Deceiving Simplicity

Balancing the need for ready-to-use research information

with

the semantic and technical complexity of research data

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Research Coordination Office & ICTS, KU Leuven

- KU Leuven
- A short history of data management at KU Leuven
  – with a special role for research data
- The rise of KU Loket
- The need for a CRIS
- The building of a CRIS
- The birth of a CRIS – Research Stats@KU Leuven
- Its subsequent adventures

- KU Leuven
  - Flanders, Belgium
  - founded 1425
  - research intensive university & LERU member
  - > 40.000 students; > 4.500 PhD students; > 1.000 postdocs; > 1,000 professors
  - > 365 billion € research expenditure
  - 625 PhDs
  - 98 spin-offs
  - http://www.kuleuven.be/english

data for 2012-2013

- KU Leuven

  a myriad of data generated in many places
  in many formats
  from micro-scale (individual researcher)
  to macro-level (the university)

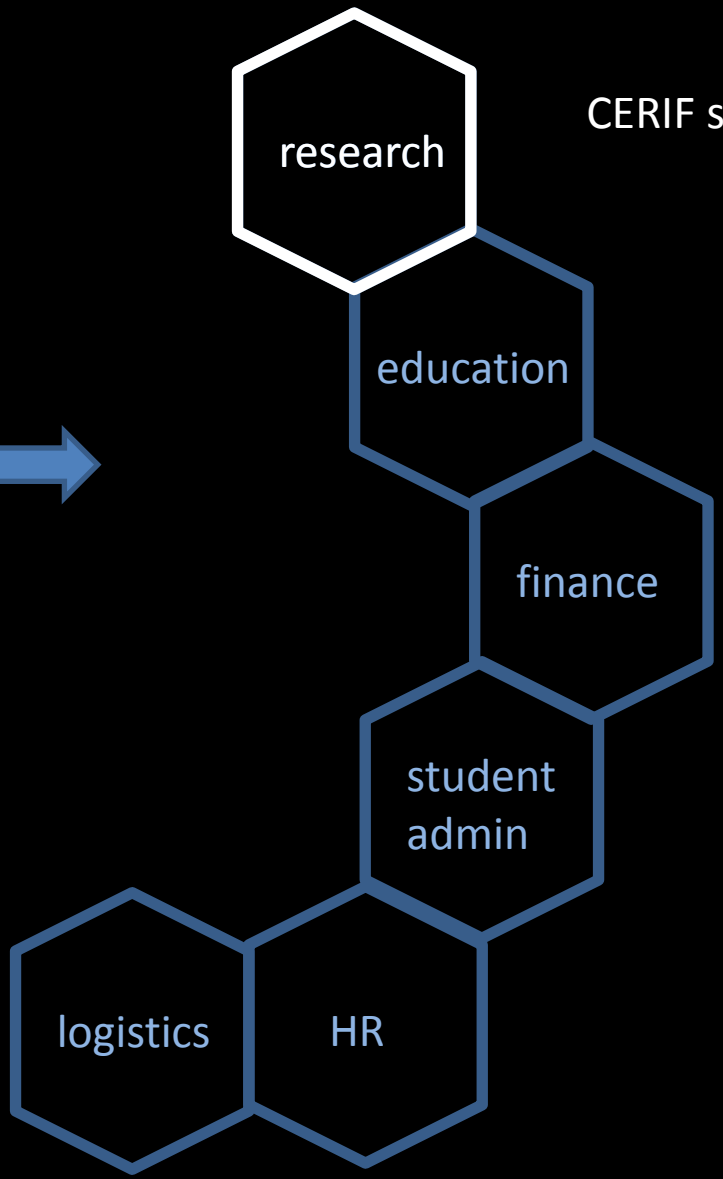
- KU Leuven
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One integrated structure – SAP

