

GETTING PRACTICAL WITH THE NGDLE

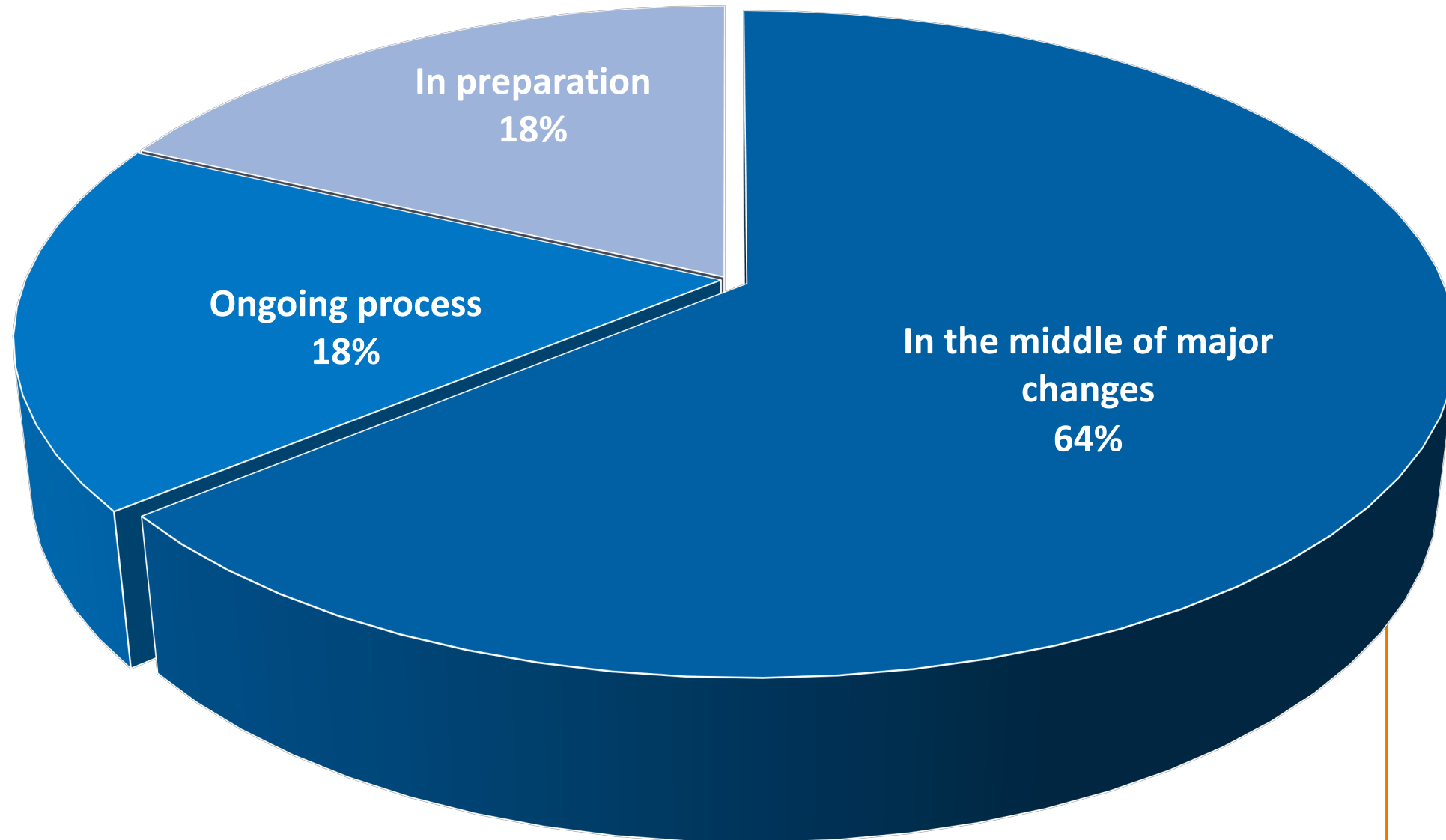
The Dutch approach

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SURF

Developments of the DLE in the Netherlands



Dimensions of the NGDLE

- Interoperability en integration
- Personalisation
- Analytics, advising and learning assessment
- Collaboration
- Accessibility and universal design

