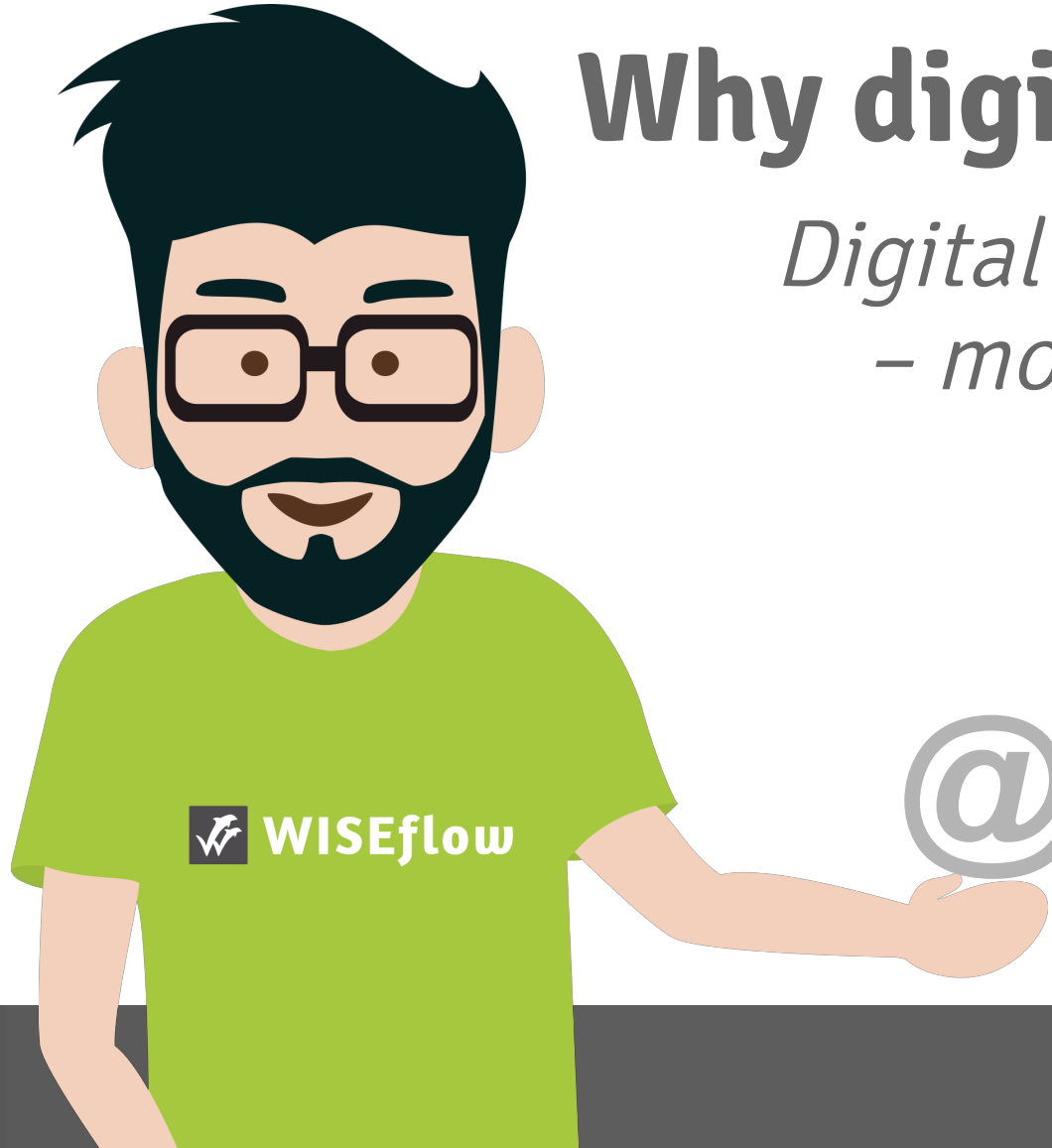




UNIwise



Why digital assessment?

*Digital exam & assessment
– more than paperless*



Brunel
University
London

What is UNIwise & who am I?



UNIwise
Provider of WISEflow
Leading assessment platform

- Started 2010 as a **governmental project**
- UNIwise **spins out of Aarhus University** 2012
- Headquarter in Denmark – offices in Norway, Sweden, S. Korea and Ukraine
- Serves **+50 clients in HEI in Europe**
- Delivers between **20-35.000 student exams daily**



Rasmus Tolstrup Blok
Executive director
UNIwise

- Background in **3 x HEI in DK & 1 x US**
- Research & teaching in **digital learning & culture, teacher training, course re-design** (Centre for Teaching & Learning, Aarhus University)
- Requirement **consultancy for academic technology** (VLE etc.)
- **Strategic advisor for HEI** and for Danish government
- **Founder** of UNIwise & WISEflow

What is digital assessment?

“Digital assessment refers to the application of digital technologies to create, administer, report and manage tests and examinations.”

