



# The Mobility Project

**WEB-SERVICES FOR EXCHANGE OF DATA ON  
COOPERATION AND MOBILITY BETWEEN HIGHER  
EDUCATION INSTITUTIONS**

RS<sup>3</sup>G workshop, Uppsala, November 16th 2009

# Janina Mincer-Daszkiewicz

[jmd@mimuw.edu.pl](mailto:jmd@mimuw.edu.pl)

## *affiliations:*

MUCI, Poland, consortium of Polish universities, owner of  
USOS (University Study-Oriented System), project leader

University of Warsaw, Faculty of Mathematics, Computer  
Science and Mechanics, Assistant Professor (operating  
systems, parallel programming, system programming,  
software engineering, ...)

# Agenda

- Real life scenarios and needs
- WSDL – format of exchanged data (ver. 2)
- Mobility web node (ver. 2)
  - architecture
  - testbed
- Problems to solve

# **Real life scenario**

**International Relations Office at  
the University of Warsaw**

**Faculty of Mathematics, Computer Science  
and Mechanics**

**University Study-Oriented System (USOS)**

# USOS – module for IRO



## Biuro Współpracy z Zagranicą

USOS - BWZ

Studenci/uczelniefinst.

Słowniki

Umowy

Przyjazdy

Wyjazdy

Zakończ

USOS - BWZ, Milego dnia!

Komunikaty

Użytkownik: JMD  
Baza: test  
Wersja: 3.11

# IRO – International cooperation Agreements

USOS - [Umowy]

Akcja Edycja Zapytanie Blok Rekord Pole Okno Pomoc

Programy | Projekty | Projekty - budżety | Umowy | Warunki współpracy

### Umowy

(*) Rodzaj	(*) Numer	(*) Data podpis	(*) Data rozpocz	Data ważności	(*) Status
Bilateralna	112/E/X06	13.11.2006	01.07.2007	30.09.2009	podpisana
Bilateralna	329/E/XI06	20.01.2007	01.07.2007	30.09.2008	podpisana
Bilateralna	52/E/X06	10.11.2006	01.07.2007	30.09.2008	podpisana

Kod Erasmus: I CATANIA01 | Uczelnia zagraniczna lub instytucja zewnętrzna: Università degli Studi di Catania | Kraj: Włochy | Kontynent: Europa

Koordinator instytucjonalny uczelni macierzystej: Kowalska60225 Ewa60225 | Koordinator umowy uczelni macierzystej: Kowalski13455 Jan13455

Koordinator instytucjonalny zewnętrzny: Walker389 Joan389 | Koordinator umowy zewnętrzny: Walker392 John392

Osoba (tylko dla umowy indywidualnej): | Uwagi:

### Projekty

Numer projektu	Tytuł projektu
Erasmus 45834	Erasmus 45834

### Jednostki organizacyjne zewnętrzne

Nazwa	Uczelnia zagr. lub instytucja zewn.
Faculta Giurisprudenza	Università degli Studi di Catania

### Jednostki organizacyjne

(*) Jednostka	Nazwa jednostki
22000000	Wydział Prawa i Administracji

### Współpraca jednostek

Nazwa	Uczelnia zagr. lub instytucja zewn.
>	
>	
>	
>	

Szukaj ... Raporty

MOBILITY w1  
MOBILITY w2

# IRO – Agreement → Conditions of cooperation

USOS - [Umowy]

Akcja Edycja Zapytanie Blok Rekord Pole Okno Pomoc

Programy | Projekty | Projekty - budżety | Umowy | **Warunki współpracy**

### Umowy

Rodzaj	Numer	Data podpisania	Data rozpoczęcia	Data ważności	Status
<b>Bilateralna</b>	<b>112/E/X06</b>	<b>13.11.2006</b>	<b>01.07.2007</b>	<b>30.09.2009</b>	<b>podpisana</b>
Bilateralna	329/E/XI06	20.01.2007	01.07.2007	30.09.2008	podpisana
Bilateralna	52/E/X06	10.11.2006	01.07.2007	30.09.2008	podpisana
Bilateralna	509/E/XI06	11.01.2007	01.07.2007	30.09.2010	podpisana

Kod Erasmus: CATANIA01    Uczelnia zagraniczna lub instytucja zewnętrzna: Università degli Studi di Catania    Kraj: Włochy

### Warunki współpracy

Wyjazd z kraju A do B ..... Przyjazd do kraju A z B .....

(*) Typ	W Działania	(*) Data rozpoczęcia	Data zakończenia	(*) Kraj A	Poziom stud.	L. os.	Mies.	Tyg.	Godz.	(*) Kraj B	Poziom stud.	L. os.	Mies.	Tyg.	Godz.	Poprzedzająca
studenci-studia	10.0	01.07.2007	30.09.2009	PL	wszyscy	2	20			IT	wszyscy	2	20			
nauczyciele akac	10.0	01.07.2007	30.09.2009	PL		1	1	8		IT		6	1	8		

(\*) Dla kogo: Studenci, doktoranci    Jednostka: 22000000    Nazwa jednostki: Wydział Prawa i Administracji

Nazwiska lub liczby:    Opis tematów:    Uwagi: dotyczy również III stopnia

### Warunki współpracy poprzedzającej

Wyjazd z kraju A do B ..... Przyjazd do kraju A z B .....

Typ	W Działania	Data rozpoczęcia	Kraj A	Poziom stud.	L. os.	Mies.	Tyg.	Godz.	Kraj B	Poziom stud.	L. os.	Mies.	Tyg.	Godz.	Poprzedzona
	<input checked="" type="checkbox"/>														

Dla kogo:    Kod jednostki:    Opis jednostki:

Nazwiska lub liczby:    Opis tematów:    Uwagi:

MOBILITY w1  
MOBILITY w2



# Faculty – Offers available for students

TESTS (BETA)

EXAM REPORTS

EXAMS REGISTRATION

POSTULATES

GIVING OPINIONS

STUDENT MOBILITY

▶ coordinated faculties

▶ Faculty of Mathematics, Informatics, and Mechanics

▶ agreements

▶ assign outgoing mobility

▶ assigned outgoing mobilities

▶ study programmes

▶ **mobility offers**

▶ enrollments

SURVEYS RESULTS

## List of offers available for students

in faculty: Faculty of Mathematics, Informatics, and Mechanics [choose another]

### List of offers available for students



This part of the outgoing student mobility module, allows to specify where ... [more](#)

→ Create an offer

Hide all offers:

2009-11-13

SET

Set visibility of all offers till the day:

YYYY-MM-DD

SET

◀ ◀◀ Items 1..19 of 19 ▶▶ ▶  SHOW OPTIONS

No.	Country ▲▼	Erasmus Code ▲▼	Name of the Institution ▲▼	Valid		Visible		Options
				From ▲▼	To ▲▼	From ▲▼	To ▲▼	
1	Austria	A WIEN01	Universität Wien	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
2	Belgia	B ANTWERP01	Universiteit Antwerpen	2009-07-01	2013-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
3	Belgia	B BRUSSEL01	Vrije Universiteit Brussel	2008-07-01	2013-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
4	Dania	DK ARHUS01	Aarhus Universitet	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
5	Dania	DK KOBENHA01	Kobenhavns Universitet	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
6	Dania	DK ODENSE01	Syddansk Universitet	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
7	Francja	F PALAISE01	Ecole Polytechnique	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
8	Francja	F PARIS013	Université Paris Nord (Paris XIII)	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
9	Hiszpania	E BARCELO02	Universitat Autònoma de Barcelona	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
10	Hiszpania	E VALENCI01	Universidad de Valencia	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
11	Holandia	NL AMSTERD02	Vrije Universiteit Amsterdam	2008-07-01	2013-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
12	Litwa	LT VILNIUS01	Vilniaus Universitetas	2007-07-01	2013-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
13	Niemcy	D DARMSTA01	Technische Universität Darmstadt	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
14	Niemcy	D MUNCHEN01	Ludwig-Maximilians-Universität München	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
15	Niemcy	D SAARBRU01	Universität des Saarlandes	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-27 23:59	→ edit → remove
16	Szwecja	S UPPSALA01	Uppsala Universitet	2007-07-01	2010-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
17	Wielka Brytania	UK ABERDEE01	University of Aberdeen	2008-07-01	2011-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
18	Wielka Brytania	UK EDINBUR01	The University of Edinburgh	2009-07-01	2011-09-30	2009-01-05 00:00	2009-02-07 23:59	→ edit → remove
19	Wielka Brytania	UK LONDON017	King's College London	2008-07-01	2013-09-30	2009-05-01 00:00	2009-02-07 23:59	→ edit → remove

◀ ◀◀ Items 1..19 of 19 ▶▶ ▶



# Faculty – Student's application



This application has been accepted.

