

Dear Researcher,

We are pleased to share our 2022 research and development (R&D) priorities with you. These topics can be investigated by Master or PhD student researchers in thesis projects coordinated by us here at [right. open](#).

Our 2022 R&D priorities constitute some of the most urgent and business-critical challenges facing our stakeholders in the real and financial economy today. Hence, researchers partnering with right. open will explore questions that bridge the gap between science, business, finance, and policy. The project topics outlined below consider the Paris Agreement, EU Commission guidelines on non-financial reporting, and the FaIR climate model, and aim to support industry players as well efforts such as the EU taxonomy for sustainable activities, ESG investment strategies, and the European Green Deal.

To students conducting research on these projects, we offer direct supervision by team members at right. based on science. This includes bi-weekly meetings and (if applicable) regular alignments with supervisors from the University and/or Third Party.

Student researchers from the following disciplines will likely be best prepared to explore our current R&D priorities. However, we welcome outside-the box-thinking and will consider students from other fields as well.

- Business Administration: specifically Accounting, Controlling, Finance, Risk Management
- Economics
- Climate Science (or related)

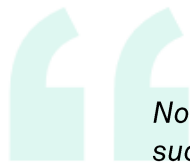
Interested researchers should compile a research proposal and submit it to the right. open team for review. Detailed instructions and [FAQs](#) are below.

We look forward to receiving your research proposal!

Best regards,
The entire team at right. open

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Not all students who write their thesis with a company have such a clear framework. At every point in time, I knew what my supervisors at right. expected and I knew that they cared about my research.

Theresa Jetter, MSc completed
International Business Development, ESB Business School

Please note:

Student researchers interested in using right.'s [X-Degree Compatibility \(XDC\) Model](#) to conduct research outside the scope of the outlined topics may also submit research proposals. Successful applicants will receive access to our software, 'XDC Scenario Explorer,' for calculating XDC values. While we cannot provide direct supervision to out of scope research, we will be happy to offer our support in monthly Q&A sessions and the possibility of supervision by a right. open alum.

1. Methodologies for Assessing the Paris-Alignment of Investments

Research level: Master

Suitable disciplines: Business administration, focus on Finance and Controlling

Project start: Immediately

Project length: ca. 3 months

Achieving the targets of the Paris Agreement requires a considerable shift of capital towards Paris-aligned activities. For companies and financial institutions, this means that investment options that are Paris-aligned, and thus support their established transition strategies, need to be distinguishable from investment options that are not Paris-aligned.

The X-Degree Compatibility (XDC) Model is an economic climate impact model that calculates the contribution of a company, portfolio or any other economic entity to global warming. Results are expressed in a degree Celsius (°C) number: the XDC. Using an investment option's economic and climate related performance as input, the XDC Model can measure to what extent the investment is Paris-aligned.

In the XDC Model, economic performance is defined as gross value added (GVA), which in the case of a company, is comprised of EBITDA plus Personnel cost. In the case of investments, two methodologies for defining the GVA have been identified, each dependent on the nature of the investment:

1. **Cost-saving investments:** in collaboration with the controlling department of one of right.'s clients, the 'total cost reduction' KPI was identified as a possible substitute for GVA.
2. **Expansion investment:** in a research project conducted by right. the 'Revenue less Cost of Goods Sold (COGS)' approach was applied which is also used in Cost-Benefit Analyses.

Both methodologies are promising, yet unverified. Hence, the aim of this Master thesis is to determine practicable and standardized approaches for calculating the GVA of the above-mentioned investment cases.

As a first step the researcher should verify whether the methodologies already developed correspond to the definition of GVA on company level, and whether the data needed to calculate GVA is readily available with existing accounting standards. The verification method can be chosen by the researcher. If the existing

methodologies are deemed inadequate, a second step would be to identify alternative methodologies that better fulfil the criteria used in the verification method. As investments can differ by case and have various impacts on a company, the researcher is also welcome to identify approaches for defining the GVA of additional investment cases not covered by the two cases above.

Verified definitions of GVA on investment level, based on available data, will help companies quicker adopt the XDC as an internal investment KPI and thus more efficiently manage their transition into Paris-aligned companies. It would also entail that the XDC Model could be used as a supplement to the EU taxonomy for sustainable activities - a classification system introduced in 2020 to enable the scale up of sustainable Investments and support the objectives of the European Green Deal.

