UK

# ENGINEERS

## WITHOUT BORDERS

Participant brief and guidance

Welcome to

# Designathon 2022:

## Reshaping Engineering

**This document has been produced by AzuKo and Engineers Without Borders UK [January, 2022]. The content has been created together.**

### AzuKo

AzuKo is an architecture charity, working to end housing poverty in Bangladesh and the UK. We co-design housing and infrastructure, deliver construction training and support communities to understand their housing rights. Everyone deserves a safe, clean, dignified place to call home.

Learn more at www.azuko.org

*AzuKo is a CIO, and registered charity in England and Wales (no. 1156354).*

### Engineers Without Borders UK

Engineers Without Borders UK are working to reach the tipping point to ensure a safe and just future for all. Part of a global movement of over 60 Engineers Without Borders organisations, we inspire, upskill and drive change in the engineering community and together take action to put global responsibility at the heart of engineering.

Learn more at www.ewb-uk.org

*Engineers Without Borders UK is a registered charity in England & Wales (No. 1101849) and Scotland (No. SC043537) and is a company limited by guarantee (No. 4856607).*

### CrowdSolve

CrowdSolve is an open-innovation platform that helps organisations find solutions to important societal challenges by connecting them to a collaborative network of individuals with great ideas.

Learn more at www.crowdsolve.net

### Globally Responsible Engineering Virtual Experience Programme

Engineers Without Borders UK have partnered with Forage to design the Globally Responsible Engineering programme aimed at upskilling those within the engineering community on globally responsible practices. The programme consists of four hypothetical tasks that explore the four principles of globally responsibility: responsible, purposeful, inclusive and regenerative. The tasks will help you develop crucial skills in problem-solving, critical thinking and communication and unpack topics such as ethics, participatory and inclusive approaches and consider the role of the United Nations Sustainable Development Goals in the context of engineering.

Learn more at www.ewb-uk.org/online-course-launched/

### Designing with Dignity

If you are interested in embedding ethics and co-design in your work, we encourage you to sign up to AzuKo's Designing with dignity programme. The course explores what community-led design means, looking at new approaches, participatory methods and tools for engagement.

Learn more at www.azuko.org/training

# Welcome

**Welcome to the Designathon! This month-long multidisciplinary challenge will provide participants with the space to rethink how engineering is taught and practised to ensure a safe and just future for all.**

**What is in this resource?**

- **Challenge Information**
- **Context**
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- **The Process**
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This challenge is unique in its multidisciplinary approach; intended for not only engineering students, but for those studying a variety of disciplines including business, design, architecture, humanities and social sciences. The more diverse perspectives you have to develop your concept, the better.

## Collaborators

The design brief for this national event has been written in collaboration with architecture charity, AzuKo, which empowers communities through design. The charity, founded by **Change Maker** Jo Ashbridge, works with disadvantaged communities in Bangladesh and the UK.

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Every design decision you make has an impact – it is never neutral. How can you lead with empathy, and deliver genuinely sustainable solutions? This Designathan offers a unique opportunity to collaborate and explore how we, collectively, can do just that.

**Jo Ashbridge, Founder & CEO, AzuKo**

## Timeline

The month-long event will launch on **Tuesday 1 February** and will be interspersed with sessions covering various topics, from tips on how to present your ideas effectively, to approaches to design. You will also have the opportunity to gain feedback from industry professionals whilst developing your projects.

**1st February:**

Read through this brief to build upon your understanding of the challenge and guide your design process. We invite you to explore CrowdSolve where you will submit your concept notes and final design ideas. If you have any questions please contact community@ewb-uk.org. Otherwise, we look forward to seeing your ideas develop throughout February.

You have the option to come up with something entirely new, or look for ways to build on ideas produced in the 2021 Designathon.

**11th February:**

Submit a concept note (200–300 words) outlining your team's idea. This will provide you with an opportunity to receive feedback from the Designathon mentors and explore ideas being developed by other teams.

**21st February:**

Submit your final concept with a three-minute video, a 500 word description, and any supporting documentation (diagrams, photos, calculations, data etc.) on CrowdSolve. The video presentation can be any format you choose (filmed presentation of team members, animation, narrated slideshow etc.) and should be embedded into your post as a YouTube/ Vimeo video.

