National Audit Office

Audit of the Future: a vision for data-led audit

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Why data-led audit?

- Quality
- Efficiency
- Insight into risks and adding value
- Increasing client use of technology
- ‘Expectations gap’
- Future automation of audit
- Integration of Financial and Performance Audit

ICAEW

2016 Report: Data Analytics for External Auditors

- “Auditor data analytics is about enhancing audit quality.”

- “The single most important and consistent message… is that everyone with an interest in audit has an opportunity – probably a rare one – to think again about what we all want from audit, and how data analytics might be able to transform it.”

- “Without [analytics], the ability of the profession to respond to market demands will be compromised and there is a risk that the external audit itself will be marginalised”

- “Auditors and regulators are working together with standards that never envisaged data analytics. Auditors… are obliged to help regulators understand exactly what the problems are.”

National Audit Office

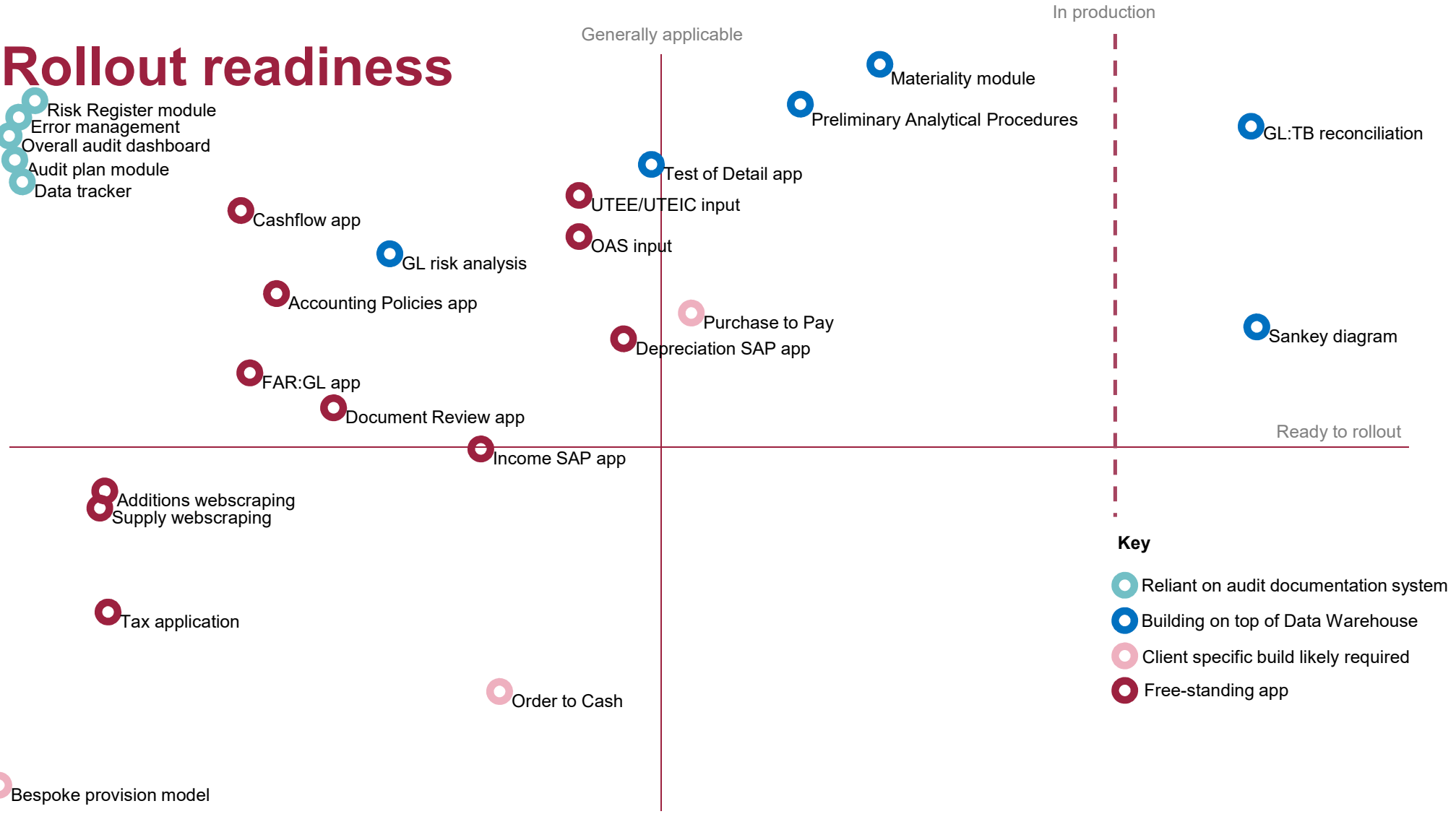
Project Objectives

Objective	Reached?
Test new methods and technologies currently within the scope of the standards	All of the technologies we hoped to use have been tested to some extent. We have identified scope to try further technologies, like Computer Vision and more complex Natural Language Processing in 2.0 versions of the software.
