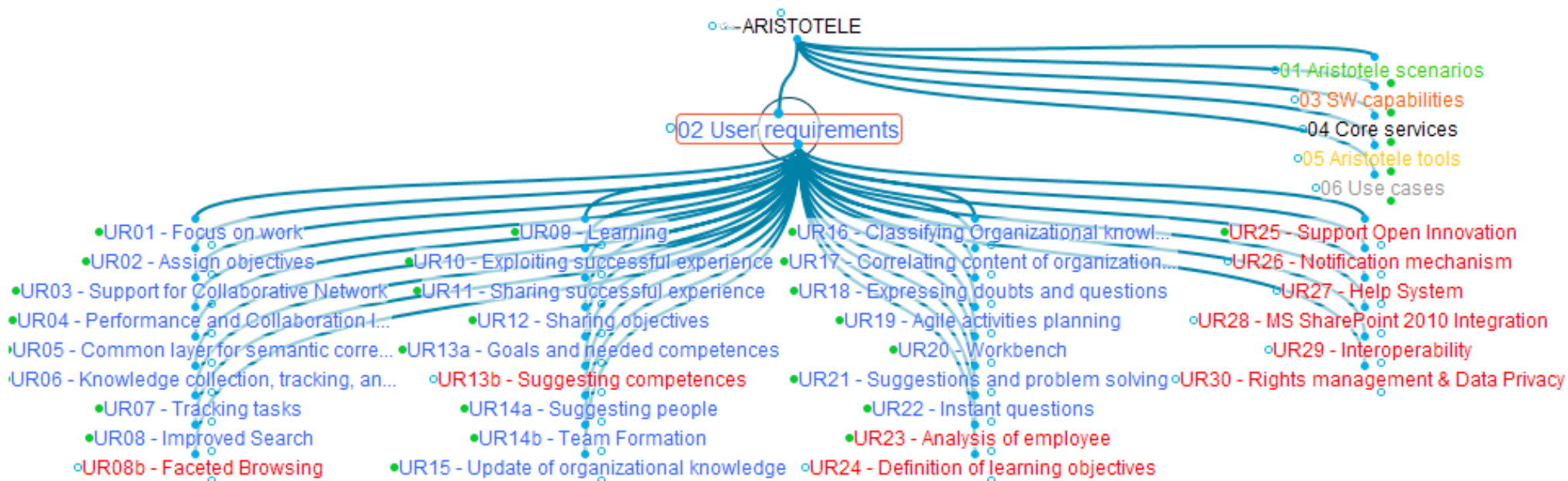
Publicis Healthware International, Italy  
<http://www.publicishealthware.com>



# Vloga AMIS-a v projektu



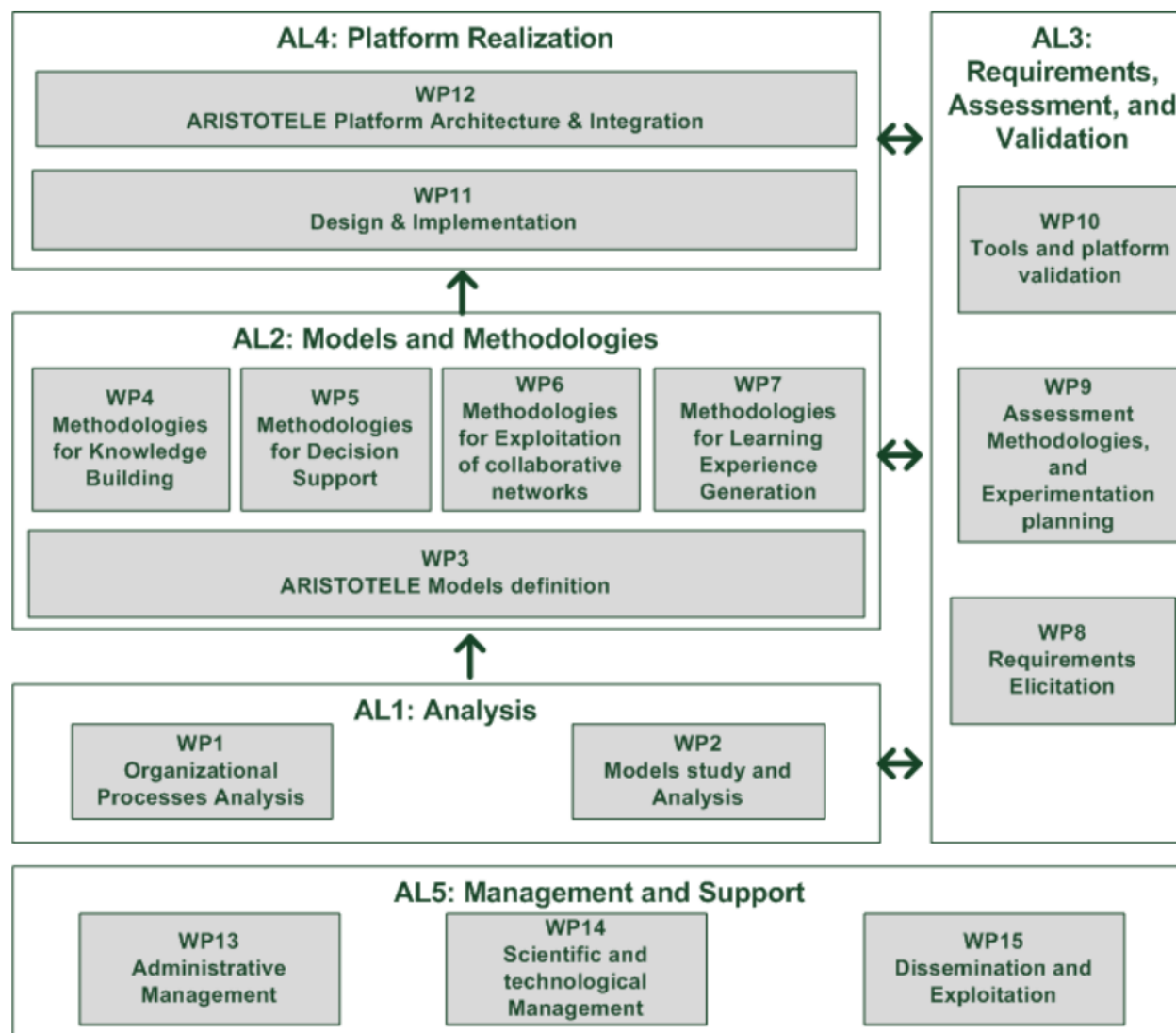
Amis v projektu nastopa v vlogi industrijskega partnerja, kjer ima ključno vlogo pri definiranju uporabniških zahtev ter evalvaciji novih konceptov in programske opreme.



