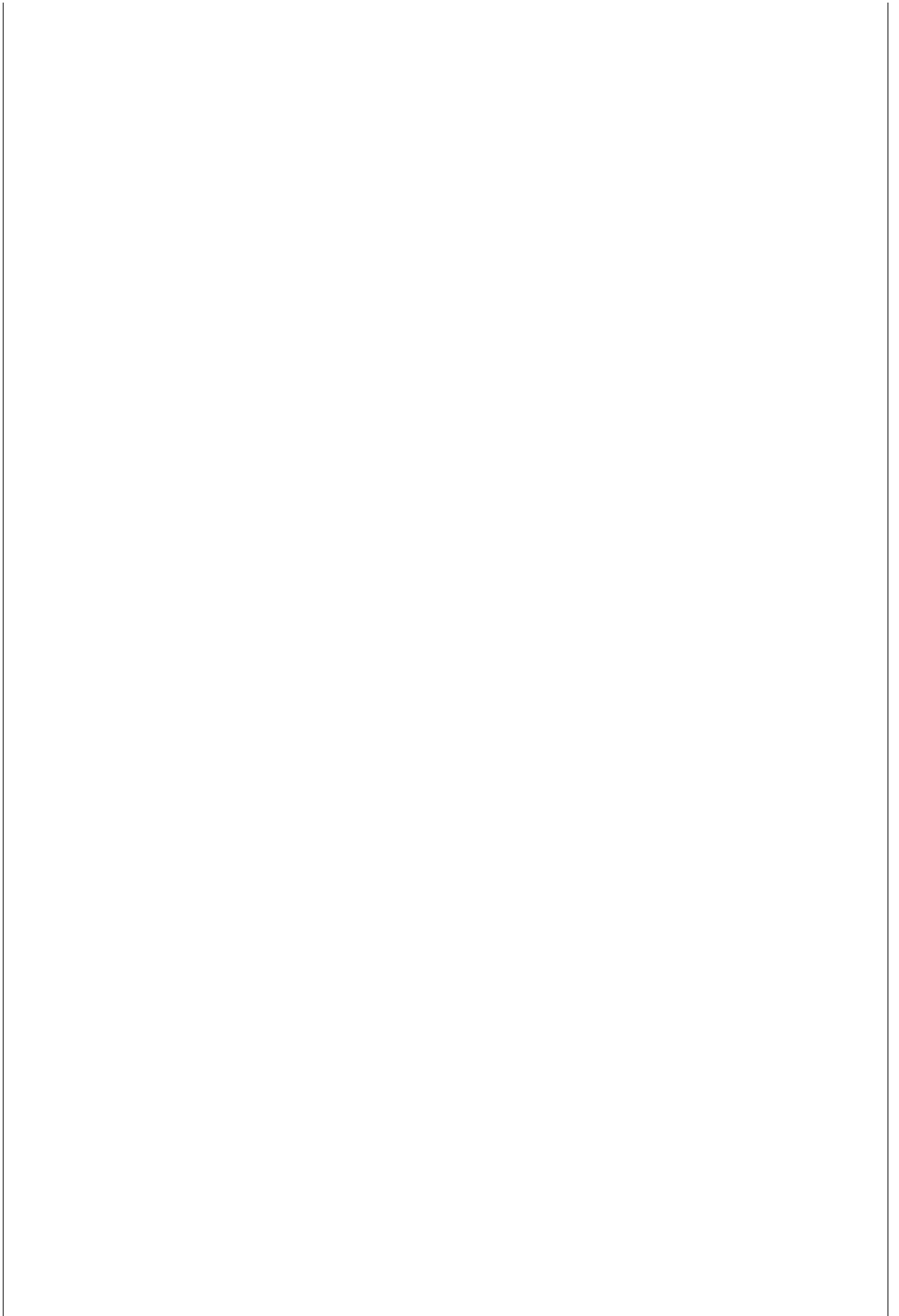
