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KNOWLEDGE TRANSLATION RESEARCH PRIORITIES: **AN EVIDENCE SYNTHESIS**

Kathryn Oliver, 2024

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Executive summary

Background: Although researchers, funders and decision-makers share an interest in maximising value from funded research, there is no clear consensus about the ways in which research can most effectively lead to societal impact. As interest in more effective and targeted funding for knowledge translation grows, it is timely to identify priority areas for funding.

Methods: In this report, a synthesis of existing knowledge translation (KT) research agendas is undertaken, using a systematic search to identify studies published since 2014 which used a clear prioritisation method to identify research topics about knowledge translation. Included studies (n = 45) were described in terms of focus, discipline, prioritisation method, and KT research priorities.

Findings: Included studies reported both research priorities, and KT strategic priorities, i.e. areas where more KT activity was felt to be necessary. Overall, the most frequently reported priority was evaluation of KT strategies, with gaps around organisational capacity, leadership and actors identified at all levels. There also seem to be pockets of rich learning about working in different contexts and with different types of KT activities. Several of the reviews identified in this report present systematic assessments of different KT interventions, identifying gaps and clear conclusions. These lessons need to be more effectively mobilised across disciplinary and policy domains.

Conclusions: Overall, the frequency of abstract, high-level topics, often on areas where a significant amount is already known indicates two things: (1) that the KT field needs to work much harder to communicate what we do, and do not know, and to practice what we preach in terms of learning from other stakeholders including researchers from other disciplines, and (2), that further prioritisation is both possible and necessary.

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Audience

This report aims to share practical insights from a range of sectors and countries to support greater collaboration across stakeholders funding, otherwise supporting, or carrying out KT research or activity. The report is aimed at anybody with an interest in KT, including researchers, funders, commissioners, and practitioners.

PART 1
Background

Although researchers, funders and decision-makers share an interest in maximising value from funded research, there is no clear consensus about the ways in which research can most effectively lead to societal impact. This is in part a failure of research into evidence use which is frequently repetitive and wasteful. As interest in more effective and targeted funding for knowledge translation grows, the WHO is leading timely work to assess this evidence base and to assess the priority areas for future research funding.

Metaphors used to describe the KT process suggest a set of activities around gathering, interpretation and dissemination of research findings. For the purposes of this report, knowledge translation (KT) is defined as "exchange, synthesis and effective communication of reliable and relevant research results" (EVIPNet, 2023, Topp et al., 2018). Yet, it is widely acknowledged that knowledge translation is only part of the processes which generate, mobilise and use evidence (Oliver and Boaz, 2019b). For example, research into evidence use has convincingly demonstrated that where knowledge users are involved in evidence generation, they are more likely to both find, trust, and use that knowledge (Boaz et al., 2019). The processes by which evidence is made, mobilised and used are intrinsically linked, and are further influenced by the decision-making process (Cairney, 2016). These processes in turn are influenced by the wider science system (Pedersen, 2023), which include incentive and career structures, formal and informal channels for evidence to reach decision-makers, and workforce and resourcing issues. Ultimately, this science-for-policy system is itself enveloped by the social preferences, norms, structures and dynamics of the society which contains it. For this reason, this report has drawn on the literature on what might be termed 'evidence use studies', which includes concerns about evidence generation, mobilisation *and* use. In practice, the term 'knowledge translation' is used so widely, and with so little precision, that an umbrella perspective is required to identify relevant research.

Knowledge translation, or the mobilisation of evidence is a concern for most, if not all academic disciplinary areas. Outside of research, all policy and practice domains share an interest in how their decision-making and activities can draw more effectively on knowledge in order to better understand how and where impact can be maximised(Oliver and Boaz, 2019b). Broadly, there are two sets of overarching areas of interest in KT:

- *Understanding how to make decision-making more effective*: This is the main focus which most disciplinary research holds on knowledge translation. For example, health researchers may be concerned with how their work can most effectively reach and transform the activities of practitioners. In effect, this

could be categorised as 'those wanting to know the key lessons from the evidence use field in order to inform their own KT activities', or 'KT research applied'. As funders, researchers and decision-makers encounter issues with KT, it is all too easy for them to assume that there is an unexplored territory behind their specific query which requires the establishment of a new field, new tools and theories, and – often – new terminology. Naturally, most of these concerns are overlapping and repetitive, leading to a proliferation of research and research agendas which do not accurately reflect the cutting edge of knowledge to be found amongst the wider field.

- *Improving our understanding of how evidence is made, mobilised and used*: This area focuses on a more 'basic' inquiry into what types of knowledge are produced, by whom, how, and for what purpose; what factors influence how this knowledge travels, and the role this knowledge plays in different processes by different actors. While all disciplines have an interest in this area, for Science and Technology studies, Implementation Science, and a subset of academics from other (often health) disciplines, this is their primary research alignment.

For those in the second group, the siloed nature of evidence use studies has proven to be a frustrating and persistent feature of research in this area. There are three clear tasks ahead for those who wish to promote more effective use of evidence.

Firstly, for those researchers, practitioners, funders and decision-makers who have an interest in KT research, but do not identify KT as a primary object of study, it is essential that the KT field is able to (a) identify **key lessons from the evidence about KT** so that others can put into practice effective KT strategies, and (b) articulate the state of the field to prevent further wasted research efforts and support effective KT activity.

Second, for those who do see KT as a primary object of study, we badly need a cross-disciplinary **research agenda** which accurately reflects what is, and what is not known about how evidence for policy and practice is made, mobilized and used.

Thirdly, we need to bring clarity around **funding and support of KT practice and research**, so that funders are better able to (a) support effective KT by researchers, and (b) fund research into KT where it is needed, pushing forward the quality of evidence use studies.

Aim and methods

In this report, we summarise existing evidence on what is known about knowledge translation priorities, analyse this with reference to what is known about KT strategies

(activity and effectiveness), and with what is known about KT funding. As this is a fast-developing field, all analyses consider only data from 2014 and later.

A systematic search strategy for KT agendas and strategies was designed. To be included, articles had to be:

- About knowledge translation. This term is used broadly and variously in the literature, and in this work is taken to mean any process to improve the production, mobilisation and use of evidence for use in decision-making. Thus this would include activities which seek to identify a shared research agenda around joint problems, interaction between stakeholders and researchers to generate insights and analysis, or systems-building approaches to create evidence-using contexts.

- involve a prioritisation process, e.g. priority-setting, research agenda-setting or similar relevant to policies and practice. Commentary and protocols were excluded.

- be published and unpublished since Jan 2014, as (grey) literature, i.e., guidelines, technical reports, policy briefs, conference papers, or websites

Searches of PubMed, Web of Science, and Google Scholar were conducted to identify relevant publications. For Pubmed and Web of Science, a Boolean search strategy was devised, combining index with free terms about knowledge translation and prioritisation: e.g. (research agenda / priority / agenda setting) AND (knowledge mobilisation / engagement / translation / evidence use).

Index terms were included to broaden the search to include knowledge mobilisation and knowledge translation understood as umbrella terms including all interactions between researchers and stakeholders which are intended to facilitate production, mobilisation and use of evidence to improve decision-making.

Full search strategies tailored to each database were included. Google scholar was included to pick up recent publications which had not yet been indexed. For sample search strategies, please see Appendix 1. Websites screened include: https://ktdrr.org/ , https://www.who.int/ and https://joint-research-centre.ec.europa.eu/index_en.

Analysis

In order to provide an overview of trends, gaps, or potential contradictions among the identified KT research agendas and strategies, a systematic mapping approach was used. Data were extracted from each publication about the primary focus of the study,

prioritisation method, and data collection method. These were used to characterise the research trends around KT research.

