

# Maintaining Engineering leadership in a growing Company

Nick Cooper - Design Engineer

Technical Director for - C Spencers Ltd



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‘ How do you keep really good dynamic individuals who want to achieve significance, financial reward and recognition’

**‘Doing Engineering and delivering Engineering so they become Engineering Leaders in the future.’**

Combining the Energy of youth with Technical Engineering Leadership

‘Doing Engineers are often hidden’ – Senior positions become managerial



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**‘Britain is allowing itself to become a nation of managers applying Processes and rules’**

**To gain recognition and with it financial reward and visibility we need to conform to the process.’**

**Often those that have engineering leadership qualities do not conform.**

**Wisdom is required through Engineering Leadership.**

- Doing the right thing



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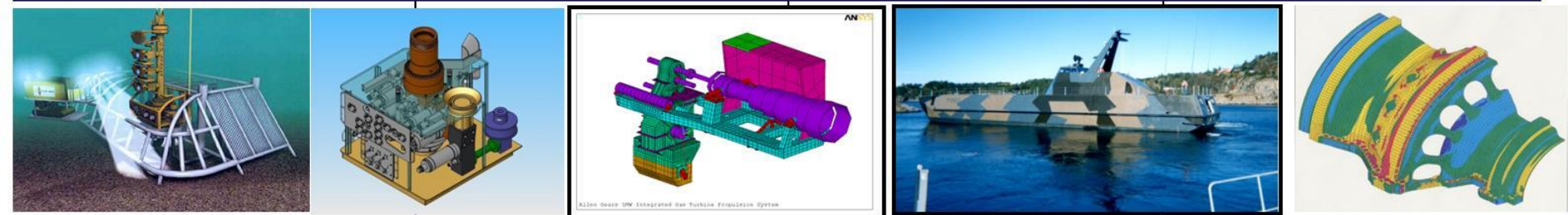
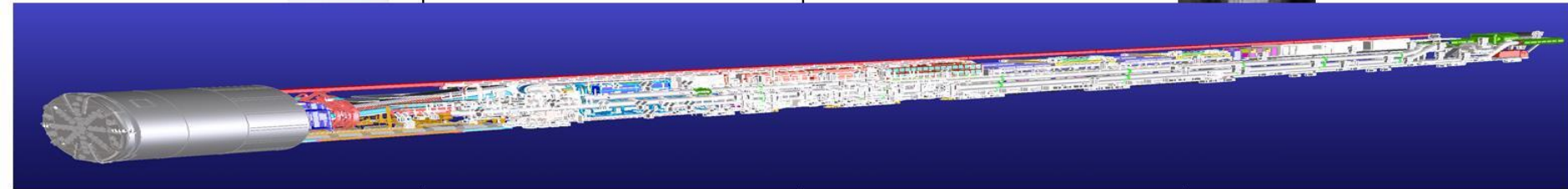
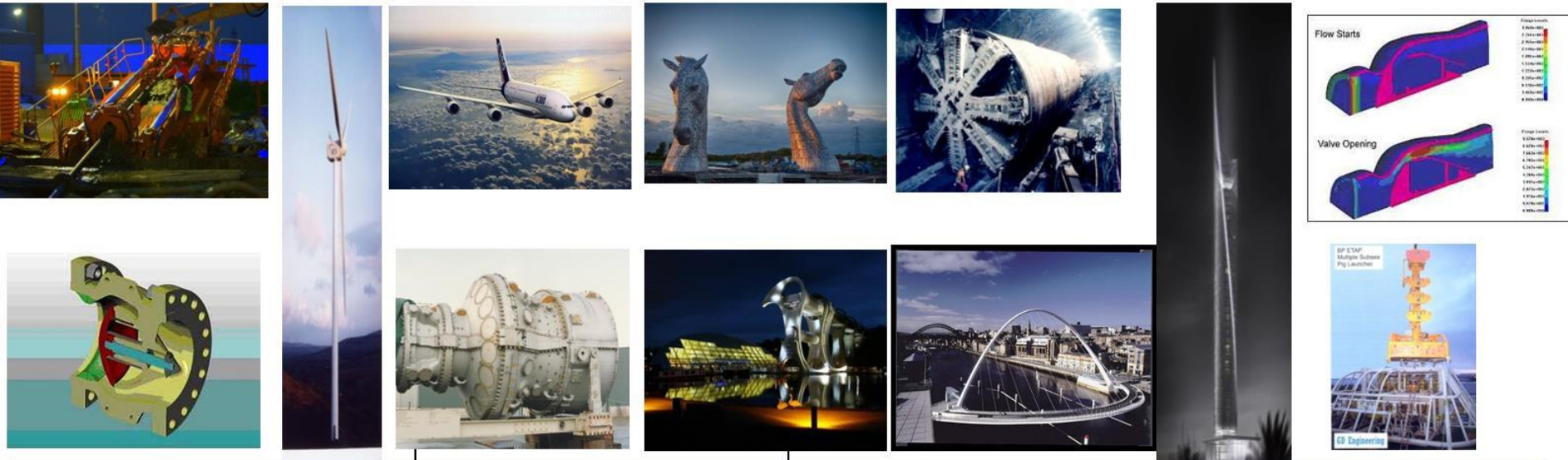
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multi-disciplinary team with  
 Engineers ranging from 'idea generators' to diligent deliverers and Intuitive draughtsmen.'