1999-2003

Orginally several mainframes





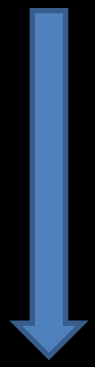
CERIF structure

projects

persons

org unit

SAP SAP-experts



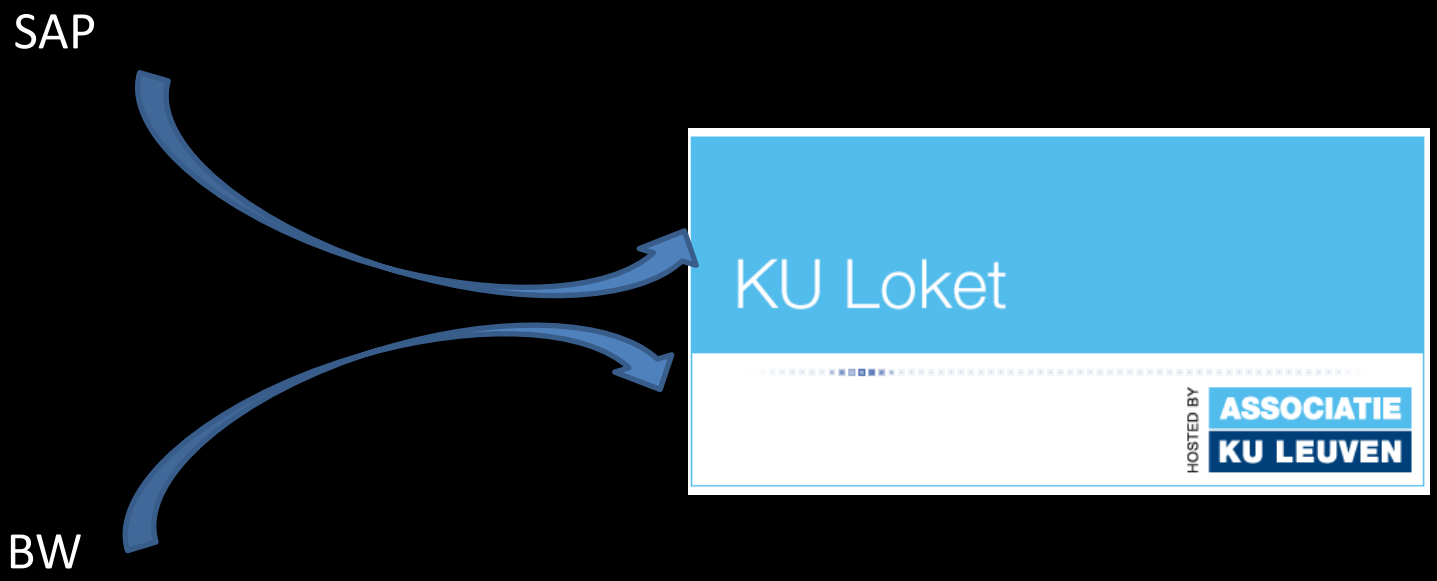
BW – ‘cubes’ domain-experts

relevant queries for analysis & reporting
using SAP-data
BexAnalyzer

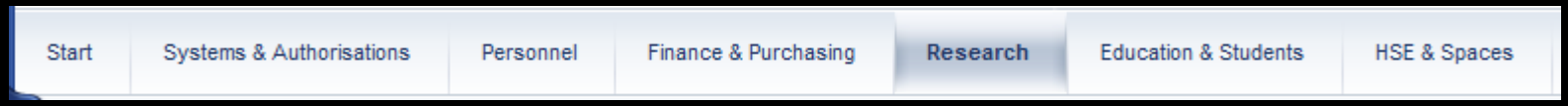
Average user has no access to data

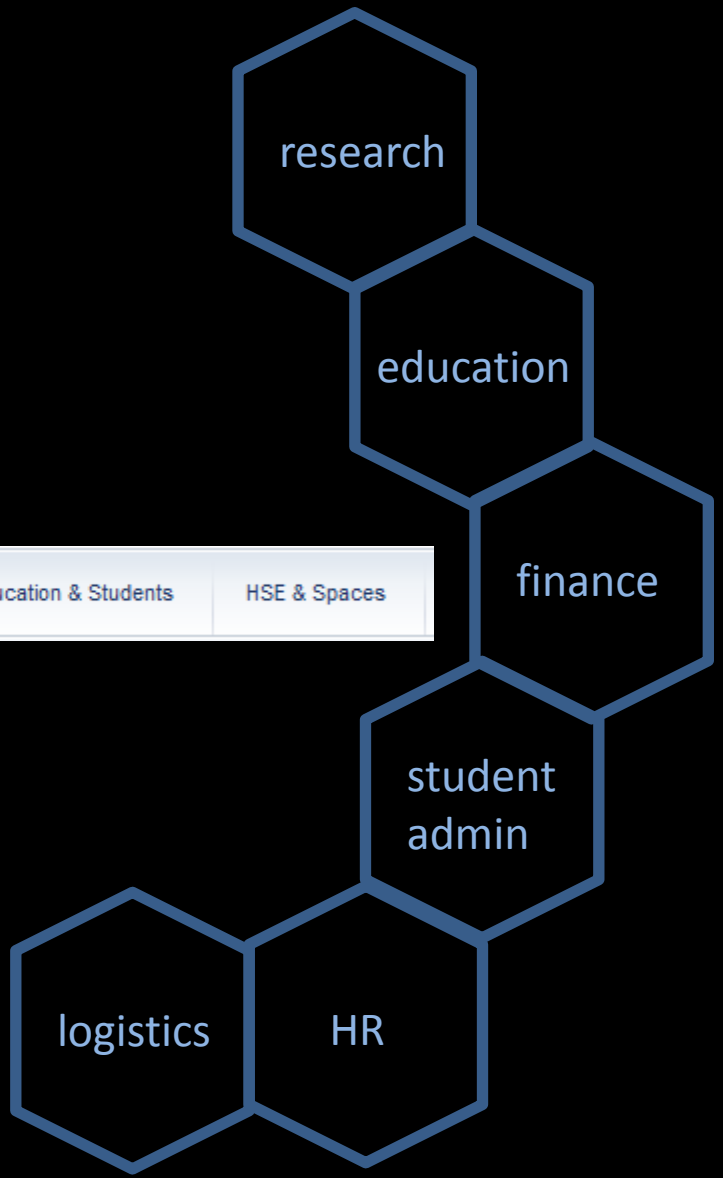
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KU Leuven individual data portal: KU Loket