In addition, for each publication, data were extracted on research questions or priorities about KT. These were grouped by theme and are summarised below. For ease of analysis, these were divided into KT strategy (i.e. practices and activities which publications identified as priorities) and KT research (identified as evidence gaps for future research). This latter were further subdivided according to the publication primary focus (i.e. KT or other) to enable discussion of the novelty of research priorities.

To identify relevant data about funding of KT research and practices, a brief search was undertaken on google scholar, PubMed and Web of Science to identify publications discussing funding of KT, using a combination of terms, e.g. (Knowledge translation / mobilisation / evidence use) and (funding or research funding or support or strategy).

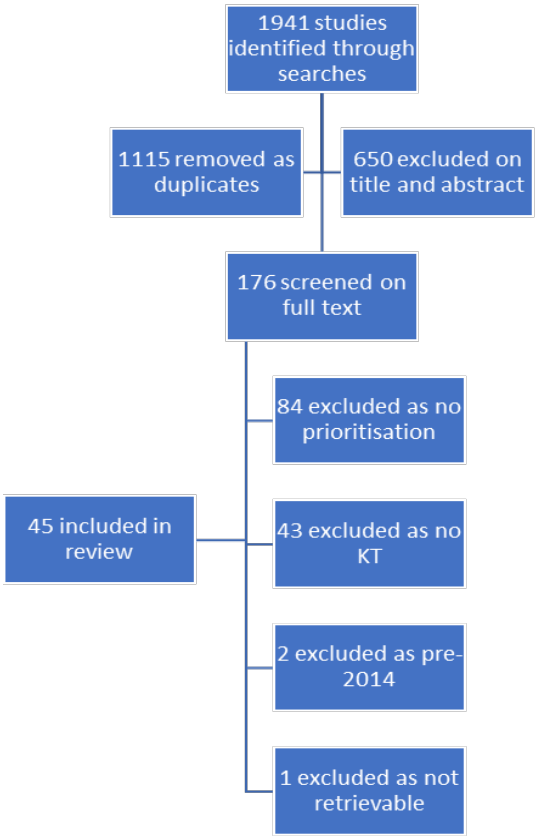
Once screened, this identified only 5 studies which were collated and reviewed below. These studies were treated separately from the studies on KT research and practice priorities processed through the systematic review.

In addition, it was possible to draw on Transforming Evidence's existing database of initiatives to promote academic-policy engagement which identifies funder-led KT interventions (Oliver et al., 2020). This dataset identified all initiatives run by different organisations in the UK and representative globally aiming to increase academic-policy engagement. Within the dataset of 1944 initiatives, 67 funders were identified as actively supporting initiatives. Of these, 24 fund learning about evidence use and knowledge translation, mostly through supporting research on this topic, although none have published a publicly-available agenda on KT.

PART 2
Results

1941 studies were identified through the searches. After de-duplication, 826 were screened on title and abstract for inclusion. 176 were screened in full text, of which 45 were included in this review (see Figure 1). Forty-five studies were included in the full review.

Figure 1: Flow of studies through the review



Prioritisation methods used were varied. Twelve were systematic reviews, which were included if research gaps were specifically identified (Curran et al., 2022, Edwards et al., 2019, Fazey et al., 2014, Gagliardi et al., 2015, Gagliardi et al., 2017, Jaca et al., 2023, Li et al., 2017, Christensen, 2021, Cvitanovic et al., 2015, Rodríguez-Feria et al., 2022, Shroff et al., 2017, Yamey et al., 2016). Of these, six used additional methods to prioritise research topics, such as interviews, canonical analysis or critical interpretive synthesis. 15 used interviews, focus groups or meetings, 11 used surveys, and seven used formal methods such as Delphi or nominal group technique. Stakeholders in these studies were commonly policymakers, researchers, and practitioners, often from a particular field. Most studies used a

combination of approaches to solicit, rank and prioritise knowledge needs. See table 1 for characteristics of included studies.

Table 1: Characteristics of included studies

Author (year)	Prioritisation method(s)	Primary focus	Country	Participants
Akerlof (2019)	Solicitation, Survey and ranking	legislative science advice	USA, global	Academics, science advisers, and policymakers
Barata (2018)	Consensus conference, KJ method	Emergency medicine	USA	Paediatricians
Barratt (2016)	Survey of healthcare and public health organisations with snowballing sample	Health training needs	UK	Healthcare and public health staff
Bedard (2023)	Consensus activity at conference	Mobility and physical health knowledge mobilisation	Canada	Community health and mobility physicians and researchers
Best (2021)	1.5 day meeting synthesising, prioritising challenges, solutions and action planning	Cognitive and assistive tech researchers	Canada	Interdisciplinary, international team of assistive technology users, clinicians, service providers, and researchers with expertise in power mobility device use and cognition
Boersma (2020)	Steering committee, pairwise matching trends	Penguin conservation	Internat-ional	The Steering Committee of the International Union for Conservation of Nature Species Survival Commission Penguin Specialist Group
Boland (2020)	Dedicated conference, discussion and content analysis	Integrated Knowledge Translation (IKT)	Canada	Researchers, trainees and knowledge users
Calleja (2021)	Conference with laddered discussion sprint and managed follow-up	Infodemics in health	Global	Academics and global public health implementing partners
Camden (2019)	Survey and community forums	Developmental coordination disorder	Canada	Parents of children with developmental coordination disorder, adults with CDC, health professionals and school staff

Author (year)	Prioritisation method(s)	Primary focus	Country	Participants
Christensen (2012)	Review	Expertise and org studies	N/a	Literature review
Curran (2022)	Systematic review	Sexual, reproductive, maternal, newborn, child and adolescent health	N/A	Literature review
Cvitanovic (2015	Lit review	natural resource management	N/A	Literature review
Cvitanovic (2016)	Evaluation of KT project	Marine conservation	Australia	Conservation practitioners
Edwards (2019)	Systematic review	KT	N/A	Literature review
Fazey (2014)	SR and canonical analysis	Environment	N/A	Literature review
Gagliardi (2014)	Systematic review	KT	N/A	Literature review
Gagliardi (2017)	Systematic reviews and meetings	IKT	Canada	Researchers and research users
Hennessey (2019)	Nominal group technique	Childhood obesity		Researchers, policymakers, and practitioners
Holzer (2019)	Interviews and focus groups	Conservation	Romania, Spain, Scotland	Stakeholders
Humboldt-Dachroeden (2023)	Survey	One Health (e.g. AMR)	Europe	Policymakers and academics / researchers
Irani (2018)	survey	Innovation	Azerbaijan	University staff
Jaca (2023)	Systematic map and interviews	Health	South Africa	
Jones (2014)	2 day meeting	Acquaculture	UK	policymakers and researchers
Karcher (2023)	Interviews and comparison of priorities	Environment	Australia	Researchers, executives and knowledge users
Kernohan (2018)	Interviews	Palliative Care	Ireland	Researchers
Kietzman (2016)	Focus group	Ageing	USA	Researchers

