



NRF ENGAGED RESEARCH FRAMEWORK



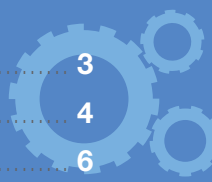
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ABBREVIATIONS

CHE	Council on Higher Education
DSI	Department of Science and Innovation
DST	Department of Science and Technology
ES	Engaged Scholarship
GRC	Global Research Council
NDP	National Development Plan
NRF	National Research Foundation
NSI	National System of Innovation
RRI	Responsible Research and Innovation
SDG	Sustainable Development Goal
SES	Science Engagement Strategy
STI	Science, Technology and Innovation
TIES	Transformation, Impact, Excellence and Sustainability
WP	White Paper

SASL 2015 by Dr Anastasia Koch "Mr Raata"

GLOSSARY

Community – a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings (MacQueen et al., 2001). Community can include groups of people who range from a university's own staff and students to communities of practice, civic organisations, industries, businesses, governments, schools, townships, and citizens at large (CHE, 2010).

Community Engagement – the initiatives and processes through which the expertise of universities in the areas of teaching and research are applied to address issues relevant to one or more communities (adapted from CHE, 2010). Community engagement is usually designed around a specific research project or topical issue, and aims to achieve a dynamic exchange of ideas and opinions with a specific group (or groups) of people within a specific geographic setting and time frame.

Engaged Research (ER) and Innovation – research or innovation-related forms of engagement (mostly for-profit) encompass consultations, contract research or innovation, internal corporate ventures, associate or subsidiary companies, and technology licensing. Not-for-profit engagement is subsidised by research funds (external and internal) and aims to address development challenges and needs of all types of communities using a diverse range of participatory methods that ensure active citizenship, reciprocity, ethics, sustainability, relationship building and the trans- and interdisciplinary co-creation of knowledge. (adapted from NWU, Community Engagement Policy, 2021).

Engaged Scholarship (ES) – the application of academic scholarly work and professional expertise with an intended public purpose and mutual benefit. Engaged Scholarship necessitates partnership with external and non-academic constituencies towards the aim of generating new knowledge, its integration, application, and mobilisation or dissemination (adapted from University of the Free State, 2020).

Mission-Oriented Research – an emerging model for addressing a wide range of modern global grand challenges, which are increasingly varied, complex and interconnected, and therefore require a broad and global multidisciplinary and multi-sectoral response (GRC, 2020:1).

Open Science – although the term 'Open Science' has varied meaning, it is referred to here as efforts by researchers, governments, research funding agencies or the scientific community itself to make the primary outputs of publicly funded research results – publications and the research data – publicly accessible in digital format with no or minimal restriction as a means for accelerating research; these efforts are in the interest of enhancing transparency and collaboration, and fostering innovation (OECD, 2015).

Science Engagement – includes all aspects of public engagement with science, science communication, science literacy and science outreach and awareness (DST, 2015). Public engagement describes the myriad of ways in which the activity and benefits of research can be shared with the public. Engagement is, by definition, a two-way process, involving interaction and listening, with the goal of generating mutual benefit (NCCPE, 2021).

1. INTRODUCTION

The National Research Foundation (NRF) has shown a long-standing commitment to ensuring that science is a trusted, valued and essential component within a society through leading, implementing and funding a wide variety of science engagement and communication strategies, programmes and initiatives. The NRF Amendment Act (Act No. 19 of 2018) brought changes to the NRF's legislative mandate, which includes "...contribut(ing) to national development by supporting and promoting public awareness of, and engagement with, science" as one of the four core objectives of the NRF.

NRF Vision 2030 focuses the organisation on 'Research for a Better Society' through which it is intended that the products and effects of the research enterprise have a positive impact on society. Among others, the NRF aims to promote and support Engaged Research. Through Engaged Research, the NRF aims to embed clear and thoughtful approaches to the engagement with science across the entire life cycle of NRF-funded research and beyond, ensuring that the advancement of knowledge is cognisant of, and responsive to, societal needs and integrates Transformation, Impact (societal and knowledge), Excellence, and Sustainability (TIES) in line with the Responsible Research and Innovation (RRI) approach. Engaged research is seen as an important pathway and an enabler of research impact.

RRI is concerned with "...taking care of the future through collective stewardship of science and innovation in the present" (Stilgoe et al., 2013). RRI seeks to ensure that research and innovation are "...concerned with producing ethically acceptable, sustainable and socially desirable research and innovation outcomes" and are "...underpinned by the principle that research and innovation need to be responsive to a wide range of stakeholders and societal grand challenges, and be sensitive to the values, needs, and expectations of South Africans" (DST, 2019).

