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# Route map to net zero

Securing a Green Recovery on a Path to Net Zero

# House keeping

> Please place your microphone on mute and camera off

> Session will be recorded

> Slides will be made available

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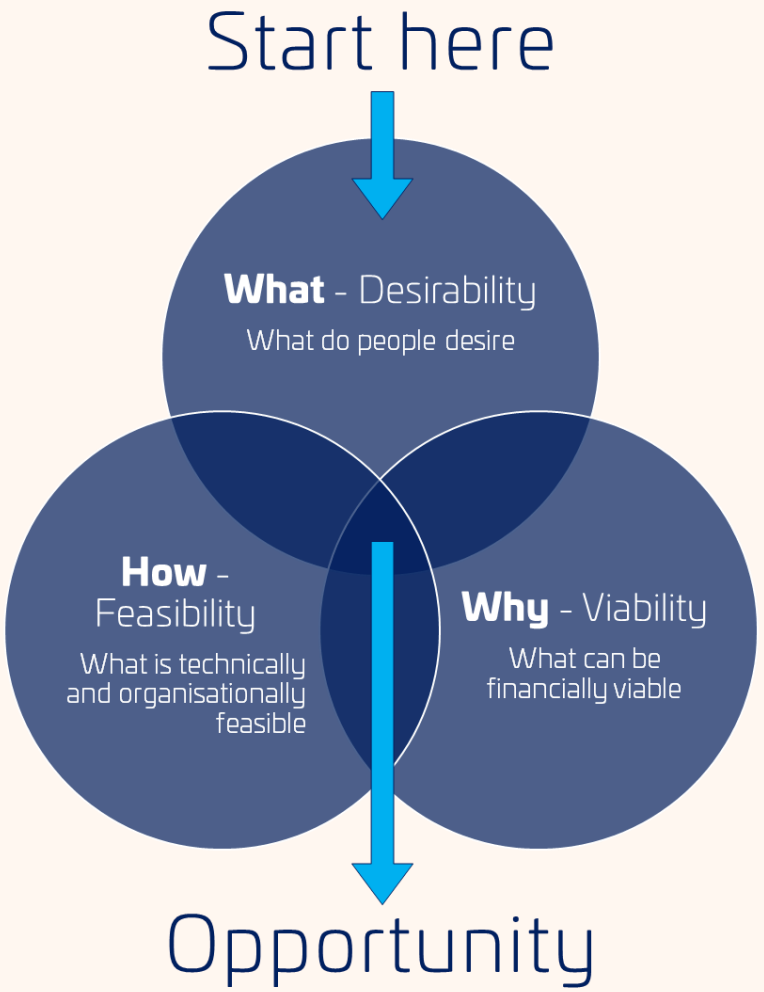
# The challenges of Net Zero

## Itinerary

- Desirability - AI:
  - A boon or a curse
  - Top 5 challenges
- Feasibility
  - Resistance to change – externally and internally ⇨ SMART Roadmap
  - Regulations ambiguity and uncertainty ⇨ Agile Roadmap
  - Awareness, skills and expertise ⇨ Net Zero programme (OSF)
- Viability:
  - Energy cleanliness and cost ⇨ Smart data (SMDH)
  - Financial constraints ⇨ Community



# Artificial Intelligence (AI)

## A boon or a curse

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# AI

## ChatGPT | Google Bard

### Boon

- Prompt management
- Information summary
- Speed
- Chat

### Curse

- Confidential information
- Intellectual Property (IP) ownership
- Accuracy, reliability, completeness
- 2021 (ChatGPT)

# Top 5 challenges

- **For SME to achieve emission reduction**
- **For Scottish Engineering members to reach net zero by 2045**

| | ChatGPT (SME) | Bard (SME) | ChatGPT (Members) | Bard (Members) | 1-2-1 (SEng) |
|---|---|---|---|---|---|
| **Change** | Resistance to change | Lack of incentives | Supply chain emissions | Changing consumer behaviour | Roadmap: where to start, engagement |
| **Regulations** | Regulatory challenges | Lack of support | Policy and regulatory uncertainty | Regulation | Best practice: standards, legislation |
| **Energy** | Limited access to clean energy | | Energy efficiency | | Support: webinars, ideation guidance |
| **Skills** | Lack of knowledge and expertise | Lack of knowledge<br>Lack of awareness | Skills and training | Upskilling and reskilling the workforce | People: skills and training |
| **Finance** | Limited financial resources | Lack of resources | Financial constraints | Investment in research and development | Finance: funding, costs, grants |

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# Change

| | ChatGPT (SME) | Bard (SME) | ChatGPT (Members) | Bard (Members) | 1-2-1 (SEng) |
|---|---|---|---|---|---|
| **Challenge** | Resistance to change | Lack of incentives | Supply chain emissions | Changing consumer behaviour | Roadmap: where to start, engagement |

