

# HPC on the Cloud

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# Introduction

## Context:

- Advancements in computing power has increased the feasibility of high-order numerical simulation to solve complex engineering problems.
- Availability to IaaS systems has allowed those outside large institutions to gain access to high performance computing.

## Problem:

- Nevertheless many people still prefer to use low-order commercial software, on personal hardware.

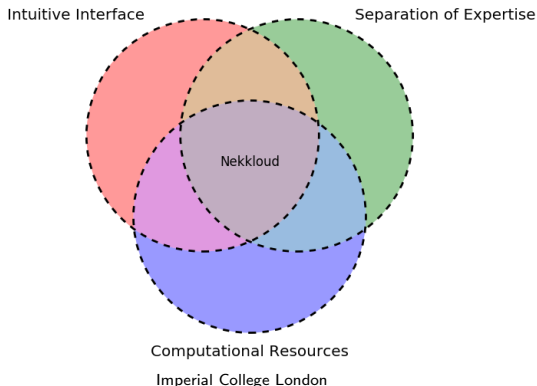
# Introduction

## **Why do people prefer commercial codes?**

- Complex and daunting interface of open-source softwares.
- High-level of expertise required to understand how to run properly run a simulation. (numerical methods, submitting jobs, post-processing)
- Lack of support for users.

# Nekkloud and TemPSS

- Nekkloud is a web based platform through which the Nektar solvers can be launched.
- Nekkloud streamlines the running of simulations through access to IaaS systems.
- TemPSS provides the graphical user interface for Nekkloud, from which to instantiate input files for Nektar.



# Aims and Objectives

## Objectives:

1. Map functionality within the incompressible flow solver.
2. Understand and detail the constraints between said functions.
3. Develop TemPSS transform templates that instantiate all functions.
4. Represent these functions and constraints within an intuitive interface.
5. Perform a beta testing of the interface with Nektar users and implement recommendations.
6. Test the operation of XML generation, through benchmarking against a selection of representative testcases.

# Methods

Each frame should have a title.

# Constraints

► [Interactive Constraints Visualiser](#)

# Conclusions

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# Future Work and Recommendations

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