



Achieving Effective & Efficient M&S

Insights into the Current Position Across Industry Sectors

Andy Richardson
PHRONESIM

nafems.org

THE INTERNATIONAL ASSOCIATION FOR THE ENGINEERING MODELLING, ANALYSIS, AND SIMULATION COMMUNITY.



Why do Organisations use Simulation?

*Deliver **better** products*

*Deliver **more** products **faster***

*Reduce error states:
Improve product **quality***

*Reduce **development costs***

*Reduce **product & operating cost***



What are your Goals?

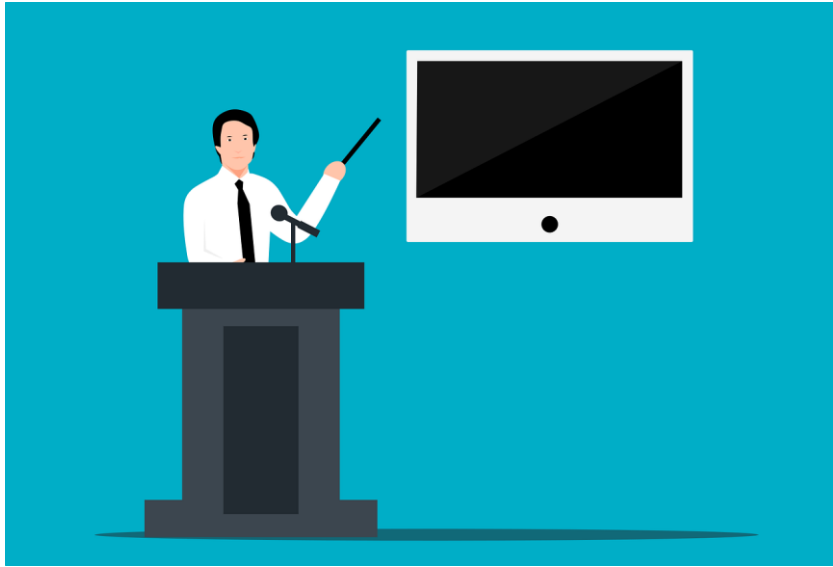


What does it take?

ESSENTIAL ELEMENT	DESCRIPTION
PROCESS	<i>Efficient</i> processes that define the simulation workflows and <i>aligned</i> to the overall development processes.
METHODS	<i>Capable</i> and <i>verified</i> methods that define how to model the specific physics required to deliver the product requirements.
TOOLS	<i>Capable</i> and <i>connected</i> tools to model the correct physics accurately.
MODELS	<i>Representative</i> and <i>accurate</i> models that reflect the latest design intent
DATA	<i>Reliable</i> and <i>accessible</i> technical data to define material properties, technical specifications, modelling parameters, and use cases.
PEOPLE & ORGANISATION	<i>Skilled</i> and <i>experienced</i> people with product knowledge and experience of the tools and methods, organised effectively to maximise collaboration and efficiency.
COMPUTE INFRASTRUCTURE	<i>Sufficient, reliable</i> and <i>flexible</i> computing infrastructure and resources to execute the complex and large scale simulations.



Strategy eLearning Course





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How to Implement a Modelling & Simulation Strategy

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Unlock the Full Potential of Modelling and Simulation in your Organisation

How to Implement a Modelling & Simulation Strategy

The technological advances of recent years have led to a massive increase in product complexity. Businesses need to make sure they can engineer and deliver efficient and optimised products to not only lead but also remain competitive.

Maximising the opportunities and benefits gained from the latest digital engineering capabilities is critical. Adopting local optimum solutions is ineffective, so businesses must invest in a comprehensive and coordinated approach to achieve the global optimum and maximise the effectiveness of their digital engineering capability.

To achieve this, you need a Digital Engineering (Modelling and Simulation) Strategy that takes account of the tools and the processes, methods, models, data, organisation, and computing infrastructure.

This high-level training course focuses on modelling and simulation tools from a C-level perspective, identifying **business goals, product requirements** and **organisation needs** before introducing a framework that will **become the foundation** of your comprehensive Modelling and Simulation strategy.

It also addresses the challenges you'll face when deploying the strategy, and shows you how to **tackle them head-on** to ensure successful implementation.



Five-Session e-learning masterclass

3/3.5 hours per session
PDH Credits - 15

Attend the live sessions, or view the recordings at your convenience.

Please click here to view the FAQ section, or if you need to contact NAFEMS about this course.

Engineering Board PDH Credits
*IT IS YOUR INDIVIDUAL RESPONSIBILITY TO CHECK WHETHER THESE E-LEARNING COURSES SATISFY THE CRITERIA SET-OUT BY YOUR STATE ENGINEERING BOARD. NAFEMS DOES NOT GUARANTEE THAT YOUR INDIVIDUAL BOARD WILL ACCEPT THESE COURSES FOR PDH CREDIT, BUT WE BELIEVE THAT THE COURSES COMPLY WITH REGULATIONS IN MOST US STATES (EXCEPT FLORIDA, NORTH CAROLINA, LOUISIANA, AND NEW YORK, WHERE PROVIDORS ARE REQUIRED TO BE PRE-APPROVED)



