



THE UNIVERSITY OF
BUCKINGHAM

BUCKINGHAM LEAN ENTERPRISE UNIT (BLEU)
BUCKINGHAM BUSINESS SCHOOL

Integrating Lean Six Sigma Tools in Management Systems Performance Assessments

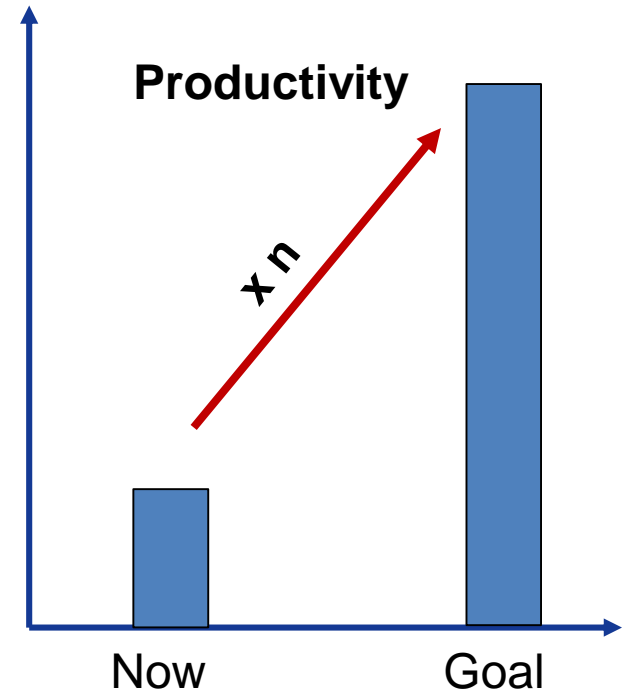
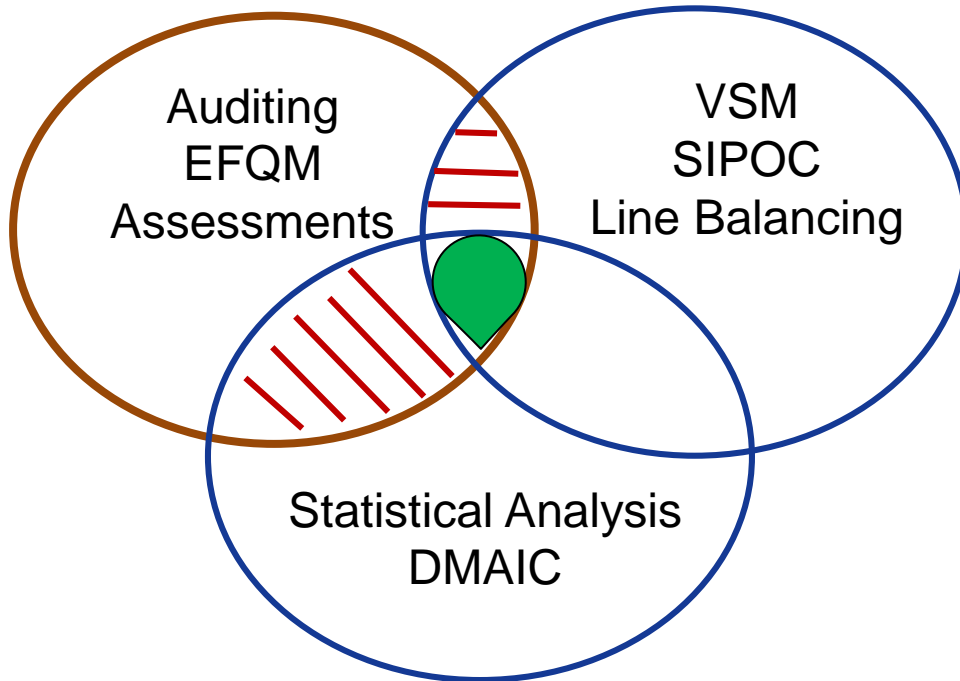
Pablo Colman - Operational Excellence Doctorate Candidate

Co-authors:

Mishaal Al Harbi – Operational Excellence Consultant (Company A)

