



Wubbo Ockels School for Energy & Climate Annual Report based on Key Performance Areas 2023

Performance by the University of Groningen (UG) interdisciplinary schools are evaluated on the basis of the criteria listed below. The criteria express themselves as a series of performance areas, with progress expressed through three categories: community, activities/outputs, and impact. The performance areas are designed to structure progress reporting over a multiyear period. It is acknowledged that the schools are part of further collaborative efforts within the UG, and thus also other initiatives within the university contribute to the achievement of these areas.

COMMUNITY (within 3 years):

- #1 Active cross-faculty network of researchers and staff;
- #2 Strengthened interdisciplinary research environment.

ACTIVITIES / OUTPUT (within 3 years):

- #3 Establishment of activity programme at 'House of Connections';
- #4 Interdisciplinary research activities on school theme (events, groups, programmes);
- #5 Engagement with relevant regional partners (including University of the North);
- #6 Active engagement with interfaculty PhD programmes or projects;
- #7 Active interdisciplinary education initiatives (project- and challenge-based);
- #8 Joint activities and synergies between schools.

IMPACT (after 3 years):

- #9 Conversion of small research initiatives towards larger projects / bids;
- #10 Active and targeted dissemination and social media programme;
- #11 Influence from activities around school themes on policy, industry and/or research agendas;
- #12 Establishment of renewed Minors, Summer/Winter Schools relevant to school themes;
- #13 Establishment of impact examples and narratives on school themes.

Overview of achieved fundings

This table provides a high-level summary of the fundings that the WOS has contributed to in 2023 or expects to obtain in 2024/2025 (expected). WOS was the program's initiator in some activities, while it supported faculty initiatives in others. In both situations, WOS brought in more funds than RUG invested in WOS.

COMMUNITY (within 3 years)

#1 Active cross-faculty network of researchers and staff;

The WOS Community is composed by staff and students.

First, with regard to the staff, WOS formed a Scientific Advisory Board with members from a number of faculties, including but not limited to Law, FSS, CF, FSE, FEB, FBS, Arts, FRCS, FP, UC, and Shared Services. All of the board members were chosen from among the senior members of their respective communities. They serve as our "eyes and ears" among the University's many departments. They also serve as our primary advocates for establishing extensive research and educational programs and fostering action throughout the several faculties. By the end of 2024, we intend to make sure that the WOS is connected with all the relevant University bodies.

Second, the WOS reaches out to all peers who, according to the Pure list of publications, have published on topics related to the Energy and Climate domains. The WOS does not have a "fellowship" program. In collaboration with CIT and the University Library, a specialised algorithm has been developed to automatically find the pertinent peers. The monthly WOS newsletter is based on this list, which is updated annually. It can be further filtered to specifically target colleagues who are working on a certain subtopic. When peers are working in related domains but do not have entries in Pure, like in the case of lecturers or non-scientific workers, the list is manually integrated. As of November 10, 2023, there are 222 contacts on our email list that are university internal and 102 that are external.

Based on the number of people who signed up for the WOS's 2023 research, educational, and impact events, we were able to engage roughly 112 colleagues from all RUG faculties and Shared Services department. While this is a good outcome, the community still has to grow, of course. Our goal for 2024 is to activate one hundred coworkers who were not engaged in 2023.

In terms of students, the WOS aspires to create a student community focused on energy and climate through consistent collaboration with student organisations and instructional programs. In 2023, we welcomed students to our hydrogen hackathon (a hackathon on energy transition and AI organised by the New Energy Coalition has been promoted by WOS within the University), summer school on Energy Challenges, Top Dutch Solar team and WOS opening in June by issuing invitations to all energy and climate study societies. Our efforts to involve students through Student Assessors and Student Associations have not resulted in satisfactory student activation. Yet through the Energy Minor and the Minor Course Energy and Climate Law for non-lawyers we are able to engage with around 120 students from several faculties.

For 2024, we will make use of the already established programme of activities and excursion of the New Energy Coalition to increase the chances of activating the student population. Additionally, we want to schedule introductory visits with several student assessors and study associations. Furthermore, in an effort to raise awareness of our (educational) programme among 400–500 students, we will co-organise the annual sustainable education market alongside the Green Office and other Schools.

Possible scale for visualisation realisation KPA:

- 1 point for having mailing list
- 1 point for having Scientific Board with representative from all faculties
- 1 points for having core groups
- 1 point for connecting with more than 1/3 of potential community members
- 1 point for engaging 500+ students yearly

Result so far: 3.5 out of 5.