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ENGINEERING SIMULATION STRATEGY SOLUTIONS

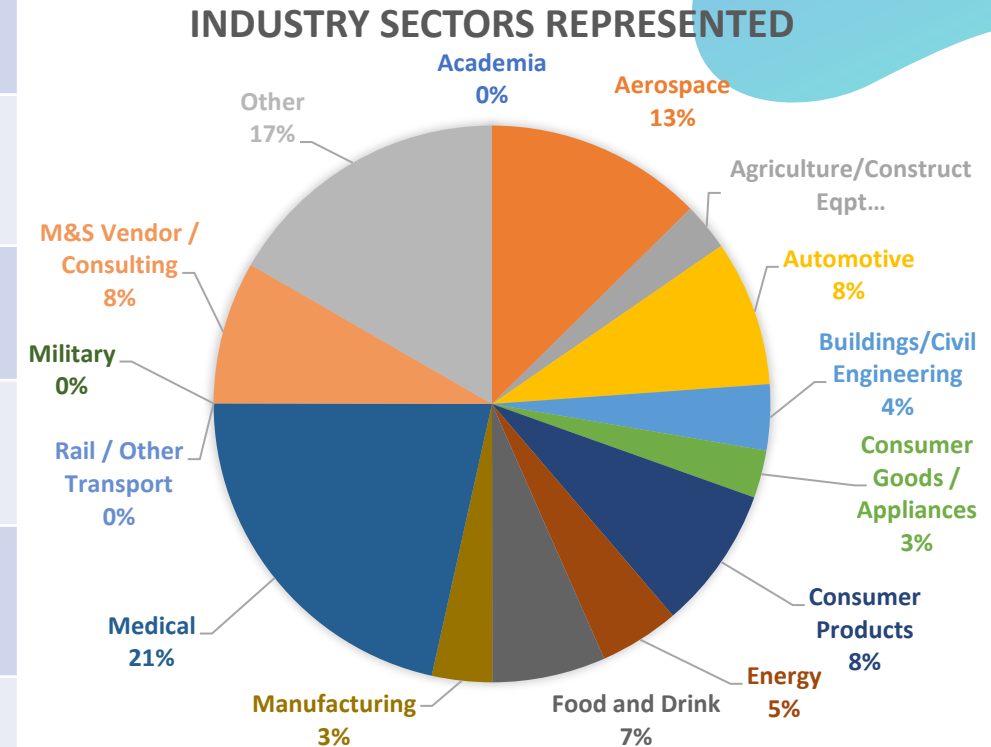
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Course Participation

When	Course	Participants	Countries	Companies
October 2022	eL430	31	15	25
January 2023	eL461	17	8	15
May 2023	World Congress	60	20*	30*
August 2023	eL473	25	10	24
November 2023	eL496	22	7	14
Totals		155	20	108

