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Establishing a Library as an Open Science Partner for Economic Research through Impact-Oriented Public Relations Work

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Abstract

The article describes how ZBW – Leibniz Information Centre for Economics is working to strengthen its perception as a competent partner and promoter of Open Science for its target group of economic researchers. This article describes the challenges, goals and opportunities of impact-oriented communication for libraries using the example of the ZBW. The article describes the path from the challenges and goals of the concrete communication activities and the evaluation of the impact-oriented communication work.

Keywords: Impact-oriented communication; Public Relations in libraries; Outcome measurement; Target group engagement; Open Science communication; Case Study

1. Introduction

The importance of impact-oriented communication work for modern public relations in libraries is manifold (Selbmann, 2019). First, an impact-oriented approach allows libraries to strategise their communication efforts and to have clear objectives. Rather than simply communicating information, impact-oriented activities focus on achieving specific effects, such as raising awareness of an issue, changing attitudes or promoting specific actions

(Coombs & Holladay, 2015; Grunig, 1990; Grunig & Dozier, 2003; Jensen, 2014, 2015; Jucan & Jucan, 2014).

Furthermore, an impact-oriented approach helps to measure the effectiveness of communication. By defining impact goals, organisations can evaluate and continuously improve the success of their communication efforts at the outcome level (Holtzhausen, 2000; Jensen, 2015; Ledingham & Bruning, 2000; Macnamara & Likely, 2017; Schäfer, 2016; Schäfer et al. 2019; Schäfer & Fähnrich, 2020; Trench, 2008; Watson, 2012).

Additionally, impact-oriented communication supports the building of stronger relationships with target groups. By putting the needs and interests of target groups at the centre of the communication strategy, libraries can become more relevant and appealing to them (Siegfried & Tochtermann, 2017). Ultimately, impact-oriented communication work enables libraries to continuously improve their own work.

In the following, the communication work of the ZBW – Leibniz Information Centre for Economics (Germany) will be presented as an illustrative case study – from practitioners for practitioners. The case study focuses on the approach of impact-oriented communication management. The target group of the communication work is the economic research community in Germany. The aim is to position the ZBW as an Open Science cooperation partner. For other libraries, other objectives may be relevant.

Before looking at the case study, the model of impact-oriented communication is briefly explained. The second section of this article discusses the challenges and objectives of the ZBW. The third section presents concrete communication measures. The fourth section is dedicated to the methodological considerations of the impact analysis, while the fifth section presents the results of this analysis.

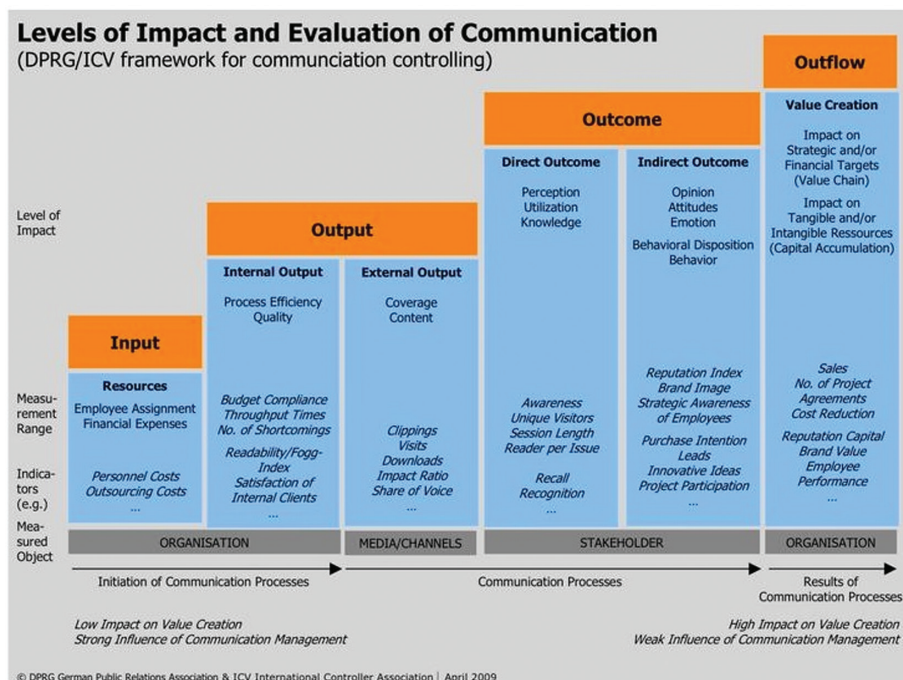
2. What does Impact-Oriented Communication Mean?

