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CONNECTING SCIENCE COMMUNICATION RESEARCH AND PRACTICE: CHALLENGES AND WAYS FORWARD

Transforming science journalism through collaborative research: a case study of the German "WPK Innovation Fund for Science Journalism"

Christopher Buschow, Anja Noster, Holger Hettwer, Lynda Lich-Knight and Franco Zotta

Abstract

Science journalism, a unique form of science communication, faces grand challenges requiring innovation for its sustainability. This practice insight delves into a research-practice collaboration addressing the "WPK Innovation Fund for Science Journalism", a pioneering support infrastructure for innovation in German science journalism. Our transformative accompanying research project aims to both support the fund's development as well as advance science journalism research. This report, co-authored by researchers and practitioners, showcases opportunities and challenges, drawing from the three forms of knowledge generated in the collaboration: systems, target, and transformation knowledge. Each of these forms sheds light on specific lessons learned in our project on how to conduct transformative journalism research.

Keywords Science and media

DOI https://doi.org/10.22323/2.23020802

Submitted: 28th August 2023
Accepted: 17th January 2024
Published: 25th March 2024

Introduction

The role of science journalism in informing the public about scientific discoveries and developments has been widely recognized, particularly underscored by the exigencies of the COVID-19 pandemic, thus positioning it as an essential element in democratic societies [Angler, 2017]. Functioning as a distinct mode of public engagement with science, science journalism serves as a crucial conduit for the dissemination of scientific findings, for understanding and controlling scientific institutions and actors, and exploring processes within research communities. The importance of science journalism extends beyond merely reporting facts. It plays a pivotal role in facilitating the exchange of knowledge between scientists and the public, empowering individuals to make informed decisions, and fostering a society that values and understands the importance of scientific advancements [Secko, Amend & Friday, 2013; Vogler & Schäfer, 2020; Waisbord, 2023]. In this light, science journalism can be seen as an externally facilitated form of science

communication, distinguishing itself from self-directed and often interest-driven communication in the realm of science.

However, this specific and unique form of science communication is currently undergoing two profound shifts. On the one hand, private patronage of scientific research, commonly referred to as science PR, has become a prevailing trend [Comfort, Gruszczynski & Browning, 2022]. There is a growing tendency among science journalists to rely solely on single, institutional sources (e.g., universities and research institutes), which becomes problematic when presenting research without critically questioning the information provided [Vogler & Schäfer, 2020]. On the other hand, financial struggles faced by media organizations in the digital transformation have resorted to cost-cutting measures, such as reducing staff and closing specific beats, among others, science beats [Bauer & Bucchi, 2007; Buschow, 2020; Dunwoody, 2020].

In order to address these challenges and ensure science journalism's continued democratic role, innovation has been identified as a key factor for securing its future [Dunwoody, 2021], helping news companies take new approaches to media practices, forms and organization [Dogruel, 2015]. Innovation in science journalism can refer to a range of dimensions, including products, processes, positioning, and paradigm [Storsul & Krumsvik, 2013]. For example, innovation could involve developing new offerings, redefining operational dynamics, tapping into unexplored markets and changing structure and general behavior of the respective media organizations [Dogruel, 2014; van Kranenburg, 2017]. Against this background, connecting science journalism research and practice can function as a vital catalyst in facilitating, fostering, and implementing innovations in science journalism.

In this practice insight, we delve into the ongoing collaboration between a university research team and a science journalism association in the context of the "WPK Innovation Fund for Science Journalism" (in the following: Innovation Fund), a novel supporting infrastructure for innovation in German science journalism. Established in 2022, the primary objective of the Innovation Fund is to provide financial support and coaching to science journalism pioneers, enabling them to explore and implement innovations within the field of science journalism. Our accompanying research project[1] aims to present evidence-based findings that can both support the design and further development of the Innovation Fund as well as advance research on science journalism.

Co-authored by researchers and practitioners involved in the project, our report highlights the opportunities and challenges of this interrelation as well as the mutual exchange of knowledge between the participants. Applying a transformative research approach, the project serves as an illuminating example of a new way of collaborating between practice and research in the field of science communication. The case is remarkable as the Innovation Fund itself is a pioneering model that has been included in the German Federal Government's research and innovation strategy [Deutscher Bundestag, 2023]. The focus of our cooperation is not on a single newsroom or on individual practitioners, enhancing

[1]The accompanying research project "Transformative Innovation Research for Science Journalism (TRANSFORM)", in which this contribution was prepared, is funded by the German Federal Ministry of Education and Research (BMBF) under grant number 0150872A.

their media work with research findings, but rather on facilitating more leverage for the field of science journalism as a whole and nurturing the conditions essential for its future success. Our accompanying research continuously follows the Innovation Fund during its entire lifespan.

