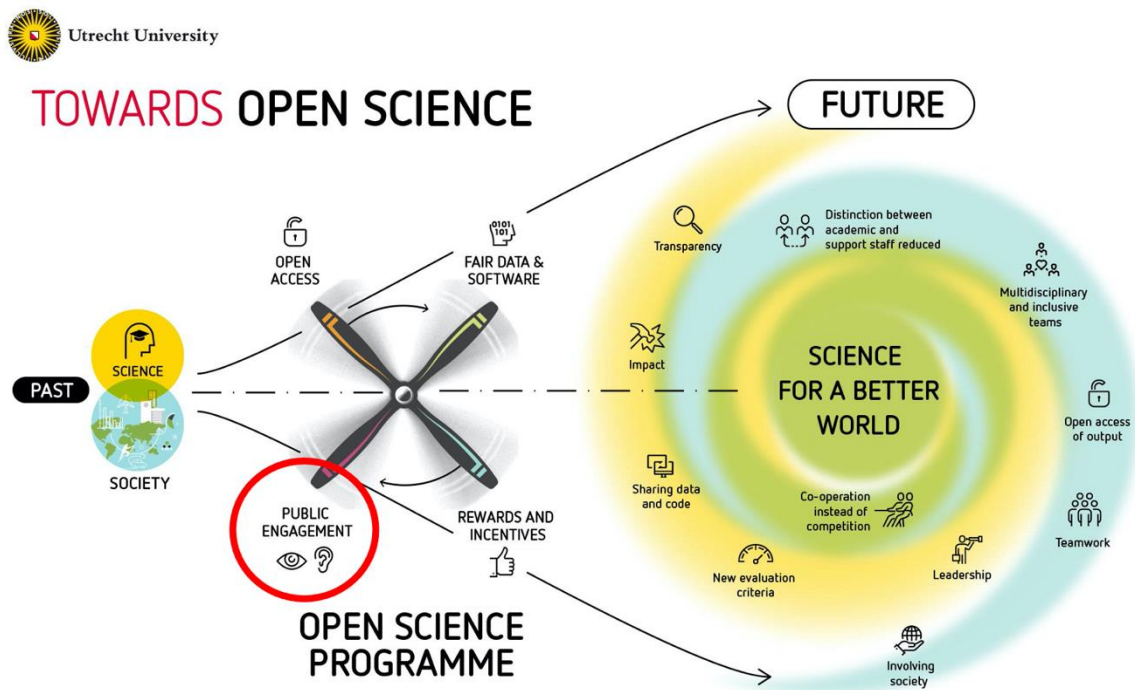# Open Science & Stakeholder Engagement
Why, how, and what could be improved?

Commissioned by the Public Engagement pillar of the
Open Science Programme

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Introduction

Focus and objective

Public Engagement is one of the four priorities of Utrecht University's Open Science programme. Public engagement entails the variety of ways we collaborate with citizens and organisations to exchange knowledge and experiences with one another. Public engagement focuses on the public at large, but also on specific target groups such as societal partners, interest groups, companies and governments. 'Stakeholder engagement' involves these specific target groups in the university's activities, so that these activities benefit both parties.

Within the Open Science Programme, Utrecht University has set up a variety of activities to involve the public at large. Most of the programme's work has focused on policy development and implementation, and engaging the public at large, but so far little effort has been devoted to developing policy for stakeholder engagement. Now it is time to take that step. In 2020, a small group of UU employees in the Open Science Programme Team and the Public Engagement pillar were charged with studying this issue and exploring whether stakeholder engagement should be developed within the university, and if so, how it can be arranged, in part within the context of the Open Science Programme.

Studying Stakeholder Engagement

The study began with a brief literature review to gain insight into the characteristics of stakeholder engagement and the current state of knowledge regarding collaboration between stakeholders and universities.

The team also conducted a limited study of stakeholder engagement within the university to understand why UU academics involve stakeholders in their work, how the process is arranged, and wat support is needed. This included 12 interviews with UU staff (policy advisors, assistant and associate professors and full professors) from different faculties. These individuals were approached via the Open Science Public Engagement Fellows network; all are members, and each is in their own way active in the field of stakeholder engagement. It is impossible to study stakeholder engagement without also listening to the voices of the stakeholders themselves. We therefore asked the UU staff interviewed to suggest the name of one of their stakeholders. Six of these stakeholders were willing to cooperate with an interview.

