

Challenge@PoliTo_ *By Firms*

DSS for Sustainable Infrastructures Maintenance_By MOVYON

March – June 2022

CALL for IDEAS

Nowadays, all decision has to be supported by objective evidence. That is also true for the infrastructure assets' maintenance as bridges and viaducts in kilometres and kilometres of motorways.

For this reason, MOVYON wants to define and implement a decision support tool that can optimise the life cycle management of existing infrastructure assets (bridges and viaducts), proposing metrics that measure the level of sustainability of the main maintenance or design actions to apply on the work.

The challenge's focus lies in identifying and defining the main factors that influence and constrain the maintenance strategy on the works of a motorway network. This process will therefore have the objective of minimising:

- The economic impact for the infrastructure manager;
- The environmental impact of the interventions on the work;
- The social impact on the usability of the mobility network.

As well as maximise the expected useful life of the structure at the same time.

Each team will have to propose strategies and optimisation algorithms that, starting from known inputs, such as:

- traffic levels on the work;
- dimensions of the work;
- aggressiveness of the environment towards the materials,

can suggest the best maintenance strategy to apply to the work (conservative maintenance, structural reinforcement interventions or demolition and reconstruction), with the same minimum guaranteed safety level.

The expected output is a prototype of DSS - Decision Support System- that, given as input the parameters considered significant by each team, offers a range of optimised solutions, pros and cons, which support the final decision maker in the maintenance choice.

The Challenges are worth 8 curricular or extra-curricular credits. Check the curriculum of your degree programme to verify if you have the possibility to choose a Challenge in substitution of your free choice credits.

Check your institutional email, look for 'Challenge@PoliTo' and read the regulation carefully.

SIGN UP NOW! Places are limited!

For any questions, write to clik@polito.it



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