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RISK MITIGATION
IN THE AGE OF
Learning Analytics

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Agenda
(in 20 minutes or less + 10 minutes Q/A)

o Who am I?

o What can LA do?

o Why is Learning Analytics as A Service (**LAAS**) important?

o Problems

o Solutions

o LSAC2018 Hackathon

o Q/A

Who am I

o   Scientific Education (Bsc., Msc., MSc.)
    PhD Candidate (Defense Dec 5th)(Thank you **Robin, Stefan and Gabor**)

o   Trained Teacher (PGCE)

o   Author

  o   Community sourced Education systems: Sakai
  o   Quality Assurance: Continuous integration

o   Designed and built University wide systems for the last 20 years

o   Was program manager for LA @ UvA

o   Heavily involved in open communities: Apereo

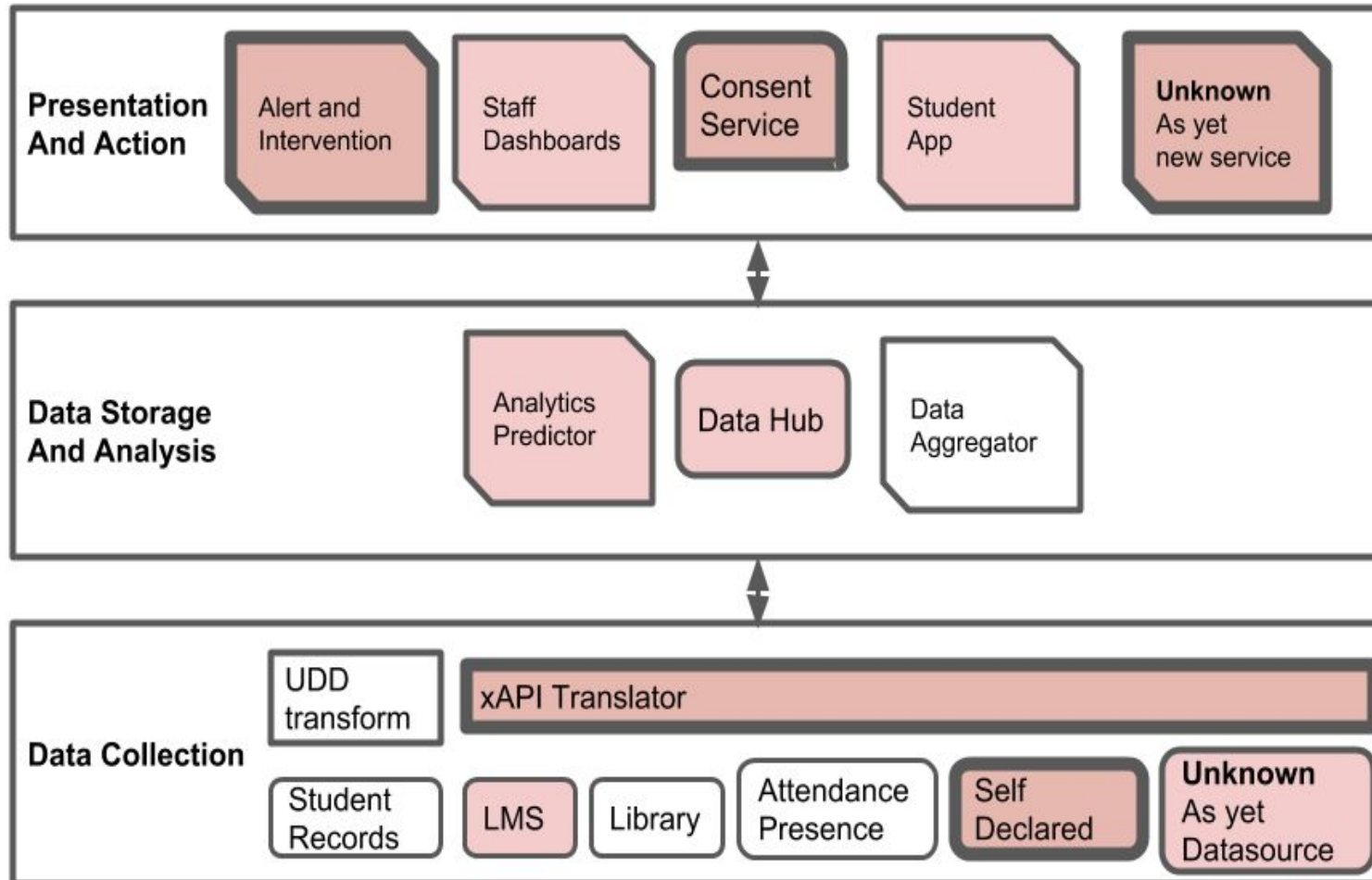# Learning Analytics can do all kinds of great stuff and will soon do more

