

Testing the Waters Before Diving In: Determining the Type of Knowledge Gap and the Readiness of Knowledge to Fill It

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Center on Knowledge Translation for Disability and Rehabilitation Research

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Center on
**KNOWLEDGE TRANSLATION FOR
DISABILITY & REHABILITATION RESEARCH**

at American Institutes for Research ■

An underwater photograph of a sea turtle swimming over a coral reef. A diver is visible in the background, swimming above the turtle. The water is clear and blue, with sunlight filtering through from the surface.

Testing the Waters Before Diving in

Determining the Type of Knowledge Gap and the Readiness of Knowledge to Fill It

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Background

- Interest in knowledge translation started during PhD and postdoctoral fellowship
 - Knowledge translation associate for CUGL's GREaT Hub at Carleton University
- Knowledge broker, content specialist—GREO
- Knowledge mobilization specialist—Frayme

What Is Knowledge Translation?

More than 100 terms that refer to all or sub-component of KTE

- Knowledge translation, transfer, mobilization, management, exchange
- Diffusion of innovation
- Research use/impact, utilization, uptake
- Broader impact
- Implementation Science

Plethora of frameworks and models

- Some based on iKTE, some focus on end-of-grant
- Not enough focus on the stages 'before' KTE

I needed clarity, so I created my own!

Source. McKibbin, K. A., Lokker, C., Wilczynski, N. L., Ciliska, D., Dobbins, M., Davis, D. A., ... Straus, S. E. (2010). A cross-sectional study of the number and frequency of terms used to refer to knowledge translation in a body of health literature in 2006: A Tower of Babel?. *Implementation Science*, 5(1), 16.

The Great Flowchart

Knowledge Translation and Exchange in Gambling: A Researchers Guide Conceptual Flowchart