According to Gartner it remains one of the top 10 strategic technologies for the higher education sector and an increasingly important aspect that feeds into other growing areas such as analytics, adaptive learning, competency-based education and new regimes of scrutiny, transparency and accreditation.



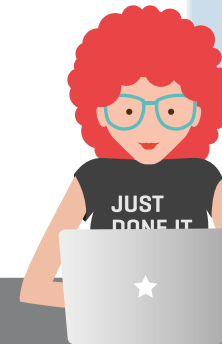
Why is the question important?

- Why digital assessment?

- There is not **ONE** simple answer to the questions!
- Many different reasons, depending on the fact, that:
 - universities and colleges are **not alike**
 - they apply and strive for **different goals**
 - they are **situated differently** in space, economy, openness, ranking etc.

Let me give you some reasons many of our clients have put forward, together with trends we have seen last 5 years!

There probably would be different reasons as to engage in digital assessment whether you are an arts university, an open university or a brick-and-mortar university!



The Student Argument

- Why digital assessment?

The student of today

- are exposed and used to the **omnipresence of technology** in learning (and job life)
- has poor or **lack of handwriting** skills
- has got increased focus on **own quality and performance**
- expects a personal or student focused learning with **extensive feedback** loops
- demand **fair and transparent assessment and grading** as a result of high competition
- has an increased and **important voice towards student satisfaction** ratings
- shops and access education on a **global scale**

