

Special Industrial Researcher Call 2020  
Circular Built Environment

# Circular Built Environment – a Shift of the Construction Industry to Circular Resource Economy.

Deadline: 30 April 2020, 12:00 noon

## The Objective of the Call

Innovation Fund Denmark and Realdania wish to promote growth and value creation in Denmark through an accelerated shift to circular built environment.

The purpose of circularity is to reduce CO<sub>2</sub> emissions as well as resource and energy consumption and to minimise environmentally harmful materials and processes. This must be done without compromising the quality of the materials and buildings and without generating new environmental and indoor climate challenges.

In recent years, experimental buildings and prototypes have been developed within circular built environment, in Denmark as well as internationally, and resources are being reused and recycled to an ever-greater extent. But the big shift to a situation where the circular is a more common choice than the linear still lies ahead.

Innovation Fund Denmark's and Realdania's shared ambition is to develop new circular solutions and new business foundations for the spread of circular resource economics within the built environment.

This must be done through collaborations between companies and public organisations in the building and construction industry, research institutions and researchers who combine theoretical knowledge and practical experience.

Therefore, Innovation Fund Denmark and Realdania support a practice-oriented, interdisciplinary research team – consisting of approx. 15 industrial researchers and their university and business supervisors – under the auspices of BLOXHUB.

BLOXHUB is an innovation and growth hub with the aim of contributing to sustainable, global urbanisation through development of innovative solutions within architecture, design and construction in Denmark.

The call is also based on the Government's 'Strategy for Circular Economy', September 2018.

## You May Apply Within This Field

With approx. 15 industrial research projects, Innovation Fund Denmark and Realdania will focus on how to increase both the speed and the scale of the construction industry's shift to a circular economy.

The call is therefore an invitation to research projects that challenge existing paradigms through e.g. new systems thinking and value chain innovation, material development, new contract concepts and business models across sectors.

It is very important that the applications document real insight into the circular resource economy that already exists in the construction industry as well as insight into the developments and projects that have already been initiated on many fronts in the industry's companies and organisations and at knowledge and research institutions. Applications related to such parties and projects are welcome. Both private companies and public organisations may apply.

The applications must also document insight into the joint European project developments within the field as well as an understanding that it must be possible to implement solutions and methods internationally.

**Applications may e.g. unfold within the following themes, but they will not be limited to the examples mentioned below:**

- Business models that scale solutions and systems within the circular economy, including solutions for e.g. logistical, financial and risk-related challenges.
- New business models for contractors and building owners.
- Methods to support interdisciplinary and cross-sectoral innovation within the circular built environment.
- New solutions for selective demolition and alteration of buildings and structures, including new solutions for identifying and removing environmentally harmful substances.
- A well-functioning waste and recycling market, hereunder focus on upcycling.
- Decision-making tools for private and public contractors' choice of circular practices, hereunder focus on regulatory stipulations.
- Opportunities for legal support for sustainability and circularity in interaction between framework legislation, contract clusters and supply chains, hereunder utilisation of digital forms of regulations.
- Assessment and classification criteria for assessing the circular quality of environmental, climate and societal sustainability.
- The built environment's circular resource economy in a societal and social context.

Each project commits itself to engaging in interdisciplinary collaboration across the PhD projects in the team. It will positively affect the assessment of the individual project if, in addition to the sustainability goal, it incorporates a holistic approach to value creation throughout the value chain, which also includes end-user and society.

It is not important which educational background, theory or tradition the projects bring along. The key is that they must contribute with a critical attitude, innovative thinking, high-quality research and innovation. At the same time, it is an important parameter that the projects have a business potential and can be developed on a reassuring legal basis.

In order to promote the specific application-oriented aspect, there is in this call a special opportunity to receive an additional cash grant amount per project for specific 1:1 tests and other tests or interactions with users as part of the research project. In your application, you must explain why and how you want to take advantage of this opportunity. See more under 'Funding'.

In the selection process, it is also important that the projects complement each other on an interdisciplinary basis and that as an overall portfolio, they create an important foundation for Danish companies that are staking on circular economy as an international growth area.

### **Special Prerequisites for This Call**

Innovation Fund Denmark and Realdania emphasise interdisciplinary knowledge sharing in order to create a dynamic team of researchers within the same problem area. This will be done under the auspices of BLOXHUB.