Science systems across the world are increasingly recognising the importance of the broader societal impact of research, which includes the interdependent dimensions of social, economic,

and environmental impact. Given that Engaged Research is a research approach that involves public engagement as part of a participatory process, the Global Research Council (GRC) Statement of Principles on Public Engagement (GRC, 2020:2) asserts that:

The GRC acknowledges the role of research councils as intermediaries between society, science and technology practitioners, and acknowledges that the co-creation of knowledge within a community context, i.e. inclusive of various publics, should take place at all appropriate stages of the research process as follows:

- **Upstream:** Identification and development of research priorities and strategies, and the formulation of research questions and proposals;
- **Midstream:** Involvement of publics in research during the research process; and
- **Downstream:** Public benefit from understanding and utilisation of research and innovation output and impact via engagement with communities once research projects have been concluded.

The nature, extent and timing of engagements within the research process will be influenced by the type of research being undertaken, e.g. basic or applied, in its field and disciplinarity, e.g. intra-, cross-, multi-, inter-, and trans-, of its approach. Engaged Research is a research approach that involves public engagement as part of the process of research. Engaged Research can enable collaboration and consultation with a wide range of societal actors, which is seen within a quadruple helix model of

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research and innovation that includes society, academia, government, and industry as key actors (see Section 5 and Figure 1) and of mission-oriented research that is geared towards addressing a wide range of global grand challenges using solutions-based, outcomes-oriented approaches.



SASL 2017 by Pieter Uys "Soil collection in the Kogelberg"

2. PURPOSE OF THE ENGAGED RESEARCH FRAMEWORK

The NRF, within its revised mandate and vision, is committed to ensuring the clear articulation, positioning and development of Engaged Research, so that it can be more deeply embedded within the research and innovation context. The legislative mandate of the NRF provides the broad national intent for research that benefits society, which this framework then articulates into a more detailed and strategic framework to support the implementation and adoption of Engaged Research.

The purpose of this framework is to:

- Outline NRF's strategic position on Engaged Research.
- Shape and position the implementation of NRF Engaged Research approaches within the context of the knowledge enterprise and in line with NRF Vision 2030, NRF Strategy 2025 and the NRF Impact Framework.
- Catalyse the development and promotion of growth of localised Engaged Research networks and capacity across the research ecosystem.

3. DEVELOPMENT OF AN ENGAGED RESEARCH NARRATIVE

The NRF's support for embedding a more Engaged Research approach is in line with significant shifts over time, both nationally and internationally, in considerations of knowledge production; the role(s) of the university as a public institution; the nature of the relationship between science and society; social responsiveness; and societal impact (among others).

Boyer (1996) described the emergence of a “new” stream in the academic world, in the form of engaged scholarship, e.g. engaged teaching, engaged research, engaged service, still perceived today as a promising avenue both for addressing the knowledge-to-action gap and increasing the university's legitimacy. Considering research from the perspective of the production of knowledge, early recognition of ‘Mode 2’ knowledge production (Gibbons et al., 1994; Nowotny et al., 2003) acknowledged that this research takes place within the context of the application of knowledge and research in society; requires greater input from society; and has a greater accountability to society along the entire research process. In this context society drives the questions or problems to be addressed by science. The more recent global uptake of the Open Science perspective champions the democratisation of knowledge to ensure that scientific products and processes are transparent, accessible to, and reusable by the research community. The emphasis of Open Science to establish collaborative networks with society further resonates with the principles of Engaged Research.

The 1997 Education WP 3: “A Programme for Higher Education Transformation” identified community engagement as one of the three key responsibilities of higher education, in addition to research and teaching (CHE, 2010), so that institutions of higher education become more “...democratic, more responsive to community challenges, and conducive to partnership-building with a wide variety of stakeholders” (Erasmus, 2005). The strengthening of the science–society relationship is, however, not the sole responsibility of higher education institutions, but rather that of the entire research enterprise, including private and public research organisations, science councils, national research facilities and professional bodies.

The ‘science in society’ paradigm has come far more to the fore in recent years. It assumes a deficit in trust between public and scientists, and acknowledges a deficit in science and scientists, rather than the deficit only lying with the public (Bauer et al., 2007). This paradigm is evident in the DSI White Paper on Science, Technology and Innovation (DST, 2019), which incorporates inclusive RRI approaches, and in the NRF emphasis on the necessity for science to address societal needs (Research that Works for Society).