Besides regular support from a dedicated supervisor at right., the following resources will be provided as part of this research project:

- Documentation on the X-Degree Compatibility Model methodology
- Documentation of current methodologies to calculate GVA for an investment
- [The EU taxonomy](#)

2. Defining Thresholds for the Financial Materiality of a Company's Impact on the Environment

Research level: Master or PhD

Suitable disciplines: Business administration, Finance, Risk Management

Project start: Immediately

Project length: ca. 4 - 6 months

By way of requiring companies to report their impact on the environment, the EU commission's double materiality responds to the acknowledgement that a low impact on climate change is key for future business success.

The double materiality combines two perspectives on climate-related risk:

1. the impact of climate change on a company, referred to as the outside-in perspective and
2. the impact of a company on climate change, referred to as the inside-out perspective.

The current position of the EU Commission is that a company's impact on the environment can be a financially material risk for the company. By financially material, the EU refers to a risk that significantly could reduce a company's financial performance. To exemplify, a company whose operations contribute to, or are at risk of contributing to, a high impact on climate change (inside-out), is consequently at risk of being affected by the outside-in risks of climate change. These outside-in risks refer to physical risks such as drought, flooding or forest fires, and transition risks such as changing consumer behaviours or the introduction of carbon pricing mechanisms.

To understand if a company's impact on the environment is indeed a material risk, it is crucial to define meaningful thresholds for the impact. Such thresholds could be identified using the X-Degree Compatibility (XDC) Model. The XDC Model is an economic climate impact model that calculates the contribution of an economic entity to global warming. Results are expressed in a degree Celsius (°C) number - the XDC - which states what degree of global warming we could expect, if the whole world would operate with the same emission intensity as the entity under consideration. In this context, a threshold could be determined as an XDC value that shall not be surpassed in order to avoid additional financial risks due to a high impact on climate change.

So far, there has been no attempt to operationalize the double materiality and define such thresholds. The aim of this research project is thus to create guidance on how to define a threshold using the XDC Model. Such guidance can take the form of concepts for quantitative thresholds, qualitative quality criteria to be considered when defining thresholds or sector-specific deep-dives. As solving this issue will be crucially important for shaping future accounting standards, this research topic touches on very timely matters.

The approach to define thresholds should be oriented along established methodologies defining risk thresholds in the corporate and financial world. Two general approaches describe alternative starting points for this project:

A. Praxis-oriented approach

1. Design expert interviews with experts within the corporate and financial risk management space aimed at understanding the requirements with regards to operationalizing the inside-out perspective of double materiality.
2. Conduct interviews and scientifically analyse results.
3. Distil results into requirements for a meaningful operationalisation of the inside-out perspective of the double materiality.
4. Apply the XDC Model to those requirements by using the XDC Scenario Explorer.

B. Desk research approach

1. Conduct targeted desk-research on relevant risk management frameworks, such as the TCFD and MaRisk.
2. Distil results into requirements for a meaningful operationalisation of the inside-out perspective of the double materiality.
3. Apply the XDC Model to those requirements by using the XDC Scenario Explorer.

The research would contribute to satisfying the needs of both corporate and financial actors by providing them with a more profound approach to analyse the link between the climate impact of a company and financial risks. This would be useful to meet current and upcoming stakeholder and regulatory requirements related to financial (risk) reporting, risk management and strategy development. Accordingly, climate strategies would be assessed against their potential to control

such financial risks, which would result in higher management attention for the importance of designing sound climate strategies. Ultimately, the climate impact of a company could become a decision relevant KPI.

Besides regular support from a dedicated supervisor at right., the following resources will be provided as part of this research project:

- Documentation on the X-Degree Compatibility Model methodology
- The software 'XDC Scenario Explorer' to be used for calculating XDC values
- Financial data from right.'s external data provider FactSet
- Emission data from right.'s external data provider Urgentem
- Summary of the EC guidelines on reporting climate related information. European Commission, 2019
- Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure. European Central Bank, 2020
- [Adams, C.A., Alhamood, A., He, X., Tian, J., Wang, L. and Wang, Y. \(2021\) The Double-Materiality Concept: Application and Issues, published by the Global Reporting Initiative](#)

3. The Accountability of 'Product Use Phase' Emissions in B2C and B2B&C Business Models

Research level: Master

Suitable disciplines: Business administration (BWL or VWL)

Project start: Immediately

Project length: ca. 3 months

The X-Degree Compatibility (XDC) Model is an economic climate impact model that calculates the contribution of a company, portfolio or any other economic entity to climate change, answering the question: How much global warming could we expect by 2050, if the entire world operated at the same economic emission intensity as the entity under consideration? Results are expressed in a degree Celsius (°C) number: the XDC.

