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Promoting evidence-informed practice and practice-informed research: A planning guide for knowledge transfer and exchange

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Promoting evidence-informed practice and practice-informed research:
A planning guide for knowledge transfer and exchange

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Acknowledgements

Table of contents

Introduction

This guide is intended to help researchers and research organizations plan knowledge transfer and exchange (KTE) strategies and activities to enhance the relevance, quality and use of their research to inform policy or practice.

The guide is informed by the research literature on KTE and by the practice of KTE at the Institute for Work & Health (IWH), which involves building stakeholder relationships and integrating stakeholder engagement throughout the research process, as well as using multiple channels to communicate in plain language about research findings. (By "stakeholders", we mean people or organizations with an interest—or stake—in our work, particularly those who are in a position to put our research findings into practice or to advocate for others in positions of influence to do this.)

The IWH approach to KTE was documented in a [2017 paper](#) by Van Eerd and Saunders.

In 2006, the Institute for Work & Health (IWH) published a guide From [Research to Practice: A Knowledge Transfer Planning Guide (2006)](#). It focuses on a framework for knowledge transfer developed by Lavis et al. (2003).

This guide is useful for planning dissemination of research findings. However, since the 2006 guide was developed, IWH has moved towards emphasizing knowledge exchange rather than just knowledge transfer.

IWH is a not-for profit research organization located in Toronto, in the province of Ontario, Canada. The mission of IWH is to conduct and mobilize research that supports policy-makers, employers and workers in creating healthy, safe and inclusive work environments.

IWH defines knowledge transfer and exchange as a process of exchange between researchers and knowledge users designed to make relevant research information available and accessible to stakeholders for use in decision-making about practices, programs and policies. The "process of exchange" refers to a two-way exchange of information between IWH research groups and IWH stakeholders, both in the course of developing research ideas and proposals, and in the context of specific research projects. This process helps to ensure that IWH research is relevant by addressing issues of importance to its stakeholders. It enhances the quality of the research by drawing on the expertise of stakeholders. It also helps IWH to communicate about its findings using language that is meaningful to potential knowledge users and through channels that are easy for them to access. In other words, it is designed to mobilize research to foster evidence-informed practice (and policy-making) as well as practice-informed research. Other terms that have a similar meaning to KTE include knowledge transfer (without an

exchange) and knowledge translation, both of which focus on sharing findings at the end of a research project; integrated knowledge translation, which matches our definition of KTE; and knowledge mobilization, which has an emphasis on moving knowledge into use.

Overview of the IWH approach to KTE

KTE at IWH incorporates both stakeholder engagement (e.g., integrating stakeholders in multiple stages of the research process) and communications (e.g., summarizing and sharing research) aimed at reaching a wide audience.

Our approach to KTE involves four interconnected components.

1. Building and maintaining relationships with key stakeholders through regular contact outside the confines of specific research projects.
2. Engaging stakeholders in the process of planning for and conducting research projects.
3. Communicating about research in plain language through multiple channels.
4. Enhancing the capacity of stakeholders to use research findings in their work (i.e., to inform policy or practice).

While these components are conceptually distinct, success in one facilitates success in the others. There is a synergistic effect to being active in all four areas (see Figure 1).

Figure 1: The IWH approach to KTE
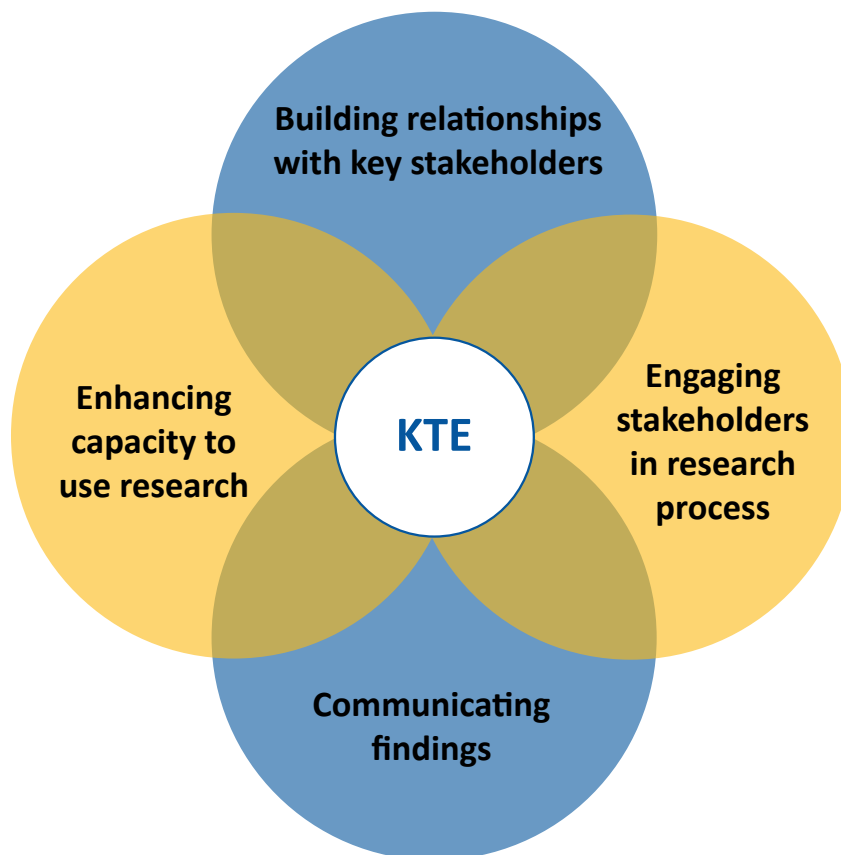
For example, building (and maintaining/sustaining) relationships with key stakeholders (those who have a strong interest in using research evidence to inform policy or practice and the capacity to do so) helps improve all aspects of KTE strategies. Meeting stakeholders, either individually or in groups, can create trust between researchers and stakeholders. This can also help research organizations to identify stakeholders who have knowledge and expertise (and a willingness to participate) that would be helpful to future research projects.

Engaging stakeholders in the research process enhances their capacity to use research and strengthens research communications. Stakeholders who participate actively in the research process become familiar with the research stages and methods (if not the details of how to conduct research), which builds confidence in the research and improves the understanding of its implications. Stakeholders who have been involved in a research project also can help to convey the findings (especially key messages) in language that will be accessible, clear, and meaningful to intended audiences.

Building stakeholder capacity in research methods through workshops, newsletters, and stakeholder meetings enhances their ability to contribute to the research process as members of advisory committees, collaborators, or as members of the research team (and sometimes, as co-principal investigators).

