

PHRONESIM

Introduction

*Andy Richardson CEng FIMechE
2024*

Content

- PHRONESIM Ltd Overview
- About Andy Richardson
- PHRONESIM Achievements
- Presentations and Publications
- Maturity Assessment
- The Strategy Pyramid
- Steps in Digital Transformation and Strategy Development



PHRONESIM Ltd Overview

PHRONESIM: Provide independent advice on engineering simulation strategy across multiple industry sectors worldwide, from smaller organisations through to blue chip multinationals. Helping organisations achieve their business goals through simulation, assessing their current state, quantifying gaps, identifying improvement options, coaching the team, building and implementing simulation strategy.



About Andy Richardson

- Founder and Director of PHRONESIM LTD a company providing consulting in Engineering Simulation Strategy
- Chartered Engineer and Fellow of the Institution of Mechanical Engineers
- 30 yrs experience in Automotive engineering at Jaguar Land Rover with 20 yrs at Senior Mngt level including 10 years as Head of Simulation, and several Vehicle Engineering roles
- 2 years as Senior Manager for Airframe Methods and Tools at Airbus (Commercial Aircraft)
- BSc in Engineering, a MSc in Numerical Modelling (Aston Uni) and an MBA (Warwick Uni)
- Member of the NAFEMS UK Steering Committee and Assess Business Theme Committee



ADR Experience



ADR Achievements



PHRONESIM Achievements

How to Implement a Modelling & Simulation Strategy

Home • Training • E-Learning Courses • How to Implement a...

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)

• Development and Delivery of eLearning Course

- 5 Courses delivered
- >150 Delegates
- >100 Companies / Organisations
- >20 Countries Estimated

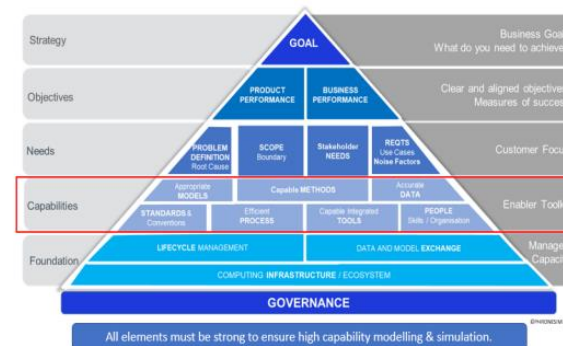
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Accreditation and measurement

[dstl] The Science Inside



M&S Strategy Framework



*Work conducted by NAFEMS on behalf of Dstl

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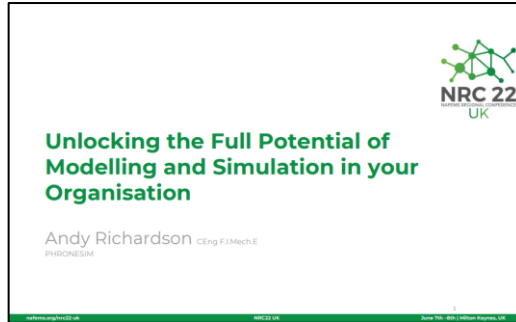
OFFICIAL

• Consulting Project with NAFEMS

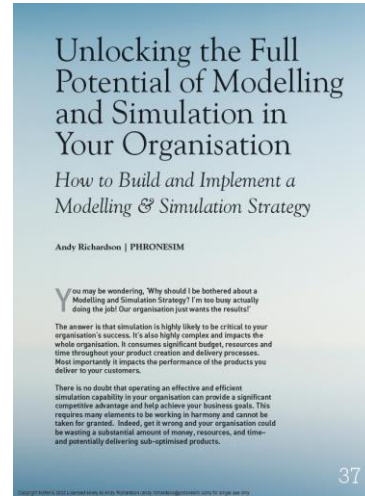
- Status Assessment and Strategy Development for Government Defence Research Establishment (DSTL)



