**City, University of London**

# Strategic partnership impact report

Year 2 I March 2022- 2023

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# Introduction

This report explores the impact of the second year of the City, University of London and Engineers Without Borders UK strategic partnership.

Established in 2021, the success of our first year of partnership, detailed in the underlined previous impact report, provided us with the foundations for an impressive second year. During year two, our focus was to develop students and educators at City, using the power of collaboration and our cross-sector experience to ensure social responsibility is a core and cultural feature of education at the School of Engineering, Mathematics and Computer Science.

We continued to support City in delivering the Engineering for People Design Challenge to all first-year engineering students for a sixth year. We invited the top-scoring City student team accompanied by engineering educators to our Grand Finals event in June 2022.

Another notable highlight has been City's continued participation in the Efficiency for Access Design Challenge. During the 21/22 academic year, City students created two inter-university teams, collaborating with peers from the Independent University of Bangladesh. Team 31 won a Gold Award at the Grand Finals with their 'Solar Direct Drive Cold Storage System for Off-Grid

Preservation of Fish and Perishable goods' design. The success of this partnership enabled Efficiency for Access Design Challenge to continue to offer inter-university teams as part of the programme.

Additionally, this year has seen us work closely with the educator team at City. In September 2022, we delivered a bespoke team-building workshop to City's core educator team, sharing a preview of our competency compass and providing a framework to explore individual and team strengths.

Through partnerships like ours, we can ensure that engineering education responds to sector and society needs, ensuring students can creatively adapt to rapid changes, collaborate across disciplines and cultures, and prioritise human dimensions in their approach.

**We are looking forward to continuing our partnership with City, University of London, impacting our commitment to educating socially and globally responsible STEM professionals.**

# Purpose of the partnership

## Purpose statement

Together we will support City alumni from the School of Engineering, Computer Science and Mathematics to become socially and globally responsible in their professional lives.

We will lead by example and put social responsibility as a core and cultural feature of education and the student experience within the School of Engineering, Mathematics and Computer Science, where students gain a strong ethical and international perspective and have the drive to bear the full extent of this responsibility within their future careers. This partnership aims to shape alumni who enjoy and are proud of their education and see it as foundational and distinctive in developing them to make a positive contribution to society and their profession.

> "I am delighted that our students are collaborating internationally and developing ideas to make a difference in the world. Thanks to Engineers Without Borders UK for helping our students to become change leaders. We have also redesigned our Engineering undergraduate programmes with Engineers Without Borders UK as a partner. This will make our programmes exciting and life-changing for our students. I am looking forward to expanding our partnership through the "Engineering for Society" module in the curriculum and including our international partners."

**Professor Rajkumar Roy,**
**Executive Dean**
**School of Science & Technology**
**City, University of London**

# Partnership objectives

The three-year partnership set out to:

## 1

Run project-based Designathon and Design Challenges, both in and out of curriculum.

## 2

Co-create real-world educational resources and accelerate training of early-career academics.

## 3

Work with educators to provide a programme of support and facilitate volunteering opportunities for a broad and diverse group of people to shape the education of 3,000 students.

## 4

Re-establish a University Chapter as a mechanism for student-led activities.

## 5

Share our work, approach, and learnings broadly to influence a wider sector change.

## 6

Gather evidence from our partnership to track the success and failings of approaches that focus on how to take action on the need to develop socially and globally responsible professions.

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# Achievements to date

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| **Engineering for People Design Challenge** | City students attended the Engineering for People Design Challenge Grand Finals in June 2022. They delivered pitches to judges representing industry and networked with other students.<br><br>The delivery of Engineering for People Design Challenged continued into the 2022/23 academic year, with 300 students participating. |
| **Efficiency for Access Design Challenge** | City's inter-university team won a Gold Prize at the Efficiency for Access Grand Finals in June 2022.<br><br>The success of the inter-university team supported the Efficiency for Access team to explore whether other universities could participate in the 22/23 academic year.<br><br>City's students and educators were featured in the highlight video for Efficiency for Access. |
| **Collaboration** | In July the core teams from City and Engineers Without Borders UK met to plan the upcoming academic year.<br><br>We followed this with a meeting in September focused on the changes City are making to their curriculum, specifically focusing on how we can support the inclusion of social responsibility. |

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| **Competency compass + Reimagined Degree Map** | Engineers Without Borders UK delivered a bespoke, in-person, team-building workshop for the City educator team with attendance from the Royal Academy of Engineering to collaborate on a Global Responsibility Competency Compass and Reimagined Degree Map. |
| **2022 Engineering Hackathon** | Engineers Without Borders UK joined Hackathon UK in supporting the Engineering Hackathon in October 2022, which explored the theme of Engineering 2050 for Good.<br><br>Milly Dyer presented a workshop on global responsibility to 300 student participants and attended the celebration event. John Kraus, CEO, supported by judging the final submissions. |
| **National Symposium on Developing Socially Responsible Professionals** | Once again, Engineers Without Borders UK supported City's Symposium. Dr Jonathan Truslove, Education and Skills Lead, joined a panel on Ethics in different professionals - UG and PG curriculum requirements. |
| **Reshaping Engineering** | Sarah Sallebrass will be supporting Reshaping Engineering 2023 as a shortlisting judge. |

A list of achievements made in the first year of the partnership can be found <u>here</u>.