During the interviews with stakeholders and UU staff, the researchers discussed the following topics:

1. The goal of engaging stakeholders, and the degree to which that goal is achieved;
2. The criteria for selecting and involving stakeholders in Utrecht University's activities;
3. Limiting and facilitating factors in stakeholder engagement;
4. What UU can do to facilitate stakeholder engagement

The interview studies were evaluated and approved by the Ethical Review Committee of Utrecht University's Faculty of Social and Behavioural Sciences (protocol number 20-545). The interviews were conducted via telephone or MS Teams in October and November 2020. Each interview took approx. 30-45 minutes. Almost all of the interviews were recorded and transcribed for analysis purposes. In the analysis, we differentiated between the answers by UU

staff and those provided by stakeholders, to better identify the similarities and differences in their experiences and needs.

Profile of interviewed employees and stakeholders

UU employees*	Stakeholders
- Strategic theme Institutions for Open Societies - Strategic theme Life Sciences - Strategic theme Pathways to Sustainability - Strategic theme Dynamics of Youth - Faculty of Social and Behavioural Sciences - Faculty of Medicine - Faculty of Science - Faculty of Law, Economics and Governance - Faculty of Geosciences - Faculty of Humanities - University Corporate Office	- Patient associations consultant - Municipal policy assistant - Journalist and interest group lobbyist - Secondary education teacher - Youth participation expertise bureau project leader - CEO of a commercial enterprise

* Note: The number of UU organisational units does not directly relate to the number of UU employees interviewed, as a few interview subjects belong to more than one organisational unit, and the units represented by more than one subject are listed only once in the table.

Reading guide

We will begin this report with a brief review of the literature, in which we mainly reflect on how the relationship between academia and society has changed and developed over the past few decades. We will then discuss the main conclusions of our empirical investigation of the four topics listed above. We are aware of the fact that we have spoken to only a small and select group of employees and stakeholders, but we are confident that the study provides sufficient input to make recommendations on facilitating stakeholder engagement to the core team of Utrecht University's Open Science programme.

Literature on Stakeholder Engagement

Over the past few decades, the relationship between universities and society has attracted considerable academic attention, especially in the fields of science- and innovation studies.

Interdependence of science and society

The image of academics working in their 'ivory tower' to create inventions with intrinsic value to society has long been dominant, both among the academicians themselves and among politicians, policymakers and the public at large. The image resonated with how some policymakers viewed fundamental science; as an important source of national security and economic growth. Vannevar Bush, a prominent policymaker in the field of science and innovation in the United States during and after World War II, said that fundamental research "creates the fund from which the practical applications of knowledge must be drawn"[i]. This perspective implies a linear relationship between science and society. To paraphrase the slogan of the 1933 World Expo in Chicago: "Science finds, industry applies, man conforms".

In reaction to the first atom bombs at the end of World War II, but also to later discussions about atomic energy, DDT and genetic modification in the 1970s, the vision of science as an objective bringer of intrinsic benefits began to face serious opposition[ii]. This highlighted the need to listen to society's questions, as described in 'mode-2 science'[iii]. People also began to realise that science is itself influenced by society: the 'social construction of science'[iv]. For example: social groups, such as patient associations, work to guide the agendas of research groups through funding. This insight later led to a broader and more inclusive concept of science, where lay experts, citizens and social stakeholders become active participants in the production of knowledge.

Science and social fields: policy and business

The opening up of science is also characterised by the changing relationship between science and policy. The image of scientists 'speaking truth to power' and politicians using the reports that suit their interests with the motto 'politics on top and science on tap' is no longer accurate. Science and policy join together in a science-policy nexus where two different cultures merge, but where there is still a boundary between the two worlds. This boundary must be constantly monitored through so-called 'boundary work', which involves coordinating values, fields of knowledge, trust, willingness to learn and accept information from the other, etcetera.[v] In short, the interaction between science and policy must be made feasible.

As described above, the relationship between science and the business community has also been conceived as a linear one: science provides knowledge, and businesses use it to make wonderful products. That idea served as the background for the policy of making university knowledge as useful as possible to society, and to allow businesses to profit from it. An important step in this direction was the introduction of the Bayhe-Doyle Act of 1980 in the United States. The law stipulated that universities and other knowledge institutions were allowed – and even compelled – to patent and license their findings. A resulting trend was the rise and diffusion of technology transfer offices (TTOs), even in Europe. The emphasis on the universities' so-called 'third mission'[vi] has led universities to become much more open to businesses. There is evidence that collaboration with companies can be productive for university research groups[vii].

Collaboration with social partners in various phases of research

Social stakeholders could be involved in drawing up the agendas for research projects[viii]: for example, charity funds and patient associations exercise influence on the agendas of research groups or programmes[ix]. This influence could be 'light', in the form of consultation, but in some cases the social partners assume a guiding role in research. Involving partners at an early stage of a research programme is a good predictor of participation in the implementation of the programme[x].