The development of an Engaged Research approach is supported in the DSI's Science Engagement Strategy (DST, 2015). The second strategic aim of the SES indicates the need, “...to develop a critical public that actively engages and participates in the national discourse of science and technology to the benefit of society”. Furthermore, the strategy advocates for a lively and active civil society, e.g. associations, co-operatives and non-governmental organisations, that widely recognises the need for public participation in science and technology. The strategy seeks the emergence of new groups of stakeholders and recognition of stakeholders' practical knowledge; and an active attempt by the academic sector to strengthen the relationship between higher education institutions and the public (community engagement) (DST, 2015).

4. POSITIONING ENGAGED RESEARCH FOR IMPACT

The NRF has adopted a “Framework to Advance the Societal and Knowledge Impact of Research” (NRF, 2021). Through this framework, the NRF aims to promote, support, identify and communicate the impact of research within the research enterprise (Knowledge Impact) and in society (Societal Impact). The NRF defines research impact as a beneficial change in society or knowledge advancement, brought about as a direct or indirect result of the NRF’s research support interventions, whether intended or unintended, immediate or longer-term. Engaged Research is considered a critical enabler of research impact as envisioned by the NRF’s impact framework. The table below indicates the manner in which Engaged Research enables research impact across the various stages of (non-linear) impact pathways that include considerations of inputs, activities, outputs, outcomes and impacts.

Pathway	Engaged Research enabling Research Impact
Input	End-user engagement: Within the development of research proposals, this is considered as an input towards advancing research and impact. Inputs are participatory in nature and must be negotiated and valued.
Activities	Establishing research partnerships and networks: At institutional, researcher or community level. Engagement using a diverse range of participatory methods that ensure reciprocity and co-creation of knowledge.
Output	Engaged research processes and networks, events and interactions, products: Realised through reciprocal, mutually beneficial exchange of knowledge and/or resources
Outcomes	Research uptake by end-users: More likely if end-users are engaged at the proposal development stage and throughout the research process.
Impact	Impact experienced within the societal (social, economic, environmental) and/or knowledge domains: Ultimately achieve sustainable (positive) change of which impact can be monitored.

5. PRINCIPLES OF ENGAGED RESEARCH

The NRF describes Engaged Research as research that:

- Integrates considered approaches to engaging communities and society in, and with, the research across its full cycle, ensuring communities are primary stakeholders, active contributors, as well as beneficiaries of research;
- Encompasses the multitude of ways researchers interact with stakeholders and communities over the various phases of research, from identifying research questions and the (co)production of knowledge, to its dissemination, application and impact; and
- Aims to improve the democratisation of science through the inclusive participation of societal stakeholders in the research process and thus improving public trust in science.

In framing Engaged Research, the NRF has identified five key principles (see Figure 1.) with which to define the characteristics and nature of Engaged Research that the organisation could support. In doing so, the NRF is mindful of the fact that the nature, extent and timing of engagement within the research process will vary and will be influenced by, among others, the type of research being undertaken, e.g. basic or applied, the research field and disciplinarity, e.g. intra-, cross-, multi-, inter-, and trans-, of its approach. The NRF framing of Engaged Research incorporates the concept of Research Translation, which seeks to generate impact by ensuring that knowledge generation and transfer enable knowledge users to apply and implement the knowledge successfully.

Modern knowledge production and innovation systems recognise the need for open and active engagement and collaboration between four categories of actors in the research and innovation environment: society, academia, government, and industry (quadruple helix). These four core components of a knowledge production and innovation system are not involved in unidirectional push-pull relationships, but rather in multi-layered, dynamic, bi-directional interactions. These interactions can enable the co-production of knowledge through the sharing of power, with stakeholders and researchers working together to develop the agenda, design and implement the research, and

interpret, disseminate, and implement the findings (Redman et al., 2021). This highlights the role of society as a major actor in national research and innovation systems as well as the importance of actively integrating the public into research and innovation processes and projects. In essence, this approach supports the position that the sustainable development of a knowledge economy requires a coevolution with the knowledge society. As outlined in Section 3 of this document, these collaborations with society have, to date, generally been framed under banners or frameworks of transdisciplinary, open science and deliberate democracy, as well as user-centred innovation. The exact roles and the (truly) bi-directional nature of the engagement with society often remain a challenge in these approaches and will have to receive further attention in any implementation approaches recommended.