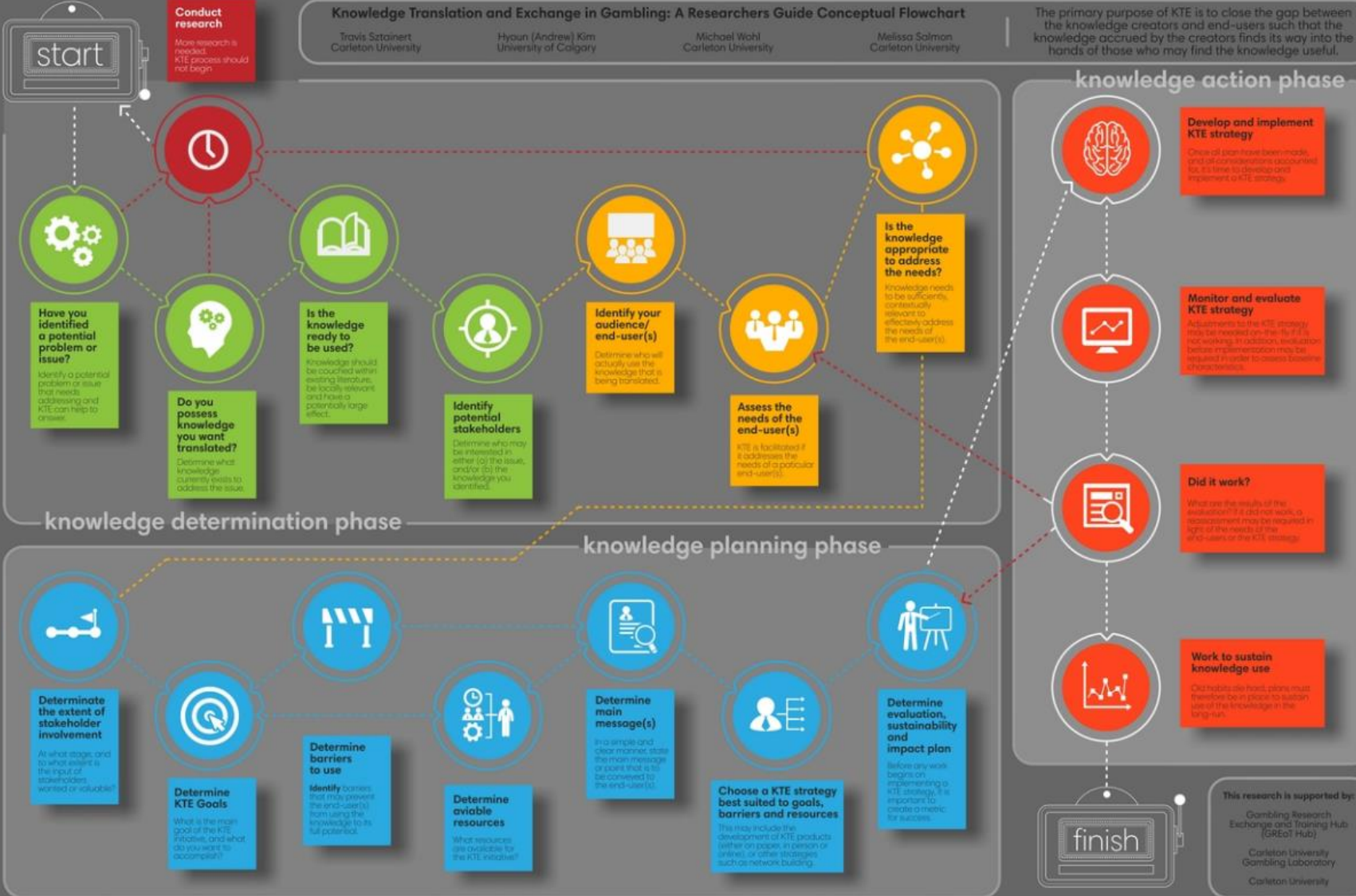
Travis Stainert
Carleton University

Hyun (Andrew) Kim
University of Calgary

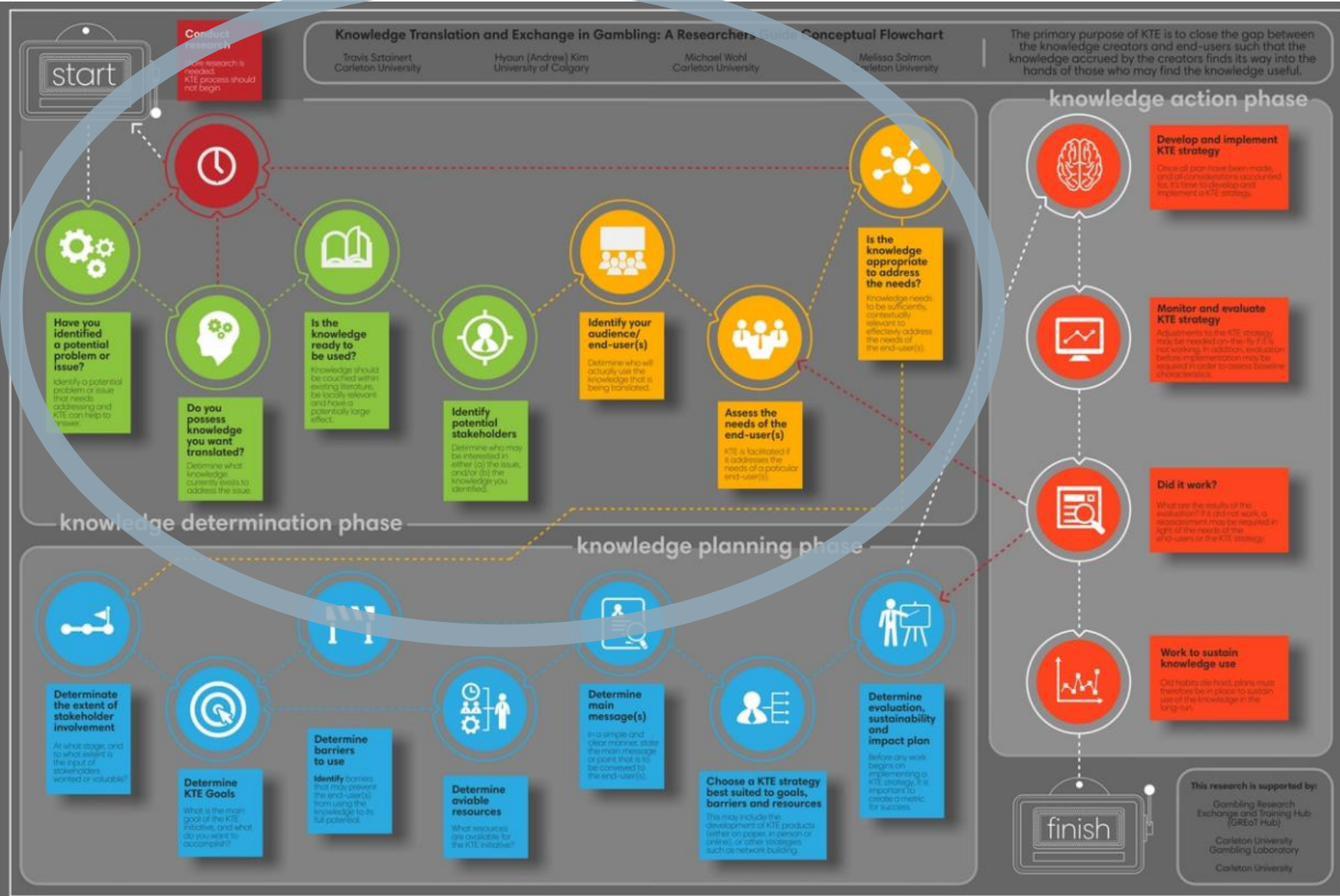
Michael Wohl
Carleton University

Melissa Solomon
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The primary purpose of KTE is to close the gap between the knowledge creators and end-users such that the knowledge accrued by the creators finds its way into the hands of those who may find the knowledge useful.



The Knowledge Determination Phase



Knowledge-to-Action Gap





Knowledge-to-Action Gap (cont'd.)



Specific Micro-Gaps?



Two Overarching Gaps



Attitude/Value-to-Action Gap

What people say they value and want \neq what they do.

- Discrepancy between stated values and behavior.

People are really bad at telling you what they want.

- Other, more important considerations (e.g., cost) come into play when it is time to decide.

This gap is often addressed based on an information-deficit and rational-choice model of human behavior.

- Cognitive or social-psychological theories of decisions fail to account for cultural, institutional, and structural constraints.

Intention-to-Action Gap

Models/research suggest that “intention” is one of the best predictors of behavior.

- Theory of Reasoned Action.
- Theory of Planned Behavior.
- Triandis’s Attitude-Behavior Theory.
- Prospection Motivation Theory.

Meta-analysis of meta-analyses suggests intention accounts for 28% variation in behavior.*

- Intentions change over time, but temporal stability does improve consistency between intention and behaviour.**

***Source.** Sheeran, P. (2002). Intention—Behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, 12(1), 1–36.

****Source.** Sheeran, P., & Abraham, C. (2003). Mediator of moderators: Temporal stability of intention and the intention-behavior relation. *Personality and Social Psychology Bulletin*, 29(2), 205–215.

More Micro-Gaps

