BIZKAIA
OPEN FUTURE_
SIDENOR CHALLENGE

Challenge Rules

Challenge Rules for "Bizkaia Open Future_ Sidenor Challenge"

1. Object of the Challenge

This document **"Bizkaia Open Future_ Sidenor Challenge"** establishes the rules governing the selection process for the best projects to resolve the challenge described by the company Sidenor for the global talent community, through the Bizkaia Open Future_ initiative (hereinafter "the Initiative").

More specifically, the objective of this challenge is to select up to 10 projects to participate in the Bizkaia Immersion Trip and afterwards in the Virtual Demoday, from among whom the Winning Project will be selected if decided by the Assessment Committee.

2. Bizkaia Open Future_

Bizkaia Open Future_ is an initiative sponsored by the **Bizkaia Regional Council** and **Telefónica** (hereinafter "the Organisers") with the aim of supporting industry in the Historical Territory of Bizkaia (hereinafter the "Territory") on the path to Digital Transformation. **Bizkaia Open Future_** addresses industry in general and aims to position itself as the point of connection between new entrepreneurial digital talent, both local and international, and the business fabric in the Territory.

Bizkaia Open Future_ is a benchmark initiative with the aim of promoting technology projects in the field of Digital Transformation, with an open, international outreach. A place where numerous activities are developed so that start-ups and entrepreneurial talent can drive and develop their initiatives through Open Innovation and benchmark companies can acquire new knowledge and technologies to evolve and improve their businesses.

The digital activity of **Bizkaia Open Future_** is carried out through the openfuture.org platform, the virtual, global meeting point of **Telefónica Open Future** for investors, start-ups and other agents in the entrepreneurial ecosystem.

The Bizkaia Regional Council offers to Bizkaia Open Future_ the equipment and facilities of Bic Bizkaia Ezkerraldea, being the entity that awards the prizes. For this, the Bizkaia Regional Council and Cedemi SA subscribe an agreement that regulates these aspects.

This challenge is encompassed within the framework of the Bizkaia Open Future_ Open Innovation Programme (hereinafter "the Programme"), in which benchmark companies in Bizkaia outline business challenges for the community to seek technology based solutions with implication by entrepreneurs, start-ups, SME's, universities and technology centres. These are real business challenges that can be tackled through innovative solutions based on technology within the scope of Digital Transformation.

3. Company: Sidenor

The steel-making company Sidenor specialises in the production of special steel for the automotive industry, machinery and capital goods, naval and civil engineering, defence, energy, mining and the petro-chemical industry. Furthermore, it is one of the main suppliers of big forged and cast parts in Europe.

Through its singular trajectory it has become a benchmark in the market with products that contribute high added value, top quality and innovation. To achieve this it has one of the best R&D centres in the steel sector in Europe to optimise its processes and products.

Sidenor has production centres in the Basque Country, Cantabria and Catalonia, where it has a total production capacity for over one million tonnes of special steel per year. It also has sales branches in Germany, France, United Kingdom and Italy. Sidenor currently employs 2300 workers.

4. The Challenge

The challenge put forward by the company Sidenor is titled **"HOW CAN NEW TECHNOLOGIES HELP TO OPTIMIZE SCRAP CLASSIFICATION PROCESS?"**

and is due to the need described as follows.

Within its steel-making activity, Sidenor has collection and processing units that allow the company to transform scrap metal in new steel products. This material is brought in from suppliers in trucks. Sidenor's objective is to obtain ferrous metal content from scrap metal.

Scrap metal trucks usually contain different elements, such as iron, the main item of interest for Sidenor, and other impurities, among which are:

- Non-ferrous metal, for example copper, tin, etc.
- Undesirable ferrous metals: ferrous earth and rust.
- Other inert elements: soil, cement, concrete, etc.

This means that Sidenor is paying for part of the material it receives in trucks as valuable scrap metal without knowing the exact volume. Apart from this over-cost, these impurities and elements apart from scrap metal, lead to an extra consumption of electricity and higher wear and tear of the fire bricks in the furnace, as well as higher emissions, although this does not affect the final product delivered to customers.

The fact the quantity of scrap metal can be detected accurately, would allow more efficient management of the work that Sidenor currently carries out.