*Includes some estimates



Mini Survey

Q&A Polls

What sector does your organisation sit in? 3

☐ Aerospace

☐ Automotive

☐ Buildings / Civil Engineering

☐ Construction Equipment

☐ Consumer Product

☐ Energy

☐ Food and Drink

☐ Manufacturing

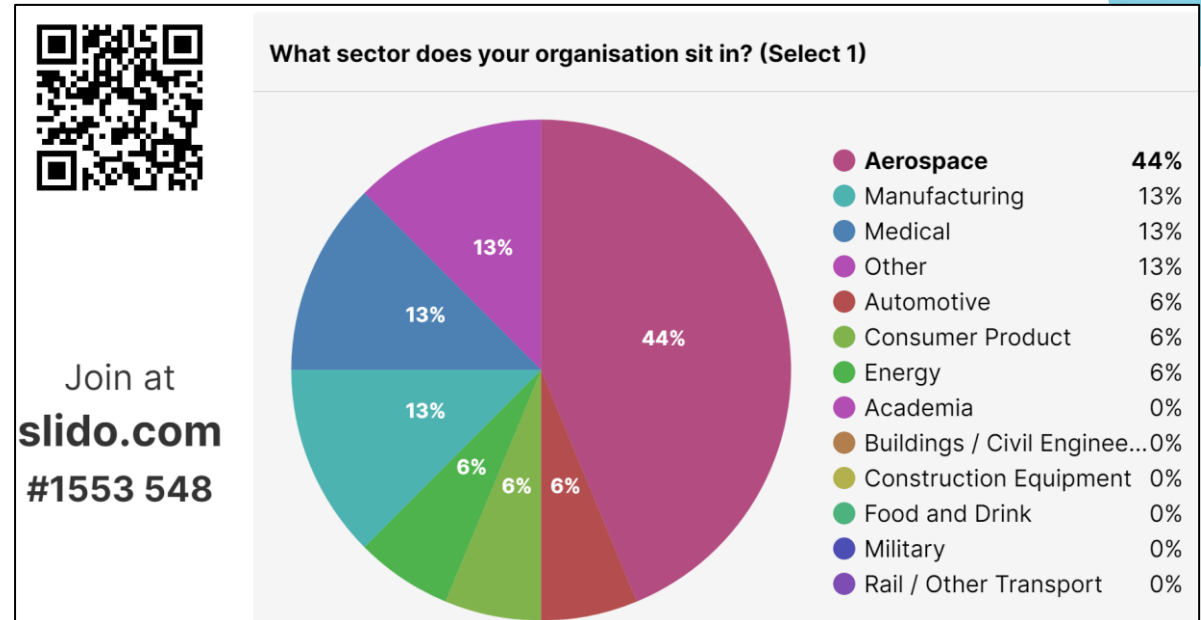
☐ Medical

☐ Rail

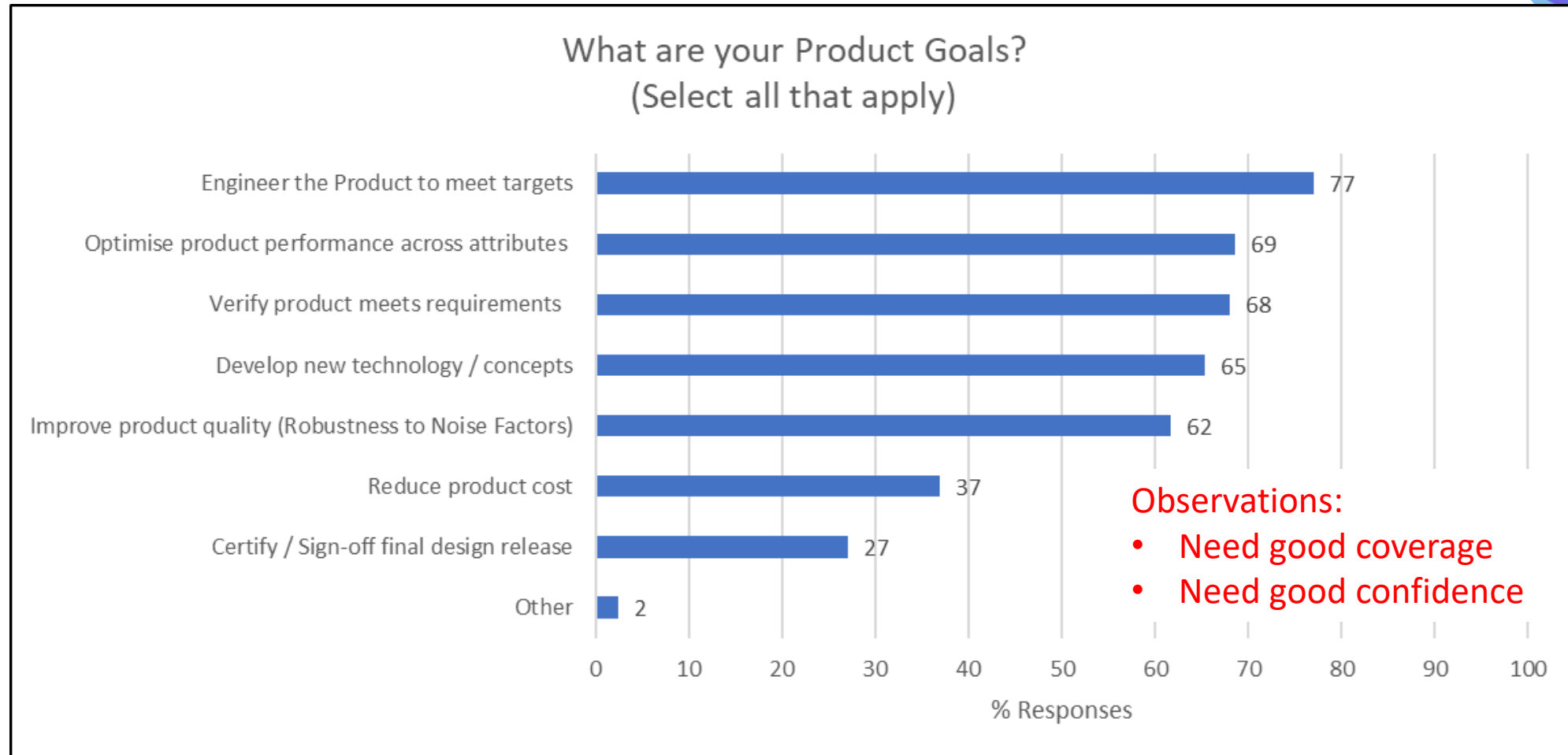
☐ Other

Send

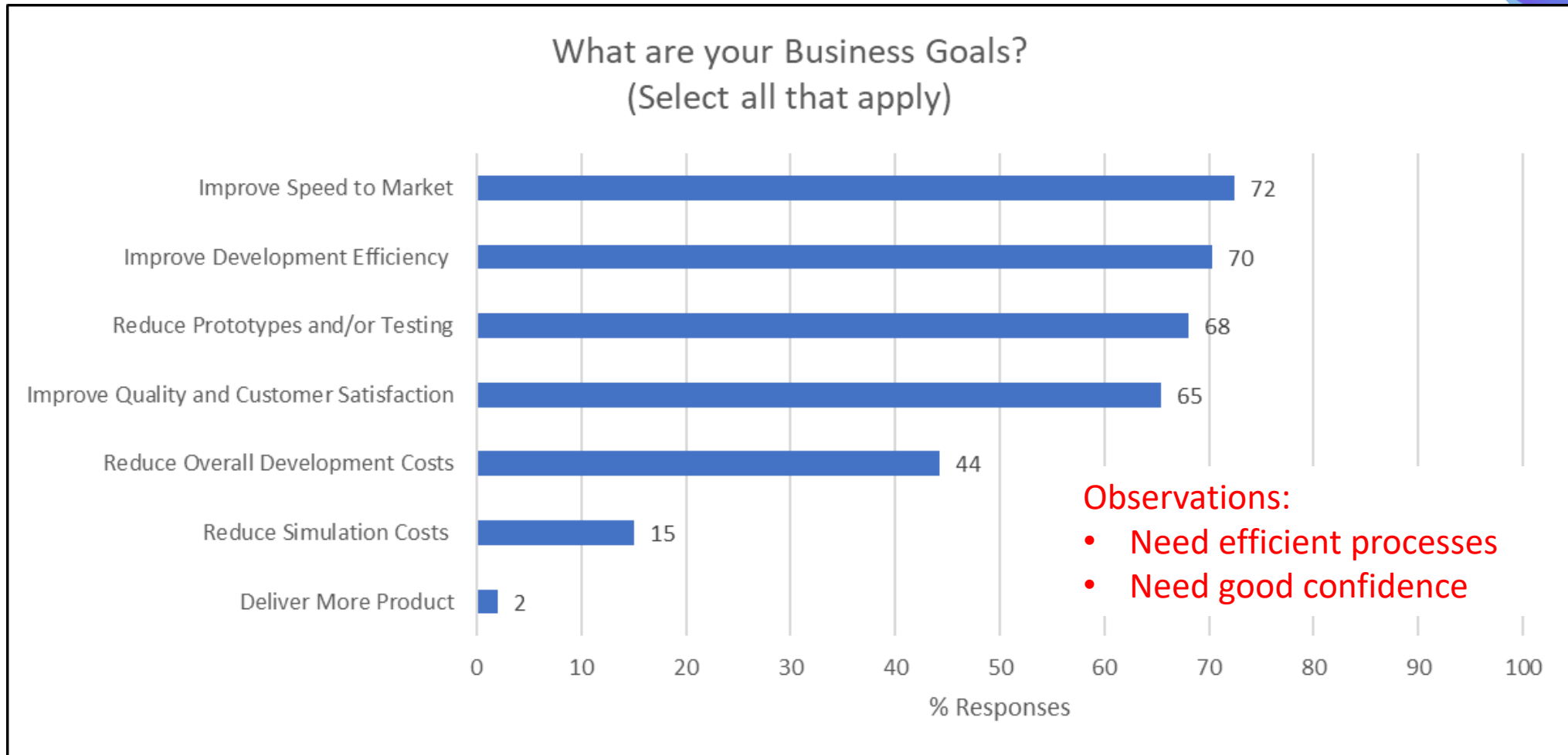