#2 Strengthened interdisciplinary research environment.

The first step of the WOS strategy concerning the strengthening of the interdisciplinary research environment was the establishment of the WOS Research Plan in 2023. In line with this plan, WOS established 3 research-education-valorisation hubs:

- a) The Hydrogen Valley Campus Europe (about 60 colleagues from 5 faculties involved on a stable basis; 50+ external partners are also involved in the initiative) with its own [website](#) + M20 PhD project on hydrogen (granted in 2023).
- b) The Climate Adaptation Platform (about 20 colleagues from 5 faculties involved on a stable basis – in this field cooperation with RAS is key) + M20 PhD project on climate adaptation (granted in 2023).
- c) The Public Participation Centre (about 30 colleagues from 5 faculties involved on a stable basis) with its own [website](#) + M20 PhD project on hydrogen (granted in 2022).

In addition, WOS collaborated with the Municipality of Groningen, EnTranCe, Alfa College and Noorderpoort on “CO2 neutraal Groningen in 2030”; 1 postdoc (FEB) + 1 PhD project (LAW and Faculty of Culture, Society and Religion).

These three centres of aggregation developed multiple research proposals as well as educational and impact-related activities in 2023.

For 2024, WOS aims at further strengthening these three hubs by obtaining further research fundings from regional, national, and international public and private funds. In 2024, 3 M20 PhD positions will become available on the topic of hydrogen, climate adaptation and public participation.

Besides we aim at establishing a fourth hub around the twin green and digital transition in cooperation with JTS.

Possible Scale for visualisation KPA:

- 1 point for having a research plan
- 1 point for each research hub

Result so far: 4 out of 5.

ACTIVITIES / OUTPUT (within 3 years)

#3 Establishment of activity programme at ‘House of Connections’;

The activity programme of WOS is composed of activities in the field of public engagement (impact), education and research. While as regards research and education, WOS developed dedicated plans in 2023, for public engagement WOS acted more in a pragmatic manner, by maximising the synergies with potential partners in our region. In 2023, WOS established 6 yearly activity moments at the HoC and at other key locations in Groningen (Forum Groningen, Martini Kerk, Suikerterrein and Zernike Campus), reaching out to more than 15.000 participants. As regards impact-related activities, 6 yearly public events have been established, usually in cooperation with other regional partners:

- a) the WOS event to celebrate Wubbo’s legacy in March/April;
- b) the New Energy Forum (in cooperation with Hanze and NEC) in June;
- c) the Suikerbrij Festival (in cooperation with Coöperatie de Suikerbiedt) in September;
- d) the European Night of Science / Zpannend Zernike (in cooperation with other Schools and Zpannend Zernike) in September/October;
- e) Wind meets Gas (in cooperation with NEC) in October; and
- f) Let’s Gro Festival (in cooperation with Municipality) in November.

Our goal for 2024 is to expand our annual schedule by including one more renown event platform, Eurosonic Noorderslag in January. Additionally, on May 25, during the 410 UG Lustrum, we will co-organise the public day in conjunction with the other Schools. Moreover, through already-established youth networks like Energietalenten, JongRes, and Youth for Climate Adaptation, we hope to engage young people more on energy transition and climate adaptation. Additionally, we intend to interact more with hard-to-reach demographics that typically don’t go to the House of Connections or the festivals listed above. Regarding the latter category, we will list the current organisations that interact with them (such as WijTeam) and talk about potential collaborative projects.

As regards to education, in 2023 we launched the Energy Challenge Summer School and hosted the Change Makers School (in cooperation with Global Centre of Adaptation) and the Energy Minor. These activities were (partially) hosted at HoC. For 2024, we will be adding to this list the Summer School on Public Participation.

In the context of research, in 2023 we (co-)hosted several meetings around specific topics. The largest ones were the Symposium: Citizen assemblies in May and the conference New Pathways for a Just and Inclusive Energy Transition in June. For 2024, we aim at organising similar dedicated meetings as well. In January 2024, we will have a dedicated meeting with Deloitte, one with the CAP community and RAS on research methods for interdisciplinary research of energy transition and sustainability, in February we will have a meeting with Aletta and RAS on planetary health, and in March we will co-host a meeting with Dr. Turhan on “building back better”, as part of the Groningen-Hamburg Funding programme.

Possible scale for visualisation realisation KPA:

- 1 point for having a plan of action
- 1 point for an own yearly large scale activity
- 1 point for yearly large scale activities with other Schools or partners
- 1 point for frequent research and teaching activities at HoC
- 1 point for engaging with marginalised societal groups

Result so far: 3.5 on 5.