The following example of current operations will help to better understand the complexity of the problem within context to help with innovative proposals:

The current procedure for receiving scrap metal at Sidenor is as follows:

1. Access to the offloading area: Trucks bringing in scrap metal enter Sidenor's facilities, where an access control is performed and the delivery note requested with the supplier's details and the quality of the scrap metal, among others, which are entered in the ERP system. Once the truck has been weighed off at this point, it drives approximately 1 km through the facility to the offloading waiting point, where Sidenor's classifying staff will authorise access to the offloading point.

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2. The truck waits to offload: The truck waits in a specific area until the offloading point is assigned. Each offloading point is associated with a scrap metal quality level, and consequently each truck is directed to a point according to the quality identified by the classifying staff.

3. The truck backs up to the offloading bay: The truck accesses the offloading bay. At this point, the classifying staff check the quality of the material received visually, and check that it matches the declared quality entered in the ERP system. If there are any doubts as to the quality of the scrap metal, the classifying staff may make a visual inspection by taking samples with a grab crane. In some cases, a screen may be used (magnetic drum) to check the ferrous content of the scrap metal.

4. Offloading: If the quality of the scrap metal matches the expected level, the tailgate is opened and the truck dumps its load. The scrap metal is usually received loose, but it is sometimes delivered in packages, although the process is the same. The process for offloading scrap metal takes approximately 15 seconds.

5. Determining the percentage of valid scrap metal: While the truck is offloading the classifying staff carry out a visual inspection to estimate the quantity of impurities (undesirable materials) and assess the actual weight of the scrap metal that is to be paid to the supplier.

6. Leaving the facility: once the procedure has been performed, the tailgate is closed and the truck returns the one kilometre to the weighbridge to weigh off without the initial load. With the relevant delivery note recording the actual quantity of scrap metal delivered, the truck leaves Sidenor's facilities.

Illustration .Current process implemented at Sidenor when receiving, classifying and processing scrap metal

The solutions that have been put forward by Sidenor to improve this problem are visual inspection through specialist, committed staff who carry out the entire operation and guarantee the quality of supplied scrap metal, and the use of a screen which, in some cases, helps to pre-process the scrap and minimise non-desirable material passing through. Nevertheless, and within the Digital Transformation and Industrial process to which Sidenor has committed, solutions are being sought through the use of technology that complements the efficiency of the currently employed solutions.

This challenge seeks entrepreneurs, start-ups, SME's, universities and/or technology centres with solutions that will allow Sidenor to fully or partially attain the following **specific objectives**:

- To find a solution achieving analysis of material transported in each truck from its suppliers to **detect the real weight of impurities**.

- To resolve the challenge either before or during tipping of scrap metal from the truck in the offloading area.

- To achieve a higher degree of accuracy in detecting the percentage of undesirable contents (sterile material, scale, rust, iron earth, etc.).

The **benefits** of the proposed solutions for the requirement put forward by Sidenor must improve relevant aspects of their business such as:

- Cost savings, both explicitly (payment to suppliers for the actual quantity of scrap metal delivered) and implicitly within the transformation process at the steelworks (costs associated with processing, energy consumption, wear and tear of infrastructures, etc.).

- The possibility of knowing which suppliers provide a better service in terms of pre-treating the scrap metal they deliver to Sidenor.

- A reduction of emissions and enhanced energy efficiency, directly benefiting the environment, which Sidenor is committed to.

For example, but in no terms limited to, some **technologies** within the scope of Digital Transformation that could help resolve this challenge, are as follows:

- Artificial Vision

- Artificial Intelligence

- Machine Learning

- Image processing: hyperspectral, 3D, 4D, etc.

- Material Analysis

- Internet of Things (IoT)

Some aspects to bear in mind with a view to proposing solutions to resolve this challenge are provided:

On average 200 trucks a day deliver scrap metal during the 16 hours working hours. The solution must not reduce the amount of delivered scrap. The solution must not require use on 100% of the trucks delivering scrap if it affects the amount of scrap metal deliveries required for production purposes.

5. Assessment criteria

Solutions are required that help to improve the problematic situation described in this document, either partially or in full, based on new technologies as stated previously: artificial vision, artificial intelligence, machine learning, image processing technologies, material analysis, the Internet of Things (IoT), etc.