In addition to a team submission, you are each encouraged to develop and share at least three personal actions you will take. Examples of the kinds of actions we will encourage people to take can be found within the individual Commitment to global responsibility. If your action is to develop your own competence, areas to consider can be found under Competencies.

**22nd–27th February:**

Submissions will be reviewed by a panel of judges.

**28th February:**

The challenge will conclude during a final event on **Monday 28 February**. Prizes will be awarded by a judging panel to the winning teams. The judges will be looking for teams that have most effectively considered the **principles of global responsibility and collaborated most effectively** to generate their concept. Note that collaboration is not just limited to your own team's team working! Try to expand who you discuss your proposal with and even consider collaborating directly or connecting your idea to be relevant to another group participating in this designathon.

### Licensing

By taking part in this challenge, teams agree to share their solutions under an open-source Creative Commons license CC BY 4.0. Teams shall own the Intellectual Property of their work, however, they will agree to provide others (including Engineers Without Borders UK and Azuko) permission to share and build upon their ideas for a wider benefit, and be credited accordingly. If you have any queries, please get in contact at community@ewb-uk.org.

# Context

**Global indicators show us that the way we live is creating complex challenges for humanity and the planet we inhabit. Millions of people continue to live without access to the basics for a safe and just life, yet in providing for the few that have, we've already overshot the ecological limits of planet Earth.**

One model which provides a clear overview of our current situation is Kate Raworth's Doughnut Economics model which shows the shortfall for delivering on all people's needs and how we are exceeding our planetary boundaries. We are not currently operating in the safe and just space between the boundaries of the doughnut, but we need to.

The latest landmark IPCC report states humanity's role in driving climate change is undeniable, and the risk of a disorderly transition to a positive future is highlighted in the 2022 Global Risk Report by the World Economic forum. Nature is declining globally at rates unprecedented in human history, with a million species threatened with extinction. Whether we look at our food and water supply globally, the huge amounts of land being converted, nutrient pollution occuring in our soil and water, or the reducing air quality, we can clearly see the gravity of the situation at hand. Exceeding our planetary boundaries represent critical thresholds or tipping points where abrupt environmental change may occur on a continental or planetary scale.

Many livelihoods of people around the world are already being directly impacted by the climate and biodiversity emergencies, and in 2021 an estimated 698 million people, or 9% of the global population, are living in extreme poverty – that is, living on less than $1.90 a day. We need to choose to address social inequity, contribute financially to create a fair and just transition for people who are adapting to the impact of climate change, but who did not cause it.
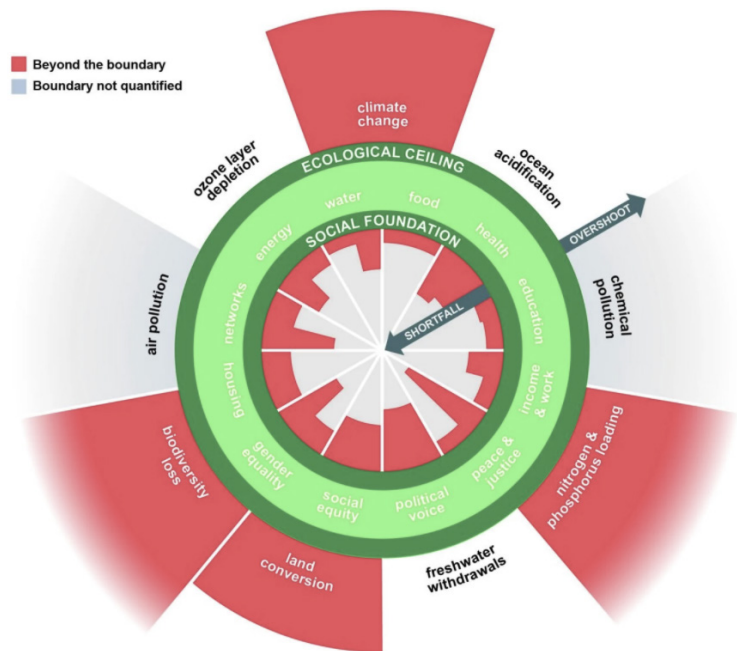


**The Doughnut of social and planetary boundaries.** Licensed under Creative Commons Attribution-Share Alike 4.0 International

Together we can have hope – for a better, sustainable and more equitable future in the best way that we can. Because in short – why wouldn't you?