Author (year)	Prioritisation method(s)	Primary focus	Country	Participants
Kim (2017)	Interviews and documentary analysis	Conservation	Australia	Researchers, practitioner
Kothari (2014)	Stakeholder meeting - group decision support software	Public health	Canada	Public health researchers, practitioners, policymakers
Lal (2015)	Survey with content analysis	KT	Canada	Trainees
Li (2017)	Systematic review	Health	N/A	Literature review
National Academies (2017)	Committee report	Science communication	USA	Researchers, funders
Newman (2015)	Survey	KT training	Canada	Students, researchers
Oliver (2019)	Delphi	KT	Global	Researchers, funders policymakers
Ortman (2020)	Roundtable meeting	Cancer care	Europe	Clinicians, health care professionals
Pressaue (2022)	Delphi of KT frameworks	IKT intersectionality	Canada	Implementation researchers/practitioners, MTF experts, and intersectionality experts
Probst (2015)	Stakeholder discussions and meeting	Emergency medicine	USA	Multidisciplinary group of stakeholders
Rasooly (2023)	2 day workshop	Public health	Israel	Policy, health care and NGO stakeholders
Rodriguez (2022)	Literature review and Delphi	leadership for KT	Global	Authors of papers
Rose (2018)	two-stage survey	conservation	Global	Policymakers, conservationists and researchers
Schroff (2017)	Lit review, 2 surveys	Evidence use in LMICs	LMICs	Policymakers and researchers
Shelton (2022)	Survey	Clinical medicine	USA	Clinical Translational Science Award institutions
Stoner (2018)	Delphi and stakeholder meeting	Paediatric emergency medicine	USA	Paediatricians

Author (year)	Prioritisation method(s)	Primary focus	Country	Participants
Tseng (2021)	Review of grant funding	Evidence use	USA	Researchers
Yamey (2016)	lit review	KT	N/A	Literature review
Yeung (2021)	Survey and modified Delphi	Training competencies for IKT	Canada	clinicians and researchers

Included studies were very diverse in terms of disciplines or domains. 18 focused primarily on health (including emergency medicine, mobility, public health, developmental medicine, Sexual and reproductive health, palliative care, paediatric emergency). Nine were from environmental studies (including penguin conservation, marine conservation, aquaculture), and two from public policy studies (innovation, and legislative studies). The remaining fourteen focused primarily on evidence use, in different ways (leadership in KT, integrated knowledge translation, training for KT, science communication, expertise studies, evidence use in low and middle-income countries).

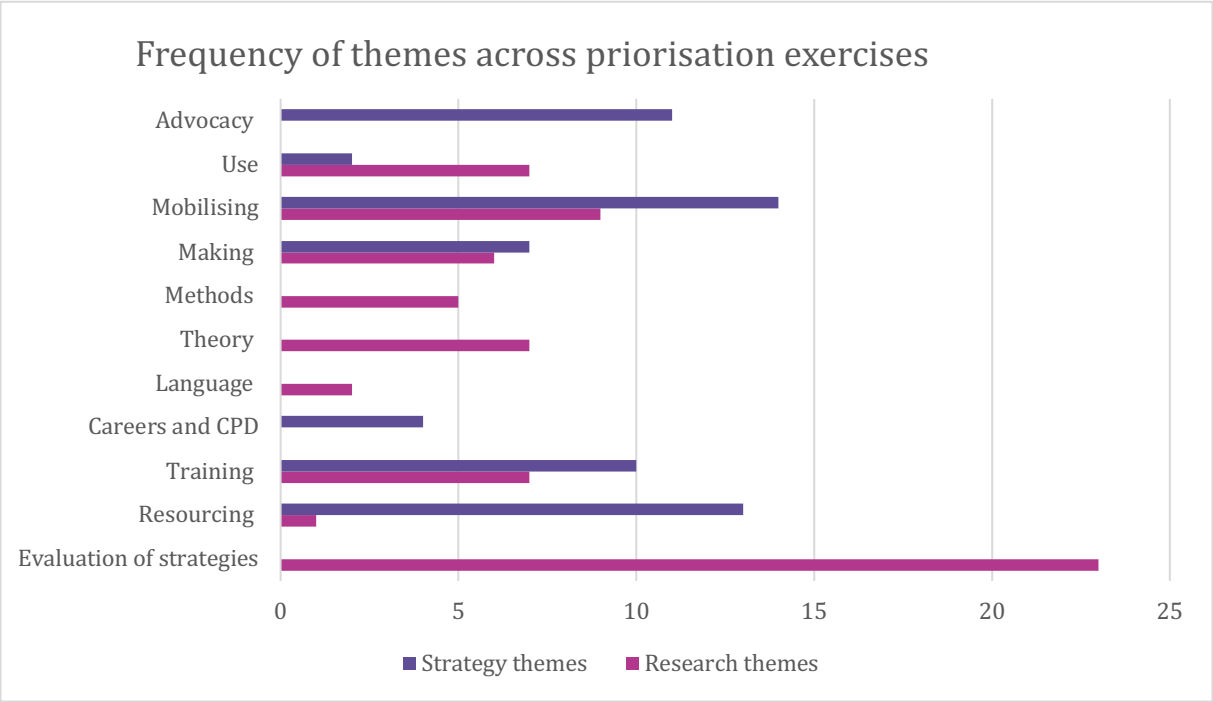
Overview of trends, gaps and contradictions

Overall, the most frequently reported priority was evaluation of KT strategies. Not all themes were represented in both KT research and KT strategy prioritisation exercises, although there was significant overlap, discussed below (see Figure 2).

Initial analyses identified two groups of studies: those with a primary focus on KT or evidence use, and those with a primary focus on a disciplinary area. Fourteen reported on research prioritisation methods which focused on a non-KT area, but included one or more KT priorities (Barata et al., 2018, Best et al., 2023, Boersma et al., 2020, Kim et al., 2019, Hennessy et al., 2019, Humboldt-Dachroeden, 2023, Kothari et al., 2014, Ortmann et al., 2020, Probst et al., 2015, Rose et al., 2018, Stoner et al., 2018, Jones et al., 2015b, Li et al., 2017), shaded blue in Table 2 for ease of identification.

Those in this secondary set reported primarily on KT strategic priorities, rather than on KT research priorities; i.e. on knowledge mobilisations tasks, activities or plans, rather than on research *about* KT. In practice, the distinction between KT research and strategy prioritisation was not always clear. The rule of thumb used to categorise these themes was whether authors were recommending action around funding, activity or practices, or whether specifically evidence gaps for research were identified.

Figure 2: Frequency of themes across KT research and strategy prioritisation



The distribution of themes across studies primarily concerned with KT, and those which included KT as part of their prioritisation exercise focused on a different topic. A heatmap to visualise the distribution of themes was prepared (see Table 1). Where shaded blue, studies had a primary focus on a field other than KT (e.g. conservation, but reported KT priorities as part of their overall research agenda). For these studies with a primary focus on a non-KT field, by far the majority of priorities are strategies rather than research focused (i.e. about activities and practices, not evidence gaps). Almost exclusively, these studies identified one research priority area, which was about the need for evaluations of KT strategies so that effective and efficient knowledge translation interventions could be implemented in their own fields. Themes were not mutually exclusive (e.g. evaluation overlaps substantially with making, mobilising and using themes) but was pulled out as a specific cross-cutting priority which frequently occurred.