* <https://net.educause.edu/ir/library/pdf/eli3035.pdf>

Architecture

1. Components
2. Interoperability
3. Visual integration



- 1. Which components?**
- 2. How do they interact?**
- 3. How to create the best user interaction?**



Organisation of learning



Management and use of student information



Testing



Education process support



Internships and final projects



Developing, managing and sharing learning materials



Freely available applications



Learning analytics



Communication



Submission and assessment of assignments



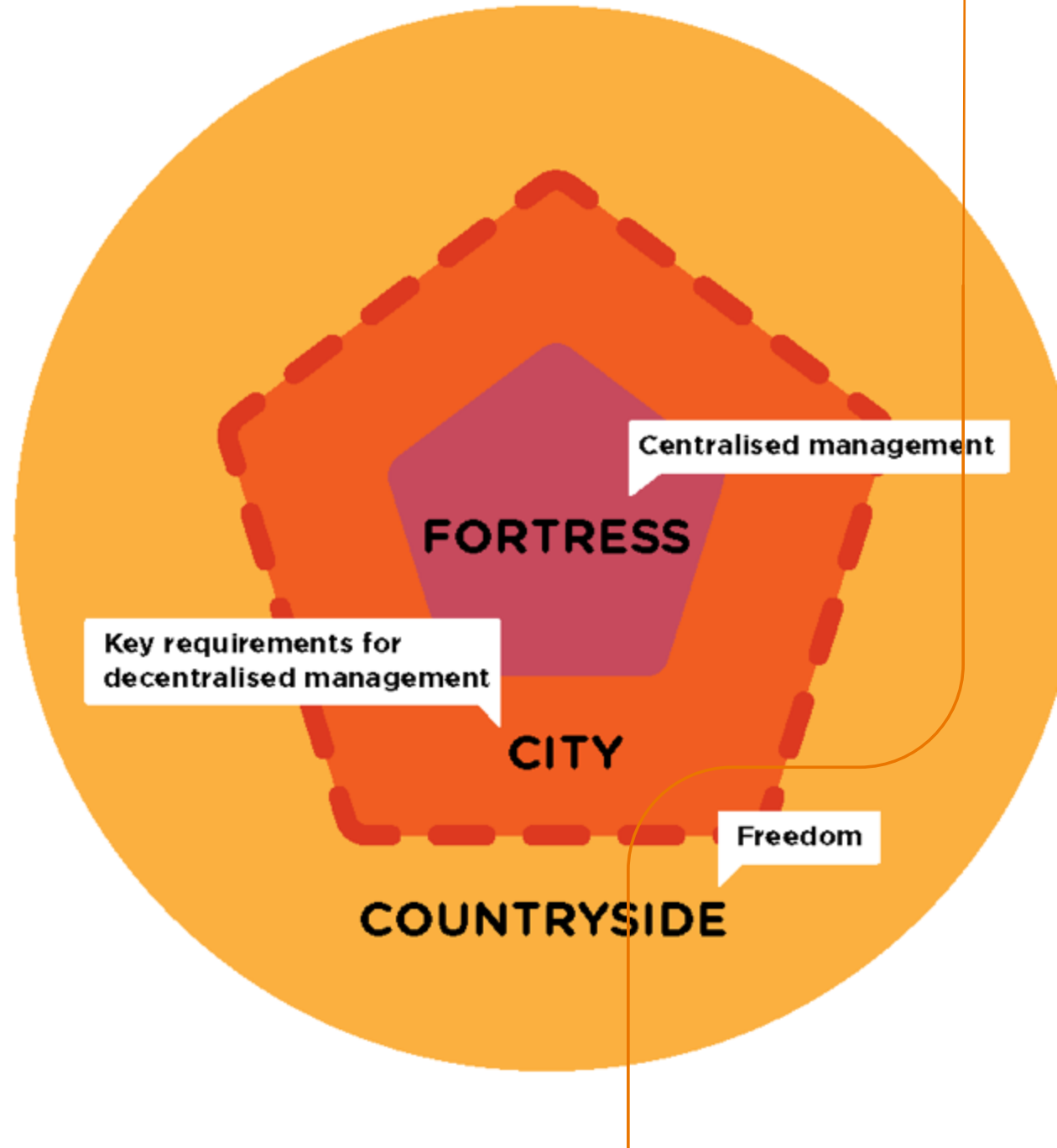
Multimedia



Timetabling



Collaboration





Organisation of learning



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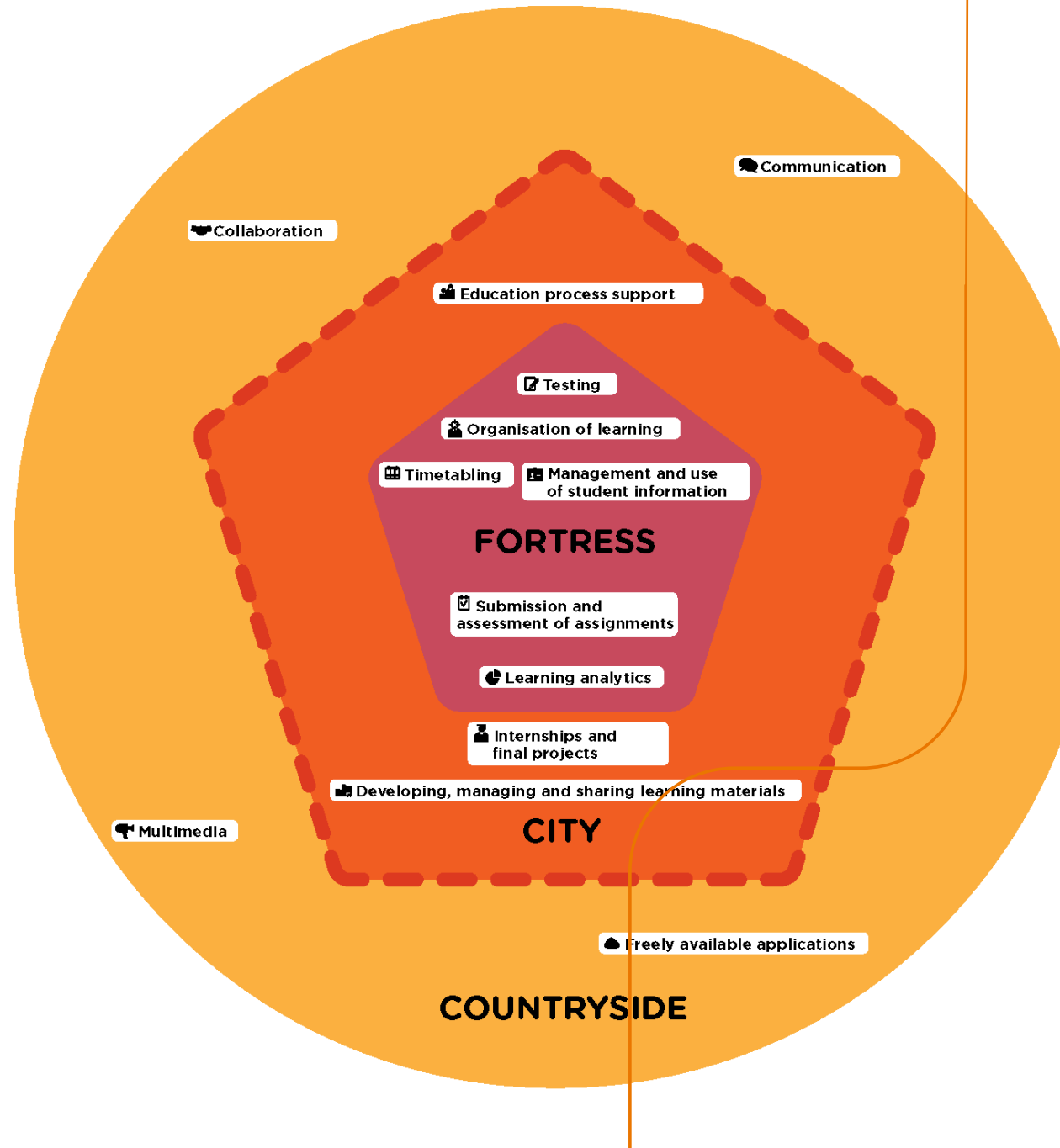
Multimedia