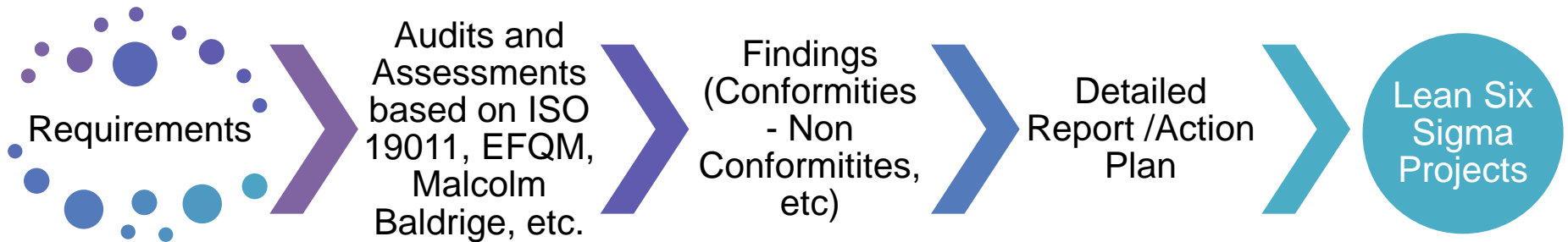
Pauline Found – Professor and Supervisor

What is this presentation about



The Idea – Assess to Improve

Current Assessment Process



Enhanced Model



The paper

- **Literature Review – 150 documents**
 - Theories (i.e. Bureaucracy)
 - Audits and Assessments
 - Quality Management Systems & Tools
 - Six Sigma
 - Oil and Gas Industry statistics
 - Compliance Vs Performance
- **Case study – Company A***

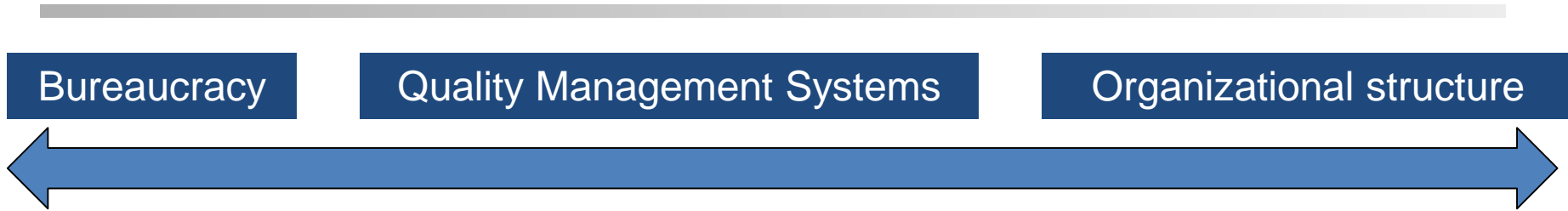


* The data collected is confidential and Company A will remain anonymous throughout the paper/presentation



THE UNIVERSITY OF
BUCKINGHAM

Literature Review



- **Integration of Lean Six Sigma in Audits is not a common practice today – Limited Literature**
- **Audits are supposed to measure effectiveness**
- **Culture and individual differences should not be underestimated**