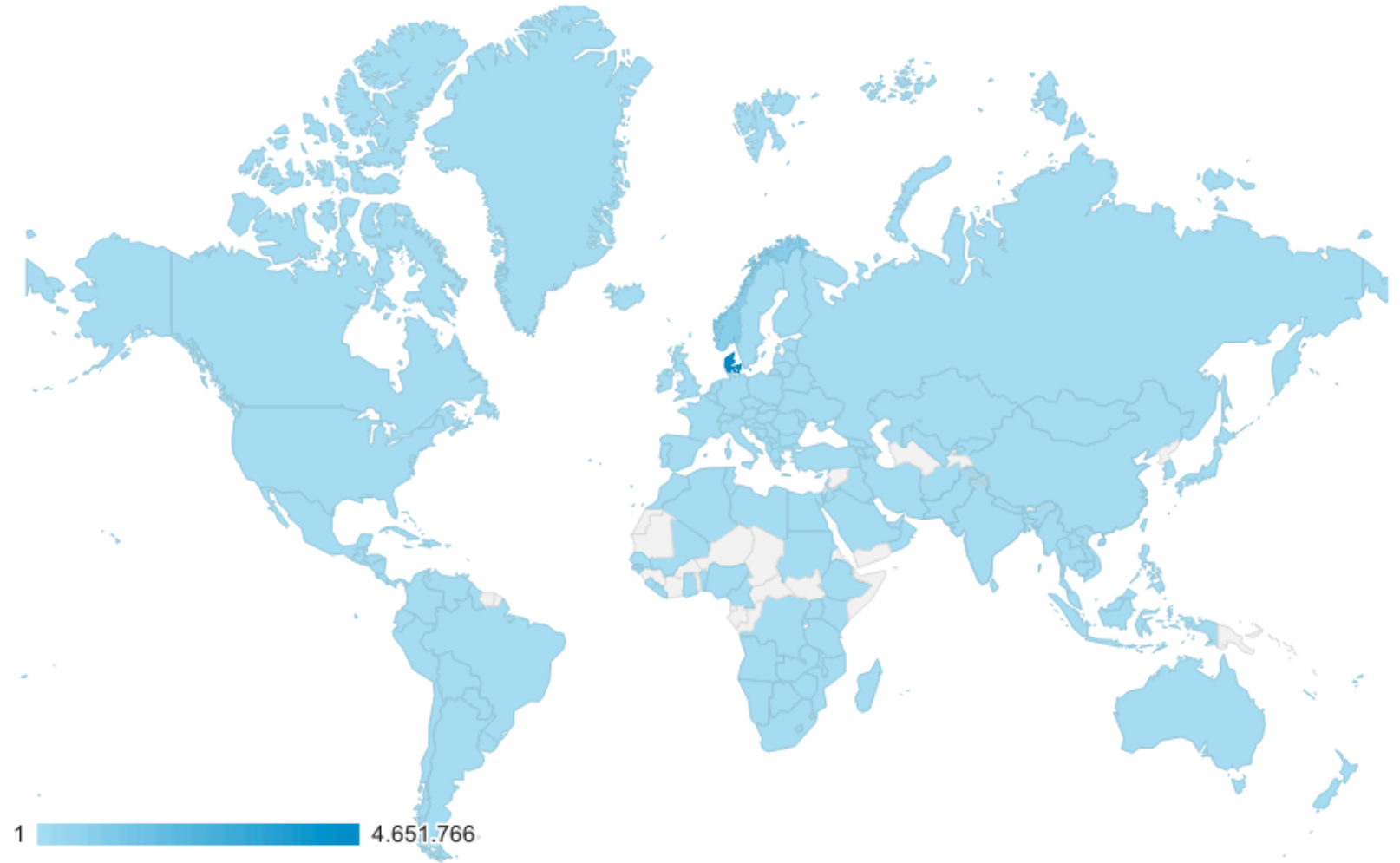


Globalisation

- Examples from WISEflow

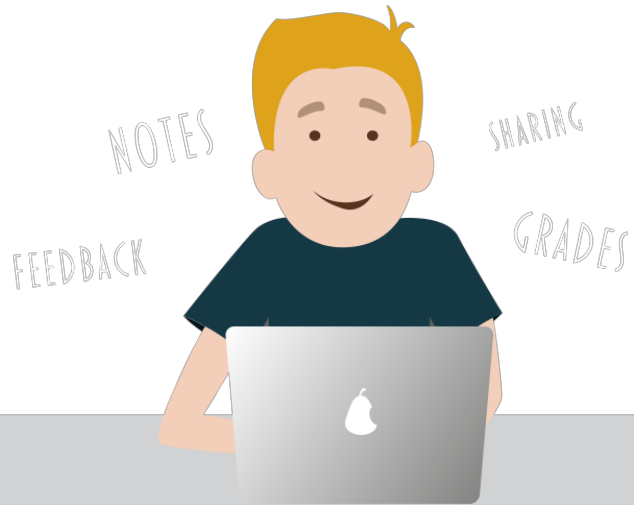
We currently hold
+50 HEI clients in 7
countries

*However, our
assessment platform
WISEflow is accessed
from more than 170
countries!*



The Assessor & Professor Argument

- Why digital assessment?



The teachers and assessors:

- are exposed to **increased demand for test and test results** (to produce measurement and result data for institution and for students)
- demand better tools to **align assessment with technology** for daily learning and research based teaching (use of multimedia, software, internet, databases etc.)
- need to engage in **broader test and assessment strategies** – secure right cognitive skills tested
- use assessment as **focus point for learning and student engagement**
- wish to **make assessment a learning process** – aligned with teachings
- need tools to **streamline** the increased demand for **feedback**

Extensive feedback

- Examples from WISEflow

- Annotate
 - Comment
 - Score
 - Explain/show
- Share feedback
 - w/ co-assessor
 - w/ student
 - w/ all

The screenshot shows the WISEflow interface for a 'FFP English Terminology Mock Exam 2016'. It displays 'Question 1' where the user must complete a text with the most appropriate word. The text is: 'Bankruptcy is a very serious matter. Declaring 1 bankruptcy can have disastrous long- 2 implications. For example, if you 3 declared bankruptcy you can expect to have your situation advertised in the local press 4 all to see. After 5 you will be required to fill 6 numerous forms and have an extended meeting 7 hen officials and administrators, 8 will thoroughly investigate your affairs. 9 is more, any business you own 10 be immediately closed 11 and any employees dismissed.' The correct answers are: 2 term, 7 with. The interface includes a 'Kommentarer' (Comments) sidebar on the right.

The screenshot shows the WISEflow interface for a document titled 'Fremvisning af Annotate'. It displays a text document with annotations and a comment sidebar. The text includes: 'First, a word on our view of methods. Some argue that the way to get better systems is to concentrate on developing and disseminating better methods. A good example is Butler [1], who summarizes 10 years of development in usability engineering (UE) as follows: "UE provides systematic tools and methods for the complex task of designing user interfaces that can be readily comprehended, quickly learned and reliably operated." To us, it seems clear that the result of any process will never be better than the people who participate in the process. The implication for software design is that the skills and abilities of the designer determine the quality of the final system. It follows that methods should be seen as tools for developing the designer's abilities. By describing a particular work practice that has proved useful to other designers, we provide the reader with opportunities to develop his or her own practice. The choice of a particular method can never be made in a general way; instead, it must always be related to the situation at hand and the people involved. John Christopher Jones published the first edition of his milestone design book [Design Methods: Seeds of Human Future] in 1970 [4]. In the introduction, he writes about different views on the designer and on design methods. If the designer is seen as a black box, generating creative solutions without being able to explain or illustrate how the solutions came about, then the methods will be focused on facilitating and supporting the inexplicable creative processes. The other extreme is to view the designer as a glass box where every step in the design process is rational and eligible for description and transfer. Glass box methods tend to be systematic and assume sequential processes with hierarchical decomposition of problems into subproblems. A third view is to think of the designer as a self-organizing systems with constructive as well as reflective skills. To describe a method is a way to provide designers with access to a way of working that they perhaps did not know before. The designer must assume the full responsibility for assessing the applicability and effects of the method in question, assimilate it with his current "toolbox" and use it independently and creatively in appropriate situations. Hence, we provide rather brief descriptions of the methods used to facilitate initial assessment and full references for the further studies that are needed for assimilation. Since our purpose here is to argue that software design could benefit from other, more traditional design disciplines, we have chosen to be brief in presenting our methods. Instead, we close with a discussion on how we believe designers should relate to methods when the purpose is not only to produce results effectively and efficiently, but also to develop and improve their design ability. Examples of the Methods The three methods we present here are all oriented toward early phases of the design process, where concepts and ideas are the main currencies. The reason is simply that the later phases—including detailed design, implementation, and evaluation—are already addressed more extensively in the literature and are perhaps also less problematic. Our choice of methods is not meant to be comprehensive, perhaps not even the best possible. Instead we present examples of methods that can be tried out very simply without putting too much effort into the learning process. The three methods are (1) function analysis, (2) why-why-why, and (3) innovation by boundary shifting. The sidebar gives brief introductions to another handful of methods'.