Voting as Anonymous



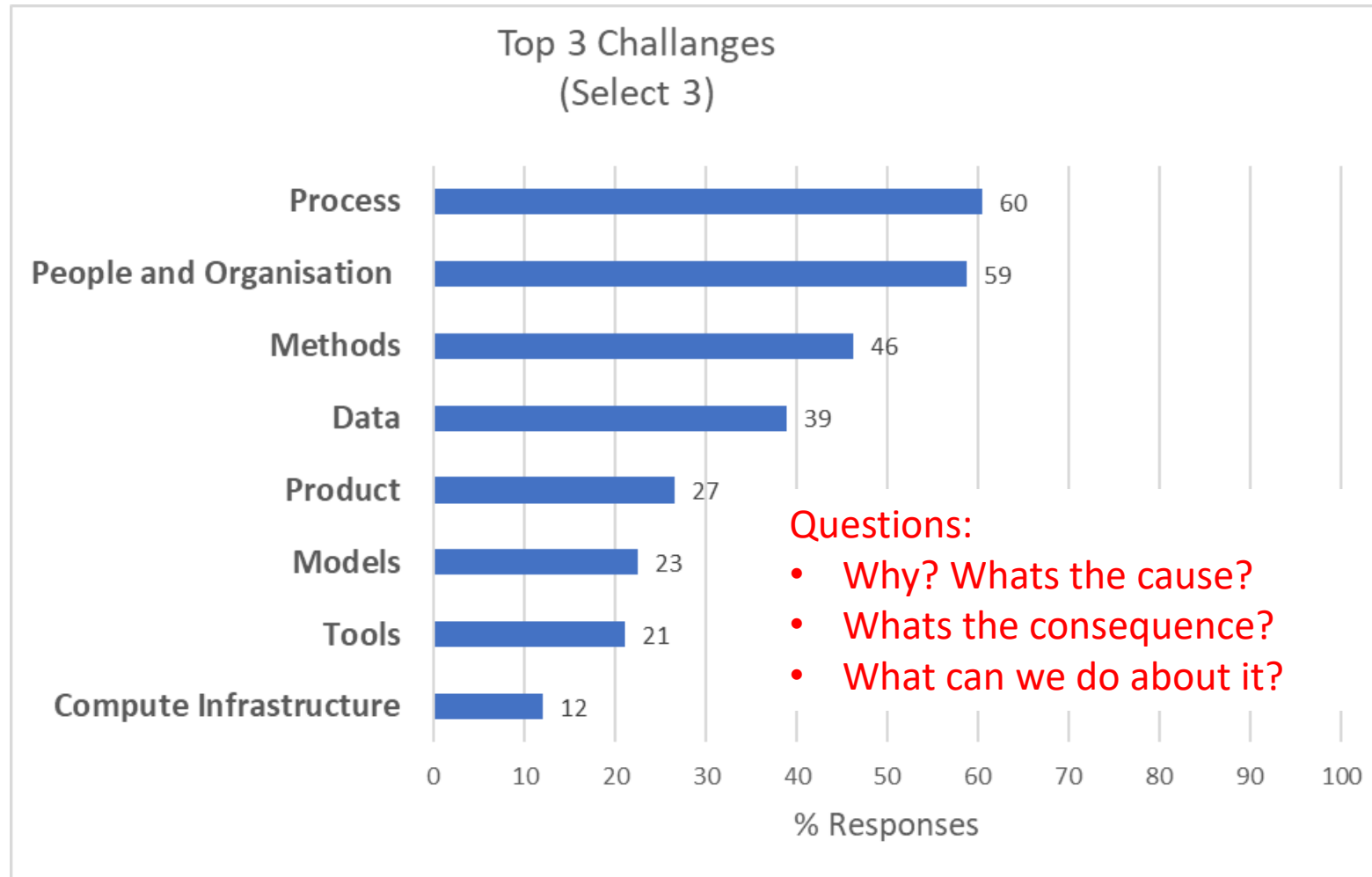
Product Goals



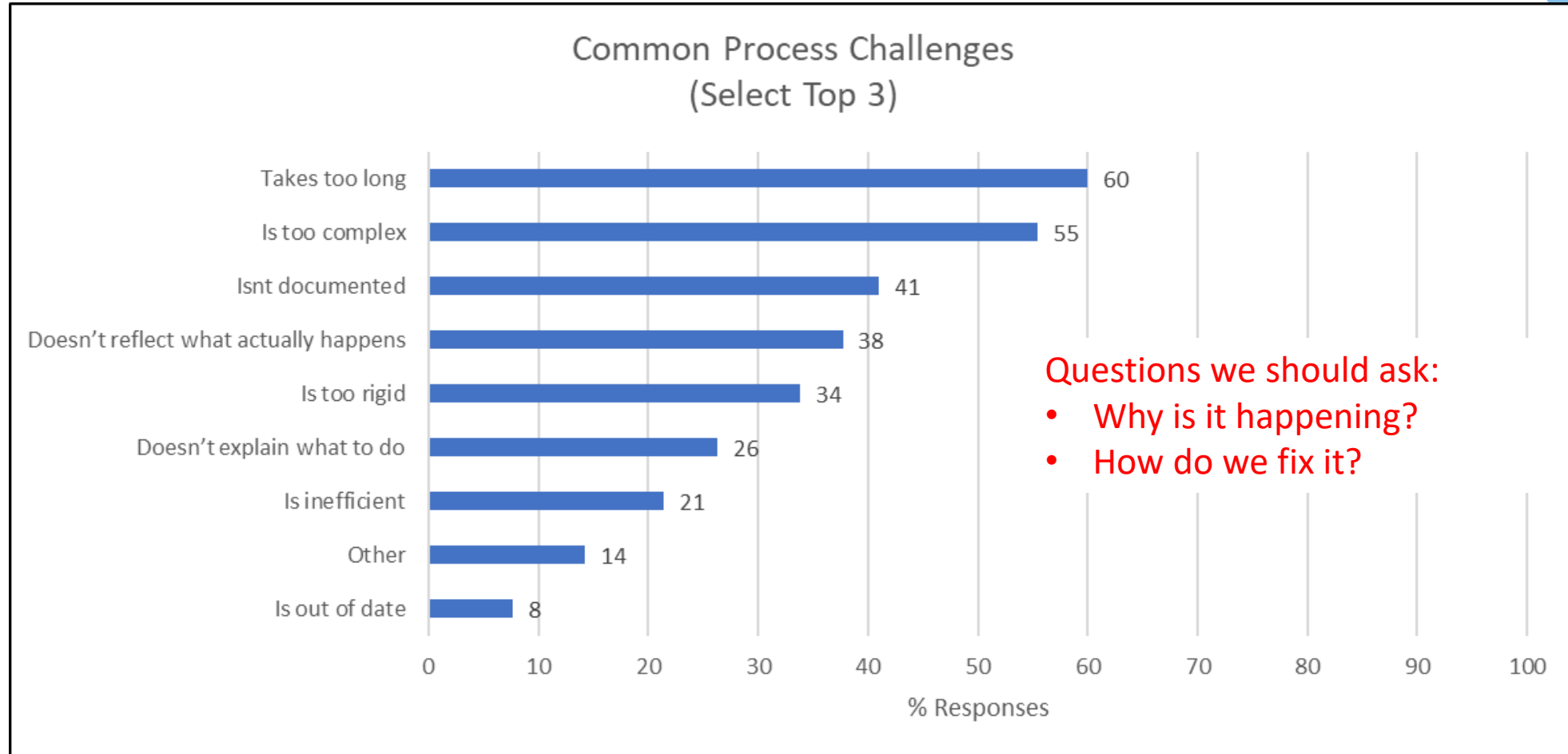
Business Goals



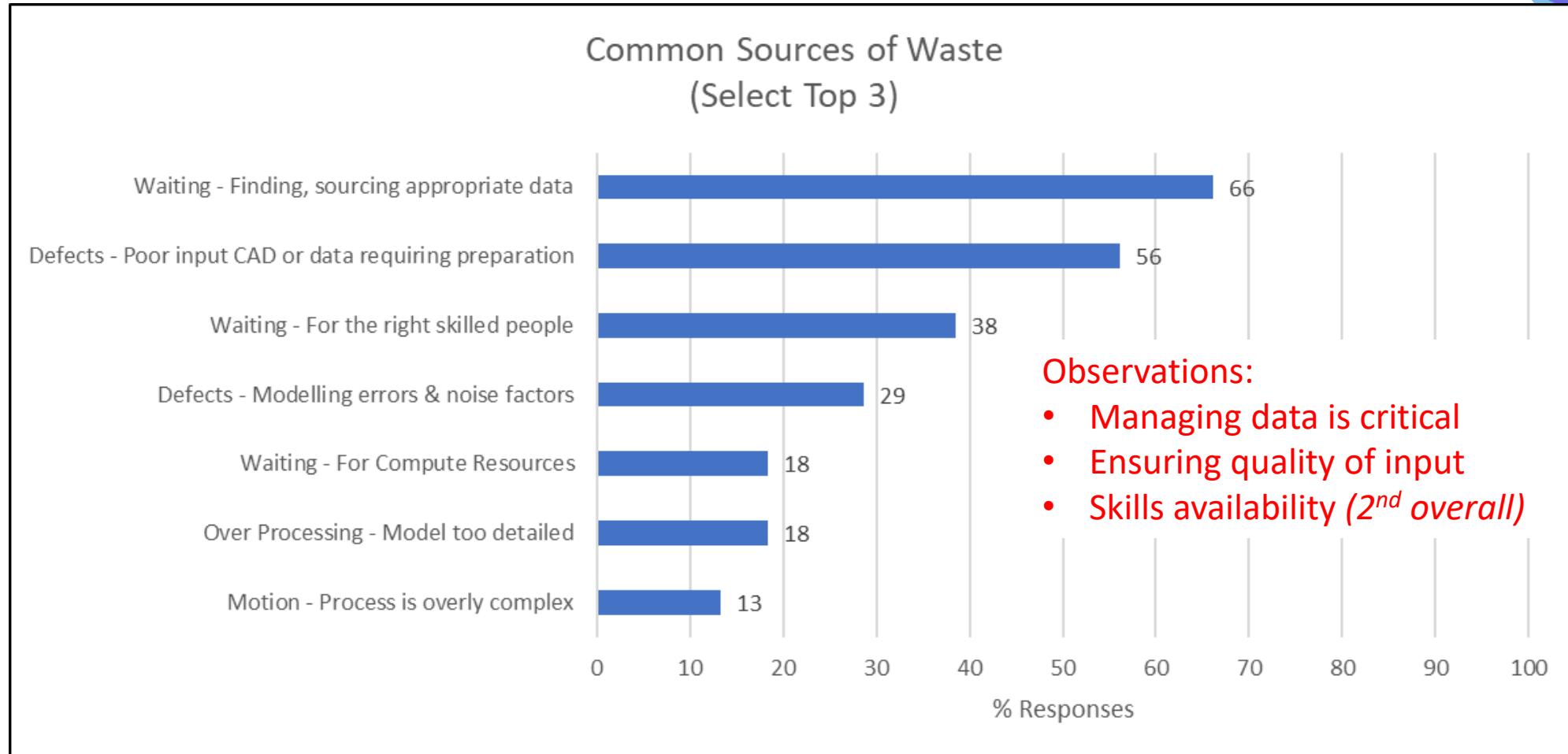