Priority	Institutions to which the student wants to go. <a href="#">i</a> (max 3)
1	<b>Université Paris Nord (Paris XIII)</b> ( <i>Mathematics</i> )
2	<b>Vrije Universiteit Brussel</b> ( <i>Mathematics</i> )
3	<b>Universitat Autònoma de Barcelona</b> ( <i>Mathematics</i> )

RLMTODO	
Language	Level
<b>English</b>	znam język dostatecznie dobrze, by rozumieć wykłady
<b>French</b>	znam język dostatecznie dobrze, by rozumieć wykłady
<b>German</b>	znam język dostatecznie dobrze, by rozumieć wykłady

Courses with marks		(max 3)
1000-135RC1a	Partial differential equations I	4,5
1000-1L00RR	Differential equations in natural sciences	5
1000-135ST1	Statistics I	4,5

Opinion (min 1 )(max 1)		
RLMTODO	Status <a href="#">i</a>	Options <a href="#">i</a>
Grzegorz Łukaszewicz	submitted	<a href="#">→ view</a>

## Motivation letter in a foreign language

Please consider my candidature to the deans founded scholarship.

Dear Sir or Madam,

I am writing to propose my candidature to the Socrates-Erasmus student exchange program in the academic year 2009/10. I'm a student of the fourth year of mathematics. I am studying mathematics as a primary specialization in a Individual Studies Program in conjunction with physics.

It is a great combination which makes studying more interesting and purposeful. I am a hard-working and solid person. A result of that is the fact that every semester I am exceeding the required ECTS numbers and every subject I take on is passed by me.

Thanks to such approach I have passed more subjects that were necessary, and I have also passed numerous subjects on the faculty of Physics.

I believe that an international scholarship will be a great opportunity for me to widen my horizons( not only mathematical ) and to get more knowledge in various fields. I am aware that it may be a difficult challenge, however I am sure I will be able to cope with it and it will be a great benefit to me as well.

As a person who is travelling a lot, and with good knowledge in foreign languages I hope I won't have any problems to accommodate myself in a new environment. After finishing my master degree I am planning to continue my studies to reach the PhD degree.

Best regards

# Faculty – Nominations

EXAM REPORTS

EXAMS

POSTULATES

GIVING OPINIONS

STUDENT MOBILITY

▶ coordinated faculties

- ▶ Faculty of Mathematics, Informatics, and Mechanics
- ▶ agreements
- ▶ assign outgoing mobility
- ▶ assigned outgoing mobilities
- ▶ study programmes
- ▶ mobility offers
- ▶ enrollments

SURVEYS RESULTS

## Erasmus outgoing student mobility coordination

at the faculty/unit: Faculty of Mathematics, Informatics, and Mechanics [choose another]

Assigned outgoing student mobilities

- print list
- export list to file
- Send email to all 24 persons from the table below.
- send list to coordinators 

**FILTER OPTIONS**

Status:

Academic year:

Institution name:

Erasmus Code:

Country:

Assigned not earlier than:

Assigned not later than:

**SELECTED STUDENT**

student's name

No.	Surname	Name	Country	Erasmus Code	Institution name	Date of assignment	Academic year	Status	Options
1	Konrad		Hiszpania	E BARCELO02	Universitat Autònoma de Barcelona		2009	Finished	→ view → learning agreement
2	Przemysław		Francja	F PALAISE01	Ecole Polytechnique		2009	Finished	→ view → learning agreement
3	Aleksander		Francja	F PARIS013	Université Paris Nord (Paris XIII)		2009	Finished	→ view → learning agreement
4	Kamil		Szwecja	S UPPSALA01	Uppsala Universitet		2009	Finished	→ view → learning agreement
5	Kamil		Holandia	NL AMSTERD02	Vrije Universiteit Amsterdam		2009	Finished	→ view → learning agreement
6	Dominika		Austria	A WIEN01	Universität Wien		2009	Finished	→ view → learning agreement
7	Jan		Holandia	NL AMSTERD02	Vrije Universiteit Amsterdam		2009	Finished	→ view → learning agreement
8	Weronika		Dania	DK KOBENHA01	Kobenhavns Universitet		2009	Finished	→ view → learning agreement
9	Anna		Dania	DK ARHUS01	Aarhus Universitet		2009	Finished	→ view → learning agreement
10	Hanna		Francja	F PARIS013	Université Paris Nord (Paris XIII)		2009	Finished	→ view → learning agreement

# IRO – Outgoing mobility

USOS - [Wyjazdy]

Akcja Edycja Zapytanie Blok Rekord Pole Okno Pomoc

Program <wszystkie> Etap <wszystkie> Cykl dydaktyczny <wszystkie> Miejsce <wszystkie> Filtruj po etapach

**Osoby**

Nazwisko	Imię	PESEL	Jednostka osoby	Email	Obywatelstwo
Kowalska100011	Ewa100011		21000000	kowalska100011@usos.pl	polskie
Kowalska100016	Ewa100016		21010000	kowalska100016@usos.pl	polskie
Kowalska100020	Ewa100020		30050000	kowalska100020@usos.pl	polskie

**Wyjazdy**

(\*) Jednostka Nazwa jednostki Kod Erasmus (\*) Uczelnia zagraniczna lub instytucja zewnętrzna Kraj

21220000 Katedra Europeistyki UK BRIGHT001 University of Sussex Wielka Brytania

Numer umowy Rodzaj umowy Uczelnia zagraniczna lub instytucja zewnętrzna Typ współpracy Numer teczki

847/E/XII07 Bilateralna University of Sussex studenci-studia BWZ981EUC08-S0229

Dziedzina Kod programu (\*) Rodzaj studiów (\*) System studiów (\*) Rok studiów

14.1 <brak> magisterskie niestacjonarne - 3

(\*) Rok akad. wyj. Plan. czas pobytu Planowany czas pobytu komentarz Czy praktyki Czy druga tura Punkty ECTS i kod sektorowy praktyk Czy kiedyś Erasmus Leonardo EILC Czy umowa

2008 Inny Pierwszy trymestr (3 m-ce)

Pobyt od Pobyt do Data wyjazdu Data powrotu Rzeczywista data wyjazdu Rzeczywista data powrotu Przedłużenie/skrócenie (\*) Otrzymywane styp. Jeśli inne to jakie

06.10.2008 12.12.2008 26.09.2008 13.12.2009    brak

Liczba miesięcy ze styp. bez styp. Czy dofinansowanie z tytułu niepełnospr. (\*) Dofinansowanie z jednostki (\*) Typ wyjazdu (\*) Stan

2,25 0  brak studia aktywny

Grupa stypendiów Pierwsza stawka stypendialna (wyższa) Powody rezygnacji

Uwagi | Finanse | Decyzja - LA | Języki, ECTS

...

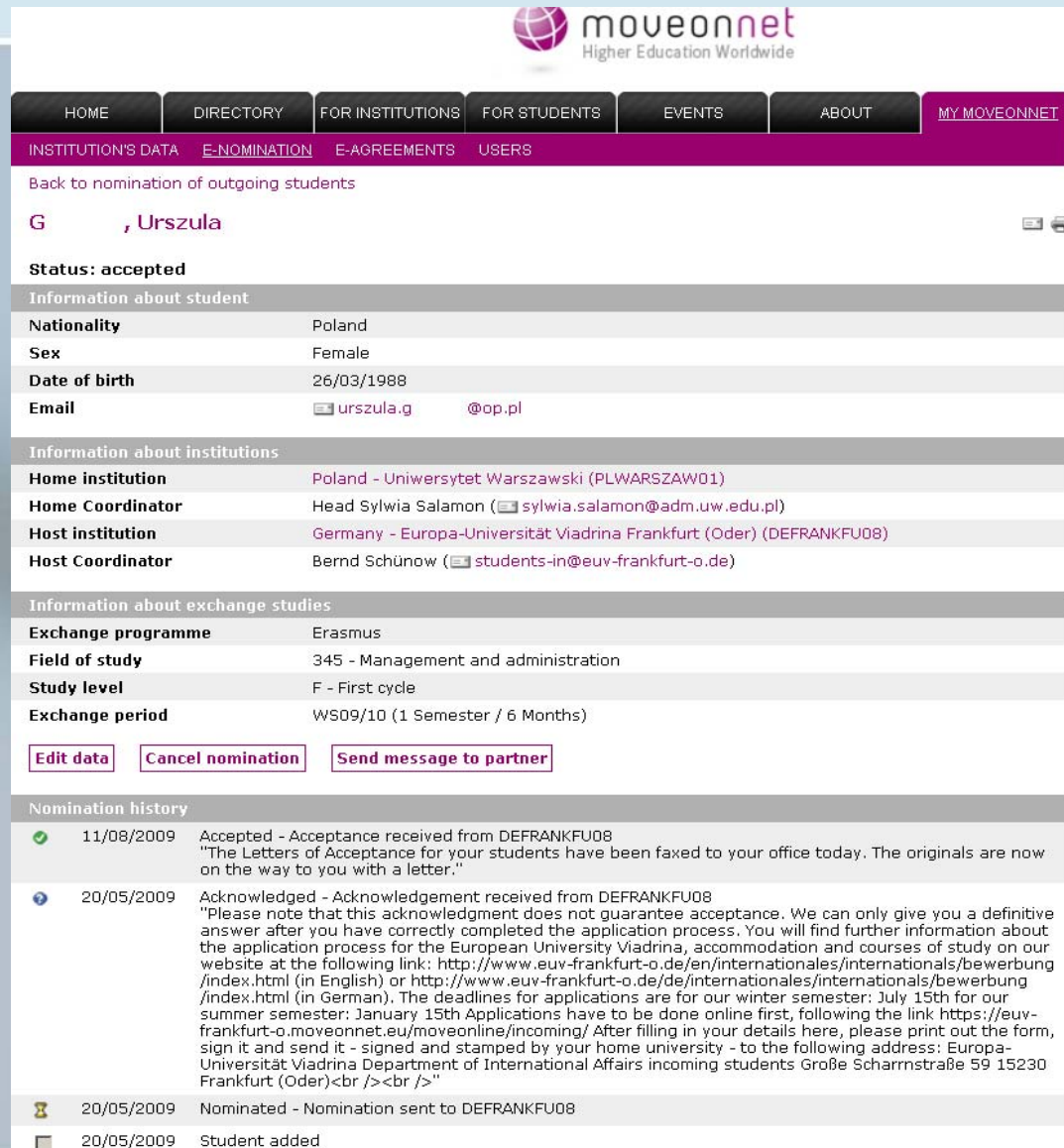
Filtr  
 Osoba  
 Szukaj po indeksie  
 Szukaj...  
 Dokumenty  
 Szukaj duplikatów  
 Raporty  
 Raporty lokalne  
 Raport ERASMUS  
 Generuj nr teczki  
 Usuń nr teczki  
 Programy osoby  
 Wyślij wiadomość  
 MOBILITY w1  
 MOBILITY w2