Communication-to-Action Gap

Poor directions/instructions for how to change.

- People need to know why, where, what, when, who, and **how**.

May include miscommunication due to:

- Lack of clarity around the goal.
- Lack of clarity around “how to get to” the goal.
- “False” communication or “other intentions” (lack of support).

Motivation-To-Action Gap

If people already know what/how to do something, but choose not to do it . . .

Reasons may be numerous:

- They don't buy into it (lack of belief)
- It doesn't make sense (lack of clarity)
- Anxious/concerned about change
- Distractions or lack of focus
- Not interested in making the effort to change
- Lack a big picture to guide them (lack of destination)

Is this “our” problem?

- Don't people bring their own motivations?

Skills-To-Action Gap

Even if I understand knowledge, appreciate it, believe it, and want to change my behavior, I may **lack experience**.

The only thing that's going to get me ready to hike the Appalachian Trail is a lot of practice and conditioning (multiple smaller hikes).

- Gear won't help.
- Understanding the starting point and end point won't help.
- Route planning won't really help.
- Maybe spending time on elliptical and stair-climber will help a bit . . . but probably not.

Habit-To-Action Gap

Creating and maintaining new habits can be difficult.

- New Year's Resolution effect.

Unlearning/De-implementation

- Does a new action require doing something familiar in a new way?
- Old habits die hard (automatic processing).
 - Teaching an old dog new tricks is relatively easy.
 - Unteaching an old dog a trick it already knows is borderline impossible.
- Requires conscious effort to do something new.