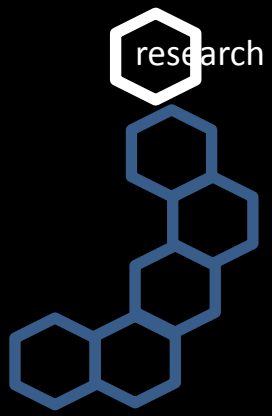
personalized access for KU Leuven staff

depending on authorization rights, different applications within each domain are accessible

limited ‘self-service’ facilities

all information linked to researcher on basis of unique & persistent staff ID

KU Loket - Research related information



IR since 2006
DSpace

Info type	Staff	PhD Projects	Research Projects	Funding	Publications & Citations	Patents
Domain	HR	Student Administration & Research	Research	Research (internal funds) or Financial (external funds)	Research	Research
Managed by	Centrally by HR	Locally by faculties	Centrally by Research Coordination Office	Centrally by Financial Services	Individual Researchers	Centrally by Technology Transfer Office
Visible to	Heads of all units	Supervisors PhD students	Supervisors	Supervisors	All staff with publications	Inventor

Who's who at KU Leuven



Unit

- Animal Physiology and Neurobiology Section

Belongs to (according to the corporate view):

- Department of Biology

Functions

- full professor Faculty of Science
- head of the Animal Physiology and Neurobiology Section
- vice rector of Research Policy

⊞ **council memberships**

Curriculum Vitae

- Research topics
- Research projects
- Research expertise
- Teaching

SAP

- Publications

IR

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- The need for a CRIS

The need for a CRIS

- End of support for BExAnalyzer
  - building queries in BW on SAP data
  - pilot project in BO
- Research assessment by external peers
  - per department
  - = need for aggregated data

A CRIS as policy tool

- support for development of bottom-up research policy of departments

- monitoring research trends

- by way of relevant quantitivate indicators

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Which KPIs?

- Quick consensus on starter pack, data for the last 5 years, for all organisational units
  - staff
  - PhDs
  - research projects
  - funding
  - publications & citations

- staff
  - FTE
  - categorisation
    - professors (Assistant, Associated, Professors, Full Professors)
    - research managers and experts
    - postdoctoral researchers
    - PhD students
    - other scientific collaborators
    - administrative and technical staff
- PhDs
  - finished
  - in progress
- research projects
  - internally fincanced
  - externally financed (regional, federal, international)
- funding
  - as expenditure, per funding source
- publications & citations
  - Web of Science & JCR
  - Flemish Academic Bibliographic Database
  - KU Leuven own categorisation

Key issues

- Key Performance Indicators (KPIs) considered relevant by stakeholders
- validated by the office generating the data
- uniformly calculated for all research units
- uniformly presented for all research units
- updated regularly
- accessible by authorization only
- presented in one platform
- ready to use: clear presentation, intuitive interface, exportable reports

Validation

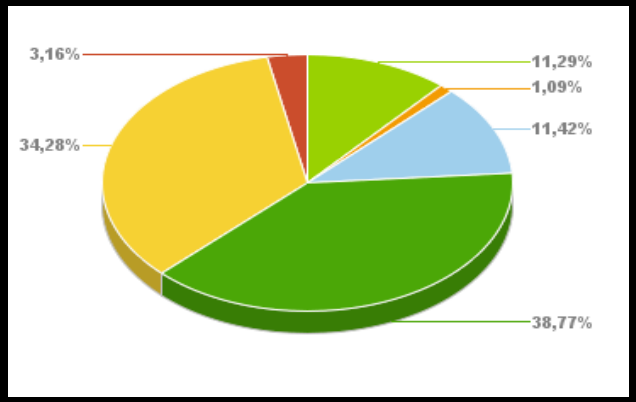
- staff ← HR department
- PhDs ← doctoral schools
- research projects ← Research Coordination Office
- funding ← finance department
- publications & citations ← submitters to the repository