Communicating in plain language through multiple channels can help build stakeholder relationships. Readers of newsletters, articles in stakeholder publications, press releases, or visitors to a research organization's website may contact the organization or a lead researcher to express interest in their work or to explain how they are applying the research or using a tool or guide based on research findings. These contacts can also lead to future involvement in documenting such use. (Documenting impact relies on KTE and we include a section about it near the end of this guide.)

The overall approach is an example of what the Canadian Institutes of Health Research (CIHR) refers to as "integrated knowledge translation," CIHR distinguishes this from knowledge translation that is solely focused on informing stakeholders of findings when the research is complete, or "end-of-grant knowledge translation" (CIHR 2016a). KTE is a two-way exchange of information and expertise. This exchange means that stakeholder engagement is "integrated" into the research process.

Putting the IWH approach to KTE into practice

In this section, the heart of this guide, we provide suggestions for activities and strategies related to each component of the IWH approach to KTE.

It is important to recognize that doing KTE requires a commitment of resources, time and effort. Organizations that have dedicated staff to support this effort will be able to go further—build more extensive relationships, engage with stakeholders more intensely, communicate findings through more channels—than individuals acting on their own without such support. However,

even where resources are limited, the ideas in this guide may be helpful in planning and prioritizing KTE strategies and activities.

Building and maintaining relationships with key stakeholders

Building and maintaining relationships with key stakeholders are foundational to the practice of KTE. Knowledge exchange is a social process. The quality and scope of interpersonal relationships have an important influence on whether research makes an impression and becomes incorporated into people's understanding and practices.

Relationships can also play an important role in the dissemination of research findings. Depending on their relationships, researchers can disseminate results directly to individuals and representatives of organizations interested in their research. If the researchers have good relationships with intermediary groups, they can disseminate results indirectly, by asking these groups to reshare the information to their own networks.

There is research evidence that strong relationships between researchers and non-research stakeholders facilitate the use of research evidence to inform policy and practice. For example, the literature reviews by Mitton et al. (2007) and by Oliver et al. (2014) both report that policy-makers are more likely to take up research evidence when there are established relationships with regular interactions. Williamson et al. (2019), in their study of research use in policy documents in Australia, report a similar finding. Otten et al. (2015) interviewed researchers in the United States working on public health nutrition and obesity for their perspectives on engaging policy-makers and found that, "repeatedly, participants emphasized the importance of cultivating relationships with policy-makers over time."

Some key questions for researchers and research organizations to consider about relationship-building include:

Which stakeholder groups are most likely to be interested in your organization's research mandate?

When thinking about building relationships, it is important to look beyond individual research projects. Consider your overall program of research or that of your organization and then identify a range of potential research/knowledge users. Which stakeholder groups are likely to have a strong interest in the research program and the capacity to use research evidence to inform policy or practice? For example, in the case of IWH, which conducts research on the health, safety and wellbeing of workers, key potential users include policy-makers in government and agencies of government (such as workers' compensation authorities), organizations engaged in providing training and consulting services on workplace health and safety, labour and employer organizations, occupational health and safety and disability management professionals, and health-care occupations providing services to injured workers.

Which individuals or organizations within these groups should you approach?

Potential audiences for research can include broad communities (such as labour unions or employer associations or large government departments), so it is important to identify individuals and organizations within these communities who are **most likely to be "influential knowledge users".**

"Influential knowledge users" refers to individuals within stakeholder groups who have a strong interest in using research evidence to inform policy or practice and are in a position to influence decision-making in their organizations, or within their practice communities.

Which individuals to focus on will vary depending on the specific context. In general, it is helpful to have relationships with people at **multiple levels** of key stakeholder organizations. It can be valuable to have senior officials at or near the top who are aware and supportive of your research program. However, it is often middle-managers or senior policy or program advisors who can be actively engaged in the knowledge exchange process. Those who also have a known appetite for using research evidence to inform their work would be particularly important contacts.

When building a new relationship with a potentially important stakeholder organization, it may be best to start at the middle or senior management level and then try to build further connections from there. It is valuable to **establish connections with more than one person, so that the organizational relationship is resilient**; it can survive if a key contact moves elsewhere.

When establishing relationships with a government department, the question may arise as to whether to focus on political staff or non-political public servants, or both. There is no right answer. Advocacy organizations may wish to focus on political contacts with the goal of obtaining an audience with the minister. Research organizations that produce findings with policy implications, but that do not have an advocacy mandate, may wish to focus on non-political staff.

How do you establish a connection?

Whenever possible, it is generally best to use **existing contacts to help make new connections.** This could mean asking someone with whom one has established a solid relationship for an introduction to a colleague (including, possibly, their supervisor). It could also mean asking someone for an introduction to one of their contacts, outside their organization—that is, using their networks to help widen your own. However, when a desired new contact is not part of your existing networks or stakeholders' networks, a "cold call" (usually starting with an introductory email) may be necessary.

Prior to approaching a desired new contact, **do your homework** about their organization and its priorities. An initial approach should include a request for a **face-to-face** meeting, whether online or in-person. If the stakeholder is working in the same vicinity, an in-person meeting would likely be preferable as the social communication is stronger, but norms around this have been changing since the COVID-19 pandemic. You should defer to the preferences of your contact. The initial approach should focus on **how you** and your organization **can be helpful** (and, of course, a brief outline of what your organization does and how its work is relevant to that of the desired contact), keeping in mind their current priorities. Similarly, the first meeting should **focus on listening** about their priorities and how they see opportunities to work together. **Prior to approaching a new contact, ensure that the person to whom you report and, if there is one, the KTE team at your organization, are consulted about the plan**, partly to get their advice (and, possibly, participation), but also to check that there is no prior connection with this stakeholder. You should also inform these colleagues about the outcomes of your meetings.

If a desired contact will be at an event that you are attending, this presents an opportunity to connect and to have an initial conversation.

How should you sustain and build on established connections?

Once a connection is made, it is important to **maintain ongoing, regular**—see suggestions about frequency below—**dialogue with key stakeholders**, with some face-to-face meetings if possible. This may include regular meetings with a single individual. It is important to have regular meetings with groups of stakeholders. This might include:

- Meetings that focus only on one stakeholder organization, such as important contacts in a government department that is a key funder;
- Meetings with contacts from multiple organizations but within a community of interest, such as different labour unions or employer associations;
- Meetings with influential stakeholders from multiple stakeholder communities, potentially including occasional conferences or consultation meetings involving representatives of all of one's stakeholders.

In the last two examples there may be potential over time to build a formal network with the organizations in order to further strengthen your relationships and their commitment to your research.

The optimal frequency of such meetings depends on such considerations as the importance of the relationship and how often there is likely to be "news" that needs to be conveyed in either direction (to or from the stakeholder). For example, one might meet quarterly with officials from a key funder, more than once a year with representatives of organizations (or groups of organizations) that are frequent research partners, annually with less frequent partners, and only once every few years with representatives of all stakeholders (say, to help plan a new multi-year research agenda).