Thus, the insights in our report, structured along the forms of knowledge such a cooperation can produce — systems, target, and transformation knowledge, — hold significance for the advancement of both science journalism research and practice while also highlighting critical barriers and fundamental contradictions hindering effective and sustainable knowledge exchange between them. Building on this particular case, our goal is to propose a robust framework that encourages interdisciplinary cooperation and supports future collaborative endeavors by enabling researchers and science journalism practitioners to work together more effectively.

In the following, we first introduce the case of the Innovation Fund, our transformative research approach and the project's methods of knowledge production. At the center of our report are lessons learned based on the opportunities and challenges encountered in our collaborative project. Lastly, our focus is on how future collaborations can benefit from our practical insights.

Case: the innovation fund for science journalism

Context of the case study

Being a pioneer in its respective domain, the Innovation Fund provides support for innovations in German science and data journalism. With funding of approximately one million euros, spread over a three-year period until 2025, it not only offers financial support but also coaching and training. Understood as a novel organizational form [Buschow & Suhr, 2024] for the discovery of journalistic innovations, the Innovation Fund is orchestrated by the Wissenschaftspressekonferenz (WPK) and financially supported by a consortium of foundations including the Joachim Herz Stiftung, Rudolf Augstein Stiftung, Schöpflin Stiftung, Stifterverband für die Deutsche Wissenschaft, VolkswagenStiftung and ZEIT STIFTUNG BUCERIUS.

The fund ventures into new territory insofar as innovation support for journalism continues to be lacking in Germany, a gap that exists despite the prevalence of similar funding models across Europe [Buschow & Wellbrock, 2020]. In contrast to Germany, other nations such as Denmark, the Netherlands, Austria, and the U.K. have experience in systemically supporting journalism innovation, although these are not exclusively geared towards science journalism [van Kranenburg, 2017]. WPK developed the idea for establishing the fund in 2021, when the association organized the international lecture series "SciCon" (Science Journalism in the Digital Age),[2] in order to gather insights from global good practices and explore options for bolstering science journalism in Germany. The fund was conceived on the basis of the findings of this lecture series.

In the first three biannual funding calls since its introduction in summer 2022, around 90 innovation projects have applied, underscoring the importance of such a

[2] https://www.science-journalism.eu.

support infrastructure for nurturing novel ideas in science journalism. Applicants can select from two distinct funding lines; line A, which offers up to 10,000 euros for experimental ideas, and line B, which provides a more substantial grant of up to 75,000 euros for more established projects. To secure funding, applicants undergo a rigorous jury selection process. The jury comprises seven experts from the realms of science, journalism, and innovation (see Figure 1 for a comprehensive list of stakeholders associated with the Innovation Fund).

