



**Learning Record Store -a potential  
Apereo project?**

**Why an Apereo Analytics Initiative  
is needed**



# Today's Session

- Who am I?
- Why we should Look to collaborate together
- What is an **L**earning **R**ecord **S**tore (LRS)?
- A university wide initiative: UvAInform
- Campus Wide deployment example
- Questions
- Extra's
  - COACH
  - Center for Job Knowledge Research

First things first

I was very impressed by the quality of the translation service yesterday.

Please give a warm round of applause for the translators.

# Who I am

- Member of the PMC for Sakai CLE
- Qualified teacher, but also a technologist
- Sakai fellow, TWSIA award, was QA director.
- Enjoy writing: written or co-authored three books.

- **Innovation WG** at ICT services (UvA/HvA)
  - Interests: Getting stuff done. (Learning) Analytics
- Core Member of SURF SIG LA
- Member of the University Wide Focus Group LA
- CTO Center for Job Market Research
  - EDUworks → PhD Learning Analytics

**Community Officer – Apereo Analytics Initiative**

## Are you looking to collaborate with other Universities?

- We are not Unique, being pulled into the drift of the LA trend
- Aperero has a proven track record
- Share risks and requirements
- Avoid duplication
- Build industrial software
- Share costs
- More eyeballs more security
- Consistent guidelines for Ethics and Security practices
- Scale up validation** (it isn't all about visualizations)
- More (NO DOUBT)

The following is an advertisement for the expert panel

The Apereo Foundation is pleased to announce the **Apereo Learning analytics initiative**. The aims of the initiative are to accelerate the operationalization of Learning Analytics software and frameworks, support the validation of analytics pilots across institutions, and working together so as to avoid duplication.

The initiative is supported by Marist College a founding partner of the Society of Learning Analytics Research (SoLAR), and the Focus Group Learning Analytics at the University of Amsterdam.

Within the Apereo community Marist College has released the Open Academic Analytics initiative (OAAI), a proven open-source academic early alert system:  
<https://confluence.sakaiproject.org/x/8aWCB>

The University of Amsterdam has sponsored a protocol update for Sakai CLE and Apereo OAE's which enables the applications to store student activity in a secure repository called a Learning Record Store:

<https://confluence.sakaiproject.org/display/TINCAN/Home>.

This feature simplifies cross validation of Learning Analytics projects.

The University of Amsterdam is also planning to build a community sourced Learning Record Store that should be seen as an integral part of a maturing OAAI framework.