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ICT-tasks

- That was the relatively easy part…
  - stakeholders knew what they wanted
  - RCO knew what it needed
  - and now for the data in SAP & the repository

the need for ready-to-use research information



the semantic & technical complexity of research data



Wish meets
semantics

"Quick consensus on starter pack, data for the last 5 years, for all organisational units"

define "organisational units"

how far down in the organisational chart?

research assessment per department

but more granularity was expected

Wish meets
semantics

"Quick consensus on starter pack, data for the last 5 years, for all organisational units"

define data per organisational unit

Wish meets *semantics*

The problem of data allocation to an organisational unit

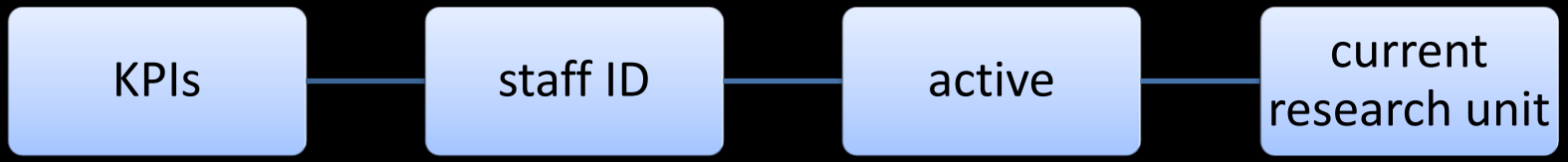
That’s easy: each staff ID is linked to a unit!