Demonstrate the value we might bring to our smaller clients	The full business process mapping and analysis exercise undertaken through the project enables more insightful recommendations, which will add value to clients. Automation software should also realise efficiencies, and make evidence collation easier, reducing the burden of audit on some (data-ready) clients.
Test methods not currently supported by the standards	We have always found a way to use analytics in a way we believe is standards-compliant. We have identified areas (i.e. predictive analytics) where we do not yet have the technical knowledge to implement analytics, and where the standards have yet to catch up.
Build tools on our own data which finance or internal audit can use	Ready to provide to Finance/IA: • Business process maps • Provision calculation model • Test of Detail invoice reading app • Sankey diagram • Fee income v audit cost analytic

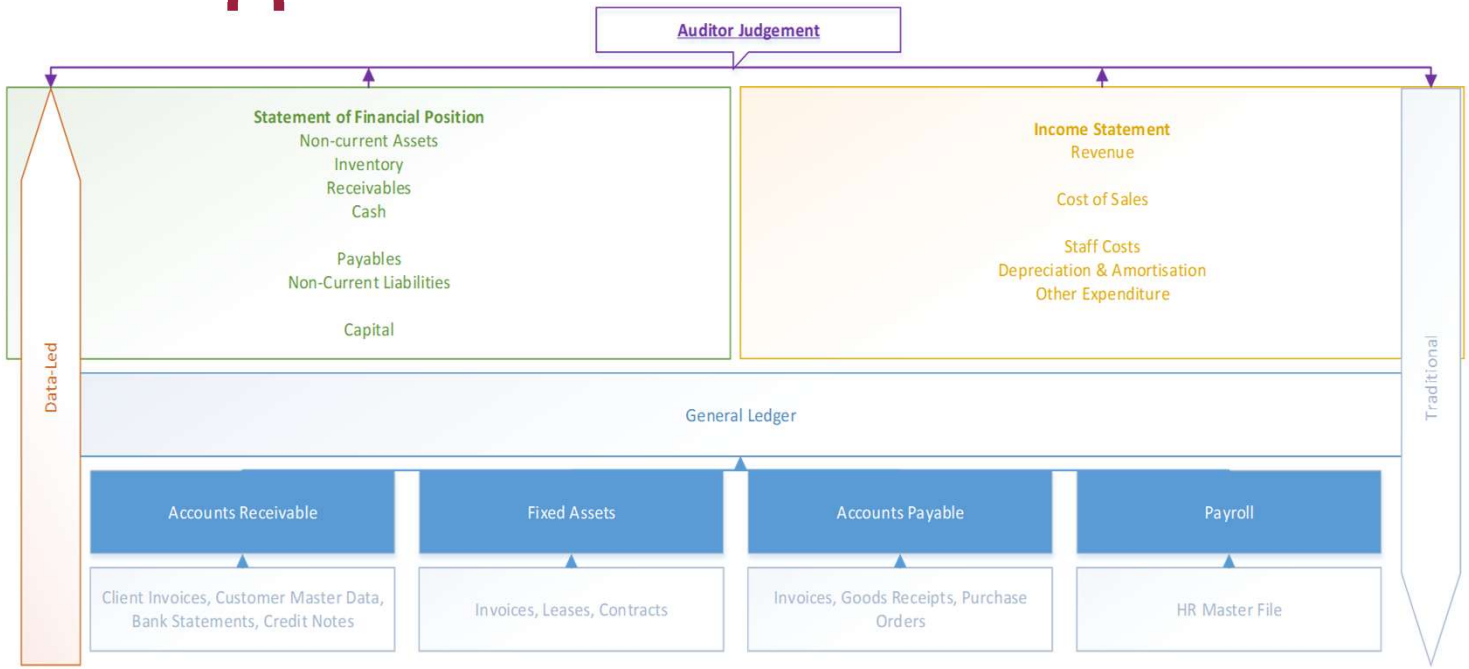
Project Objectives

Objective	Reached?
Build a realisable vision to work towards, and share with others	Achieved – we have an interactive system skeleton, and a suite of apps, that indicate what 'best' could look like for data-led audit. This vision has informed our future work programme planning, and highlighted where effort should be spent first to achieve data-led audit.
Identify and quantify where we have skills gaps and technology gaps	• Data-literacy on the front-line • Systems and process mapping knowledge in the centre and in clusters • AIMS/standardisation of data • Machine learning, AI, computer vision expertise in DART
Build a comparative framework to see where we can realise efficiencies	Planned for Audit of the Future stage 2: Shadow Audit
Identify efficiencies and ways of adding value internally to NAO business processes	Achieved