	KT Research themes									KT Strategy themes							
	Evaluation	Resourcin	Training	Language	Theory	Methods	Making	Mobilising	Use	Resourcin	Training	Careers	CPD	Making	Mobilising	Using	Advocacy
Akerlof (2019)							x	x	x								
Barratt (2016)										x	x				x		
Bedard (2023)	x		x							x	x		x				
Boland (2020)	x			x	x										x		
Calleja (2021)	x				x										x		x
Christensen (2012)						x		x	x								x
Curran (2022)										x					x		
Cvitanovic 2015)	x		x			x		x									
Cvitanovic 2016)										x	x			x	x		
Edwards (2019)	x					x				x	x				x		x
Fazey (2014)	x				x	x		x									
Gagliardi (2014)	x				x												
Gagliardi (2017)	x			x						x							
Holzer (2019)	x									x					x		
Irani (2018)								x			x						x
Jaca (2023)	x									x							
Karcher (2023)	x										x	x					x
Kernohan 2018)	x									x	x			x			
Kietzman (2016)											x			x			
Lal (2015)	x									x	x						x
NatAcad(2017)	x		x				x	x	x								
Newman (2015)	x				x		x	x									
Oliver (2019)							x	x	x								
Presseau (2022)					x												
Rasooly (2023)	x									x			x		x	x	
Rodriguez(2022)			x														
Schroff (2017)		x													x		
Shelton (2022)			x				x			x	x			x			x
Tseng (2020)					x	x			x								
Yamey (2016)	x								x								x
Yeung (2021)			x														
Barata (2018)	x						x	x							x		
Best (2021)	x		x											x	x		
Boersma (2020)														x	x		
Camden (2019)	x																
Hennessey (2019)	x																
Humboldt-Dachroeden (23)															x		x
Jones (2014)	x																
Kim (2017)															x		
Kothari (2014)									x								
Li (2017)											x	x		x	x	x	
Ortman (2020)										x							x
Probst (2015)	x																
Rose (2018)										x				x	x		x
Stoner (2018)																	
Total	**24**	**1**	**7**	**2**	**7**	**6**	**6**	**9**	**7**	**14**	**11**	**2**	**2**	**8**	**16**	**2**	**11**

Table 2: Heatmap of topics addressed by included studies (blue shading = KT secondary focus)

KT research priorities

In general, improving KT research was felt to be an overarching priority (Barata et al., 2018, Oliver and Boaz, 2019c, Shelton et al., 2022). The unhelpful nature of much of KT research was discussed widely, focusing on research quality, the siloed nature of KT and evidence studies, and the lack of interdisciplinary collaboration. In part this can be attributed to lack of sustained funding for KT research specifically (as opposed to being KT *of* disciplinary research), lack of journals which inhabit a cross-disciplinary space, and the attendant difficulties in building careers.

Table 3: Knowledge translation research priorities

KT research theme (number of studies)	Example topics and questions
Evaluation of KT strategies, initiatives and activities (n = 24)	What works, for whom, under which circumstances: which interventions and strategies are effective, including costs and benefits, role of context and transferability of interventions. Process as well as outcome interventions required, and on replicating and refining existing models and interventions rather than inventing new ones. Specific interventions mentioned: how to build and measure effective partnerships, coproduction processes, Specific components: actors, platforms, channels of communication; role of training tools; how KT lands with different audiences.
Resourcing (n = 1)	Role of leadership in KT, importance of leadership I enabling effective KT.
Training (n = 7)	What skills and capabilities are needed to effectively support and facilitate KT, at different levels and career stages including at leadership level.
Language and terminology (n = 2)	Common terminology and typologies for KT and evidence use generally
Theory (n = 7)	Need to use theory to inform, design, refine and evaluate interventions. Specific areas for further theoretical development: critical race theory, intersectionality, misinformation.
Methods (n = 6)	Need to improve the quality of KT research by using more appropriate and robust methods.

KT research theme (number of studies)	Example topics and questions
Making (n = 6)	Areas of focus include: how decision-makers and researchers can more effectively collaborate; how they can work with other stakeholders. More specifically, use of reporting guidelines and publication checklists for KT research to improve quality of publications in field. Interdisciplinary research connecting KT research with other relevant bodies of knowledge such as research evaluation, research funding analysis, science policy, science and innovation studies, public policy, science and technology studies.
Mobilising (n = 9)	Role and effectiveness of different actors such as knowledge brokers, experts, leaders. Roles, channels and platforms to improve access to evidence. Consensus, argumentation, rhetoric, sense-making as part of KT process.
Use (n = 7)	Assessing evidence use systems and interventions. Credibility and trust in evidence and experts. Ethics, and transparency. Effect of evidence use on population level outcomes.

Evaluation of KT strategies

Most studies in the review called for improved evaluation, or more frequent evaluation of KT, in different ways (n = 24).

Several studies made high-level calls for improved understanding of which KT interventions and strategies were most effective. For example, there are calls to detail the role of actors, platforms and channels of communication (Calleja et al., 2021), and to assess how scientific information lands with different audiences (Fischhoff, 2019, Jones et al., 2015a). Studies with a secondary focus on KT wished to know the role of training tools (Best et al., 2023), and other interventions to improve translational of knowledge and raise awareness of research (Camden et al., 2019), including costs and benefits (Hennessy et al., 2019, Probst et al., 2015). These calls can be understood as high-level requests for the KT field to better communicate what is already known about conceptual and practical tools to support evidence use in policy and practice.

Amongst studies with primary focus on KT, discussion about evaluation priorities tended to be more nuanced. The role of context on KT activities was a major focus, with a need to understand how transferable KT approaches were (Edwards et al., 2019, Gagliardi et al., 2015, Rasooly et al., 2023, Yamey et al., 2016, Lal et al., 2015, Gagliardi et al., 2017, Newman et al., 2015). As Kernohan (2018) put it, ". A greater understanding of the factors that influence KTE plans among researchers could enable the development of strategies to support this process" (Kernohan et al., 2018).

Evaluations should be designed more intelligently, specifying the intended KT goal (Boland et al., 2020, Fazey et al., 2014), and using this to develop a theory of change. This would then enable evaluations to report on what changed, how, and to what effect (Gagliardi et al., 2015). Repeated evaluations which took account of process as well as outcomes would be particularly valuable (Holzer et al., 2019), not least so that KT strategies can adapt:

"Evaluation will be critical for ensuring that knowledge exchange processes can respond flexibly to new insights so that they may achieve more effective results. In turn, such evaluations are also needed to ensure that practical and innovative solutions to management challenges can be developed and implemented to support adaptive governance arrangement" (Cvitanovic et al., 2015).

In part, this was about using better methods (Ahmed et al., 2023), but also planning to identify appropriate outcomes which might realistically be generated by KT, in order to accurately assess the costs and benefits of these interventions (Cvitanovic et al., 2015).

There was recognition that funders have an important role to play in supporting and conducting evaluations of KT research, and of programmes which include KT elements, by adjusting funding priorities and reporting metrics (Karcher et al., 2023).

Although there is general consensus about the importance of partnerships and collaborations, several studies called for improved evaluation in this space, including: effective indicators of successful partnerships (Bédard et al., 2023), effective processes for partnership formation (Gagliardi et al., 2015)

Another specific focus was around misinformation and 'infodemics', and specific strategies to counter these issues (Calleja et al., 2021). There was a recognition that social media and related large datasets may be important to investigate in order to better understand these issues, with a need to understand how any KT strategy in this area might influence people's attitudes and behaviours (Fischhoff, 2019, Jaca et al., 2023).

Resourcing and leadership

One priority around resourcing research was identified by Schroff (2017): "Leadership and governance was identified by nearly half of all respondents (49%) as the area where most research was needed" (Shroff et al., 2017).

Training

Significant attention has been paid to the activities (Ward, 2017) and competencies of knowledge brokers (Hallé et al., 2023) and those with broader KT activities. A clear gap in the evidence base exists around what skills and expertise are needed to effectively support and facilitate KT (Cvitanovic et al., 2015, Fischhoff, 2019, Best et al., 2023, Shelton et al., 2022), including how these skills can be developed to different levels (Bédard et al., 2023), and at different career stages (Cvitanovic et al., 2015), including at a leadership level (Rodríguez-Feria et al., 2022). There are likely different skills needed to be effective at communicating in different settings and to different audiences (Fischhoff, 2019), in particular the need to develop reflexivity and good team working amongst researchers (Yeung et al., 2021).