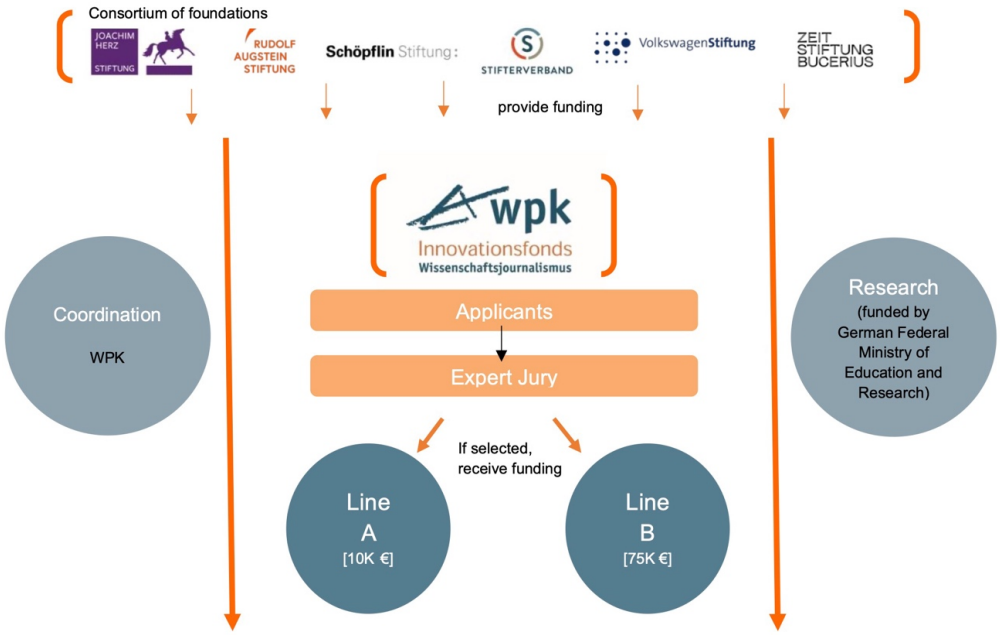

Figure 1. Stakeholders involved in the Innovation Fund. Source: own diagram.

Within the context of the Innovation Fund, science-practice collaboration is conducted in the adjunct research project "Transformative Innovation Research for Science Journalism" (TRANSFORM), funded by the German Federal Ministry of Education and Research (BMBF). This project serves as an environment for facilitating interaction and the exchange of knowledge between research and practice and is characterized by its transformative and transdisciplinary nature. In the project, researchers and practitioners jointly identify and co-define research challenges, combining science journalism's experience with academic expertise. The project team actively seeks to catalyze processes of transformation within the Innovation Fund (the subject of research) while also generating novel research insights as a result of the changes initiated [Schneidewind & Singer-Brodowski, 2014]. The guiding questions are:

> *How does the Innovation Fund support innovation in science journalism over the course of time? How does the fund help participants overcome typical innovation challenges? Which challenges can be observed with regard to the organization and development of the fund?*

On the one hand, this collaboration enables the WPK to make evidence-based decisions on the ongoing development of the fund and thus to improve the fund's

work through the application of research findings. On the other hand, research is inspired and enriched by the constant exchange of knowledge with practitioners. Against this background, the Innovation Fund can be seen as a practical testing ground and creative laboratory for novel varieties of science journalism (as an essential form of science communication), subject to iterative exploration and ongoing adaption in the adjunct research project.

Transformative research framework

Methodologically, our project employs a transformative research approach that seeks to generate progress in science, i.e., in research on science journalism, in tandem with improvements in practice, i.e., the research object itself [Schneidewind, Singer-Brodowski, Augenstein & Stelzer, 2016]. Transformative research "goes beyond observing and analyzing societal transformations, but rather takes an active role in initiating and catalyzing change processes" [Schneidewind et al., 2016, p. 2].[3]

Due to its transdisciplinarity, transformative research emphasizes the combination of several forms of knowledge, including "bottom-up knowledge" from the field [Wagemans & Witschge, 2019], to yield the most comprehensive insights. Usually, three types of knowledge are included: systems knowledge, target knowledge, and transformation knowledge [Hirsch Hadorn et al., 2008]. Systems (or descriptive) knowledge refers to understanding the current state of the world, typically in the form of empirical knowledge that is intersubjectively (re-)produced within the scientific community and based on epistemic, intra-scientific quality criteria (*What is?*). While scientific empirical knowledge is the main building block of systems knowledge, it can further benefit from domain-specific and local knowledge relevant to the system under consideration. Target (or normative) knowledge is about the future trajectory of the subject under investigation. This form of knowledge seeks to comprehend how the subject should evolve in the future, co-determined through the exchanges between researchers and practitioners (*What should be?*). Transformation knowledge describes the practical pathways from the current state to the desired future state. It encompasses actionable transformation and contextual improvement possibilities for the involved actors on their path forward (*How can we get from where we are to where we should be?*) [Hirsch Hadorn et al., 2008, pp. 30–37; Pohl, Truffer & Hirsch-Hadorn, 2017].[4] Figure 2 describes the transformative research cycle with the three forms of knowledge, through which our project runs continuous iterations.

[3]The concept of Transformative Science as proposed by Schneidewind and Singer-Brodowski [2014] seeks to critically evaluate and alter not only the practices of scientific inquiry but also today's institutions of science, including incentive systems, external funding mechanisms and organizational structures, with the aim of aligning them with the imperatives of the 'Great Transformation' within the context of climate change.

[4]The three types of knowledge are conceptual distinctions made in the context of the transformative research framework and do not encompass all conceivable forms of knowledge [Hirsch Hadorn et al., 2008]. Different frameworks may use different categorizations based on their specific focus and objectives. In our approach, however, the differentiation according to the three forms has proven useful.