More specifically, the following aspects of each proposal will be valued, based on the information that participants include in their proposal:

- **Proposed solution.** degree to which the problem is resolved, taking into account if it tackles the problem and provides and improvement.
- **Viability:** efficacy and feasibility of deploying the proposed solution.
- **Innovation:** degree of innovation in the proposed solution.
- **Technologies used**: technological degree of the solution within the scope of Digital Transformation.
- **Economic estimate:** Approximate estimate of the submitted project.
- **Sponsor team**: sponsor team and its capability of responding to the Challenge.
- **Time:** time required to implement the solution.

6. Submitting proposals

The entrepreneurs, start-ups, SME's, universities or technology centres who wish to take part in this Challenge must submit their proposals through the electronic channels provided for at the following link: http://bizkaia.openfuture.org or http://www.openfuture.org

The participation form must be filled in, attaching any other required information or information of interest to your registration.

The period for submitting proposals begins on 28th May 2018 at 09:01 (GMT+1) and ends on 28th June 2018 at 18:00 (GMT+1).

Nevertheless, the Organisers reserve the right to suspend, extend and/or modify the duration of this period at any time at their sole discretion.

Further information at bizkaiaopenfuture@telefonica.com or http://www.openfuture.org

7. Participation requirements

Any entrepreneur, start-up, SME, university or technology can participate in the Challenge with a proposal that could contribute to partially or fully resolving the problem described by the benchmark company: Sidenor.

The members of the sponsor team and/or physical representative of the proposal must be of legal age and must have legal capacity to bind and be bound.

The Organisers may exclude any participants from the Challenge who are initially or subsequently do not meet any of these requirements, thus losing any option of receiving any service and without the right to claim from the Organisers.

The data supplied by participants when registering for the Challenge must be true, correct and complete, otherwise they will be excluded from participating in the Challenge and receiving any of the services, without prejudice to any liability this conduct could entail, which will be fully accepted by the participant, rendering the Organisers exempt from any liability.

By registering for this Challenge, participants fully accept, without reservations or conditions, the terms contained in these Initiative Rules.

The Organisers reserve the right to reject or cancel from the Challenge, without prior warning, any participants who, to their understanding, are acting fraudulently, abusively, against the spirit of the programme or the law, third party rights and/or good faith, without prejudice to any liabilities that this behaviour could entail, which will be fully accepted by the participant, rendering the Organisers exempt from any liability. Whichever the case, the Organisers may cancel any participants from the Challenge whose action (or that of a related party) could be contrary to the reputation or good standing of the Organisers and the Bizkaia Open Future_

Programme. Likewise, they reserve the right to not accept any participants in the understanding that they do not provide a suitable solution for the Challenge or, owing to the number of projects accepted or for any other cause.

For the purposes of analysing and assessing the project, the participants authorise the Organisers to inform the members of the Assessment Committee about the ideas, documents and information supplied by participants within the framework of their participation in this Initiative.

8. Initiative Phases

When the deadline for submitting proposals has expired, the Assessment Committee, consisting of representatives from Bizkaia Open Future_ and Sidenor, will hold any individual interviews, on-line or by telephone, in order to obtain further information about the submitted projects.

The objective is to select up to a maximum of 10 projects (hereinafter the "Selected Projects"), which will be included in the Winning Project selection process, in accordance with the phases described as follows, whose deadlines are defined in the section "Selection Process Dates" for this Initiative.

The Selected Projects will participate in the following phases comprising the Challenge resolution process:

Phase I: Bizkaia Immersion Trip

The Selected Projects will access the Bizkaia Immersion Trip, a 3-day trip to Bizkaia (Autonomous Community of the Basque Country - Spain), on the dates stated in the following section "Selection Process Dates", where the participants and the Benchmark Company: Sidenor, will be able to share their knowledge and drive co-creation and networking.

On this trip the members of the Selected Projects will have access to:

- First-hand contact with the Benchmark Company: Sidenor, visiting its facilities and getting to know the company and the problems behind the Challenge.

- In-person sessions where they will be able to work in individual meetings with professionals at Sidenor, put forward their baseline proposal first-hand and identify any possible improvements to the initially defined solutions.

- Presentation of their proposals to Sidenor, enriched with the information garnered during the Bizkaia Immersion Trip, with the goal of an assessment that will help them fine tune the most suitable solution to the Challenge for final presentation on Demoday.