The NRF has established five principles of Engaged Research which are evident across the full cycle of Engaged Research and these are:

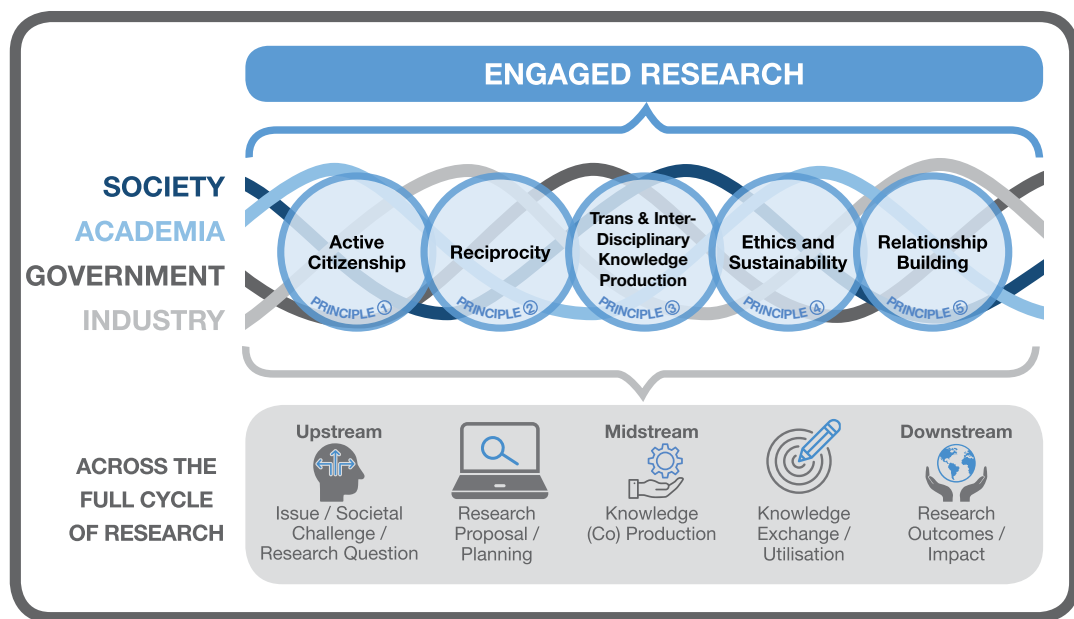


Figure 1. Engaged Research across the full cycle of research

Principle 1: Active Citizenship

Engaged Research is driven by the active citizenship of researchers and research institutions for the common good of humanity, through (co)producing socially inclusive and robust knowledge that is anticipatory, inclusive, responsive and reflexive to the needs, challenges, and aspirations of society. Unlocking this active citizenship of researchers and research institutions requires integrated resourcing and capacity development approaches.

Principle 2: Reciprocity

Engaged Research approaches that are guided by principles of reciprocity for mutual benefit, genuine and equal standing amongst all actors, and pursuing a knowledge (co)production approach that builds capacity and capability in communities along the research value chain, towards strengthening a knowledge democracy. These principles are informed by a shared philosophy of Ubuntu, which incorporates the values of trust, honesty, empathy and accountability.

Principle 3: Trans- and Inter-Disciplinary Knowledge Production

Engaged Research encourages trans- and inter-disciplinary knowledge (co)production driven by researchers from diverse academic disciplines while also being cognisant of the need for active transformation towards inclusive and sustainable economic growth and development. This will foster a systematic, multi-perspective approach that will enhance Engaged Research towards more impactful deliberations between researchers and communities.

Principle 4: Ethics and Sustainability

Engaged Research is governed by ethical standards that are applicable across academic disciplines; relevant to the social engagement processes throughout the research lifecycle; and act towards the intent of beneficence (do good) and non-maleficence (do no harm) within the interdependent dimensions of a triple bottom line, including people, planet, and profit. Engaged research seeks to ensure the sustained longevity and transferability, across multiple contexts, of the desired beneficial impact of research, while ensuring that all participants, through a process of informed consent, have an unconditional right of withdrawal.

Principle 5: Relationship Building

Engaged Research requires relationship and partnership building (initiated prior to research being conducted and is sustained downstream of knowledge production) over an often-extended period towards a long-term and future-oriented vision. Engaged Research requires capacity building throughout the full research value chain, which is retained as a basis of future engagement.

The impact of fully Engaged Research being realised is dependent on the assumption of a number of factors, processes and shared responsibilities across the National System of Innovation (NSI). In this regard, the following assumptions will be brought into concrete existence in order to ensure that the objectives of Engaged Research are met:

- A shared understanding, collective response, and vision are realised to systematise the required change throughout a diverse and complex NSI, consisting of multiple institutions and stakeholders.
- The use-value (including relevance and appropriateness) and co-existence value of research, rather than its commodification value, needs to be reconsidered in tangible monitoring, review, and evaluation frameworks and measurements.
- The incentives for research should not only be structured for current discourse around the knowledge 'economy', which is often considered an exploitative discourse as it commodifies knowledge, e.g. incentives for publishing individual research papers. This discourse does not allow researchers time to work in and with communities, because it privileges individual academics and promotes recognition of individuals.
- Decision making emanating from Engaged Research is to be evidence-based, supported by the most recent and credible research evidence available, which will require the co-creation, with societal stakeholders, of policies and frameworks as an outcome of the research process.



