

QMS Implementation in Engineering Organisations: A comparative Study of Size-Contingent Practices and Outcomes in SMEs and Large Firms

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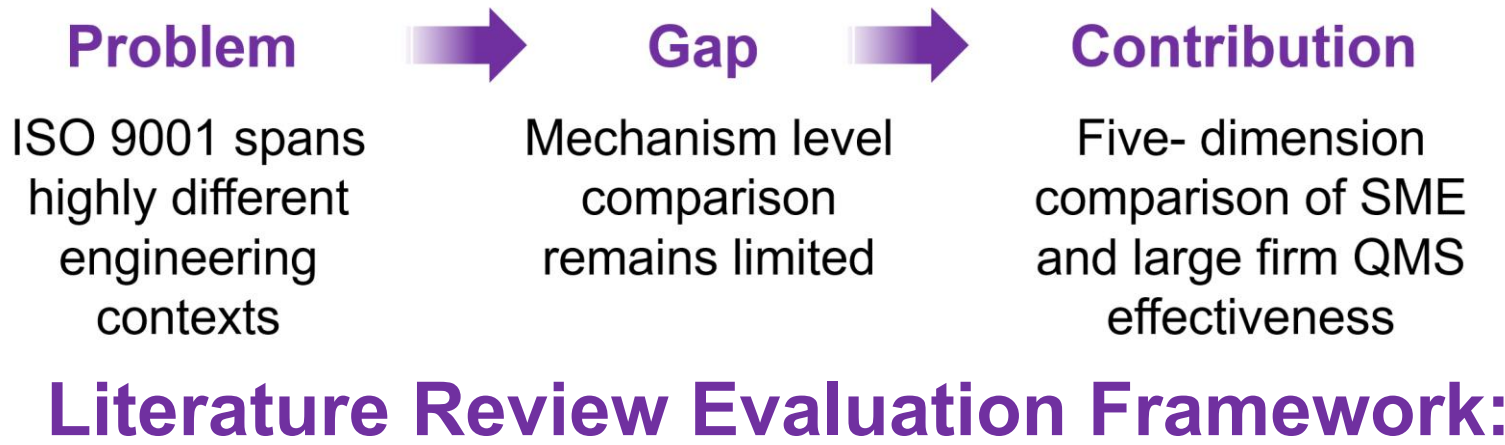
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Introduction

- QMS supports control, compliance, and contextual improvement in engineering organisations
- Implementation conditions differ between company size/typologies
- Research shows these groups experience QMS differently, but comparative studies on implementation mechanisms remain limited; this study addresses that gap

Research Objectives:

- RO1: Identify size-contingent implementation mechanisms
- RO2: Derive implications for proportionate QMS design
- RO3: Evaluate links between implementation differences and improvement outcomes
- RO4: Compare QMS implementation in SMEs and Large Engineering Organisations