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No formal design Processes or Procedures

Tools often defined by the younger Engineers to facilitate delivery.

A very simple design Process:-

- Start the Job right
- Do the job right
- Finish the job right

No fixed line management structure.



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The key Cultural behaviours within the company

**Trust**  
**Empowerment**  
**Openness**  
**Encouragement & Praise**

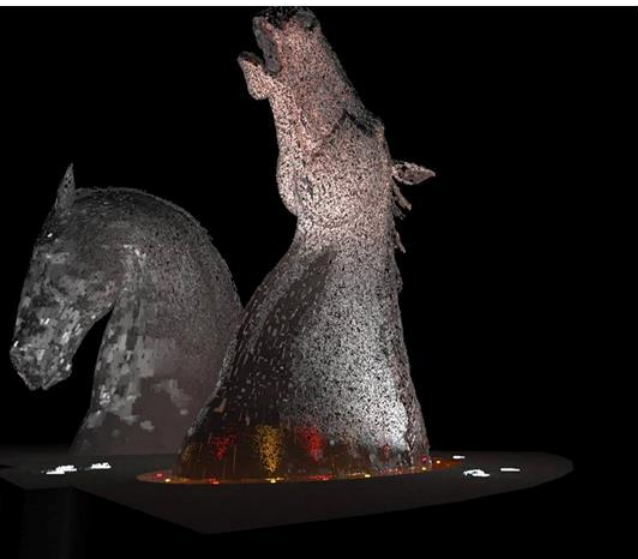
Focusing on peoples strengths

Working in a totally open environment individuals thrive.



Moveable Bridge Created by a year in industry student

Kelpies - Young engineer using FE for the Kelpies.