The interface includes a 'Kommentarer' (Comments) sidebar on the right, which is currently empty. The sidebar has a 'Redigera' (Edit) button and a 'Stäng' (Close) button. The sidebar also has a 'Poäng' (Points) section with a '3' and a 'Ta bort' (Remove) button. The sidebar also has a 'Privat' (Private) button.

The Institutional Argument

- Why digital assessment?

Higher Educational Institutions:

- strive to **optimise and cut down manual labour** by digitising the workflow for assessment
- face high demand to **prevent cheating and plagiarism** in test and assessment
- experience increased focus on and demand for **security, reliability and audit trails** in assessment
- are forced to focus on **student demands and student satisfaction**
- increasingly engage in **internationalisation** – students and education is truly **getting global**
- wish for **intelligent data collection and statistics** – to drive decisions



Monitoring & statistics

- Examples from WISEflow

Research and Learning Skills 2016-17

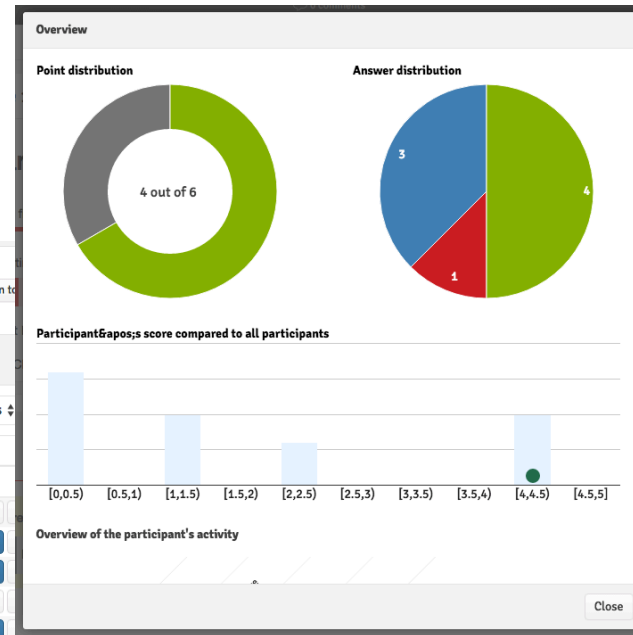
List Overview

Filter Reset

Show as passive after 0 minutes

Participant index	First name(s)	Finish up deadline	Latest status update	Progress	Actions
41	JAKE	2017/1/19, 5:02 ...	2017/1/19, 5:03 p.m.	● Opened 10136 chars saved Handed In	🔍 👤 ⌂
42	FIYORY	2017/1/19, 5:17 ...	2017/1/19, 5:04 p.m.	● Opened 11180 chars saved Handed In	🔍 👤 ⌂
43	ALEXANDER	2017/1/19, 5:07 ...	2017/1/19, 5:08 p.m.	● Opened 12140 chars saved Handed In	🔍 👤 ⌂
44	ROWAN	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 8684 chars saved Handed In	🔍 👤 ⌂
45	TRISTAN	2017/1/19, 5:25 ...	2017/1/19, 5:25 p.m.	● Opened 8312 chars saved Handed In	🔍 👤 ⌂
46	GEORGIA	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 14586 chars saved Handed In	🔍 👤 ⌂
47	KERRY	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 16726 chars saved Handed In	🔍 👤 ⌂
48	XAVIER	2017/1/19, 5:24 ...	2017/1/13, 9:56 a.m.	● Opened Paper saved Handed In	🔍 👤 ⌂
49	NORTON	2017/1/19, 5:07 ...	2017/1/19, 5:07 p.m.	● Opened 9593 chars saved Handed In	🔍 👤 ⌂
50	RASHARN	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 7703 chars saved Handed In	🔍 👤 ⌂
51	BOBBY	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 13200 chars saved Handed In	🔍 👤 ⌂
52	LEWIS	2017/1/19, 5:07 ...	2017/1/19, 5:07 p.m.	● Opened 14279 chars saved Handed In	🔍 👤 ⌂
53	THOMAS	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 11122 chars saved Handed In	🔍 👤 ⌂
54	CAROLINE	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 10449 chars saved Handed In	🔍 👤 ⌂
55	AMY	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 14386 chars saved Handed In	🔍 👤 ⌂
56	REBECCA	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 14266 chars saved Handed In	🔍 👤 ⌂
57	DYLAN	2017/1/19, 5:07 ...	2017/1/19, 5:10 p.m.	● Opened 11235 chars saved Handed In	🔍 👤 ⌂
58	KARA	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 11431 chars saved Handed In	🔍 👤 ⌂
59	SHIRIN	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 10632 chars saved Handed In	🔍 👤 ⌂
60	PAUL	2017/1/19, 5:02 ...	2017/1/19, 5:02 p.m.	● Opened 9840 chars saved Handed In	🔍 👤 ⌂