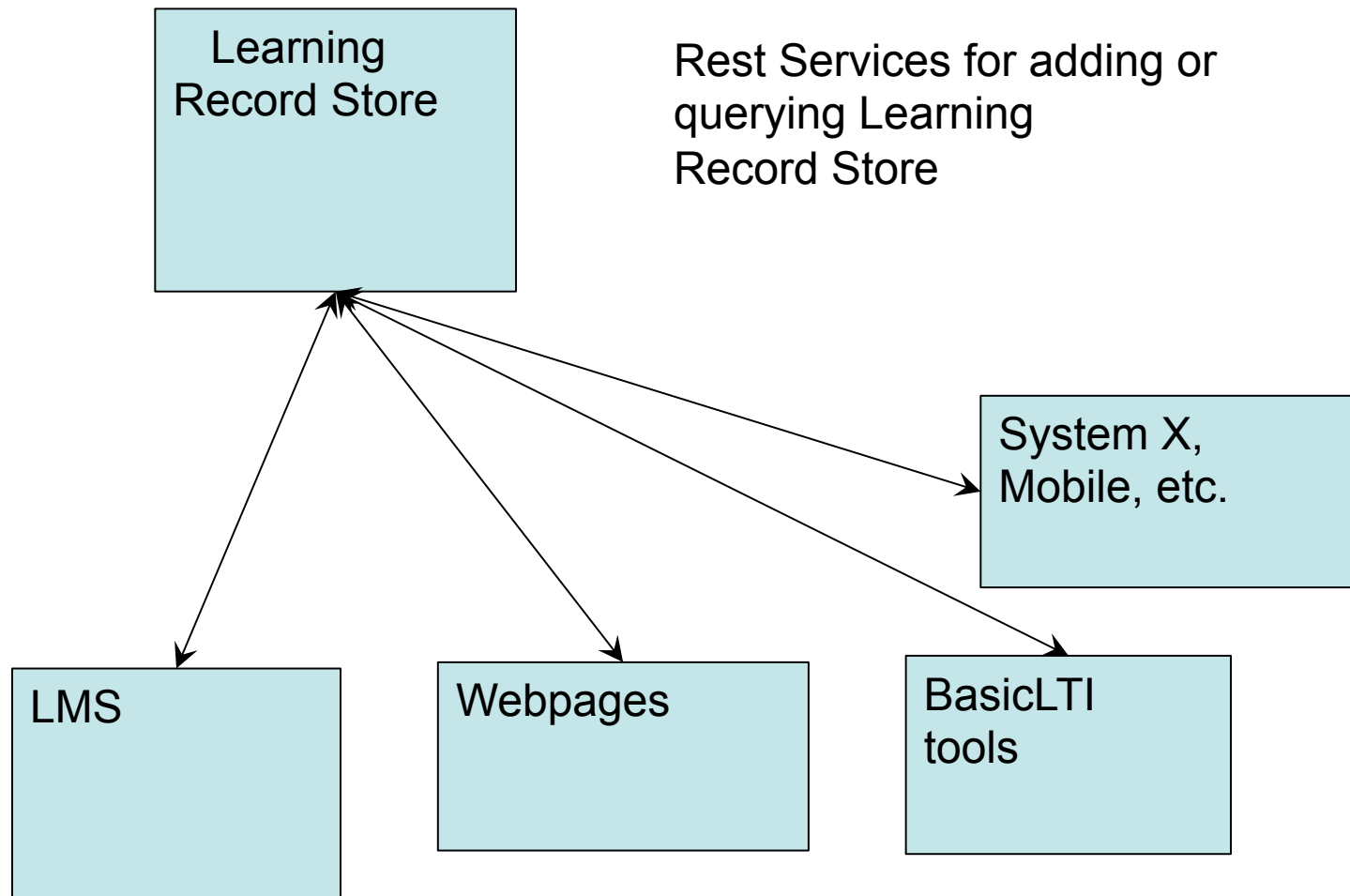
If you are interested in working towards a community sourced analytics infrastructure, incubating software, sharing requirements, cross validating analytics pilots, \*  
while working in a wider community of interest then please contact:

Hold that thought until the expert panel

Now back to the Learning Record Store Presentation



# What is a Learning Record Store?



# What are the problems this solve?

- Standard machine readable format
  - Avoids the need for data cleaning
  - Eases cross project validation (if you agree ontology)
- Standards allow interchangeability of components
- Market adoption increases the number of out of the box connections possible
- Connect to a fuller set of online services
- Allows working with different organizations to cross validate

# What is a Learning Record Store?

- Secure Repository
- Standards based
- TinCan API → Xapi
- Rest services for storing and Querying
- JSON
- Machine Readable format
- Simple security: Basic Authentication, OAUTH

Introduction → <http://tincanapi.com/learning-record-store/>

# Simple Machine readable statements

## **.NOUN - VERB - OBJECT**

**.<Actor (learner)> <verb> <object>, with <result>, in <context>**

.I uploaded Video FunnyCat on YouTube

.David Watched this Youtube Video

.I borrowed Book Jenkins from the library

*! Need to agree what the words mean.*

*A common ontology between analytics projects.*

Artificial examples:

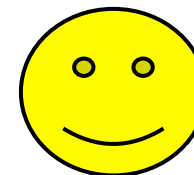
injects, commits, execute

Best practices:

<http://blog.saltbox.com/blog/2012/11/28/making-statements-tin-can-api-best-practices/>

# ACTIVITY SOURCES

*UvA have already invested in Sakai CLE and Apereo OAE TinCAN API support:* <https://confluence.sakaiproject.org/display/TINCAN/Home>



**MOOC like Example:** Adding Youtube activity to a Learning Record Store

<http://tincanapi.com/2013/08/28/youtubetin-can-tech-tips/>

- Embed a Youtube player in a webpage
- Add some enriching Javascript
  - <http://rusticsoftware.github.io/TinCanJS/>
- Record to an LRS

•**BasicLTI tools a natural candidate.** Look towards example template we can all work from

**Adopters:** <http://tincanapi.com/adopters/>

# Something to take away

***• Without an LRS we are stuck with data silo's, dirty data no clear strategy to work together***

- Standards decouples components in the infrastructure
- Standards supports validation across services
- Standards and guidelines are mutually supportive
- Researcher friendly
- Lets look towards a uniform set of guidelines for products services
- Lets work with an International community
- Let's look towards data democracy between facilities

# History /UvAInform

## ***UvA ICT services invested in Sakai CLE and Apereo OAE TinCAN API support.***

- A number of small scale pilots
- Campus Wide Focus group** with a small stimulus budget
  - To avoid duplication, break down data silos, deal with ethical issues etc.
  - How do we work together and cross validate?
  - How do we work later with other Universities?