Impact-oriented communication is an approach that describes the importance of a strategic and holistic evaluation to PR, considering all levels of impact. A number of models have been developed in PR research since the 1980s to explain how and when to apply research and evaluation in PR and corporate

communications (Buhmann et al., 2019; Huang, 2001; Macnamara, 2014, 2018; Schölzel, 2019; Tench et al., 2017). What these different models have in common (Buhmann et al., 2019; Lindenmann & Likely, 2003; Macnamara, 2014, 2018) is that they advocate standardised measurement and evaluation procedures that accompany the communication management process from the very beginning. What they also have in common is that they promise benefits for practitioners. This may be at the micro level, when it is a matter of comparing results at a point in time X for oneself; or on a macro level, when it comes to the credibility and professionalism of PR practitioners.

The DPRG/ICV Framework for Communication Controlling (Figure 1) is a concept that describes the different levels of impact of PR measures on target groups (Macnamara & Likely, 2017). The model is based on the assumption that PR activities not only serve to disseminate information but can also bring about a change in the target groups' thinking, feeling and acting. The model

Fig. 1: The DPRG/ICV Framework for Communication Controlling.



is based on the central assumption that communicating can impact on one's own institution, provided that it is targeted.

The DPRG/ICV Framework for Communications Controlling provides a model for effectively measuring and controlling PR and corporate communications activities. It is based on the approach that communication is a management process that should be controlled and optimised in the same way as other business areas.

The framework is structured around four levels of impact:

1. **Input:** This level looks at the resources and activities used to carry out communication processes. This includes factors such as budgets, staffing (quantitative and qualitative), time spent and technological equipment.
2. **Output:** The second level focuses on the immediate results of communication activities. Quantitative aspects such as the number of press releases published, media reach, website clicks, annual report downloads, take-home flyers, number of likes or attendance at events can be measured.
3. **Outcome:** This is where the impact of communication activities on target audiences is recorded. For example, changes in the target groups' knowledge, attitudes or behaviour that can be attributed to the communication activities should be taken into account.
4. **Outflow:** The final stage measures the long-term impact of communication in the organisation. It looks at the business impact of communication. It looks at the extent to which communication activities have led to the achievement of organisational objectives. For example, has the library attracted new patrons, collaborators or users? Has the library's reputation changed? Do the library's reputation values change among selected target groups?

The DPRG/ICV framework takes up the impact models used so far in communication management, PR and marketing communication and introduces a terminology that enables the classification and interaction of different approaches to communication controlling. In doing so, it modifies and specifies earlier representations of communication effects (Buhmann et al., 2019; Lindenmann & Likely, 2003; Macnamara, 2018; Watson & Noble, 2007), which operate with distinctions such as output, outtake, outgrowth, outcome and outflow, but use these terms differently in some cases.

For libraries, the DPRG/ICV framework enables a holistic approach to planning, implementing, measuring and optimising PR and forms the basis of the ZBW case study presented here as an evaluation model.

To answer the central question of this section: impact-oriented communication is communication that is thought through to the end, i.e. at the highest level of impact. Impact evaluation does not end when the communication product (e.g. a brochure) leaves the office on time and is sent to the right addressees. Success monitoring also takes into account the impact of this communication product – often combined with other accompanying products – on the target group addressed. In other words, the PR department focuses on impact. How this is done in detail at the ZBW is explained in the following sections of this case study.