138 rows



Box plot

	Average score	Variance	Spread	Distribution
...	0.095	0.09	0.29	
...	0.429	0.24	0.49	
...	0	0.00	0.00	
...	0.381	0.24	0.49	
...	0.286	0.20	0.45	
...	0	0.00	0.00	
...	0.238	0.18	0.43	
...	0	0.00	0.00	

8 rows

Monitor

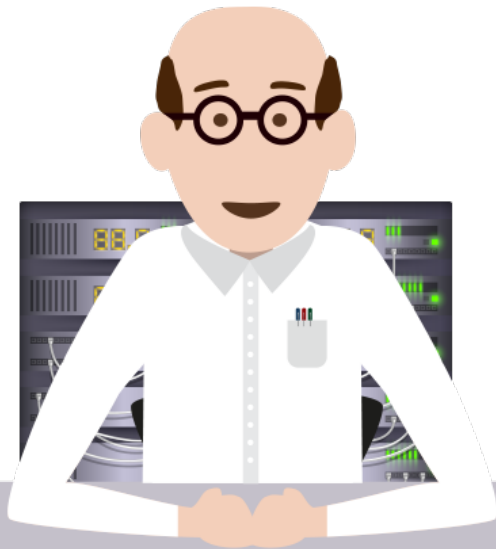
- progression & speed
- attendance, actions & log
- connectivity, time & IP
- comment on behaviour

Data distribution

- exams
- questions
- grades
- scores

The Technological Argument

- Why digital assessment?



The technological progress enables:

- automatic **plagiarism detection**
- **autoscore**ing and **instant feedback**
- more **extensive monitoring** of exam events
- **logging** of different **stakeholder actions** during exams
- **notifications, alarms and triggers** of certain events and actions for exams
- collectable and **searchable data** for individual or institutional statistics of exams
- prompt, easy and **flexible distribution** of exam data
- greater **transparency** in assessment process and workflow
- a broader variety for **exam and assessment formats** and student submissions

Multiple assessment formats

- Examples from WISEflow

Assessment formats

- Open book
- Closed book
- MCQ – adv. Questions
- Oral (on camp/remote)
- Portfolio
- Practical
- Thesis
- Combinations
- Prerequisites

The collage displays five different assessment formats available in WISEflow:

- Video Exam:** A screenshot of a video exam interface. It shows a timer at 2 Minutes 47 seconds, a video feed of a participant (Jonas Frits-Jepsen), and a question titled "Mammals" with a video player and a multiple-choice question: "Which of these animals are mammals?" with options: Dog, Crocodile, Platypus, and Ostrich.
- World Map:** A screenshot of a world map with several red dots and "select" dropdown menus, indicating a map-based assessment format.
- Drawing Tool:** A screenshot of a drawing tool interface. It shows a green line graph on a coordinate system with labels "Top 1" and "Top 2". The interface includes a toolbar with various drawing tools and a "Reset drawing" button.
- Graphing Tool:** A screenshot of a graphing tool interface. It shows a green line graph on a coordinate system with labels "Top 1" and "Top 2". The interface includes a toolbar with various drawing tools and a "Reset drawing" button.
- Exam Interface:** A screenshot of the main exam interface. It shows a timer, a video feed of a participant, and a question titled "Mammals" with a video player and a multiple-choice question: "Which of these animals are mammals?" with options: Dog, Crocodile, Platypus, and Ostrich.

The Research Argument

- Why digital assessment?

The researchers tell us:

- "The **curriculum** tells you what the **faculty is doing**. The **examination system** tell you what the **students are doing**" (Boyd, 1995)
- "From our students' point of view, **assessment always defines the actual curriculum**" (Ramsden, 2003)
- "Assessment is about **how well they achieve** the intended outcomes, **not about how well they report back to us** what we have told them or what they have read." (John Biggs, 2007)



How are these arguments met?