#4 Interdisciplinary research activities on school theme (events, groups, programmes);

See previous section.

#5 Engagement with relevant regional partners (including University of the North);

In 2023, WOS drafted a lobby programme mapping the relevant stakeholders and prioritising engagement and regional, national and EU levels.

The HVCE, the CAP and the Public Participation Centre all have a University of the North character. The first two even have a public-private character. In this regard, WOS strongly builds upon the partnership with New Energy Coalition. The added value of such a partner is visible when considering that the lack of such a partner in the field of climate adaptation (NEC only focuses on energy) makes the setting up of the CAP much more labour intensive than the setting up of the HVCE and Public Participation Centre. The Netherlands Energy Research Alliance (NERA) is another key national partner for WOS. Thanks to strategic positioning of two WOS scientific coordinators as secretary of NERA, WOS has a strategic positioning within the development of national energy research programmes. See for example the NWO NWA call on "[Scalable Positive Energy Districts \(PEDs\) to create an inclusive energy transition](#)", which has been codesigned with their direct input or the national [NERA NWO Energy Symposium](#) for interdisciplinary research in the energy field. Next to that, one of our coordinators is involved in the development of a committee to link politics and research to identify how NERA can incorporate UG specific energy topics in their advocacy in The Hague.

Besides, thanks to the partaking of the WOS director to the Stichtingsraad and all Programme Boards of the New Energy Coalition, as well as the Innovation Missions organised by the Municipality of Groningen in the field of Energy & Mobility, WOS is well integrated in the regional networks for energy. In this regard, thanks also to the intensive collaboration with the Akkoord van Groningen in the field of hydrogen economy and climate adaptation, WOS is regularly invited in partaking at several regional (gala) events, with particular mention of the Stadsdinner, Prinsjesfestival, Let's Gro, and Eurosonic Noorderslag.

Along with tight cooperation with the Universities of Bremen and Oldenburg, we have formed partnerships within the ENLIGHT and ARUA (African Research Universities Alliance Centre of Excellence in Energy) - the Guild programs. Our main partner within the Sub-Saharan region is Stellenbosch University. We make an effort to concentrate on the collaboration's potential and current capabilities in these efforts with all the abovementioned partners. Right now, this mostly refers to UG's distinctive approach to the possible development of a hydrogen economy. The School is able to provide a comprehensive perspective on this subject by bringing together a variety of faculties and disciplines. Recently, WOS has set up close collaboration within the Hydrogen Europe Alliance, specifically thanks to the Hydrogen Europe Academy (HyAcademy.EU) project, funded by the ERC. HyAcademy.EU develops a study and training programme on hydrogen education and training across Europe, in cooperation with 10 universities in European Countries, such as the University of Birmingham (UoB), Université Libre de Bruxelles (ULB), and Trakia University (TrU), and 7 private and public partners, such as Deutscher Verein des Gas- und Wasserfaches e.V. (DVGW) and EUREC. The HyAcademy.EU will coordinate and support the delivery of hydrogen education and training across a network of over 600 educational institutions, providing education to over 5,000 individuals and tens of thousands of school children and young adults across Europe. It will establish a network of more than 5 jointly-used training laboratories for hydrogen technologies. One of the training laboratories used is the Hydrogen Lab on Zernike Campus. Another important project established in 2023 is the Interreg project, called Green Skills and Knowledge for Hydrogen, in short Green SKHy, consists of a consortium of 17 partners and 63 associated organizations located in Nord-West Europe. The project will support the development of the clean hydrogen sector in Nord-West Europe by aligning certification systems and developing the practical skills of professionals, students, and job seekers.

For 2024, we aim at uptaking the level of engagement with relevant regional partners. We positioned HVCE within the upcoming Masterplan Campussen and WOS will work at doing the same for the Participation Centre and CAP.

Possible scale for visualisation realisation KPA:

- 1 point for cooperation with UvhN
 - 1 point for cooperation with AvK
 - 1 point for collaboration with German partners
 - 1 point for cooperation with ENLIGHT
 - 1 point for collaboration with ARUA
- Result so far: 5 out of 5.

#6 Active engagement with interfaculty PhD programmes or projects;

Besides the M20 programme, multiple interfaculty PhD trajectories were started, two in the context of the HVCE (Law-GMW and Spatial Sciences-FEB) and one in the context of the Public Participation Centre (Law-Culture, Society and Religion). For 2024, we aim at further increasing the number of interfaculty PhD trajectories thanks to the HVCE project. Also the CAP initiative should start attracting funding for interfaculty PhDs.