# IRO – What happens next ...

## Nominations are:

- typed manually into partner's system (many different systems, many different styles and requirements)
- scanned,
- faxed,
- delivered by phone call
- ...

Usually many times  
(updates are common)



The screenshot shows the 'moveonnet Higher Education Worldwide' website interface. The navigation menu includes HOME, DIRECTORY, FOR INSTITUTIONS, FOR STUDENTS, EVENTS, ABOUT, and MY MOVEONNET. The main content area displays a nomination record for 'G , Ursula'. The status is 'accepted'. The record is divided into three sections: 'Information about student', 'Information about institutions', and 'Information about exchange studies'. Below the record are three buttons: 'Edit data', 'Cancel nomination', and 'Send message to partner'. A 'Nomination history' section shows a list of events with dates and descriptions.

Information about student		
Nationality	Poland	
Sex	Female	
Date of birth	26/03/1988	
Email	ursula.g @op.pl	

Information about institutions	
Home institution	Poland - Uniwersytet Warszawski (PLWARSZAW01)
Home Coordinator	Head Sylwia Salamon (sylwia.salamon@adm.uw.edu.pl)
Host institution	Germany - Europa-Universität Viadrina Frankfurt (Oder) (DEFRANKU08)
Host Coordinator	Bernd Schünow (students-in@euv-frankfurt-o.de)

Information about exchange studies	
Exchange programme	Erasmus
Field of study	345 - Management and administration
Study level	F - First cycle
Exchange period	WS09/10 (1 Semester / 6 Months)

[Edit data](#) [Cancel nomination](#) [Send message to partner](#)

Nomination history		
✓	11/08/2009	Accepted - Acceptance received from DEFRANKU08 "The Letters of Acceptance for your students have been faxed to your office today. The originals are now on the way to you with a letter."
ⓘ	20/05/2009	Acknowledged - Acknowledgement received from DEFRANKU08 "Please note that this acknowledgment does not guarantee acceptance. We can only give you a definitive answer after you have correctly completed the application process. You will find further information about the application process for the European University Viadrina, accommodation and courses of study on our website at the following link: <a href="http://www.euv-frankfurt-o.de/en/internationales/internationals/bewerbung/index.html">http://www.euv-frankfurt-o.de/en/internationales/internationals/bewerbung/index.html</a> (in English) or <a href="http://www.euv-frankfurt-o.de/de/internationales/internationals/bewerbung/index.html">http://www.euv-frankfurt-o.de/de/internationales/internationals/bewerbung/index.html</a> (in German). The deadlines for applications are for our winter semester: July 15th for our summer semester: January 15th Applications have to be done online first, following the link <a href="https://euv-frankfurt-o.moveonnet.eu/moveonline/incoming/">https://euv-frankfurt-o.moveonnet.eu/moveonline/incoming/</a> After filling in your details here, please print out the form, sign it and send it - signed and stamped by your home university - to the following address: Europa-Universität Viadrina Department of International Affairs incoming students Große Scharnstraße 59 15230 Frankfurt (Oder)"
👤	20/05/2009	Nominated - Nomination sent to DEFRANKU08
👤	20/05/2009	Student added

# IRO – We would prefer to do it with ... one click → SEND button...

The screenshot displays the USOS software interface. At the top, there is a menu bar with options like 'Akcja', 'Edycja', 'Zapytanie', 'Blok', 'Rekord', 'Pole', 'Okno', and 'Pomoc'. Below the menu, there are several tabs: 'Osoby', 'Program <wszystkie>', 'Etap <wszystkie>', 'Cykl dydaktyczny <wszystkie>', and 'Miejsce <wszystkie>'. A table with columns for 'Nazwisko', 'Imię', 'PESEL', 'Jednostka osoby', 'Email', and 'Obywatelstwo' is visible. On the right side, there is a sidebar with various search and report options, including 'Filtr', 'Osoba', 'Szukaj po indeksie', 'Szukaj...', 'Dokumenty', 'Szukaj duplikatów', 'Raporty', 'Raporty lokalne', 'Raport ERASMUS', 'Generuj nr teczki', 'Usuń nr teczki', 'Programy osoby', 'Wyslij wiadomość', 'MOBILITY w1', and 'MOBILITY w2'. The 'MOBILITY w1' and 'MOBILITY w2' buttons are highlighted with a blue box.

**Projekt MOBILITY**  
Kanwa testowa projektu MOBILITY.  
Proszę nie używać w trakcie pracy na bazie produkcyjnej.

Data przyjazdu osoby wyjeżdżającej do uczelni przyjmującej:

**Wysyłanie listy nominowanych studentów:**

Kod ERASMUS uczelni partnerskiej:  Umowa:  Rok akademicki wyjazdu:   `partner_send_nominated_stud`

Ostatni komunikat o błędzie

Wszystkie dane pobrane z systemu są wpisywane do formularza, jednak nie są zapisywane do bazy danych.



# IRO – partner would send us his students in a similar way → this is the result of the remote invocation of `sendNominatedStudents()`

The screenshot shows the USOS application window titled "USOS - [Przyjazdy]". The interface includes a menu bar (Akcja, Edycja, Zapytanie, Blok, Rekord, Pole, Okno, Pomoc) and a toolbar. Below the menu, there are tabs for "Osoby", "Program <wszystkie>", "Etap <wszystkie>", "Cykl dydaktyczny <wszystkie>", and "Miejsce <wszystkie>". A sidebar on the right contains various filters and actions like "Filtruj po etapach", "Filtr", "Osoba", "Programy osoby", "Szukaj po indeksie", "Szukaj...", "Dokumenty", "Szukaj duplikatów", "Wyślij wiadomość", "Raporty", "Generuj nr teczki", and "Usuń nr teczki".

The main content area displays a table for "Projekt MOBILITY" with columns: Kod dyscypliny, Poziom studiów, Rok. akad. przyjazdu, Okres przyjazdu, Jednostka przyjmująca, and Czas utworzenia wpisu. Below this, there are input fields for "Jednostka wysyłająca" (Instytut Archeologii) and "Nazwisko i imię koordynatora jednostki przyjmującej" (Prof. Modrzewska-Pianetti | Iwona).

A second table lists students with columns: Nazwisko, Imię, Data urodzenia, Kraj urodzenia, Płeć, and Czas utworzenia wpisu. The first student is Kurzydłowski Michał, born 1985-10-26, from PL, male, with a creation time of 19.06.2009 12.38.33. Another student listed is Kowalski Fabio, born 1985-01-14, from PL, male, with the same creation time.

At the bottom, there are input fields for "Miasto urodzenia" (Warszawa) and "Email" (michal.kurzydowski@students.mimuw.edu.pl). A "Zamknij" button is located at the bottom center.