The agenda for these meetings may include briefings on recent or emerging research findings that are expected to be of interest to the stakeholder group(s), with time allotted for discussion and input. It may also include discussion of current and anticipated issues (or new policies or programs) being faced by practitioner or policy organizations and their sense of related research gaps. This may inform planning for new research projects.

Ongoing dialogue is fundamental to the practice of KTE. As Lomas (2000) has pointed out, all too often researchers and practitioners see each others' work as products rather than processes.

> "Just at the point of decision, after the issue has bubbled up onto the policy agenda, after it has been framed within a particular context, … and often after the limits have been set around feasible options, the researcher arrives, brandishing his or her study." (Lomas, 2000, p. 140)

> "They [policy-makers] arrive at the research community's doorstep with complex questions and urgent deadlines. ... It is unlikely that, in the absence of earlier communication of priorities and politically feasible options, any specific relevant research products will be available…" (p. 141)

Both research and policy-making (whether at the government level or in a workplace) are processes that can be complicated and lengthy, though sometimes policy decisions are made quickly in response to crises or changes in political direction. Regular dialogue across these communities can help all parties anticipate emerging issues and research needs.

In the course of dialogue with stakeholder representatives, it may be helpful to keep in mind that there is usually a shared interest in having decision-making informed by pertinent research evidence, in particular, evidence about the likely consequences of different policy or program design options. Similarly, it can be helpful to researchers to have their research questions and the design of their research plans informed by the experience and knowledge of their non-research stakeholders.

We deliberately speak here of evidence-informed rather than evidence-based policy and program design. For complex issues, evidence about the consequences of different choices is rarely enough to make a decision. Values (which cannot always be reduced to a monetary cost-benefit calculation) will inevitably come into play, as they should. Faced with the same evidence, policy-makers may rationally come to different decisions, depending on values and the cultural context. For a good example of this, see De Rosa et al. (2008), which looks at issues of science and cultural preferences in three areas of food safety policy: consumption of raw fish, soft cheeses made from raw milk, and growth hormones in beef cattle. In each case, different countries made different choices with the same evidence base. There may be legitimate tradeoffs between risk and other considerations that would yield different rational conclusions in different contexts. However, it is important to pay attention to the evidence on what the risks are.

One valuable method to strengthen relationships with non-research stakeholders is to involve them as active participants in research projects. This takes us to the second component in the IWH approach to KTE.

Engaging stakeholders in the process of planning for and conducting research projects

An essential feature of the IWH KTE approach is to involve key stakeholders in multiple stages of research projects. Opportunities for stakeholder engagement are shown in Figure 2. Dialogue with stakeholders about research in your field can help to identify emerging issues and provide ideas for research projects. When considering new research, ideally, the **engagement with stakeholders begins at the research planning/design stage, which is usually during the early stages of preparing a grant application**. This allows stakeholders to have input into the framing of the research questions and shaping the research plan, taking into account their knowledge of the issues. This also helps to ensure that the research answers questions that are relevant to their work and that roles and responsibilities are clear before the research begins.

Figure 2: Engaging stakeholders in the research process
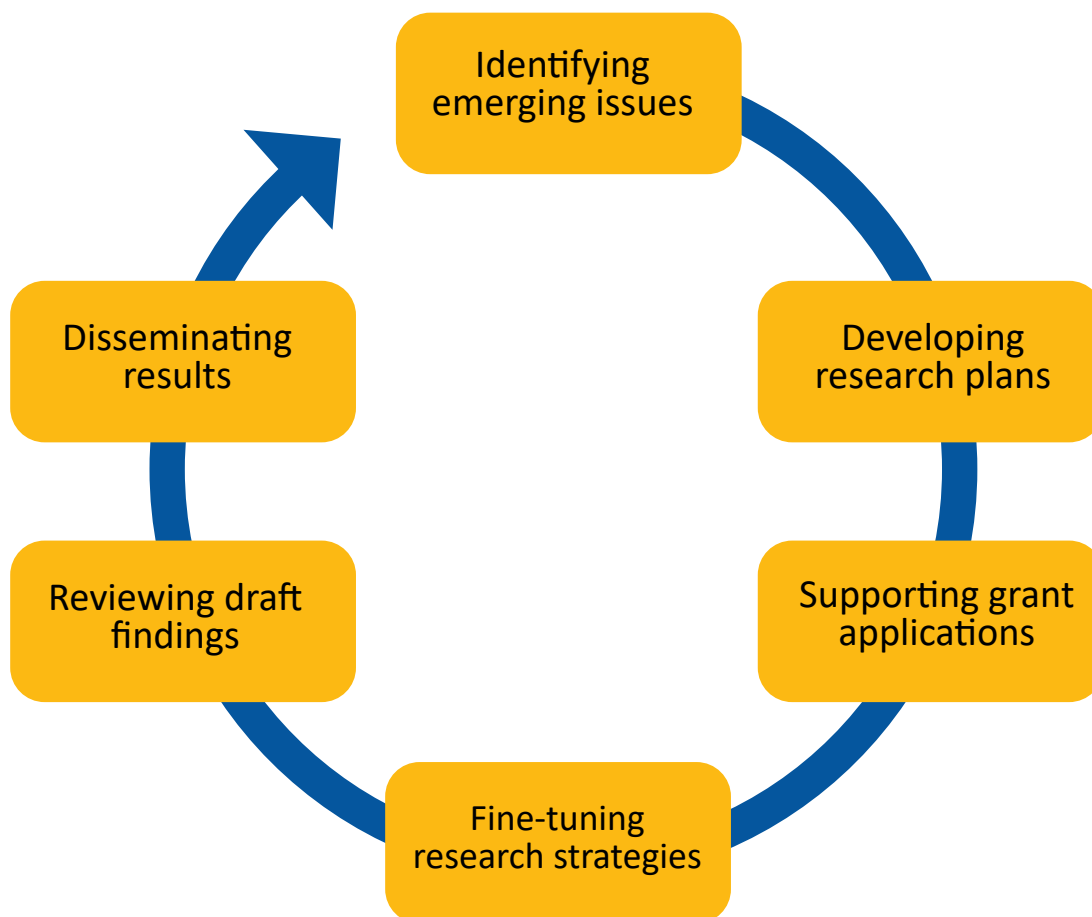
Stakeholders' knowledge is also invaluable at the end of the research project, when they can provide input on draft findings in order to determine key messaging that resonates with them. These stakeholders can be mentioned in your grant application as supporters or collaborators on the project and provide a letter of support (at your request, with guiding text supplied by you). In some cases, depending on their capacity and interest in more intense involvement, they may be partners or co-investigators in the grant application. Creating a plan for how you will do KTE can also help you determine what resources you will need to engage stakeholders and disseminate findings.