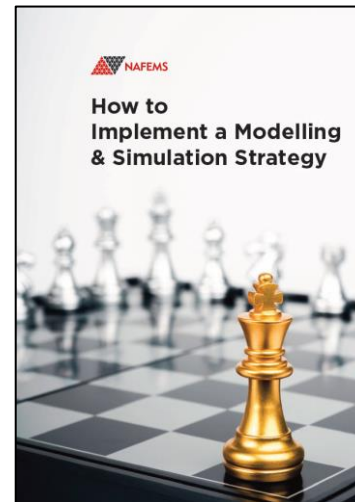
Presentations and Publications



[06-22 UK Conference Present](#)



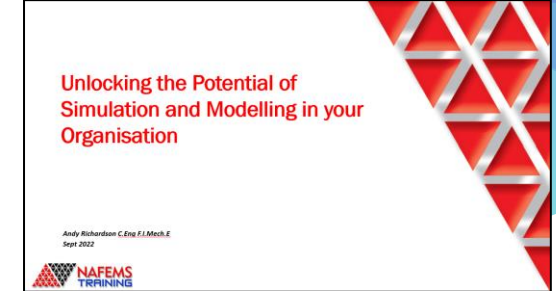
[07-22 Benchmark Magazine](#)



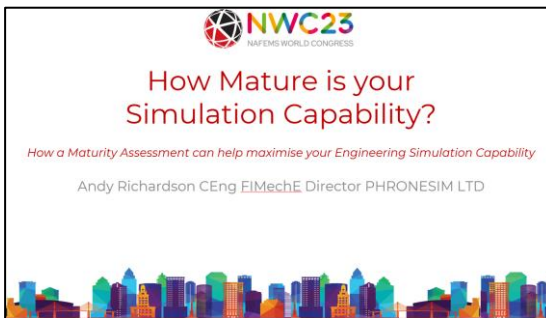
[08-22 Brochure](#)



[IMechE Sim & Mod 22](#)



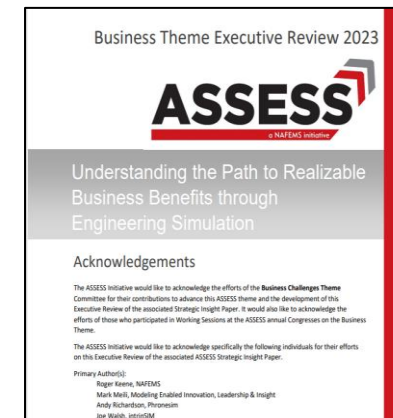
[09-22 Webinar](#)



[05-23 World Congress Presentation](#)



[09-23 Food and Drink Conference](#)



[12-23 Assess Strategic Insight Paper](#)



[02-24 Webinar](#)

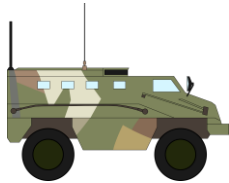
Selection of Publications and Presentations

Maturity Assessment

Organisation Simulation Capability Maturity Service

- Metric developed by PHRONESIM
- Maturity assessment offered as a service

Example Clients:



UK Government defence research establishment



US Multinational Consumer Goods Company

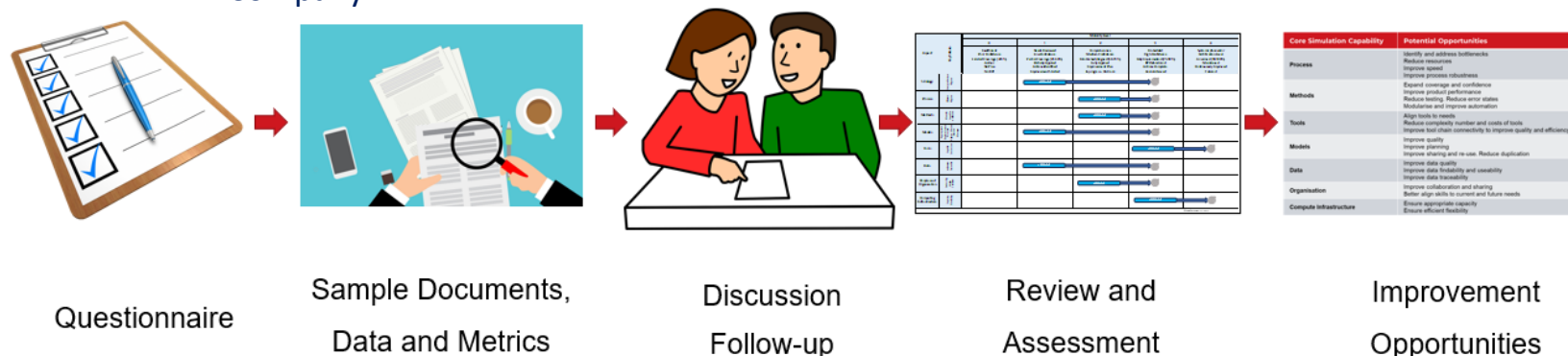


UK Performance Luxury Car Manufacturer

Aspect	Key Criteria	Maturity Level				
		0	1	2	3	4
		Insufficient Poor Confidence Limited Coverage (<25%) Ad-hoc No Plan No KPI	Needs Reviewed Low Confidence Partial Coverage (25-50%) Partially Applied Actions Identified Improvement Started	Comprehensive Medium Confidence Established/Aligned (50-75%) Fully Applied Improvement Plan In progress - On track	Embedded High Confidence Fully Implemented (75-90%) KPI Monitored Actions Complete Goals Achieved	Systemic/Innovator Certification Level Governed (90-100%) Maintained Continuously Improved Futured
Strategy	Comprehensive Aligned		ASSESSMENT		ASSESSMENT	
Process	Efficient Aligned			ASSESSMENT	ASSESSMENT	
Methods	Modular Capable Validated			ASSESSMENT	ASSESSMENT	
Models	Appropriate Representative Aligned Shared Planned Managed		ASSESSMENT		ASSESSMENT	
Tools	Capable Connected				ASSESSMENT	ASSESSMENT
Data	Validated Traceable		ASSESSMENT		ASSESSMENT	
People and Organisation	Overship Skilled Certified			ASSESSMENT	ASSESSMENT	
Computing Infrastructure	Capacity Resilient				ASSESSMENT	ASSESSMENT

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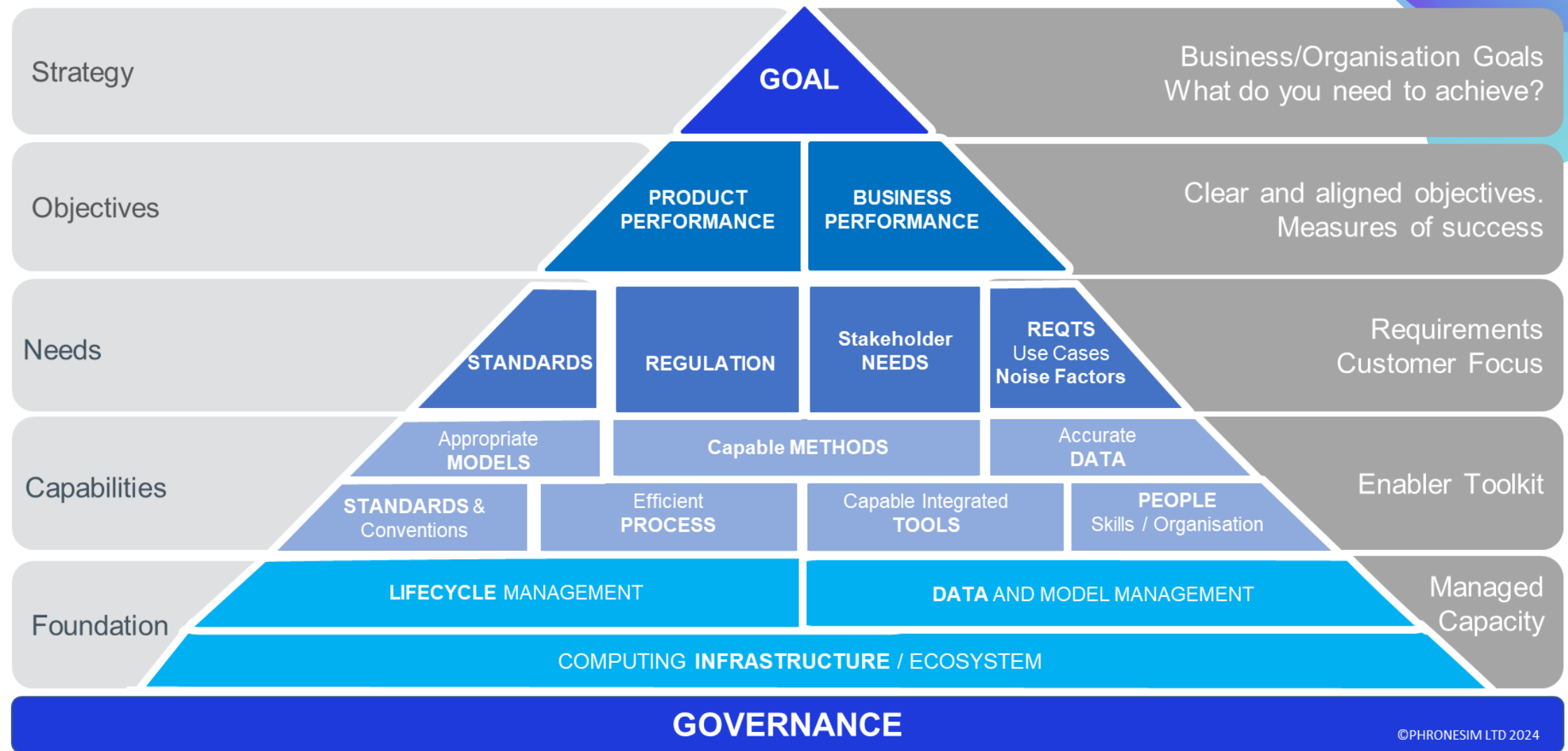
Organisation Simulation Capability Maturity Metric (OSCM)