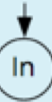
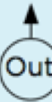
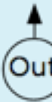
Timetabling



Collaboration


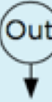
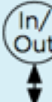
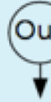






- 1. Which components?**
- 2. How do they interact?**
- 3. How to create the best user interaction?**

Data	<ul style="list-style-type: none"> • Class group • Participant • Learning group 	<ul style="list-style-type: none"> • Test result 	<ul style="list-style-type: none"> • Time of test activity
Standard	IMS LIS	IMS LIS	IMS LIS (CPS) ICAL
Component	 Management and use of student information	 Management and use of student information	 Timetabling
Direction			

System integration

Data integration

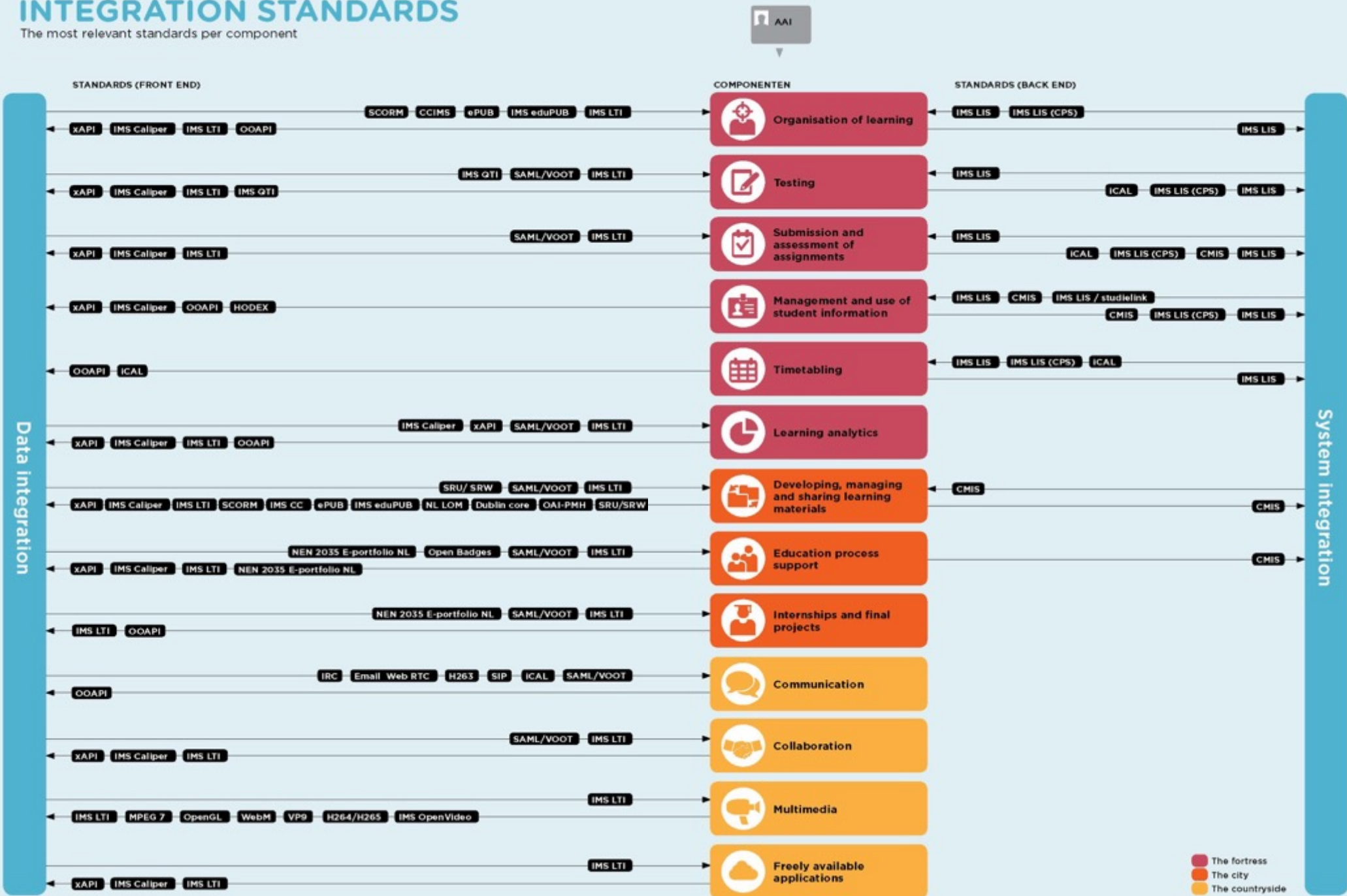
Direction				
Component	 AAI	 Organisation of learning	 Testing	 Learning analytics
Standard	SAML/VOOT IMS LTI	IMS LTI	IMS QTI	xAPI IMS Callper
Data	<ul style="list-style-type: none"> • Participant • Learning group 	<ul style="list-style-type: none"> • Test activity • Test result 	<ul style="list-style-type: none"> • Test material 	<ul style="list-style-type: none"> • Learning activity events