# Lean roadmap

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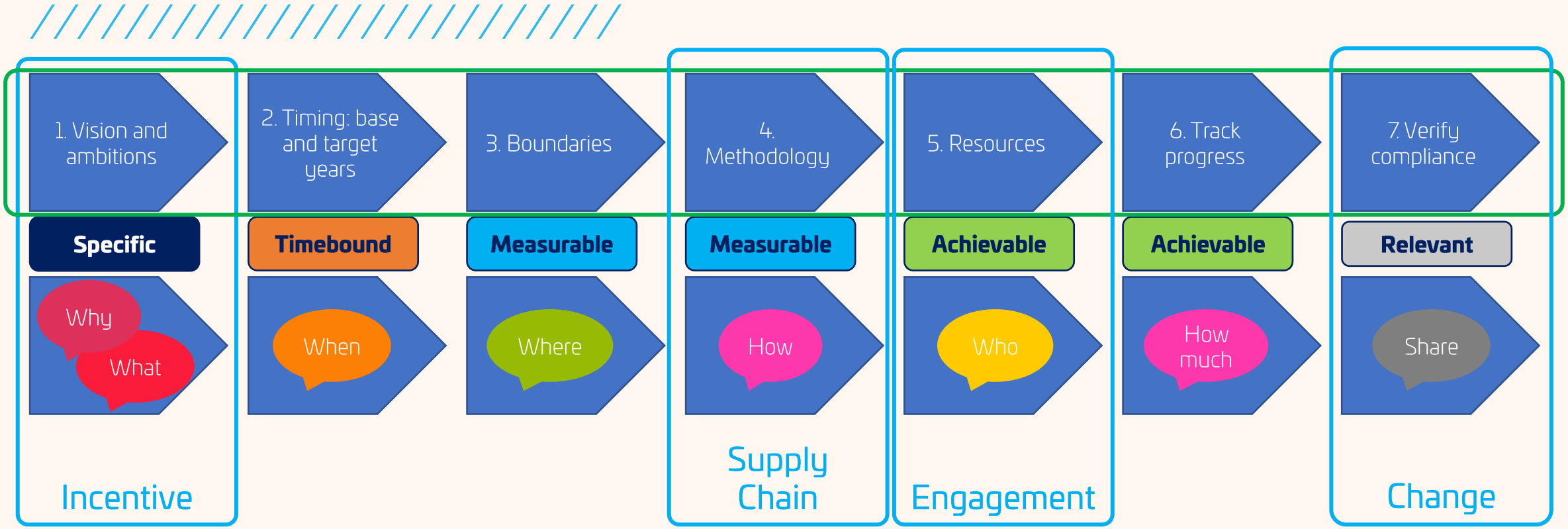
# Roadmap