More than any other time in human history, the future is ours to shape. We have some serious choices to make. Unfortunately, time is not on our side. The global consensus is that these enormous issues must be addressed by 2030, just eight short years away. It is a wakeup call for many. Our future depends on collective action. We have to change how we live, how we educate and how we work. In the Decade of Action we must all act.

> We need to change the conversation so that it's not just about the here and now or your specific bubble, but 50 to 100 years time and further afield. And the environment of people who are less well off.
>
> **Nav Sawhney, The Washing Machine Project**

In 2019, the UK became the first major economy in the world to pass laws to reduce all greenhouse gas emissions to net zero by 2050. In November 2021, COP26, was hosted in Glasgow where all agreed to the new Glasgow Climate Pact. Building on the momentum from COP26 is a priority for 2022.

But we have to broaden our focus to look at the wider impacts and think carefully about how to ensure a transition to a low-carbon future is just, and does not further increase social inequity.

If we want a future where everyone's needs are met for generations to come, we need a radical reflection on what has been 'business as usual' and innovative new ways for all life to flourish. We all have a role to play. People taking action is the answer. People are amazing, all 7.9 billion of us. We have the sheer potential of human beings to bet on, including you. We have an ability to innovate, to create, to reflect, to persevere, to adapt and to be resilient.

Whoever you are, it is all of our collective global responsibility to deliver a safe and just future for all. To do so we need to consider the following principles in all that we do.

> Young people will be disproportionately affected by climate change. Their voice matters – and so does their capacity to drive meaningful change. Young people have the ambition, determination and potential to help develop practical solutions that meet the level of the challenge and deliver a sustainable future.
>
> **COP26 Joint statement of International Youth Organisations (early career engineers)**

## Four key principles

1. **Responsible** (to meet the needs of all people within the limits of our planet);

2. **Purposeful** (to consider all the impacts, from a project or product's inception to the end of its life. This should be at a global and local scale, for people and the planet);

3. **Inclusive** (to ensure that diverse viewpoints and knowledge are included and respected in the process of addressing problems), and;

4. **Regenerative** (to actively restore and regenerate ecological systems, rather than just reducing impact).

Are you responsible for your work? Purposeful about considering the broader impact? Who do you include or exclude in the decision making process? Do you think about how to be regenerative?

Designathon 2022 is your opportunity to push yourself and design with these principles at the heart of your concept.

> We can now say with credibility that we have kept 1.5°C alive. But, its pulse is weak and it will only survive if we keep our promises and translate commitments into rapid action.
>
> **COP26 President Alok Sharma**

> "
>
> Globally responsible engineering is thinking beyond the specification. It's considering all the external effects that we have on the world as we do our job. Engineers are so fundamental in ensuring that people live healthy lives. We're really going to have to get our heads in gear, stop pursuing vanity projects, and start focusing on how we deliver what is being asked of us – from society but also from the planet.
>
> **Brittany Harris, Co-founder of Q-Flow**

# Problem Statement

**The UNESCO's Engineering for Sustainable Development Report (2021)**, explores the critical role of engineering in addressing global challenges and achieving the 17 Sustainable Development Goals (SDGs). To do this "requires adopting a more thoughtful approach that encompasses the social, human, economic and environmental impacts of engineering".

Professions like engineering and architecture change the way we live and respond to our global challenges. They have a role and responsibility in utilising the planet's resources to meet society's needs. While our professions have resulted in incredible advances to our comfort, health, and quality of life, they have also played a fundamental role in contributing to the unjust and unsustainable practises that dominate the world today, as the Doughnut Economics model clearly illustrates. The building and construction sector alone is responsible for 38% of global emissions. If we want to live in a safe and just world, that has to change.

**Click** here to be presented with a short video explaining the work of practising engineers towards each of the Sustainable Development Goals.