| ID   | ARISTOTELE platform should enable: | Extended Description                                                                                                                                                                                                                                                                                                                                                                                                                          | Related Scenarios       | Main Area                 | Secondary Area 1     | Secondary Area 2 |
|------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------|----------------------|------------------|
| UR20 | Workbench                          | The ARISTOTELE system shall be able to create (automatically or manually) a virtual workspace where a worker can collect all the resources useful to execute a specific task. The workspace can be also shared with a group for collaborating to the achievement of a common goal. Enable customisable Workbenches, were in dependence of the project type or project team characteristics specific tools/functionality can be removed/added. | #06; #12; #14; #15; #16 | Human Resource Management | collaboration        |                  |
| UR21 | Suggestions and problem solving    | The ARISTOTELE system shall support processes for proposing/discussing/brainstorming ideas/issues/solutions for open problems. The system should allow to involve all employees in such processes in order to exploit the collective intelligence, to give suggestions on possible people to contact and contents to examine.                                                                                                                 | #08                     | Innovation                | Knowledge Management |                  |
| UR22 | Instant questions                  | The ARISTOTELE system shall provide a tool enabling to make an instant question and send it to a subject matter expert manually indicated or automatically identified taking into account the question tags.                                                                                                                                                                                                                                  | #09; #14                | Innovation                | Knowledge Management |                  |