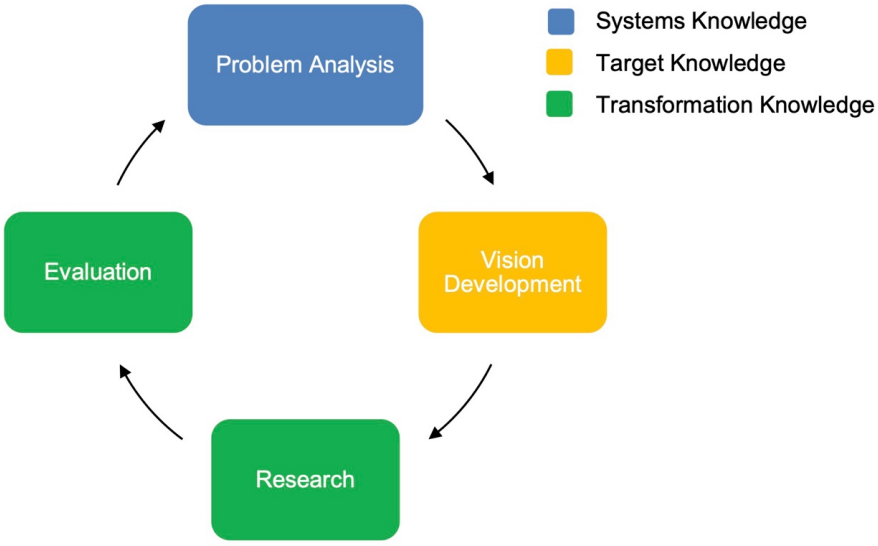

Figure 2. Three types of knowledge in the transformative research cycle. Source: own diagram based on Kanning and Meyer [2022] and Schneidewind and Singer-Brodowski [2014].

A transformative lens applied to science journalism is characterized by:

- an interventionist approach, as this research goes beyond mere knowledge production and rather serves as an engaged "knowledge advocate and broker" [Schneidewind & Singer-Brodowski, 2014, p. 42; our translation] with the aim to advance science journalism and facilitate sustainable developments in the field;
- interaction and participation, as this research involves specific forms of cooperation with non-academic actors;
- an issue-oriented agenda, as transformative research focuses on concrete research problems, challenges, and critical decision-making situations within journalistic practice;
- self-reflection, openness, and transparency, as the approach requires the researchers to clarify their value foundations, address potential biases and blind spots, and promote social accountability.

Methods of knowledge production

The specific setup of our project fosters the creation of knowledge through a combination of personal interactions, observations of informal meetings, collaborative activities and systematic analysis of relevant documents. This diversity of methods should ensure a comprehensive understanding of the Innovation Fund and support informed decision-making and progress of research. The period covered in this report is 15 months (May 2022 to August 2023). Two researchers and three staff members from the WPK were part of this practitioner-researcher collaboration at all times. Staff members included the CEO of the WPK, as well as the fund's project managers.

In our project, researchers collect and analyze data on several levels. First, the Innovation Fund produces several documents that are used for research. For example, quantitatively and qualitatively analyzing both the documents submitted by applicants seeking funding, but also the guidelines the WPK provides to potential applicants to acquaint them with the selection criteria, enables researchers to trace the fund's evolution and its applicant pool over time. By comparing this material across different application cycles, researchers can identify progress, changes, challenges, and lessons learned. It also helps to further standardize the application process.

Second, interviews with fund recipients and the WPK's staff help to gain further insights into their experiences and viewpoints regarding the fund's operations. Key questions evolve around the emergence and development of the fund, the application procedure and reception of the fund, coaching offerings and support for participants, challenges and potential, evaluation and success metrics. Interviews are transcribed and analyzed for recurring patterns using qualitative text analysis. Immediate insights, such as fund recipients expressing dissatisfaction with coaching support, are directly shared with WPK staff. Concurrently, other less time-sensitive insights are retained, summarized, and reserved for presentation in subsequent board meetings or workshops. E-mails, calls and video conferences provide us with further clarification on the fund's processes.