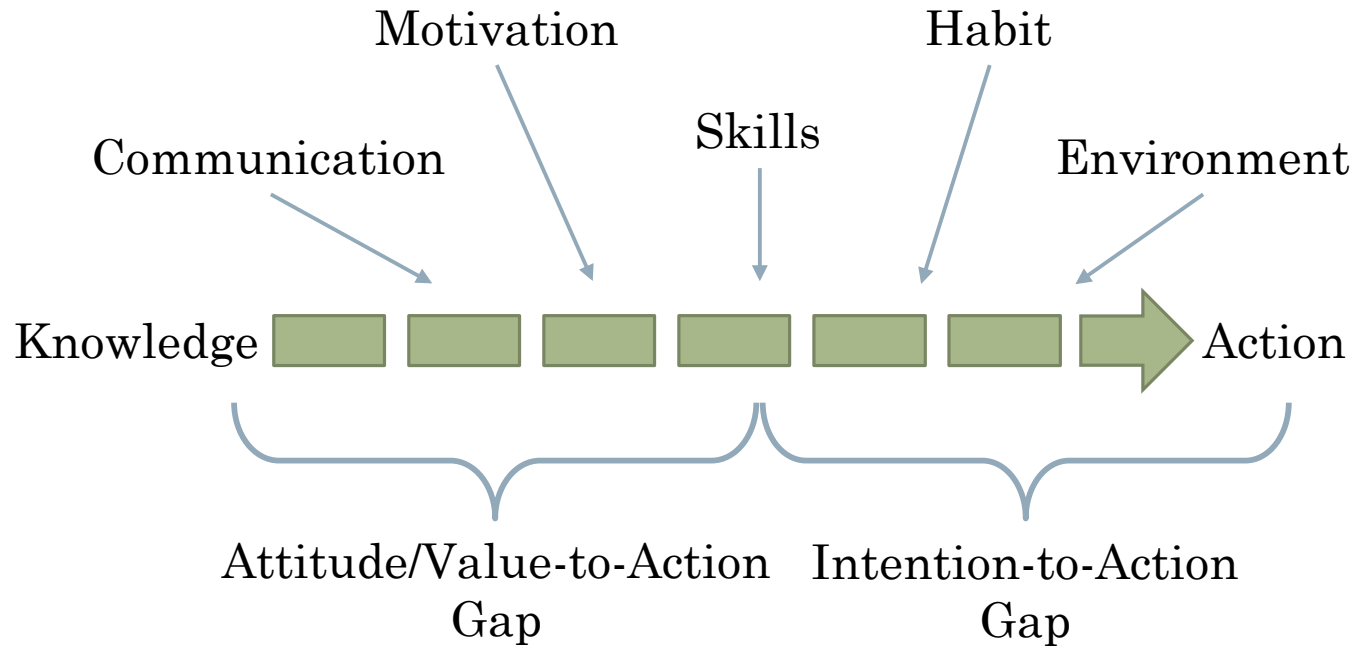
Environment-To-Action Gap

The environment isn't set up to let people succeed.

- Do processes in an organization support the change?
- Are there materials, references, and aids to support a person in his or her environment?
- Are people being rewarded for making the change?
- Is the change being reinforced over time?

This is where change management can help!

Possible Micro-Gaps



Nothing New

Attitude/Value-to-Action Gap

There exist numerous frameworks and models that can help examine the attitude/value-to-action gap, including:

- The theory of planned behaviour
- Social cognitive theory
- Health belief model
- Stages of change model

Intention-to-Action Gap

Similarly, there are frameworks and models that can help examine the attitude/value-to-action gap, including:

- Maslow's hierarchy of needs
- Hierarchy of the four sources of motivation
- Arnold's appraisal theory of emotion

Gap-Assessment Tool?

Knowledge

- Do individuals realize there is a way to fill the K2A gap?
- Do they know the knowledge exists?

Communication

- Are the goals clearly communicated and understood?

Motivation

- Are individuals resistant to changing course?
- Is there apathy toward the change?

Skill

- Is it reasonable to think someone can fill the K2A gap without practice?
- What will they need to practice? Where are opportunities for them to practice?

Gap-Assessment Tool?

