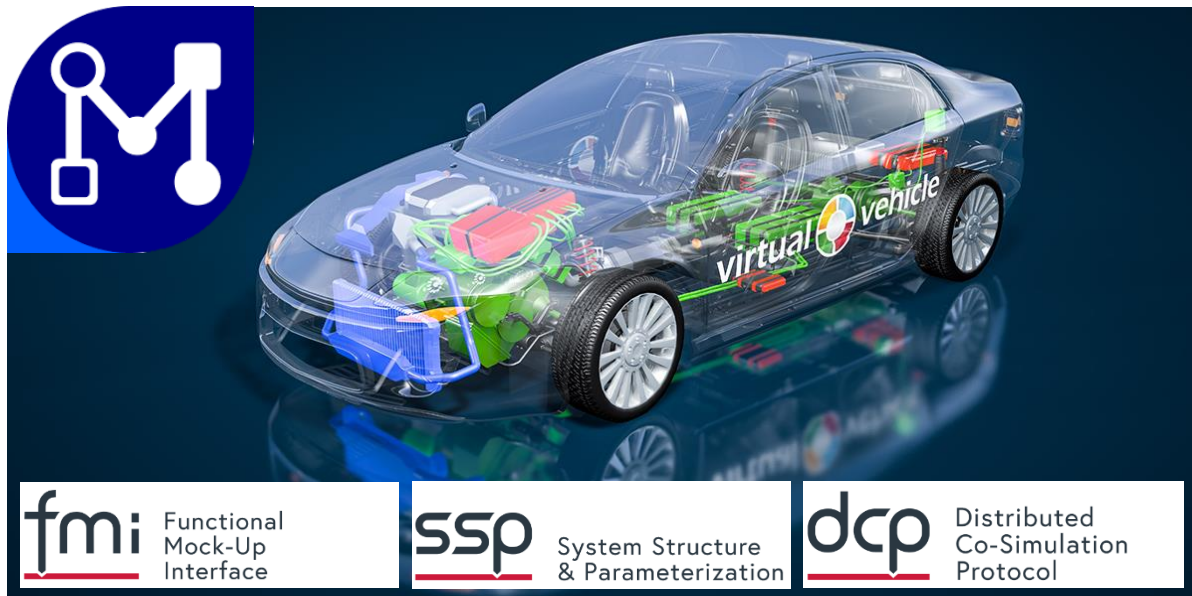


OPEN CALL – LIVING INNOVATION LAB System Simulation and Standards



BACKGROUND & ADDRESSED CHALLENGE

System simulation represents a huge leap ahead for many sectors, e.g., automotive, aerospace, or manufacturing. System simulation is understood as the capability of simulation, to reproduce the behaviour of a technical system. This technical system is assembled by multiple subsystems, which represent different engineering domains. Therefore, these subsystems are typically represented using a domain-specific and appropriate modelling language. For evaluation, dedicated solvers are in place. This results in a plenitude of modelling and simulation tools on the market. The most reasonable way to render a digital twin of such a system can be achieved by integration of virtual subsystems. For this purpose, different tools and standards are available, which can be used not only for establishment of interoperability, but also to realize efficient and agile development processes, including activities for design and test alike.

We face the challenge of creating new system models, interacting with the real-world systems of our time, including new sensor technologies, innovative architectures, or sophisticated artificial intelligence.

OFFERED TECHNOLOGY

Standardization has proven to be an enabler for system simulation. However, industry-grade tools are needed to succeed in development of real systems. We are able to provide a system simulation environment, represented by the neutral co-simulation platform Model.CONNECT, which can be used to integrate more than 30+ domain-specific simulation tools. Its modular architecture supports FMI (Functional Mock-Up Interface), DCP (Distributed Co-Simulation Protocol), and SSP (System Structure and Parameterization) standards for open model and data exchange too.

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We provide our comprehensive expertise to cover the topics of system simulation and test. Virtual Vehicle Research GmbH has more than 15 years of experience with co-simulation methodologies, including first-hand experience with industrial simulation tools, test benches for automotive development, and development of prototypes, including real test vehicles for automated driving. Virtual Vehicle acts as a trusted member in various standardization bodies, including ISO, Modelica Association, and ASAM. Our modelling and simulation experts have diverse backgrounds, in different engineering domains, and industry sectors.

We provide support for development of new system models, configuration of co-simulation platforms, application, and improvement of standards for modelling and simulation.

EXPERIMENT SCOPE

In order to build novel and innovative system simulation models, we expect holistic and fresh ideas, exploiting the available technologies described above. The scope of targeted experiments is broad and independent on industry sectors.

We aim not only on pure computer simulations, but also on simulations in connection with software-in-the-loop (SiL) and hardware-in-the-loop (HiL). We are reaching for a stronger integration of real-time and non-real-time systems. By doing so, a strong demand for networked simulator arises. Rapid prototyping could be thought in a completely new way, including mixed real and virtual components. In the same context, virtual validation is expected to speed up development processes, reduce time-to-market and finally costs.