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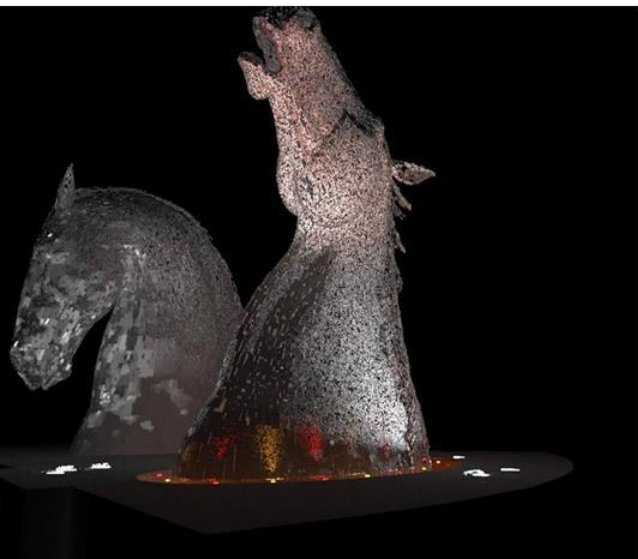
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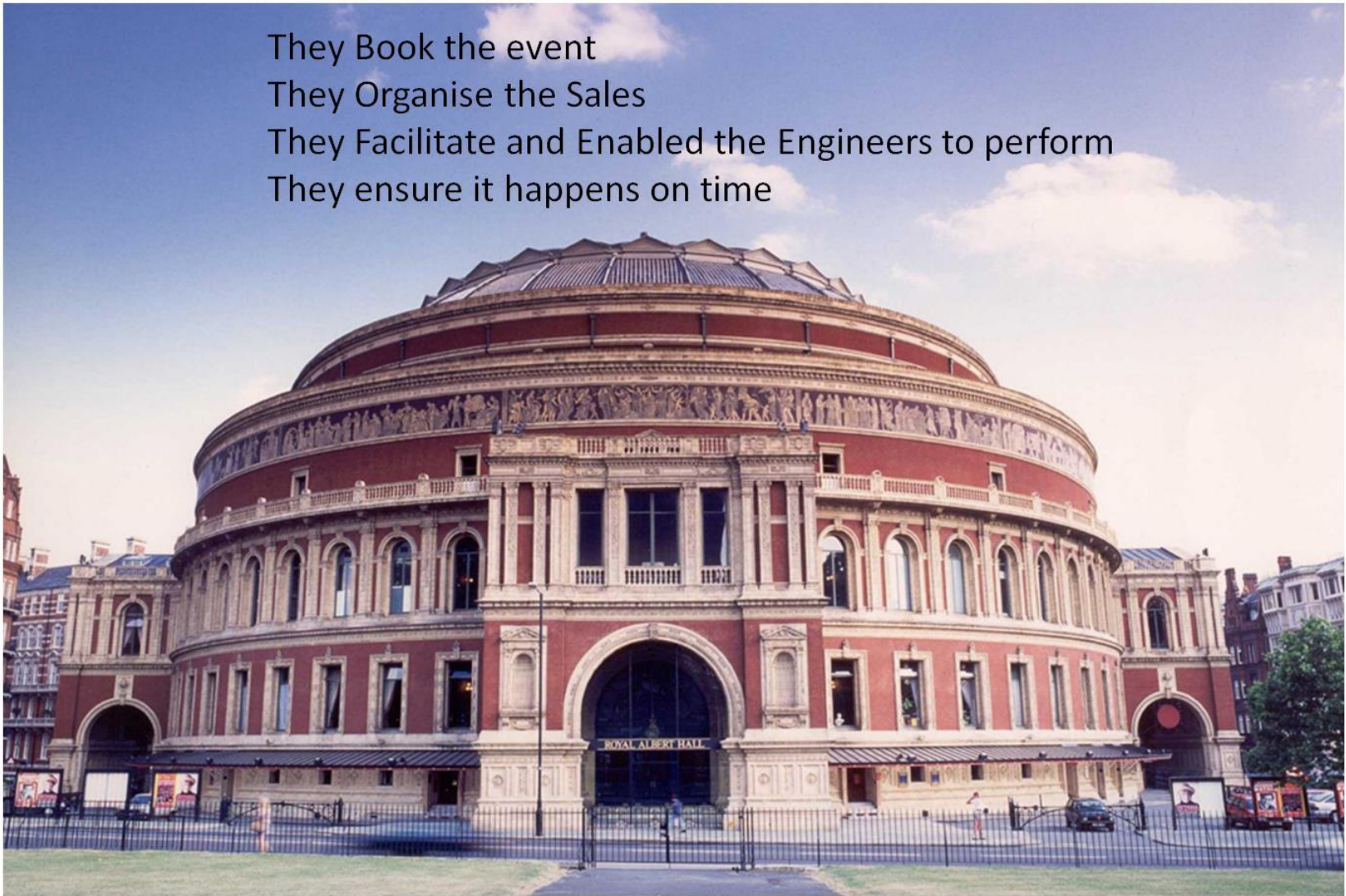






# THE PROJECT MANAGER is THE EVENT ORGANISER

- They Book the event
- They Organise the Sales
- They Facilitate and Enabled the Engineers to perform
- They ensure it happens on time



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# THE ENGINEERS BRING THEIR SKILLS



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# THE ENGINEER LEADER CONDUCTS THE PERFORMANCE



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## The Project manager

- **Administer and financially control the project**
- **Facilitate and enable the engineering leader(s) to keep and maintain momentum in the project.**

## The Engineering Leader

- **Set the Vision**
- **Maintain momentum within the project**
- **Identify and solve risks**
- **Identify the technical Achilles heels and resolve them**
- **Create confidence and Openness within the team**
- **Has followers due to respect and ability**

## Behaviours -

Leading intelligent clever people who are 'brighter or more imaginative' requires very different attributes.  
It is about building self belief and confidence.