Well… it isn’t always

Wish meets *semantics*

The problem of data allocation to an organisational unit

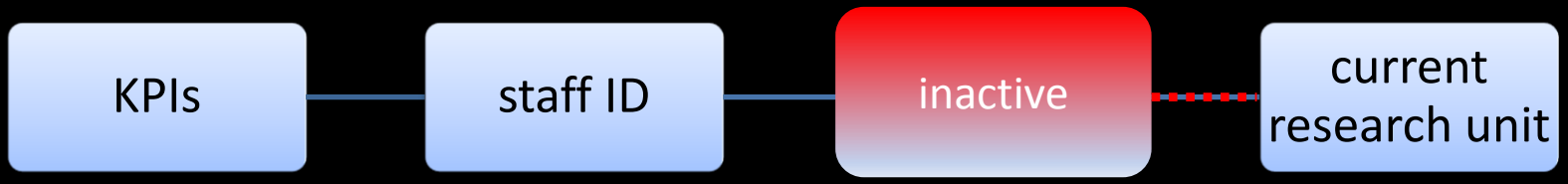
The ideal situation



Wish meets *semantics*

The problem of data allocation to an organisational unit

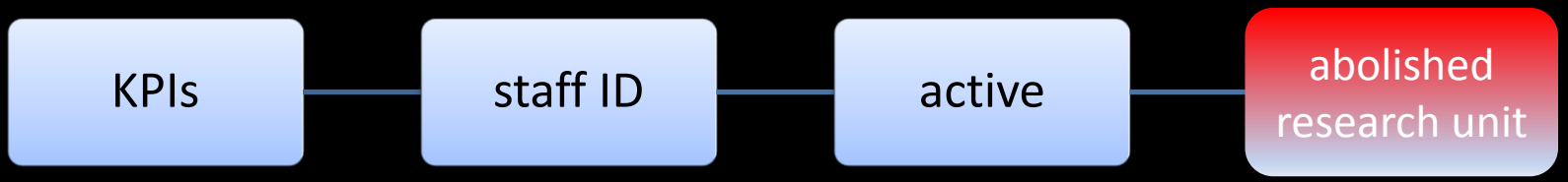
The first trouble



Wish meets *semantics*

The problem of data allocation to an organisational unit

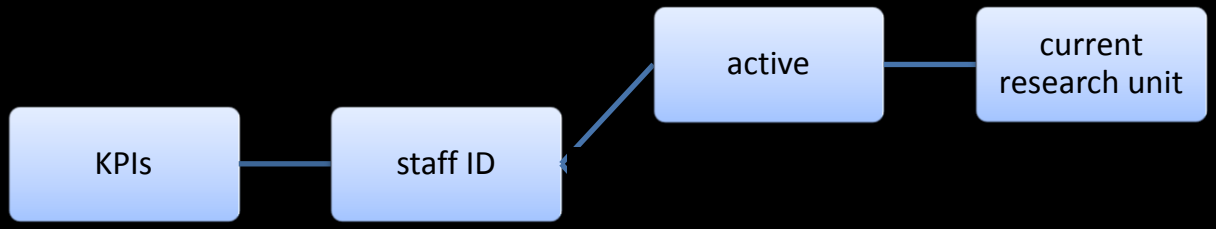
The second trouble



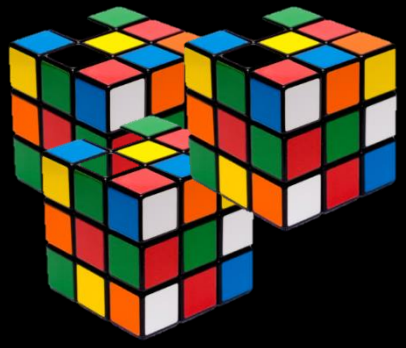
Wish meets *semantics*

The problem of data allocation to an organisational unit

The solution

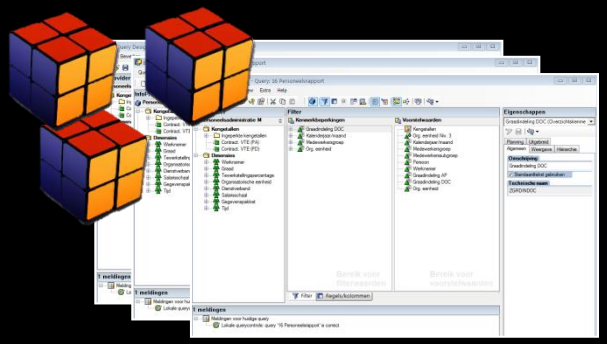


BW InfoProviders



- Personnel Administration
- Research Projects
- Doctoral Projects
- Publications & Citations
- Research Funding

BEX Queries



- BEX-queries
- 1 query for several reports

	Staff	PhD Projects	Research Projects	Funding	Publications & Citations
KPIs (reports)	professors, postdocs, PhD students & research collaborators, admin. & techn. staff	nr. of finished PhDs & nr. of current PhD projects	* nr. of intern. & extern. financed projects * nr. of extern. financed bursaries	intern. & extern. acquired funding	* papers in journals & proceedings * books & book chapters * citations * Impact factors (IF) * top journal publications
Calculation	FTE	nr of projects	nr of projects or bursaries	expenses on research grants	*nr. of publications *nr. of citations * IF: sum, max. & avg. IF in publication year & recent IF *nr. of papers in top journal (as defined by the Flemish Centre for Research & Development Monitoring)
Release dataset	monthly	annually (January)	annually * January * May	annually (May)	annually (January)
Update	weekly	weekly	* annually * weekly	weekly	weekly

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Authorised access only

- authorised users only
  - heads of department
  - rector
  - …
- for authorised levels only
  - the own department only
  - the whole university
  - …

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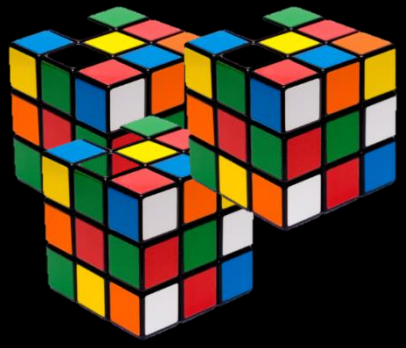
CRIS for KU Leuven researchers

Research Stats @KU Leuven



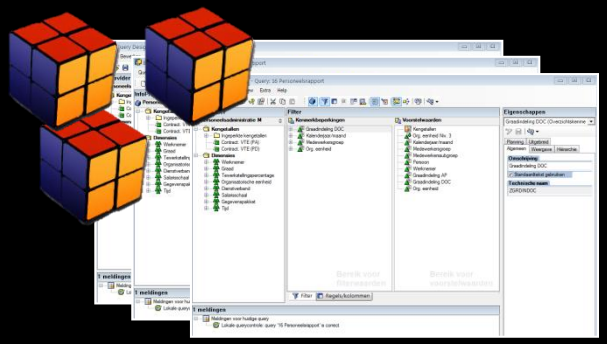
From data to CRIS

BW InfoProviders



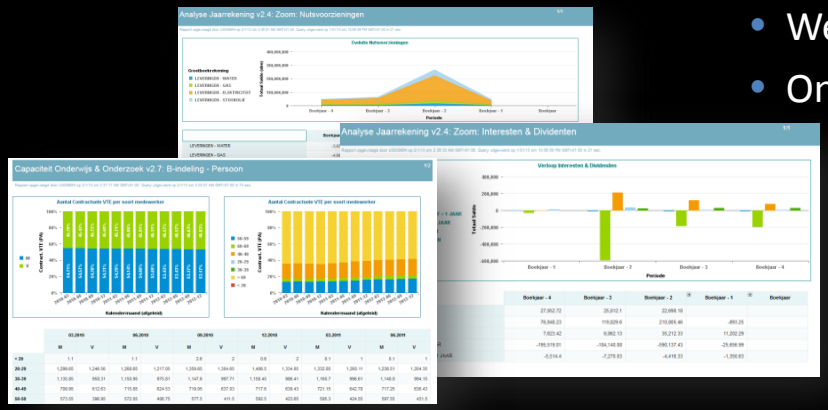
- Personnel Administration
- Research Projects
- Doctoral Projects
- Publications & Citations
- Research Funding