During the conduct of the research, sometimes stakeholders from society at large participate in the production of knowledge in the form of an academic workshop or a 'community of practice'[xi]. This is also referred to as co-creation of knowledge. "The goal of co-creation of knowledge is to enhance the value of the knowledge through the collaboration with stakeholders. It refers to the cooperation between researchers and social actors in research projects. Knowledge co-creation projects are expected to result in greater impact"[xii]. However, there is also evidence that societal parties withdraw after the agenda phase, and do not participate as much in the conduct of the research[xiii]. For example, companies often participate in research projects to keep up to date about the state of scientific affairs and to scout competent and talented researchers, without having the ambition of playing a role as a co-producer of knowledge[xiv].

At the end of the research project, during the evaluation, attention is also increasingly paid to social interaction and impact. Over the past 10 years, several impact and evaluation models have been proposed as intelligent ways to identify social impact, without leaning too much on quantitative evaluation scores. One prominent example is the SIAMPI framework, which emphasises process indicators ('Did the project collaborate with the right parties', etc.) and so-called 'productive interactions': following fruitful exchanges between researchers and stakeholders, whereby knowledge is produced that is appreciated as both academically robust and socially relevant[xv]. These evaluation methods have had an influence on how the VSNU, the LERU and the EU think about issues such as recognition and rewards.

The development of ideas regarding the relationship between science and society requires scholars to make choices about how, and the degree to which, they wish to involve social stakeholders in their activities. It also raises several other questions and dilemmas that we in the UU community aim to address, in dialogue with our stakeholders. Several areas within UU have already gained considerable experience with stakeholder engagement. The collaborations between UU scholars and stakeholders have produced useful insights on the added value, obstacles, and active ingredients of a fruitful partnership. We have conducted an initial survey of these insights through interviews with a few UU staff and stakeholders.

Interviews with UU staff and stakeholders

What is the purpose of stakeholder engagement?

Every interview began with the question what the purpose of stakeholder engagement is. The answers of the UU scholars can be divided into three categories of goals. An important reason for promoting stakeholder engagement is to understand what society and the target groups relevant for the researcher are thinking, and what they need, so that the research can better address those issues. A second reason is the desire to share knowledge obtained from scientific research with stakeholders and society at large, in order to contribute to solutions to social issues. The third purpose mentioned is that stakeholder engagement is an important way to gain access to (financial) resources, relevant networks and data.

'My research is better when I include people in the research process, from beginning to end.'

When asked if they manage to achieve these goals, most UU staff said that it is an incremental and slow-moving process. The degree of success depends on the stakeholders involved, as some are easier to work with than others, and whether the partners manage to overcome organisational challenges. One difficult issue seems to be managing mutual expectations and finding the right balance between the scientific contribution and the practical issues. Several interviews mentioned that stakeholder engagement is not always necessary, and that some studies, such as those involving fundamental research, may actually benefit from the absence of stakeholder engagement, as it better preserves the researcher's impartiality.

'Sometimes social partners don't contribute funding themselves, but they are in a position to lobby for it.'

The stakeholders interviewed all had their own reasons for collaborating with Utrecht University. The most important reason was the opportunity to bring in an independent institute and utilise it for scientific justification and validation of the issues the stakeholder is working on. Stakeholders also said that they had approached the scholar to work on a specific project aimed at providing an answer to a concrete real-world question. A few stakeholders mentioned a desire to bring their practical knowledge to the university. We should place a critical note here, in that stakeholder organisations should not be considered as a 'can of target groups' that can be opened when Utrecht University needs to collect data. Several stakeholders also mentioned that they were personally interested in the collaboration with the researcher or university; it added depth to their work and an opportunity to reflect on fundamental questions.

'We came to Utrecht University looking for scientific justification for the issues we work on.'

Like the UU staff interviewed, the stakeholders mentioned that some collaborations went more smoothly than others. The degree of success depends on the degree to which the project manages to be relevant to real-world practice, the intrinsic motivation of the UU researcher to study the subject, and how the partnership is organised (clear agreements, good services).

How is the process of stakeholder engagement organised?

How does one involve stakeholders?

The interviews indicated that there is no one-size-fits-all approach. Sometimes the stakeholder contacts the UU researcher directly, so they do not need to initiate activities themselves. Stakeholders are often drawn to the researcher's reputation and/or unique resources (knowledge, technologies, infrastructure). If the partners have a longer history together, and have collaborated in previous projects, then they can build upon the networks that have already been created. And as your network grows, you come into contact with more and more people. Some commissions are submitted via former clients.