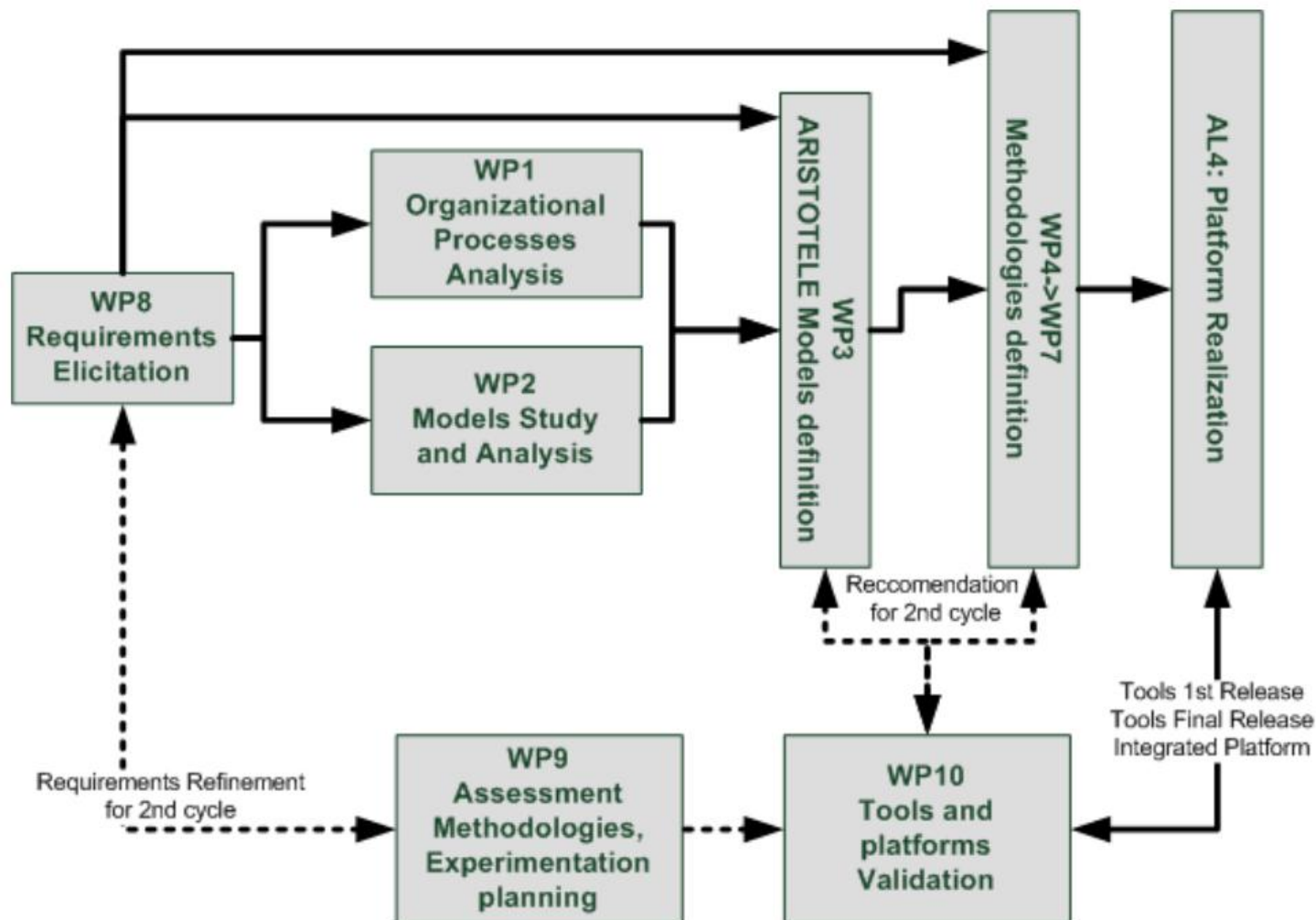


# Struktura projekta ARISTOTELE





## Odvisnosti med fazami projekta



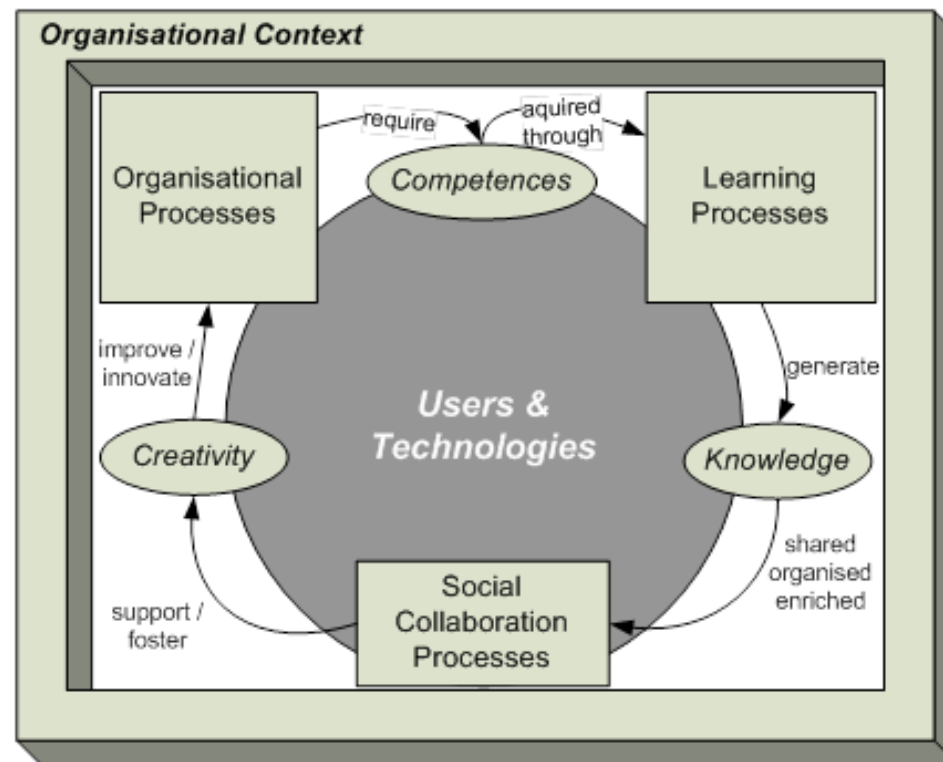


## Cilji projekta

Podjetja večinoma upravljajo

- organizacijske procese
- učne procese in
- procese s področja socialnega sodelovanja ločeno.

ARISTOTELE poskuša s pomočjo zbiranja in sledenja nepredmetnim vrednostim kot so kreativnost, kompetence in znanje ta področja povezati in „izkoristiti“. V centru cikla sta delavec ter tehnologije. S povezavo vseh teh procesov se proces učenja in izobraževanja ter komunikacije zaposlenih v podjetjih in organizacijah bistveno izboljša. Modeli, metodologije in orodja, ki jih partnerji v projektu razvijajo, pa s pridobivanjem, obdelavo in izmenjavo informacij ter znanja znotraj podjetja pripomorejo k razvoju kompetenc in ustvarjalnosti.





## Kaj ARISTOTELE izboljšuje?

---

- **Učenje & Izobraževanje:** Izboljšanje procesov učenja in usposabljanja, prilagojenih potrebam in pričakovanjem.  
Zmanjšanje razkoraka med načinom izobraževanja in dejanskimi potrebami. Pomoč pri uporabi formalnega in neformalnega znanja ter v delovnem procesu pridobljenih izkušenj.
- **Upravljanje s človeškimi viri:** Podpora pri procesih zaposlovanja, „razvoju“ človeških virov, razporejanju virov, ..
- **Sodelovanje:** Izboljšanje sodelovanj med zaposlenimi s pomočjo deljenja znanj in orodij družbenih omrežij.
- **Upravljanje znanja:** Izboljšava praks upravljanja znanja. Integracija razdrobljenih podatkov, informacij, orodij in okolij, s katerimi se delavci srečujejo pri vsakodnevnem delu. Pomoč pri ustvarjanju „kolektivne inteligence“.
- **Inovacije:** Spodbujanje inovacijskih procesov.





## Rezultati projekta

### Semantični modeli:

- model znanja
- model kompetenc
- model delavca
- model učnih in delovnih izkušenj

### Metodologije:

- za grajenje znanja
- za spodbujanje osebnega delovnega in učnega okolja
- za odločitveni sistem na področju upravljanja človeških virov
- za „izrabo“ družbenih omrežij
- za spodbujanje tovarn inovacij
- za ustvarjanje učnih izkušenj

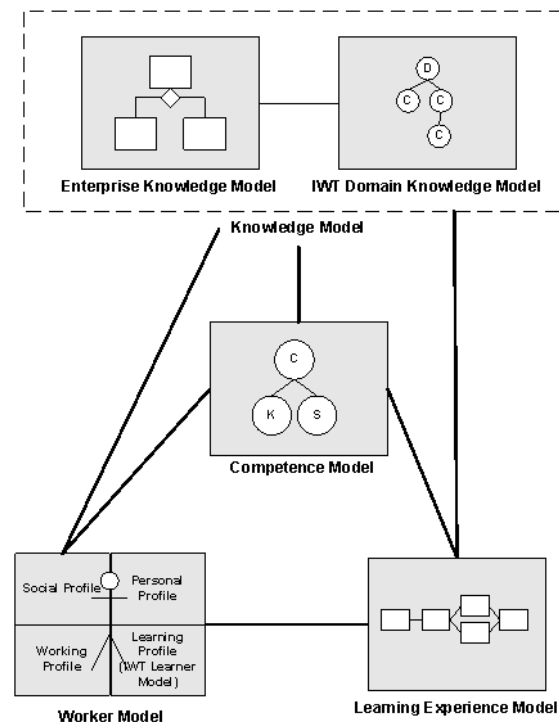
### Orodja:

- učenje in izobraževanje (LEG - Learning Experience Generation)
- upravljanje s kadri (HRM - Human Resource Management)
- osebno delovno in učno okolje (PWLE – Personal Work and Learning Environment)
- upravljanje in gradnjo znanj (KB – Knowledge Building)
- inovacije (Innovation Factory, Recommender systems )

### Integrirana platforma

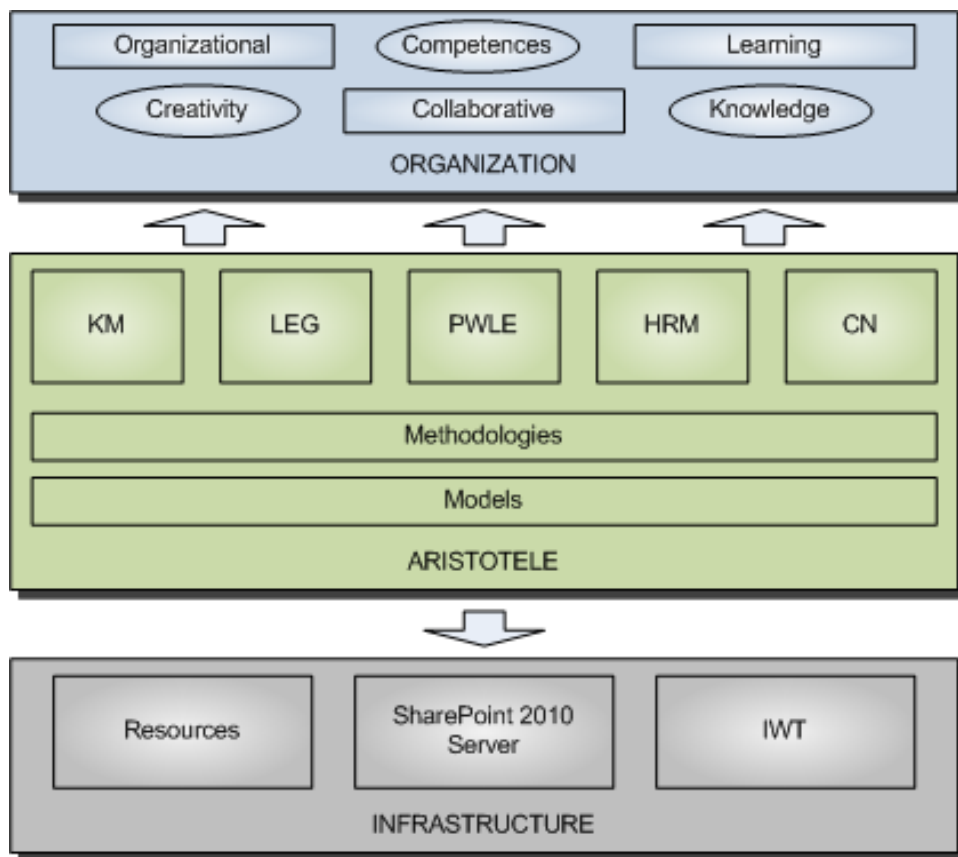
### Ločene aplikacije:

- npr. Resume Analyzer (Apps for Office)

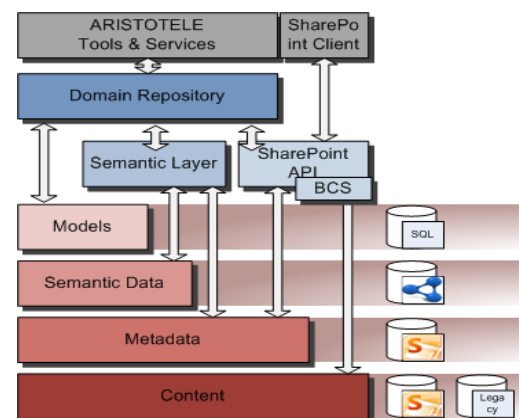
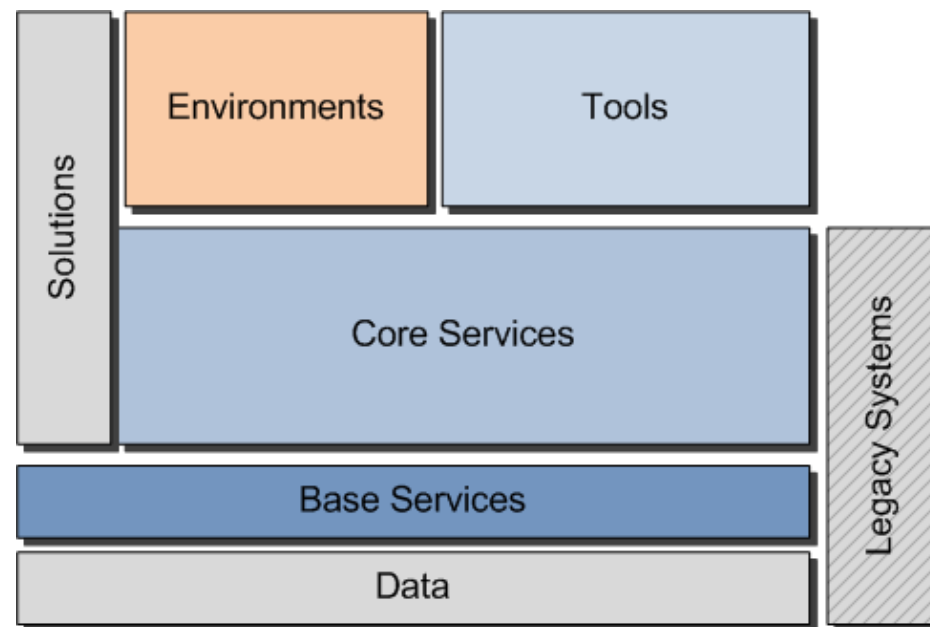




# Integrirana platforma - Arhitektura



ARISTOTELE context diagram



Logical View



# ARISTOTELE – PWLE – Personal Work and Learning Environment

http://193.205.191.63/my/personal/polotester/ActivityStream.aspx

File Modifica Visualizza Preferiti Strumenti ?