3. Impact-Oriented Communication Work: Challenges and Goals

3.1. Challenges in the Scientific Community in the Context of Open Science

The growing relevance of Open Science requires economic researchers to adapt their working methods and publication channels (Allen & Mehler, 2019; McKiernan et al., 2016; Mirowski, 2018; Spellman et al., 2017). In addition to the need for increased transparency and collaboration, research data management in particular plays a crucial role. Large funding organisations in Germany increasingly demand detailed information on research data management and more and more expect general access to research data after project completion. At the same time, the increasing importance of Open Science implies a shift in research culture towards more openness and cooperation (Allen & Mehler, 2019; McKiernan et al., 2016; Mirowski, 2018; Spellman et al., 2017).

3.2. Impact-Oriented Communication Goals of the ZBW: Strengthening the Perception as a Partner of Open Science Competence

Against this background, the ZBW – Leibniz Information Centre for Economics (www.zbw.eu) has set itself the goal of assuming the role of an important partner and service provider in the field of Open Science for economic research. Our concern is that economic researchers in Germany

appreciate and recognise the efforts and commitment of the ZBW to Open Science. But ZBW is aware that the topic of Open Science is not yet fully anchored in the mainstream of economic research. Therefore, the communication department of the ZBW sees it as their task to explain Open Science in all its facets and to raise awareness of it as an important topic. They want to present it as a science policy challenge but also as a logical element of good scientific practice. The aim is to create understanding for ZBW's activities, see the following sections.

3.3. Who is the Target Group?

The **direct target group** of our communication work are people working in economics (economics, business studies and other business-related subjects) at universities, universities of applied sciences and non-university research institutions nationwide. The spectrum ranges from research assistants and doctoral students to professors with many years of research experience.

The number of university staff in the economic sciences is 40,143 [source Destatis, 2020]. 37 percent of these persons are employed at universities, 63 percent at universities of applied sciences. [Statistisches Bundesamt. (2021). Personal an Hochschulen: Fachserie 11 edition 4.4.].

Multipliers or **indirect target groups** are, professional associations such as the German Economic Association (VfS) and the German Academic Association for Business Research (VHB), because these organisations can use various approaches to better introduce the topic of Open Science to their members (for example, via regular workshops and training courses, information materials, webinars, lectures, integration into existing events or discussion forums). On the other hand, the communication department of the ZBW addresses local Open Science centres, platforms or training providers, Open Access officers and local academic libraries and information institutions, which are also committed to Open Science support, as multipliers.

3.4. Needs of the Target Group with Regard to Open Science

Prior to the start of the communication activities, an Open Science Study 2019, which we conducted together with scientific partners (available at:

<https://www.econstor.eu/handle/10419/222882>), provided insights into the concrete support needs of economic researchers with regard to Open Science. This Open Science Study 2019 formed the basis for the impact-oriented communication work.

The analysis of the data makes it clear that the majority of the scientists surveyed have a pronounced need for information and support in the area of Open Science. Above all, researchers would like an overview of relevant platforms, tools and applications that support Open Science practices. Other key topics include better access to open research data, Open Access publishing and legal aspects of Open Science. In addition, there was particular interest in the experiences of other researchers with Open Science. Furthermore, there was a desire for support services that are flexible and accessible around the clock.

4. ZBW's Communication Strategy

4.1. Benefit-Oriented Open Science Communication

ZBW's communication strategy aims to raise awareness of Open Science in economics and to motivate researchers to implement the principles of Open Science in their research practice. In doing so, the communication department focuses on benefit-oriented communication based on the specific needs and interests of economic researchers.

In order to reach economic researchers, ZBW addresses the following central questions in its communication:

1. **Personal benefits of Open Science:** What are the benefits of Open Science for individual economic researchers? How can Open Science improve career opportunities?
2. **Practical implementation of Open Science:** How can economic researchers effectively implement Open Science in their research practice?
3. **Social responsibility:** What responsibility do economic researchers have for society in their role as economists and how can Open Science help?