Testing



INTEGRATION STANDARDS

The most relevant standards per component



5 most important standards

- Interoperability en integration
- Personalisation
- Analytics, advising and learning assessment
- Collaboration
- Accessibility and universal design

LTI

LIS

xAPI

SAML/VOOT

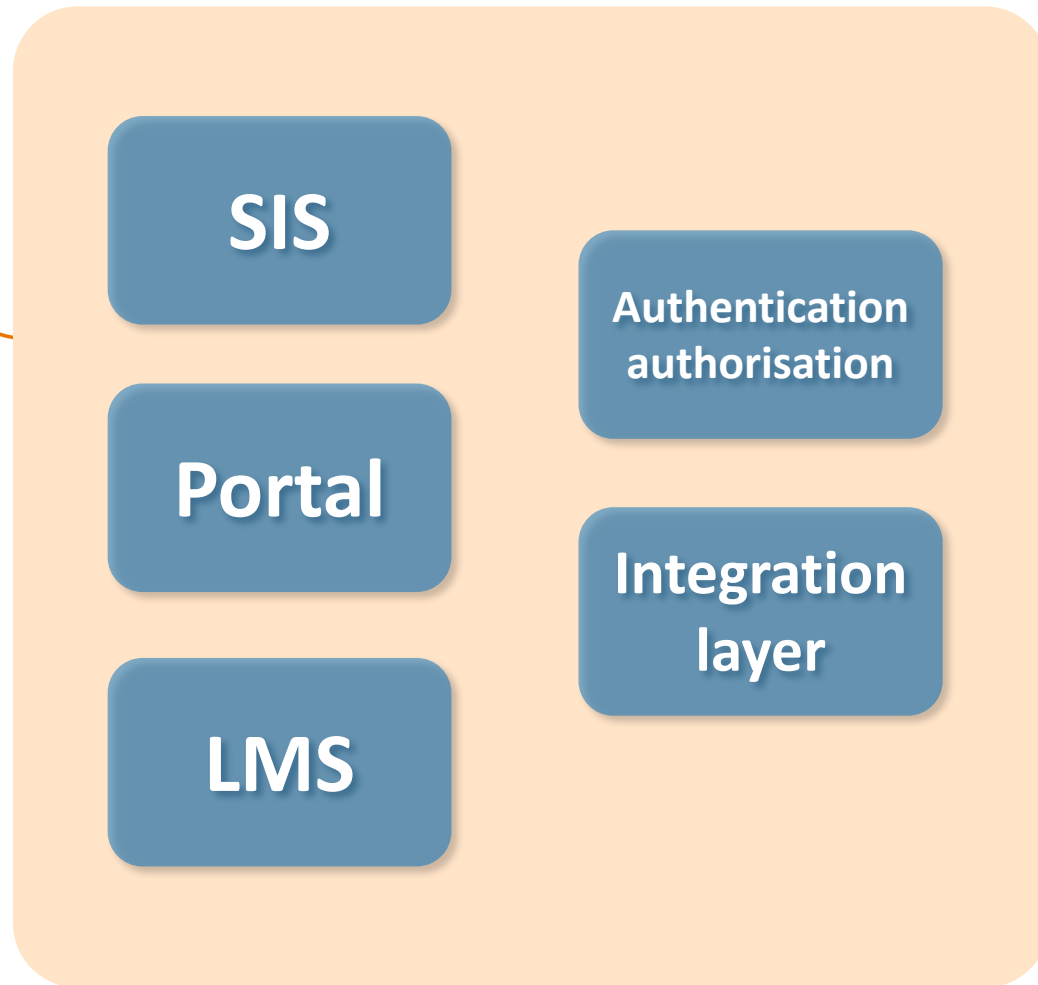
OOAPI

* <https://net.educause.edu/ir/library/pdf/eli3035.pdf>

From theory to practice



SURF experiment



Open source

Complies with the right standard
Main functionality of a component

10 LTI

1 LIS

400 