Home My Profile Find People

Site Actions Browse Page

i:0g.t|jwnt identity provider|polotester > Activity Stream

Search this site...

My content  
Goal and task management  
Proposed relationships  
Skill Training  
BrainStorming  
HRM tool  
CV analyzer

Recycle Bin  
All Site Content

Micro Blogging

Post

News From Colleagues

Show: All

- All
- Learning Objectives
- Documents
- Task Management
- MicroBlogging
- Tagging with my interests
- Rating
- Status Message
- Job title change
- Manager change
- New blog post
- New membership
- Sharing Interests
- Tagging by my colleague
- Note Board post
- Upcoming birthday
- Birthday
- Upcoming workplace anniversary
- Workplace anniversary
- New colleague
- Profile update

who what object



# ARISTOTELE – Scenarij 1: pripis kompetenc na osnovi novo ustvarjenega dokumenta

## Pripis kompetenc:

- Sistem s pomočjo podatkov, kakšne dokumente zaposleni ustvarja ali prebira, katera šolanja je opravil ali kakšno nalogo je uspešno končal, sklepa, katere kompetence je pridobil.
- Sistem novo pridobljene kompetence samodejno zazna, pripis kompetenc pa se izvede interaktivno.
- Potrditev in preverjanje

Home | My Profile | Find People

What's happening?

i:0g.t|iwt identity provider|dominikao

Dominika.Oblak@amis.si

Edit My Profile | More information

Libraries | Lists | OverView | My content | Tag and notes | My colleagues

My content

Goal and task management

Proposed relationships

Skill Training

BrainStorming

HRM tool

CV analyzer

SharePoint Documents

Go to i:0g.t|iwt identity provider|dominikao

| Type     | Name                     | Last Modified      | Location           | Properties |
|----------|--------------------------|--------------------|--------------------|------------|
| Document | software_ita             | 6/19/2012 11:52 AM | Personal Documents |            |
| Document | televisione_articolo_ita | 6/19/2012 11:39 AM | Personal Documents |            |
| Document | task2PHI4                | 6/15/2012 9:20 AM  | Shared Documents   |            |
| Document | task2PHI3                | 6/15/2012 9:18 AM  | Shared Documents   |            |
| Document | task2PHI2                | 6/15/2012 9:17 AM  | Shared Documents   |            |
| Document | task2PHI                 | 6/14/2012 5:54 PM  | Shared Documents   |            |
| Document | task nPHI3               | 6/14/2012 2:40 PM  | Shared Documents   |            |
| Document | task nAMIS3              | 6/14/2012 2:37 PM  | Shared Documents   |            |
| Document | task nPHI2               | 6/14/2012 2:13 PM  | Shared Documents   |            |
| Document | task nAMIS2              | 6/14/2012 2:12 PM  | Shared Documents   |            |
| Document | task nAMIS               | 6/14/2012 2:00 PM  | Shared Documents   |            |
| Document | task nPHI                | 6/14/2012 12:44 PM | Shared Documents   |            |
| Document | PHI_Project 5            | 6/14/2012 11:53 AM | Shared Documents   |            |
| Document | PHI_Project 4            | 6/14/2012 11:53 AM | Shared Documents   |            |
| Document | PHI_Project 3            | 6/14/2012 11:53 AM | Shared Documents   |            |

Worker Competence

Competence successfully acquired! [http://aristotele-ip.eu/cm/0.1/HRM\\_management](http://aristotele-ip.eu/cm/0.1/HRM_management)

- + Law consultancy  OK
- + Telecommunication technologies  OK
- + HRM management  OK



# ARISTOTELE – Scenarij 2: proces zaposlitve – izbira primerne kandidata

## CV Analyser :

- naloži prispelne življenjepise iskalcev zaposlitve (CV) v zbirko življenjepisov
- omogoča definiranje profila prostega delovnega mesta – potrebne lastnosti, znanja in kompetence, karakterne lastnosti
- generiranje predlogov primernih kandidatov => izbor CV-ja, ki najbolj ustreza opisu delovnega mesta s stališča potrebnih kompetenc in karakternih lastnosti iskalca zaposlitve
- profil -> priprava prilagojenih ustreznih izobraževanj

**ARISTOTELE PROJECT TOOLS: CURRICULUM ANALYZER (TESTER)**

Home Candidates Search Create Search Profile Order by Profile Management

**CANDIDATES**  
Select a candidate to see the information extracted from his or her curriculum.

- Person A
- Person B
- Person C
- Person D
- Person E
- Oseba A
- Oseba B
- Oseba C
- Oseba D
- Person E
- Oseba F
- Oseba G

**Criterion** Required? Weight

Age:    -1  -0,5  0  0,5  1

Hobby:

Languages

-1  -0,5  0  0,5  1

Degrees

Degree/Title  Type:  Weight  -1  -0,5  0  0,5  1

Min. rate:   -1  -0,5  0  0,5  1

Working Experiences

Years of experience  In function/field  Weight  -1  -0,5  0  0,5  1

Competences

Keyword  Weight  -1  -0,5  0  0,5  1

No candidate found

**PROGRAMMER PROFILE**

Profile Criteria (required criterias in dark blue):

|                                                                                                    |           |
|----------------------------------------------------------------------------------------------------|-----------|
| Age < 29                                                                                           | Weight: 1 |
| Laurea Specialistica O Laurea Quinquennale Title Of Qualification Awarded = informatica            | Weight: 1 |
| Laurea Specialistica O Laurea Quinquennale Level In National Or International Classification > 105 | Weight: 1 |
| Known Language(S) = Inglese                                                                        | Weight: 1 |
| Technical Skills And Competences = C#, ASP.NET                                                     | Weight: 1 |
| Technical Skills And Competences = J2EE                                                            | Weight: 1 |
| Technical Skills And Competences = UML                                                             | Weight: 1 |
| Technical Skills And Competences = Struts, hibernate, Spring, Enterprise Library                   | Weight: 1 |
| Technical Skills And Competences = RDF, triple-store, Lucene, Jena                                 | Weight: 1 |

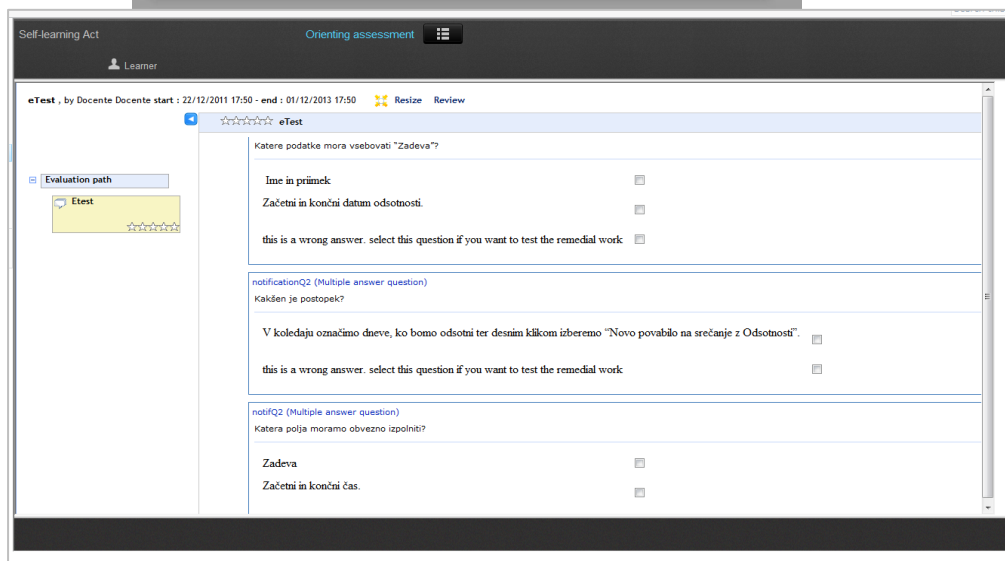
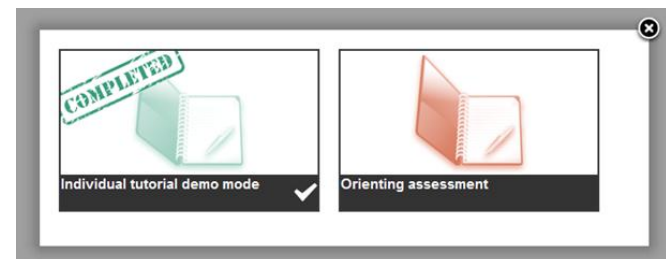
| Rank | Name        | Score | Notes                                                                                                                                                                                                                                                                                                                             |
|------|-------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1   | John Smith  | 0,56  | <p>Piccola disponibilità a trasferire. Ha cambiato 4 datori di lavoro negli ultimi 36 mesi. Determinazione</p> <p>Details:</p> <p>C#, ASP.NET: 1<br/>J2EE: 0,8<br/>UML: 0,8<br/>Struts, hibernate, Spring, Enterprise Library: 0,2<br/>RDF, triple-store, Lucene, Jena: 0</p>                                                     |
| #2   | Sarah Frost | 0,54  | <p>sociali - MBTI Caratteristica percezione dominante Caratteristica estroverta dominante Caratteristica intuitiva dominante Caratteristica sensoriale dominante</p> <p>Details:</p> <p>C#, ASP.NET: 0<br/>J2EE: 0<br/>UML: 0,8<br/>Struts, hibernate, Spring, Enterprise Library: 0,2<br/>RDF, triple-store, Lucene, Jena: 0</p> |



## ARISTOTELE – Scenarij 3: izvedba samostojnega učenja

### Samostojni tečaj:

- Samostojno učenje s pomočjo vsebin (dokumentov, grafik, video ali zvočnih zapisov), ki jih sistem ponudi na osnovi zgodovine nalog, ki jih je zaposleni v preteklosti opravljal, dokumentov, ki jih je prebiral ali ustvarjal ter v sistemu zapisanih kompetenc zaposlenega.
- Definicija učnih ciljev
- Preverjanje pridobljenega znanja in kompetenc s pomočjo predpripravljenega večstopenjskega vprašalnika.
- Po uspešno opravljenem preverjanju, sistem v seznam kompetenc pripiše novo pridobljene.