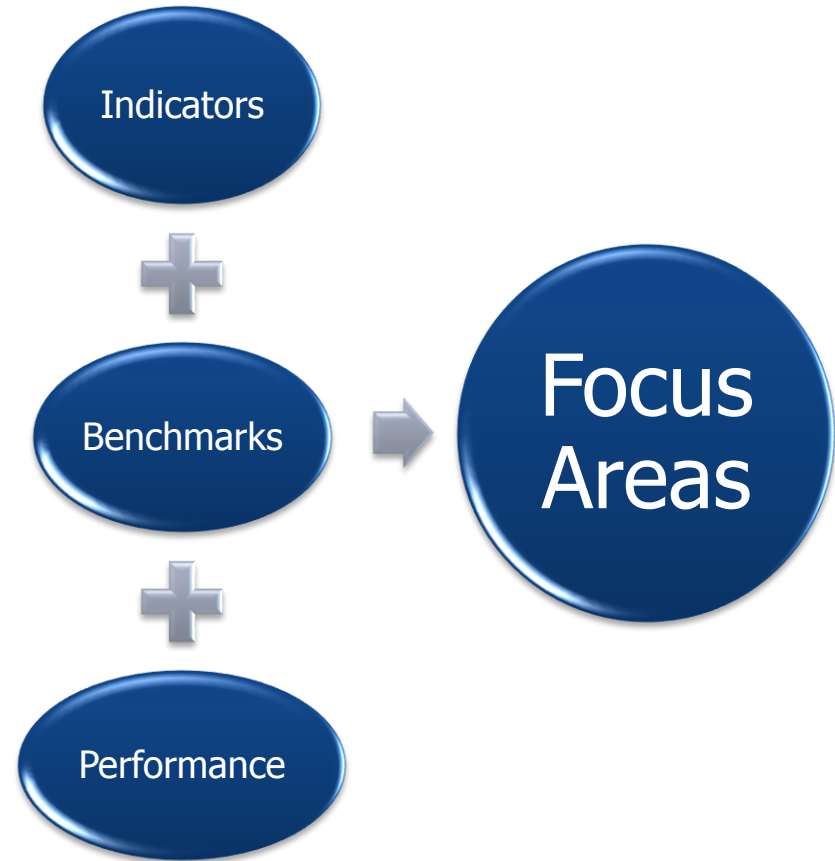
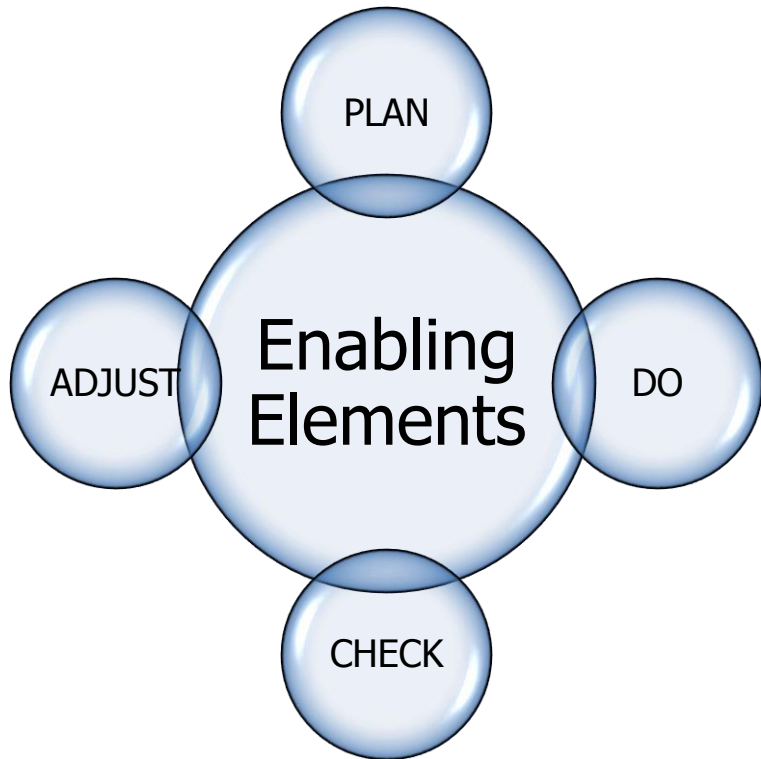


Case Study – Company A

- **Oil and Gas sector**
- **Adopted a Quality Management System based on ISO 9001 and EFQM Model**
- **50 Internal Corporate Assessments ever year**
 - **Team: Multidisciplinary**
 - **Duration: 5 weeks**
 - **Methodology: ISO 19011 and EFQM**
- **Following each Assessment, the assessed organization completes a survey to provide their feedback**



Assessment in Company A



Hypotheses & Data

Hypothesis:

H01: The main focus of the OE assessments is compliance against company standards and requirements

H02: The integration of Lean and Six Sigma tools in the auditing methodology will yield better results and enhanced value obtained from the assessments