# Other scenarios

- **Signing agreement (organization's information record, cooperation conditions of the agreement)**
- **Sending Learning Agreements (sending token vs sending structured data)**
- **Getting Transcripts of Records (grades)**
- **Sending departure/arrival dates of mobile students (important → scholarships)**
- **Sending course catalog**



# Learning Agreement

**LEARNING AGREEMENT**  
 Academic year: Winter semester 2009/2010  
 Field of study: Informatics, Computer Science (code 11.3)

Name of student:  
**Aleksander G**

Sending institution:  
**University of Warsaw**

Country:  
**Poland**

**DETAILS OF THE PROPOSED STUDY PROGRAM ABROAD/LEARNING AGREEMENT**

Receiving institution:  
**Université Paris Nord (Paris XIII)**

Country:  
**France**

**Current version**

Course unit code (if any)	Course unit title (as indicated in the information package):	Number of ECTS credits if applied
	Algoritmique parallele et distribuee	4
	Analyse de Fourier et theorie du signal	4
	Calcul haute performance	5
	Modelisation mathematique pour le traitement des images	5
	Programmation mathematique approfondie	5
	Systemes distribues	4

Date

Student's signature:

**SENDING INSTITUTION**

We confirm that this proposed program of study/learning agreement is approved.

*The document has been automatically generated from the electronic system USOS. The study program listed above has been approved by Erasmus Departmental Coordinator.*  
 Date: 2009-11-14

*The document has been automatically generated from the electronic system USOS. The study program listed above has been approved by Erasmus Institutional Coordinator.*  
 Date: 2009-11-14

**RECEIVING INSTITUTION**

We confirm that this proposed program of study/learning agreement is approved.

Departmental coordinator's signature

Institutional coordinator's signature

Date:

Date:

# Learning Agreement → Transcript of Records

## In reference to

Student:	Piotr S
Study program:	DM-JSIM - Double Degree Program in Computer Science and Mathematics
Stage:	JSIM4I - Fourth year JSIM 3I+4M
Term:	2007 - Academic year 2007/08

## General information

Decision number:	75064
Decision date:	2008-08-17
<b>i</b> Decision type:	<b>MODIFICATION</b>
Decision state:	Z - approved
<b>i</b> Stage of creation:	Filling in
Next stage:	(no change)
Comment:	Porozumienie w sprawie programu zajęć (LA)

## External courses

#	Name	Term	Passed	ECTS	Language	<b>i</b>	Coordinator	Status
1.	Agent Based Systems U02497	2007	<b>YES</b>	5.00	English	none / none	Michael Rovatsos	Z - approved
	CW (8 hours), WYK (20 hours). <b>Institution:</b> (in Polish) The University of Edinburgh							
2.	Computer Communications and Networks U03858	2007	<b>YES</b>	5.00	English	none / none	Mahesh Marina	Z - approved
	WYK (20 hours). <b>Institution:</b> The University of Edinburgh							
3.	Computer Security U03025	2007	<b>YES</b>	5.00	English	none / none	David Aspinall	Z - approved
	WYK (20 hours). <b>Institution:</b> (in Polish) The University of Edinburgh							
4.	Enterprise Computing U01902	2007	<b>YES</b>	5.00	English	none / none	Stephen Gilmore	Z - approved
	CW (8 hours), WYK (20 hours). <b>Institution:</b> (in Polish) The University of Edinburgh							
5.	Informatics 2D: Reasoning & Agents U02602	2007	<b>YES</b>	10.00	English	none / none	Jacques Fleuriot, Michael Rovatsos	Z - approved
	CW (10 hours), LAB (20 hours), WYK (30 hours). <b>Institution:</b> (in Polish) The University of Edinburgh							
			max ECTS to achieve:	30.00	<b>i</b>			
			achieved ECTS total:	30.00	<b>i</b>			

# Grades from the University of Edinburgh

USOS - [Szczegóły przedmiotów zewnętrznych decyzji]

Akcja Edycja Zapytanie Blok Rekord Pole Okno Pomoc

Osoba **Sara**

Program **Informatyka, stacjonarne, jednolite magisterskie (DM-INF)**

Decyzja **18.09.2009 2008 14**

Przedmioty zewnętrzne | Dotychczasowe zaliczenia

Cykl dyd.	Kod przedmiotu	Nazwa przedmiotu	Ocena	ECTS	Zal.	Status
2008L		<b>Agent Based Systems</b>	5	5	<input checked="" type="checkbox"/>	Z
2008L		Compiling Techniques	5	5	<input checked="" type="checkbox"/>	Z
2008L		Enterprise Computing	5	5	<input checked="" type="checkbox"/>	Z
2008L		Informatics 2D: Reasoning & Agents	5	10	<input checked="" type="checkbox"/>	Z
2008L		Multi-agent Semantic Web Systems	5	5	<input checked="" type="checkbox"/>	Z
					<input type="checkbox"/>	
					<input type="checkbox"/>	
					<input type="checkbox"/>	

Przycisk "Filtruj po jedn." pozwala ograniczyć listę dostępnych do wpisania przedmiotów.

**Zajęcia przedmiotu**

Komentarz

Liczba ocen do średniej **5**    Suma ocen do średniej **25**    Suma ECTS **30**

Typ zajęć	Opis typu zajęć	Godz.	Ocena
<b>CW</b>	<b>Ćwiczenia</b>		
LAB	Laboratorium		
WYK-MON	Wykład monograficzny		

**Dodatkowe informacje dotyczące przedmiotu**

Nazwa angielska **Agent Based Systems**

Koordynator

Kod języka **ANG**

Uczelnia (ze słownika szkół) **The University of Edinburgh**

Uczelnia (należy wpisać jedynie wówczas, gdy brak w słowniku)

## I. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1. Surname: *S*
2. First name(s): *Piotr Krzysztof*
3. Date of birth (day, month, year): *24.09.1985*
4. Student identification number or code: *219737*

## II. INFORMATION IDENTIFYING THE QUALIFICATION

1. Diploma number : *1000/46331/2009*
2. Name of qualification and the title conferred <sup>1)</sup> *magister*
3. Main field of study and field of specialisation for the qualification : *Computer Science*
4. Name and status of awarding institution<sup>1)</sup>

*Uniwersytet Warszawski*

*Uniwersytet Warszawski, established in 1816 is a public higher education institution. The university is entitled to confer the degrees of 'doktor', 'doktor habilitowany' and apply for the title of 'profesor'. The university educates students in the spirit of Magna Charta Universitatum and is also a party to the Agreement of Polish Universities on the Quality of Education, as a result of which the University Accreditation Commission was established.*

5. Name and status of institution administering studies <sup>2)</sup>

*Uniwersytet Warszawski*

*Uniwersytet Warszawski, established in 1816 is a public higher education institution. The university is entitled to confer the degrees of 'doktor', 'doktor habilitowany' and apply for the title of 'profesor'. The university educates students in the spirit of Magna Charta Universitatum and is also a party to the Agreement of Polish Universities on the Quality of Education, as a result of which the University Accreditation Commission was established.*

*The University of Edinburgh - United Kingdom*

6. Language(s) of instruction/examination: *Polish, English*

## III. INFORMATION ON THE LEVEL OF QUALIFICATION

1. Level of qualification: *second cycle programme*
2. Official length of programme: *5-year studies (3+2)*
3. Access requirements: *maturity certificate or entrance examination*

**Academic year 2007/08**

<i>Computer Security</i>	<i>wyk 20</i>	<i>5</i>	<i>5</i>
<i>Computer Communications and Networks</i>	<i>wyk 20</i>	<i>5</i>	<i>5</i>
<i>Enterprise Computing</i>	<i>wyk 20/cw 8</i>	<i>4</i>	<i>5</i>
<i>Agent Based Systems</i>	<i>wyk 20/cw 8</i>	<i>4,5</i>	<i>5</i>
<i>Decision support systems</i>	<i>sem 60</i>	<i>4,5</i>	<i>12</i>
<i>Distributed Systems</i>	<i>sem-mgr 60</i>	<i>ZAL</i>	<i>6</i>
<i>Informatics 2D: Reasoning &amp; Agents</i>	<i>wyk 30/cw 10/lab 20</i>	<i>4,5</i>	<i>10</i>

# Diploma supplement

# IRO – Scholarships

(final amount depends on dates of arrival/departures)

Wyjazdy Program <wszystkie>    Etap <wszystkie>    Cykl dydaktyczny <wszystkie>    Miejsce <wszystkie>    Filtruj po etapach

Nazwisko	Imię	PESEL	Jednostka osoby	Cykl dyd. wyjazdu	Numer teczki	Jednostka wyjazdu
	Magdalena		33210000	2007	BWZ981EUC07-S0003	33210000
Email		Obywatelstwo	Grupa stypendiów			
		polskie	Pierwsza stawka stypendialna (wyższa)			

Wyплаты Wypełnij autom.