Some key questions and considerations for preparing a KTE plan for a research project include the following.

Identify the relevant stakeholders

Which stakeholder groups are most likely to be interested in the research? Which individuals within these groups are most suitable to engage in the research process (i.e., knowledgeable about the issues or have an established relationship with the lead researcher or research organization)?

Consider how the research may affect these stakeholders

What gap will the research fill for your stakeholders? How might they be able to use the findings? To what extent do the stakeholders have shared or different priorities related to this area of research? How will these differences be addressed?

Describe how stakeholders will be engaged in the research process

When determining the level of engagement, consider the perspective each stakeholder offers and how much input you would like: how much expertise they have, whether you'll need advice on planning an intervention or recruitment for interviews, how well you know the individual, how much time they might have to offer.

There are different possible intensities of engagement, as illustrated in Figure 3.

The lightest intensity, which would be just to share results with stakeholders, may require the least effort but can have the least impact. Use of the research to inform policy or practice is more likely when stakeholders are engaged in multiple stages of the research process (see, for example, Mitton et al., 2007; Oliver et al., 2014) However, a focus on dissemination may be necessary at times, such as when the key stakeholders are not available for deeper engagement.

Slightly more intensive engagement would be to form a network of interested stakeholders who might convene once a year to provide overall input on different research projects at different stages. The input provided by stakeholders could be on the relevance of research to their own work, emerging issues they are facing, as well as new research ideas.

Figure 3: Stakeholder engagement spectrum

Research collaborator
Helps with: intervention planning and implementation, data collection, general feedback

Network member
Provides feedback on relevance; gives advice on new projects

Advisory committee
Gives advice at key stages of the project

Co-investigator
Collaborates/ helps in: forming research question, project planning, project execution, interpreting outcomes, framing messages, writing final papers/reports

Greater uptake, use, and impact

Dissemination only

The spectrum idea in Figure 3 was created independently based on experiences at IWH, but shares some similarity with a model originally proposed by Arnstein (1969) called the "Ladder of Participation," which has been widely adapted in the business literature.

A step up in intensity would be having stakeholders participate in an advisory group that meets at different stages of the project: early on, to offer input on the framing of the research questions and research plan in light of their knowledge and expertise; mid-course, to review progress and offer advice on any issues that need to be addressed; and when findings are available, to discuss their implications and provide advice on how to frame the key messages so that they will be clear for the intended audiences. (See Keown, Van Eerd and Irvin, 2008, for an example of such engagement in systematic reviews conducted by IWH.) You may need to ensure that different viewpoints of key stakeholders are represented in the advisory group (but also that the size of the group is not unwieldy).

In some cases, it may be helpful to form a stakeholder advisory committee of people with special expertise on the topic of the research. For example, in research that addresses how to

improve the work experience of people with particular health conditions, forming a committee of people with lived experience of such conditions would ensure their specific knowledge is reflected in the research.

A more intense level of engagement involves stakeholders as research collaborators. Their involvement may include, for example, helping to plan the research, supporting the recruiting of study participants, commenting on and disseminating the findings, and potentially participating in advisory meetings. Stakeholders could also be involved as full members of the research team. In this case, they would participate as co-investigators in all aspects of the research. They could also be co-leads (co-principal-investigators) of a research project.

The more intense the engagement, the more likely that the stakeholders will use the findings to inform their work. However, not all stakeholders will have the time, knowledge or interest to participate in every aspect of the research.

Whatever the intensity of the engagement, it is important to involve key stakeholders in the process of planning and disseminating research findings. This connects with the third component of the IWH approach to KTE, namely, communicating about research in plain language through multiple channels.

Communicating about research

Effective knowledge transfer is a fundamental aspect of KTE and was the focus of the 2006 IWH guide.

As is the case for stakeholder engagement, communicating about research can relate to a specific project or to broader communications from the organization (such as newsletters) that may involve multiple research projects and other news. We focus here on communicating about a specific project. For complex, multi-year projects, this goes beyond just dissemination of findings at the end of the project, as it may be important to communicate about the progress of the work and any interim findings or products. Useful vehicles for this can include project briefings or newsletters; a project blog, webpage or website; social media; direct communication with key stakeholders at advisory committee or other team meetings; and stakeholder newsletters, websites and social media. The use of stakeholders' channels relates to the importance underscored earlier in this guide of building relationships. The stronger those relationships, the more likely will stakeholders be to offer their communication channels and networks to assist with your communications/dissemination.

The questions identified by Lavis et al. (2003), which were the focus of the 2006 IWH guide, remain a helpful way to organize planning for dissemination:

1. What should be transferred [communicated] to decision-makers?
2. To whom should research knowledge be transferred?
3. By whom should research knowledge be transferred?

4. How should research knowledge be transferred?
5. With what effect should research knowledge be transferred?

Let's examine each of these questions.

What should be transferred?

There are a variety of communications about research findings that could be useful to stakeholders. All of them should be written in plain language.

Most important is to develop a small set of **key messages**, with some of them (where appropriate) designed to inform policy or practice. Stakeholder representatives who were involved in the research process (e.g., as advisory committee members, collaborators, or co-investigators) should be consulted on the wording of the messages. This, of course, does not mean that the findings can be changed. It does mean being careful to use words to describe key findings that will be understood and not misinterpreted by intended audiences.

Other products may include:

- Brief summaries (1-2 pages) of the research
- More detailed summaries (3-5 pages), which are helpful for complex research; they could be longer when summarizing a program of study involving multiple projects
- Short videos (60-90 seconds) that illustrate the key findings
- Infographics (visual images such as a chart or diagram)
- Tools or guides for practitioners that are grounded in research findings (and other evidence)

While some non-research stakeholders may not be interested in details of the research methodology, summaries should include a brief, plain-language outline of the methods. This can build trust that the research is sound.

Researchers will, of course, want to seek publication in a high-quality peer-reviewed journal, but they should not expect that non-research stakeholders will necessarily read such publications (though some might) or even have access to them. Researchers might consider budgeting for publishing journal articles as "open-access" to remove barriers to access.

It is important in drafting key messages and, more generally, in summarizing the implications of the research, to **align the strength of any recommendations or advice with the strength of the evidence**. For example, a single study does not generally yield strong enough evidence to make policy recommendations, but, in the absence of other evidence, it may help inform practice.

The strength of the evidence will, of course, depend on the design of the research. For intervention effectiveness, a well-designed, randomized controlled trial usually yields stronger evidence than a study with non-randomized controls, which in turn is stronger than a study with no controls or which is a summary of expert opinion. Well-designed cohort or longitudinal studies usually yield stronger evidence (especially regarding causality) than cross-sectional studies. The strongest research evidence comes from well-designed (with rigorous methods for capturing all relevant studies and assessing study quality) systematic reviews, and where possible meta-analyses, of the research literature on a topic.