Rollout readiness



Audit approaches



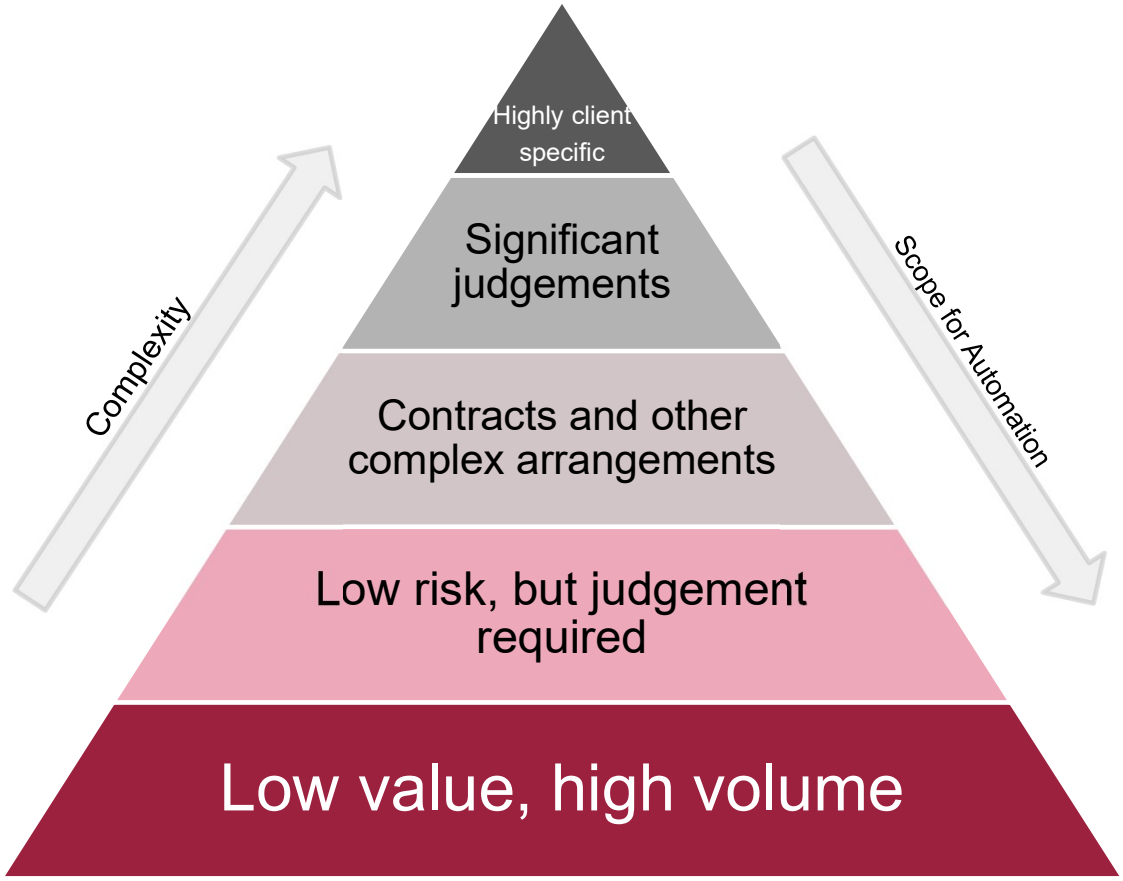
Traditional

- Top down
- Balances to records
- Risks identified through large balances or changes
- Thorough balance understanding