Language and terminology

In line with the literature on KT, studies identified the need to a common terminology (Gagliardi et al., 2017), or at least clear definitions (Boland et al., 2020) so that key lessons about KT can be more easily shared across disciplinary boundaries.

Theory

The lack of theory in KT research was widely observed by studies in this review. General calls for improved clarity about theories and frameworks to inform KT practice and research were found in seven studies (Boland et al., 2020, Calleja et al., 2021, Fazey et al., 2014, Newman et al., 2015, Presseau et al., 2022, Tseng, 2021). There was a particular focus on the need for theory to inform interventions, using tools such a theory of change to link inputs to outcomes (Gagliardi et al., 2015, Fazey et al., 2014). As Tseng puts it, "The theory part is important because even if a study focuses on one intervention, theory situates the intervention strategies within a generalizable explanatory framework that is relevant to other efforts. Intervention theories are available in many areas, but they are too seldom brought to the table in initiatives to improve research use." It was also noted that "there needs to be less emphasis on developing *new* KT frameworks/models and more emphasis on testing, refining, and improving those that already exist" (Newman et al., 2015).

Specific theories mentioned as needing further research include: regulatory and ethical principles to mitigate misinformation (Calleja et al., 2021), critical race theory (Tseng, 2021) and intersectionality more generally (Tseng, 2021, Presseau et al., 2022). It is felt that "it is

time to move towards creating teams that bring diverse individuals together to develop KTIS interventions informed by [models, theories and frameworks] that account for intersectionality" (Presseau et al., 2022); that is, that theory needs to inform every stage of KT practice and research.

Methods

KT research is widely described as being poor quality, and much of this is attributed to weak, or poorly applied research methods. Clearly related to the calls for improved theory, Tseng argues we need to improve the methods we use to study evidence use – carefully selecting and justifying choices according to our focus; "which stages, which samples, which measurements" (Tseng, 2021). Specific methods proposed include: deductive and inductive approaches and multi-method approaches (Fazey et al., 2014), realist methods (Edwards et al., 2019), process-tracing, attributed influence and preference attachment (Christensen, 2021), and social network analysis (Cvitanovic et al., 2015).

Making evidence

Although few prioritisation exercises explicitly focused on the whole process by which knowledge is made, mobilised and used, this was nevertheless an intrinsic part of the KT inquiry reported in these studies. Several studies indicated that more research was needed to understand how decision-makers and researchers could collaborate together to define problems and generate evidence together (Akerlof et al., 2019, Barata et al., 2018, Fischhoff, 2019, Newman et al., 2015, Shelton et al., 2022, Tseng, 2021); and, more broadly, how different stakeholders' (funders, civic society, non-traditional researchers) interests influence what research is done (Oliver and Boaz, 2019b). Questions around who is able to participate in research, the capacity and skills required to identify research questions and engage in knowledge production and research prioritisation were also identified (Oliver and Boaz, 2019a).

To improve how KT research is done, reporting guidelines were suggested to help future publications be more informative about how KT happens in practice (Newman et al., 2015). This suggestion is echoed by Oliver & Boaz (2019) in their research agenda which propose a more detailed look at modes of knowledge production, research processes and practices, and production of guidance to generate better, more useful knowledge.

Research on knowledge production focuses on assessing the quality and value of research, on research citation practices and patterns, and on funding decisions and flows. This research is, in general, completely unconnected to KT research, and uses other terms (e.g. research assessment, research evaluation, research on research, science of science) to define itself. This hampers learning across research domains. This is a clear gap which reduces the quality and impact of both sets of research.

Mobilising evidence

Most KT activity, and thus research, is focused on knowledge mobilisation, that is the activities and practices which underpin the movement of evidence from producers to users. Generalised calls to 'improve dissemination' are still quite common (Barata et al., 2018).

Several studies were interested in the roles of different actors within the science-policy system (Oliver and Boaz, 2019a). Akerlof (2019) highlighted the importance of understanding the role of intermediaries of brokers in mobilising knowledge; that is, improving decision-makers' access to relevant information (Akerlof et al., 2019). Others focused on the roles of experts (Christensen, 2021), decision-makers (Fazey et al., 2014) and leaders in advocating for evidence-use systems (Oliver and Boaz, 2019a, Akerlof et al., 2019, Fischhoff, 2019, Irani et al., 2018). Fischoff (2019) focused on understanding how publics responded to scientific information and how communication can thus be improved to reach different audiences more effectively (Fischhoff, 2019).

The role of platforms and channels in facilitating access to information was a key interest. This is aligned with literature from health services which emphasises the need for, e.g. clearinghouses for evidence, although limited evidence of their effectiveness. Here social media and web-based platforms were highlighted (Cvitanovic et al., 2015, Fischhoff, 2019), as were technological solutions to finding and appraising evidence (Newman et al., 2015).. It should be noted again here that although the KT field has identified these topics as priorities, there is of course a substantial literature on how these tools are used, their ethics, biases and public value from other disciplines such as science and technology studies.

Most of the interventions identified as part of this review are focused on knowledge mobilisation (as opposed to the production or use of knowledge) and have been described in the evaluation section above. In brief, strategies to improve knowledge mobilisation identified as priorities include: knowledge commercialisation, fellowships and other people exchanges, intermediaries and brokers, career incentives and other systemic interventions, open science, and toolkits and platforms (Oliver and Boaz, 2019a, Irani et al., 2018). As well as developing and testing interventions, there is a need to better understand the metrics and other measures of research impact, which aligns with the calls above on improving theory and methods.

Oliver & Boaz (2019) also identify argumentation and rhetoric, reasoning and sense-making as a priority area for research, and consensus (scientific and political). Again, these high-level topics have been heavily investigated elsewhere, but insights from other fields have not been translated into lessons for the KT field.

Using evidence

Perhaps reflecting a growing awareness amongst funders that evidence use is not the same as evidence mobilisation, there has been an increase in research attention to this area – not merely increasing evidence use, but improving the quality of use (Rickinson et al., 2022).

Priorities in this area include:

- better understanding how decision-makers find and assess the credibility of evidence (Akerlof et al., 2019)
- how contextual factors influence how evidence is used, and under what conditions and organisational cultures evidence use influences decision-making (Akerlof et al., 2019, Yamey et al., 2016, Kothari et al., 2014, Tseng, 2021)
- the role of systems to support scientific capability within decision-making contexts, including partnerships, and how aspects of these systems (advisory systems, research units, individual experts) operate and impact on decision-making (Christensen, 2021, Kothari et al., 2014, Oliver and Boaz, 2019c, Tseng, 2021, Akerlof et al., 2019)
- what constitutes credibility (Akerlof et al., 2019, Oliver and Boaz, 2019c, Oliver and Boaz, 2019a), and whether it is damaged by perceived problems within the scientific community (lack of consensus, fraud, reproducibility, conflicts of interest) (Fischhoff, 2019)
- what interventions improve the quality of evidence use, and how? (Tseng, 2021, Oliver and Boaz, 2019a) For example, what is the cost-effectiveness of interventions to improve decision-makers' capacity to "commission, use and monitor research"? (Li et al., 2017)
- The ethics of evidence use, and the importance of transparency (Oliver and Boaz, 2019a)
- Evaluation of changes to policy, practice, and population outcomes to assess the impact of evidence use (Oliver and Boaz, 2019a, Oliver and Boaz, 2019b)

KT strategic priorities

Resourcing for KT

Across thirteen studies, there was a clear demand for more resourcing for KT activities. This included more staffing, especially skilled knowledge brokers (Bédard et al., 2023, Holzer et al., 2019, Rose et al., 2018), more funding for posts and partnerships (Curran et al., 2022, Edwards et al., 2019, Gagliardi et al., 2017, Holzer et al., 2019, Kernohan et al., 2018, Ortmann et al., 2020), educational resources, online platforms and knowledge management systems (Bédard et al., 2023, Cvitanovic et al., 2016, Holzer et al., 2019, Lal et al., 2015, Ortmann et al., 2020, Shelton et al., 2022, Barratt and Fulop, 2016). There was also substantial discussion about the need to create stable, sustainable systems, including incentives and infrastructure, to support evidence use more generally (Barratt and Fulop, 2016, Cvitanovic et al., 2016, Edwards et al., 2019, Lal et al., 2015, Rasooly et al., 2023, Shelton et al., 2022).