The calculation of e.g. a company's XDC is based on the company's economic emission intensity (EEI), which is defined by the quantity of GHG emissions that the company needs in order to generate EUR 1 million of gross value added (GVA). The emissions are categorized into direct emissions (Scope 1), and indirect emissions (Scope 2 & 3). Scope 2 emissions are related to the production of electricity, heating and cooling purchased by the company and Scope 3 emissions are related to the upstream and downstream value chain of the company, including the use of sold goods.

In the XDC calculation, the company under consideration is allocated 100% of its Scope 1 emissions and 50% of its Scope 2 and Scope 3 emissions. This is based on the assumption that the indirect emissions enable the GVA creation of other companies in the value chain as well, and hence the company under consideration is not solely accountable for all the emissions. While this logic is plausible for B2B companies, products sold directly to a private end consumer (B2C) do not generate any further GVA however still generate emissions in their use phase (e.g., cars and lawnmowers). The indirect emission allocation of 50% described above is hence not applicable in these cases, and neither in cases where a company sells to both companies and private end consumers (hereafter B2B&C).

The aim of this master thesis is thus to develop a key, expressed as a %-value, which realistically allocates the share of indirect emissions from the use phase of sold products that a company should account for. The researcher can follow the logic of the current approach for B2B companies and examine how this approach

can be adjusted for B2C and B2B&C business models in different sectors. Sectors of particular interest includes chemistry, car manufacturing, retail and energy.

Standardized and verified guidelines for the allocation of these emissions would meet the needs of companies in the real economy who struggle with making plausible assumptions for how much of their use phase emissions they should account for, and hence have a responsibility and possibility to influence. The increased reliability of the emission data would additionally give companies, banks, and investors a better basis for using the XDC Model to conduct climate impact, climate risk and portfolio temperature analysis; manage their temperature alignment; set emission reduction targets; conduct forward-looking scenario analysis (e.g. following TCFD guidelines); identify transition companies and best-in-class climate performers to make better ESG investment and engagement decisions.

Besides regular support from a dedicated supervisor at right., the following resources will be provided as part of this research project:

- Documentation on the X-Degree Compatibility Model methodology.
- Financial data from right.'s external data provider FactSet.
- Emission data from right.'s external data provider Urgentem.
- [GHG Protocol](#)
- [GHG Protocol Technical Guidance for calculating use phase emissions](#)

4. Why the XDC Model Makes Use of Gross Value Added to Measure a Company's Economic Performance

Research level: Master

Suitable disciplines: Business Administration, Finance, Accounting, Controlling, Economics

Project start: Immediately

Project length: 3 months

The X-Degree Compatibility (XDC) Model is an economic climate impact model that uses financial and emission data to calculate a company's impact on global warming. Results are expressed in a degree Celsius (°C) number: the XDC. The central financial Key-Performance-Indicator (KPI) that the XDC Model relies on is the Gross Value Added (GVA). Until now, GVA has been calculated in economics to measure the value of goods and services produced in an area, industry, or sector of an economy.

To calculate a company's XDC, it is necessary to first calculate the GVA on a company level. GVA is not a commonly reported KPI. It therefore has to be approximated from other financial KPIs. right. is currently following the definition from [Randers \(2012\)](#) who suggests approximating GVA by summing EBITDA and all personnel costs.

However, in addition to using a company's GVA as an appropriate KPI to measure economic success, other KPIs, such as revenue or EBIT are also possible in this context. Therefore, this R&D project will search for further arguments that support the use of the GVA as an appropriate KPI to measure economic success. A starting point might be the [EU Green Deal](#), which is based on the decoupling of GVA and emissions.

In addition, the project should further identify alternatives for calculating/defining the GVA, beyond the Randers (2012) approach of summing EBITDA and personnel costs. For instance, there is research that proposes calculating/defining GVA by subtracting Cost of Goods Sold (COGS) from revenue (e.g., [O'Connor, 2018](#)).