The strategy is based on content marketing and impact-oriented communication to generate attention for the ZBW brand and its services in the field

of Open Science. However, the communication department of ZBW does not merely want to advertise services, but rather establish a dialogue and create an established and long term relationship with its users.

To achieve this, the PR team consistently focuses on the perspective of economic researchers. The communication content is designed to satisfy concrete, functional and emotional needs, i.e. to provide a “benefit” to the economic researcher. By providing information and content that helps them to make their research more effectively, improve their career opportunities and fulfil their social responsibilities, the communication department aims to communicate the value and relevance of Open Science to economic researchers and motivate them to actively engage in Open Science.

4.2. Conclusions for Communication Work

These findings laid the foundation for ZBW’s impact-oriented communication work. They showed in the preparation phase that ZBW’s information and support services should be intensified in the areas that are important to researchers. In detail, this meant:

- It must be made clear how Open Science can improve one’s own work.
- Clear and comprehensive information about Open Science platforms, tools and practices must be provided.
- The communication offers should be quickly consumable and easy to integrate into the daily work routine.
- ZBW Support services need to be available 24/7 and flexible, whether through online materials, online workshops or individual counselling.
- It must be made clear why the involvement of the ZBW is necessary. In addition, economic researchers should learn about the problem of closed science with all its consequences.

4.3. Impact Indicators

The ZBW – Leibniz Information Centre for Economics strives to be a significant partner and service provider for economic researchers in the field

of Open Science. The goal is to have their efforts and commitment to Open Science valued and recognised by the economics community in Germany.

Measurable impact indicators that guide the communication work are therefore the following:

- Proportion of economic researchers who **know** that ZBW offers support or a wide range of services in the area of Open Science. (Level Outcome, Figure 1)
- Proportion of economic researchers who **expect** the ZBW to offer support or a wide range of services in the field of Open Science. (Level Outcome, Figure 1)
- Proportion of economic researchers who **attribute** a high level of competence to the ZBW in the field of Open Science. (Level Outcome, Figure 1)
- Proportion of economic researchers who **perceive** the Open Science commitment of the ZBW. (e.g. science policy advice, Open Access transformation, etc.) (Level Outcome, Figure 1)
- Proportion of economic researchers who **consider** the entire Open Science engagement of the ZBW **to be important and relevant**. (Level Outflow/Impact, Figure 1)

4.4. Impact-Oriented Communication Activities

The communication campaign is based on a cross-media communication strategy with a focus on digital communication and content marketing. The central content hub is the Open Science magazine (<https://open-science-future.zbw.eu/en/>).

Here, the communication department regularly publishes content tailored to the needs and interests of economic researchers. The target group receives best practice experiences from other economists, worksheets with concrete tips and advice, background information on current Open Science developments, news from the economic consortia of the National Research Data Infrastructure and interviews with inspiring transformation ideas via the podcast “The Future is Open Science” (<https://podcast.zbw.eu/fos/>) (German).

With this content, the ZBW is responding directly to the to the needs for support that became apparent in the Open Science study since 2019.

- The **worksheets** contain tasks that can be incorporated into the daily routine of economic researchers. Depending on the topic, the task can take 5 to 60 minutes. This is a low-threshold way for researchers to get to know new platforms or applications. They give an overview of Open Science platforms, tools, applications.
- In the **practical tips**, there are concrete tips and information on a specific topic tailored to the discipline of economics, e.g. on how to better find research data, on data management or on better publishing in Open Access.
- There is also specific **legal information** on licences, publishing agreements or image rights.
- Readers can learn about the **best practice experiences** of economists from Germany, Austria, Switzerland and the UK in the context of Open Science. Readers can learn about the advantages for their scientific careers that the peers have already experienced, and how they proceed with pre-registrations, registered reports or publishing in Open Access. In addition, readers can individually expand their network of contacts through the more than 50 interviews that have now been conducted.
- In the ZBW **podcast** series “The Future is Open Science”, interesting people from the scientific community, including those from the ZBW, reveal how they promote Open Science in their daily work. Listeners can learn background information, contexts, personal motivations, individual perspectives as well as tips and tricks to follow, see <https://podcast.zbw.eu/fos> (German only)

For distribution, the communication department relies heavily on direct communication via email newsletters and above all on social media (Twitter, LinkedIn, YouTube for podcast content). They use newsletters and email campaigns to deepen specific themes.