• Top 3 Challenges Impacting M&S



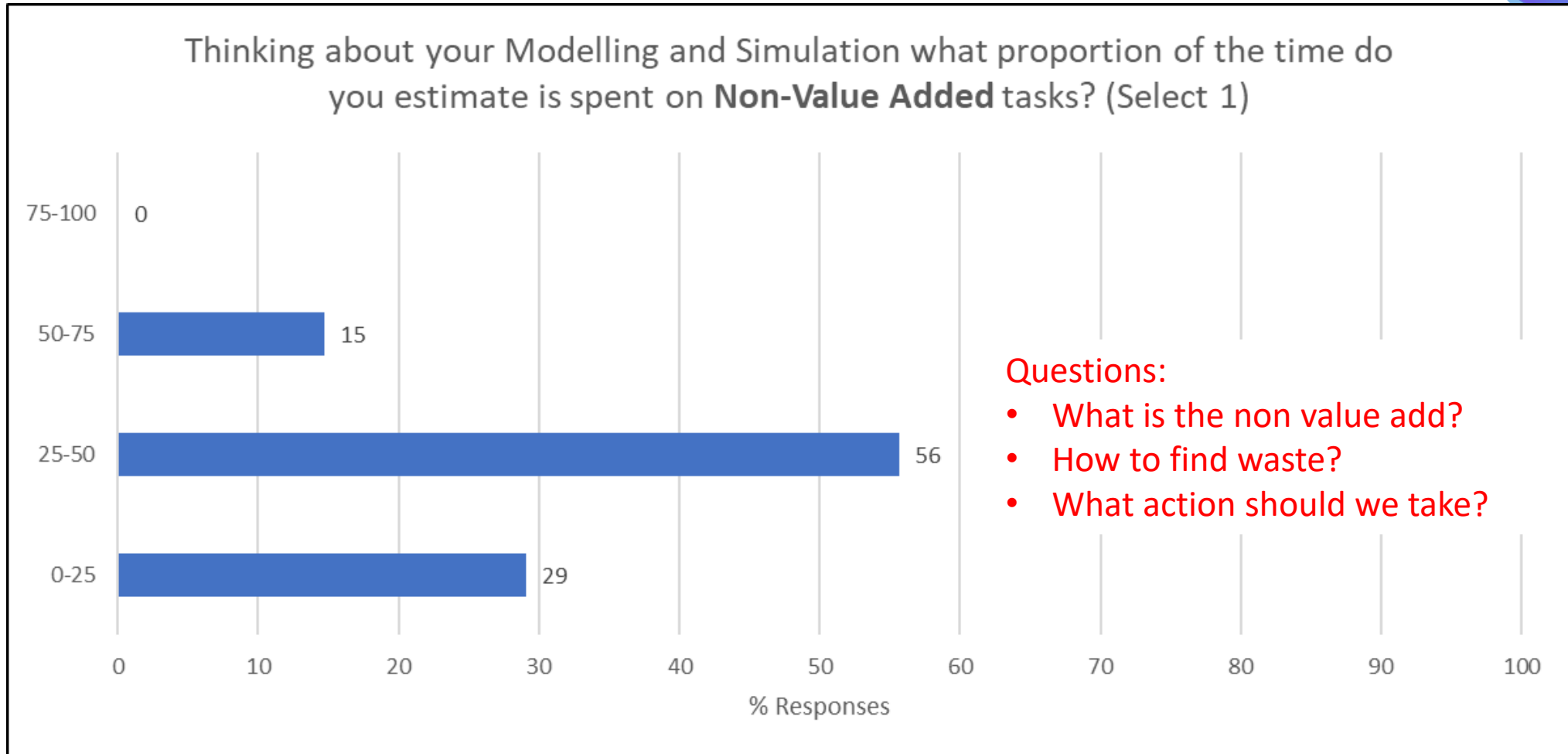
Common Process Challenges?



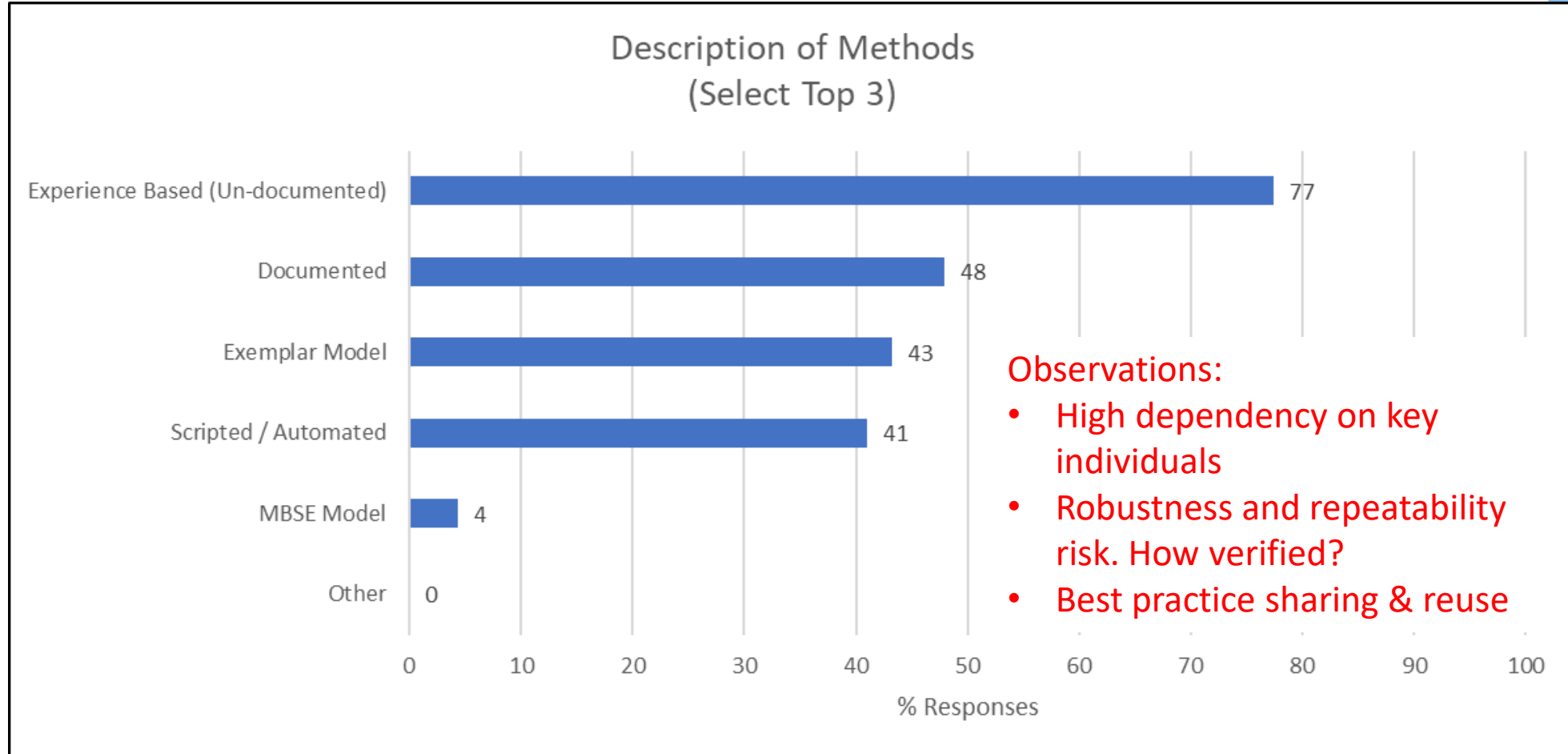
• Takes Too Long – Common Sources of Waste?