Kod funduszu	Waluta	Licz. mies.	VIII	IX	X	XI	XII	I	II	III	IV	V	VI	VII	VIII*	IX*
ERASMUS	EUR	4,50			340,00	340,00	340,00	340,00	170,00							
UW EURO	EUR	4,50			17,00	17,00	17,00	17,00	8,50							
Waluta wypłaty					EUR	EUR	EUR	EUR	EUR							
Stan wypłaty					Z	Z	Z	Z	Z							
Data wydruku raportu					03.10.2007	03.10.2007	14.11.2007	14.11.2007	14.11.2007							
Data zlecenia przelewu					04.10.2007	04.10.2007	15.11.2007	15.11.2007	15.11.2007							

Zmień walutę i stan

Opis funduszu  
ERASMUS studia

# GOAL

**STOP SENDING PAPER,  
EXCHANGE ELECTRONICALLY  
STRUCTURED DATA  
BY CALLING WEB-SERVICES**

# Establishing format for data exchange

- Standardisation committees and on-going projects
  - CEN (European Commission for Standardization)
    - Metadata for Learning Opportunities (MLO) – e.g. programme of study, course catalog
    - European Learner Mobility (ELM) – e.g. Europass portfolio (Diploma Supplement, Certificate Supplement, Curriculum Vitae, Mobility, Language Passport)
  - R3SG (Rome Student System and Standard Group)
  - National initiatives
    - OODI Finland
    - German universities, sending eToRs using OSCIE protocol
  - Vendor initiatives
    - unisolution – web services for moveon users
  - **and many others ...**



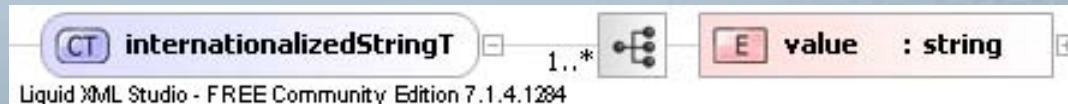
# WSDL for the Mobility project

- Such diversity of standards does not make things easier ☹️
- Mobility project has specific objectives and specific needs
  - Data should be well structured
  - Pieces of data should be uniquely identifiable (on a database level)
  - Each party may want to use own identifiers
  - Each party may want to use own language

Some possible solutions are presented on the following slides ...

# WSDL – some details 1

## List of strings in various languages



## ISO-based types

WSDL type	Description	ISO standard	Example value(s)
countryCodeT	Country	ISO 3166-1 alpha-2	“PL”, “IT”, “GB”
languageCodeT	Language	ISO 639-1	“pl”, “en”, “de”
genderT	Gender	ISO/IEC 5218:2004	“1”, “2”

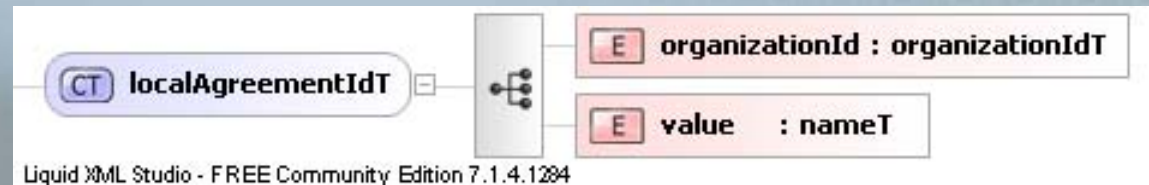
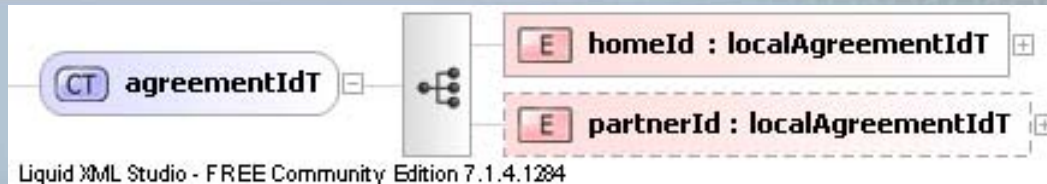
## Identifiers (global)

- an organization – domain name, e.g. uw.edu.pl  
(inspired by SCHAC)
- a person – national identifier

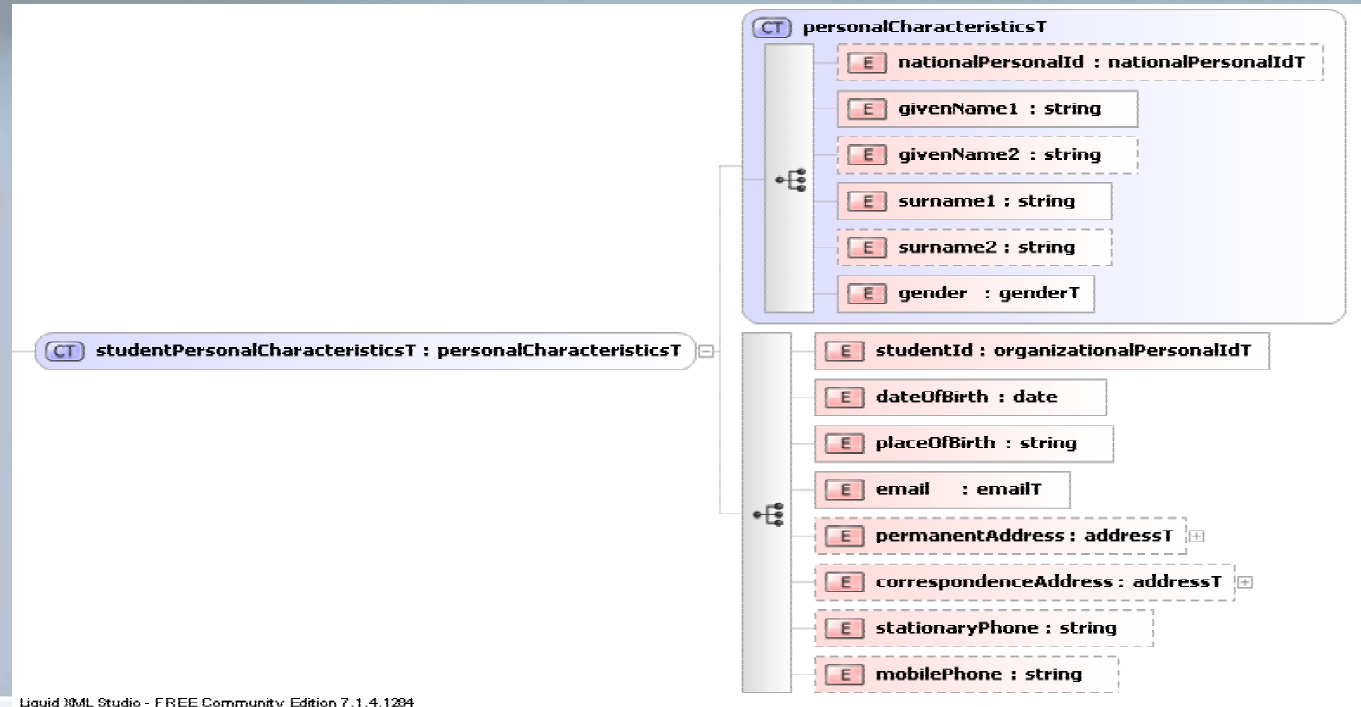
Type of national id	Example value
Finnish FIC	fi:260667-123F
Spanish NIF	es:31241312L
Swedish NIN	se:12345678
Polish PESEL	pl:77121201230

# WSDL – some details 2

Agreement  
(local  
identifiers)

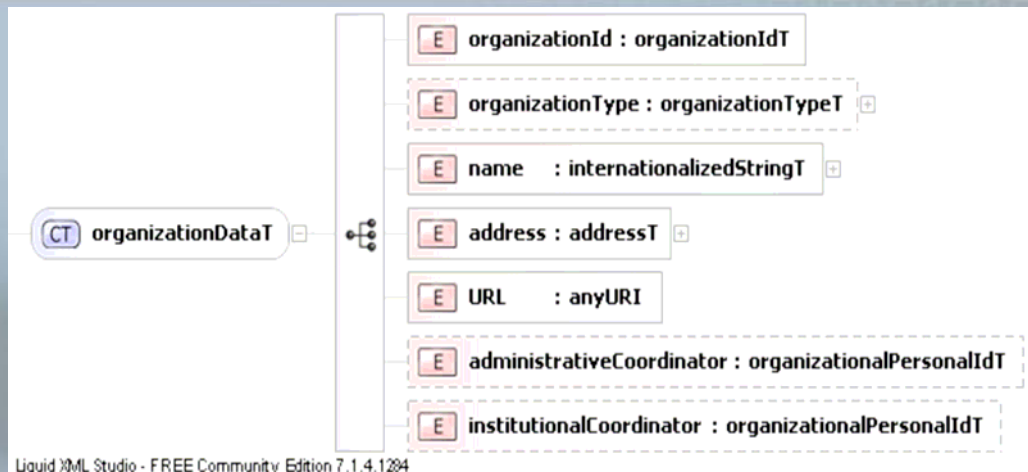


Student  
(local  
identifiers)