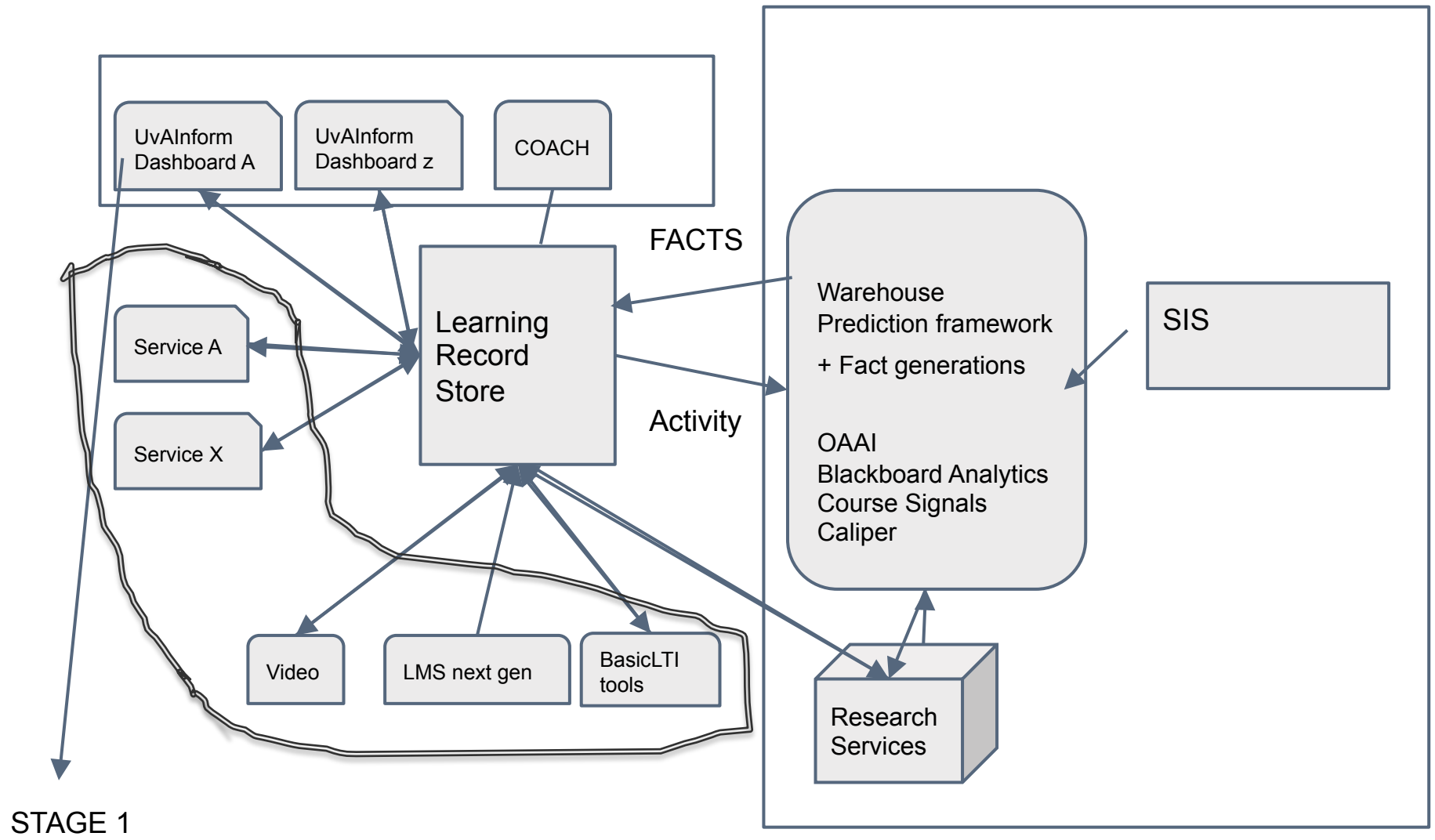
### **Method**

- Investing in Building a community Source scalable Learning Record Store.
- Build dashboards, but first do the market research.
- PHD / master students / Cross validation / Stimulus budget