To whom should knowledge be transferred?

A priority for sharing research findings would be those stakeholders identified at the outset of a research project as most likely to be interested in the research. Representatives of these stakeholders should have been part of your research process, as outlined above; communication with them would occur throughout the project and they could assist with dissemination of the findings to their networks.

Target audiences would also include:

- other members of stakeholder groups most likely to be able to use the research,
- other stakeholders with whom you regularly engage,
- potentially, the general public, if the implications of the findings are broad.

For research that is likely to have implications for government policy, it is important to **share findings with** (and, ideally, to brief) **policy officials in the relevant departments or agencies prior to making the findings available publicly.** That's so that they have an opportunity to consider how they may wish to respond to questions about their plans to use the findings (or not) and/or to recommendations flowing from the research.

By whom should the knowledge be transferred?

Research products that are sent out to a wide audience—more on that below—will usually be sent out by the communications staff of the organization (or directly by the research team lead or project manager, in the absence of organizational support). The "by whom" question is really most relevant when the recipient of the transfer is a key stakeholder for the project or the organization. Lavis et al. (2003) speak of the importance of a credible messenger—someone who is trusted by the recipient of the knowledge transfer. This implies that, where possible, the transfer should be made by someone with whom the recipient has an established relationship. A study of experiences and perspectives about research use among occupational safety and health knowledge users found that the credibility of the research (and, presumably, of the source) was important to them. (Van Eerd et al., 2018).

Where the intended recipient is potentially a user of research findings, but there is no established relationship, **consider the use of an intermediary**. In this context, an intermediary refers to a person or organization with whom one has a strong relationship who in turn has a relationship with (or is a service provider to) the recipient. For example, if IWH identifies that research findings could have implications for employers in a particular sector, it might seek to engage a health and safety association that serves this sector to act as an intermediary in the knowledge transfer. The researcher would make time to discuss the research with the intermediary and help to determine how the messages would be disseminated.

How should the knowledge be transferred?

The main principle regarding how to transfer research findings is do to so in plain language through multiple channels (and with multiple products, as outlined above under the "what to transfer" question). Possible channels include:

- briefings, in person or virtual; for your most important stakeholders, it's best to at least offer the option of an in-person meeting, provided the public health context allows for this to be done safely;
- presentations of research findings to key audiences, either via speaker opportunities at conferences and events or via seminars held by your organization;
- research summaries or other products posted on your organization's website or a project-specific website, the links of which are then sent to stakeholders;
- regular newsletters of the organization, containing links to research summaries or other products; more complex and long-duration projects might have their own newsletters or bulletins, in which case summaries could be included in both the organizational newsletter (which will typically have a wider audience) and the project bulletin;
- social media;
- outreach to stakeholders/partners with whom you have an established relationship, about the possibility that they use their own channels to disseminate to their networks/members;
- outreach and media releases to specialist media (those that focus on issues related to the mandate of your organization);
- outreach and media releases to general media organizations, when the research findings may be of interest to a broad audience. (Note that media releases may lead to requests for interviews with the lead researcher. Researchers may wish to consider getting media training.)

Some of these channels are more resource-intensive than others, so the research team or organization may need to be selective, assessing which channels are most likely to be worth the effort.

With what effect should research knowledge be transferred?

In the planning stages of a research project, it is helpful to consider what impact you trying to

achieve. (A separate section of this guide deals with documenting impact.) This may influence your KTE strategies. Possible impacts include: leading to changes in knowledge or awareness, leading to changes in ways of thinking about an issue, informing decision-making about policies or program design, and informing implementation of changed practices.

Enhancing the capacity of stakeholders to use research findings

The fourth component of the IWH approach to KTE is enhancing the capacity of stakeholders to use research findings to inform policy or practice. This is closely linked to the other three components.

Regular dialogue with key stakeholders, in consultations or in more formal network meetings (part of building and sustaining relationships) will increase their familiarity with the nature of your research. It can also be a vehicle for outlining research methods in non-technical language. Such meetings (as well as guidance documents prepared for this purpose) can also provide an opportunity to enhance stakeholders' knowledge of what good research is and how to distinguish high quality from poor quality research. This, in turn, enhances their capacity to participate in research projects, such as through a stakeholder advisory committee.

Stakeholders who participate in the research process will become acquainted with research stages and methods. Repeated involvement in multiple projects will strengthen their familiarity with research methods and potentially allow for them to move along the stakeholder engagement spectrum (outlined in Figure 3 above), from advisory committee members to collaborators to co-investigators.

People who can readily access the research findings are, of course, more likely to use them in their work than those who are not reached through the active dissemination of research outputs. The more extensive the knowledge transfer/dissemination effort, the greater the chance that the research will be seen by a decision-maker who can use the findings to inform policy or practice.

Research organizations can also build stakeholder capacity to use research by **conducting workshops on research methods** designed to be accessible to those without extensive training in methodology. Such an effort requires considerable resources to design and deliver, but can be a worthwhile investment for organizations with the capacity to do this. Some of the costs could be recovered through workshop fees. IWH's Systematic Review Workshop is one example of a training workshop that brings researchers and stakeholders together to learn about research methods.

Documenting impact

Documenting the impact of research is a key part of the KTE process. Understanding impact necessarily involves a dialogue between researchers (or KTE staff in a research organization) and stakeholders, since it is about how non-research stakeholders have used or are using the research outputs to inform policy or practice, and what changes to policy or practice were influenced by the research.

In documenting impact, it is important to consider the nature of the impact (which can run along a spectrum from the research gaining attention to policy or program changes that have measurable benefits) as well as how best to document it (which can range from interviews with research users to formal evaluation studies).

At IWH, consideration and documentation of impact is guided by the IWH Research Impact Model (IWH-RIM) developed in 2010. The model is explained in a paper by Van Eerd, Moser and Saunders (2020) (https://doi.org/10.1002/ajim.23201). The model was developed to provide a framework to track and describe the impact of IWH research and the pathways to various forms of impact. One aspect not often included in impact models is the indication of the level of difficulty in determining types of impact.

A central feature of the IWH-RIM (see Figure 4) is that it distinguishes between immediate, intermediate and final outcomes. Immediate outcomes refer to the outputs of the research (such as journal publications, stakeholder briefings, and plain-language summaries or infographics) and the dissemination of those outputs. These outcomes are relatively straightforward to identify and quantify. They could be considered precursors to possible intermediate and societal impact.