Besides the new PhD projects, WOS has launched or supported several interfaculty project proposals, attaching postdocs and funding for other positions (supporting staff; technicians; visiting academics), such as most notably the [Phaethon project](#) (50M Euro project under ERC framework), GroenvermogenNL (WPs 2 and 3, combined budget 28M Euro), JTF Train and Learn Hub (10M Euro).

For 2024, we aim at (co-)developing other large scale proposals in the contact of, most notably NPG-baanbreker+Nij Begun (120M Euro), GroenvermogenNL WP7 (12M Euro), TKI HTSM (10M Euro), Groeifonds TAARIC (100M Euro) and CO2-neutral 2030 (150M), as well other smaller initiatives via NWO en ERC, such as the NWO-ORC and the NWO-Energy Market Regulation 2050 calls. We will also actively support the Groeifonds projects granted in Round 3, most notably those on batteries and PVs.

Moreover, we aim at creating a platform for allowing interfaculty PhD students in the field of energy and climate to meet and greet, a sort of WOS i-PhD group. The ultimate dream is to have Wubbo Ockels chairs.

Possible scale for visualisation realisation KPA:

- 1 point for M20 programme
- 1 point for i-PhD group
- 1 point for non-M20 programme
- 1 point for larger research programmes
- 1 point for WOS-chairs programme

Result so far: 3 out of 5.

#7 Active interdisciplinary education initiatives (project- and challenge-based);

In accordance with the WOS vision and plan, WOS established an educational plan in June 2023. WOS established a Summer School on Energy Challenges (with a challenge by Gasunie, and site visits to Gasunie and EnTranCe), and supported a Summer School on Geothermal Energy (organised by Spatial Science, with site visit to Warmtestad), as well as an online hackathon on hydrogen in cooperation with Impact Hydrogen and a governmental organisation in South Africa. Besides, WOS collaborated in the Change Makers School organised by the Global Centre of Climate Adaptation and with the Energy Minor coordinated by Machiel Mulder (FEB). And finally, WOS established plans for the minor Climate Change and Inequality, and the minors Energy Challenges and Energy and Climate Law for non-Lawyers. All educational programmes were positively received by the participants. However, only the latter two educational programmes succeeded in engaging UG students (about 120).

From April 2024, a dedicated WOS teaching coordinator will be hired in cooperation with the JTS.

In 2024, WOS will organise the second edition of the Summer School on Energy Challenges, a new Summer School on Public Participation (in cooperation with the Ameland Energy Cooperative) and support the Summer School on Geothermal Energy. In addition, WOS will support another online hackathon on hydrogen organised by Impact Hydrogen, in cooperation with the Embassy of the Kingdom of the Netherlands in Delhi, and research institutions in India. We also support a hackathon organised by New Energy Coalition on Energy transition and AI in cooperation with Jantina Tammes School, and take part in the organisation of the first RUG Impact Challenge, organised by Soapbox in collaboration with the other Schools.

WOS will also support the development of the minor Climate Change and Inequality (preparation will start early 2024; the minor will run in sept 2025), and further boost the development of interdisciplinary minors on climate adaptation and hydrogen. Dedicated Podcasts on Energy and Climate are in the making.

Possible scale for visualisation realisation KPA:

- 1 punt voor ontwikkelen onderwijsplan
- 1 punt voor opzetten/ondersteunen summer/winter school
- 1 punt voor organiseren hackathons
- 1 punt voor interdisciplinary minor
- 1 punt voor moocs/podcasts

Result so far: 3 out of 5.

#8 Joint activities and synergies between schools.

In 2023, WOS collaborated with the other Schools on the public day during the official opening week of House of Connections. In addition, the four Schools together organised for the second year a large public engagement event, the European Researcher's Night (ERN), and applied for a grant to continue organising the ERN in 2024 and 2025.

In 2023, WOS contributed to the creation of a shared vision on Interdisciplinary Research, Education and Impact together with the other Schools. This vision allows developing further concrete strategies and action in synergy with the other Schools. We also hired relevant shared staff (communication officer, event manager, impact journalist).

For 2024, WOS has made plans for close collaboration with RAS in the field of climate adaptation and for an event (titled "Everyday life ecologies: exploring methods for a world that matters" on the 24th of January, 2024) about different methodology to study energy in everyday life, JTS in the field of the twin, green and digital transition, and with Aletta in the field of planetary health.