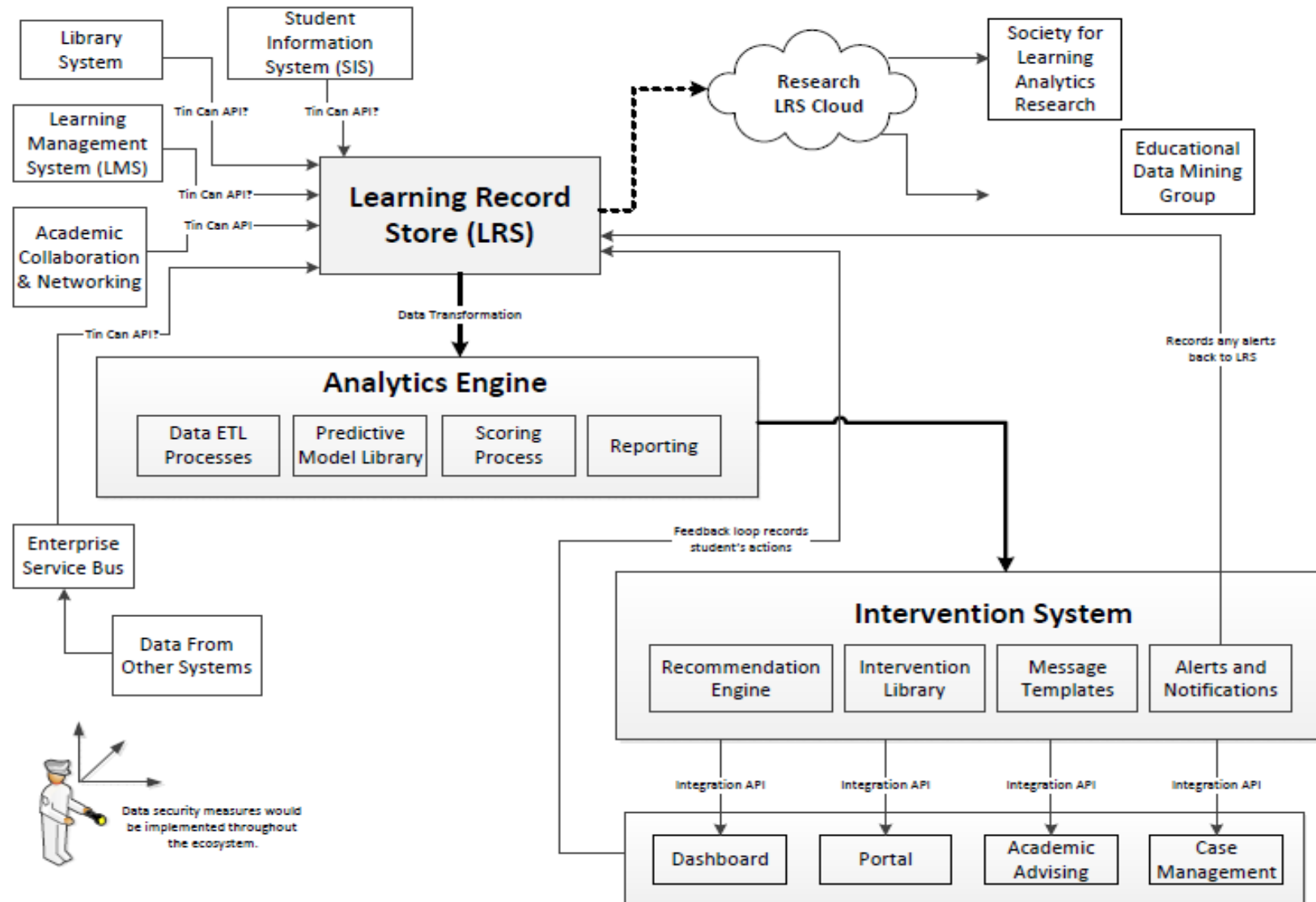
Contact point  
Alan Berg

# What does a POTENTIAL CAMPUS WIDE deployment look like?





# An Open Ecosystem for Learning Analytics



# QUESTIONS?

# INTERESTING EXTRA's

Here is more information if we have time or read the slides at your own leisure.