If researchers have not had any contacts or ideas for contacts, then they can try to *broadcast their ideas and to scope out what parties in society are working on.* Some methods used include:

1. Publishing long reads on a specific topic
2. Subscribing to newsletters (preferably from 'unusual suspects')
3. Life-long learning courses can help initiate dialogue
4. Discussions during a field trip, lab visit, group activity or seminar
5. Organising a high-quality, exclusive gathering (such as an invitation-only buffet dinner for societal partners, featuring lectures by professors)
6. Advisory councils (though the interview subject mentioned that these do not work; they are obligatory)
7. Giving lectures with opportunities for interaction afterwards

Other UU academics draw up a structured stakeholder analysis, determine which stakeholders are relevant based on their stated goals, or are dependent on a limited number of parties because the field is so narrow (especially in the public sector or among NGOs). The UU academics who require a stakeholder analysis may conduct a structural analysis of the relevant parties themselves, for example by searching the field to find who already uses their research/technology, and by drawing up a map of stakeholders for visual reference. They may also rely on the support of an administrative assistant who has a good overview of the department's network of relations.

'There is a lot of improvement to be made by conducting a more structural analysis of the relevant parties.'

Criteria for determining whether or not to work together

The criteria used by UU academics are mainly related to the degree to which the partnership limits *independent research and academic freedom.* In a consultancy commission, the researcher is mainly expected to deliver a product. A related issue is whether or not the research may be published ('if it has to remain 'closed', then the clients have to pay more'.) It helps if the stakeholders are also curious about the findings, and wish to apply them directly. Another important criterium for the UU academics interviewed is whether the social partner's *vision and ethical standpoints* correspond to their own. Some UU academics have a clear ethical boundary in determining the subjects they wish to study.

'Open Science is important, but I can understand why companies would want to keep the research 'closed'.'

Stakeholders seem to have a more instrumental perspective on the choice of UU as a partner in collaboration: UU is cheaper, is independent, and is easy to find online. But personal connections also play a role: people prefer to work together with a specific individual, whom they often know from previous projects or have a longer relationship with, or via education.

How is the interaction organised?

The UU academics interviewed said that once the partners decide to work together, it is important to invest in formulating questions and joint consultation on the research question at the very beginning of the project. This involves conducting 'inquiry' and learning to speak a shared language, and empathising with the people involved. Sometimes the partners will base the interaction on a fairly well-delineated idea, while others will aim to explicitly formulate the goals together. The respondents also actively seek out critique: talk to the stakeholders and ask what they need. This will create mutual recognition and appreciation for both sides. Several UU academics invested in having a series of conversations with one or a few parties, or 'coffee appointments' with multiple stakeholders. One respondent also mentioned that it pays to think about how the roles and assignments are named. Terms such as 'project curator' or 'participant' raise expectations and implicit responsibilities, and in some cases can actually create flexibility.

'We organise an open meeting with our stakeholder network twice per year.'

Once a collaboration is underway, then it needs to be maintained (guaranteeing continuity). Some UU academics interviewed consider the interaction to be a series of meetings, where you go expand the subjects and number of people involved step-by-step. This eventually results in a consortium, and it is important to think about coordination and the assignment of roles. Several respondents organise regular meetings (from bi-weekly to bi-annually) with and for the network of stakeholders to discuss work in progress and results, or to react to current events.

The interview subjects have had experience with the following forms of collaboration with stakeholders to conduct research:
- Actively visiting neighbourhoods;
- Community-based learning projects;
- Organising exhibitions outside the university featuring physical objects, discussions and tours;
- Writing a position paper on the problem together: social partners are skilled at reflecting on day-to-day practice, and the publication can help you raise your profile as a researcher, both within the university and in the outside world;
- Asking stakeholders to read or help write an academic paper;
- Theatre is important too: the physical layout of the discussion (how the debate space is furnished) is important for the results.

What are the limiting and facilitating factors?

The interviews then asked which factors facilitate and/or inhibit the involvement of stakeholders in the work. We will discuss the experiences of the UU academics and stakeholders below. The factors mentioned most often are listed at the top.

Limiting factors according to UU academics:

Conflicting interests

Some stakeholders have commercial goals, and sometimes they are simply looking for scientific proof for their work methods. These stakeholder needs do not always correlate with scientific values, and can result in conscientious objections among the UU academics interviewed.

In general, academics place a high value on the quality of research and on transparency. The latter could become a point of contention if the research results are disagreeable or unexpected.

Rules and administrative paperwork

The stakeholders interviewed often want to see quick results, but academic research needs a longer time frame. The university has strict administrative and financing rules, but sometimes they are applied (too) rigidly. Much of the stakeholder's funding is spent on overhead at Utrecht University. Bureaucracy at the university reduces its attractiveness as a partner for collaboration.

Unrealistic expectations

Unexpected issues always arise in research. This can include delays due to misunderstandings, or because different types of organisations have different processes. The results of the research may also be unexpected, for example because the stakeholder was hoping for different results.

Ideally, the parties will agree to the conditions before entering into a commitment, such as conditions for the work methods, scheduling, results, publication rights, and transparency. According to the respondents, when these agreements are not made in advance they can lead to conflict later on in the process.