## SMART roadmap to Net Zero

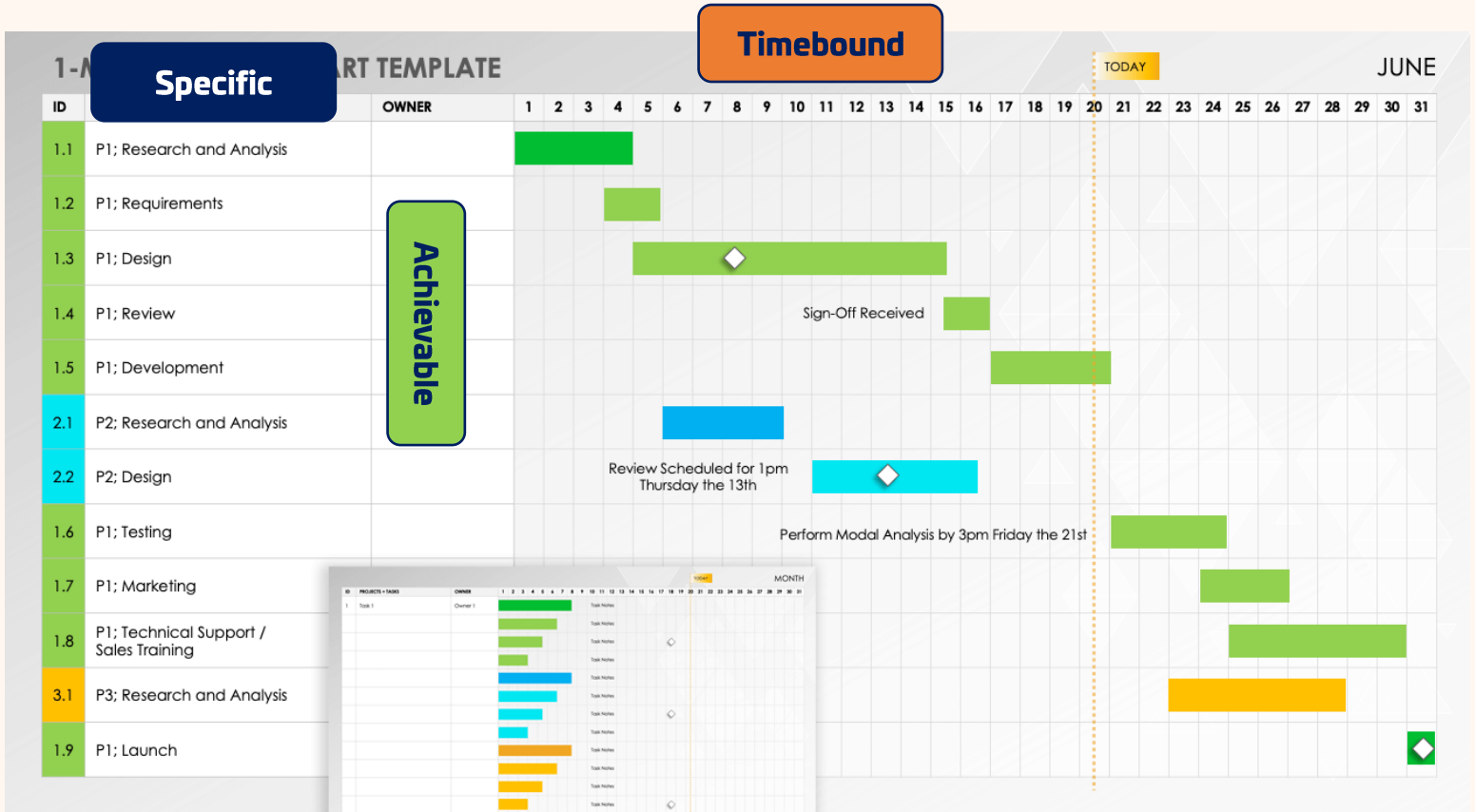


# Planning change

## Gantt Chart

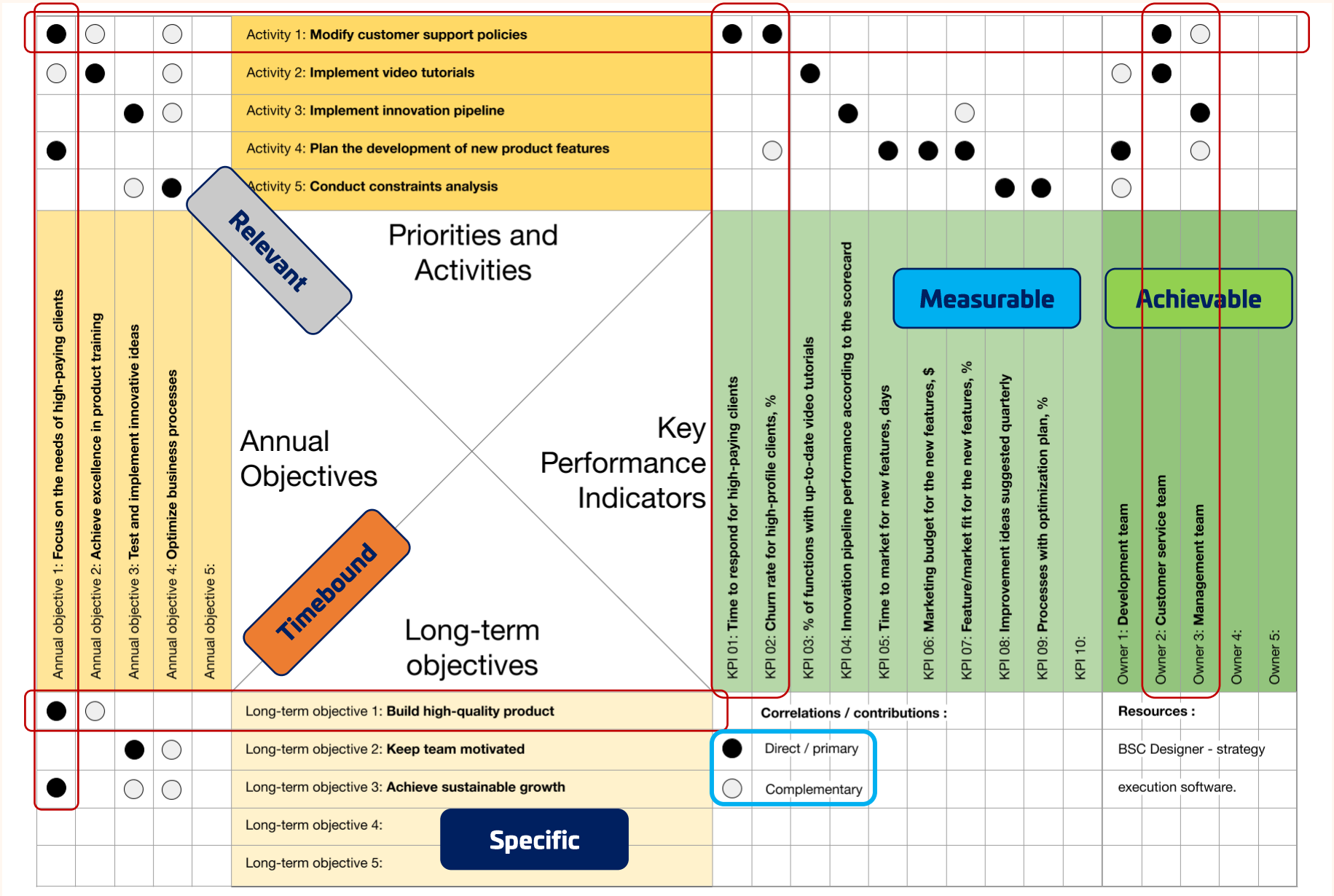
> On one page:

- ❑ Specific - what
- ❑ Achievable - who
- ❑ Timebound - when



# Hoshin Matrix

# Relevance of Change



# Regulations

| | ChatGPT (SME) | Bard (SME) | ChatGPT (Members) | Bard (Members) | 1-2-1 (SEng) |
|---|---|---|---|---|---|
| **Challenge** | Regulatory challenges | Lack of support | Policy and regulatory uncertainty | Regulation | Best practice: standards, legislation |