The associated cost for participation by the Selected Projects (travel, accommodation and organised activities) will be defrayed by the Bizkaia Regional Council. Nevertheless, the Bizkaia Regional Council will cover the costs associated with the Bizkaia Immersion Trip of just one person per Selected Project.

After the Bizkaia Immersion Trip has been held, the Selected Projects will be given additional time to evolve their solutions and submit them again. This solution will be defended on a virtual Demoday.

Phase II: Demoday and selection of the Winning Project

The Selected Projects will have the chance of exhibiting their evolved proposal in the form of a virtual "pitch" on the basis of the knowledge acquired during the sessions on the Bizkaia Immersion Trip in conjunction with the Benchmark Company: Sidenor.

On the days following Demoday, the Assessment Committee will select the Winning Project based on the presentation and assessment of the scoring criteria, which will be awarded the benefits described in the section "Benefits and Grants" in this Initiative. The Assessment Committee reserves the right not to choose a Winning Project if it deems that none of the proposals effective meet the Challenge.

9. Selection Process Dates

The Selected Projects to participate in the Bizkaia Immersion Trip will be informed by e-mail on 6th July 2018.

After the Bizkaia Immersion Trip has been held, scheduled for 17th, 18th and 19th July 2018, the Selected Projects will be given an additional week to evolve their solutions and submit them again. This solution will be defended on a virtual Demoday on 26th July 2018.

Publication of the results of the assessment by the Assessment Committee appointing the Winning Project, if there is one, will be by e-mail on 30th July 2018.

The Organisers reserve the right to suspend, increase and/or modify any of the aforementioned dates, at any time and at their discretion, if deemed necessary.

10. Benefits and Grants

The Winning Project will have access to the following benefits:

- Performing a real pilot test of the solution at the Benchmark Company: Sidenor, defrayed by the latter providing that the proposals meet the assessment criteria.

- An award of €15,000 granted by the Bizkaia Regional Council.

- Support to access to services for entrepreneurs, start-ups and SME's managed by the Bizkaia Regional Council. BEAZ S.A.U., an agent in the entrepreneurial and innovation ecosystem of Bizkaia, will perform this support process.

- Support for the submission of applications to grants from the Bizkaia Regional Council to drive creation of innovation companies and innovation, investment and internationalization of projects. In order to have options for these grants, the person or entity of the Winning Project must have its registered address and a work centre in Bizkaia, fulfill with the requirements of the call and have eligible expenses.

To be selected Winning Project, the candidate must be legally incorporated, must consist of persons of legal age and must not be involved in any legal causes of dissolution. In the event of the Winning Project being outside Bizkaia, a commitment to execute the Winning Project in Bizkaia must be made. For this purpose, and during the period the project is carried out, the entity will have the option of using the BIC Bizkaia Ezkerraldea incubation facilities (or other incubation areas managed by BEAZ) and will have the full support of the team. For entities of Winning Projects

outside Bizkaia, the minimum time in the territory will be 1 year in order to access the €15,000 prize granted by the Bizkaia Regional Council.

11. Industrial and Intellectual Property

Execution of a real pilot test of the solution with Sidenor by the Winning Project will entail signing a contract binding both parties in which, among other items, the working framework and pilot test conditions will be agreed, as will the terms of use of possible industrial/intellectual property rights arising through execution of the pilot test.

Likewise, participants specifically agree, through simply participating in this Initiative, that the Organisers may use their name, individually, and the name of the start-up, SME, university or technology centre, and their associated images and/or logos, in any media exclusively for corporate, publicity and promotional purposes, and/or to publish the Winning Project to the rest of the participants and the general public, without any territorial or time limitations, and without the right to claim any remuneration.

12. Final Considerations

This Challenge may be modified, interrupted, disabled or cancelled for any reason, in which case the Organisers will report such to the participants without this entailing the right for the participants to claim any compensation. Likewise, the Organisers reserve the right to declare some or all of the benefits null and void if none of the submitted projects are worthy of being Winning Projects, at the discretion of the Assessment Committee. Likewise, the Organisers reserve the right to exclude any projects that do not meet the participation conditions established in the Initiative, at their discretion.

Sidenor may withdraw from full implementation of the Winning Project in the event, during undertaking of the pilot test (or any of the phases thereof), of the selected solution not providing the required results defined in the challenge, or not meeting Sidenor's requirements.

The terms and conditions included in this document are not binding or contractual for the Organisers or the participants, beyond that set forth herein.