BEX Queries



- BEX-queries
- 1 query for several reports
- With variables processed by authorizations

BO reports

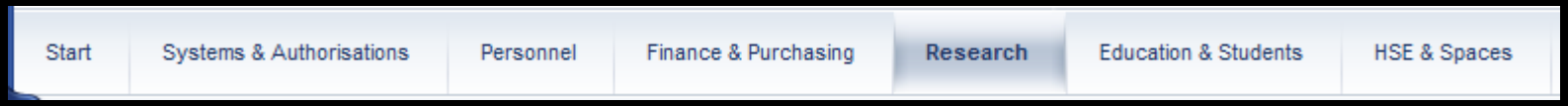


- WebI-documents
- One HTML-overview page

Research Statistics @ KU Leuven

- Web-based tool (WebI)
- integrated in existing portal KU Loket
  - visible only to authorised users







Research funding

Research files
Financial reporting on research



Time registration

Time registration
Approval of time registration
Reporting on time registration
Delegation Time registration
Delegation Responsible time registration



Applications for funding

Applications for funding
Display filed applications
Selection of referees
Adding referees
Contacting referees
Assessment of applications
Referee reports
Selection of referee reports
Results for referee reports
Change application phase



Research inventory

Research inventory
Research inventory management
External research collaborations
Internal research collaborations
Delegation Research inventory
Delegation Internal research collaborations



PhDs

My PhD
PhD projects



Lirias & CV

Publications Lirias
CV
Delegation CV
Delegation Publications Lirias



Technology transfer

Patents
File management



Reporting

Acquired research funding
Onderzoeksstatistieken
Delegation Research statistics

KU Loket

HOSTED BY ASSOCIATIE KU LEUVEN

Staff

Overzicht contractuele VTE per personeelscategorie

Projects & Scholarships

Overzicht toegekende projecten en mandaten
Overzicht lopende externe mandaten

PhDs

Overzicht lopende en afgelegde doctoraten

Publications & Citations

Overzicht boek-publicaties
Overzicht tijdschriftartikels en congresbijdragen
Overzicht citaties
Overzicht publicaties in top IT-tijdschriften
Overzicht impactfactoren

Expenditures

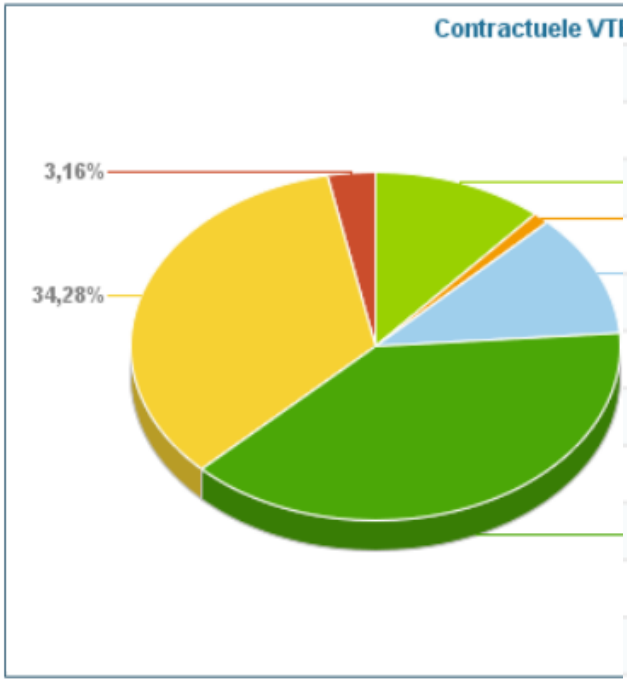
Overzicht onderzoeksuitgaven

Staff as Full Time Equivalent (end of May 2014)

1/1

Research Unit	Total
Organisatiestructuur	
organisatiestruct. Associatie KU Leuven	
Rechtspersoon KU Leuven	
KU Leuven - Universiteit	
KU Leuven Research & Development	
Interne Audit	
Niet toeg. Org. eenheid(n/e)	