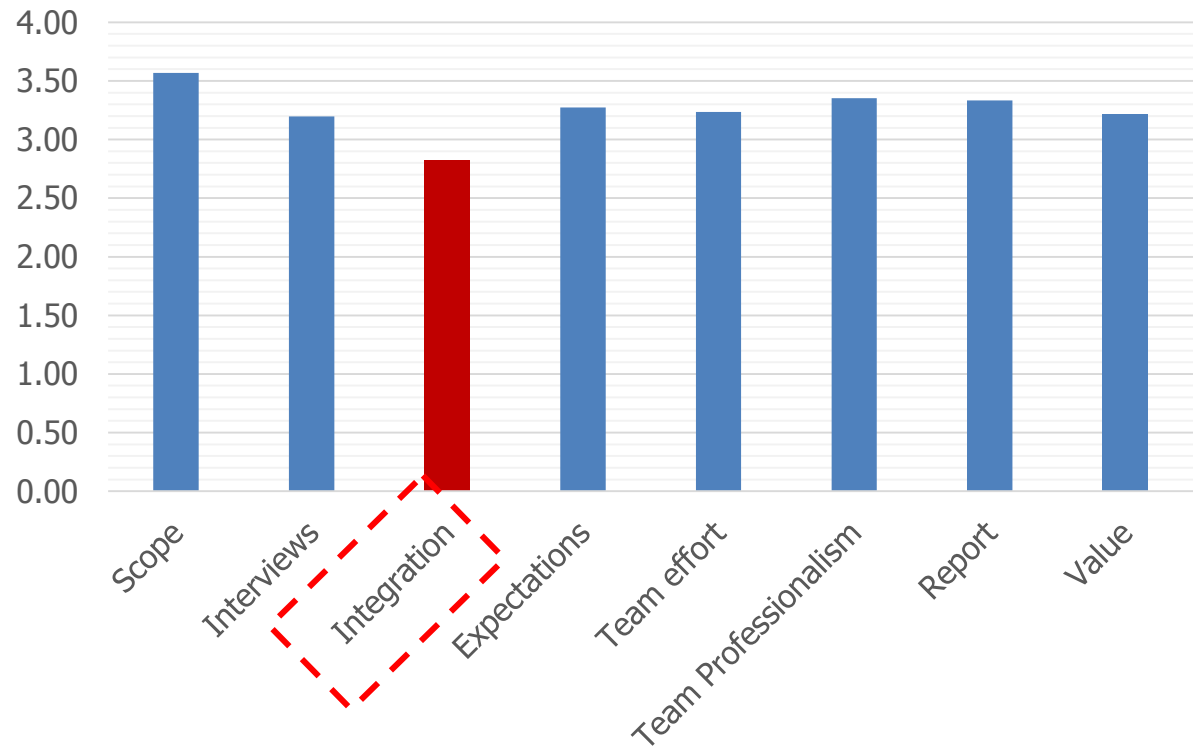
Data:

Source	Sample size
Assessed Organizations Surveys	60
Feedback from the assessors	29
Assessment Reports (Traditional)	<ul style="list-style-type: none">• 20 Assessment Reports• 1747 Statements
Assessment Reports (Enhance Model)	2



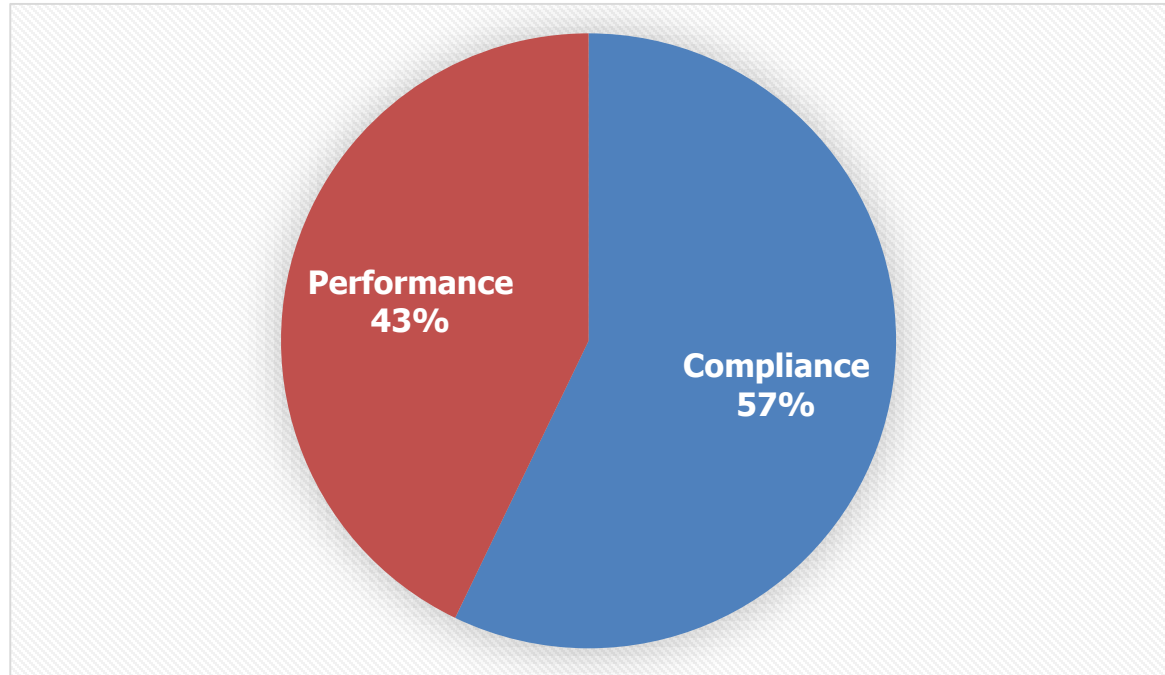
Analysis – Customer Feedback

- Integration between Sub-Systems (Safety, Environment, Reliability) and Depth of the assessment
- **The assessments of these subsystems is mainly driven by compliance**