Intermediate outcomes refer to the use of the research to inform policy or practice. For IWH, this can include use by policy-makers at a system level, use by workplaces to inform changes in workplace practices, use by clinicians who treat injured workers, and use by intermediary organizations (such as health and safety associations) that provide training and consulting services to influence workplace practices. Identifying use is more difficult than identifying outputs, since the use may not always be readily detectable. Having established relationships with key stakeholders and involving them in the research process helps, as they are then more likely to use the findings to inform decision-making and to make the researcher or research organization aware of such use. Using multiple dissemination channels also helps. Readers of newsletters, articles in stakeholder publications, press releases, or a research organization's website may contact the organization or a researcher to express interest in their work or to explain how they are applying the research or using a tool or guide based on research findings. These contacts can lead to future involvement in documenting such use.

Final outcomes refer to measurable improvements that result from the changes to policy or practice. For IWH, this may include fewer work-related injuries and illnesses, improved return-to-work or stay-at-work outcomes, reductions in government and workplace costs and, ultimately, improvements in the health status of workers. Final outcomes can be difficult to

measure. To do so may require a formal evaluation study conducted or commissioned by the research user. It can also be very difficult, if not impossible, to identify the extent to which such outcomes are attributable to the research. However, if the user/decision-maker reports that the research was influential, it is important to document this.

Figure 4: IWH Research Impact Model
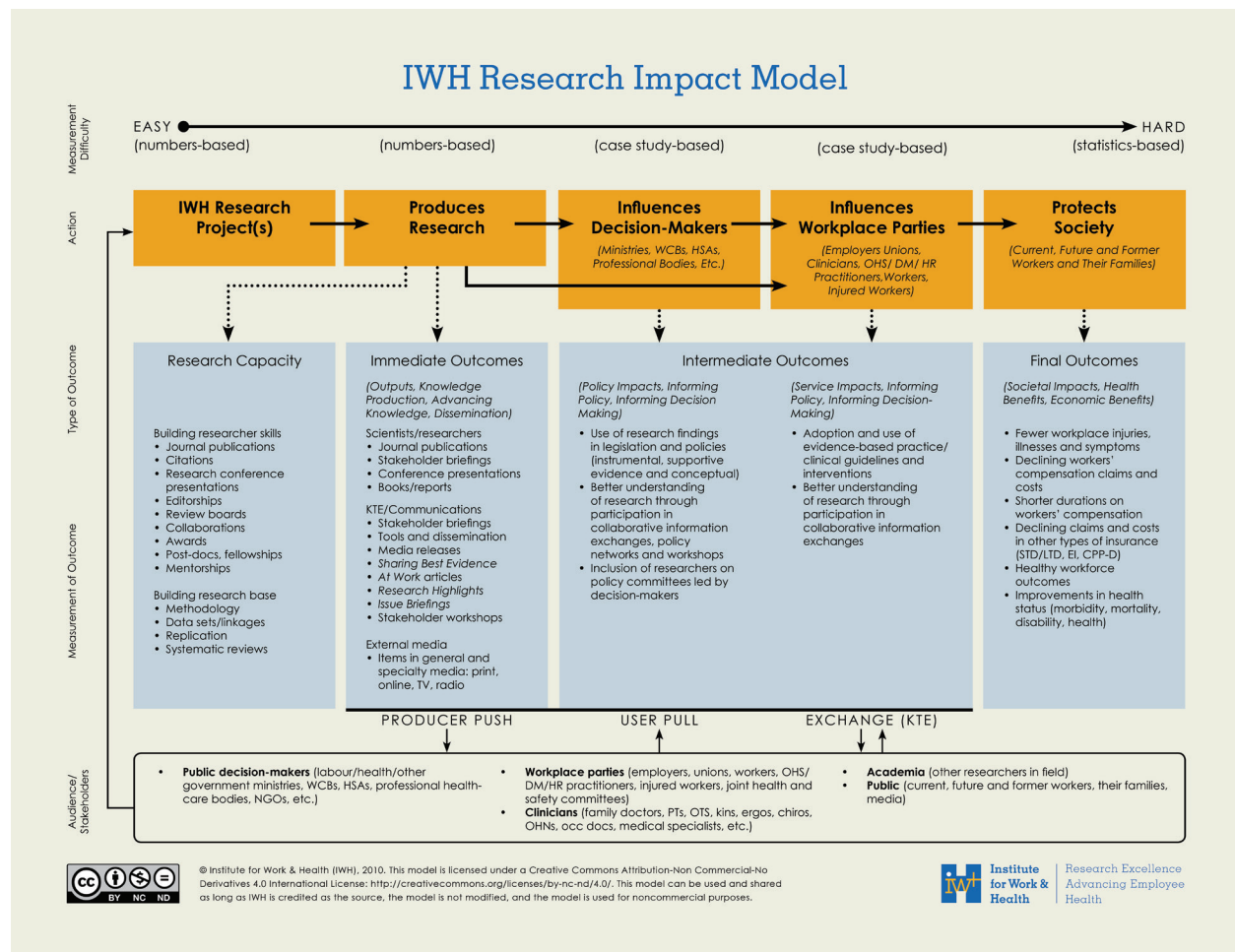
To see this image in full size, see Appendix

Researchers should find time to keep abreast of their stakeholders' news and keep an ear to the ground on what local media reports on regarding their research areas. It is important to keep in mind that impact may occur a long time after the research project concludes, so you need to be continually listening and have resources from the organization to see this through. A key step is to ask the stakeholders who have been involved in your research, as well as others with whom you have regular meetings, whether and how they've been using the findings. Ask them to let you know if someone mentions your work and follow up with anyone who requests your papers and other products. Then, interview those who indicate that they have been using the research about the details of this use, how they heard about or were involved in the research, and whether they have measured or are planning to measure final outcomes of any changes they are making to policy or practice (and, if final outcomes have been measured, what the results were). The highlights of these interviews could then be posted and disseminated in the form of impact case studies.

For its case studies, IWH has developed a classification of three types of impact (Figure 5). They correspond to the categorization of outcomes in the Research Impact Model.

Type 1 focuses on documenting evidence that the research outputs have reached potential users of the findings; it relates to the immediate outcomes category in the IWH-RIM. Type 2 impact case studies document evidence of research being used to inform decision-making about policy or practice. This relates to the intermediate outcomes category in the RIM. Type 3 impact case studies, which are rarer than the others, document evidence of impact on final outcomes, such as health benefits or economic benefits.