Chatti, Dyckhoff, Schroeder & Thüs, (**2012**) divided LA into broad areas:

- Monitoring
- Analyzing
- Prediction
- Intervention
- Tutoring/mentoring
- Assessment
- Feedback
- Adaptation
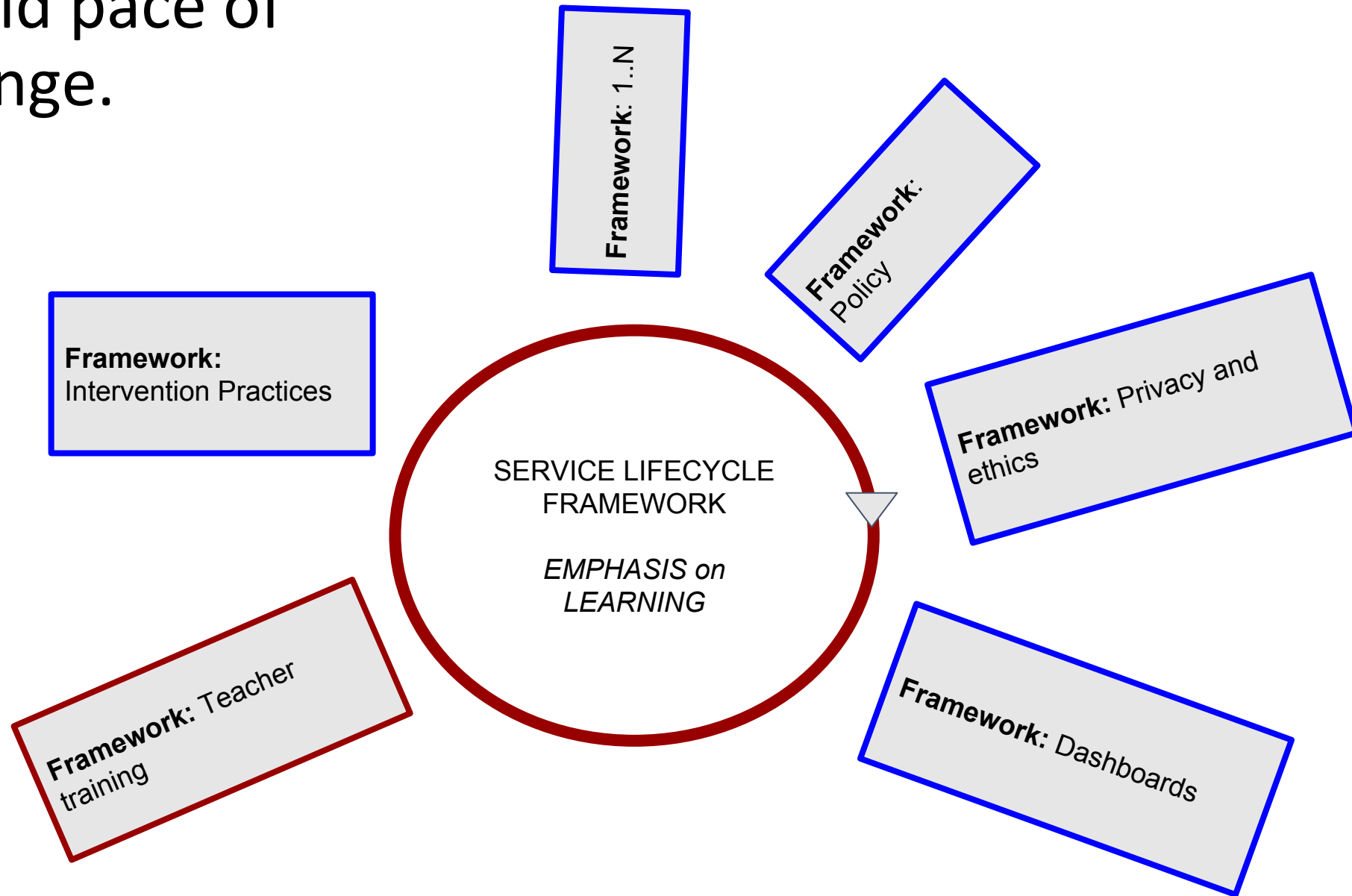- Personalisation
- Recommendation

There are great advantages to LA at national scale. LA as A Service (LAAS)

1. Cheap clean data
2. A trusted third party
   that can ethically compare data across boundaries.
   How are our Engineers doing compared to their peers at other Universities?
3. Optimised algorithms
4. Ability to quickly comparing and rolling out new services
5. Consistent deployment of Best practices
6. Luxuries of scale (dedicated team, push down cost, etc.)