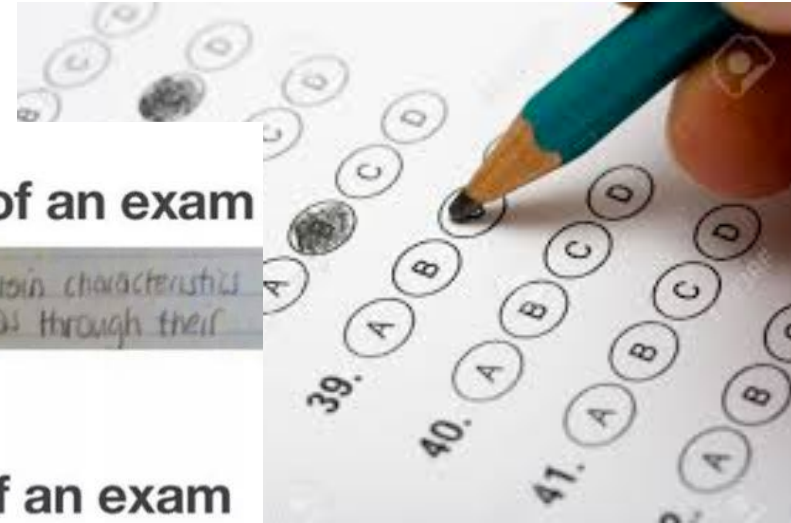


hand writing at the start of an exam

In this novel both characters exhibit certain characteristics that allow them to be compared. Such as through their

hand writing at the end of an exam

TO CONCLUDE IT IS MY OPINION THAT THE FIRST CHARACTER IS MORE IMPORTANT



Some continue the
old fashioned way!

How are these trends met?

- others...



... utilize **stand-alone** and **content driven** providers and use their **preformatted** questions for exams



How are these trends met?

- yet others...



... appropriate their VLE to cover some assessments and exams in a digital matter



How are these trends met?

- others...



... change to and implement **dedicated exam and assessment platforms**

EMA – Electronic Management of Assessment (Jisc)