'Achieved by respecting everyone for there strengths..'



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# What are the characteristics for Engineering Leadership

- Creative, Intuitive and perceptive
- Multi-skilled
- Ability to provide solutions that considers equally the impact on all disciplines.
- Ability to address a number of issues concurrently.
- Ability to deliver a clear vision of the finish line and to inspire others to get there!



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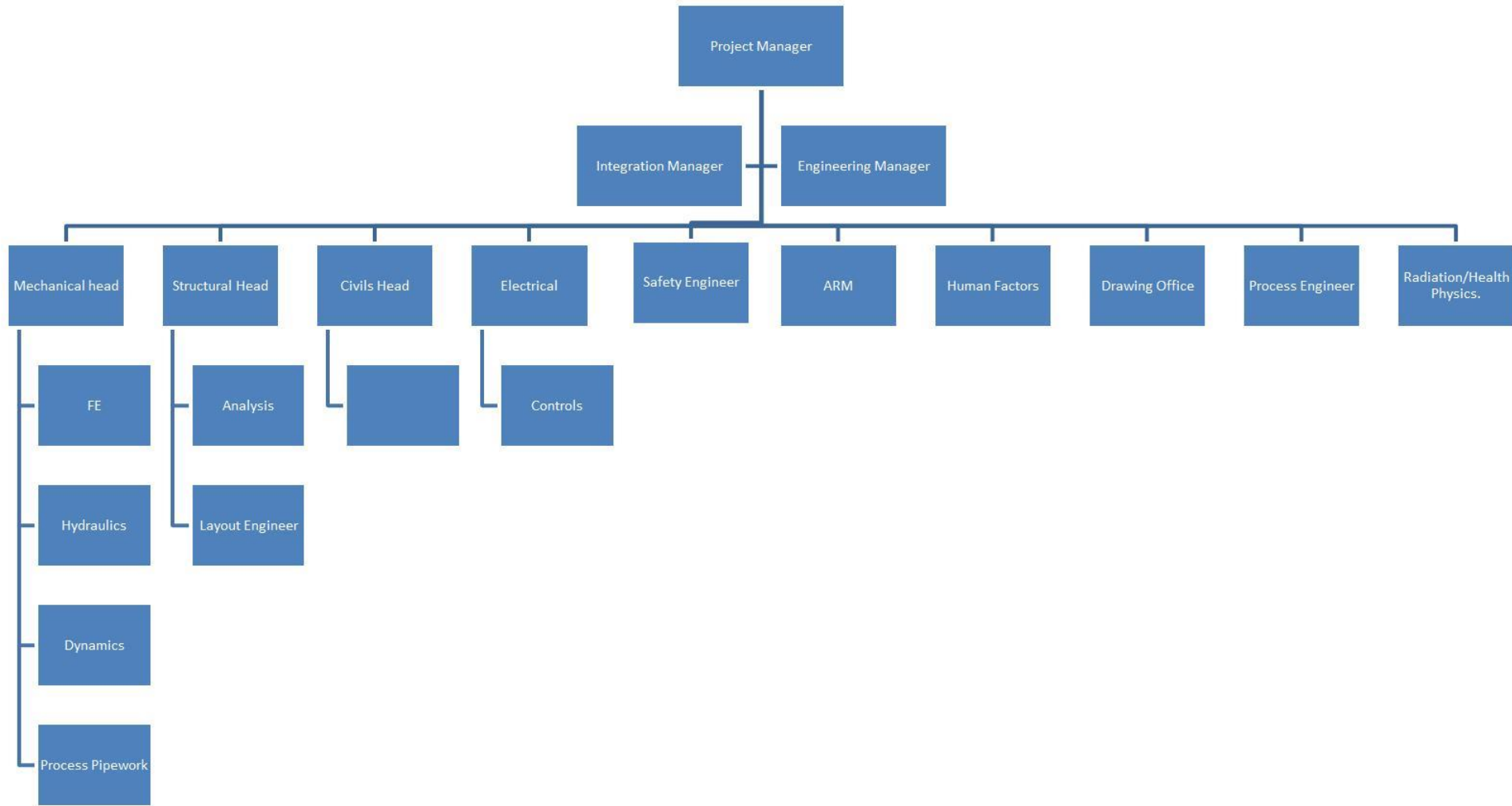