# Agile roadmap

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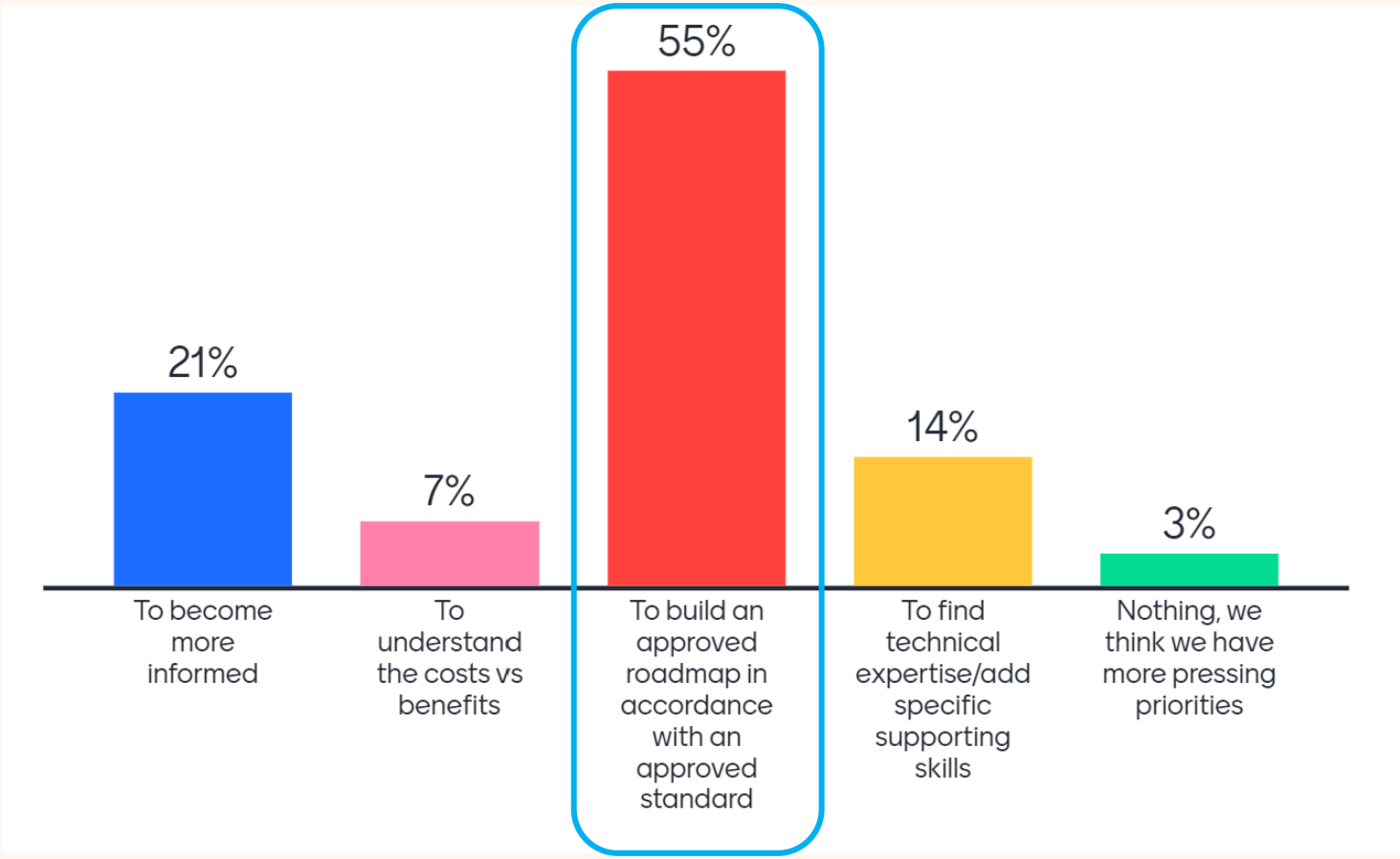
# Regulations

## What is your organization most likely next step



# Regulations

## SMART roadmap and Standards

Understanding Net Zero Standards Webinar

1. Vision and ambitions
2. Timing: base and target years
3. Boundaries
4. Methodology
5. Resources
6. Track progress
7. Verify compliance

**Specific** | **Timebound** | **Measurable** | **Measurable** | **Achievable** | **Achievable** | **Relevant**

Why / What | When | Where | How | Who | How much | Share

Standards converge

Standards diverge

- Principles: Relevance, Completeness, Accuracy, Consistency and Transparency
- Boundaries: organisational and operational

# Regulations

## Takeaway

There are numerous options and standards, hence methodologies

- Consider:
  - **Context** around your business – It is coming, if the carrots of funding and investment do not deliver the anticipated outcomes, the sticks of taxonomy and reporting will be used
  - Industry **expectations** and customer education – avoid customer's education if you can
  - Verification and **greenwashing**

# Energy

| | ChatGPT (SME) | Bard (SME) | ChatGPT (Members) | Bard (Members) | 1-2-1 (SEng) |
|---|---|---|---|---|---|
| **Challenge** | Limited access to clean energy | | Energy efficiency | | Support: webinars, ideation guidance |

# Smart Manufacturing Data Hub

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# Energy

## Support – Smart Manufacturing Data Hub


DRIVE SUSTAINABLE MANUFACTURING GROWTH WITHIN THE UK'S SME'S

THROUGH DATA INNOVATION AND DIGITALISATION

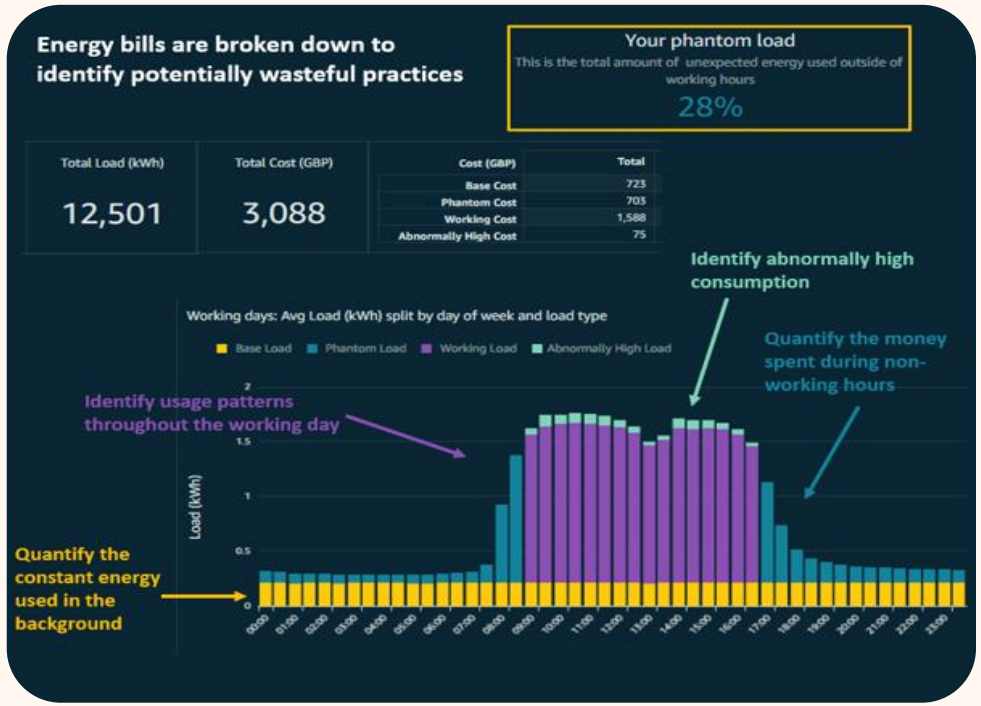

# Energy

## Opportunity – Energy Monitoring Solution

### PHANTOM LOAD DASHBOARD

- Identification of non-optimal energy usage
- Comparison of energy consumption
  - Different sites' efficiency
  - Investment's impact

