giCASES

Co-funded by the Erasmus+ Programme of the European Union

giCASES

Developing case based- and collaborative learning using the BoK for GI S&T

Danny Vandenbroucke – KU Leuven (SADL)

Outline

- The giCASES project
- What is case-based and collaborative learning? An example
- The use of the BoK for GI S&T in support of giCASES
- Conclusions

Outline

- The giCASES project
- What is case-based and collaborative learning? An example
- The use of the BoK for GI S&T in support of giCASES
- Conclusions

giCASES: Summary

- Erasmus+ project
- Knowledge Alliance of 14 partners
  - 7 Private companies
  - 5 universities
  - 1 Association, 1 public sector
- Lead: GISIG
- 3 years
- Budget: 920.137€

Erasmus+

GISIG
Geographical Information Systems International Group

giCASES: Partnership

N.	ACRON.	PARTNER	Country
1	GISIG	Geographical Information Systems International Group	IT
2	KU Leuven	Katholieke Universiteit Leuven	BE
3	PLUS	Paris-Lodron-Universitat Salzburg	AT
4	POLIMI	Politecnico di Milano	IT
5	UWH	University of West Hungary	HU
6	NOVA IMS	Instituto Superior de Estatística e Gestão de Informação	PT
7	EPSIT	EPSILON ITALIA SRL	IT
8	Novogit	Novogit AB	SE
9	ISPRA	Istituto Superiore per la Protezione e la Ricerca Ambientale)	IT
10	EPSGR	EPSILON INTERNASIONAL ANONYMI ETAIREIA MELETON KAI SYMVOULON	GR
11	TRILOGIS	TRILOGIS SRL	IT
12	INI-Novation	INI-Novation GmbH	DE
13	Digpro	Digpro Technologies AB	SE
14	Geosparc	Geosparc	BE

giCASES: Objectives

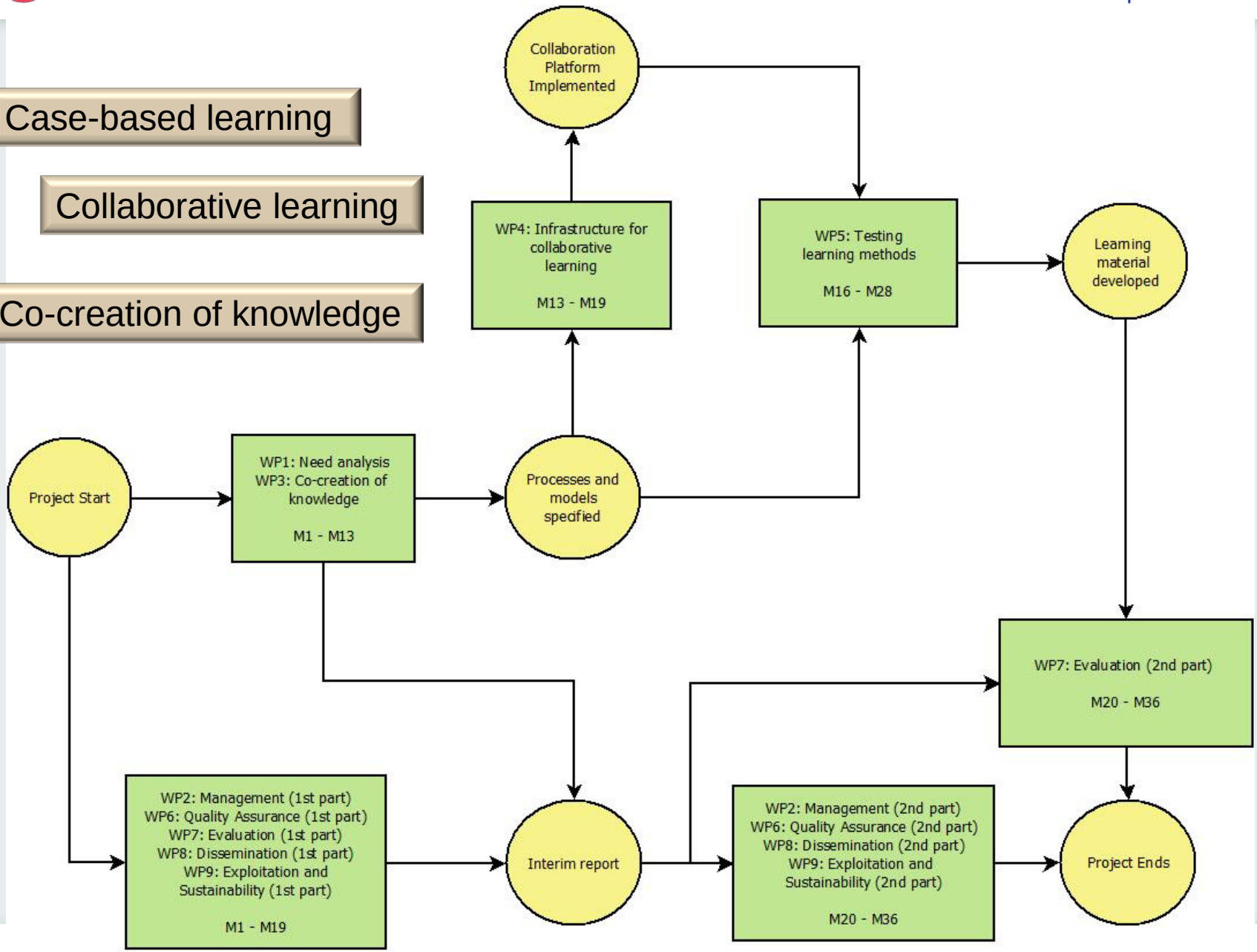
- **The wider objectives of the project are**
  - to enable and strengthen innovation in GI education and industry
  - to facilitate the collaborative creation, management and sharing of knowledge
- **The specific objectives of the project are**
  - to improve the quality and relevance of GI courses provided by the university members of the consortium
  - to facilitate the growth of new knowledge-sharing processes and tools between enterprises and universities
  - to improve the management of knowledge by the partners