# Engineering for People Design Challenge

### Grand Finals 2022

The beginning of our second year of partnership saw the end of the delivery of the 2021/22 Engineering for People Design Challenge. This year focused on Cape York, an area of Queensland, Australia, home to Aboriginal and Torres Strait Islander peoples.

In the 2021/22 academic year, 57 foundation and 300 first-year students participated. One team had their submission entered the national competition, reaching the top 36 and attending the Grand Finals event in June 2022.

### 2022/23

In September 2022 City joined us for another year of Engineering for People Design Challenge delivery. This year they have 300 first-year Engineering students taking part, designing solutions for the community in Govan, Glasgow.

# 1,800

engineering students at City, University of London have taken part in our design challenges since 2017

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# Efficiency for Access Design Challenge

## 2021/22

The end of the 2021/22 academic year saw the final months of City's first delivery of the Efficiency for Access Design Challenge. 4 students took part in two inter-university teams (both with Independent University Bangladesh.) The teams received a combined US$1,990 in prototyping funding. The team's designs can be seen on CrowdSolve, a platform used to showcase solutions across our programmes - Team 2021-31 & Team 2021-41.

Team 2021-31 scored the top score, taken from a combined report and presentation score, receiving the gold medal award at the Grand Finals. Team 2021-41 scored in the top 10 teams, just missing out on receiving a bronze medal.

The Efficiency for Access Design Challenge 2021-22 highlight video included City students and educators.

Marjahan Begum, whose foundation year cohort took part in the Engineering for People Design Challenge as part of their Employability and Transferable Skills module, helped connect City's Efficiency for Access team (Team 2021-31) with an NGO in Bangladesh that she held a relationship with.

## 2022/23 Design Challenge

For the 2022/23 academic year, 2 City students have teamed up with 2 Strathmore University (Kenya) students to create an inter-university team. They have submitted their concept note here and will soon find out if they will receive prototyping funding.

# University Chapters

EWB City, University of London, is one of 24 student-led Chapters.

Now in its second year, the Chapter has 15 members. EWB City spent the first half of the academic year focussing on sustainable designs that solve rivers' microplastic issues. They ran several workshops, where each session focused on specific technologies.

In addition, the Chapter worked on improving the presentation skills of their members by sharing learning from the universities careers centre.

# National Symposium on Developing Socially Responsible STEM professionals

Engineers Without Borders UK sponsored City's 2023 National Symposium on Developing Socially Responsible STEM professionals. The Symposium returned to being in person, and Dr Jonathan Truslove, Education and Skills Lead, attended the full-day session on 11 January 2023. He joined a panel event focussing on Ethics in different professionals - UG and PG curriculum requirements, representing Engineers Without Borders UK.

The symposium was open to all disciplines and brought together over 80 participants. Presenters and panellists from disciplines including education, medicine, engineering, business, theology and policy came together to discuss and share insights into the challenge of embedding social responsibility in education and practice and the industrial commitment to social agendas. Professional identity, trustworthiness in professions, keeping pace with technology advancements, metrics for social value impact, and the skills base for social responsibility were all emerging themes. Overall, embedding social responsibility requires a cultural shift in organisations and education.

The next symposium is planned for 10 January 2024, and registrations will be open to educators from all disciplines as part of City's university-wide social responsibility strategy. More information on the projects City is running university-wide can be found here.

# Engineering Hackathon 2022

In October 2022, Engineers Without Borders UK joined Hackathon UK to support CIty's Engineering Hackathon. Exploring the theme of 'Engineering 2050 for Good' student engineers came up with various solutions during an intensive design week.

The first prize went to Team 6, who designed wings of a vertical take-off and landing aircraft. Other notable designs were metal oxide sensors for biomedical use in detecting insulin and ketone levels and a thermoelectric generator tile for placement close to appliances such as heaters and boilers.