*Measuring the **base load consumption** (constant background energy usage) and **any extra energy usage***



# Energy

## Potential Savings

*The potential savings depend on the **size of the companies' energy bill***

**20-60%** of energy usage occurs **outside working hours**
*(some of which is often unnecessary and easy to eliminate)*


Reduction by **5/10%**
*(without capital investment)*

Further reduction **10/20%**
*(with investment – Including payback period of 1 to 2 years)*

Savings - **£4.3k /year /kWh of Ghost load eliminated**
*(at £0.50 /kWh)*

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# Knowledge

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|---|---|---|---|---|---|
| **Challenge** | Lack of knowledge and expertise | Lack of knowledge<br>Lack of awareness | Skills and training | Upskilling and reskilling the workforce | People: skills and training |

# Programme (webinars and 1-2-1)

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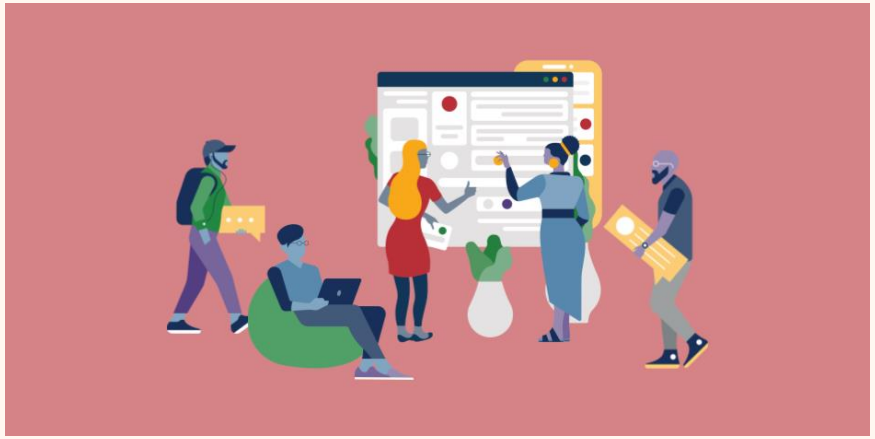
# People

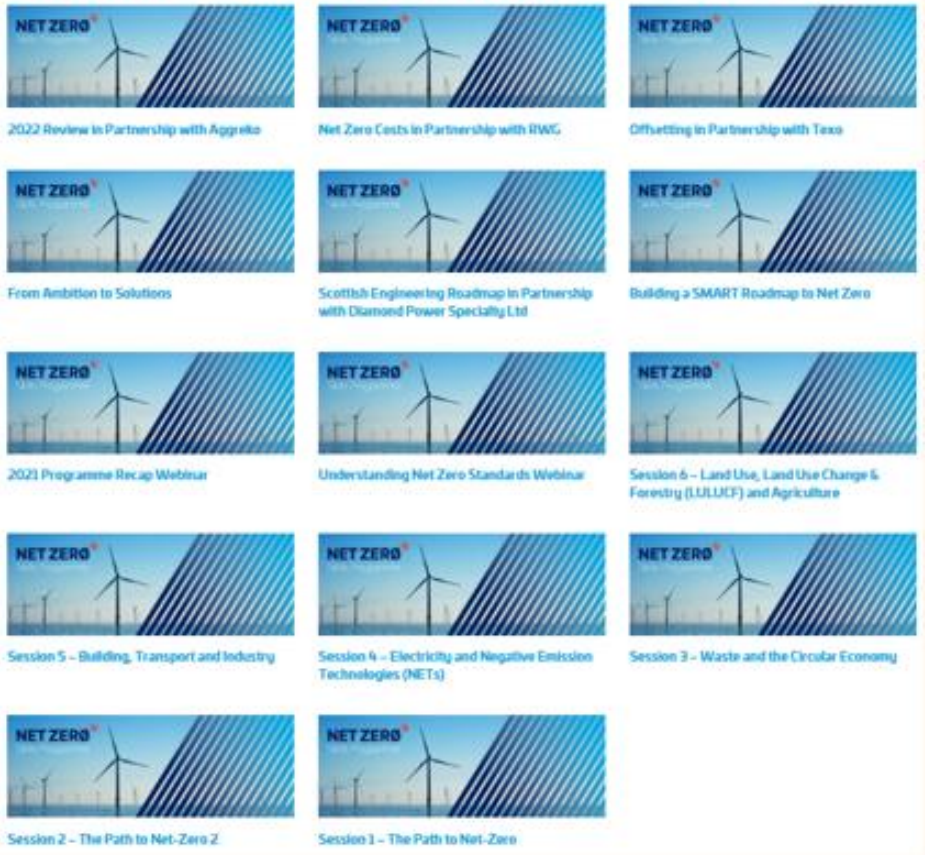
## Knowledge acquisition – not 70/20/10 OSF model anymore

- O - 55% of learning occurs on the job
- S - 25% occurs in social interactions
- F - 20% occurs in a classroom or formal