Co-funded by the Erasmus+ Programme of the European Union

Case-based learning

Collaborative learning

Co-creation of knowledge



Outline

- The giCASES project
- What is case-based and collaborative learning? An example
- The use of the BoK for GI S&T in support of giCASES
- Conclusions

Case-based learning

- Case-based learning. What is it?

"Cases are factually-based, complex problems written to stimulate classroom discussion and collaborative analysis. Case teaching involves the interactive, student-centred exploration of realistic and specific situations. As students consider problems from a perspective which requires analysis, they strive to resolve questions that have no single right answer."

  - Collaborative approach – several students, private & public players, tutors, ...
  - Co-creation of knowledge – learning while doing, working together on the same issues

Case-based learning

- giCASES will focus on 7 cases
  - But … The **methods** will be replicable for other cases
  - The cases are defined around following topics

Case Study	Main testing university	Main developer (enterprise)
CS1. Use of indoor GIS in healthcare	POLIMI	TRILOGIS
CS2: Environmental analysis using cloud service system	NOVA IMS	ISPRA
CS3. From INSPIRE to e-Government	KU Leuven	Geosparc & GISIG
CS4: Integrated management of the underground	PLUS	Digpro
CS5: Harmonizing data flows in Energy saving EU policies	POLIMI	EPSIT
CS6: Forest management	UWH	EPSGR
CS7: Harmonized data and services in forest fire management	UWH	EPSGR

CS3 - From INSPIRE to e-Government

GEOSPARC

Mobiliteit en Openbare Werken

- Objective of CS3
  - Developing e-Government services using SDI components through collaborative internships
    - To learn **analysing** the e-Government **process** and describing it in a standardised way
    - To **design, develop and/or test** e-Government services
  - Make the internship more dynamic and interactive
    - By having students creating / adapting / ... SDI and other components and making these available to the tutor and other students, also beyond the internship (~ academic SDI)
    - By organising a 'living lab' / 'sandbox' with the student(s), employees of the private company, tutor(s) and other stakeholders (e-Gov)