During the intensive week, Milly Dyer, University Engagement Lead at Engineers Without Borders UK, delivered a workshop focused on global responsibility and the UN Sustainable Development Goals, asking teams to consider these in their solutions.
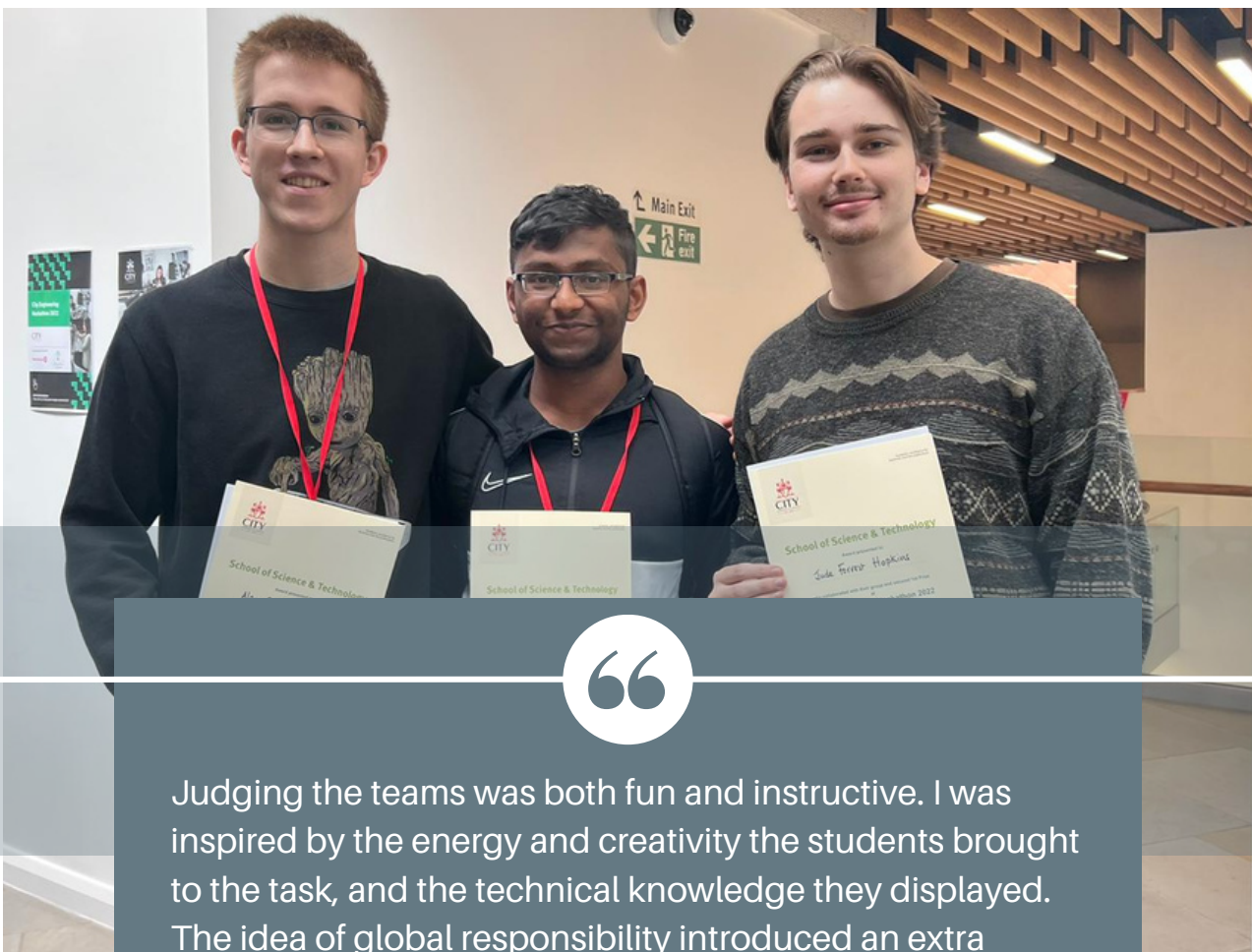


> **"**
>
> Judging the teams was both fun and instructive. I was inspired by the energy and creativity the students brought to the task, and the technical knowledge they displayed. The idea of global responsibility introduced an extra dimension to the challenge for students and judges alike!
>
> **John Kraus, CEO, Engineers Without Borders UK**

# Competency compass

In September, Engineers Without Borders UK ran a bespoke workshop for City's educator team. Using the competency compass Engineers Without Borders UK has been developing, the session helped the City team identify their competencies and provided an overview of the team's collective strengths and potential areas for development.

This session was delivered whilst the competency compass was being developed, and the feedback provided by City contributed to the final product, which will be shared publicly in Summer 2023.  During the session, City educators provided input into the design of a Reimagined Degree Map (due for launch in 2023).

# Next steps

As we move into the third year of the partnership, we'd like to see developments in several areas.

## Education

We will see the continuation of the delivery of the Engineering for People Design Challenge. We are looking forward to continuing to work with City to highlight the strength of inter-university teams within the Efficiency for Access Design Challenge.

We will also be working with City educators to support the design of a new, socially responsible focused curriculum, including an Engineering in Society module, which will sit across all engineering degree courses.

## Competency compass and reimagined degree map

As we develop our competency compass and reimagined degree map, we will be working with City to share our learnings and collect valuable feedback from educators. This will feed into our support with the changes they are making to their curriculum.

# Summary

Our intentions behind this partnership were to showcase how social responsibility can be integrated as a core feature of education within the School of Engineering, Maths and Computer Science at City, University of London. In our second year of partnership, we have continued to do this by delivering two Design Challenges and collaborating on opportunities for student and educator stakeholders.

Our shared focus on embedding social responsibility into education will continue into our third year of partnership. Thank you for your ongoing support, we look forward to the opportunities we will have to continue to work together to ensure we are creating socially responsible professionals.

# Thank you for your ongoing support

## Acknowledgements