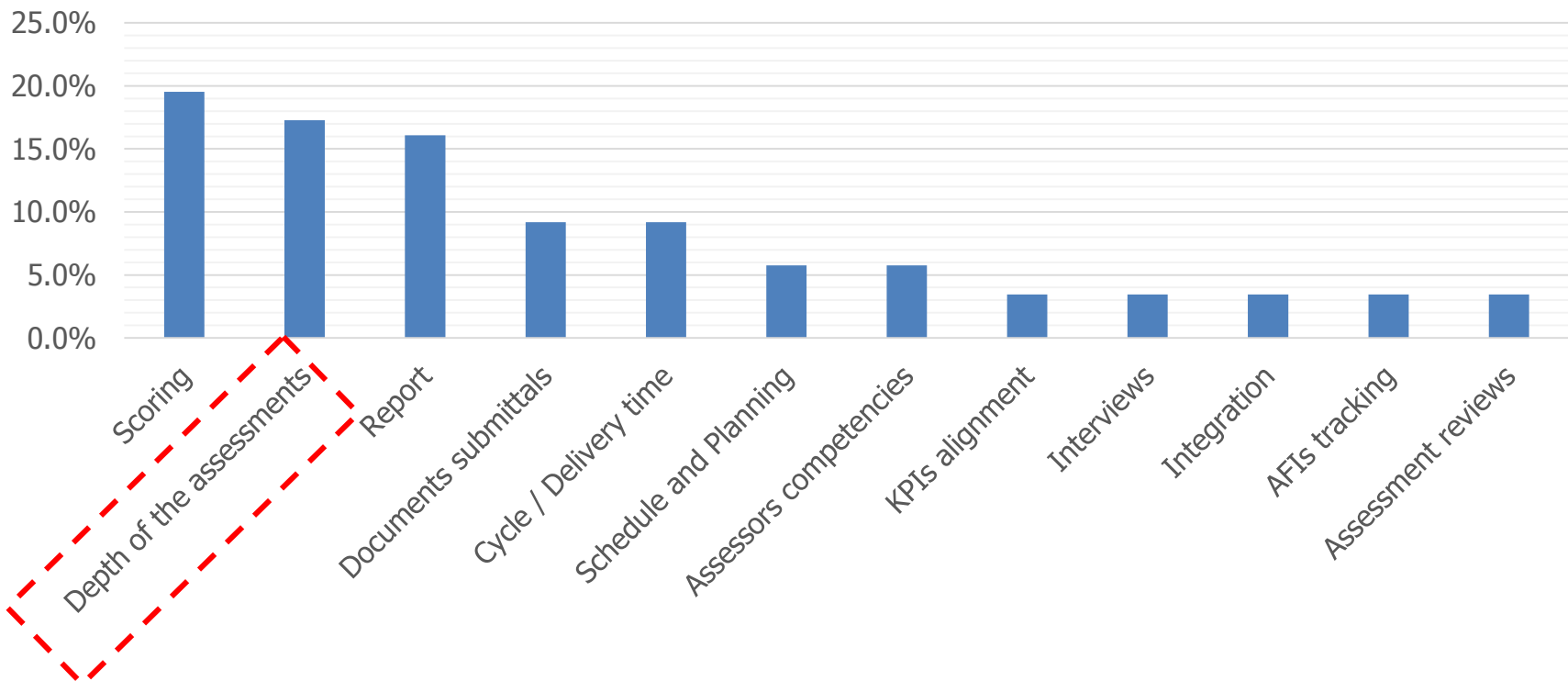
Analysis – Assessors Feedback

The majority of the assessors agree that the **main focus of the OE assessments is compliance**