In disseminating the content, the ZBW relies on multipliers from economic science associations, libraries, graduate colleges, faculties, student councils or communication experts in economic research institutes. Beyond that, ZBW also works closely with other institutions, professional associations, research organisations and Open Science centres and platforms to organise joint events

or panels, create joint content and spread the message of Open Science in the economic research community.

In addition to the central content hub “Open Science Magazine”, there have also been international Open Science Retreats since 2021, i.e. small discussion groups in which economic researchers can exchange ideas with other actors from the scientific community on specific individual topics in a limited group of max. 30 people. Previous topics have been “Sustainable and reliable Open Science Infrastructures and Tools”, “Impact of Global Crises on the Open Science Movement”, “Economic actors in the context of Open Science – The role of the private sector in the field of Open Science” or “Reform on Research Assessment in the context of Open Science”.

In 2023, an Open Science Meet Up was held for the first time. This was a form of work in which economic researchers who are already interested in and committed to Open Science meet and jointly develop a concrete agenda on how they, together with, the ZBW, can bring Open Science into the mainstream of economics. After the kick-off meeting in April 2023 in Berlin, further meetings will take place to work on specific sub-topics such as education or culture. The second Open Science Meet Up took place in October 2023. The topic was Open Science Education in Economics.

5. Impact Analysis of Communication Work: Method

All communication work is reviewed from the beginning of the process, i.e. the communication department analyses access figures, opening rates, feedback on individual content types and resonance of all social media posts. In addition to the continuous monitoring of the communication activities, ZBW conducted a comprehensive impact analysis in 2022.

The central question was: To what extent is the ZBW perceived as an important partner and service provider in the field of Open Science? Do economic researchers in Germany find the efforts and commitment of the ZBW to Open Science important?

For this purpose, 401 economic researchers were surveyed online using a stratified random sample in ten defined subgroups. The spectrum surveyed

included various status groups as well as subject disciplines in order to ensure a comprehensive representation of the entire scientific community in this field. The survey targeted academic staff and professors in the fields of economics and business studies at universities, universities of applied sciences and non-university research institutions in Germany.

For greater statistical stability, the smaller subgroups were initially surveyed disproportionately. This ensured the necessary robustness of the data and avoided bias due to low case numbers. Subsequently, the ten subgroups were weighted according to their shares in the population to ensure the representativeness of the results.

Very small groups that provided little meaningful data were combined into larger groups. This resulted in seven sub-target groups with sufficient effective case numbers for the analyses. These sub-target groups included: business studies professors at universities (12.4%), business studies professors at universities of applied sciences (24.9%), research assistants in the field of business studies at universities and universities of applied sciences (47.1%), research assistants in the field of economics at non-university institutions: in economics at non-university research institutions (5%), research assistants in economics at universities and universities of applied sciences (5.9%), economics professors at universities (1.6%), economics professors at universities of applied sciences (3.1%).

6. Effects of the Communication Work

The results of this impact analysis are presented below.

6.1. Current Status and Perspectives of Open Science in Economics

The analysis of Open Science practices in economics research in 2019 paints a multi-faceted picture of the state of Open Science in economics. While both research funders and leading journals increasingly call for the disclosure of data and code, implementation in practice is still inconsistent. Despite the rising discourse around Open Science and the increasing integration of Open Science practices in Collaborative Research Centres and Research Training

Groups, there is a discernible difference between the attributed importance and the actual use of Open Science services.