Infrastructure is complex, with the mature mixed with the new.

Frameworks exist.
Rapid pace of change.

Framework: 1..N

Framework: Policy

Framework:
Intervention Practices

Framework: Privacy and ethics

SERVICE LIFECYCLE
FRAMEWORK

EMPHASIS on
LEARNING

Framework: Teacher training

Framework: Dashboards

Also Learn from Cybersecurity practices
Top ten risks each year.

FLAGSHIP mature projects

OWASP Top 10 2017 Released

The OWASP Top 10 - 2017 is now available.

OWASP Top 10 Most Critical Web Application Security Risks

The OWASP Top 10 is a powerful awareness document for web application security. It represents a broad consensus about the most critical security risks to web applications. Project members include a variety of security experts from around the world who have shared their expertise to produce this list.

We urge all companies to adopt this awareness document within their organization and start the process of ensuring that their web applications minimize these risks. Adopting the OWASP Top 10 is perhaps the most effective first step towards changing the software development culture within your organization into one that produces secure code.

Translation Efforts

The OWASP Top 10 has been translated to many different languages by numerous volunteers. These translations are available as follows:

- OWASP Top 10 - 2017 translations are currently underway
- All versions of the OWASP Top 10 - 2013
- All versions of the OWASP Top 10 - 2010

And we have a problem with Knowledge transfer.

LACK OF **KNOWLEDGE TRANSFER** ==

FRAGMENTATION AND **DUPLICATION** ==

MULTIPLICATION OF **FAILURE**

Example: **Dashboard projects**

Schwendimann et al., (2017) reviewed an initial set of 364 papers on Learning Analytic dashboards and concluded that most studies are exploratory and proof-of-concept.

Therefore, we need to discover the **risks**
Recommend **mitigative actions**.
Transferring knowledge

Thus, we avoid building failing **LAAS**
that is costly to repair
difficult to change
and hurts students education

Risk Mitigation Matrix as a sanity check

- ❏ Risk
- ❏ Mitigative action
- ❏ Likelihood
- ❏ Impact

Map to parts of frameworks and see if all risks are covered.

What are the minimum set of frameworks necessary to cover the risks?

RISK	MITIGATION	REFERENCE
Build services that students don't want	Involve the student in the co-development of the LA service, for example through the means of grading exercises for software engineers. Discuss issues in a conference setting at the university deploying LA	Berg, Bloeme & Dekkers, 2013 Berg & Kerman, 2017
Duplication of already failed practices for deployment of projects	Review, structured, curated and published evidence such as from LACE	Ferguson & Clow, 2016
We don't scale successful pilots	Warn resource owners early that they have to plan for success. Make sure that resource owners understand their responsibilities	UvAInform project

Being Inclusive asks the Deployers: Risk Mitigation Survey.

EXPERIMENTAL PHASE

- You can find the survey here

- And an orientation abstract from the Eunis 2018 conference here.

Recommendations → **Production Phase**

1) The **creation of open space** for a standard risk mitigation matrix organised by a trusted party such as a Special Interest group at an organisation such as IEEE ICICLE, SoLAR or the Apereo Foundation.

2) The ability to anonymously vote on the priority, scope and level of the risk.

3) **Curation of the risks** through an interrelated set of conference events such as hackathons and other types of workshops and SIG meetings.

4) Creation of a periodically updated **strategy document** that highlights common risks, mitigations and where necessary the gaps in research.

5) Creation of a **top list of risks** sorted by priority **and mitigations** that is updated yearly.

Light weight - Top Ten Exercise at LSAC Hackathon

How do we design a top ten list process for LA?

Ingredients

1. Experts
2. Literature Review
3. Supplemental Text Mining
4. Dashboard Mockup
5. Message passing to next hackathon

Never too late to Join us (though you might need to buy your own coffee).

Questions **?**

AND have you any RISK's
to share

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