## ARISTOTELE – Scenarij 4: priporočilni sistem

### Priprava predlogov:

- Pri definiranju projektov
  - Primeri projektov s podobnimi cilji -> pomoč pri definiciji rezultatov, nalog
  - Predlogi dokumentov z isto ali podobno tematiko
- Pri dodeljeni nalogi
  - Podobne naloge
  - Predlogi dokumentov
  - Predlogi strokovnjakov

**task** Marjan\_TestTask01 - Indicators  
Review the KPIs and Preusage indicators in the document 20120312\_ARISTOTELE\_Evaluation\_New\_Pre-Usage\_Indicators\_janezh

Deadline:  
Objective:

**Suggestions** **Bookmarks**

**Filters**

**Information Technology**  
Content management

**Information Technology**  
Content management

**Information Technology**  
Content management

**Tasks found: (0)**

**Workers found: (0)**

**Document Founds: (0)**

### ProposedRelationships

Subject:  Object:

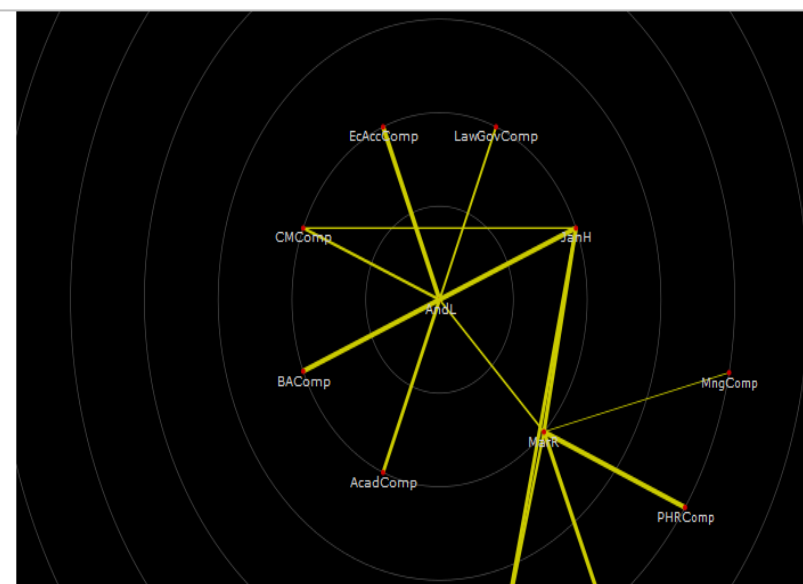
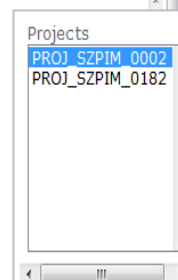
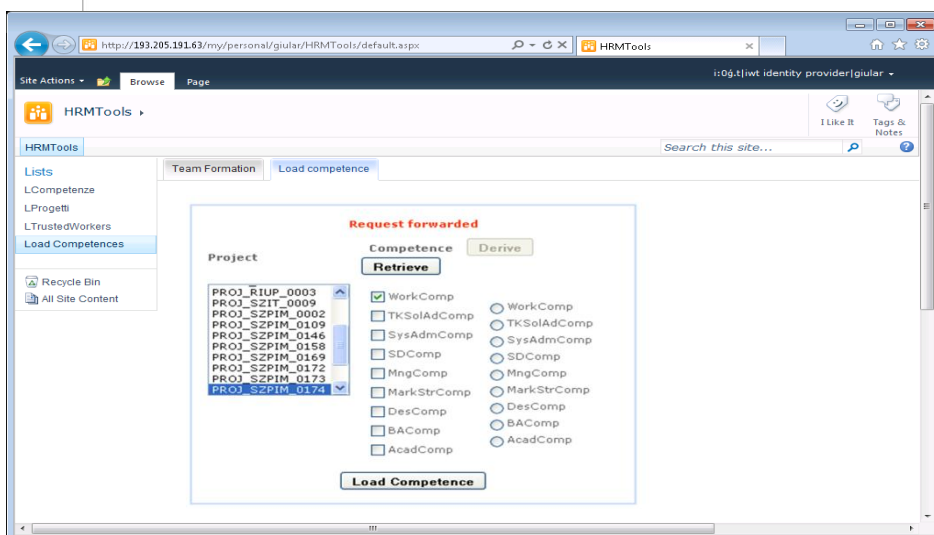
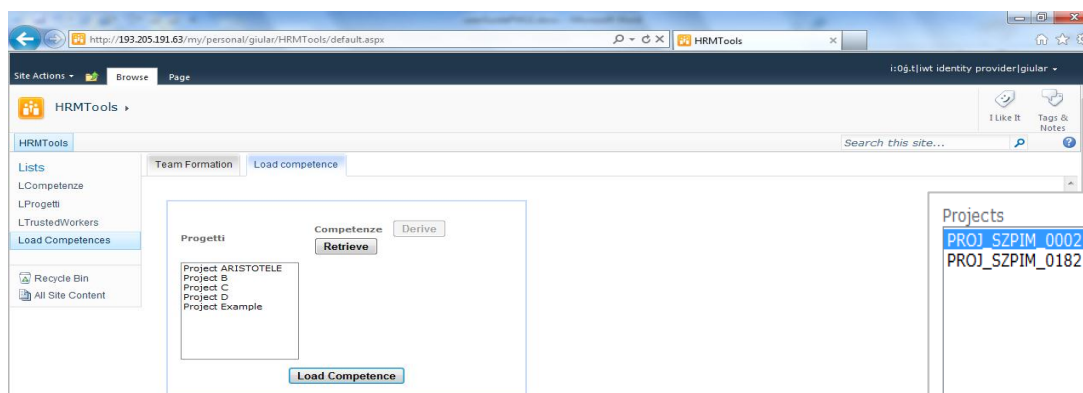
| Subject                                                       | Relationship | Object                                                              |
|---------------------------------------------------------------|--------------|---------------------------------------------------------------------|
| <input type="checkbox"/> Dominika Task for Janez - indicators | Has document | PWLE - CompetencyUpdate UserGuide.docx                              |
| <input type="checkbox"/> Dominika Task for Janez - indicators | Has document | ARISTOTELE_D12 1_HLArchitecture_last.docx                           |
| <input type="checkbox"/> Dominika Task for Janez - indicators | Has document | test.docx                                                           |
| <input type="checkbox"/> Dominika Task for Janez - indicators | Has document | index.html                                                          |
| <input type="checkbox"/> Dominika Task for Janez - indicators | Has document | test                                                                |
| <input type="checkbox"/> Task2                                | Has document | PWLE - CompetencyUpdate UserGuide.docx                              |
| <input type="checkbox"/> Task2                                | Has document | ARISTOTELE_D12 1_HLArchitecture_last.docx                           |
| <input type="checkbox"/> Task2                                | Has document | 20120312_ARISTOTELE_Evaluation_New_Pre-Usage_Indicators_janezh.docx |
| <input type="checkbox"/> Task2                                | Has document | test.docx                                                           |
| <input type="checkbox"/> Task2                                | Has document | index.html                                                          |
| <input type="checkbox"/> Task2                                | Has document | test                                                                |
| <input type="checkbox"/> Test -task3                          | Has document | PWLE - CompetencyUpdate UserGuide.docx                              |
| <input type="checkbox"/> Test -task3                          | Has document | ARISTOTELE_D12 1_HLArchitecture_last.docx                           |
| <input type="checkbox"/> Test -task3                          | Has document | 20120312_ARISTOTELE_Evaluation_New_Pre-Usage_Indicators_janezh.docx |
| <input type="checkbox"/> Test -task3                          | Has document | test.docx                                                           |
| <input type="checkbox"/> Test -task3                          | Has document | index.html                                                          |
| <input type="checkbox"/> Test -task3                          | Has document | test                                                                |