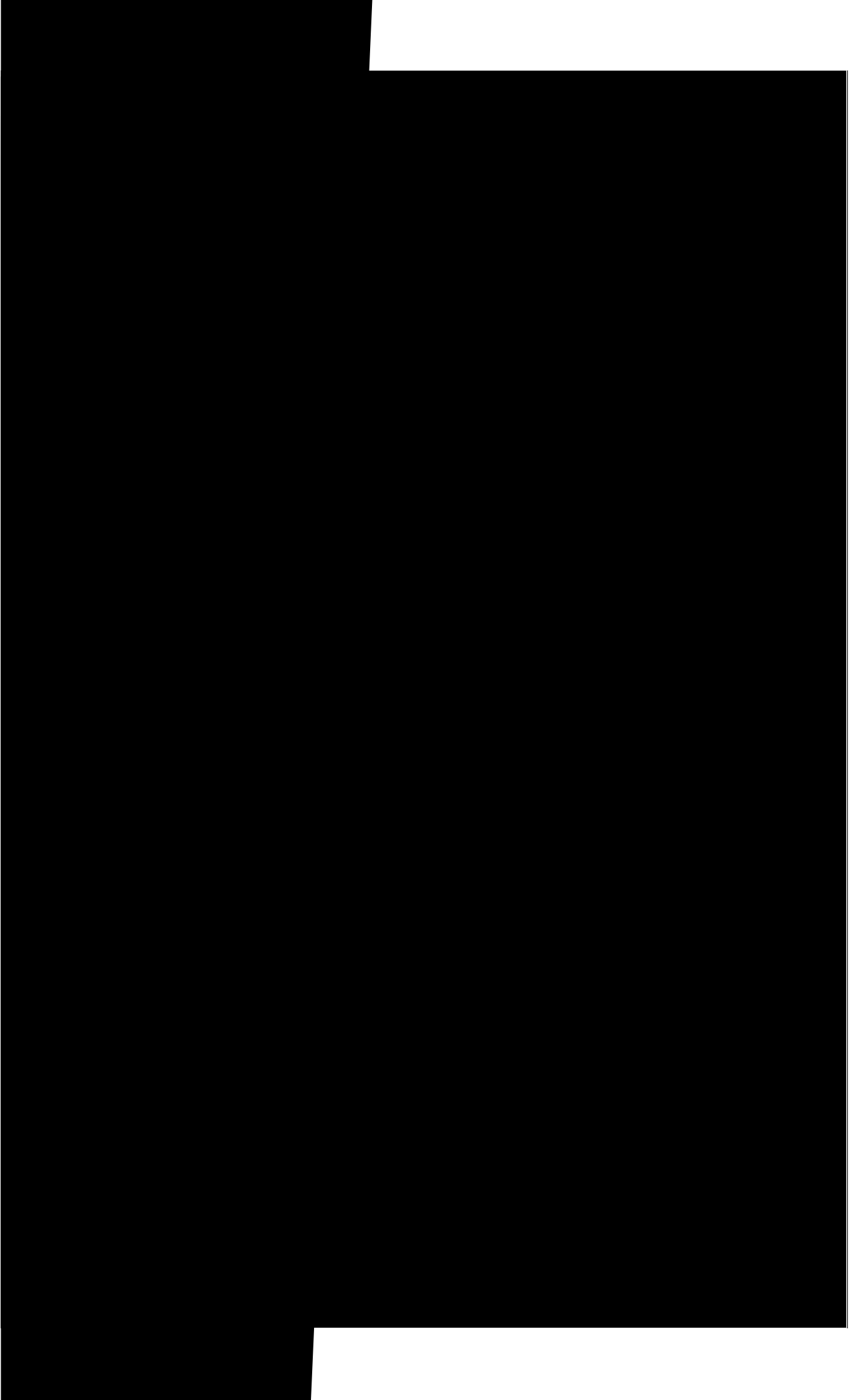