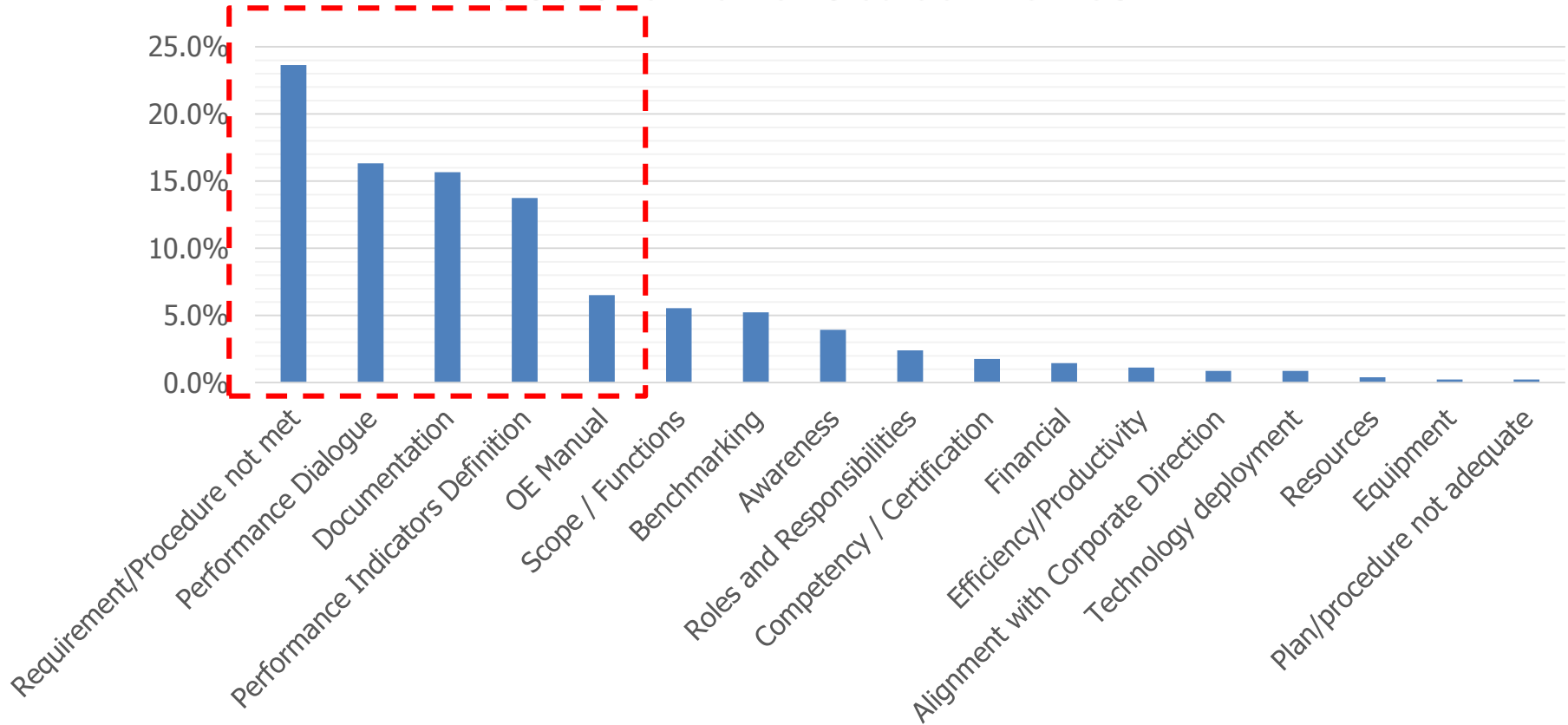
Analysis – Assessors Feedback

Improvement Opportunities



Analysis - Statements

Focus of the Statements



New Approach



Opportunity – Traditional Approach	Opportunity – Integrated Model	QMS Process
<p>The Org XX have not established customer focus meetings and should consider starting to conduct them</p>	<p>The “examination” tables are currently fully booked and it takes 1-2 months to get a slot. The analysis of the utilization shows that only 60% of the time the tables are actually being used. The Org X should evaluate the root causes in collaboration with its customers to enhance this measurement</p>	<p>“Customer Focus”</p>



Case Study Conclusions

● Hypothesis:

- H01: Focus is compliance
- H02: The integrated approach yields better results (i.e. Productivity increase by a factor of 3 following the assessment)*

* More samples are required to ensure the sustainability of this approach



Overall Summary & Way Forward

- **There is an opportunity to combine the assessment process and Lean Six Sigma Tools to yield better results**
- **Main focus of the Assessments today is Compliance – we need to move more towards performance**

Way Forward

- **Evaluate how culture and individual differences impact the assessment process**
- **Conduct more case studies to optimize the proposed assessment model**



Q&A



Source: google images



THE UNIVERSITY OF
BUCKINGHAM

BUCKINGHAM LEAN ENTERPRISE UNIT (BLEU)
BUCKINGHAM BUSINESS SCHOOL

Q&A