Training

Training was also a very common theme, cited across eleven included studies. The dearth of knowledge about KT theory and practice is seen as a major barrier to effective translation of evidence, with training identified as a way to address this gap. General calls for more training and performance monitoring (Karcher et al., 2023) were made alongside specific training needs , which included: KT theory (Kernohan et al., 2018), research skills (Barratt and Fulop, 2016), commercialisation, tech transfer and entrepreneurship (Irani et al., 2018), and dissemination and innovation (Shelton et al., 2022). There was a recognition that organisational and workforce capacity needed to be increased, but that training was only one way to address this need (Cvitanovic et al., 2016, Edwards et al., 2019, Lal et al., 2021, Kietzman et al., 2016, Li et al., 2017).

Careers and continuing professional development (CPD)

Unsurprisingly, therefore, career support and incentives were also called for to support individuals who wanted to build skills in KT (Karcher et al., 2023, Li et al., 2017), recognising also that there was an organisational and systems aspect to this workforce development (Cvitanovic et al., 2016, Bédard et al., 2023), including long-lasting and multidisciplinary academic programmes (Rasooly et al., 2023).

Making evidence

Commentary on this theme was particularly stringent, noting that significant evidence exists about how to produce useful evidence that can be translated into policy and practice. Indeed, much of this evidence has already been turned into principles and guidelines for action (Adams et al., 2021, Fazey et al., 2014, Reed et al., 2014). Within this review, strong

strategic priorities included: mapping stakeholders and involving them in developing research questions (Cvitanovic et al., 2016, Kernohan et al., 2018), allocating more funding resources to KT research (Kietzman et al., 2016), supporting more, and doing more collaborative research in general (Best et al., 2023, Rose et al., 2018). There were also, as ever, calls to fund more research in general (Boersma et al., 2020). Li et al(2017) suggest the production of a "...handbook of best practices for understanding the needs of policy and professional decision-makers; identifying the extent to which such best practices are context-dependent, and the means of sharing them between policy, professional and research partners" (Li et al., 2017).

Mobilising evidence

Again, indicating that significant evidence about this theme already exists, sixteen studies called for KT strategic priorities around mobilising evidence. General calls for improvement to evidence use capacity to use and access to research were frequent (Barratt and Fulop, 2016, Best et al., 2023, Calleja et al., 2021, Rasooly et al., 2023, Rose et al., 2018, Shroff et al., 2017), as were specific suggestions around collaboration and engagement, particularly improving how engagement and collaboration are practiced (Boland et al., 2020, Barata et al., 2018) and using participatory approaches (Cvitanovic et al., 2016). Some suggested building researchers networking skills (Humboldt-Dachroeden, 2023), and creating opportunities to mobilise evidence with journalists and editors (Li et al., 2017). There was also a recognition that local context needed to be considered when implementing knowledge exchange (Edwards et al., 2019, Holzer et al., 2019), being aware of politics and power dynamics (Kim et al., 2017).

Using evidence

There is a significant policy literature about science capability within governments (Pedersen, 2023), reflecting the huge increase in attention to science advisory systems over the past 5 years. Studies identified within the review similarly called for professionalisation of the relationships between scientists and stakeholders (Rasooly et al., 2023), and to embed effective capacity-building approaches including attention to leadership, tools, training, and processes for prioritisation (Li et al., 2017).

Advocacy

Interestingly, there was a strong call for leadership and advocacy for KT across included studies. Eleven studies called for leadership at all levels (Calleja et al., 2021, Irani et al., 2018, Karcher et al., 2023, Ortmann et al., 2020), national funding for KT research and activity (Christensen, 2021, Shelton et al., 2022), and coordination and leadership of KT between funders, decision-makers and researchers (Calleja et al., 2021, Edwards et al., 2019, Karcher et al., 2023, Lal et al., 2015, Shelton et al., 2022, Yamey et al., 2016).

Funding flows for KT

Funders are becoming increasingly concerned with understanding how their investments generate societal change. The role of health funders in supporting KT has been a subject of academic attention for several decades (McLean et al., 2018, Tetroe et al., 2008, Hanney and González-Block, 2016). As with research into evidence production, mobilisation and use, funders are siloed by discipline and sector. This is reflected in the language used to describe the relationships between knowledge production and use, the approaches taken to measure impact and much else besides (Abudu et al., 2022). For example, natural sciences and engineering funders talk about innovation and knowledge / technology transfer, whereas health research funders use 'impact' and 'social change' language (Oliver et al., 2020). In a previous mapping exercise conducted for ESRC, we identified 130 funders with long-standing interests in KT, dating back to the Second World War. These included public and philanthropic funders, who ran grant-making programmes (e.g. the William T Grant Foundation, the National Science Foundation through the Science of Science and Innovation Policy Programme), commissioned research and evaluation directly (e.g. the Medical Research Council, the William and Flora Hewlett Foundation), ran collaborative learning networks (e.g. NORFACE by ESRC, the Lenfest Ocean Programme) and supported knowledge exchange activities (Research England, the Open Innovation Team). Of these, only 18 had publicly available evaluations of one or part of a knowledge translation scheme, which were primarily commissioned evaluations by consultancies. We found that funders supported three types of KT activities:

Linear initiatives: Funding research through centres and units with a direct mandate to influence policy and practice such as the What Works Centres, supporting dissemination of research activities (e.g. Impact Acceleration Accounts by BBSRC and ESRC in the UK), and enabling access to evidence through supporting engagement with e.g. Parliamentary consultations;

Relational initiatives: Funding skills-building and capacity-building courses and programmes, supporting people-exchanges such as Fellowships, and supporting strategic partnerships between knowledge users and producers (e.g. RIDE forum which is co-funded by UKRI and the UK government)

Systemic initiatives: Long-term research units to generate policy-relevant research, providing funding for creative activity around evidence use (e.g. HEIF fund in the UK), or advocating for science use in policy.

In line with other literature in the area, we found very little publicly available data about how much funding was made available explicitly for KT activities (McLean et al., 2018, Oliver et al., 2020, Tetroe et al., 2008), or what activity was supported by these funds. As these

studies note, effective evaluation of KT to bring more transparency to the funding and support of these activities remains a persistent challenge (Ramos-Vielba et al., 2022). As noted by Tetro (2008), ""best practice" for funding agencies is an elusive concept depending on the particular agency's size, context, mandate, financial considerations, and governance structure." McLean et al (2018) in a long-term study of health research funding for KT found that funders do support researchers to connect with potential knowledge users, but that most commonly, grants are the primary mode of support offered.