It is clear through the inequalities demonstrated in the Doughnut model, to specific examples of gender bias in designing seatbelts, racial bias in facial recognition software, to the impact of poor ethical decisions, that our professions have a huge influence in whether we produce inclusive outcomes that meet the needs of all people. It is important to critically reflect and understand the social, environmental and economic impacts projects have, both locally to where it is implemented and globally through supply chains and operational outputs. In short, we must consider our local, national and global footprint. The question for us following this is what are the opportunities and responsibilities of professionals to be more purposeful in focusing on creating equitable and sustainable outcomes?

To do this, the process of addressing problems needs to be truly collaborative and recognising our role as more than facilitating the development of a hard technological output. It is about discovering a social requirement, a deep understanding of the contextual factors, the regenerative potential and then delivering a solution to that requirement – you may have to physically build something, or come up with an alternative option. For example, a car sharing scheme may be a great alternative to expanding roads and the number of vehicles (electric or not) required, and foster a sense of community. We need to be humble about our responsibility to facilitate a positive outcome, and understand or forecast the potential impact. We need to support each other and share failed attempts, pragmatic compromise, incremental steps and of course breakthrough moments.

When thinking about reshaping engineering, we must recognise that it must not limit people's rights to a better quality of life – a transition to a better future must be just. The UN Declaration on the Right to Development states, "The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized." Our professions have a critical role and responsibility in enabling that right be met for all on this planet, in a way that is deeply sustainable and not just following in the default trajectory that dramatically increases our impact on the planet.

To achieve social and environmental justice, we need those working in and around engineering to commit to global responsibility, and deliver on that commitment.

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For example, in the classroom, I was taught that if someone wanted to cross a river, you built them a bridge. Engineers Without Borders UK showed me that if someone wants to cross a river, there are likely several ways to get them to the other side. So, what is the best solution? That's a really different way of looking at it.

**Brittany Harris, Co-founder of Q-Flow**

# Scope of Challenge

**The brief: Your team must pitch an idea for how to make the engineering sector more globally responsible.**

How you accomplish this is completely open – we want you to get creative. You could design a campaign, digital platform, an ethical toolkit or even a new way to inspire and upskill current or future generations of young professionals.

Your projects may start from many existing ideas, proposals, briefs, or challenges and are independently led by your team. The aim is for your projects to explore how advocacy, knowledge exchange, cultural change, education, entrepreneurship and

research could work in practice. Often, detailing who you would collaborate with, for example external organisations, brands, and institutions, will be a core part of your concept.

Consider how the **four key principles** of global responsibility can inform and guide how you.

To help you get started, we have suggested some areas of interest below.

Reshaping
Practice

Reshaping
Entrepreneurship

Reshaping
with Society

Reshaping
Education

It is up to you to decide if you use these areas, adapt them or choose to focus on something outside the listed areas.

# Areas of Interest

## Reshaping Practice

Engineering companies employ more than just professional engineers. Nearly 5.7 million people work in engineering enterprises in the UK, representing just over 19% of total UK employment in all registered enterprises. However, a **survey** by the Institution of Engineering and Technology (IET) found that only 7% of engineering companies with a sustainability strategy have the staff with the skills to fulfil it, while only 53% believed it was possible for them to meet net zero by 2050.

Engineering companies are required more and more to **demonstrate the social value** of their projects and how they do their work. Including to innovate, dramatically reduce cost, time, decrease environmental impact, ensure safety of their projects and report on their progress towards the SDGs and carbon neutrality.

We need companies to demonstrate the impact projects are having but the expertise to embed this still doesn't exist broadly. If we really explore the complexity of the problems at hand, we need a range of diverse perspectives and values to achieve just that. Not just a mix of engineering disciplines, or collaboration with architects, but collaboration in practice with a range of people, civil society, policy makers, broader disciplines e.g. social scientists and leading NGOs or non-profits/ for-impact organisations. What ideas do you have to encourage a more globally responsible practice? How can we ensure that engineering practice has the knowledge, experience and expertise to radically change for the better?