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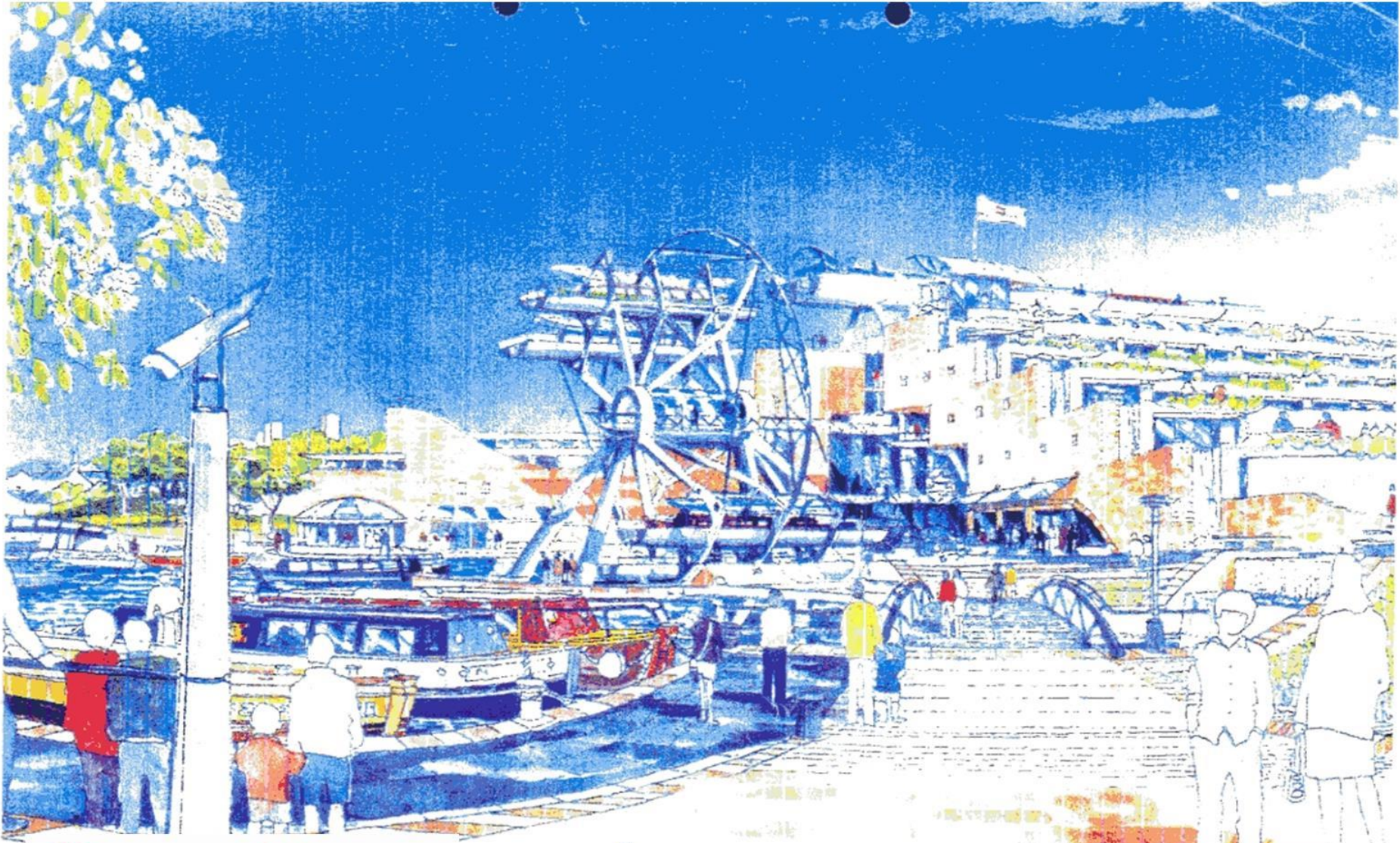
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# The Initial Vision for the Falkirk Wheel



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A Design where the requirements  
where considered sequentially