Possible scale for visualisation realisation KPA:

- 1 point for common Schools Vision
- 1 point for Common Staff
- 1 point for common team building events
- 1 point for at least one common large project
- 1 point for at least bilateral strengthened collaborations with all other Schools

Results so far: 4 out 5.

IMPACT (after 3 years)

#9 Conversion of small research initiatives towards larger projects / bids;

By many measures, HVCE is a big project already, with a 50 million euro budget. But over the next six years, it hopes to earn an extra 200 million euros for the hydrogen ecosystem, by making use of the various opportunities mentioned above.

CAP may grow into a significant program, but before that can happen, UG must have a well-thought-out investment plan. Given the current state of the economy, WOS will need to come up with innovative ideas to draw in the necessary financing for this area.

A scheme worth millions of euros already exists for the Public Participation Centre. However, its potential to grow into a programme with tens of millions of users is limited.

WOS plans to work with JTS to develop the new Twin Transition theme—green and digital—in a multi-million programme in 2024 and 2025.

#10 Active and targeted dissemination and social media programme;

In 2023, we developed a dissemination and social media strategy and programme. WOS established a website, social-media accounts and a mailing list. Together with the other Schools WOS hired an impact journalist to boost dissemination.

The four Schools have their own distinguishing visual style within the UG housstyle. Each of them can be recognised by the use of dedicated icons in their communication, both digital and in print.

Besides a website consisting of 327 files, WOS has created accounts on X (formerly Twitter), LinkedIn and YouTube. With its social media channels WOS aims to raise brand awareness, provide useful information to various target groups, engage interaction, build (online) communities and attract visitors to the website. Target audience consists of UG-staff and students (internal), and businesses, governments, citizens and partners (external). The communities on the channels are growing steadily. In 2024, we will continue implementing and developing our social media strategy.

WOS sends out a monthly newsletter to 489 (27 October 2023) internal and external recipients. From half November 2023 till half of February 2024 a master student in Science Communication will join the School for an internship on the power of language and the tone of voice WOS uses.

#11 Influence from activities around school themes on policy, industry and/or research agendas;

In 2023, WOS established a Lobby Plan/Map. Individually and in cooperation with Research and Impact, WOS contributed to the research agendas for Masterplan Campussen, Economic Agenda Northern Netherlands, JTF, NPG, NERA (and via NERA NWO), Top Sector HTMS, and Hydrogen Research Europe (HER).

For 2024, WOS will continue cooperating with Top Sector HTMS, HER and NERA and aims at strengthening its ability to shape research programmes in Den Haag and at industrial level.

#12 Establishment of renewed Minors, Summer/Winter Schools relevant to school themes;

See education, above #7 Active interdisciplinary education initiatives (project- and challenge-based)

#13 Establishment of impact examples and narratives on school themes.

In 2023, the WOS published two narratives aiming at catching the imagination of the community: a) Wubbo Ockels, a Multitalented man and b) Two times faster than the Paris Agreement. The four schools also hired an impact journalist to forge new narratives.

Wubbo Ockels, a multi talented man

“Enough is enough, we have gone too far! The industrial revolution has put us in an undesirable situation. We have raced through nature; we are destroying our sources of life. We have to choose a different path; we have to change our lives and the way we do business.” (Wubbo Johannes Ockels in the booklet [‘Wubbo Ockels, a multitalented man!’](#))

Ockel’s call to ‘choose a different path’ has inspired many to put effort in protecting ‘spaceship Earth’ as much as possible. It also inspired the School. Our goal is: Working together to improve each other and society thanks to a greener and fairer energy transition and climate policy. This goal places researchers and students at the heart of the Wubbo Ockels School’s action. The School will serve the researchers, students and society, being an instrument aimed at facilitating research and educational activities that help society choose the ‘other path’. The School is grateful to Wubbo Ockels for setting an example for us and will endeavour to take his mission further!

Two times faster than the Paris agreement

The fight against climate change is a major challenge for humanity. The municipality of Groningen is amongst the 112 cities that accepted the EU challenge of achieving carbon emissions (CO₂) neutrality by 2030. In this regard, the municipality is expected to present its plans to the European Commission.

The first step in coping with this challenge is the design of a set of principles that are required to change the course of action and speed up the achievement of climate neutrality, the so-called change of principles.

[This document](#) encompasses a series of changing principles grouped in overarching, thus common to all the themes on which the CO₂ neutrality challenge needs to be developed, and thematic principles. Thematic principles deal with generic themes such as governance, public participation and monitoring. In addition, they focus on sectoral themes, such as heating, food production and consumption, energy poverty, sustainable mobility, and the circular economy.