Thus, in addition to becoming part of BLOXHUB's Science Forum, the approx. 15 industrial researchers [including their university and business supervisors] will form a team where researchers develop knowledge in dialogue with each other and where knowledge and experience are continuously being shared.

#### **This includes the following:**

- Two-day kick-off inspirational trip.
- Quarterly interdisciplinary knowledge sharing, collaboration and sparring among the 15 industrial researchers.
- Dissemination of own research at dissemination events in BLOXHUB's Science Forum.
- Opportunity for a researcher workplace in BLOXHUB, as a supplement to the company or university workplace, respectively.
- Counselling events where company and university supervisors are invited to offer advice across projects with the aim of promoting knowledge sharing and collaboration across companies and universities.

As an integral part of the project period, the 15 industrial researchers will be further involved in BLOXHUB's interdisciplinary innovation course for Danish and international companies and knowledge institutions. Each course typically lasts four days, and it is expected that you attend at least one course each year, i.e. a total of approx. 12 days over a three-year period.

Everything about interdisciplinary knowledge sharing, collaboration and sparring will be facilitated by BLOXHUB.

#### **This Is How You Apply**

The application is submitted via the ordinary application entries to Innovation Fund Denmark's Industrial Researcher programme. In the application form, select 'Circular Built Environment' in the first step following the introduction. Be sure to choose the correct application option [Industrial PhD or Industrial Postdoc, public or private sector].

After receiving the application, Innovation Fund Denmark will assess whether your application falls within the theme of the call. If the application fits better into the regular Industrial Researcher pool and thus does not comply with the terms of this call, Innovation Fund Denmark will contact you with a view to moving the application to that pool before making the final decision. We will not move your application without your acceptance. It is possible to apply for both an Industrial PhD and an industrial Postdoc, and it is possible to apply for up to two projects per company/public organisation. Likewise, it is possible for two or more companies/public organisations to consolidate around one industrial researcher as long as there is just one main supervisor company.

#### **Other Conditions**

The applications must follow the guidelines for the type of Industrial Researcher project applied for – Industrial PhD or Industrial Postdoc. This means that the applications must meet all the requirements for Industrial PhD and Industrial Postdoc, respectively. You will find the requirements in the guidelines for Industrial PhD and Industrial Postdoc. Here, you will also find a description of the project structure, the requirements on the participants and the project, conditions for funding and the assessment process. Please note that there are special conditions for Industrial PhD and Industrial Postdoc in the public sector. These are stipulated in chapter 8 of the guidelines.

In addition to the assessment criteria outlined in the guidelines, we will, in connection with the final selection, emphasise an interdisciplinary palette of projects that complement each other within the academic breadth described above.

#### **Funding**

Projects approved under this call will receive funding from both Innovation Fund Denmark and Realdania.

Innovation Fund Denmark's funding for the company/public organisation and the university/research institution follows the guidelines for Industrial PhD and Industrial Postdoc, respectively. In addition, Realdania's subsidy to the company amounts to DKK 10,000/month towards the candidate's salary. Specifically, this means that the company will receive a subsidy of up to DKK 27,000/month in total to cover the salary of an Industrial PhD or DKK 32,000/month if it is an Industrial Postdoc. The total salary subsidy is paid out by Innovation Fund Denmark.

In addition, Realdania will provide support in the form of a cash amount of up to DKK 200,000 (incl. VAT) per project for specific 1:1 tests, other tests or interactions with users or citizens as part of the research project. In the application form, there is a special box for this, where you have to indicate whether you wish to take advantage of this opportunity and what the money will be spent on.

Up to DKK 100,000 of the maximum grant amount of DKK 200,000 does not require co-financing by the company/public organisation. On the other hand, an application for an amount of between DKK 100,000 and 200,000 requires co-financing of a similar amount by the company for the part that exceeds DKK 100,000. As an example, an application for DKK 150,000 will require the company/organisation to finance DKK 50,000 by itself. An application for DKK 200,000 will require that the company/organisation finances DKK 100,000 by itself.

There are no expenses associated with the use by the industrial researcher and the supervisors of BLOXHUB's research rooms, large offices or meeting rooms (to a limited extent). Travel expenses for the mentioned inspirational trip are covered by Realdania's grant, while transportation costs related to meetings in BLOXHUB's office facilities in Copenhagen must be covered by the company. The company/public organisation must cover all remaining costs of the project.