Strategy for the diffusion of BPS in Arup's workflow: A design thinking approach

Background

While Building Performance Simulation (BPS) is recognized as a high-potential tool to improve the built environment by making informed decisions throughout the design process, its utilization in practice is impeded by barriers of diverse nature (e.g., technological, social, financial...). By looking at the problem of simulation utilization from the user perspective and with the constraints of practice in mind, this project focuses on answering the needs of practitioners and minimizing the obstacles they meet when using or wanting to use simulations.

While Arup has been demonstrating exemplary use of simulation for many iconic projects, they also do more mainstream projects that use little or no simulation. This PDEng project aims at providing Arup Amsterdam with a strategy on how to bring the best solutions to their different clients.

Aim of the project

The ultimate goal is to reduce the barriers to valuable and profitable use of BPS in building design from Arup Amsterdam’s Mechanical Electrical and Plumbing (MEP) team by designing an artefact that effectively integrates with Arup’s engineers’ workflow.

Approach

This PDEng design project follows a design thinking methodology. More precisely, it uses the divergent-convergent method which aims at first understanding the problem in all its aspects (divergent) to be able to precisely define the area of intervention (convergent). This then allows to generate many on-point ideas (divergent) to finally deliver the best solution (convergent).

Design Solution

Based on the DISCOVER and DEFINE phases a “Why Simulate? Platform” is being developed and delivered. Some of the identified problems include the lack of:

- awareness or communication of the latest development in the field of building performance simulation,
- resources and time available to perform these simulations during the design process,
- incentives from the client or the building code.

It was assessed that in most cases this could be solved by taking the time at the beginning of each project to identify the need for simulation with the help of an attractive and intuitive “Why Simulate? Platform”.

This platform should help the project manager to:

- identify, as early as possible, potential problems or complexities in the project that could be solved by means of simulation,
- pro-actively propose the use of simulation to the design team or the client to bring more value to the project,
- correctly allocate time, human resources, tools and data on the project to have a successful utilization of simulator (i.e. which results actually inform the design decision making process).

By using a digital online platform, Arup can better connect and reinforce the use of all the resources already existing within the firm, ensure a global overview of what is done across offices and continuously and automatically track the latest use of Building Performance Simulation in Arup.