Third, researchers attend meetings of other stakeholders involved in the Innovation Fund, such as the jury or the board. On the one hand, participating in jury sessions provides researchers with an opportunity to understand the opinions, ideas, and deliberations of the jury members. For each meeting, minutes and a research protocol are written. The research protocol helps in understanding the selection process and the evaluation criteria for fund recipients, as well as in addressing (research) questions posed by the jury and members of the WPK's staff. It takes note of the atmosphere during the session, opinions of each jury member, and traces changes in their decision-making dynamics. The practitioners' protocol (meeting minutes) offers practical insights into the actual jury decisions, detailing who voted for or against, and the reasons behind each choice.

On the other hand, attending board meetings offers a chance to grasp the strategic direction, priorities, and concerns of the board members hailing from the different foundations that provide money for the fund. As with jury sessions, protocols are produced for each board meeting, documenting insights from both researchers and practitioners. These protocols serve a dual purpose: they offer researchers insights into the governance and decision-making processes of the organization and provide practitioners with a cohesive and transparent summary of the session, fostering consensus among all members. Again, both protocols are relevant to our research project.

Finally, workshops are arranged between WPK staff and the researchers to collaboratively address current challenges of the Innovation Fund. They constitute the primary arena for transformation. To facilitate effective preparation for the 4-hour workshops, an agenda is arranged in advance. Typically, the session commences with researchers presenting current data and findings, and providing academic insights in response to queries posed by practitioners regarding any current issues. Topics range from theoretical definitions of journalism and

innovation over jury criteria to coaching strategies for the fund recipients. The workshop format consistently incorporates an open segment dedicated to spontaneous discussions, fostering knowledge sharing, cross-pollination of ideas, and collective learning among all participants. After each workshop, a comprehensive protocol is generated, comprising a concise summary of key findings and an in-depth, multi-page document detailing the discussions. This workshop, along with its subsequent protocol, serves as a central anchor point in this collaboration, ensuring the transformative nature of our research endeavors. Yet, relevant knowledge is incorporated back into our transformative research cycle whenever deemed necessary, typically through email or calls.

Table 1 gives an overview of data sources and data gathered in the project so far.

Table 1. Overview of Methods Used for Data Collection. Source: own diagram.

Sources	Data Collected (May 2022 to August 2023)
Internal Documents	
	– Guidelines for fund applicants (n=2)
	– Applications to the fund (n=86)
	– Mid-term reports of fund recipients (n=12)
Interviews	
	– Transcripts of interviews with fund recipients (n=9)
	– Transcripts of interviews with WPK staff (n=2)
Observations	
	– Protocols of jury sessions (n=3)
	– Protocols of board meetings (n=3)
Organized Exchange	
	– Half-day interactive workshop protocols (n=2)
	– Informal correspondance (phone, e-mail, etc.)

Particularly the insights obtained through our workshops and continuous exchanges between researchers and WPK staff have culminated in this co-authored report. Researchers took the lead in drafting the report, proposing its structure and outline, while practitioners mainly contributed to the lessons learned section with examples and insights from their perspective. To streamline writing, throughout the process we organized collaborative joint reviews.

Critical lessons learned: opportunities and challenges of transformative research for science journalism

We structure our discussion of opportunities and challenges encountered so far in our ongoing project on the three types of knowledge: systems knowledge, target knowledge, and transformation knowledge (see "Transformative Research Framework"). Each form of knowledge provides us with a specific lens through which we can examine particular learnings of our collaboration. In the context of systems knowledge, we investigate key questions concerning interrelation within the empirical research process. Turning to target knowledge, our focus centers on

the more fundamental goals of researchers and practitioners within the project and the ways these are negotiated and aligned. Concerning transformation knowledge, our focus is on the effective implementation of research findings into practical applications.

Systems knowledge

Systems (or descriptive) knowledge encompasses empirical research findings on the current state of the Innovation Fund and its contextual factors (*What is?*). In principle, researchers in our project should be well equipped to generate this most classic form of knowledge, typically produced in the core research process, adhering to scientific quality standards. Still, given the disparities between transformative research and classic research, a number of contradictions arise when empirical research features in our project, since "[r]esearchers are interested in generalizability of results and practitioners in applicability of results to specific contexts." [Kieser & Leiner, 2012, p. 22].

In contrast to the conventional mode of communication science, our project inherently holds normative values as it advocates for the future sustainability of journalism, a stance that the researchers in our project openly acknowledge and incorporate into their work. However, should research — in the light of this normativity — neglect the disciplinary quality criteria or epistemic claims of the research field, it would counteract the objective of providing the best knowledge for the development of the Innovation Fund. In the rigor-relevance dilemma, researchers must remember not to sacrifice fundamental methodological standards in favor of relevance [Kieser & Leiner, 2012]. In our specific case, this implies that WPK staff as practitioners cannot act as co-researchers; the core research process remains the domain of the researchers.