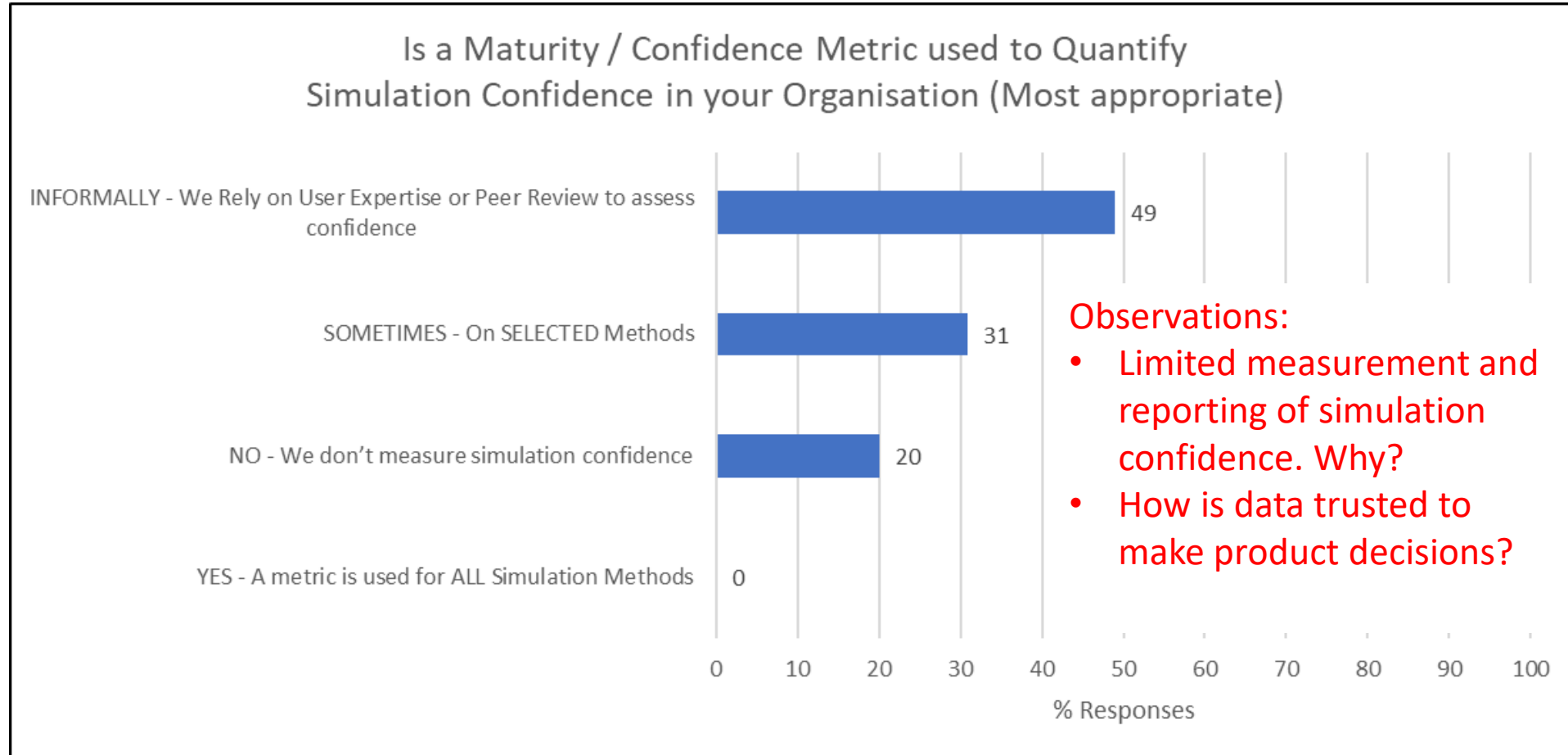
• What's the consequence?