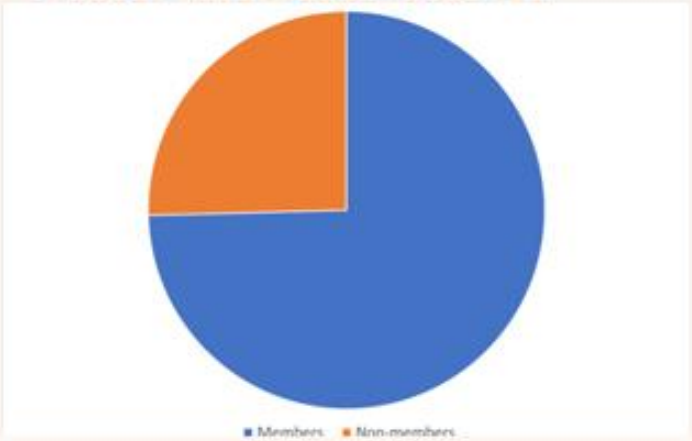
# Skills

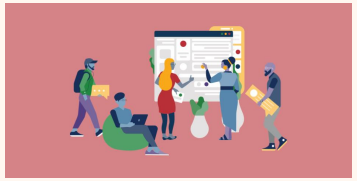
## Awareness (O): webinars and 1-to-1s




## 1-to-1

### Engagement (240 to date, 66% with SMEs, 22% skill providers)



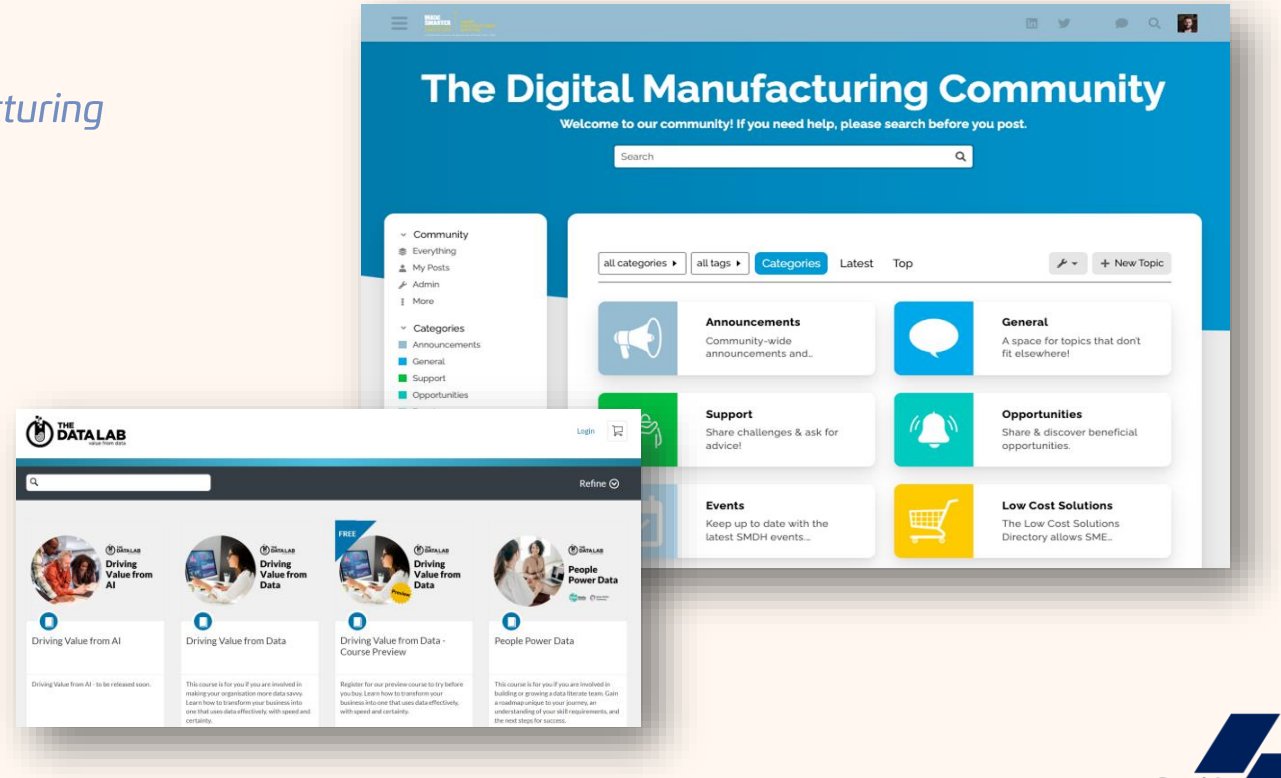
# Skills

## Knowledge (S): Community, skills and learning

### SMDH Digital Manufacturing Community

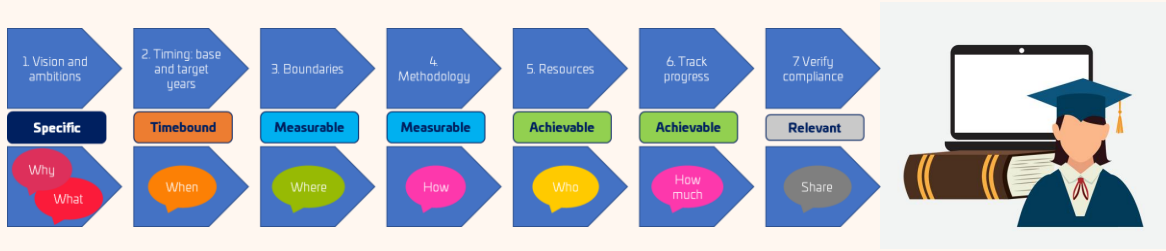
*An interactive online hub, bringing together the SME Manufacturing eco-system*

- Access to an extensive **network of peers & suppliers**
- Learn best practice from **experts, advisors & mentors**
- Share challenges, get **support & guidance**
- Discover **events & opportunities**
- Keep up to date with the **latest innovations & trends**



# Skills

## Expertise (F): training (WIP)




| Session | Topic |
|---|---|
| 1 | Overview of the 7 steps |
| 2 | Step 1: Vision and ambition (What & Why) |
| 3 | Step 2: Base and target years (When) |
| 4 | Step 3: Boundaries – organisation and operation (Where) |
| 5 | Step 4: Methodologies – standards (How) |
| 6 | Step 5: Resources – human and financial (Who) |
| 7 | Step 6: Progress – reduction and offsetting (How much) |
| 8 | Step 7: Verification and Communication – tracking and sharing |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# Finance