However, in the context of our project, experience has shown that in a reciprocal exchange of knowledge, practitioners provide valuable impulses and contextual information for developing questions and interpreting findings. Yet, practitioners initially expressed interest in a broad range of research topics such as the academic definitions of (science) journalism and innovation, jury processes and communication strategies for the Innovation Fund's program, among other areas. The challenge was to achieve consensus on a definitive, manageable set of research questions to guide the collaboration.

While the WPK finds it somewhat reassuring having uncertainty in their trial-and-error decisions mitigated through empirical evidence, transformative cooperation projects must always make clear that, just as with every kind of knowledge, the knowledge generated here is also in principle uncertain and open to revision [Strohschneider, 2014]. In order to realistically assess the limitations of systems knowledge, researchers in our project constantly acknowledge that transformative decisions in the fund's development would be made by the WPK on a somewhat unstable basis if they relied solely on these findings as the only guiding principle. Ultimately, it is about transparently delineating the boundaries of knowledge rather than obscuring them.

Not least, transformative research is assumed to have a kind of inherent "solutionism" [Strohschneider, 2014], a striving for immediately usable solutions

for ex ante defined problems. This can hinder basic research that does not respond to any problem formulations and thus can only prove to be relevant to practice in retrospect. In our project, researchers regularly call to mind that dealing with the concrete challenges of the Innovation Fund must not lead to a situation where new and possibly uncomfortable questions are no longer asked. In order to do so, researchers put their findings up for discussion at academic conferences and in publications, among others. As Grubenmann [2016] emphasized, it is critical not to miss the appropriate windows of opportunity for new insights but to respond to them with foresight and a higher degree of flexibility than in standardized research. In our specific case, researchers hold regular consultations and systematically collect potential new questions and research angles on the Innovation Fund, although there are undoubtedly limits to what can be planned in advance.

Target knowledge

Target (or normative) knowledge refers to the definition of the future direction of the Innovation Fund, understanding how it ought to evolve, and the more general question of how science journalism can be best supported on a larger scale (*What should be?*). Through collaborative exchanges between researchers and practitioners (e.g., via workshops, written/verbal communication and observations), visions and strategies for the future trajectory of the Innovation Fund are formulated.

Ensuring that normative objectives are clearly agreed upon and diverse perspectives coordinated between partners is seen as crucial for successful transdisciplinary research to arrive at common goals [Mitchell, Cordell & Fam, 2015]. Such a process requires mutual learning and understanding. However, in our project, we have experienced challenges in the collaborative creation of target knowledge.

Diverse motives and incentive systems among the various stakeholders involved in the Innovation Fund are emerging as a prime challenge. Each stakeholder group may have distinct objectives that influence their commitment to the project. For example, the WPK is most interested in learning from the Innovation Fund in order to develop a permanent solution for supporting science journalism in the future. Researchers might be primarily motivated by evolving a novel research agenda, i.e., through publications, dissertations, and other external funding. The fund's financiers could be incentivized by the prospect of enhancing their own philanthropic reputation. Even if the goals overlap to some extent, which is what brings the partners together in the first place, it is still the case that each stakeholder has their own (additional) motives regarding the project, which are not necessarily shared by the others. This array of motivations can result in intricate dynamics when determining objectives for the project that require careful navigation and alignment to ensure the fund's success and sustainability.

From that, disparities concerning working methods adopted by researchers and practitioners follow [Kieser & Leiner, 2012]. In our specific case, practitioners at the WPK typically operate on a project-by-project basis, whereas researchers consider long-term visions and overarching perspectives. Also, the fund's financiers often seek rapid outcomes, potentially leading to different expectations regarding the project's pace. For example, whereas practice would have wanted to establish

precise deadlines for achieving specific knowledge milestones, academia usually avoids such stringent timelines to accommodate unforeseen developments.

While the project did not undergo significant shifts in perspective so far, there was a notable increase in mutual understanding and pragmatism. First, the WPK's strong foundation in science itself facilitated the collaboration, bridging gaps in motivation and working methods, providing an accommodating space for the researchers. Second, our project actively cultivates open communication, mutual respect for different objectives, and ongoing adaptability through regular exchange formats with the stakeholders involved (see "Methods of Knowledge Production"), ensuring that our efforts lead to meaningful outcomes for the future of science journalism.