However, researchers call for more funding for KT and for applied research in general (Kietzman et al., 2016). Because universities are so heavily incentivised towards funding, it is important for the production of policy-relevant evidence that there are external sources of support. This connects with the discussions above about the need for more strategic support for careers, research, and workforce development in KT.

More practically, Cooper (2018) offers four areas for funders to focus on (Cooper et al., 2017), recognising the critical (if potential) role they play:

1) The need for greater clarity in terminology and guides on how to operationalize KMb and capture research impact

2) Increased need for collaboration among funding agencies, between funders-researchers-users, and between researchers-users

3) Need to move beyond a 'fund and forget' model to a robust and active brokering role for funders focused on capacity and infrastructure building for universities and researchers; and

4) The necessity to target funding that advances the science of KMb so that researchers across discipline can benefit from knowing which strategies and efforts might be more effective with different audiences.

PART 3

Conclusions and identification of evidence gaps

To bring together data on the research, practice, and funding gaps for KT, these themes were mapped against each other, paraphrasing the themes into succinct summaries of the major overall recommendation across KT research and practice themes. The idea of this stage is to allow readers to assess which of these research gaps are genuinely reflective of gaps in the interdisciplinary literature about evidence production, mobilisation and use. Similarly, as a field, we want to be confident that we are recommending KT activity which has been shown to be effective at improving evidence use.

Firstly, in general, there is broad agreement that we need, and that at present there is a dearth of sustained research funding for this field. The overall quality of evidence use research was frequently called into question, with suggestions about how to improve this research including improving use of theory, improving the methods used to study evidence use, use of research publication checklists and reporting guidelines, and, more generally, connecting with and learning from others in this broad interdisciplinary space.

This mapping (see Table 4) is preliminary and based only on the data available from this review. Further analysis of other evidence bases will be required to ascertain:

- Whether these research gaps are genuine, and where there is existing robust evidence
- Whether these practice gaps can be recommended on the basis of existing knowledge
- Where funding priorities for KT currently sit, with whom, and what their impact has been, and
- What consensus might be possible around the identified gaps in this review

This review shows that there is a wide appetite for KT research, from potential users of that research, as well as from researchers of KT themselves.

Identified research priority: What do we need to know?	Identified practice priority: What do we need to do more of?	What is being funded?	Gap?
More research into evidence production, mobilisation and use		Limited, responsive funding, usually targeting a specific discipline or field. Anecdotally, proposals often rejected at peer review stage even where supported by executive leadership.	Coordinated funding for KT research and activity, and coordination and leadership of KT between funders, decision-makers and researchers. Opportunities to learn and draw out lessons from other relevant bodies of knowledge and disciplines.
How to identify and collaborate more effectively with stakeholders.	Identify and collaborate with stakeholders more effectively, including through participatory approaches	Existing funding streams either completed (e.g. ComPASS by NIH), or limited to responsive mode.	Need for best practice guidelines about how to map, engage with and collaborate with different types of stakeholders.
Better understand the roles, channels and platforms needed to improve access to evidence	Improve decision-makers access to evidence.	Dissemination and production of tools, evidence summaries and briefs People-exchanges e.g. Fellowships Strategic partnerships and collaborations	Much of the funded activity is around supporting researchers to mobilise knowledge, or to disseminate their own research. There is less funding for research into or practice of policy- or practice-led knowledge exchange which is essentially guided by needs of knowledge users. Need for funding for data and knowledge mobilisation platforms.
Role and effectiveness of different actors such as knowledge brokers, experts, leaders.	Increase organisational and workforce capacity	Funding for people exchanges, which operate mostly on a researcher-led, research-led basis.	Understanding how best to support evidence-using organisations and individuals, identifying which roles are required, and how to build careers within and across organisations.

Identified research priority: What do we need to know?	Identified practice priority: What do we need to do more of?	What is being funded?	Gap?
What skills and capabilities are needed to effectively support and facilitate KT, at different levels and career stages including at leadership level.	Embed effective capacity-building approaches including attention to leadership, tools, training	Capacity-building courses, programmes and training events for decision-makers	How to identify KT capabilities, and to design appropriate learning approaches at all levels
	Long-lasting and multidisciplinary academic programmes to build KT capacity; Training into KT theory research skills, commercialisation, tech transfer, entrepreneurship, and dissemination and innovation.	None identified	There seem to be few dedicated BSc, MSc or Dr level courses to support evidence based KT practice, or build research capacity in this field. Potential need for courses, text books and learning resources at all levels.
Assessing evidence use systems and interventions.		William T Grant has a sustained programme of funding on evidence use.	Research comparing evidence use systems across different countries and settings
Role of leadership in enabling effective KT	Better leadership of and advocacy for KT	None identified	Research into, and leadership of KT at all levels
Consensus, argumentation, rhetoric, sense-	Build researchers' skills, including network, sense-making, ethics,	Capacity-building courses, programmes and training events for researchers	

Identified research priority: What do we need to know?	Identified practice priority: What do we need to do more of?	What is being funded?	Gap?
making as part of KT process.			
Understand roles of credibility and trust			
	Engage with journalists and editors to disseminate evidence	None identified	No identified opportunities, initiatives or funding streams to engage journalists. Intermediaries engaged mostly from academic sector e.g. learned societies.
Costs, benefits process, and outcomes of KT activities, including role of context.	Adapt KT approaches to local context	Implementation science research into components, context, knowledge uptake, etc.	Little available data on costs of different KT approaches to different stakeholder groups
Research into critical race theory, intersectionality.	Be aware of politics, power dynamics and imbalances	STS, sociology and applied research funding into inequities in research and service use; policy studies research into policy process.	
Effect of evidence use on population level outcomes		None identified	Research into impact of evidence use on policy, practice and society
Common terminology and typologies for KT and evidence use generally	Common terminology and typologies for KT and evidence use generally	None identified	Common terminology and typologies for KT and evidence use generally

A number of key lessons can be drawn from this literature:

There is a need for KT research to inform KT activity across disciplines and sectors

The number and distribution of KT strategic priorities identified in this review indicate that there is a demand from many disciplinary researchers who want to know how to translate knowledge effectively into policy and practice changes. There are multiple calls for more resourcing of KT, and support for KT career development and skills building from across these disciplines, as well as high-level calls for more evaluation of KT initiatives. This indicates that KT and social impact is held to be an important tenet across research domains.

A significant amount is known about KT

It is a common feature across KT research to indicate that research is poor, weak, or absent. It is not uncommon for studies to claim that evidence about – for example – the effectiveness of knowledge brokers, or other KT activities is not widely available (72) . It is undoubtedly true that developing a field across multiple boundaries has its challenges. Yet, much of the research is repetitive and confirms that features of KT practice are common across these boundaries. For example, factors influencing evidence use seem to be highly persistent across settings and over time (Edwards et al., 2019).

We also have very consistent sets of principles from multiple sources to guide KT research and practice, synthesised into the common list below (Fazey et al., 2014, Reed et al., 2014, Boaz et al., 2018, Nguyen et al., 2020, Plamondon and Bisung, 2019, Topp et al., 2018, Ward, 2017) :

- Do research which is needed, based on stakeholder engagement and evidence synthesis
- Design for multiple types of stakeholders and involve them throughout, in a true rather than extractive partnership
- Select reasonable outcomes, and articulate a theory by which the KT initiative will be expected to generate them
- Develop an inclusive and collaborative way of working which enables shared benefits, responsiveness, and sustainability

- Measure multiple outcomes including unanticipated outcomes
- Embed evaluation throughout, using multiple modes of inquiry to study the process and outcomes.
- Invest time and resources into the process and the people involved
- Engage and communicate effectively and ethically
- Be humble.