A Managed Engineered solution



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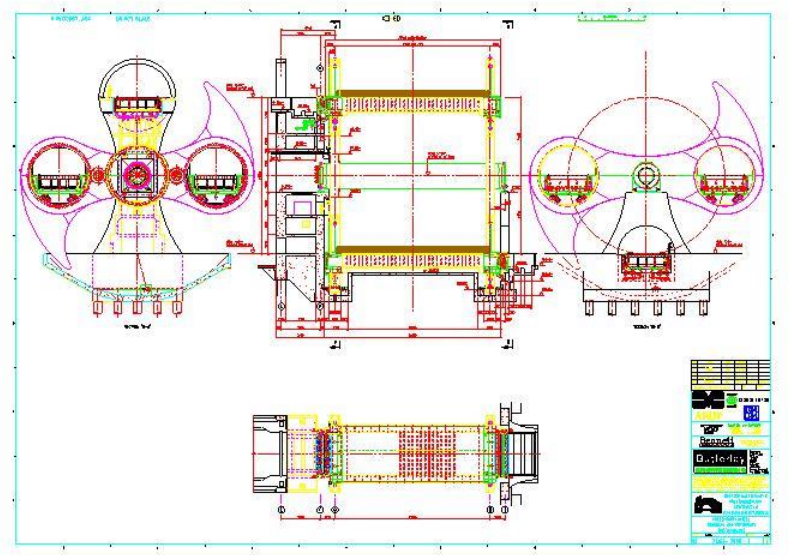
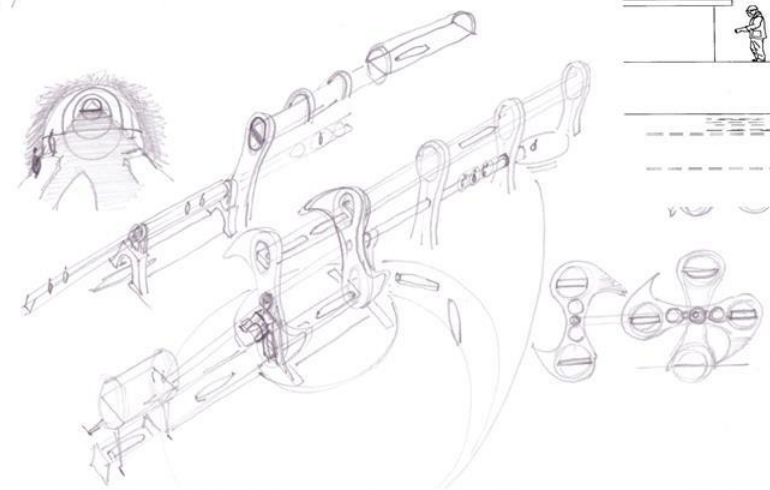
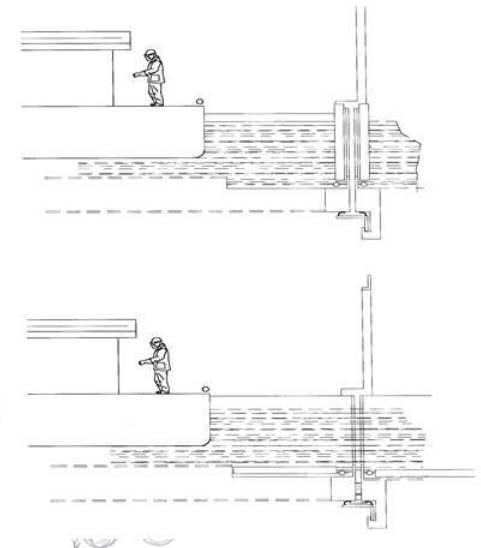
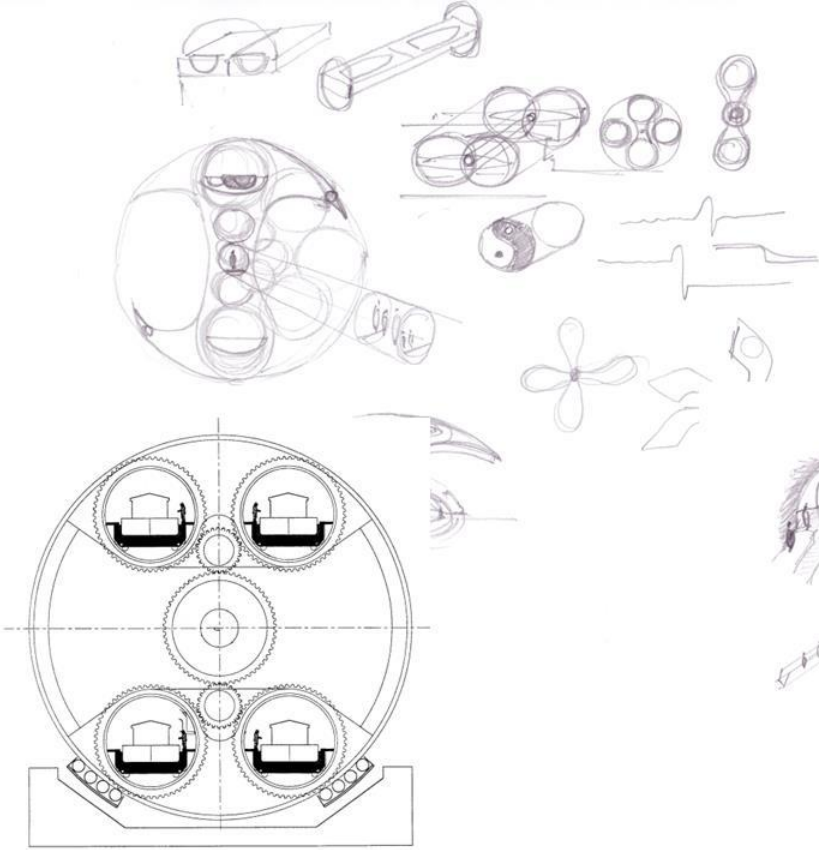