Transformation knowledge

Transformation knowledge represents the most crucial form of knowledge in our collaborative effort in the Innovation Fund, since it focuses on the way forward, on how a transformation problem can be addressed. It is here that the iterative approach is most evident, with the WPK occasionally adapting its practices based on the research evidence and thus advancing the Innovation Fund. At heart is the question: *How can we get from where we are to where we should be?*

Conventional research often assumes that a transfer of knowledge is straightforward, as practitioners are assumed to be able to readily apply research findings from journals and other publications [Kieser, Nicolai & Seidl, 2015]. Yet, experience demonstrates that this oversimplified view leads to failures in knowledge exchange. In our project, the active involvement of the WPK in the research process serves as an effective strategy to mitigate this issue.

WPK staff find this arrangement more satisfactory than former research setups, as it proves to be valuable in decision-making and supports them in their external communication as well (e.g., with the fund's board). Notably, the preliminary research findings have already led to several modifications in the Innovation Fund, such as improvements regarding the jury, a more tailored approach to coaching offerings, and an increased level of standardization in the application process. Nonetheless, despite these advancements, obstacles in implementation persist, with certain aspects appearing to face barriers.

One of the primary obstacles arises from organizational and time constraints on the practice side. For example, WPK staff found it difficult to translate ideas for adaptation into practice due to limited capacity and the operational challenges of day-to-day practices. Also, the preference of practitioners for routines — linked to capacity issues as well — can inadvertently hinder the process of change. One practitioner from the WPK said in an interview:

> "…[We] just gotten used to some processes, and now we're already disrupting it ourselves and creating new ones. At some point, you simply reach internal capacity limits, right? Even if it's necessary to adapt, I think organizations have a tendency towards routine."

Furthermore, the vague definition of roles and responsibilities hinders efficient collaboration. Since researchers and practitioners do not work together within the same entity, in the beginning, there was no pre-defined organizational structure for our project. The question of who should take the lead on specific tasks, in some instances, became ambiguous, leading to misunderstandings or inefficiencies, e.g., researchers shouldering additional responsibilities beyond the research itself. Yet, researchers' willingness to occasionally undertake extra project management tasks, such as examining and comparing coaching mechanisms and fostering uncommonly close relationships with funding recipients, played a crucial role for the project's success by adding depth to the endeavor. What we learned from our project is that it is crucial to establish clear roles and responsibilities at the outset of the collaboration. When every participant is involved in every task, leveraging individual competencies effectively within the collaboration becomes challenging.

Our main findings are summarized in Table 2.

Table 2. Opportunities and challenges of transformative research on the innovation fund. Source: own diagram.

	Opportunities	**Challenges**
Systems Knowledge	– Contextual understanding of the research topic – Applying practical knowledge for crafting better research questions and interpretations	– Normativity of research – Rigor-relevance dilemma – Achieving consensus on a definitive, manageable set of research questions – "Solutionism" in transformative research
Target Knowledge	– Collaborative approach co-creating knowledge – Integration of diverse perspectives – Mutual learning and understanding	– Different incentives and motives among stakeholders – Difficulties defining objectives – Contrasting working methods
Transformation Knowledge	– Avoiding failures in knowledge exchange: research results are essentially entangled with adaptations in practice – Evaluation of cooperation inspiring questions for future research	– Organizational constraints (e.g. limited number/capacity of workforce) – Time constraints – Difficulty defining roles and responsibilities of researchers and practitioners

Lessons learned for future projects

Our practice insight aimed to highlight the value as well as challenges of a transformative approach for practice-research collaborations in science journalism. By actively participating in transformation processes and integrating a spectrum of different knowledge forms, transformative research holds the potential to make substantial contributions to the evolution of science journalism, a specific and unique form of science communication.

Given the value of complementary perspectives, its substantial capacity to stimulate novel empirical research, and the potential to better implement research findings in practice, we believe the transformative research cycle to be useful as a robust framework for follow-up projects in the field of science communication.