## Potential Starting Points

- As a future graduate entering the workplace, how would you design a range of **constructive conversations** about global responsibility? Have a look at **Julia Dhar's TED talk** on how to disagree productively and find common ground, and the ones held on each of the **four principles of global responsibility**.

- Impact assessment tools can aid significant, quantifiable progress towards understanding and improving the impact of actions. Take a look at various toolkits available to engineers. How could impact assessment tools be models for demonstrating transparency and combat issues such as **Greenwashing**? Do we need toolkits aimed at increasing social value?

- How would you transform existing assessment methods such as **BREEAM** and **LEED**, that continue to celebrate buildings that have huge environmental impact, to focus on sustainability in more meaningful and substantial ways? The IStructE also **offer some good resources**.

- **The SDG Impact Assessment Toolkit** is a free online learning tool that aids people to better understand the complexity of sustainable development and how an activity, organisation or innovation affects the SDGs. Check out **Morrow + Lorraine's** commitment to sustainability in their practice, projects, ethics and ethos.

- Have a look at the **Inclusive Engineering Framework**. A willingness to share, listen and work collaboratively with a range of groups, particularly marginalised voices, is critical to ensure representation, accelerate progress and find evidence-based and innovative solutions. Explore various participatory approaches to engineering and opportunities to connect multiple stakeholders. How can these be integrated within engineering practice?

## Reshaping Entrepreneurship

Innovation and entrepreneurship focused on delivering positive impact and social value, not solely economic gain, is on the rise. Entrepreneurs and innovators are incorporating global responsibility into day to day practice with a focus on social and environmental justice.

There are some wonderful organisations out there that are making a positive difference in the world, but without a platform. Innovation hubs, such as those in Medellin, Colombia and Nairobi, Kenya, can be a catalyst for transformative and dynamic innovative ecosystems and entrepreneurial relationships across sectors. Technological advancement can be mainstreamed and tailored to local needs that has the potential to advance inclusive and sustainable development.

The world is full of bright minds, trying to solve our global challenges. Often, the tricky part is how to take those ideas forward and ensure a positive impact. Collaboration is needed to accelerate progress towards the SDGs and ensure global responsibility is a strong cultural feature in engineering. How could those working in alternative engineering solutions be given a platform to collaborate and enable sustainable, inclusive and regenerative technologies, systems, infrastructure and materials? Could you design a way to recognise existing engineering entrepreneurs and amplify their voices?

## Potential Starting Points

- Non-traditional career paths are often not discussed or encouraged at university. Architects and engineers, for example, can often imagine themselves in a design studio, thinking that it is the only option post-degree. What if we challenged that? What skills and knowledge are transferable? How could it be used to encourage innovation in other sectors? Check out the support for student-led social impact ventures.

- SME Climate Hub and the Construction Playbook highlights how Small and Medium Enterprises (SMEs), can provide insights for industry, innovative technologies and ways to minimise the carbon emissions of the proposed solutions across their whole lifecycle. How could you encourage opportunities to encourage inclusive approaches? Consider exploring everything from mentoring and facilitating peer-to-peer advice to collaborating on specific initiatives. How could you amplify the visibility of SMEs working in the sector?

- Check out the Royal Academy of Engineering's Enterprise Hub, a platform for funding, training, networking and mentoring for innovative engineering entrepreneurs.

- Check out IDEO, a nonprofit design studio, that champions an open-source model for innovation and accelerates innovation within the development sector through their Amplify programme.

## Reshaping with Society

How can engineering and architecture work closely with wider society to address complex challenges? Too often this is seen as a purely technical challenge, however, the relationship between technology and society is critical. Global responsibility requires you to look beyond the technology itself to consider it's outcomes, impacts and value to society. Doughnut Economics highlights how our professions play a role in meeting the SDGs, relates to building a social foundation and how it contributes in exceeding the ecological ceiling of our planet. Could you design a way to strengthen the relationship and have people's participation and involvement in the scoping and shaping of engineering projects?