7. IMPLICATIONS OF ENGAGED RESEARCH FOR THE NRF

In the advancement of the Engaged Research approach, the NRF envisages adoption of core focus areas that align to the NRF research impact framework. These core focus areas are:

7.1 Ensuring policy and instrument coherence

7.1.1 Grant applications

All research proposals submitted to the NRF will include (where appropriate) an explanation of the degree to which Engaged Research approaches will be adopted as part of the research process and the alignment of these processes to the five identified Engaged Research principles. The nature, extent, and timing of engagement within the research process will vary depending on the intended research and the objectives of the grant.

7.1.2 Funding instrument development

The NRF will also identify and develop specific funding calls with the explicit intent to support and embed Engaged Research. Existing and future funding instruments will be assessed to determine how Engaged Research approaches can be adopted and supported. There will be a paradigm shift in the design of funding calls and assessment of proposals, including specifying engagement requirements in grant agreements. The evaluation of the effectiveness and efficiency of the Engaged Research approach must ensure that engagement is integrated into the research process in broader, more innovative and imaginative ways. Overall, caution should be exercised to prevent the development of grant frameworks that create inappropriate incentives for Engaged Research, which could potentially dilute or distort the processes of knowledge production and transfer.

7.2 Developing Engaged Research literacy (internal and external)

7.2.1 Knowledge sharing

The NRF will co-create and support a knowledge-sharing network for Engaged Research in South Africa through engagement with, among others, the Higher Education Institutions, research

organisations, civic organisations, community groups and NRF-funded researchers. The intention will be the development of a common philosophical foundation and lexicon, towards enhanced system-level literacy in and around Engaged Research

7.3 Introducing Engaged Research promoting rewards, incentives and recognition

7.3.1 Incentives and awards

The NRF will consider the modalities of incentives, recognition, and awards to acknowledge NRF-funded researchers and community members who exhibit excellence and commitment to the principles and development of Engaged Research in South Africa.

7.4 Advancing research methodologies that promote Engaged Research

7.4.1 Skills development and training

Engaged Research requires the development of human capacity to ensure that researchers, community members, and other stakeholders are appropriately motivated and skilled to contribute willingly to the engagement process in an ethical and meaningful way. In this regard, the NRF will support skills development and training of NRF-funded researchers and community or stakeholder members to ensure that ethical and sustainable Engaged Research is realised.

7.5 Introducing appropriate Engaged Research assessment

7.5.1 Reviews and evaluations

The review process will include the specific assessment of Engaged Research approaches to be adopted and the intended impact of such processes. The adjustment of eligibility for funding must be supported with changes to the research proposal review processes, including the reviewers being selected and briefed accordingly. Societal representatives who are able to contribute in a meaningful and relevant manner, and researchers from across disciplines, are to be involved in the assessment of research grant applications and in the design of the instruments for ex-post and ex-



8. CONCLUSION

The achievement of the NRF's vision of 'Research for a Better Society' necessitates the need to integrate considered approaches to engaging communities and society in, and with, the research across its full cycle in order to strengthen the delivery of excellent research that results in societal and knowledge impact. The strengthening of the Engaged Research position of the NRF will contribute to addressing the imperatives of the National Development Plan (NDP) 2030 and will respond to global challenges such as those defined in the African Union's Agenda 2063 and the United Nations' Sustainable Development Goals (SDGs). In its Call to Action, the African Union's Agenda 2063 creates, inter alia, a collective vision to eradicate poverty; to provide decent and affordable housing; to build knowledge capabilities and skills to drive innovations; to grow and industrialise African economies; to modernise agriculture; to act on climate change; and to establish infrastructure to connect Africa. Similarly, the NDP 2030 calls for science and technology to revolutionise the way in which goods and services are produced and traded, and the United Nations SDGs are designed to be a "...blueprint to achieve a better and more sustainable future for all". The NRF cannot effectively respond to the aspirations of these global and regional development frameworks if it does not harness the research capabilities in South Africa and beyond. The NRF proposes to do this through the adoption and mainstreaming of an Engaged Research approach in its support, promotion, and advancement of research, as a critical pathway to greater societal benefit and knowledge impact.

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