Metric and Service to Assess the Status of Organisations Simulation Capability



Strategy Pyramid



Steps in Digital Transformation and Strategy Implementation



Fundamental Steps to Build and Implement a Strategy or Digital Transformation



PHRONESIM Ltd

ENGINEERING SIMULATION STRATEGY SOLUTIONS

Thank You



Experience

- **British Aerospace Dynamics** (2 yrs - Graduate)
- **Jaguar Land Rover** (34 Years)
 - Engineer Body Development
 - Senior Engineer Vehicle Analysis - First Non-Linear FE Analysis into Jaguar (1987)
 - Mngr Technical Services - Introduction of Knowledge Based Engineering into Jaguar (1990)
 - Senior Mngr (SM) Vehicle Packaging Aerodynamics, Weights and Analysis - 99MY Jaguar S-Type
 - SM US Vehicle Program Eng (2 yrs) – Lead US based Engineering Team based at Ford HQ (MI)
 - SM Advanced Engineering – Develop multi segment vehicle architecture concept for next gen Jaguar, Lincoln and Volvo
 - Head of Simulation (10 years) - Responsible for Engineering Simulation
 - Snr Mngr Durability and Robustness - Transformation strategy for Durability and Robustness – Engineered in D&R
- **Airbus Commercial Aircraft** (2 Years)
 - Snr Mngr Airframe Methods and Tools – Lead Toolset Strategy for Airbus Airframe Engineering Tools
- **PHRONESIM LTD** (5 Years)
 - Founder and Director - Engineering Simulation Strategy Solutions Consulting



Achievement Headlines

- **Simulation Strategy**
 - As Head of Simulation lead development and implementation of a coordinated comprehensive Simulation and Modelling Strategy across all Engineering disciplines
- **Organisation**
 - Established Senior Leadership Simulation Governance Forum
 - Created a cross functional stakeholder network to maximise best practice sharing, aligned technical strategy and drive improvement projects
- **Capability Development**
 - Direct responsibility for £7m annual budget for CAE software and capability development
 - Delivery 100s capability improvement projects
- **Process Efficiency**
 - 50% reduction (20 to 10 weeks) in CAE process cycle time across Jaguar, Ford and Volvo
- **Tool Strategy**
 - 50% reduction in engineering simulation tool landscape (200 to 100 tools)
 - Developed a Toolset Strategy for Airbus Airframe Engineering Tools
- **Major Research Programme**
 - Leadership £10m Industry / Government Research Programme to develop cutting edge engineering simulation capability through 50 projects with 5 leading UK universities