We need to understand the positive and negative impact of our professions, to reflect and think critically about our role in living in a more resource-efficient, socially responsible, ecologically sensitive and resilient way. If we have limited information about the impact of our choices, action, inaction, decisions and work, we will have limited ability to change things for the better. Produced by leading engineering universities, the **UK Fires Absolute Zero** report details the most important direct changes people in the UK can all make now in order to reduce emissions rapidly and at meaningful scale – for example:

- Stop flying and take the train or other public transport rather than a car, when possible.

- Share rides to use more of the seats in the car now and buy a smaller electric car next time.

- Cut out beef and lamb and reduce use of processed frozen meals.

- Only heat rooms where people are sitting and replace the boiler with a heat pump next time.

- Lobby local councils and public clients to allow retrofitting, re-sue or only longlasting buildings without overdesign.

> "
>
> By being frank about what's technically possible in the time available, **Absolute Zero** presents a tremendously positive vision for reaching zero emissions. Today's technologies, with minor changes, can sustain our lifestyles. The change can be delivered rapidly provided we engage everyone in the process, so that positive steps forward lead to rapid reinforcement.
>
> **Julian Allwood, Director of UK FIRES, Professor of Engineering and the Environment at the University of Cambridge**

## Potential Starting Points

- Young people will be disproportionately affected by climate change. How can the voice of young professionals who want to see transformative action in engineering practice and education be elevated?

  - Check out Charity: Water's – **World Changers**. An e-book guide to empower young people in bringing clean and safe water to those who need it.

- How can we challenge exaggerated claims about new technologies that hold back meaningful progress?

- Engaging in and driving the debate with society increasing our awareness of the public perception of engineering and how this may influence our ethical responsibilities. What is the common image of the sector that is being portrayed? Would it help to be more transparent about the role of engineering within our society? How could societal values and pressures influence the engineering community?

- There is a huge amount of information to encourage people into engineering. Have a look at **This is Engineering** to see a recent example of a campaign to inspire people into engineering.

## Reshaping Education

Half of last year's Designathon concepts were about improving university education – and there is good reasoning for that. Today's students are highly attuned to the challenges ahead – addressing climate change, energy transitions, food security, social inequity and more. Students are looking to engineering or architectural studies as a toolkit to navigate these complex problems. We need to find ways to understand the problem's multidimensional nature and build a supportive network so we can meet these challenges together.

The UK engineering industry will need an estimated **200,000** skilled engineers between now and 2024. It is therefore important to find ways to educate engineers to incorporate sustainable values and global responsibility as a core aspect of how they practice, and advocate for it to become the norm. We need a culture that reinforces behaviours, values and norms that create positive outcomes.

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>
> Social change is a million individual acts of kindness; culture change is a million subversive acts of resistance.
>
> **Mary Pipher, Reviving Ophelia: Saving the Selves of Adolescent Girls**

We need to be considering new and innovative ways to encourage not just more students into the sector, but those already in the profession to become globally responsible individuals. As a participant in this Designathon, you have first hand experience of what it is to be a student right now, entering a career that will see challenges beyond the existing SDGs. How could you use your insights to shape educational change? How do you future proof your skills? Could you design a learning journey that presents a new way of engineering and educates people who have left school to prepare them to make a positive impact in the world?

## Potential Starting Points

- Addressing the SDGs and the skills shortage will require more complexity in the curriculum. Reflect on your own education. What is/was missing? Were/are multi-disciplinary approaches encouraged? How could you encourage complexity in engineering that facilitates skills in ethics, sustainability and inclusion?

- Have a look at the **Globally Responsible Virtual Programme**. What role could virtual platforms play in advocating and upskilling engineers in global responsibility? What ideas could you come up with to support open learning outside of the classroom?

- Empathy is a core skill for engineers of the future, but can you teach it? The antonym of empathy is apathy, and its meaning includes a lack of interest, concern, and enthusiasm. We want to avoid producing engineers with apathy for what they are doing. How could empathy and ethical decision making be at the heart of engineering education?

  - Check out **Fixperts**, an open learning platform flexible framework promoting creativity, empathy and collaboration in the design process.

- Lifelong learning is the foundation for Continued Professional Development (CPD). What type of education do you think would be useful once you have joined the profession? What should be expected of **engineering technicians, incorporated or chartered engineers** with professional qualifications?