Difficulties with communication

Many UU academics find it difficult to speak the language of day-to-day practice, and vice-versa. In order to have an impact, you cannot simply write down your research results. Impact demands another approach to communication and presentations.

Lack of recognition & rewards

Some of the UU academics interviewed have noticed that their colleagues look down on research together with stakeholders, and that fundamental research still has a higher status.

The value of stakeholder engagement is often difficult to visualise, or is only apparent over the long term. That requires a long-term perspective.

'There isn't enough appreciation for researchers who do the work to set up partnerships with stakeholders, because that often doesn't result in publications or Veni grants.'

Lack of practical support

Some of the interview respondents stated that they do not always receive enough practical support or resources from Utrecht University. For example, there may not be enough money or practical assistance in organising meetings, even though they are necessary for building a network.

Obligation

If mandated from 'above', then it can erode enthusiasm for stakeholder engagement. The potential stakeholders and work methods are extremely diverse, and according to the interview subjects the differences must be respected. There is also often a lack of proportion, in the sense that the idea emerges that 'we need more public engagement'. Rather than working for more engagement, we should focus on engagement that is better, more relevant and well thought out.

> *'We lack a sense of proportion. The idea emerges that 'we need more public engagement'. But it's not about more engagement, it's about engagement that is better, more relevant and well thought out.'*

> *'Don't use a fixed recipe; every project is different.'*

Lack of information and good examples

According to the UU academics, at university we think too much in terms of 'silos', causing people to duplicate work and miss opportunities.

A lack of good examples within one's own team or organisational unit also raises the threshold to stakeholder engagement. After all; if nobody shows you how it is done, then you do not know how to do it.

Facilitating factors according to UU academics:

Bringing science and society together

Mutual respect for one another's knowledge, expertise and interests is vital. All parties must feel that their expertise is valuable.

According to the UU academics, it helps if parties take the time to set up the partnership and become better acquainted with one another. Rhetoric is also important during meetings: communicate openly and respectfully and dare to draw conclusions. It is good if the parties can put their hierarchies and fears aside, and dare to be open and creative.

Avoid having partners see you as 'window dressing'. A successful partnership depends on authentic interest and enthusiasm. You can explicitly work to ensure that the partnership benefits both sides, for example by explicitly asking how you can be of service to one another, and not only telling what you can do. Even within scientific studies, the interview subjects explained that it is possible to make room for external partners to add questions of their own

that they would like to find answers for. It is good to consider the partnership as a shared project in which you organise things and build a bond of trust together.

It is recommended to choose representative stakeholders who enjoy the support of their organisation and can act quickly if needed.

'It is good to consider the partnership as a shared project in which you organise things and build a bond of trust together.'

Long-term commitment

The interviews show that long-term partnerships create a familiar structure, mutual understanding and a smooth relationship. This may be the result of the shared commitment to work on the social issue, or the familiarity that comes from frequently working with the same partners, so you can utilise the mutual understanding and relationship that has built up over time.

Long-term commitment benefits from a good structure and agreements regarding when, how, and how often the partners will meet. You should also constantly involve stakeholders throughout the progress of the research. At the same time, the UU academics warned that you must try to prevent the stakeholders from becoming engagement-fatigued (or 'excursion-fatigued').

Being visible and relevant

Stakeholder partnerships are easier to create if you as a researcher have a broad network. It also helps if you conduct relevant research, for example by working with more representative samples in your study, and if you are more visible due to media appearances and lectures. Having a clear goal and being able to communicate it also helps involve stakeholders and keep them involved, according to the UU academics interviewed.

Facilitating & support

Good facilitating support from Utrecht University requires quick answers to questions and taking work out of the researcher's hands, for example by organising meetings to work on a proposal together, investigating a stakeholder's standing, drawing up a budget, and estimating how much an assignment will cost. Support that also helps think of solutions in the contact with the stakeholder would also be greatly appreciated.

Recognition & rewards

Stakeholder engagement costs both time and money. The UU academics interviewed stated that it is important that efforts in this area should be recognised and appreciated. They mentioned that some departments within Utrecht University, such as the Centre for Global Challenges, already show that they truly appreciate stakeholder engagement.

Coordination within UU

We can coordinate stakeholder engagement together within the university by helping one another and sharing a single narrative, rather than having many separate groups.

Limiting factors according to stakeholders:

Lack of time and resources

Thorough research is expensive, and the money needed is not always available. Both researchers and stakeholders also face a lack of time. The interview subjects stated that it is sometimes difficult to combine the available resources between two organisations.

Some stakeholders appreciate being kept informed of the latest academic research, but there is a lot to keep up with, and academic publications are not always written to be accessible to a wide audience. What is more, publications are often locked behind a paywall.