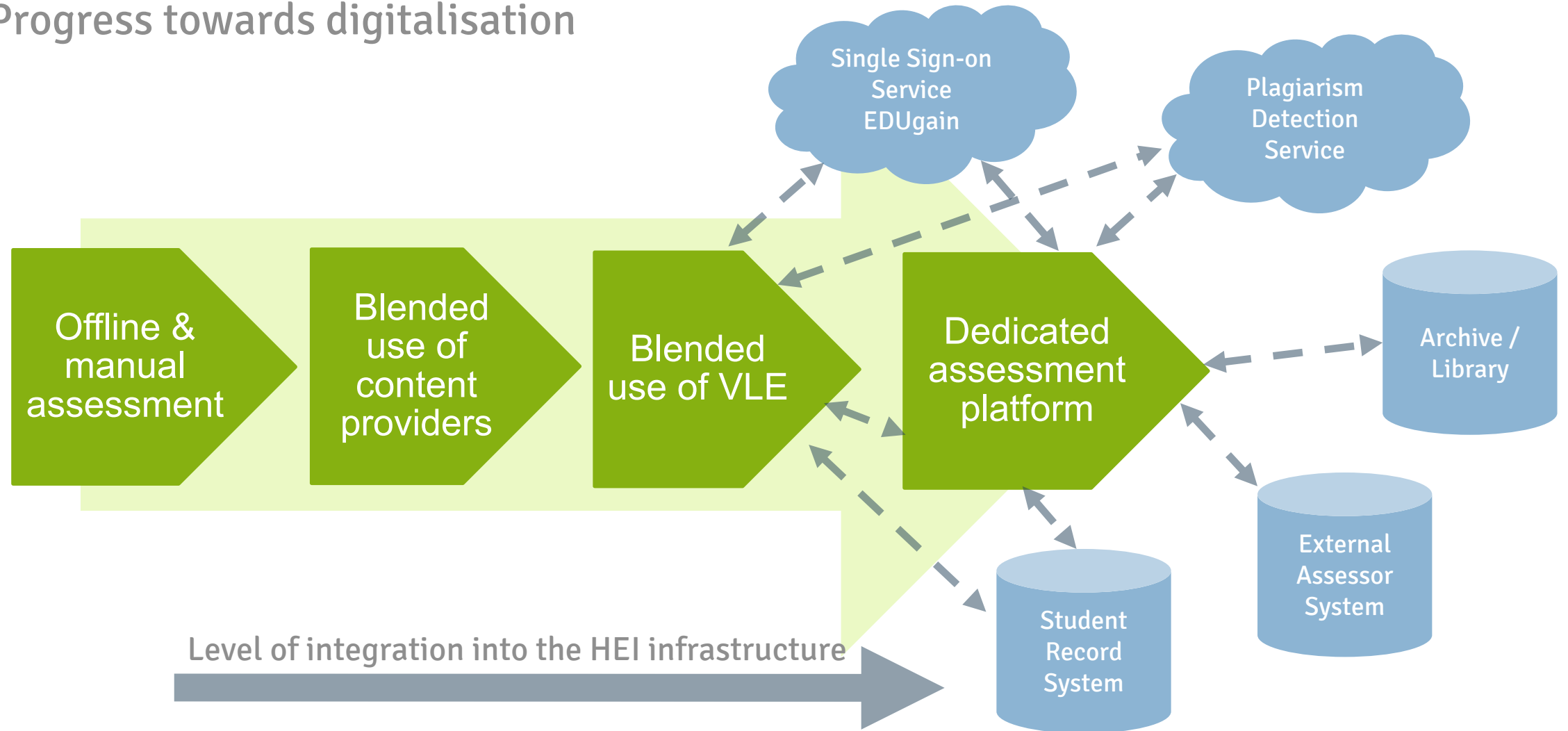


 **Inspera** assessment



The landscape of assessment today

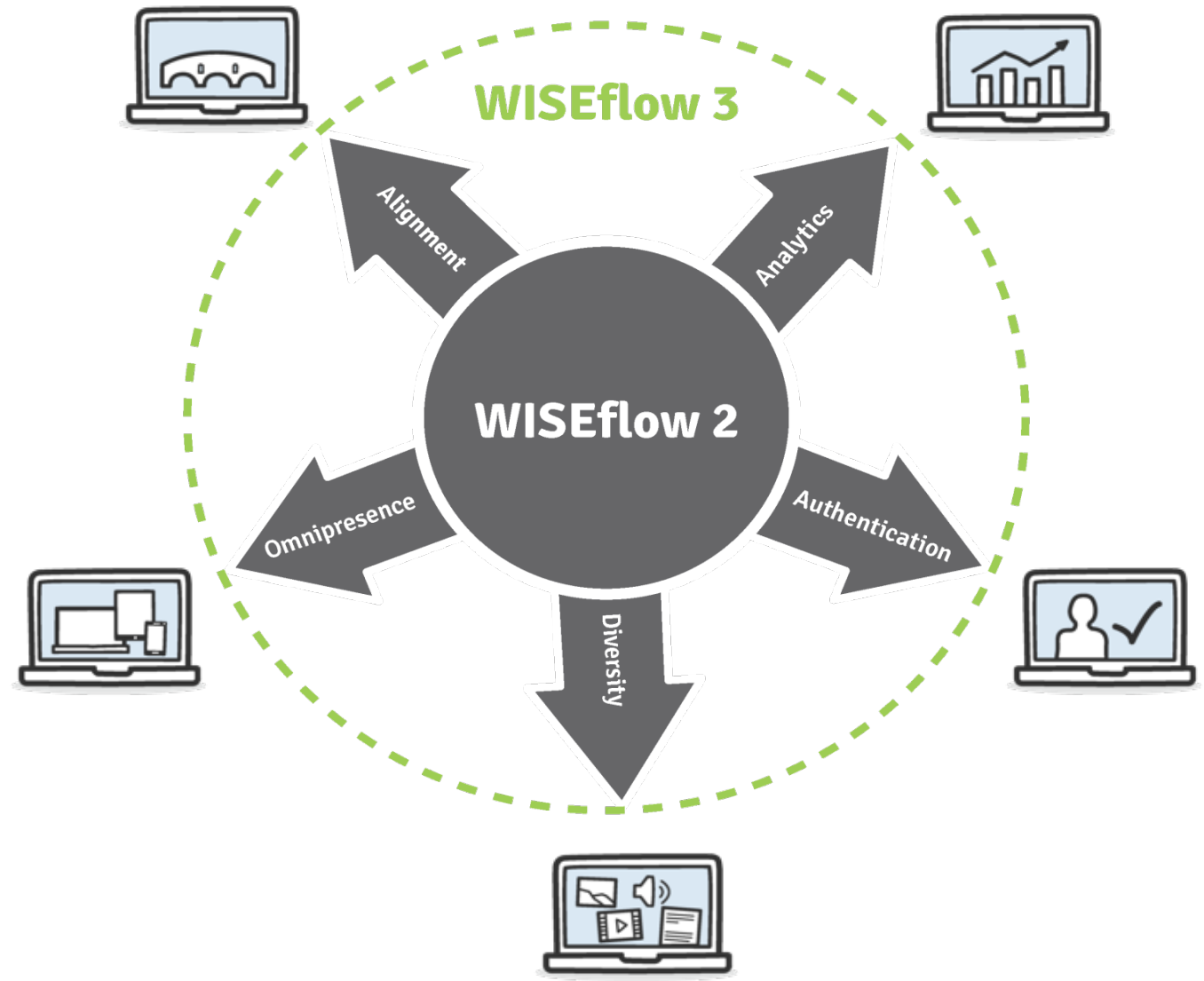
Progress towards digitalisation



The near future

WISEflow vision

- Personalised and guiding **learning analytics**
- Better and more advanced **authentication**
- Fully omnipresence and **device/system independence**
- Extended **diversity**, **specialisation** and a broader tool set
- Greater **alignment** and support for **assessment** as a **true learning experience**