However, it is worth noting that over three quarters of respondents attribute a major future role to Open Science. This indicates a growing awareness and willingness to use these practices, especially among younger researchers. Indeed, the data show that research assistants show a greater interest in Open Science than professors. They thus represent a “young avant-garde” that shows both an awareness of the need for future-oriented scientific skills and a willingness to change the science system.¹

6.2. Awareness of the Open Science Activities and the Commitment of the ZBW

How were the activities of the ZBW perceived with the impact analysis? The survey on awareness and perception of the Open Science services of the ZBW revealed a multi-layered picture. Among the 319 people who were both familiar with the ZBW and saw Open Science as relevant to their work, the majority expected the ZBW to provide support in various areas. In detail:

Question: What services do you think the ZBW offers in the area of Open Science? For each service, please indicate whether you believe or expect that the ZBW offers it.

- 68% of respondents know or expect that the ZBW offers support in searching for and finding economic research data.
- 67% of those surveyed know or expect the ZBW to help with handling and processing OA publications.
- 77% know or expect the ZBW to provide information and guidelines on Open Science in economics.
- 72% of respondents are aware of or expect the ZBW to offer specialist training courses and workshops on the use of research data.

Although only a small percentage of respondents were certain that the ZBW provides specific services, many seemed to assume that the ZBW provides support in finding economics research data, in preparing Open Access publications, in providing information and guidelines on Open Science practices, and in organising subject-specific training and workshops.

In addition, about a quarter of the respondents (24,4%) attributed a high level of competence to the ZBW in relation to Open Science (Question was: Do you experience the ZBW as an organisation with a high level of Open Science competence?). Interestingly, certain subgroups in particular, such as economics professors at universities (48%) and business studies professors at universities of applied sciences (35%), saw the ZBW as particularly competent in matters of Open Science. However, this view was shared less by academic staff. Of the academic staff, only 22% said they considered the ZBW to be highly competent in the field of Open Science.

The respondents were also asked about their perception of further activities of the ZBW. The question was: What additional areas do you think the ZBW is involved in? There was a choice of several answers: The ZBW... makes sure that as many research articles as possible are available in Open Access / ... promotes the Open Science movement in terms of science policy and through concrete offers / ... promotes networking among (young) scientists (e.g. at Open Science conferences, Open Science retreats / ... conducts its own application-oriented research / ... is committed to the transfer of knowledge from economic research to economic policy.

The majority expects the ZBW to promote the Open Science movement in science policy and to work towards making as many research articles as possible openly accessible. With regard to the importance of the ZBW's Open Science commitment to economic research, 72,5% of respondents agreed that this commitment is important. The question was: How important do you think it is for an organisation like the ZBW to advocate for the opening up of science?

In particular, research assistants in economics (83%) and professors at universities of applied sciences (81%) shared this view. Furthermore, 18,7% of respondents said "partly/partially". Only 8,9% of all respondents said that it is not important to them that the ZBW promotes Open Science.

Despite the potential relevance of the National Research Data Infrastructure (NFDI) for research work, the commitment of the ZBW to the development of the NFDI is unknown to the majority of respondents (83,6%) (The question was: Have you heard about this NFDI project or the consortia BERD or KonsortSWD?). This is not surprising, since the NFDI as a whole is known to very few people in Germany. Only just under 9% of respondents are aware of the ZBW's involvement in the NFDI.

In summary, the impact analysis shows clear indications of a positive perception of the ZBW with regard to its Open Science activities and services. The ZBW is seen by many respondents as important and competent in the field of Open Science. These findings are crucial for effective communication work, as they show that the messages and values that the ZBW is trying to convey are perceived and appreciated by the target group.

However, there are also areas where improvements are possible and necessary. In particular, the awareness of specific services provided by the ZBW and its commitment to the NFDI could be increased. Furthermore, the results show differences between different groups of economic researchers, suggesting that more target group-specific communication measures could be helpful.