Figure 5: Research impact case study categories

Type 1:	Type 2:	Type 3:
Evidence of diffusion of research evidence	Evidence of diffusion of research informing decision making	Evidence of societal impact: health benefits, economic benefits
Common, simple to document	Less common, moderate effort to document	Attribution and benefits difficult to estimate
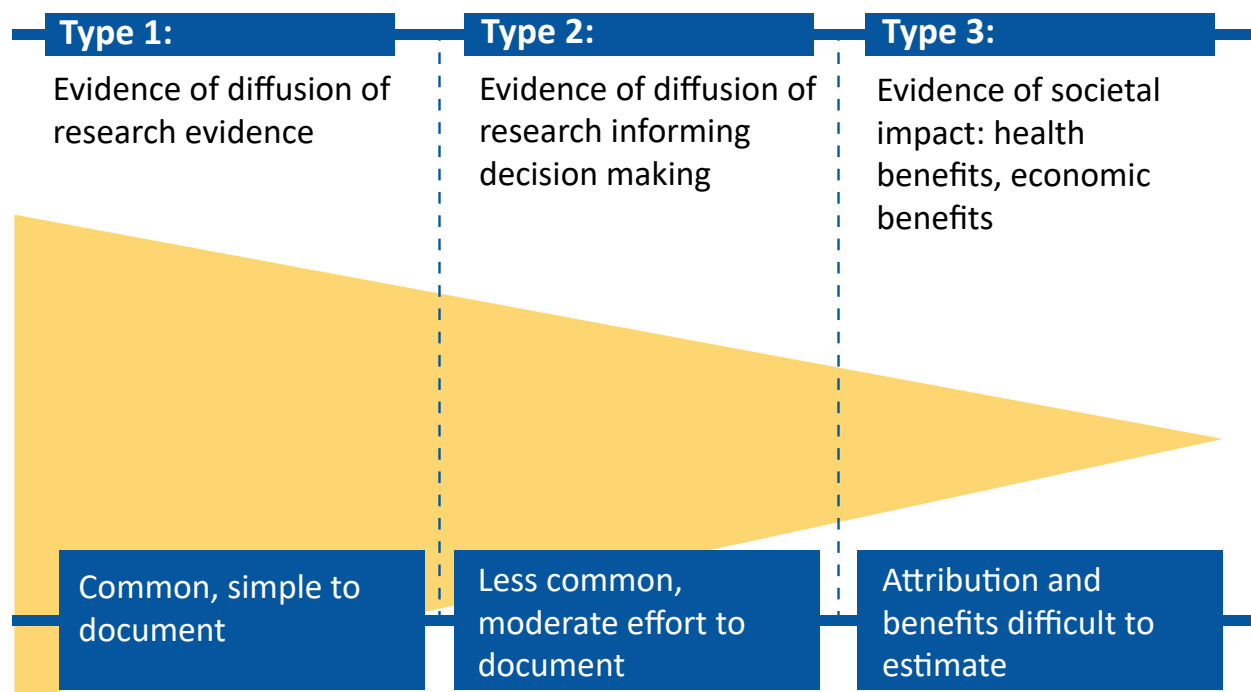
Putting the IWH approach to KTE into practice: a recap

This guide is intended to help researchers and research organizations plan KTE strategies and activities to enhance the relevance, quality and use of their research to inform policy or practice.

The guide proposes these key steps, based on the approach to KTE at IWH.

1. Build relationships with key stakeholders/potential knowledge users through regular contact outside the confines of specific research projects.
   - Identify individuals and organizations within your stakeholder communities who are most likely to be influential.
   - Build relationships with people at multiple levels of key stakeholder organizations
   - Whenever possible, use existing contacts to help make new connections.
   - Prior to approaching a desired new contact, do your homework about their organization and its priorities. During your first meeting, focus on how you and your organization can help them meet their priorities.
   - Once a connection is made, maintain ongoing, regular dialogue with key stakeholders. This can be dialogue with representatives of a single organization (for your most important stakeholders) or with a group of stakeholders. The optimal frequency of such meetings depends on the importance of the relationship and how often there is likely to be "news." The dialogue should include discussion of current and anticipated issues faced by practitioner or policy organizations and their sense of related research gaps.

2. Engage stakeholders directly in the process of planning for and undertaking research projects.
   - Identify the stakeholder groups most likely to be interested in the research.
   - Consult key stakeholders about research project ideas in advance of submitting a grant application.
   - Identify individuals in the relevant stakeholder communities who are most suitable to participate in the research process (i.e., who are knowledgeable about the issues or have an established relationship with the lead researcher or research organization).
   - Engage these individuals in the research process. The form of engagement may vary from participation in a stakeholder advisory group, to collaboration on aspects of the research, to participation as a co-investigator, to sharing leadership of the project (depending on the interest, availability and knowledge of the stakeholder).
   - Involve key stakeholders in the process of planning and disseminating research findings.

3. Communicate about research in plain language through multiple channels.
   - Address the five questions identified by Lavis et al. (2023)
     - What should be communicated to decision-makers?
       - Develop a small set of key messages. Other products may include: research summaries, short videos, infographics, tools or guides.

- ▪ Align the strength of any recommendations or advice with the strength of the evidence.

  o To whom should research knowledge be communicated?
  - ▪ Share research findings with stakeholders identified at the outset of a research project as most likely to be interested in the research.
  - ▪ Disseminate findings also to others likely to be able to use the research and, if the implications of the findings are broad, to the general public.
  - ▪ For research that has implications for government policy, share findings with policy officials in the relevant departments or agencies prior to making the findings available publicly.

  o By whom should research knowledge be communicated?
  - ▪ Send research products via a credible messenger: someone who is trusted by the recipient.
  - ▪ Where an intended recipient is potentially a user of research findings, but there is no established relationship, consider the use of an intermediary: a person with whom one has a strong relationship who in turn has a relationship with (or is a service provider to) the recipient.

  o How should research knowledge be communicated?
  - ▪ Communicate research findings in plain language through multiple channels. Possible channels include briefings, websites, newsletters (of your organization and those of stakeholder partners), social media, use of intermediaries, and news releases to specialty or general media.

  o With what effect should research knowledge be communicated?
  - ▪ When planning a research project, think about what impact you trying to achieve. Possible impacts include: changes in knowledge or awareness, changes in ways of thinking about an issue, informing decision-making about policies or program design, and informing implementation of changed practices.

4. Enhance the capacity of stakeholders to use research findings in their work.
   o Outline research methods in plain language during dialogue with stakeholders about research plans or in briefings about findings.
   o Give participants in stakeholder advisory committees the opportunity for deeper engagement in subsequent projects.
   o Disseminate research summaries and other plain-language products widely to reach potential users of the research.
   o If resources permit, consider holding workshops on research methods.