# WSDL – some details 3

## Organization data



## Example

```
<tns:organizationId>uw.edu.pl</tns:organizationId>
<tns:name>
  <tns:value language="en">University of Warsaw</tns:value>
  <tns:value language="pl">Uniwersytet Warszawski</tns:value>
</tns:name>
<tns:address>
  <tns:street>Krakowskie Przedmiescie</tns:street>
  <tns:houseNumber>26/28</tns:houseNumber>
  <tns:postalCode>00-927</tns:postalCode>
  <tns:city>Warsaw</tns:city>
  <tns:country>PL</tns:country>
</tns:address>
<tns:URL>www.uw.edu.pl</tns:URL>
<tns:administrativeCoordinator>uw.edu.pl:45065</tns:administrativeCoordinator>
<tns:institutionalCoordinator>uw.edu.pl:112233</tns:institutionalCoordinator>
```

# WSDL – some details 4

## Course data example

```
<tns:code>1000-234aMRJ</tns:code>
<tns:name>
  <tns:value language="en">Compiler construction</tns:value>
  <tns:value language="pl">Metody realizacji jezykow programowania</tns:value>
</tns:name>
<tns:description>
  <tns:value language="en">Structure of a compiler. Phases of compilation: analysis (
    lexical analysis, syntax analysis, context semantic analysis), synthesis (code
    generation, optimization, loading). Data structures of a compiler (symbol table
    et al.).</tns:value>
  <tns:value language="pl">Struktura kompilatora. Fazy kompilacji: analiza
    leksykalna, skladniowa, kontekstowa, generowanie kodu, optymalizacja, skladanie
    kodu. Struktury danych kompilatora (tablica nazw, tablica symboli).</tns:value
  >
</tns:description>
<tns:language>pl</tns:language>
<tns:courseURL>https://usosweb.mimuw.edu.pl/kontroler.php?\_action=actionx%3Akatalog2%2Fprzedmioty%2FpokazPrzedmiot\(prz\_kod%3A1000-234aMRJ\)&lang=2</
tns:courseURL>
```

# WSDL – some details 5

Course  
instance

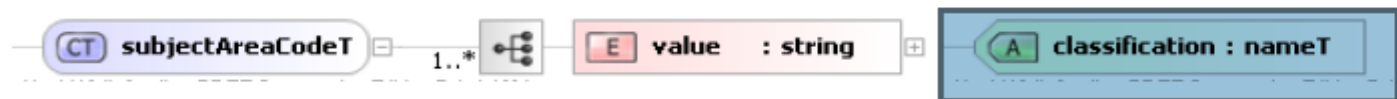
```
<tns:code>1000-2M03DM</tns:code>
<tns:studyCredits>
  <tns:value unit="ects">5</tns:value>
</tns:studyCredits>
<tns:contactHours>30</tns:contactHours>
<tns:period>
  <tns:academicYear>2008</tns:academicYear>
  <tns:academicPeriod>S1</tns:academicPeriod>
  <tns:duration>1</tns:duration>
</tns:period>
<tns:lecturerId>uw.edu.pl:1111</tns:lecturerId>
```

Grade(s)

```
<tns:value gradingScheme="local">5</tns:value>
<tns:value gradingScheme="ects">A</tns:value>
```

Subject  
area  
code

**subjectAreaCodeT** – code of the study subject area within specific classification; classifications supported are: EU, ISCED97 (case insensitive); EU denotes Socrate/Erasmus coding while ISCED97 – UNESCO ISCED 97 standard **ISCED**; examples: “11.3” corresponds to Computer Science, “15.1” to Journalism), ISCED97 – UNESCO ISCED 97 standard (examples: “48” – Computing, “32” – Journalism and information);