## ARISTOTELE – Scenarij 5: formiranje tima

### Formiranje tima:

- Projektu definiramo kompetence, ki so potrebne za izvedbo ter določimo najpomembnejše.
- HRM orodje predlaga optimalni tim za izvedbo projekta, pri čemer upošteva kompetence, razpoložljivosti in medsebojno povezanost bosočih sodelavcev na projektu.



Add AndL to Team

| Name | JobTitle | RBS |
|------|----------|-----|
| AndL | -        | -   |

baram/TeamFromation/\_layouts/recyclebin.aspx





## ARISTOTELE

---



- Evaluacija končnih rezultatov – september 2013
- več informacij: [dominika.oblak@amis.si](mailto:dominika.oblak@amis.si), [janez.hrastnik@amis.si](mailto:janez.hrastnik@amis.si)



***Hvala za vašo pozornost !***

*Vprašanja?*

*Pripombe?*

*Predlogi?*



## ARISTOTELE models

The following four models have been identified and defined:

- Knowledge Model, providing a representation of the enterprise and domain knowledge. This model focuses on representing concepts and relationships about the enterprise strategies, processes, activities, valuable contents, roles, as well as on the specific knowledge domain relating, for instance, to the competences to develop.
- Competence Model, providing a representation of competences and relating competences to other concepts such as, for instance, context.
- Worker Model, providing a representation of the worker and of several concepts relating to her/his enterprise dimensions such as social, learning, working and personal ones.
- Learning Experience Model, providing a representation of the learning experience that can be generated to fulfill a competence gap, as well as a representation of learning activities including socio-collaborative ones.



## ARISTOTELE Objectives: Learning & Training

- Objective
  - Improvement of the learning and training processes tailored to knowledge worker needs and expectations
- Achieved through
  - Support the worker with the identification of learning objectives
    - Relating them to the competences to develop (needs)
    - Suggesting them starting from past experiences of «Champions»
  - Generation of personalised learning experiences based on different didactic methods tailored on worker needs
- Measured by
  - L&T outcome indicators
- Strategic Objectives impacted
  - Improve HR efficiency, Ensure human capital readiness, attract and retain best employees



## ARISTOTELE Objectives: Human Resource Management

- Objective
  - Supporting Human Resource development, team formation, allocation, recruitment
- Achieved through
  - Identification of an optimum set of workers and related competences development approach
  - Use of trust relationships among workers in defining team
  - Extraction and analysis of competencies and personal traits from CV in the recruitment process
- Measured by
  - HRM outcome indicators
- Strategic objectives impacted
  - Improve HR efficiency, Create a high performance organisation, provide know-how and guidance, create a positive environment



## ARISTOTELE Objectives: Collaboration

- Objective
  - Improve collaboration among workers using social approach and sharing knowledge
- Achieved through
  - Building an environment that motivates and supports the workers during their activities in sharing knowledge and experiences
  - Enabling the process of knowledge exchange between worker and organisation (and viceversa)
  - Supporting the identification of relations among entities (resources, persons, etc.) taking into account practices to be shared within the organisation
  - Recommending champions and resources to support the development of competences using social activities
- Measured by
  - Collaboration outcome indicators
- Strategic objectives impacted
  - Attract and retain best employees, increase best practices sharing, develop climate for action



## ARISTOTELE Objectives: Knowledge Management

- Objective
  - Improvement of the knowledge management practices
- Achieved through
  - Represent main enterprise assets (competences, workers, tasks, activities, organisational knowledge, etc.) through conceptual models
  - Use of semantic technologies for correlating enterprise assets
  - Use of ontologies for representing organisational knowledge (kind of projects, activities, competence map, etc.)
  - knowledge elicitation (extraction and alignment) from User Generated Contents
  - Organisational knowledge updating (ontology merging)
- Measured by
  - KM outcome indicators
- Strategic objective impacted
  - Return of capital employed, improve customer focused solutions, Create a high performance organisation, develop climate for action



## ARISTOTELE Objectives: Innovation

- Objective
  - Fostering innovation processes
- Achieved through
  - Supporting elicitation of requirements starting from not well specified information in order to implement or improve processes/services/products
  - Supporting the innovation capability of the worker fulfilling the competence gap through
    - Serendipitous approaches for coaching
    - Ad hoc learning methods and practices (e.g. brainstorming)
- Measured by
  - Innovation outcome indicators
- Strategic objectives impacted
  - Drive growth through innovation, developing and implement innovative solutions