However, in our ongoing collaboration, we encounter persistent challenges and contradictions, as this report has shown. Drawing from our experiences with the Innovation Fund, we propose three key insights for future research-practice collaborations aimed at addressing these core issues:

1. Clarity of roles: establish clear roles and responsibilities right from the beginning of the collaboration to minimize ambiguity and optimize efficiency. Practitioners should not interfere in the core process of research; scientists should not practice management. It is vital for each party to be transparent about their motives, openly communicate, and collaboratively identify areas of mutual benefit. It is also essential to acknowledge and not suppress the fact that partners may bring additional motivations to the table. Understanding each other's work methods can be facilitated through regular joint workshops.
2. Agree on the research setup: clearly define the research framework, including methodologies and research questions. Embrace practical knowledge from bottom-up, but do not sacrifice rigor for relevance. Be realistic and consistently acknowledge the limits of the knowledge generated rather than obscuring them.
3. Iterative and agile approach: embrace an iterative and agile approach both in practice and research, recognizing the complexity of both areas. This involves allowing processes to adapt quickly, even in the face of established routines that may hinder swift adjustments. Encourage experimentation within knowledge cycles, which follow the sequence of creation, implementation, evaluation, and adaptation. Additionally, consistently incorporate new research questions during the collaboration, prioritizing the exploration of emerging problems rather than rushing to conclusions or solutions.

When implementing the lessons learned from our project, future research-practice collaborations can benefit in several ways: clearer roles enhance efficiency, minimize ambiguity, and foster transparent communication, creating a conducive environment for mutual understanding and collaboration. Agreement on the research setup ensures a balance between practical knowledge and rigorous methodology, resulting in more robust and relevant outcomes. An iterative and agile approach promotes adaptability, quick adjustments, and continuous experimentation, fostering innovation and impactful insights.

Acknowledgments

The authors disclosed receipt of the following financial support for the research, authorship, and publication of this article: The accompanying research project "Transformative Innovation Research for Science Journalism (TRANSFORM)", in which this contribution was prepared, is funded by the German Federal Ministry of Education and Research (BMBF) under grant number 0150872A.

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Authors

Christopher Buschow is Professor of Digital Journalism at Hamburg University of Technology and Hamburg Media School, Germany. His research and teaching focuses on organizing and innovating journalism as well as on start-ups and entrepreneurship in the media industry. His work has been honored with the Lower Saxony Science Award and the Körber Foundation's German Thesis Award.

 c.buschow@hamburgmediaschool.com

Anja Noster is a research associate and PhD candidate at Bauhaus-Universität Weimar, Germany. Her research focuses on innovation policies for journalism. Before academia, she managed partnerships and growth management at various German MediaTech startups and worked as an editorial intern for both French and German newspapers. Anja holds a Bachelor's in political science from Sciences Po Paris and a Double Master's in Global Media and Communications from the London School of Economics and Fudan University in Shanghai.

anja.noster@uni-weimar.de

Holger Hettwer is managing director at the German Association for Science Journalists WPK. Also, he co-heads the annual science journalism conference "WISSENSWERTE". From 2008 to 2011, he directed the "Science Journalism Initiative" at TU Dortmund University, a project supported by Robert Bosch Stiftung, Stifterverband, and BASF SE. He previously held roles at Bertelsmann Foundation, freelanced for TV production, and trained at Hellweg Radio. Holger holds a Master's in German, journalism & political science from University of Münster, Germany.

holger.hettwer@tu-dortmund.de

Lynda Lich-Knight works as an editor and translator for various German universities and science organizations, such as the Alexander von Humboldt Foundation and the Helmholtz-Zentrum Dresden-Rossendorf. For the WPK, she organizes field trips and collaborates on special projects like the Innovation Fund. Lynda holds a PhD in German from the University of Warwick, U.K.

lynda.lich-knight@wpk.org

Franco Zotta is responsible for strategic development at the German Science Media Center (SMC). He has previously led the German Association for Science Journalists WPK when the Innovation Fund was first conceived and set up. With a background in philosophy at University of Münster, he originally trained at tageszeitung (taz) in Bremen, later becoming a culture editor. Since 2003, Franco has been involved in foundation-backed training for science journalists. Together with Holger Hettwer, he has developed the science journalism event "WISSENSWERTE".

franco.zotta@sciencemediacenter.de

How to cite

Buschow, C., Noster, A., Hettwer, H., Lich-Knight, L. and Zotta, F. (2024). 'Transforming science journalism through collaborative research: a case study of the German "WPK Innovation Fund for Science Journalism"'. *JCOM* 23 (02), N02. https://doi.org/10.22323/2.23020802.

ISSN 1824-2049. Published by SISSA Medialab. jcom.sissa.it