4 SAML/VOOT

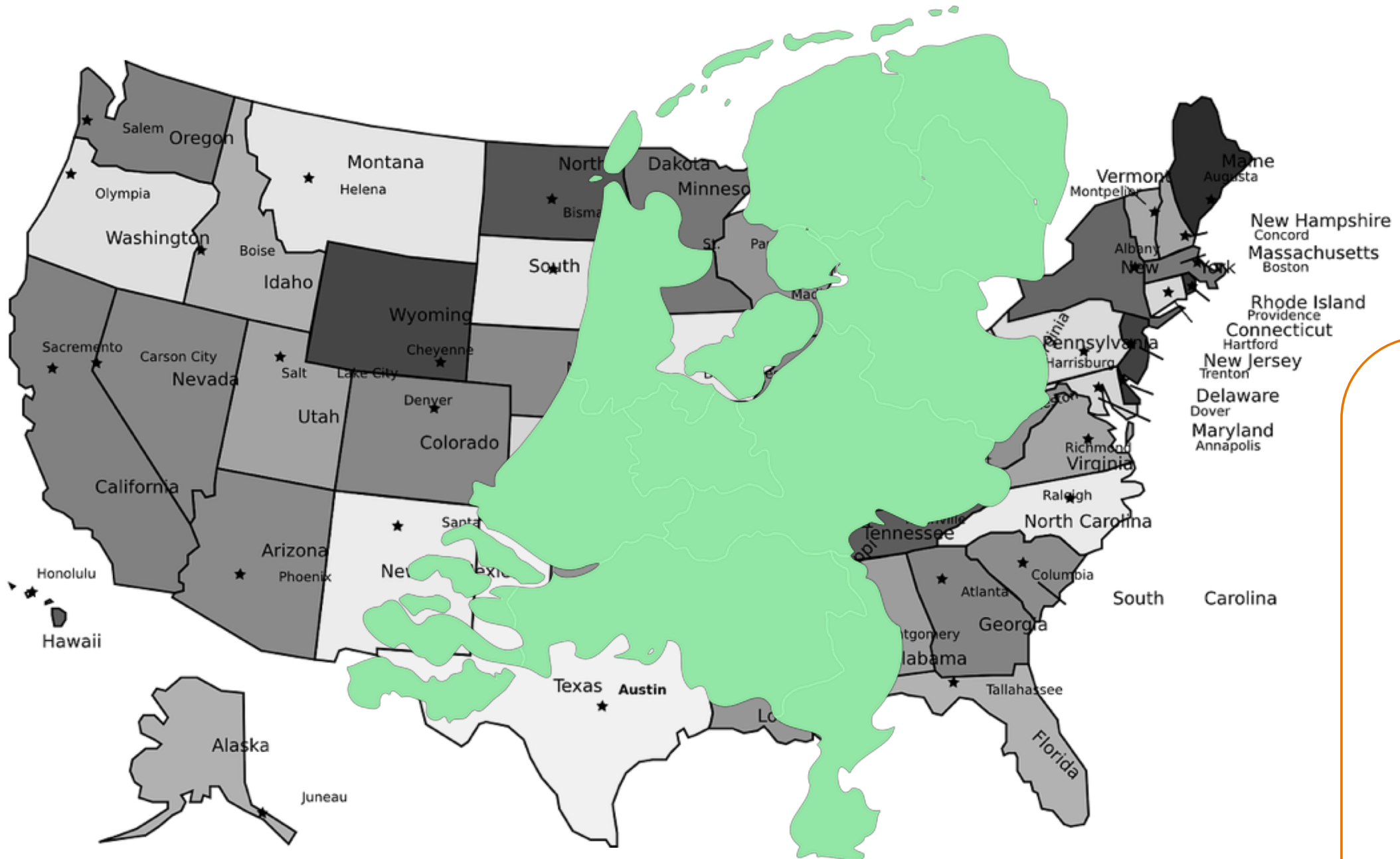
4 xAPI

3 OOAPI

14

Dutch
Edtech
Suppliers

SURF 



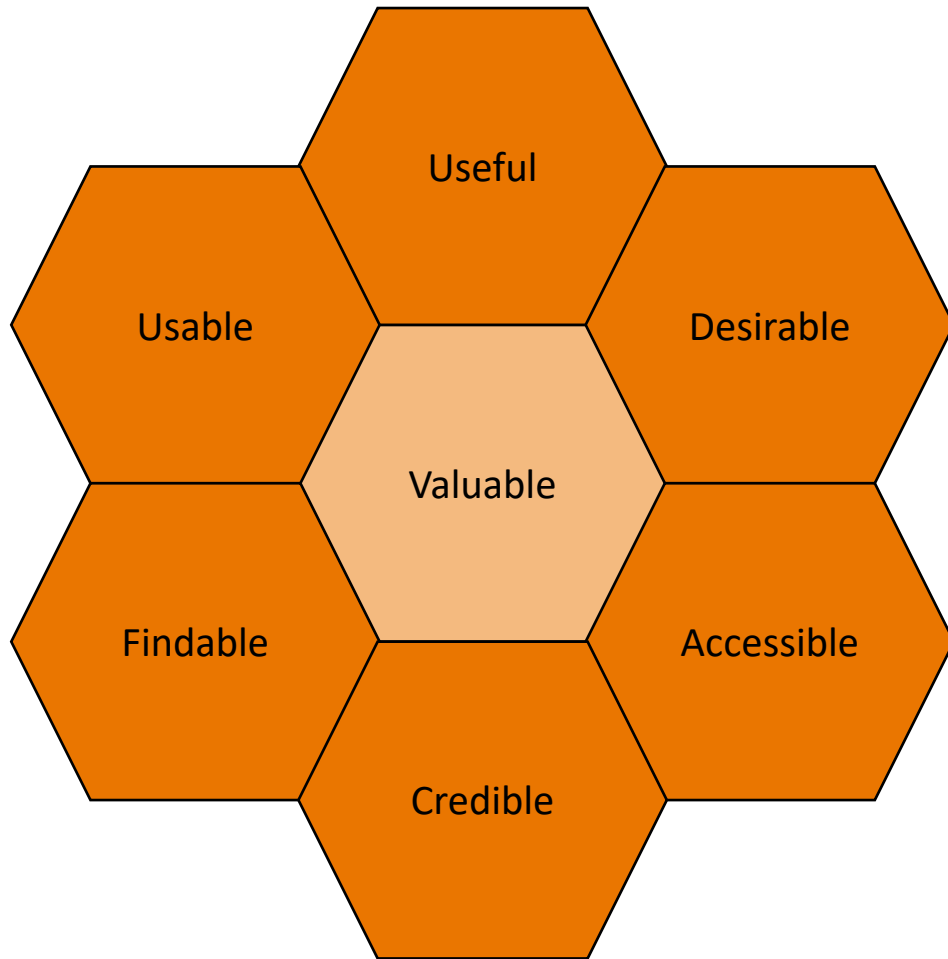
"We are interested in the potential of standards and have got ideas for collaboration with other vendors who participated"