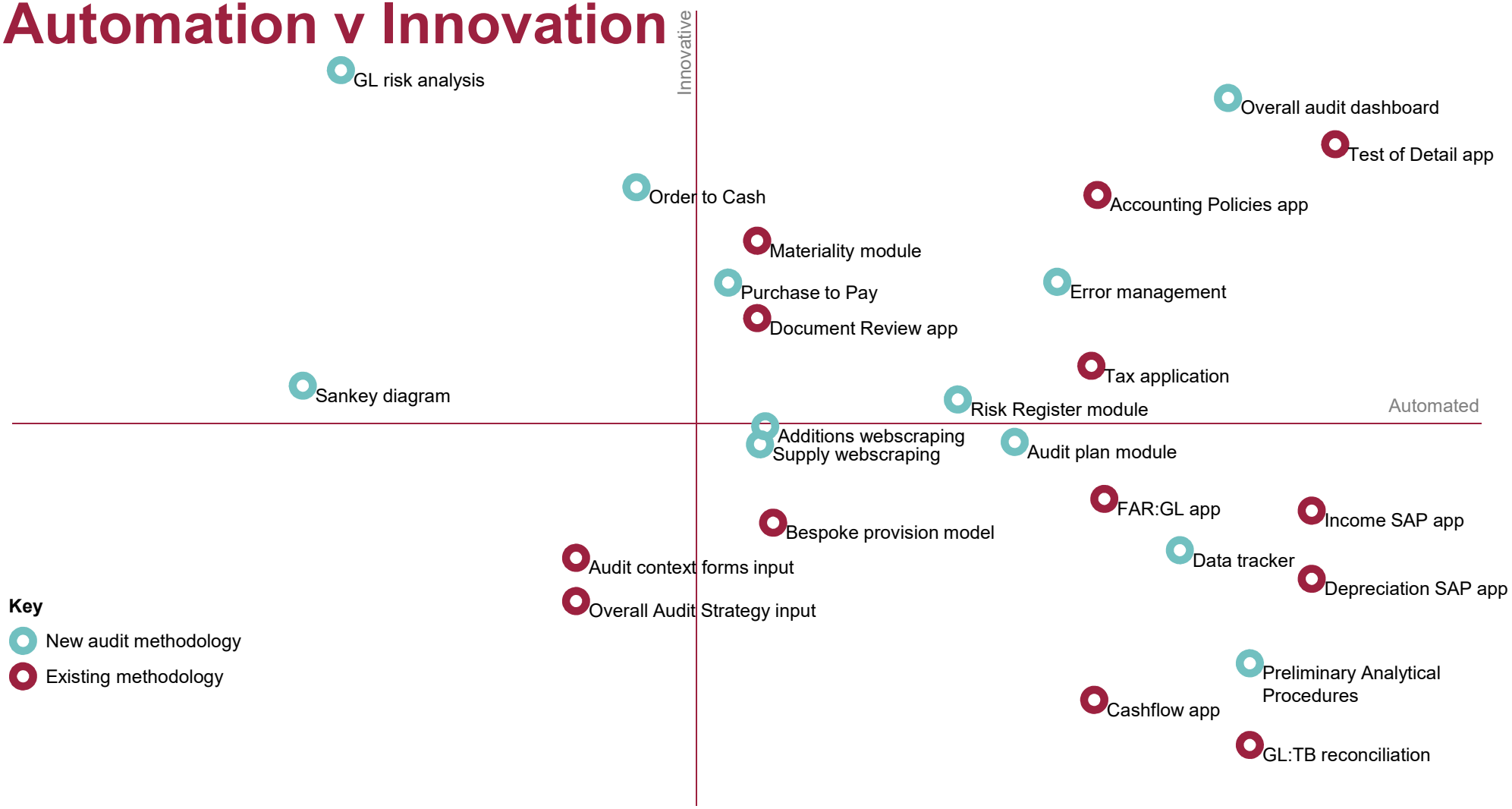
Data led

- Bottom up
- Records to balances
- Risks identified through understanding processes and identifying anomalous activity
- Thorough business understanding

Automation potential



Automation v Innovation



Where next? Development of ML projects – potential timeline

Timeline	2018/19	2019/20	2020/21	2021/22	2022/23
Unsupervised ML Projects					
Detecting unusual flows within the GL	Develop	Test	Deploy		
Identifying themes within documents	Further develop & test	Deploy			
		learning re: interpretability in audit & FRC approvals			
Supervised ML methods					
Detecting presence of building types from aerial imagery	may require initial investment to create training datasets	Develop & test	Deploy		
Identifying and classsifying data about leases		Develop & test	Deploy		
Predicting fraud/errors based on past experience			Develop	Test	Deploy
			training datasets		
AIMs Project					
- years of data built up in system	18/19	18/19-19/20	18/19-20/21		
Other					
Further research into techniques (see annex)	X	X			
Training of staff in implementing and understanding		X	X	X	X
Development of ML/data science infrastructure		X			

Embedding analytics