Contractuele VTI

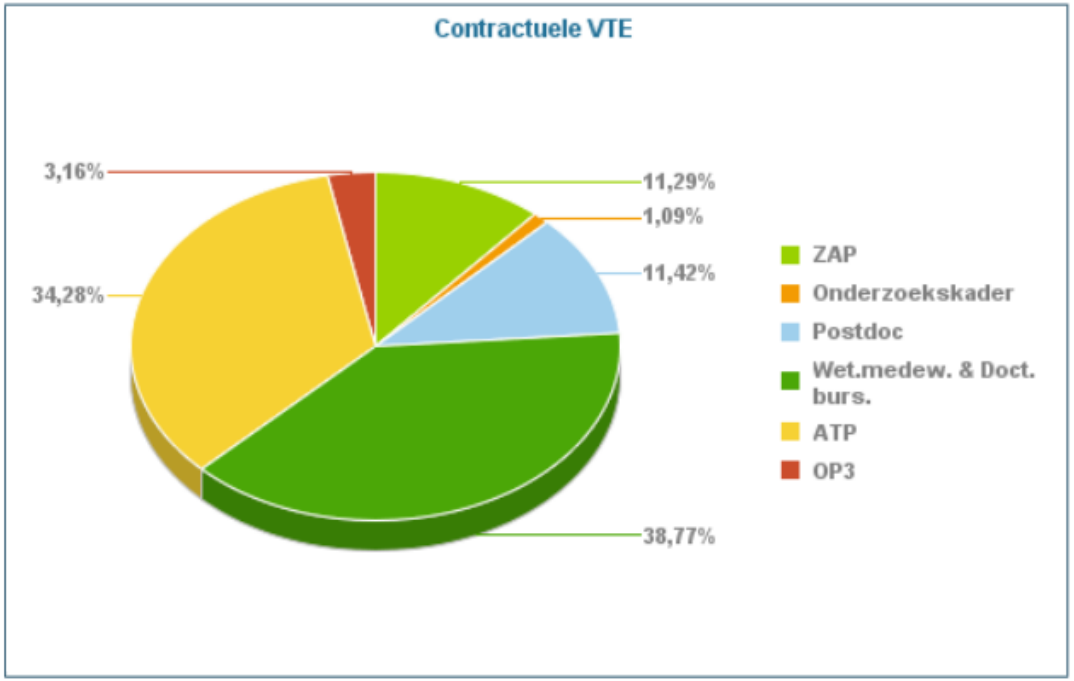


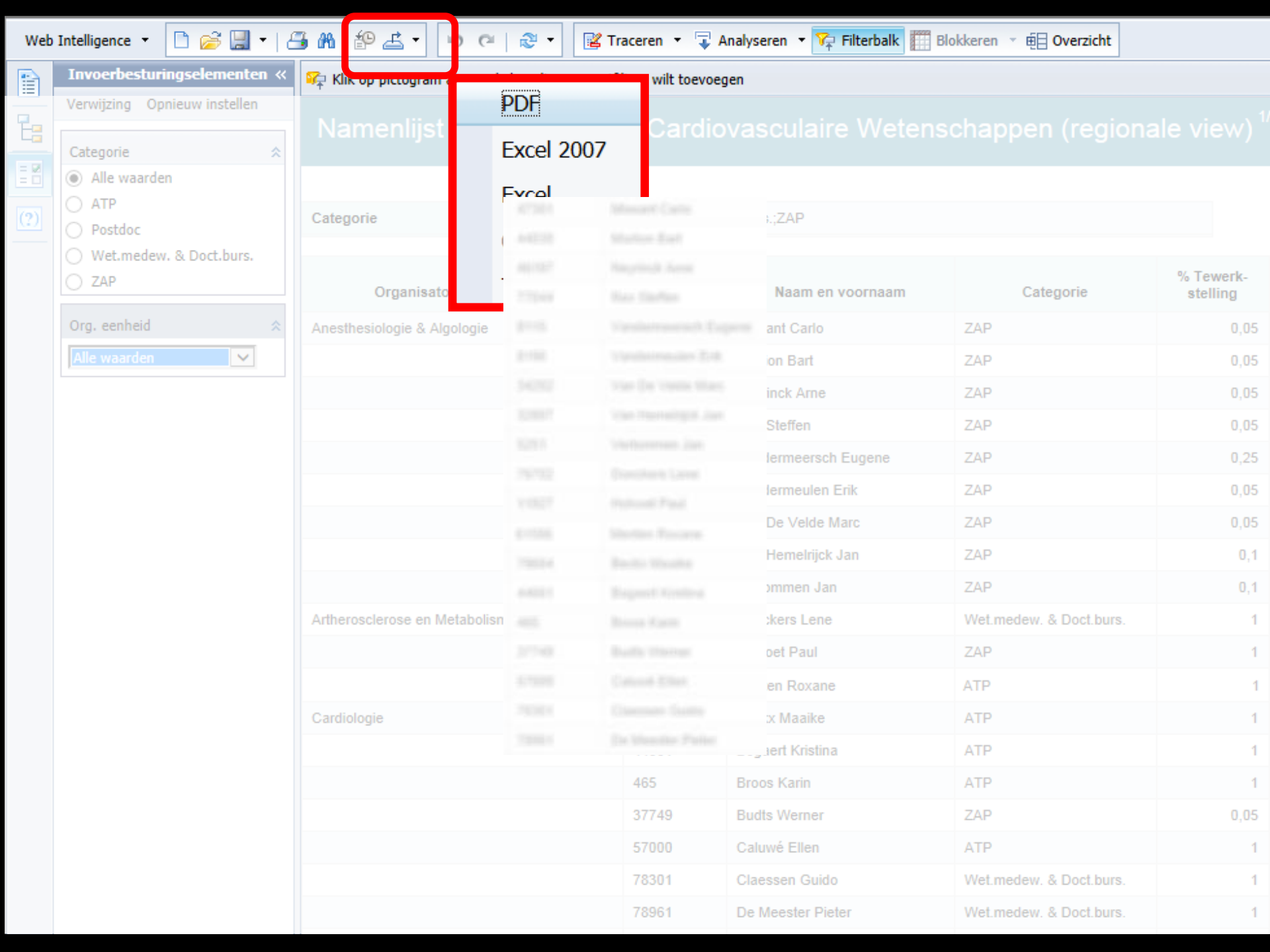
- Rechtspersoon KU Leuven
  - KU Leuven - Universiteit
    - Rectoraat
    - Groep Humane Wetenschapp
    - Groep Wetenschap & Techno
    - Groep Biomedische Wetensc
      - Groepsbeheer Biomedisch
      - Faculteit Geneeskunde
      - Faculteit Farmaceutische W
      - FaBeR
      - Departement Beeldvorming
      - Dep. Cardiovasculaire Wet
      - Dep. Cellulaire en Molecul
      - D. Farmaceutische & Farm
      - Dep. Klinische en Experim
      - Dept. Maatsch. Gezondhei
      - Departement Menselijke E
      - Dep. Microbiologie en Imm
      - Dep. Mondgezondheidswe
      - Departement Neurowetens
      - Departement Oncologie
      - Departement Ontwikkeling
      - Departement Revalidatiew