# WSDL – methods (web services)

**sendOrganizationData()**

**getOrganizationData()**

**sendAgreementData(), getAgreementData()**

**sendNominatedStudents()**

**getNominatedStudents()**

**sendArrivalDate(), getArrivalDate()**

**sendDepartureDate(), getDepartureDate()**

**sendLearningAgreement()**

**getLearningAgreement()**

**sendTranscriptOfRecords()**

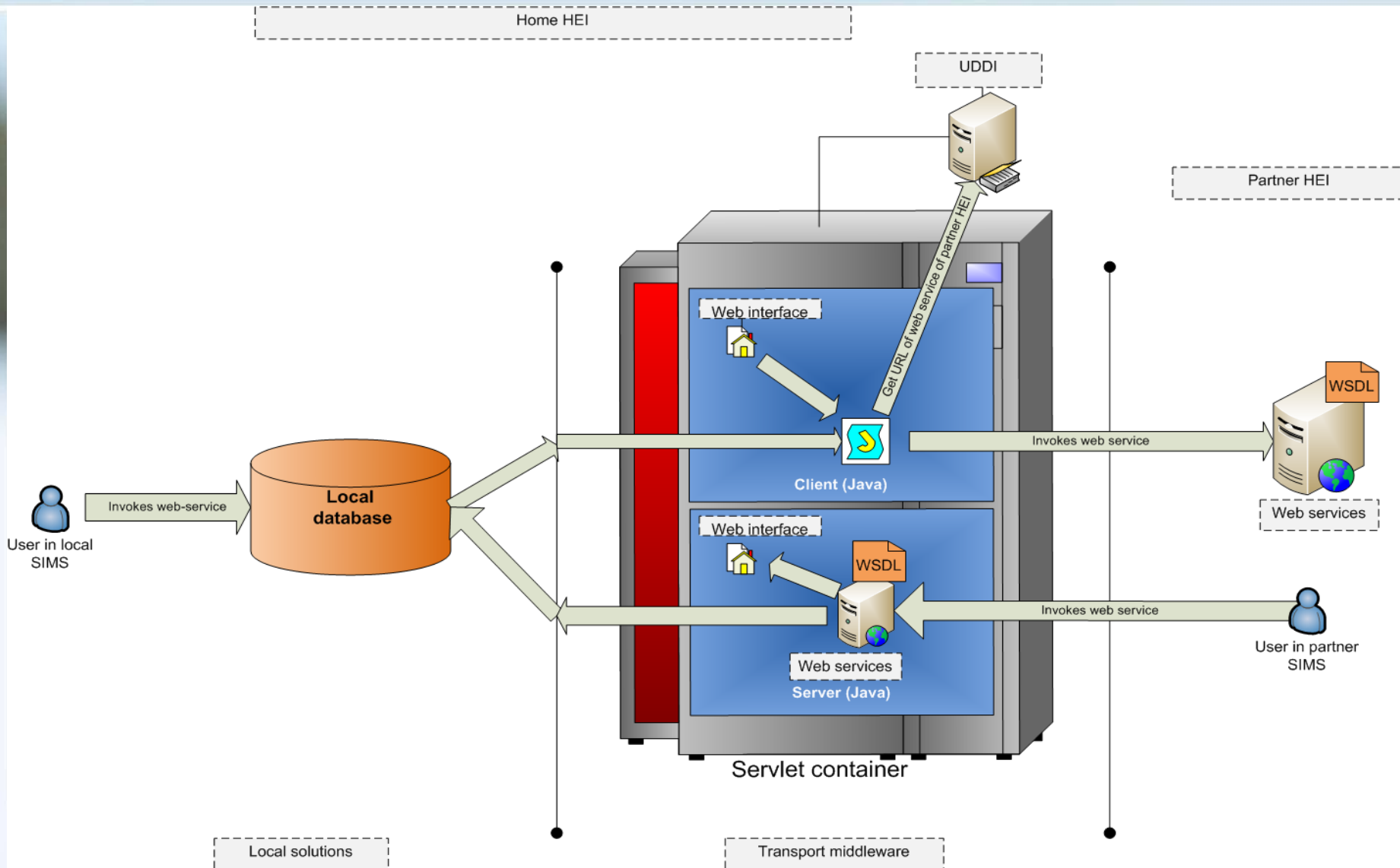
**getTranscriptOfRecords()**

**getCourseData()**

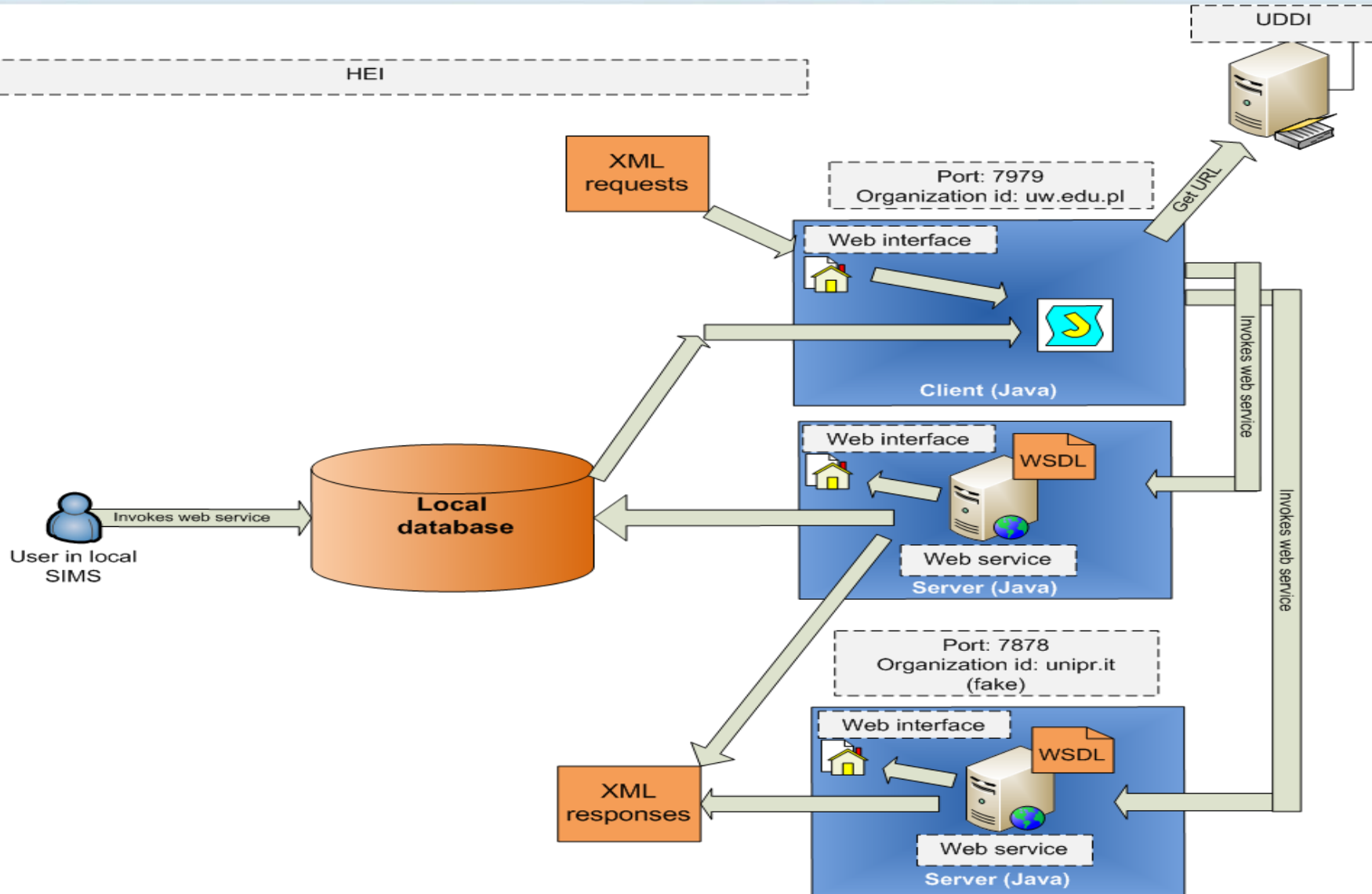
**validateNationalPersonalID()**



# Architecture of the prototype (ver. 2)



# Testbed for the project (ver. 2)



# UDDI – Universal Description, Discovery and Integration (registry of Mobility nodes)

**Mobility Client**

**Information**

- Introduction

**Web Service Methods**

- OrganizationData
  - sendOrganizationData
  - getOrganizationData
- AgreementData
  - sendAgreementData
  - getAgreementData
- NominatedStudents
  - sendNominatedStudents
  - getNominatedStudents
- ArrivalDate
  - sendArrivalDate
  - getArrivalDate
- DepartureDate
  - sendDepartureDate
  - getDepartureDate
- CourseData
  - getCourseData
- LearningAgreement
  - sendLearningAgreement
  - getLearningAgreement
- TranscriptOfRecords
  - sendTranscriptOfRecords
  - getTranscriptOfRecords
- Other
  - validateNationalPersonalId

**UDDI Registry**

- Edit**

**Help**

- WSDL

### UDDI Registry

	Id	Name	WSDL URL
	unipr.it	it:Universita degli Studi di Parma	http://usosphp:7878/mobility-server-transport/webservices/mobility-service?wsdl
	uw.edu.pl	pl:Uniwersytet Warszawski	http://usosphp:7979/mobility-server-transport/webservices/mobility-service?wsdl

### Details

**Id \***  246 left / 255

**Name \***

**Language**

**Localized Name**

**WSDL URL \***

**Contact Person Name**

**Phone Number**

**Service Name**

**Service Description**

\* - required

# Web client (client= WARSAW, server= PARMA)

http://usosphp.mimuw.edu.pl:7979/mobility-client-web/index.jsp

### Mobility Client

**Information**

- Introduction
- Web Service Methods
  - OrganizationData
    - sendOrganizationData
    - getOrganizationData
  - AgreementData
    - sendAgreementData
    - getAgreementData
  - NominatedStudents
    - sendNominatedStudents**
    - getNominatedStudents
  - ArrivalDate
    - sendArrivalDate
    - getArrivalDate
  - DepartureDate
    - sendDepartureDate
    - getDepartureDate
  - CourseData
    - getCourseData
  - LearningAgreement
    - sendLearningAgreement
    - getLearningAgreement
  - TranscriptOfRecords
    - sendTranscriptOfRecords
    - getTranscriptOfRecords
  - Other
    - validateNationalPersonalId
- UDDI Registry
  - Edit
- Help
  - WSDL

**Client**

Id:

Name: pl:Uniwersytet Warszawski

WSDL URL: http://usosphp:7979/mobility-server-transport/webservices/mobility-service?wsdl

**Server**

Id:

Name: it:Universita degli Studi di Parma

WSDL URL: http://usosphp:7878/mobility-server-transport/webservices/mobility-service?wsdl

**Request**

Resource: xml/client=uw.edu.pl

Path: /server=unipr.it

Sample Data File:   Upload a file

```
1 <?xml version="1.0" encoding="UTF-8"?><tns:sendNominatedStudentsRequest
2 xmlns:tns="http://mobility.usos.edu.pl" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3 xsi:schemaLocation="http://mobility.usos.edu.pl MobilitySchema.xsd">
4   <tns:agreementId>
5     <tns:homeId>
6       <tns:organizationId>uw.edu.pl</tns:organizationId>
7       <tns:value>982/E/II08</tns:value>
8     </tns:homeId>
9     <tns:partnerId>
10      <tns:organizationId>unipr.it</tns:organizationId>
11      <tns:value>1207/E/XI08</tns:value>
12    </tns:partnerId>
13  </tns:agreementId>
14  <tns:academicYear>2008</tns:academicYear>
15  <tns:nominatedStudentsWithPersonalData>
16    <tns:uniquePersonalData>
17      <tns:student>
18        <tns:nationalPersonalId>PL:85 </tns:nationalPersonalId>
19        <tns:givenName1>Michał</tns:givenName1>
20        <tns:givenName2>Marek</tns:givenName2>
21        <tns:surname1>Kurzydłowski</tns:surname1>
22        <tns:gender>1</tns:gender>
23        <tns:studentId>uw.edu.pl:8001</tns:studentId>
```

Data successfully sent.

Type	Line	Column	Report
------	------	--------	--------

**Response**

```
1 <?xml version="1.0" encoding="UTF-8"?><tns:sendArrivalDateResponse xmlns:tns="http://mobility.usos.edu.pl"
2 xsi:schemaLocation="http://mobility.usos.edu.pl MobilitySchema.xsd" xmlns:soap="http://schemas.xmlsoap.org
3 /soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
```

# Web server (server=PARMA)

http://usosphp.mimuw.edu.pl:7878/mobility-server-web/

Mobility Server

Navigation: [K] [←] [1] [2] [3] [4] [5] [6] [7] [8] [9] [0] [→] [X] Items: Page 15 Count 51 Id unipr.it

2009-11-13 14:28	getOrganizationDataRequest
2009-11-13 14:29	getOrganizationDataRequest
2009-11-13 14:31	getOrganizationDataRequest
2009-11-13 14:32	getOrganizationDataRequest
2009-11-13 17:04	sendAgreementDataRequest
2009-11-14 21:05	sendNominatedStudentsRequest

```
<tns:sendNominatedStudentsRequest xmlns:tns="http://mobility.usos.edu.pl" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://mobility.usos.edu.pl/MobilitySchema.xsd">
  <tns:agreementId>
    <tns:homeId>
      <tns:organizationId>uw.edu.pl</tns:organizationId>
      <tns:value>982/E/II08</tns:value>
    </tns:homeId>
    <tns:partnerId>
      <tns:organizationId>unipr.it</tns:organizationId>
      <tns:value>1207/E/XI08</tns:value>
    </tns:partnerId>
  </tns:agreementId>
  <tns:academicYear>2008</tns:academicYear>
  <tns:nominatedStudentsWithPersonalData>
    <tns:uniquePersonalData>
      <tns:student>
        <tns:nationalPersonalId>PL:85      </tns:nationalPersonalId>
      </tns:student>
    </tns:uniquePersonalData>
  </tns:nominatedStudentsWithPersonalData>
</tns:sendNominatedStudentsRequest>
```