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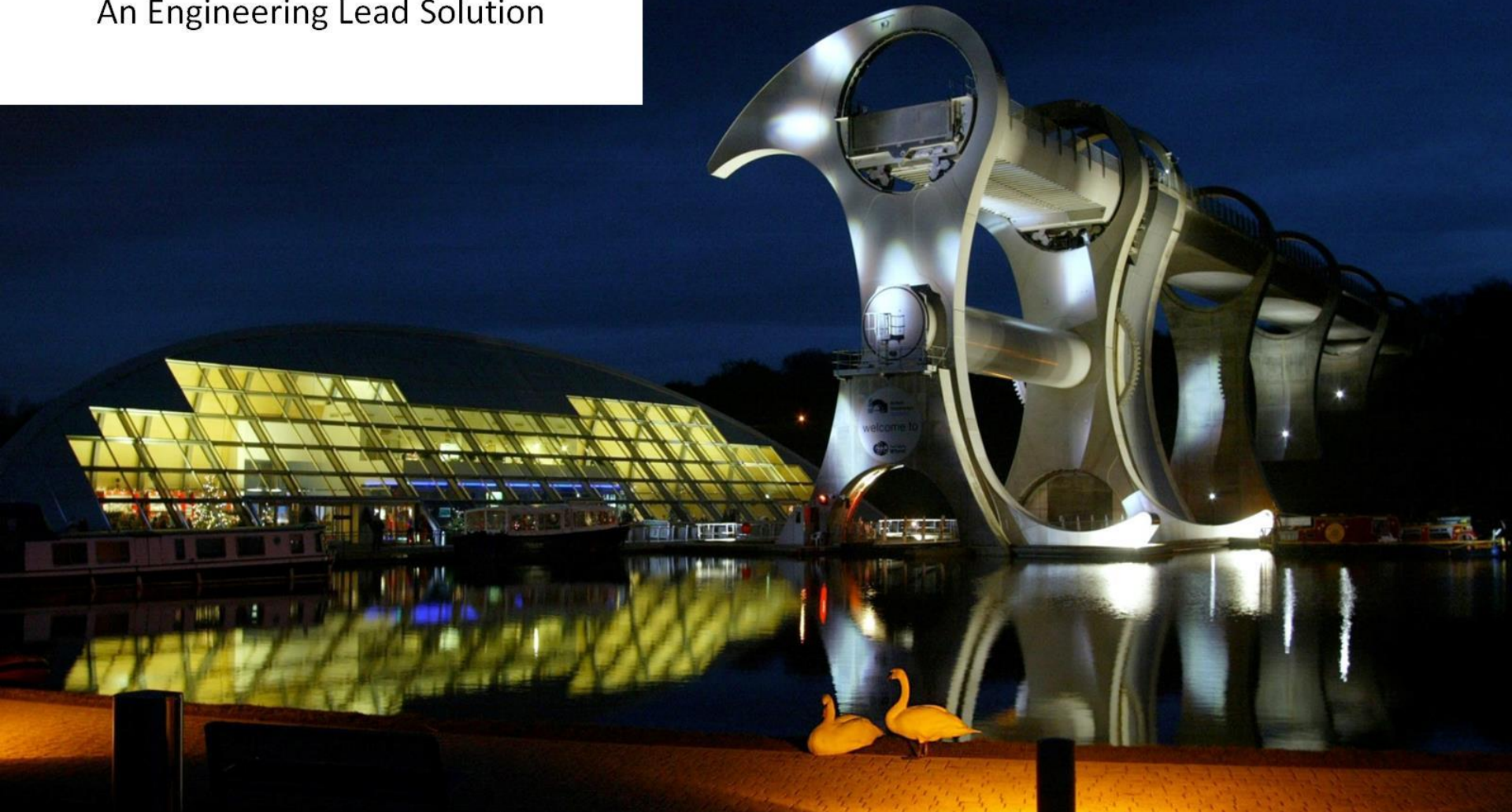