Thus, the main aim of this R&D project is to identify additional insight on how a company's GVA can be derived from standard financial accounting KPIs. More precisely, the research project aims to compare different approaches for defining the GVA on a company level. The identification of the differences between the approaches as well as the identification of determinants or reasons for a preferred approach, such as better data availability, are important elements in this context. Should other approaches to calculating GVA besides calculating the EBITDA plus personnel costs be identified, it should be tested whether (1) the calculated GVA is the same and where any differences come from, and (2) whether the different calculation methods have a noticeable effect on the companies' XDC.

Besides regular support from a dedicated supervisor at right., the following resources will be provided as part of this research project:

- XDC Model peer-reviewed paper
- Financial data from right.'s external data provider FactSet
- Emission data from right.'s external data provider Urgentem
- [O'Connell \(2018\)](#)
- [Randers \(2012\)](#)
- [EU Green Deal](#)

5. Frequently Asked Questions

What is right. based on science?

[right. based on science GmbH](#) (right.) is a provider of climate metrics and software. Founded in Frankfurt by Hannah Helmke and Dr. Sebastian Müller in 2016, right. developed the [X-Degree Compatibility \(XDC\) Model](#) to calculate the impact a company, a portfolio or any other economic entity has on global warming (Temperature Alignment). The results are expressed as tangible degree Celsius values. The aim: to bring maximum transparency on climate-related risks and opportunities to the market.

With its interdisciplinary team of nearly 30 experts, right. helps clients (e.g., companies, banks, asset managers) to analyse and understand the climate impact of various economic activities, fulfil reporting requirements, and conduct forward-looking scenario analysis to shape their climate strategies, set emission reduction targets and inform their investment decisions.

The XDC Model is the only methodology of its kind to integrate a climate model (the FaIR Model, also used by the UN Intergovernmental Panel on Climate Change (IPCC)). The XDC Model is science-based, peer-reviewed, forward-looking, scenario-agnostic, transparent and has been available for use in academic research since 2019 through right. open. From the end of 2021, the model will be published as an Open Source project.

What is right. open?

With the vision of a future in which science, business, finance and policy work together to address the challenges of global warming, right. launched the [right. open](#) community in May 2019. Through right. open, students, researchers and decision makers are provided with the tools, knowledge and network of support needed to co-develop science-based responses to global warming. The work centers on transdisciplinary R&D projects that leverage the full potential in the X-Degree Compatibility (XDC) Model by applying it across industries and disciplines.

Where can I find templates, forms, and background information?

All researchers that register for right. open on our website are invited to the right. open Dropbox. This contains resources about right. open, the XDC Model, previous research projects, relevant literature, and frameworks and agreements that will be needed during the research process. All researchers whose research proposals fulfill the quality criteria are also welcome to request access to the software 'XDC

Scenario Explorer' which can be used to calculate XDC values. Other resources such as financial and emission data from Urgentem and FactSet, XDC data calculated by right., the XDC Model source code and the technical documentation on this etc. are only provided on a case-by-case basis to researchers that address the research topics in this document and whose proposals have been approved.

How are research proposals evaluated?

Once a research proposal has been submitted, the right. open team will evaluate it based on the quality criteria stated in the research proposal framework. For proposals related to the research topics in this document, right. open will also ask the team at right. based on science who will be supervising the research project for a second review. If the quality criteria are fulfilled, the researcher will receive a confirmation within four weeks from the submission of the proposal. For research topics not included in this document, the evaluation is only done by the right. open team and hence the time between the submission of the proposal and the final decision will be shorter than four weeks.

What if I come from a different academic discipline than those listed above?

The disciplines stated in the introduction to each research topic are simply suggestions of disciplines for which the research topic might be interesting. As we encourage interdisciplinary and transdisciplinary research, we welcome researchers from other disciplines as well.

Will I be paid for my research?

Neither supervised, nor unsupervised right. open research projects are financially remunerated by right. based on science.

In order to collaborate or share university materials (such as logos) with an external party, my university requires a Memorandum of Understanding to be signed. Can right. open provide this?

Yes. For those who need one, we can assemble a Memorandum of Understanding (MoU) which will be signed by right. open's Project Lead, right. based on science's Founder and In-House Lawyer.

Who will answer my questions?

For further questions regarding right. open or the research topics in this document, please feel free to reach out to Franziska Neumann, Research Project Coordinator for right. open via f.neumann@right-basedonscience.de.