SME

<250 employees
Constraints

Time Scarcity

No dedicated quality role

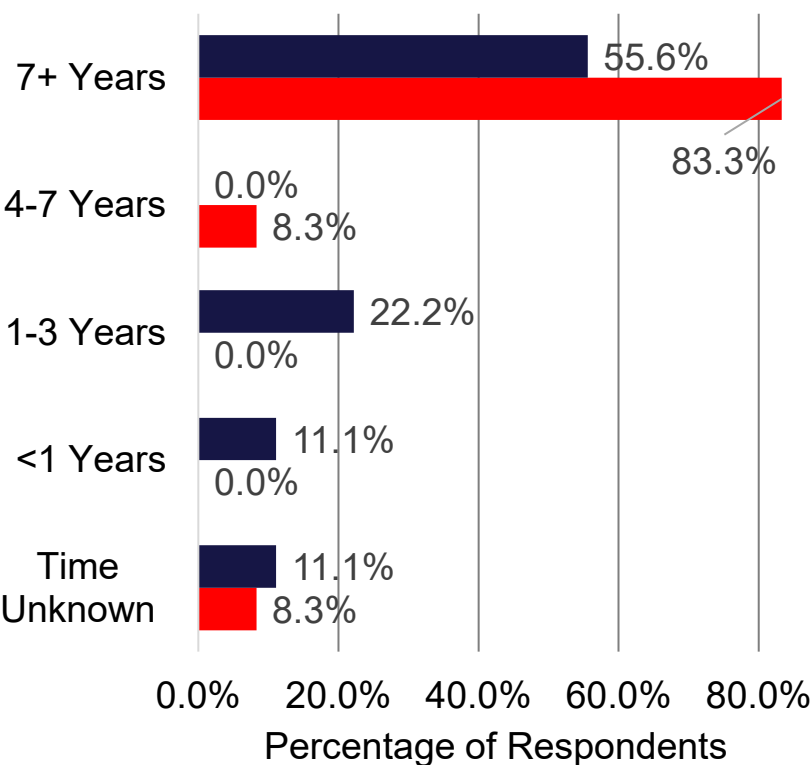
Software costs

Benefits Coming Out

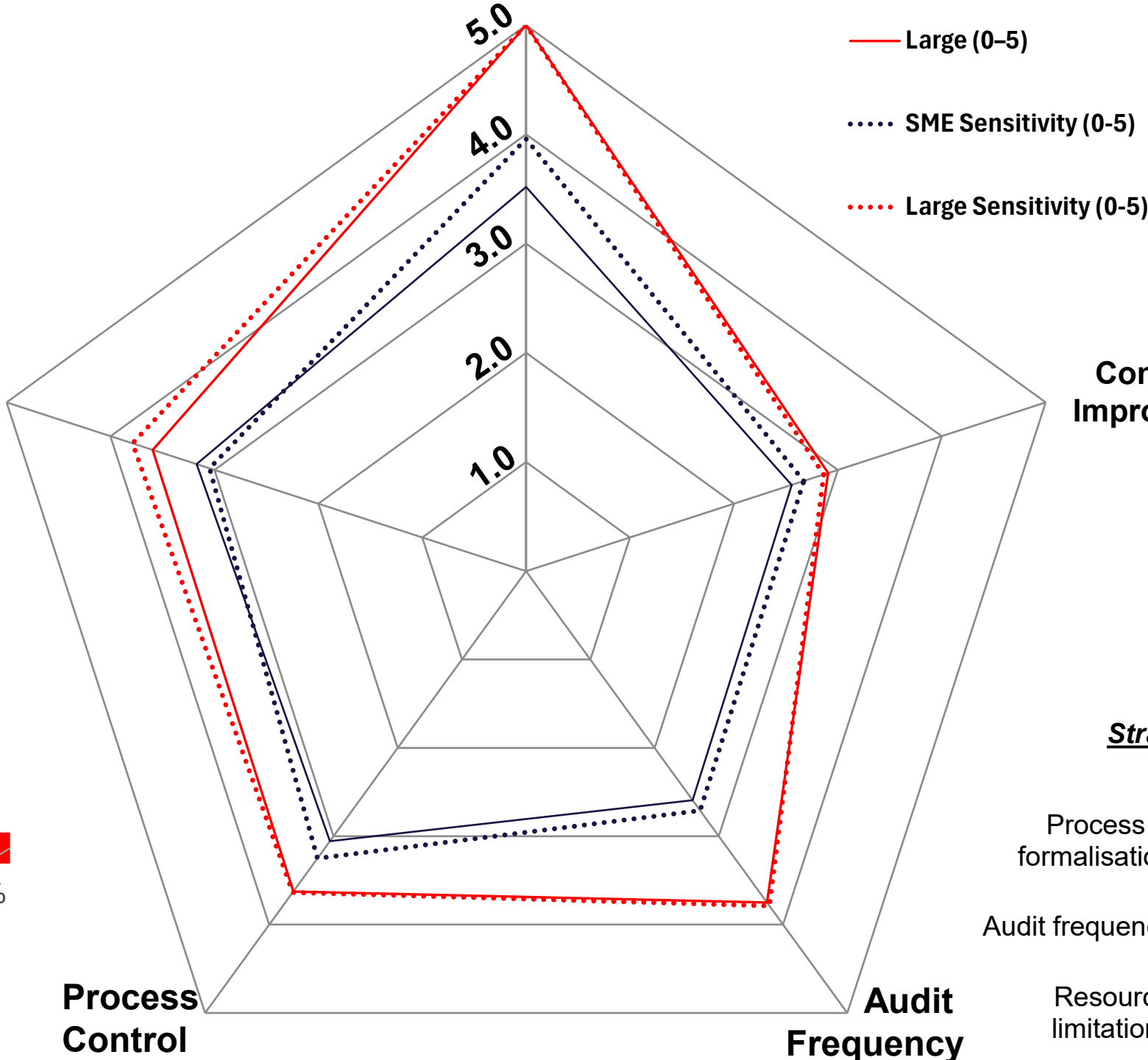
Documentation 88.9%

Error reduction 88.9%

QMS Duration



VS QMS Maturity Profile



Perceived Benefits of QMS implementation

Outcome	SME (%)	Large (%)	Average	Outcome	Δ Large - SME (%)
Reduced errors	88.9	91.7	90.3	Accountability	44.4
Accountability	55.6	100.0	77.8	Customer satisfaction	22.3
Documentation	88.9	66.7	77.8	Faster lead times	5.6
Customer satisfaction	44.4	66.7	55.6	Reduced errors	2.8
Faster lead times	11.1	16.7	13.9	N/A	-11.1
N/A	11.1	0.0	5.6	Documentation	-22.2

Large

≥250 employees
Constraints

Training volume

Compliance resourcing

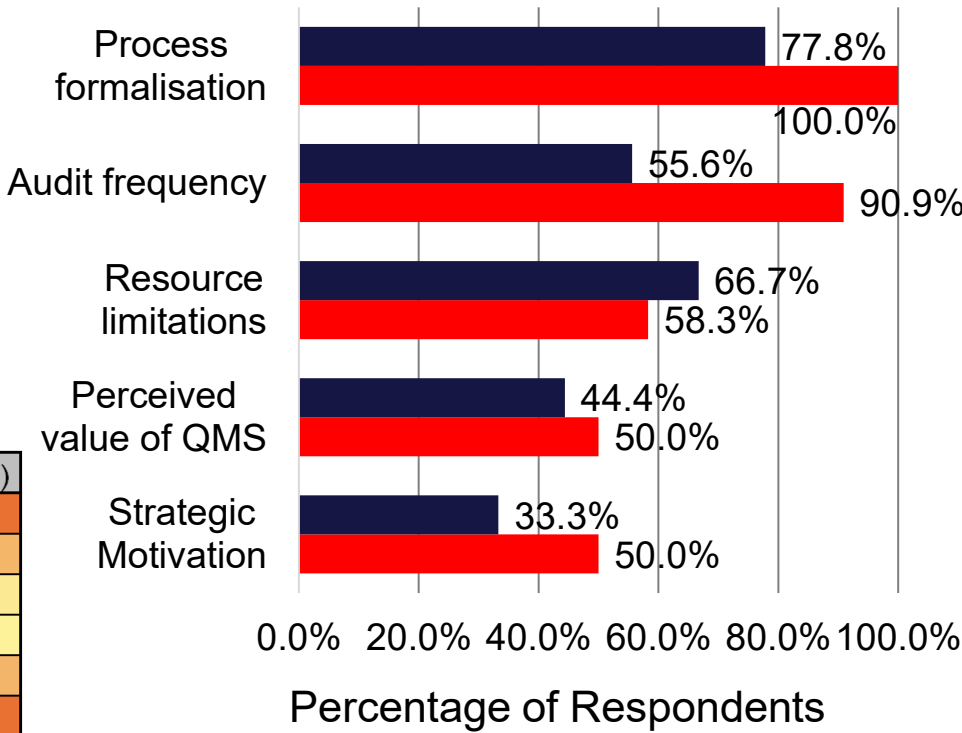
Documentation burden

Benefits Coming Out

100.0% Accountability

66.7% Customer satisfaction

Strategic and Structural Conditions Supporting Implementation



Conclusions:

Size shapes how QMSs work, not whether it works. The gap between SMEs and large organisations is predominantly structural rather than motivational. SMEs are constrained by resource scarcity whereas large organisations are constrained by administrative burden. Both reduce errors; however, large organisations gain more in accountability and customer satisfaction while SMEs gain more in documentation. SMEs need structure, large organisations need substance. These findings show one standard applied uniformly does not serve all organisations equally, therefore, size-contingent implementation is warranted.