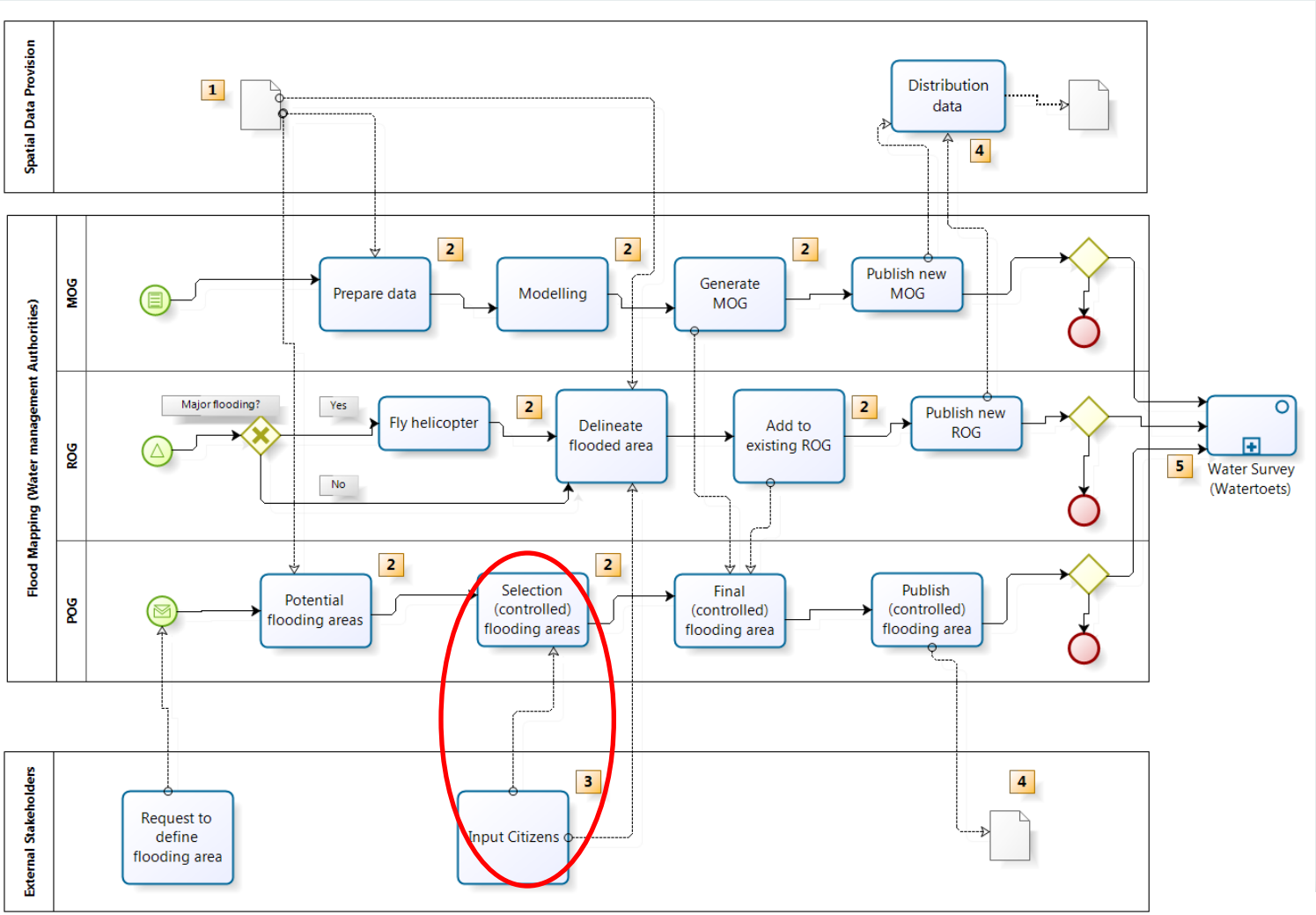
Vlaamse overheid

INFORMATIE VLAANDEREN

KU LEUVEN

CS3 - From INSPIRE to e-Government

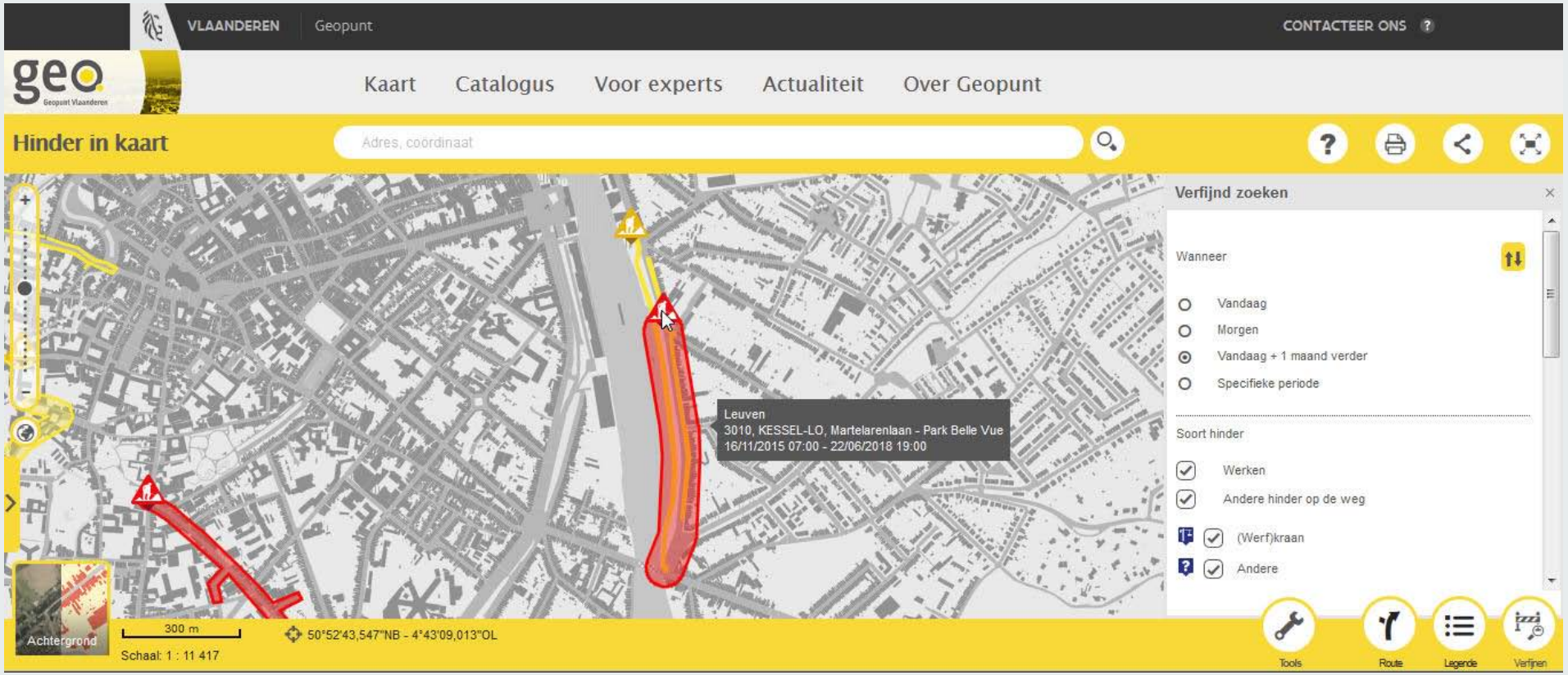
Mapping the process: an example (Flood Mapping)