# COACH

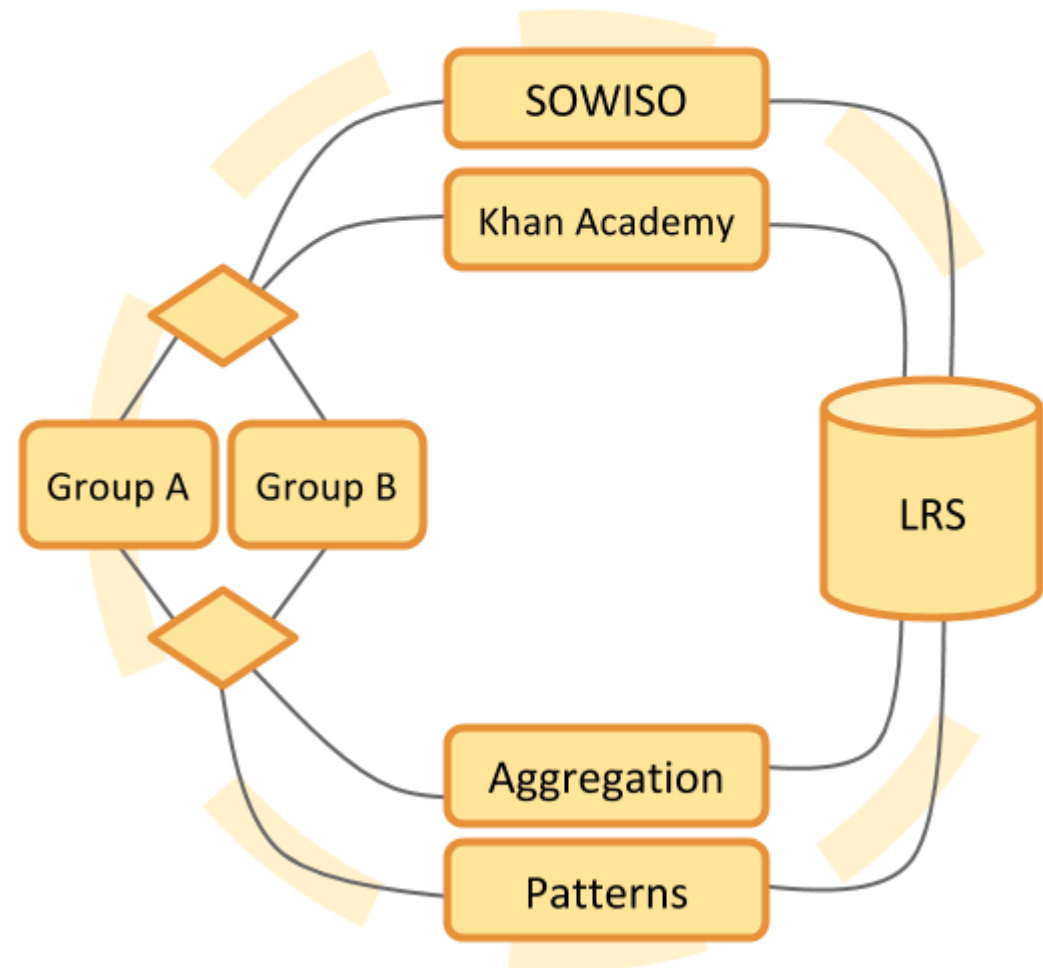
*Constructive Overview Aggregating Comparative Hits*

## COACH is:

- A dashboard for students
- Aggregating Sources
- TinCan / xAPI powered
- Being tested in A/B

## COACH provides:

- Overview of activities
- Comparison with others
- Recommendations



## Comparison with others

- Relative progress compared to other students
- Based on cumulative assessment scores
- Intended to be informative but not judgemental



## Recommended content

- Suggesting content to aid passing a particular milestone (test)
- Based on what others experienced before passing that milestone
- Activities are weighted by their order, duration and outcome
- Activities are not recommended if already performed by the student
- Obvious recommendations are shown first, obscure ones later

## Current status

- Data is about to be analysed
- Results will be disseminated
- Plans exist to scale up COACH
- Code is open source, but **beta**

## Made possible by:

André Heck, Nataša Brouwer, Sander Latour,  
Chiel Kooijman, Auke Wiggers, Steven Laan,  
Alan Berg, Perceptum, SOWISO and SURF



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<https://github.com/ictofnwi/coach>

## Center of Job Knowledge Research



- **Why CjKR? Because job knowledge...**
- **Is among the most important yet least understood individual level drivers of the knowledge economy**
- **Is imperative to successfully match people to jobs but largely neglected in personnel selection research**
- **Is an ultimate outcome against which both education and training must be evaluated**
- **Is a means to ensure public spending on education enhances graduates' opportunities, fit, and accomplishment on the labor market**

[www.jobknowledge.eu](http://www.jobknowledge.eu)