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|---|---|---|---|---|---|
| **Challenge** | Limited financial resources | Lack of resources | Financial constraints | Investment in research and development | Finance: funding, costs, grants |

# Network

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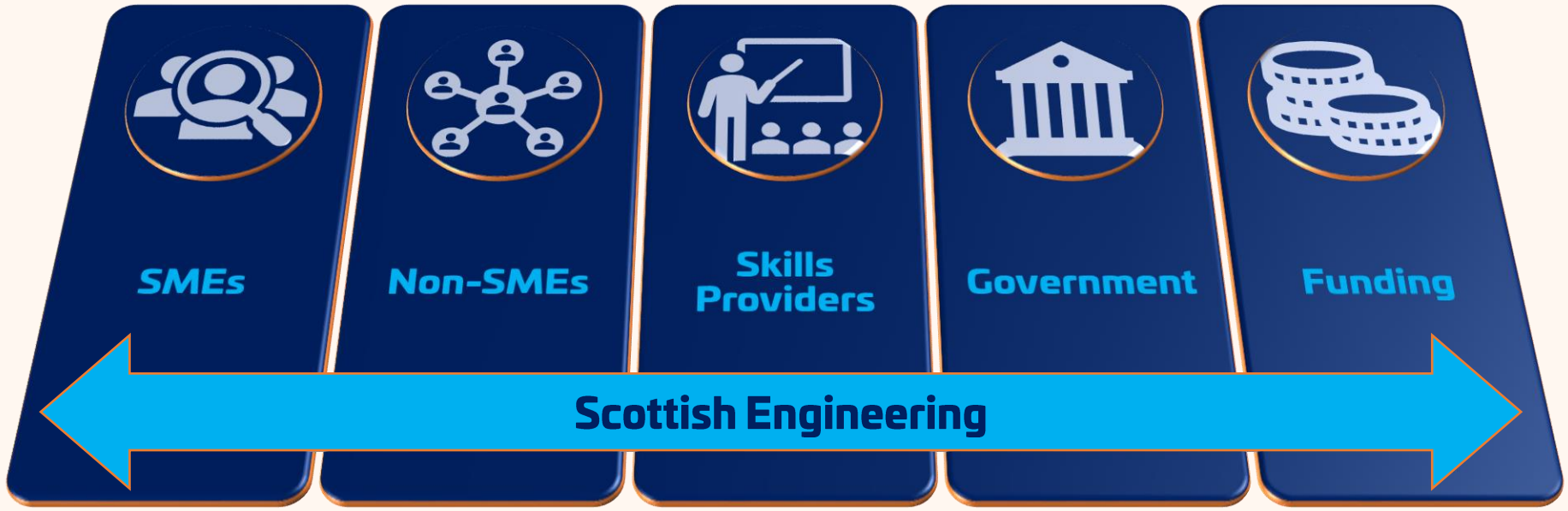
# Community

## Scottish Engineering's unique position in our community



# External opportunities

FindBusiness Support.gov.scot

- **12 June 2023**
  - Support options ⇨ 538
    - Net Zero ⇨ 150
      - Funding ⇨ 62
        - Chapter 1 & 8 – Electricity & NETs ⇨ 53 (Energy and Environment)
        - Chapter 2 – Building ⇨ 44 (Construction)
        - Chapter 3 – Transport ⇨ 45 (Transport and Storage)
        - Chapter 4 – Industry ⇨ 51 (Industrial Manufacturing)
        - Chapter 5 – Waste ⇨ 15 (search)
        - Chapter 6 & 7 – LULUCF & Agriculture ⇨ 42 (Agriculture, Forestry and Fishing)

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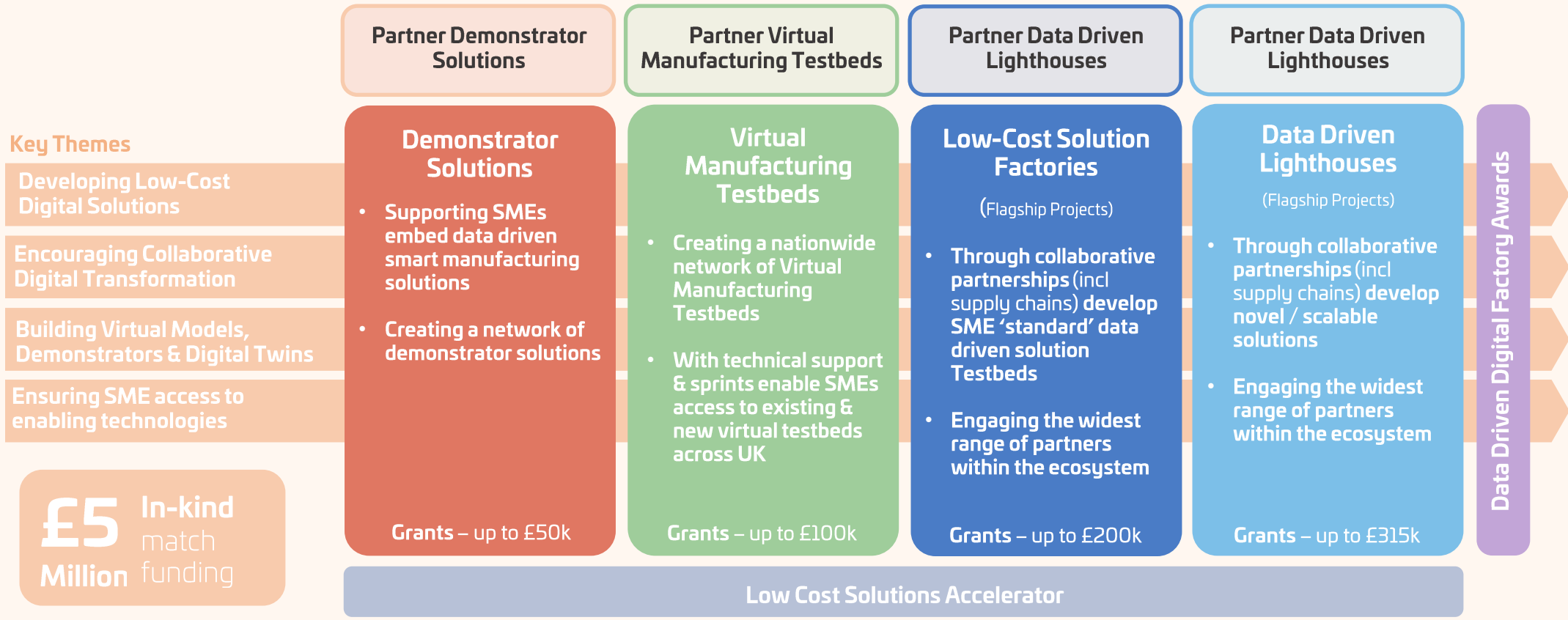
# External opportunities