The architects Sketches  
Combined with Multi  
disciplined Engineering  
input





A Design where the requirements  
were considered concurrently.  
An Engineering Lead Solution



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# The Difference Between Leadership and Management

	Leadership Is About ... Coping With Change	Management Is About ... Coping With Complexity
<b>What are we setting out to do?</b>	<ul style="list-style-type: none"> <li>▶ <b>Establishing Direction</b> Developing a vision and strategies to achieve that vision; setting high but reasonable standards</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Planning and Budgeting</b> Establishing detailed steps and timetables and allocating resources</li> </ul>
<b>How do we deliver results?</b>	<ul style="list-style-type: none"> <li>▶ <b>Aligning People</b> Communicating direction to influence creation of teams and coalitions that understand vision and strategy</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Organizing and Staffing</b> Establishing a structure to achieve the plan; delegating authority and providing policies and processes</li> </ul>
<b>How do we make it happen?</b>	<ul style="list-style-type: none"> <li>▶ <b>Motivating, Mentoring, Inspiring</b> Energizing people to develop and overcome barriers to change</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Controlling and Problem Solving</b> Monitoring and organizing</li> </ul>
<b>What are the outcomes?</b>	<ul style="list-style-type: none"> <li>▶ <b>Producing Change</b> Often to a dramatic degree, such as cultivating new services and new approaches</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Producing Predictability and Order</b> Consistently achieving budgets and targets</li> </ul>

Source: Based on materials in John Kotter's "What Leaders Really Do," *Harvard Business Review*, December 2001.



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# HOW WE AIM TO MAINTAIN ENGINEERING LEADERSHIP IN C. SPENCERS.'

1. Leadership with a strong technical focus.
2. Leadership that is strong on the softer skills of people management and are engaged in doing engineering.
3. A culture and atmosphere where innovation can exist.
  - Praise
  - Trust
  - Empowerment
  - Openness
4. Balanced teams of innovators and pragmatist working together regularly.
5. Assign people to work to their strengths.
6. Recognise effort, enthusiasm and 'striving to excel'.
7. Not to have a hard Organogram of seniority Either managerially or technically.
8. Aim to apply flexible processes within broad boundaries rather than rigid processes within tight boundaries.
9. Look forward to where we are going rather than monitoring the past.
10. Use state of the Art Tool sets and push the boundaries of their application.
11. to listen and value every bodies views & needs and communicate their vision.

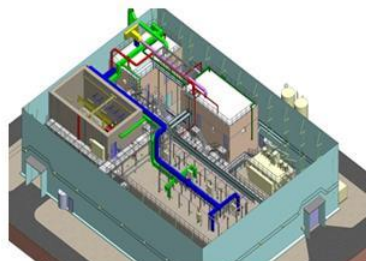
## The 4 motivators of innovation

### Transport



Bridges  
Marine  
Rail

### Energy



Nuclear  
Biomass  
Solar  
Wind  
Waste to Energy

### Materials Handling



Agregates  
Biomass  
Coal

### Social Infrastructure



Environmental  
Education  
Regeneration  
Utilities  
Defence

# Corporate Values



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