These principles were drafted following six sessions of workshops and round tables to which civil servants of various departments of the Municipality and researchers and lecturers from the knowledge institutions in Groningen have partaken. These principles by no means pretend to be exhaustive. They only represent a first indication of changing principles that we deem crucial for achieving CO₂ neutrality. They represent a starting point for discussion.

These changing principles are bold inspirational norms that reinforce ongoing actions, but also aim at enabling the choice of a different, really sustainable, way of living in the Municipality.

Impact journalist

The four Schools’ impact journalist Jelle Posthuma joined in September 2023. Since his appointment he has produced several articles for WOS, for example about the Top Dutch Solar Racing team, that participated in the solar race in Australia this summer, a report of the Wind Meets Gas conference, that took place in October, and an impression of the European Researcher’s Night in the Forum last September.

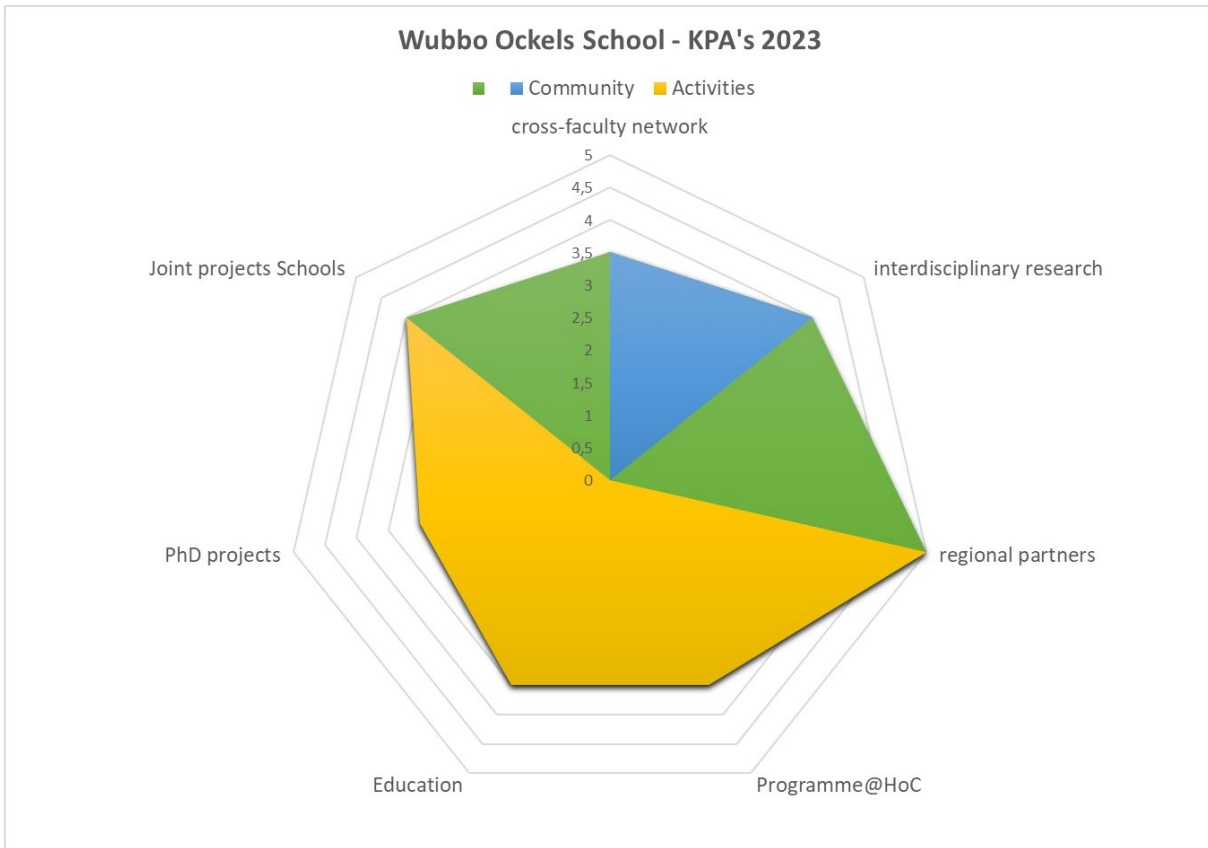


Figure 1. Overview of the Key Performance Area's Community (#1- 2) and Activities/Output (#3 - 8)