

Participate!



FOR SUSTAINABLE INNOVATORS

# Re-think performance engineering for circular products!

Enriching digital twins with sustainability key-  
performance-indicators

**SIEMENS**

FOR A SUSTAINABLE WORLD

# Tech for Sustainability Campaign 2023

Tech for Sustainability is a global initiative for students, researchers, startups, and innovative individuals to leverage technology to solve real-world sustainability challenges and shape our future alongside Siemens.

## Leverage technology to shape a sustainable future

Siemens AG is a technology powerhouse that brings together the digital and real worlds to benefit customers and society and thus people around the globe. The company - having shaped each of the four industrial revolutions - focuses on intelligent infrastructure for buildings and decentralized energy systems, on automation and digitalization in the process and manufacturing industries, on water solutions, and on smart mobility solutions for rail transport, but also in financial services and software development.

As a global ideation campaign, Tech for Sustainability is designed to engage innovators outside of Siemens in order to come up with unique solutions for problems with a focus on sustainability. In a hackathon, the innovators who have been particularly successful in the early stages of the Campaign will have the opportunity to create a proof-of-concept and proof-of-feasibility for their ideas. The different phases of the campaign and their timeline are shown in figure 1.

**“Sustainability is in our very DNA. It is not an option. It is a business imperative.”**

*Judith Wiese, Chief People and Sustainability Officer, Member of the Managing Board of Siemens AG*