# The Process
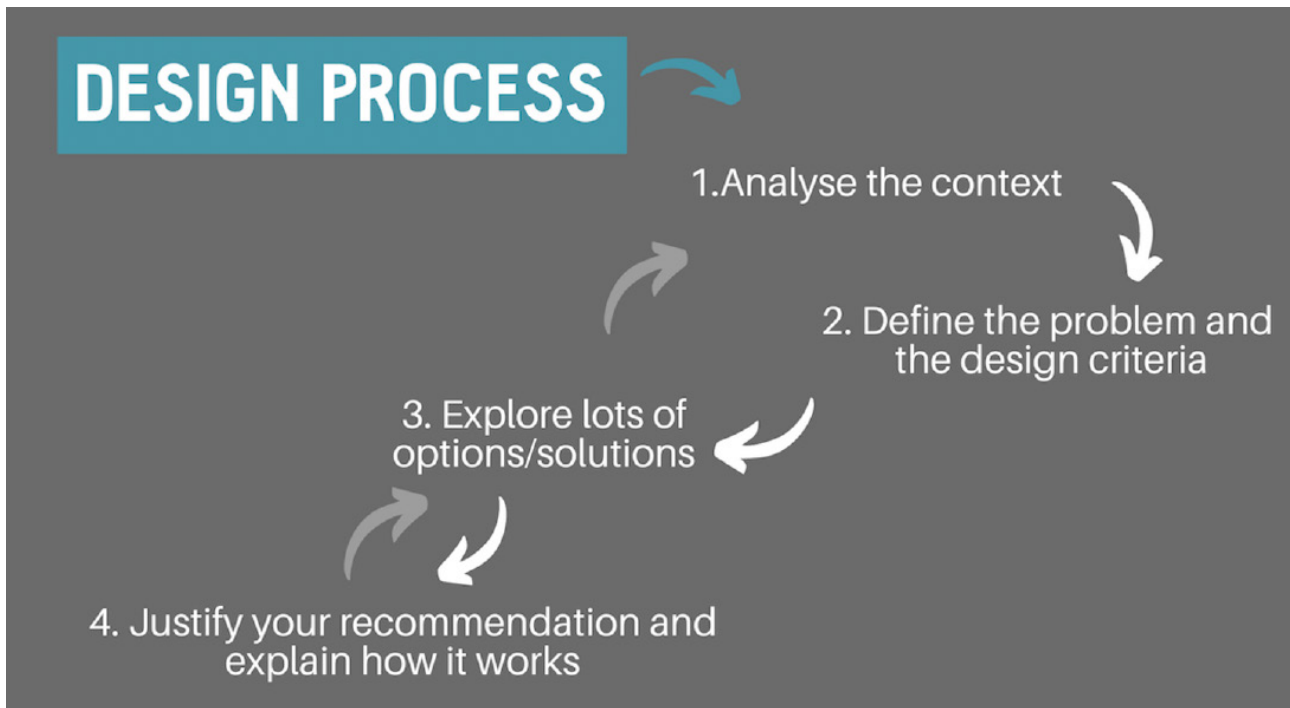


## Step one: Analysing the real world context

To get off to a good start, you will need to take time to gather information and build your understanding before you start proposing ideas. Here is where you explore, research and discover what exists already and further understand the context of the problem. Be curious!

## Step two: Defining the problem (e.g. refining the brief)

You should now be able to identify the problem that you are going to tackle. Whatever issue or issues you choose to work on, you will need to justify why you think they are important.

You may choose or challenge some of the ideas above, but this is where you focus on what problem your team is looking to solve and set criteria for success.

## Step three: Explore lots of options

Here is where you generate ideas. Ideally you will prototype, test and iterate your projects.

Who influences the types of projects and technologies we work on? We are looking for innovative and alternative approaches. Be sure to catalogue your findings and share your process and updates on CrowdSolve.

## Step four: Justify your recommendation

Within your team's submission you will need to:

- Explain and justify your idea. Clear communication is vital here.

- Consider the use of images, diagrams, videos and models as well as the written and spoken word to get your idea across.