Given how detailed, and indeed evidence-based these principles are, it seems hard to argue that more research is needed before KT practices can be routinely embedded into research processes.

Key lessons from KT research must be shared more effectively

There also seem to be pockets of rich learning about working in different contexts and with different types of KT activities. Several of the reviews identified in this report present systematic assessments of different KT interventions, identifying gaps and clear conclusions. These lessons need to be more effectively mobilised across disciplinary and policy domains.

This can be seen in the calls for improved theory, language and methods. Increasing the diversity of terms and methods used can help to improve the precision and quality of the research done about how knowledge is made, mobilised and used. Initiatives such as the William T Grant-funded Use of Research Methods Repository (https://uremethods.org/) can help to share methods, protocols, and tools to do research in this field.

We know that "different cultures and traditions influence or are influenced by the way knowledge exchange is conceptualised, delivered and evaluated" (Fazey et al., 2014). This being so, there needs to be more discussion across these boundaries about what is being studied, how and why – with an explicit attention to interdisciplinary learning. This will require openness and humility on the part of researchers who may frequently find that other fields have generated significant progress in an area which they consider to be novel.

Overall, the frequency of abstract, high-level topics, often on areas where a significant amount is already known indicates two things: (1) that the KT field needs to work much harder to communicate what we do, and do not know, and to practice what we preach in

terms of learning from other stakeholders including researchers from other disciplines, and (2), that further prioritisation is both possible and necessary.

More coordination of funding for KT research and activity is needed

There is a large appetite from funders to know how to support more effective use of research investments by supporting more effective KT activities (Tseng, 2021, Buchanan, 2013). Yet most funders which support KT do so in small grants attached to ongoing research projects, or through people-exchange networks. Very few funders have significant research programmes to support research into evidence use, and those which do are focused on particular social sectors. All too often, KT activity is funded through research funding, which conflates the interests of those who want to promote research, with those who want to explore how research is translated.

The lack of unifying strategy between funders affects the quality and extent of research done, prevents sustainable careers being developed, and fails to meet the demand of those who want to know more about how to translate research effectively.

Prioritising a research agenda for KT

Several of the KT research prioritisation exercises identified in this review presented highly detailed, nuanced sets of research areas which effectively built on existing knowledge in the field. It has been outside the scope of this light-touch review to investigate the prioritisation exercises in the depth required, but several very detailed, nuanced research agendas were identified which drew on long-term, substantial efforts to identify true knowledge gaps.

A note of caution – this review only identified agendas relating to knowledge translation, whereas much of the relevant research in this area is labelled otherwise by its practitioners (for example, innovation studies, research on research, research assessment, and so on). A full review of the research agendas across these fields would undoubtedly offer a complementary set of research priorities which are also relevant to this programme of work.

Comparing these findings with evidence about existing KT activity, and evidence on effectiveness of KT interventions would also aid further prioritisation within the broad areas identified in this review.

Based on the findings of this review, we recommend:

1. Seeking to **build consensus between funders** to support KT strategy and research which will be relevant across disciplinary boundaries. It seems likely that there are opportunities for funding efficiencies if collaborative structures can be established. For example, working with groups which have already published in-depth prioritisation exercises, including (based on the findings of this review):

- The Integrated Knowledge Translation Research Network, which published a research agenda based on a colloquium on IKT in 2020 https://iktrn.ohri.ca/ (Boland et al., 2020). This is likely linked to the work done by Anita Kothari elsewhere, e.g. (Kothari et al., 2014)

- The National Research Council of the USA National Academies https://www.nationalacademies.org/ , which published "Communicating Science Effectively: A Research Agenda" in 2017 (Fischhoff, 2019)

- INGSA, who work with groups such as Akerlof (Akerlof et al., 2019)on legislative science advice https://ingsa.org/

- CSIRO https://www.csiro.au/en/ who have supported multiple projects on evidence use , e.g. (Cvitanovic et al., 2016)

- Transforming Evidence https://transforming-evidence.org/ who have published research agendas in this area (Oliver and Boaz, 2019c)

- The Research on Research Use subgroup of the Transfomring Evidence Funders' Network , who seek to improve the quality of research done in this area https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2022/04/the-transforming-evidence-funders-network, e.g. (Tseng, 2021)

- EVIPNet call for action: https://www.who.int/news/item/30-12-2021-together-on-the-road-to-evidence-informed-decision-making-for-health-in-the-post-pandemic-era-new-evipnet-call-for-action

- Cochrane Convenes report and call for action: https://convenes.cochrane.org/call-action; https://convenes.cochrane.org/report

- Evidence Commission report: https://www.mcmasterforum.org/networks/evidence-commission#:~:text=The%20Global%20Evidence%20Commission%20report,see%20also%20the%20executive%20summary

2. **Seeking existing evidence** on the identified research, practice, and funding gaps to ascertain where more research and funding activity is required, and where lessons from existing lesson need to be shared to enable evidence - based KT practice.

3. **Supporting evidence syntheses** from the KT research to articulate key lessons from the field, and supporting wide and effective dissemination of these results to funders, publishers, decision-makers and researchers across disciplinary and policy domains.

4. Identifying groups which have already conducted in-depth prioritisation exercises, and working with them to **triage priorities** based on a cross-disciplinary review of the evidence.

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Appendix 1: Search strategies, conducted December 2023

Pubmed

("research agenda"[Title/Abstract] OR ("prioritisation"[Title/Abstract] OR "prioritised"[Title/Abstract] OR "prioritized"[Title/Abstract] OR "prioritization"[Title/Abstract]) OR "priority-setting"[Title/Abstract] OR "agenda-setting"[Title/Abstract]) AND ("knowledge management"[MeSH Terms] OR ("knowledge translation"[All Fields] OR "knowledge exchange"[All Fields] OR "knowledge communication"[All Fields] OR "evidence translation"[All Fields] OR "knowledge mobilisation"[All Fields] OR "science communication"[All Fields] OR ("knowledge mobilisation"[Title/Abstract] OR "knowledge exchange"[Title/Abstract] OR (("evidence"[All Fields] OR "evidences"[All Fields] OR "evident"[All Fields] OR "evidently"[All Fields]) AND "mobilisation"[Title/Abstract]) OR "knowledge transfer"[Title/Abstract] OR "evidence uptake"[Title/Abstract] OR "knowledge uptake"[Title/Abstract] OR "evidence use"[Title/Abstract] OR "evidence utilisation"[Title/Abstract] OR "evidence utilization"[Title/Abstract] OR "knowledge

utilization"[Title/Abstract] OR "knowledge utilisation"[Title/Abstract] OR "knowledge use"[Title/Abstract])))

Web of Science

((((TI=(priority-setting)) OR AB=(priority-setting)) OR ALL=(prioritisation)) OR ALL=(prioritization)) OR TS=(agenda-setting)	44,841
((TS=(knowledge mobilisation)) OR TI=(knowledge mobilisation)) OR AB=(knowledge mobilisation)	5,088
#10 OR #9	67,085
#8 OR #7 OR #6 OR #5 OR #3 OR #2	62,439
((TS=("Evidence utili*")) OR TI=("Evidence utili*")) OR AB=("Evidence utili*")	147
((TS=("Evidence use")) OR TI=("evidence use")) OR AB=("evidence use")	451
(TI=(knowledge exchange)) OR AB=(knowledge exchange)	30,800
(AB=(knowledge translation)) OR TI=(knowledge translation)	19,373
#13 AND #11 and 2024 or 2023 or 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 (Publication Years)	206

Google scholar: first 100 screened