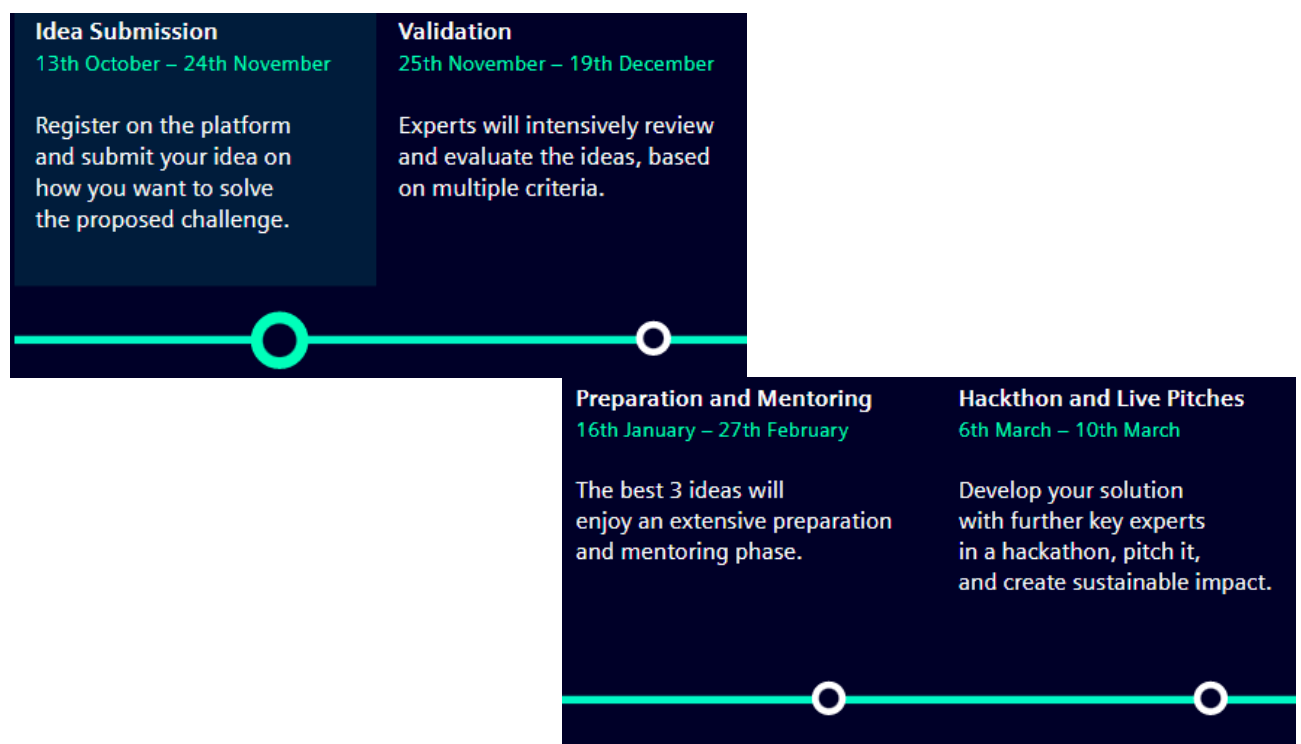


Figure 1 - Timeline and phases of the campaign



### What's in for you?

1. Work with us - Let's solve real problems together to move towards sustainability.
2. Work on-site - The teams with the best ideas will develop their applications further during a hackathon. They will get to work on-site or remotely for the development of their proof-of-concepts.
3. Win Prizes - Three winning teams per challenge – 1<sup>st</sup> 5,000€, 2<sup>nd</sup> 3,000€ and 3<sup>rd</sup> 2,000€

### How do you get to the next phase?

All ideas will be evaluated by Siemens experts based on the following criteria. So, keep them in mind:

- a) Innovativeness: Incremental or disruptive innovation
- b) Sustainability: DEGREE and impact on the UN Sustainability Development Goals
- c) Feasibility: Degree of technical and/or economic feasibility
- d) Potential: Fit to Siemens processes, products and markets
- e) Implementation: General implementation efforts (Time to market, R&D costs, etc.).

**Join the campaign and create impact on real problems together with go-getters and solution seekers of the world by submitting your ideas.**

<https://siemens.com/techforsustainability>

## SIEMENS DIGITAL INDUSTRIES SOFTWARE CHALLENGE

# Re-think performance engineering for circular products!

## Enriching digital twins with sustainability key-performance-indicators

At Siemens Digital Industries Software, we believe that digitalization is the key enabler to become more resource efficient, decarbonize industry and build circular products that are still profitable. In our modern economy, energy transition and sustainability trends are impacting the way we answer the question: what is the best product? To fully answer this question, we need to re-think the product optimization process.

“Never before have we had such awareness of what we are doing to the planet, and never before have we had the power to do something about that” David Attenborough, *The Blue Planet II*, 2017.

With Siemens’ simulation software solutions, we combine the physical and the digital world to build comprehensive digital twins that facilitates the product optimization process. This process is an engineering balancing act between many (often conflicting) Key Performance Indicators (KPI) that belong to two main categories: performance and cost. Now, we want to add sustainability as a new KPI in digital twins.

**Your challenge is to re-formulate the product performance dilemma as a trilemma, with sustainability KPIs getting a much more prominent role!**

Let us think of a tangible example, a thermal management device. The performance of such a device is generally measured against its energy efficiency. How would the family of optimum designs be affected if parameters such as material carbon footprint, waste avoidance, re-usability were included in the optimization process?

### How can you create impact?

When participating in this challenge, feel free to use a tangible example such as a cooling system or another product to prove your methodology. We will support you with industry and technology expertise from Siemens, access to academic licenses of the digital twin tools from Siemens’ Simcenter portfolio and industry-leading training and certifications.

We need your ideas to collect data from multiple sources and elaborate a methodology that truly enables the design of circular products.

Your contribution will be to capture the set of parameters that determine the lifecycle impact of a product, formulating new so-called Key Sustainability Indicators. The result will be an enriched digital twin, properly balancing cost, performance and sustainability.

**Embrace this challenge and make it digital, make it personal, make it with a purpose!**

We believe that solving this challenge will contribute to giving the 'net zero mission' a deeper and more detailed meaning. Including precise sustainability targets into the product design is the first concrete step to measure the accumulated impact of the product during its lifecycle. As such, the digital twin could serve as a key component to a digital product passport that logs the environmental impact of the product as it's being used. This will lead to more informed decisions taken not only by the suppliers and producers but especially by the final consumer: you.

**Do you want to be part of a sustainability eco-system with Siemens? What are you waiting for? Tune in on the kick-off event on the 13<sup>th</sup> of October at 4:30 p.m. (CET) and submit your solution!**

Tech for Sustainability Campaign - For a sustainable world

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