Gap between science and society

There may be a gap between 'ideal' scientific research and social or political realities. A lack of support may result in interventions that the research indicates as being necessary not getting implemented in the end.

Some stakeholders interviewed stated that they do not always need a long-term, thorough study. Research at the university sometimes takes too long, as results become available after an issue is no longer a priority.

To some stakeholders, it seems as if the university uses time-worn work methods that leave no room for the stakeholders. Some researchers also seem to have little knowledge of the current state of affairs in day-to-day practice.

Obligation

According to the interview subjects, stakeholders are occasionally involved because it is required by grant providers. Not every study lends itself to stakeholder engagement, but it is simply one of the requirements for funding. Stakeholders notice when there is a lack of intrinsic motivation among the researchers.

Facilitating factors according to stakeholders:

Bringing science and society together

At the beginning of a partnership, it is good to invest considerable time in keeping one another informed and creating understanding of what the project is about and what it means for the stakeholders, in order to build support.

Take the time to learn to understand one another's world and language, and to understand and respect each other's interests. Determine the objective of the partnership in mutual dialogue.

> *'At the beginning of a partnership, it is good to invest considerable time in keeping one another informed and creating understanding of what the project is about and what it means for the stakeholders, in order to build support.'*

The stakeholders interviewed appreciate it if there is mutual respect and acknowledgement of

one another's expertise. For example, it is good if UU tries to ensure that stakeholders can share their knowledge, for example by asking them to give a presentation at events and be included in the activities.

It is also important for stakeholders to acknowledge and respect the added value of the nuanced academic approach. Doing so will keep the stakeholder sharp as well. Science and real-world practice must find a balance in their individual roles.

Long-term commitment

It is good to invest in long-term, durable partnerships. That could entail choosing for a start-up and design phase lasting for a few years, followed by another few years of roll-out and monitoring. These activities can be agreed to in two separate contracts.

According to the stakeholders, durable engagement requires good forms of collaboration. Organising joint sessions or events, where people can present their insights to one another, is one effective tool. Another is by jointly informing other stakeholders. For example, the researcher and client regularly present the progress of their work to the city council.

Stakeholders explained that structure and clear agreements provide stability, including a clear schedule and assignment of tasks. For example: an annual cycle of monitoring, sharing research results, and implementing (new) interventions.

Professionalism, combined with independence

Some UU academics are extremely professional, and can quickly react when the project requires it, for example when a press release needs to be issued. They are interested and attentive, pass on UU studies that are interesting to the target group, and know exactly how the stakeholder can use the information. The stakeholder interviewed highly appreciated this. A fruitful collaboration develops when the researcher understands the client's needs and preferences, but maintains his or her independence.

'A fruitful collaboration develops when the researcher understands the client's needs and preferences, but maintains his or her independence.'

Personal chemistry, enthusiasm

Partnerships also benefit from personal chemistry and enthusiasm among the individuals involved. The relationship between the stakeholder and researcher is extremely important among the stakeholders interviewed. Taking time to meet informally for a chat and a cup of coffee often results in free thinking on fundamental issues. The key is to find the most enthusiastic partners, who are not necessarily the most senior professors or experts.

Enthusiasm and support are also important on the stakeholder side. For example, the organisation where the stakeholder works must stand behind the partnership and acknowledge its added value.

UU academics	Stakeholders
Limiting factors: • Conflicting interests • Rules and administrative paperwork • Unrealistic expectations • Difficulties with communication • Lack of recognition & rewards • Lack of practical support • Obligation • Lack of information and good examples	Limiting factors: • Lack of time and resources • Gap between science and society • Obligation
Facilitating factors: • Bringing science and society together • Long-term commitment • Being visible and relevant • Facilitating & support • Recognition & rewards • Coordination within UU	Facilitating factors: • Bringing science and society together • Long-term commitment • Professionalism, combined with independence • Personal chemistry, enthusiasm

What can the university do to facilitate stakeholder engagement?

In the interviews, UU academics and stakeholders made a variety of suggestions on how the university can support stakeholder engagement. We will discuss these suggestions below.

Needs of UU academics

Inform and excite

Show what activities the faculties are organising for stakeholder engagement, and appoint a point of contact to help researchers in this area. Use examples of other UU staff members, and show the opportunities and value of external partnerships. For example, an alternative to the UU-Publiprijs (prize for communication to the general public) dedicated to stakeholder engagement could raise awareness inside the university.

Facilitate and support

Develop UU guidelines for collaborating with external stakeholders that researchers can build upon. These guidelines should answer questions such as: How do you choose the right partners? For example, how do you involve smaller partners, in addition to large companies? Which agreements need to be made regarding funding, communication and ownership of results, data exchange, etc.? The work of the Utrecht Data School can help in this area.