ORE Supergen stakeholder and workshops feedback survey





The research challenges identified through the ORE Workshops are listed below. Please rate each one in terms of priority for the ORE Hub from 1 to 10. There is also the opportunity to add to the lists under each heading.

Minimising human intervention ; achieving ; in ; achieving ; release rates identified through P h

11. Please add any additional Challenges in this category

15. Please add any additional Challenges in this category

19. Pleat 1

‡

Rate from 1 to 10

Environmental considerations early to avoid conflict/consenting issues



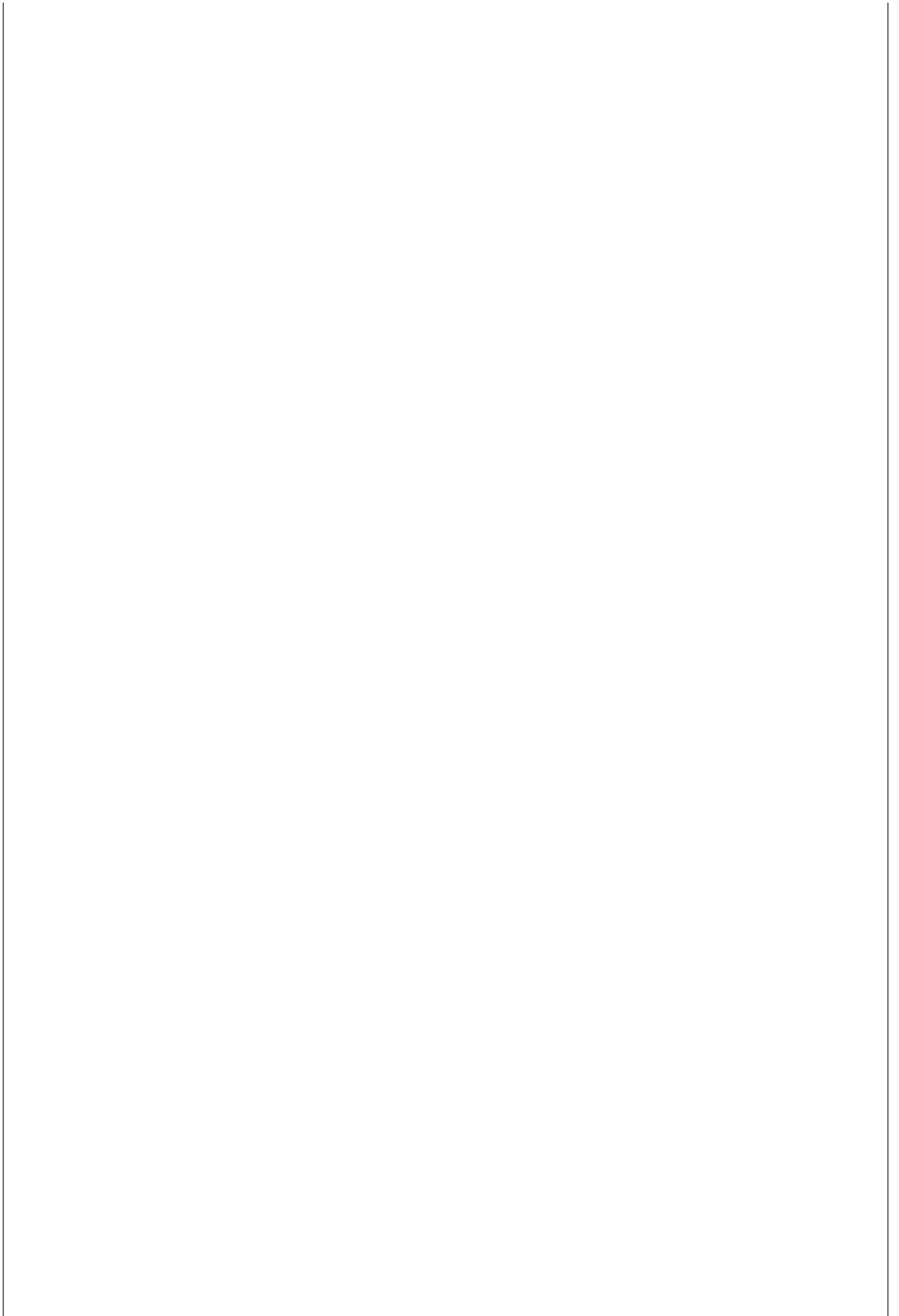
Impact of poor ocean literacy on perception













Lack of confidence – in tech, public perception and awareness, impact on investors



Aesthetic impacts of turbines close to shore - consenting risk and impact on schedule



Vertical axis wind turbines (VAWTs), Fault tolerant modular designs, Airborne wind & PTO	
Innovative subsystems and components	
Power transmission alternatives, e.g. HVDC, and connection to shore - cost effective/reliable	
Design for different service lives than 25 years	
Design for decommissioning (whole life)	
Validated design and fatigue models for composite tidal blades (cross sectoral in wind)	
Accelerated fatigue testing of tidal turbine blades	
Improved industry participation in design code development and optimisation	
Risk based design	
AI into control to reduce weight and costs	
Consider redundant systems	

[Redacted text]

[Redacted text]

[Redacted text]

Rate from 1 to 10

Hydrodynamic interaction for support platforms of devices; aerodynamics FSI



Arrays - Efficient numerical models for optimisation; optimal control; understanding device conditions; hydrodynamic interaction; uncertainty quantification



Numerical models – understanding of best practice, error, assumptions (better use, reduced risk, reduce LCOE); system based numerical modelling



CFD - Fully coupled FSI/ 3 phase flow (air, water, solid)



Extreme loads vs. operation behaviour; lifetime loadings / fatigue; understanding localised environment conditions to inform aggregated effects (e.g. on fatigue); modelling/prediction of extreme/'strange' environmental loads



Understanding scaling effects – move towards larger scale modelling or field experiments



Fully integrated/coupled design tools, i.e. wind, wave, current, structure



Cheaper methods for resource assessment (virtual MET mast)



Improved geo-tech modelling



Wake modelling (wind)



Integrated design tools for floRrortg



[Redacted]

[Redacted]

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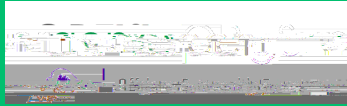
[REDACTED]

[REDACTED]

[REDACTED]

Rate from 1 to 10

Joint / community ownership models (as on land)	<input type="text" value=""/>
Colocation of technologies/smoothing of power supply at large scale (interaction) – large scale/systems level	<input type="text" value=""/>
Hybrid devices (as for power supply and/or for stability)	<input type="text" value=""/>
Increased use of automation to reduce installation and operation (O&M)	<input type="text" value=""/>
Links - control systems repos farms drawing on big data/embedded sensors (SHM)	<input type="text" value=""/>
OF-HUB: collaboration across industry partners on modelling/field/site/data	<input type="text" value=""/>
Contracting strategy to allow optimised fabrication	<input type="text" value=""/>



ORE Supergen stakeholders and workshops feedback survey

SECTION B: Transition for Key Challenge
Workshop main outputs 5/5

Identifying opportunities

Structured plan to reach acceptable COE and (LCOE) – UK
benefit, needs to be in global context, potential to reduce LCOE

Cost reduction - but gap between industry and academia because of REF and
apps

Cost optimisation on both CAPEX and OPEX

Optimisation of O&M through integration of methods/tools

1 to 10