"The challenge did not provide new ideas, but it has accelerated a number of developments"

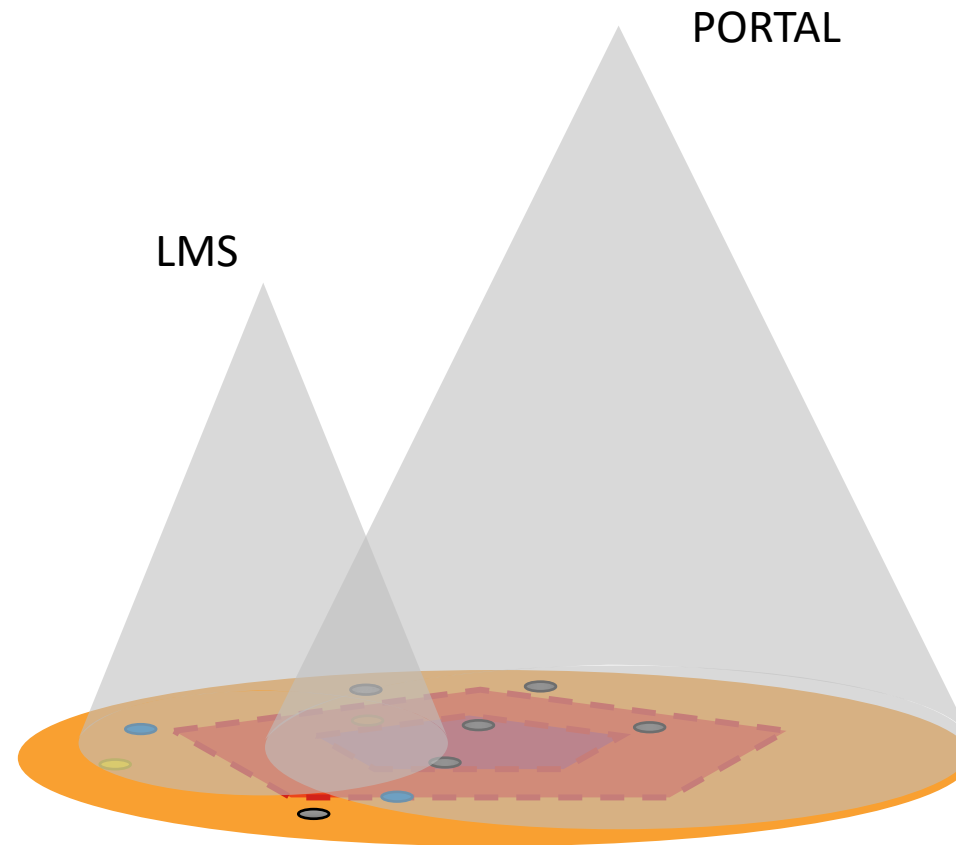
"In our opinion, the Netherlands should operate more in the international open standards field.
Starting with a more active role within IMS "

- 1. Which components?**
- 2. How do they interact?**
- 3. How to create the best user interaction?**

User interaction NGDLE



Honeycomb Model (Peter Morville)



Future work

- **Adoption**
- **User Interaction**
- **Notifications**
- ...



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