Offer knowledge and tools that researchers can use, such as guidelines on the 'how', 'why' and challenges of good stakeholder engagement, including a step-by-step plan or a toolkit with methods. Utilise the knowledge and available within the university, such as at Dynamics of Youth, other strategic themes, and in the faculties.

Build a stakeholder database or 'card catalogue' to prevent overlap and asking too much of certain partners, and to identify parties for potential new partnerships.

Take a more flexible approach to project financing. Reduce the administrative paperwork, and give researchers more freedom. Consider the possibility of a flexible WBS system, in which funds earned can be deposited to a personal account, and researchers have freedom to decide how to allocate the funds. The approach used by Imperial College London consultants[1] may serve as a useful example.

Also provide adequate support to help with finding suitable stakeholders, administration, legal and commercial aspects, communications.

Recognise and reward collaboration with stakeholders and the public

Stakeholder engagement, building a network with relevant stakeholders for collaborating in projects, and effectively sharing the results with the right social partners all cost time and money. That must be taken into consideration in task assignments, research budgets and schedules.

Again, not every researcher needs to participate in stakeholder engagement and engagement does not add value to every study. This calls for a focus on team science and avoiding obligatory stakeholder engagement. Stakeholder engagement should, however, be a fixed element of PhD studies, so that every young researcher has an opportunity to discover their talent for stakeholder engagement and learn valuable skills.

> *'Not every researcher needs to participate in stakeholder engagement, and it does not add value to every study.'*

Encourage without obliging

Emphasise the importance of stakeholder engagement for high-impact research, facilitate where possible, but do not force researchers to engage stakeholders. There should not be a 'one-size-fits-all' requirement for stakeholder engagement in every type of research, as that could lead to obligatory, yet redundant talking shops.

Facilitate mutual interdependence of science and society

Invest in making academic knowledge and data available for societal organisations. Make it easier for researchers to involve the public in research, for example by setting up a citizen's panel. Regional ties are often very strong, but a risk of having too many local projects is that the university will become too regionally oriented. According to the UU academics, there should always be research for and with global stakeholders as well.

There should also be more room for stakeholders' questions in the conduct of the research. The research has an academic foundation, but that does not mean we cannot include questions from external partners.

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[1] https://www.imperial-consultants.co.uk

Needs of stakeholders

Make science visible and easy to find for real-world applications

There is considerable interest in academic knowledge and justification and direct contact with researchers, but the researchers are often difficult to find. That means missed opportunities for the researchers and for Utrecht University: researchers who communicate with the outside world not only share knowledge; they also gain insight into the impact that their research has. Collaboration with external partners can also highlight the weaknesses in academic research.

Facilitate contacts between UU academics and stakeholders

Invest in networking opportunities between UU academics and social stakeholders; make stakeholders part of the UU knowledge network. That also includes parties that are not yet partners themselves. Facilitate the joint development of research ideas, for example by organising network meetings together with government and subsidy providers for a specific call for proposals, before it opens. Make it standard practice for stakeholders to visit research groups regularly, and train young researchers in collaborating with external parties. Invite stakeholders to conferences and networking activities.

> *'Organise a networking event where scientists and stakeholders can meet for every major call.'*

Put science in the middle of society

Share knowledge and research results with the right target group and in the right way: adjust the language and form to make it relevant and accessible to stakeholders. That means no long academic papers, but rather short fact sheets, social media, infographics, etc.

At the regional level, UU academics can be more active as independent consultants to policymakers. Another way to bring science closer to real-world practice is 'combination jobs' and having PhD candidates teach at secondary schools.

Recommendations from UU academics	Recommendations from stakeholders
• Inform and excite people about stakeholder engagement • Facilitate and support stakeholder engagement • Recognise and reward collaboration with stakeholders and the public • Encourage without obliging • Facilitate mutual interdependence of science and society	• Make science visible and easy to find for real-world applications • Facilitate contacts between UU academics and stakeholders • Put science in the middle of society

Conclusions and recommendations

Dilemmas and issues

During the interviews with UU academics and stakeholders and in our analysis, we identified several important questions, issues and areas of conflict that deserve more consideration within the Open Science Programme and with stakeholders.

A shared language of engagement

At the moment, Utrecht University and the UU Open Science Programme use a broad definition of public engagement. There appears to be some confusion about what 'stakeholder engagement' means and how it relates to public engagement. The following three interpretations appeared in the interviews:

1) Public engagement: involving citizens or the public at large;
2) Stakeholder engagement: involving groups, organisations or policymakers based on their interest and expertise in a specific topic;
3) Contract research.