- Groep Biomedische Wetenschappen
  - Groepsbeheer Biomedische Wetenschappen
  - Faculteit Geneeskunde
  - Faculteit Farmaceutische Wetenschappen
  - FaBeR
  - Departement Beeldvorming & Pathologie
  - Departement Bewegingswetenschappen
  - Dep. Cardiovasculaire Wetenschappen
    - Dep. Cardiovasculaire Wetenschappen
    - Anesthesiologie & Algologie
    - Cardiologie
    - Klinische Cardiale Heelkunde
    - Hypertensie & Cardiovasc. Epidemiologie
    - Vaatheelkunde
    - Experimentele Cardiologie
    - Cardiovasculaire Beeldvorming & Dynamica
    - Experimentele Cardiale Heelkunde
    - Artherosclerose en Metabolisme
    - Cardiovasculaire Onwikkelingsfysiologie
    - Moleculaire en Vasculaire Biologie

Staff as Full Time Equivalent (end of May 2014)

Research Unit	Total	prof	prof	Research experts	post doc	PhD & scient. collab	ATP
Organisatiestructuur							
organisatiestruct. Associatie KU Leuven							
Rechtspersoon KU Leuven							
KU Leuven - Universiteit							
KU Leuven Research & Development							
Interne Audit							
Niet toeg. Org. eenheid(n/e)							




Web Intelligence
Traceren
Analyseren
Filterbalk
Blokkeren
Overzicht
Invoerbesturingselementen
Verwijzing
Opnieuw instellen
Categorie
Alle waarden
ATP
Postdoc
Wet.medew. & Doct.burs.
ZAP
Org. eenheid
Alle waarden
PDF
Excel 2007
Excel
Namenlijst
Cardiovasculaire Wetenschappen (regionale view)
Categorie
Organisato
Naam en voornaam
Categorie
% Tewerk-stelling
Anesthesiologie & Algologie
ZAP
0,05
ZAP
0,05
ZAP
0,05
ZAP
0,05
ZAP
0,25
ZAP
0,05
ZAP
0,05
ZAP
0,1
ZAP
0,1
Artherosclerose en Metabolisn
Wet.medew. & Doct.burs.
1
ZAP
1
ATP
1
Cardiologie
ATP
1
ATP
1
465
Broos Karin
ATP
1
37749
Budts Werner
ZAP
0,05
57000
Caluwé Ellen
ATP
1
78301
Claessen Guido
Wet.medew. & Doct.burs.
1
78961
De Meester Pieter
Wet.medew. & Doct.burs.
1

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July 2013

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The story continues

- extension time window to 10 year for citation data – April 2013
- integration of academic university colleges in KU Leuven – Oct-Dec 2013
- analogous tool for Technology Transfer Office, to manage licenses & patents and spin-offs – 2015
  - future integration with current CRIS
- internal monitoring & policy support tool
  - no integration with external CRIS planned
  - but participation in regional Flemish initiative