- Outline the process you have gone through. This will assure people that you have taken responsible steps to reach your proposed design and that you are confident it is appropriate.

- Present a plan covering how you propose to implement your project, and evolve it. Who would you seek feedback from and how would you incorporate this in your approach?

# Marking Criteria

## Globally Responsibility

To achieve globally responsible outcomes requires critical analysis and reflection throughout the creation process.

For the judges to assess your project and provide feedback, all of the principles of global responsibility will be used to assess how your project may reshape engineering for the better. Even if you focus more on one specific principle, you are expected to consider them all. We are actively encouraged to adopt these principles to guide how you approach this professional design challenge and your project, as demonstrated within the marking criteria.

| Marking Criteria | Marking Allocation | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Responsible** | No consideration or justification. | Little consideration or some reference. | Clear description of how this concept is advocating to make engineering more responsible.<br><br>In addition to team submission, three personal actions from each team member were shared. | Good potential and logic demonstrated as to how this concept could advocate for change and reach desired impact.<br><br>In addition to team submissions, three personal actions from each team member were shared with evidence of how they will be achieved. | Excellent potential, logic and creativity for how this concept could be applied in practice, and reach desired impact.<br><br>In addition to team submission, three SMART personal actions from each team member were shared with evidence of how they will be achieved. |
| **Purposeful** | No consideration or justification. | Little consideration or some reference. | Clear description of how this concept is advocating to make engineering more purposeful. | Good potential and logic demonstrated as to how this concept could advocate for change and reach desired impact. Some demonstration of Purposeful principle guiding how the team worked to create the final concept. | Excellent potential, logic and creativity for how this concept could be applied in practice, and reach desired impact. Demonstration of how Purposeful principle guided how the team worked to create the final concept. |
| **Inclusive** | No consideration or justification. | Little consideration or some reference. | Clear description of how this concept is advocating to make engineering more inclusive. | Good potential and logic demonstrated as to how this concept could advocate for change and reach desired impact. Some demonstration of the Inclusive principle guiding how the team worked to create the final concept. | Excellent potential, logic and creativity for how this concept could be applied in practice, and reach desired impact. Demonstration of how Inclusive principle guided how the team worked to create the final concept. |
| **Regenerative** | No consideration or justification. | Little consideration or some reference. | Clear description of how this concept isadvocating to make engineering more regenerative. | Good potential and logic demonstrated as to how this concept could advocate for change and reach desired impact. | Excellent potential and logic demonstrated as to how this concept could advocate for change and reach desired impact. |

# Marking Criteria

## Communication and collaboration

Team working is critical to the success of any project and being able to communicate your project is fundamental. Collaboration with other teams is actively encouraged as demonstrated within the marking criteria.

| Marking Criteria | Marking Allocation | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| **Communication** | No justification for idea and concept. | Limited description of the idea and justification. | Satisfactory description of the idea, clear justifications and communication of concept. | Good description of the idea, clear justifications and communication of concept. | Excellent description of the idea, clear justifications and communication of concept. |
| **Collaboration** | No evidence of collaboration. | Limited collaboration evident. | Reasonable collaboration. Submitted both Concept note and final submission on time to CrowdSolve. | Good collaboration with other students and professionals. Submitted both Concept note and final submission on time to CrowdSolve. Evidence of active engagement with mentors on CrowdSolve. | Excellent collaboration with other students and professionals. Submitted both Concept note and finalsubmission on time to CrowdSolve. Evidence of active engagement with mentors and regularly shared resources and information others mayfind useful on CrowdSolve. |

> This Designathon was a fantastic opportunity for me to work outside of my comfort zone and work collaboratively with people from different disciplines and backgrounds. I have learnt the value of working creatively with people who can tackle problems with a different mindset, and I will incorporate this creative energy into my work going forwards.

**Participant, Designathon 2021**

**We wish you the best of luck** and look forward to seeing the projects you come up with on CrowdSolve. We encourage you to be creative and think outside the box, making the most of connecting with other teams through CrowdSolve and listening carefully to the varied perspectives in your own team.

If you have any questions please contact us at **community@ewb-uk.org**.

UK
**ENGINEERS**
WITHOUT BORDERS