In terms of the interim evaluation of a communication campaign, these results are promising. The communication goals – image building, reputation and positioning the ZBW as an Open Science partner – seem to have been achieved, indicating the success of the efforts so far. However, it is important to continue this work and adapt it as necessary to further raise awareness of the specific services offered by the ZBW and its commitment to the NFDI, and to reach out more effectively to the different groups of economic researchers.

Ultimately, it is important to remember that communication work is a continuous process. The results of this survey offer valuable insights and directions on how the ZBW can further improve its communication efforts to better reach its target groups and further strengthen its commitment to Open Science.

6.3. Outlook

The results of the impact analysis open up several strategic directions for the future communication work of the ZBW. The results of the impact analysis described above suggest a critical reflection on our own communication activities, which are summarised here as a consequence and discussion. Based on the findings, the following measures should be considered in the future:

1. **Make the importance of Open Science clearer:** As a majority of respondents recognise the importance of Open Science, the ZBW

should continue to highlight the benefits of Open Science and its contribution to promoting these practices.

2. **Highlight more specific services provided by the ZBW:** The results show that not all respondents are familiar but interested in the specific Open Science services offered by the ZBW. Communication measures should therefore be developed to more strongly emphasise and explain these services and their benefits. Based on the feedback received in the survey, and due to the difference between knowledge of the general competence of the ZBW and knowledge of the specific Open Science services, the following aspects should be emphasised more in communication:
 - The role of the ZBW in helping to find economic research data.
 - The help that the ZBW offers in handling and preparing OA publications.
 - The information and guidelines that the ZBW provides on Open Science practices in economic research.
 - The subject-specific training courses and workshops that the ZBW offers on handling research data.
3. **Develop target group-specific communication strategies:** There are differences in the perception of the ZBW and its Open Science engagement between different groups of economic researchers. Therefore, an adapted communication strategy should be developed that addresses the specific needs and interests of these groups.
4. **Communicate commitment to the NFDI more intensively:** The impact analysis shows that the commitment of the ZBW to the NFDI is not yet sufficiently known. Therefore, the participation of the ZBW in the NFDI and the associated benefits for the research community should be communicated more actively.
5. **Continue building trust:** A positive perception of the ZBW already exists. It is therefore important to further build and consolidate this trust by continuously demonstrating the ZBW's competence and commitment to Open Science.
6. **Establish feedback channels:** It is important to continuously gather the opinions and feedback of the target group. It therefore makes sense to continue to establish regular surveys or other feedback mechanisms to understand how to further improve the ZBW's services and its communication.

7. **Highlight success stories:** In the future, the ZBW could present success stories from its work to clearly demonstrate how it supports researchers and has a positive impact on the scientific community.

In the course of our research and the resulting communications work, we have gained valuable insights that may be of interest to colleagues in other libraries in the field of public relations:

- **Tailor your approach:** A 'one size fits all' approach is rarely successful. Segment your audiences and develop tailored messages. Targeting not only increases the reach but also the impact of the campaign.
- **Open feedback channels:** Ensure that feedback channels are open throughout the campaign. This can range from social media to dedicated feedback tools. Gathering reactions early on allows for agile adaptation of the strategy.
- **The power of storytelling:** Stories connect and move people. Incorporate storytelling elements into your campaign to make complicated scientific concepts more tangible and relatable. This can pique the public's interest and encourage engagement.
- **Emotional appeal:** Scientific facts are important, but emotions move people to action. Try to combine both elements in your communication strategy to create a holistic experience.
- **Process evaluation:** Don't wait until the end of the campaign to measure success. Use metrics and feedback to assess effectiveness in real time and make adjustments as needed.

By incorporating these recommendations into our future communications projects, we can significantly increase the effectiveness of our efforts. We hope that other library PR departments will find these learnings useful for their future campaigns.

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Note

¹ Details on all results around Open Science practices and relevance in economic science practice: <https://zbw.to/KxhHx>.