The digitization of otherwise decoupled processes is the key to efficiency. Simulation and test are therefore seen in connection with distributed computing and cloud computing. Calculations and data processing can be accomplished close to the data's source, or shifted to other, more efficient places. Modelling and simulation may also be considered across different levels of abstraction. The question how conceptual models may interact with real detailed implementations is an open topic, and can be explored best with first hand modelling and simulation experience.

We want to focus on system simulations for embedded systems and also cyber-physical systems.

We expect to offer:

- an introduction and overview of favoured standards and tools
- to support in establishment of your application-specific system simulation via Model.CONNECT
- the eventual application and utilization of related standards
- insight in new, modular, and more agile virtual development approaches for gaining development efficiency
- a concluding evaluation of the experiment (report and/or publication) including a one-page leaflet

The expected outcome of the experiments is further development of ideas and publication.

FUNDING OPPORTUNITIES

Aligned with the defined long-term COMET K2 research program **fast-track experiments (up to 6 months)** and **light-house experiments (7 - 12 months)** executed at VIRTUAL VEHICLE are public (co-)funded up to 50% based on a bilateral agreement. Seed Actions for Start-ups and SMEs will be free of charge.

Your application will be reviewed by our Scientific Assessment Board. The board will evaluate the applicants proposals and select proper candidates. The final number of applications being selected in each call might be different.

Only selected applications will be funded.

CALL INFORMATION

Call Opening	01.09.2020	Proposal language	English, German
Call Deadline	30.11.2020	Targeting Group	Start-ups, SME, mid-caps or LEs from EU member states
Project Duration	Seed Action: first try-outs Fast-track experiments: 1 - 6 months Light-house experiments: 7 - 12 months	Indicative Total Budget	Seed Action: VIRTUAL VEHICLE support is free of charge Fast-track experiments: < 50.000 € Light-house experiments: < 200.000 €

If you have a promising smart idea, we are happy to receive your application!

Please use our online application form to send us your proposal and describe:

- In which technology field or discipline are you active
- Your planned application concept and its expected use
- The preliminary benefit
- The industrial relevance and potential impact of your experiment, as well as your plans for exploitation of the results and the future business outlook

Your experiments should be designed to be completed in a maximum of 6 months for fast-track experiments and a maximum of 12 months for light-house experiments.

Experiment proposals are very welcome from organisations located in any EU member state and must be written in English. Submissions done in any other language will not be evaluated.

Contact: lil@v2c2.at

By transmitting your proposal for the "Open Calls – Living Innovation Lab", you agree to our Data Protection Notice and that your submitted application will be evaluated by an expert jury of VIRTUAL VEHICLE representatives. Virtual Vehicle reserves the right to reject any application at any time without giving reasons. The decision is binding and final. The right to appeal at court is excluded. Further details will be agreed in a separate agreement between accepted applicants and Virtual Vehicle. Any liability of Virtual Vehicle is excluded, except as stipulated by applicable mandatory law. Furthermore, you confirm that the contents of the submitted proposal are independently developed by you without the use of confidential information from third parties and are free of third-party rights to the best of your knowledge.

OPEN CALL – LIVING INNOVATION LAB



VIRTUAL VEHICLE funds SMEs, Start-ups, and Enterprises to experiment and innovate with new technologies.

The LIVING INNOVATION LAB facilitates the transfer of knowledge – from academia to industry and the development of highly innovative product solutions. Together with academic and industrial partners, VIRTUAL VEHICLE is trying to bridge “The Chasm” between investigating innovative concepts and early technology adopters by funded open call experiments.

Successful demonstrations of highly innovative technologies lead to a maximum benefit in exploitation and realistic chances for market uptake. For this reason, the LIVING INNOVATION LAB initiates open calls for experiment proposals to expand and strengthen the transfer of technical capabilities and **making innovative solutions, platforms, and data available for experimentation.**

ACCELERATING INNOVATION WITH VIRTUAL VEHICLE

The Virtual Vehicle Research GmbH is Europe’s largest R&D centre for virtual vehicle technology with 300 employees. Research priority is in supporting the virtual vehicle development process, which leads to a powerful HW-SW whole system design and automation of testing and validation procedures. This focus on industry related research makes VIRTUAL VEHICLE the innovation catalyst for future vehicle technologies.

If you are...

- developing smart, innovative concepts in digital future technologies,
- bridging the physical and virtual worlds with advanced approaches and industrialized solutions,
- interested in experiments in cooperation with VIRTUAL VEHICLE to speed up development,
- wishing to access VIRTUAL VEHICLE’s many years of experience in interdisciplinary and virtual system development

... then do not miss this opportunity and apply to one of the open calls to realize your innovative approach

...or do you prefer first a quick experimental study?

If you first want to try out your ideas at VIRTUAL VEHICLE quickly, we offer Start-ups and SMEs our free, light touch “Seed Action”: a first try-out of potential solutions with the support of VIRTUAL VEHICLE’s expertise.