5. Document impact.
   o Document immediate outcomes (research products and their dissemination), intermediate outcomes (use of the research to inform policy or practice) and, if
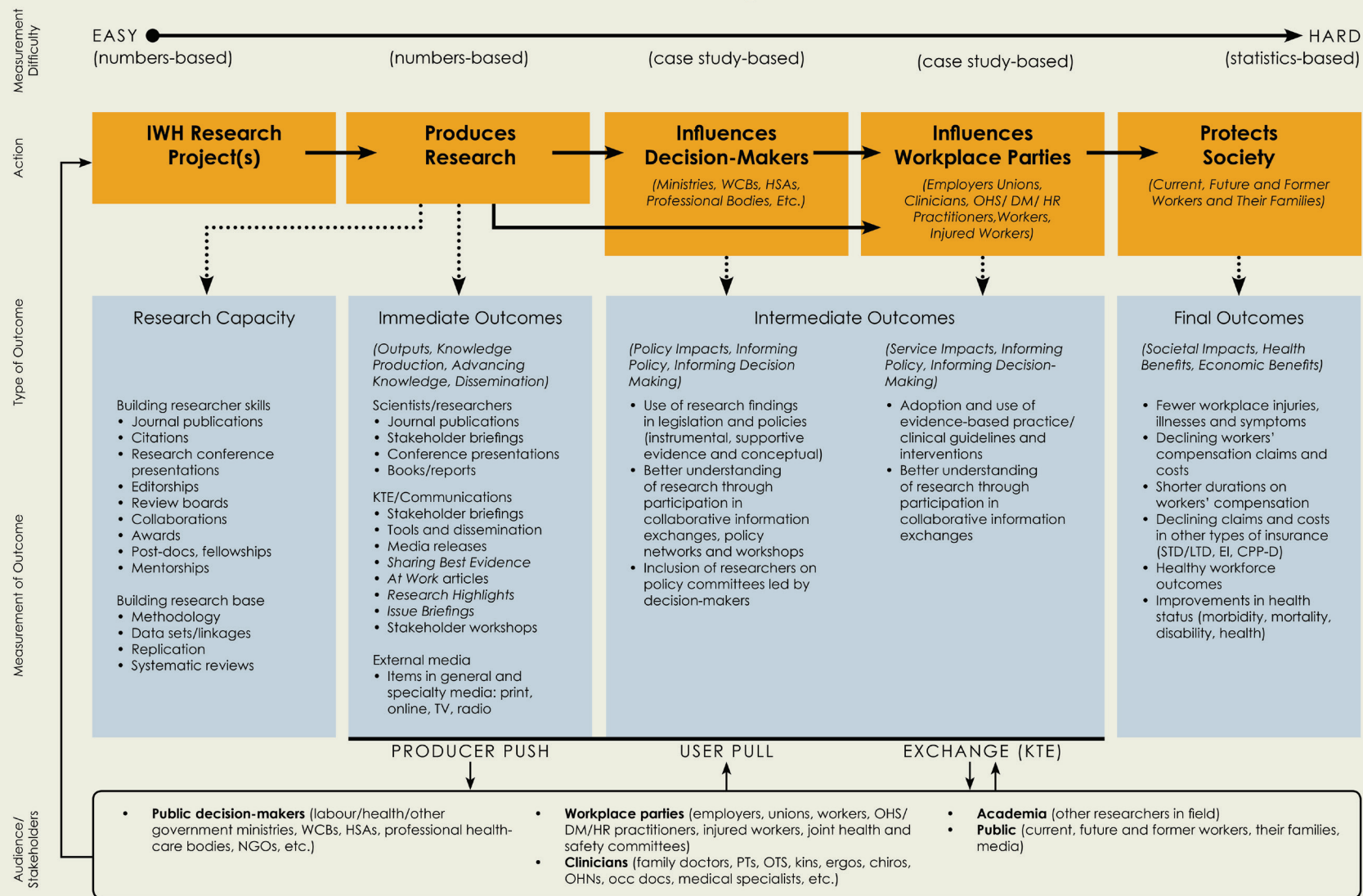
the data permit, final outcomes (measurable improvements that result from the changes to policy or practice) of the research.

o   Consider the use of impact case studies to tell the stories of how research users heard about or were involved in the research, how the findings informed changes to policy or practice, and, if final outcomes have been measured, what the results were.

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Appendix: IWH Research Impact Model

IWH Research Impact Model

Measurement Difficulty

EASY (numbers-based) → (numbers-based) → (case study-based) → (case study-based) → HARD (statistics-based)

Action

IWH Research Project(s)	Produces Research	Influences Decision-Makers	Influences Workplace Parties	Protects Society
		(Ministries, WCBs, HSAs, Professional Bodies, Etc.)	*(Employers Unions, Clinicians, OHS/ DM/ HR Practitioners, Workers, Injured Workers)*	*(Current, Future and Former Workers and Their Families)*

Type of Outcome

Research Capacity	Immediate Outcomes	Intermediate Outcomes	Final Outcomes
	(Outputs, Knowledge Production, Advancing Knowledge, Dissemination)	*(Policy Impacts, Informing Policy, Informing Decision Making)* / *(Service Impacts, Informing Policy, Informing Decision-Making)*	*(Societal Impacts, Health Benefits, Economic Benefits)*

Measurement of Outcome

Research Capacity

Building researcher skills
- Journal publications
- Citations
- Research conference presentations
- Editorships
- Review boards
- Collaborations
- Awards
- Post-docs, fellowships
- Mentorships

Building research base
- Methodology
- Data sets/linkages
- Replication
- Systematic reviews

Immediate Outcomes

Scientists/researchers
- Journal publications
- Stakeholder briefings
- Conference presentations
- Books/reports

KTE/Communications
- Stakeholder briefings
- Tools and dissemination
- Media releases
- *Sharing Best Evidence*
- *At Work* articles
- *Research Highlights*
- *Issue Briefings*
- Stakeholder workshops

External media
- Items in general and specialty media: print, online, TV, radio

Intermediate Outcomes

- Use of research findings in legislation and policies (instrumental, supportive evidence and conceptual)
- Better understanding of research through participation in collaborative information exchanges, policy networks and workshops
- Inclusion of researchers on policy committees led by decision-makers

- Adoption and use of evidence-based practice/clinical guidelines and interventions
- Better understanding of research through participation in collaborative information exchanges

Final Outcomes

- Fewer workplace injuries, illnesses and symptoms
- Declining workers' compensation claims and costs
- Shorter durations on workers' compensation
- Declining claims and costs in other types of insurance (STD/LTD, EI, CPP-D)
- Healthy workforce outcomes
- Improvements in health status (morbidity, mortality, disability, health)

PRODUCER PUSH — USER PULL — EXCHANGE (KTE)

Audience/Stakeholders

- **Public decision-makers** (labour/health/other government ministries, WCBs, HSAs, professional health-care bodies, NGOs, etc.)
- **Workplace parties** (employers, unions, workers, OHS/DM/HR practitioners, injured workers, joint health and safety committees)
- **Clinicians** (family doctors, PTs, OTS, kins, ergos, chiros, OHNs, occ docs, medical specialists, etc.)
- **Academia** (other researchers in field)
- **Public** (current, future and former workers, their families, media)

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