# Web client (client= PARMA, server= WARSAW)

http://usosphp.mimuw.edu.pl:7979/mobility-client-web/index.jsp

### Mobility Client

**Information**

- Introduction
- Web Service Methods
  - OrganizationData
    - sendOrganizationData
    - getOrganizationData
  - AgreementData
    - sendAgreementData
    - getAgreementData
  - NominatedStudents
    - sendNominatedStudents
    - getNominatedStudents
  - ArrivalDate
    - sendArrivalDate
    - getArrivalDate
  - DepartureDate
    - sendDepartureDate
    - getDepartureDate
  - CourseData
    - getCourseData
  - LearningAgreement
    - sendLearningAgreement
    - getLearningAgreement
  - TranscriptOfRecords
    - sendTranscriptOfRecords
    - getTranscriptOfRecords
  - Other
    - validateNationalPersonnelId
- UDDI Registry
  - Edit
- Help
  - WSDL

**Client**

Id: unipr.it  
Name: it:Universita degli Studi di Parma  
WSDL URL: http://usosphp.7878/mobility-server-transport/webservices/mobility-service?wsdl

**Server**

Id: uw.edu.pl  
Name: pl:Uniwersytet Warszawski  
WSDL URL: http://usosphp.7979/mobility-server-transport/webservices/mobility-service?wsdl

**Request**

Resource: xml/client=unipr.it  
Path: /server=uw.edu.pl  
Sample Data File: sendOrganizationDataRequest.xml  
Upload a file:

```
1 <?xml version="1.0" encoding="UTF-8"?><tns:sendOrganizationDataRequest
2 xmlns:tns="http://mobility.usos.edu.pl" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3 xsi:schemaLocation="http://mobility.usos.edu.pl MobilitySchema.xsd">
4   <tns:organizationDataWithPersonalData>
5     <tns:uniquePersonalData>
6       <tns:employee>
7         <tns:nationalPersonalId>IT:CRDTZN </tns:nationalPersonalId>
8         <tns:givenName1>Tiziana</tns:givenName1>
9         <tns:surname1>Cord </tns:surname1>
10        <tns:gender>2</tns:gender>
11        <tns:employeeId>unipr.it:2323</tns:employeeId>
12      </tns:employee>
13      <tns:employee>
14        <tns:nationalPersonalId>IT:CCR5L </tns:nationalPersonalId>
15        <tns:givenName1>Silvia</tns:givenName1>
16        <tns:surname1>Iacc </tns:surname1>
17        <tns:gender>2</tns:gender>
18        <tns:employeeId>unipr.it:2424</tns:employeeId>
19        <tns:title>Prof.</tns:title>
20        <tns:personalPosition>Rector delegate international student mobility</tns:personalPosition>
21        <tns:phone>+390521905359</tns:phone>
22        <tns:fax>+390521905305</tns:fax>
23        <tns:email>silvia.iacc @unipr.it</tns:email>
```

Data successfully sent.

Type	Line	Column	Report
------	------	--------	--------

**Response**

```
1 <?xml version="1.0" encoding="UTF-8"?><tns:sendArrivalDateResponse xmlns:tns="http://mobility.usos.edu.pl"
2 xsi:schemaLocation="http://mobility.usos.edu.pl MobilitySchema.xsd" xmlns:soap="http://schemas.xmlsoap.org
3 /soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
```

# Web server (server=WARSAW)

http://usosphp.mimuw.edu.pl:7979/mobility-server-web/

## Mobility Server

K << < 1 2 3 > >> > Items Page 10 Count 22 Id uw.edu.pl

2009-11-13 19:33 sendOrganizationDataRequest

2009-11-14 22:39 sendOrganizationDataRequest

```
<tns:sendOrganizationDataRequest xmlns:tns="http://mobility.usos.edu.pl" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://mobility.usos.edu.pl MobilitySchema.xsd">
  <tns:organizationDataWithPersonalData>
    <tns:uniquePersonalData>
      <tns:employee>
        <tns:nationalPersonalId>IT:CRDTZN </tns:nationalPersonalId>
        <tns:givenName1>Tiziana</tns:givenName1>
        <tns:surname1>Cord </tns:surname1>
        <tns:gender>2</tns:gender>
        <tns:employeeId>unipr.it:2323</tns:employeeId>
      </tns:employee>
      <tns:employee>
        <tns:nationalPersonalId>IT:CCRSL </tns:nationalPersonalId>
        <tns:givenName1>Silvia</tns:givenName1>
        <tns:surname1>Iacc </tns:surname1>
        <tns:gender>2</tns:gender>
        <tns:employeeId>unipr.it:2424</tns:employeeId>
      </tns:employee>
    </tns:uniquePersonalData>
  </tns:organizationDataWithPersonalData>
</tns:sendOrganizationDataRequest>
```



# Integration with USOS (Oracle database, Oracle forms)

## 1. Web service called by the local user

- send() – gather context data, create **XML message**, enqueue it into **Advanced Message Queue** for outgoing messages, read the answer from Advanced Message Queue for incoming messages
- get() – create XML message, enqueue it into the Advanced Message Queue for outgoing messages, read the answer from Advanced Message Queue for incoming messages, display it in user interface

## 2. Web service called by the remote user

- send() – store incoming messages in **XML buffer** inside Oracle database, use database **views** for selecting messages corresponding to specific methods, display them on demand in user interface
- get() – invoke a **procedure** from Oracle **package**, which selects data from the database and sends to the caller

# IRO – result of the remote invocation of sendOrganizationData()

The screenshot displays the USOS [Umowy] application interface. At the top, there is a menu bar with options like 'Akcja', 'Edycja', 'Zapytanie', 'Blok', 'Rekord', 'Pole', 'Okno', and 'Pomoc'. Below the menu, there are tabs for 'Programy', 'Projekty', 'Projekty - budżety', 'Umowy', and 'Warunki współpracy'. The main window shows a table of contracts with columns for 'Rodzaj', 'Numer', 'Data podpis', 'Data rozpocz', 'Data ważności', and 'Status'. Below this, a window titled 'Projekt MOBILITY' is open, displaying a message: 'W formularzu są dostępne dane przesłane z uczelni partnerskich przez usługę sieciową sendOrganizationData. W obecnie dostępnej wersji dane można tylko przeglądać i usuwać.' The window contains a table of partner universities, a form for entering university details (URL, Country, Postal Code, City, Street, Home Number), and sections for administrative and institutional coordinators with their respective contact information and identification documents.

(*) Rodzaj	(*) Numer	(*) Data podpis	(*) Data rozpocz	Data ważności	(*) Status
Indywidualna	IN/2/06	08.12.2006	01.07.2007	30.09.2008	podpisana
Bilateralna	475/E/XI06	08.12.2006	01.07.2007	30.09.2008	podpisana

Kod uczelni	Nazwa uczelni	Czas utworzenia wpisu
unipr.it	University of Parma	14.11.2009 22.39.01
unipr.it	University of Parma	13.11.2009 19.33.02
unipr.it	University of Parma	13.11.2009 14.11.56
unipr.it	University of Parma	13.11.2009 13.46.13

URL uczelni:

Kraj:  Kod pocztowy:  Miasto:

Ulica:  Numer domu:

**Koordinator administracyjny**

Tytuł	Nazwisko	Imię	Stanowisko
	Cordana	Tiziana	

Telefon:  Fax:  e-mail:

Dokument tożsamości:

**Koordinator instytucji**

Tytuł	Nazwisko	Imię	Stanowisko
Prof.	Iaccarino	Silvia	Rector delegate international student mobility

Telefon:  Fax:  e-mail:

Dokument tożsamości:

# Questions and problems

- Mobility project has specific objectives and specific needs concerning exchanged data – how to integrate its WSDL with other standards
- Software for mobility nodes distributed as open-source
- Software for local system developed by local vendors, consortia, ...
- UDDI – one or many, who should administer?
- Authorisation and authentication in global scale (federated IDM or bilateral authorisation agreements)
- Security and privacy of data – legal aspects
- Next steps ...

# Links and readings

- Project home page

<http://usos.edu.pl/Mobility>

- Web client

<http://usosphp.mimuw.edu.pl:7979/mobility-client-web/>

- Web server

<http://usosphp.mimuw.edu.pl:7979/mobility-server-web/>

- Rafał Nagrodzki, *The Mobility Project*, Master Thesis in Computer Science, University of Warsaw