CS3 - From INSPIRE to e-Government

- Scope
  - e-Government project
    - E.g. Occupation Public Space (Decree) – obligation for any user of public space to register events with possible impact
    - Government has developed SDI (GDI-Vlaanderen)
    - Geosparc developed tool 'SpotBooking' to register events and to optimise the process (police, municipality, GIPOD ...)
  - Assignment within the project to focus on a limited number of aspects
    - Contribute to the analysis of the process and requirements
    - Contribute to the development and implementation process
  - Multi-disciplinary teams: geospatial, ICT ...

CS3 - From INSPIRE to e-Government



CS3 - From INSPIRE to e-Government

- Boundary conditions
  - Spatial Data Infrastructures (B-KUL-I0U99A)
    - 6 ECTS, 52h, lectures and assignments
  - Geo-Application Development (B-KUL-I0T81B)
    - 7 ECTS, 120h, internship (30 calendar days)
    - INBO, SIGGIS, GeoSolutions, SADL, GeoAutomation, NGI/IGN, Eurosense, Merkator, GIM, GeoID, geosparc
    - " dealing with the planning, management and execution of a geo-application development project"
  - Some changes to the SDI course are possible
    - More flexibility is possible in the internship

CS3 - From INSPIRE to e-Government

- Required knowledge and skills
  - Thorough knowledge and basic skills about SDI development
    - E.g. UML and XML
    - E.g. Spatial Data models and their metadata
    - E.g. Setting-up web services
  - Programming skills
    - JAVA, .NET, Python ...
  - Knowledge and skills on particular environments
    - Geomajas
  - Analytical skills
    - E.g. process modelling, requirements analysis ...

CS3 - From INSPIRE to e-Government

- Gaps
  - Programming skills
  - ICT architectures
  - Analytical skills
  - Interest in ‘why-we-do-this’

☞ Applying knowledge and skills is always evolving since technology is evolving (rapidly) – supporting ‘old’ technology

☞ Knowledge & skills requirements ~ case

☞ Learning while doing and learning from each other

CS3 - From INSPIRE to e-Government

- Collaborative learning process
  - Preparation phase
    - Professor, tutors (experts SADL), geosparc staff
  - Execution phase
    - Student(s), geosparc staff, tutors, relevant departments Flemish Government
    - Internship, meetings, joint developments (co-creation of knowledge)
  - Evaluation phase
    - Joint and mutual evaluation
    - Embedding results in the course
    - Providing the results to the other partners and large community

Outline

- The giCASES project
- What is case-based and collaborative learning? An example
- The use of the BoK for GI S&T in support of giCASES
- Conclusions

giCASES and the BoK

- Case-based learning is dynamic by default
  - New concepts that were not teached in the 'regular' courses
    - These can be new methods, techniques, tools, ...
  - The BoK and VirLaBoK can support the design of the learning process
    - Adding concepts, definitions, ... designing the case-based course
    - Modifying existing courses
    - Testing and validating knowledge and skills of students and tutors
  - Linking to other BoKs
    - ICT, management, ...

Outline

- The giCASES project
- What is case-based and collaborative learning? An example
- The use of the BoK for GI S&T in support of giCASES
- Conclusions

Conclusions

- giCASES kicked-off well but is challenging
- A good mix of academic and private/public sector partners
- It follows an innovative approach
  - Case-based learning
  - Collaborative and co-creation methods
- The GI S&T BoK and VirLaBoK could support the design of the process and the curricula

Thank you!

http://www.gicases.eu

danny.vandenbroucke@SADL.kuleuven.be