Finding a common language with common definitions and a clear differentiation of the goals of engagement activities may help researchers make conscious choices for the right approach and tools, based on what they aim to achieve with the engagement. A public lecture may be an excellent tool if your goal is to inform opinion, enhance the visibility of the research, use the audience's questions to come up with new ideas, or simply to 'pay back taxpayers'. But if the goal is to influence policy or recruit experts for your research, then you need to use a different approach. A clear delineation can help researchers work more efficiently and effectively in their engagement activities. At the same time, the three forms can also reinforce and overlap one another: a lecture might lead to a conversation with an expert stakeholder, and then to a research partnership.

Recognising and rewarding good stakeholder engagement

Stakeholder engagement as an important component of science also raises questions about how it is recognised and rewarded. First: what is quality in the field of stakeholder engagement? When are we satisfied with stakeholder engagement as a university, and what goals do we aim to achieve with stakeholder engagement? How can you measure the impact of stakeholder engagement, considering its heterogenous nature? It is important for engagement to be made more concrete and operationalised, especially in terms of associated behaviour, knowledge and skills of employees. Clarity on this issue will provide guidelines for the employee's actions, the opportunities for development in this area, and recognising and rewarding those actions. This leads to the question: how do we compensate UU academics for high-impact stakeholder engagement, if traditional measures of publications or research funding are insufficient or less directly applicable? What does an academic career path look like for impact, stakeholder and public engagement? Which yardsticks should we develop for professors in the area of impact and engagement, maybe even to replace the old model of professor by special appointment? Should we then measure the intensity of the stakeholder engagement (how often and how many), or rather the innovative manner in which the engagement was organised? There is therefore a strong link between the Recognition and Rewards priority of the UU Open Science Programme and the broader movement in recognition and rewards.

Tension between collaboration and academic independence

Collaboration and interaction with stakeholders can be valuable and enhance the impact of our research and education. The fact that the university is independent makes it a valuable partner for stakeholders. But how do we as a university and as researchers deal with the tension between collaborating with external partners and their interests and maintaining our academic integrity and independence? How do we deal with boundary work and boundary crossing?

Embedding in the organisation

The Utrecht University public engagement programme is well-developed and positioned. Researchers know where they can turn to if they wish to reach a wide audience. There is plenty of stakeholder engagement within Utrecht University, and there are many good examples, but so far these efforts have been fragmentary and ad-hoc. There is a demand for university policy on stakeholder engagement and more structural support in this area. We will have to decide how and where stakeholder engagement should be delegated within the organisation, with consideration for the fact that stakeholder engagement is dependent on the specific context and discipline. Stakeholder engagement can originate from organisational structures and goals, such as the strategic themes, as well as bottom-up, based on the activities of individual researchers. Both forms should receive support. That in turn raises the question: What activities could be organised at university-wide level, and which would be better supported from within hubs and strategic themes, faculties or research groups?

Recommendations

Based on the research, we can make the following recommendations for Utrecht University and its Open Science Programme.

1) *Put questions and dilemmas on the table*

Our recommendation is to enter into a dialogue with UU staff and stakeholders regarding the dilemmas and issues described above. This dialogue should be continuous, not a one-time effort. In so doing, we will be able to find suitable answers to these dilemmas and questions.

2) *Respect diversity*

Stakeholder engagement comes in all shapes and sizes. There is no single 'best way' or 'one size fits all'. That means we should make room for researchers to design their stakeholder engagement activities as they see fit. Stakeholder engagement has the greatest impact when adding value to education and research, and to the solution of social issues. It should not be made an obligation for every researcher, every study and every form of education. The continued development of public engagement activities must acknowledge that stakeholder engagement is expressed in a variety of ways.

3) *Provide expertise and resources*

Researchers who want to get started with stakeholder engagement, but who have questions about the best approach, can benefit from inspiration and assistance. First, we recommend that all employees – both academic and support staff – with expertise and enthusiasm be involved in an inventory of the existing expertise, tools and methods within the university. These should then be combined, made easy to find, and advertised among UU staff. There is a wealth of knowledge and expertise already available within the university, so there is no need for us to re-invent the wheel.

Second, we observe that UU academics need a clear point of contact in the organisation where they can turn for support and advice. Stakeholder engagement occurs at the junction of academic and support staff, so the support staff are vital for the effective design and implementation of stakeholder engagement within the university. This includes legal affairs regarding contractual agreements with external partners and potential legal risks; communications and marketing for stakeholder analysis and outreach or internal awareness; but also ICT, Research Support Offices, research and education policy departments. A greater investment in stakeholder engagement by the university will also create new roles and expectations for support staff. It is important to decide how at the faculty and university levels stakeholder engagement will be organised. This may take the form of support for specific research themes through impact developers or liaison officers at the strategic themes, but also of support from the university or faculty for individual researchers who wish to participate in stakeholder engagement and need help in doing so. Our recommendation is to bring together academic and support staff with expertise in this area to discuss how the support should be arranged, and where it should be delegated.

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