Near future focus

WISEflow vision



Learning analytics

- Providing **data to guide** the individual student on progress, the professor in assessing the class, as well as the institution on **achievements on learning goals etc.**
- By means of **standardised assessment**, taxonomy based **rubrics**, proactive **data analysis**



Authentication

- **Identifying** and **locate** your students easy – **whether on campus or from distance** – and secure their exam action against **cheating** and **identity theft**.
- By means of **facial recognition**, advanced **monitoring** and **online proctoring**



Omnipresence

- Based on **Bring Your Own device (BYOD)**, **available 24/7**, independent of device (PC, tablet & mobile), **operating system** (Windows & IOS) and **browser** (IE, Chrome, Safari..).
- By providing cloud based **Software as a Service (SaaS)** and **fully web based access**



Diversity

- Providing for **various assessment forms** and **combinations thereof**, as well as supporting **specialised exam and assessment formats** (OSCE, programming, art etc.)
- By allowing **easy integration of external services** and building **advanced authoring tools**



Alignment

- **Align class actions** of teaching and learning with **assessment and test actions**, supporting **transparency**, **deep learning** and **easy and individualised human feedback**
- By implementation of **standardised rubrics**, support the **use of learning goals**, provide **easy/automatic scoring** and cater for **various feedback types** – including **peer-feedback**

Content providers vs. VLE vs. Assessment platform

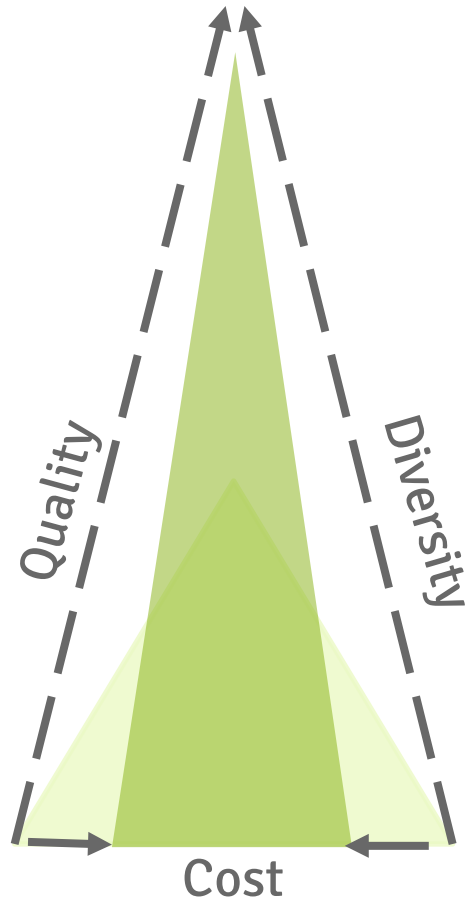
- A brief AS-IS comparison – regarding digital assessment for HEI today

** WISEflow as benchmark*

	Content / Stand alone Providers	VLE	Assessment Platform (Wf*)
TEST DIVERSITY	SIMPLE	MEDIUM	ADVANCED
ASSESSMENT TOOL SPECIALISATION	ADVANCED	MEDIUM	ADVANCED
FEEDBACK POSSIBILITY	MEDIUM	MEDIUM	ADVANCED
AUTHENTICATION & SECURITY	SIMPLE	MEDIUM	ADVANCED
ANALYTICS & STATISTICS	MEDIUM	MEDIUM	ADVANCED
INTEGRATION & API	SIMPLE	MEDIUM / ADVANCED	ADVANCED
FULL WORKFLOW SUPPORT	SIMPLE	MEDIUM	ADVANCED
TARGETING EXAM & ASSESSMENT	NOT / EXCLUSIVELY	NOT EXCLUSIVELY	EXCLUSIVELY
COST EFFECTIVENESS	LOW	MEDIUM / HIGH	HIGH
OVERALL CONCLUSION	SORT TERM QUICK FIX	REQUIRES MODIFICATION	LONGTERM SOLUTION

Recommendation

- Regarding digital assessment



By implementing a **digital assessment platform** like **WISEflow**, our HEI clients have shown they were able to:

Enhance quality

- Raise student **satisfaction**
- Provide better **feedback**
- Strengthen **transparency**
- Provide better **data** basis
- Align **test strategies**

Heighten diversity

- Expand **assessment methods**
- Raise **accessibility**
- Provide easier and global **availability**
- Better prevent **cheating** and **plagiarism**

Lower cost

- Decrease **manual labour** by 75%
- Eliminate manual **distribution costs**
- Lower **human errors**
- **Streamline** processes

“Digitalisation makes it possible to **stretch the iron triangle!**”

- *Sir John Daniel, former Vice Chancellor of Open University, UK*
(Referring to Adam Smiths *The Pin Factory* - 1776)

Thank you and “Bon voyage!”

- Digitalisation of assessment is inevitable – when will you join?



Curious for more info?

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