## Smart Manufacturing Data Hub – Digital Innovation Fund

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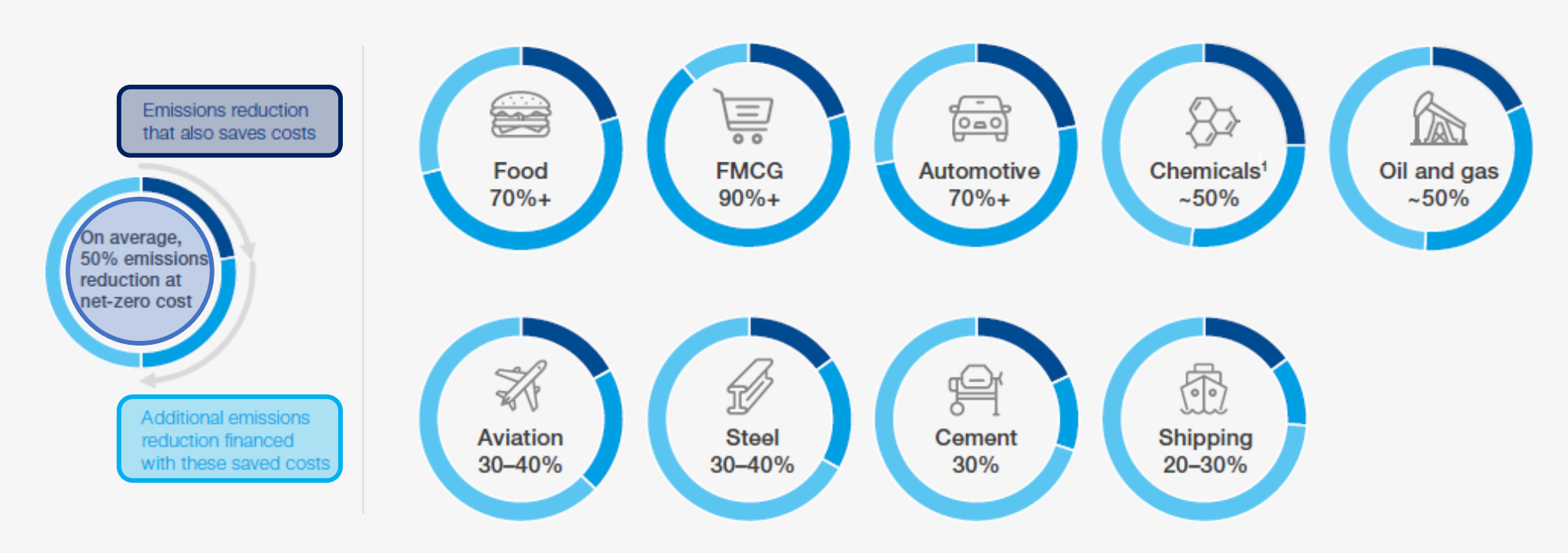
# Internal opportunities

## Companies can reduce significant Scope 1 and 2 emissions at net-zero cost

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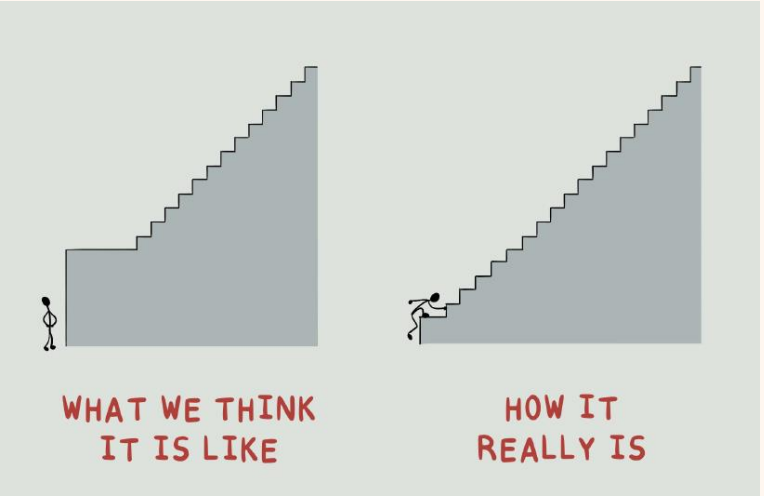
# Takeaway




- Considering the challenges of Change, Regulations, Energy, Skills and Finance
- Scottish Engineering can help with: a SMART and Agile Roadmap, our Clusters and Hubs, our Skills and Expertise, our Unique Network and Relevant Sign Posting

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# Thank you

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