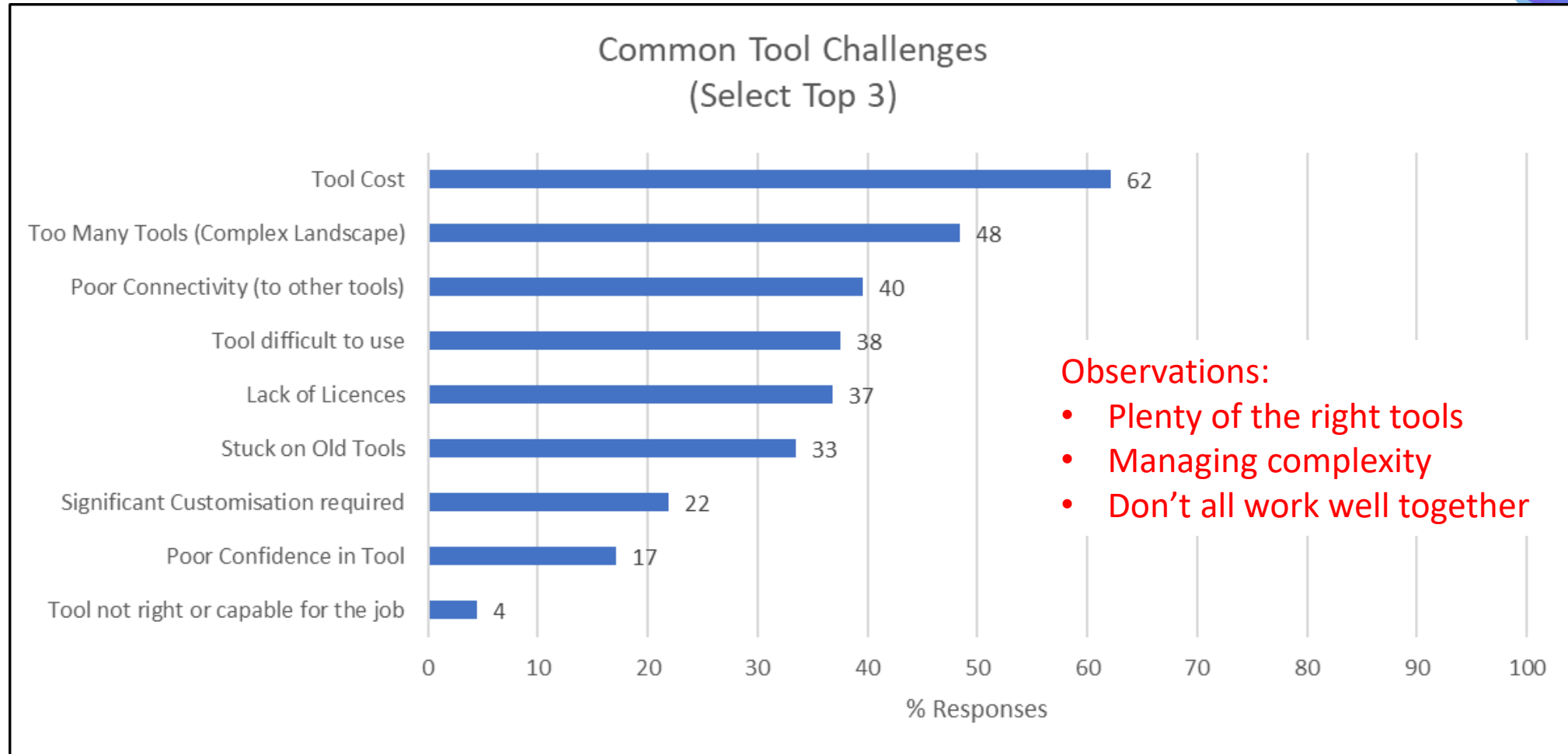
• Description of Methods



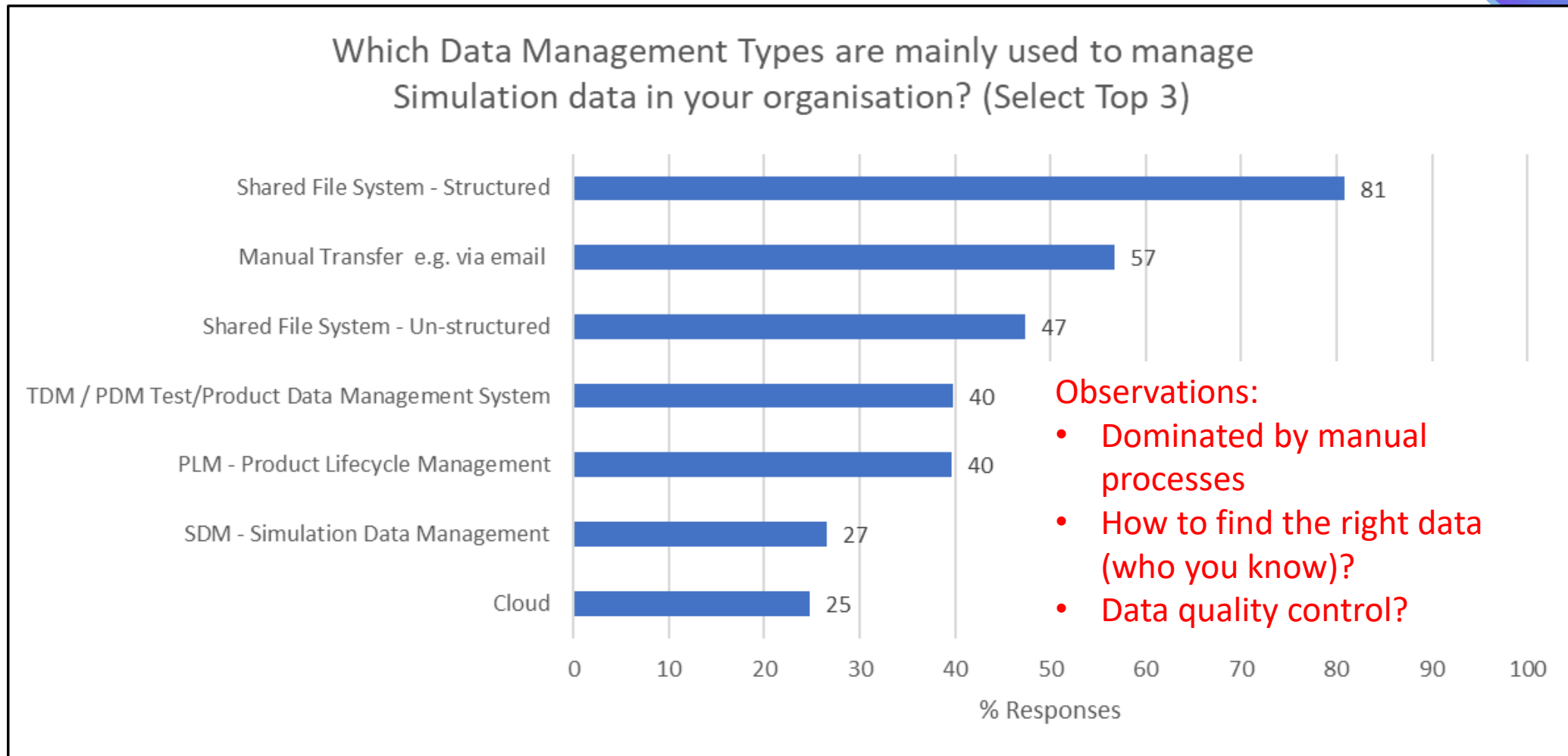
Is Confidence Measured ?



Common Tool Challenges?



How is Data Managed in your Organisation?



• Some other headlines

- **People Challenges**

- Availability of skills
- Efficiency of work practices and processes

- **Models**

- 69% Describe model build process as mostly manual
- 50% Also use integrated model build (e.g. CAD / CAE)

- **Computing**

- 43% Use inhouse HPC
- 14% Use Private or Public Cloud



• **Key Messages**

- **Have clear GOALS**
- **Pay attention to each of the FUNDAMENTALS**
- **Measure your current STATUS**
- **Significant OPPORTUNITIES for improvement**
- **Have a STRATEGY for M&S**





Thank You

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andy.richardson@phronesim.com