Habits

- Are the required behaviors habit?
- Are there any existing habits to be unlearned?

Environment

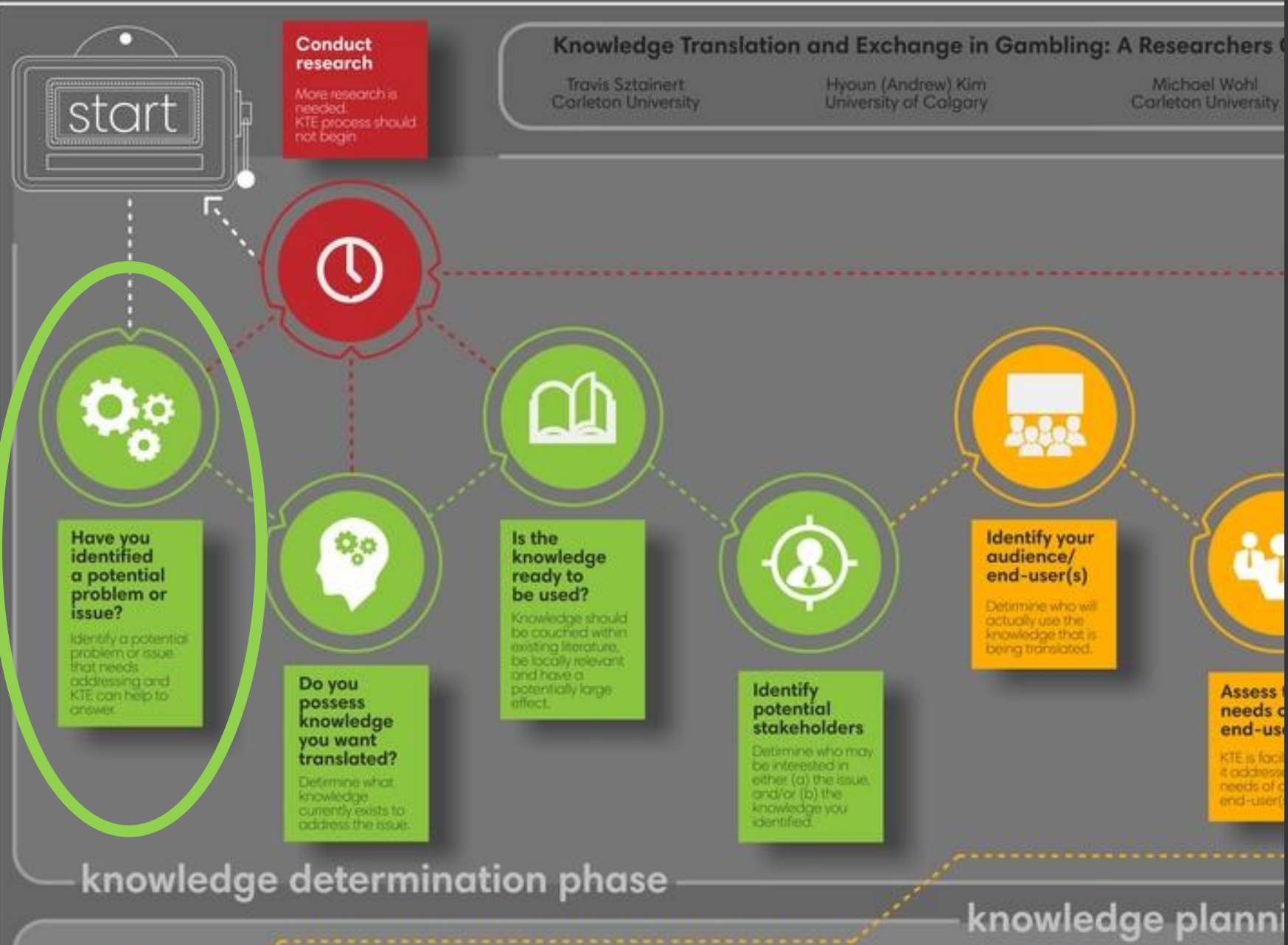
- Are there factors in the environment preventing individuals from being successful?
- What do individuals need from the environment to make them successful?

Is Knowledge
Available and
Ready?

Back to the Knowledge Determination Phase



Identifying the potential problem or issue



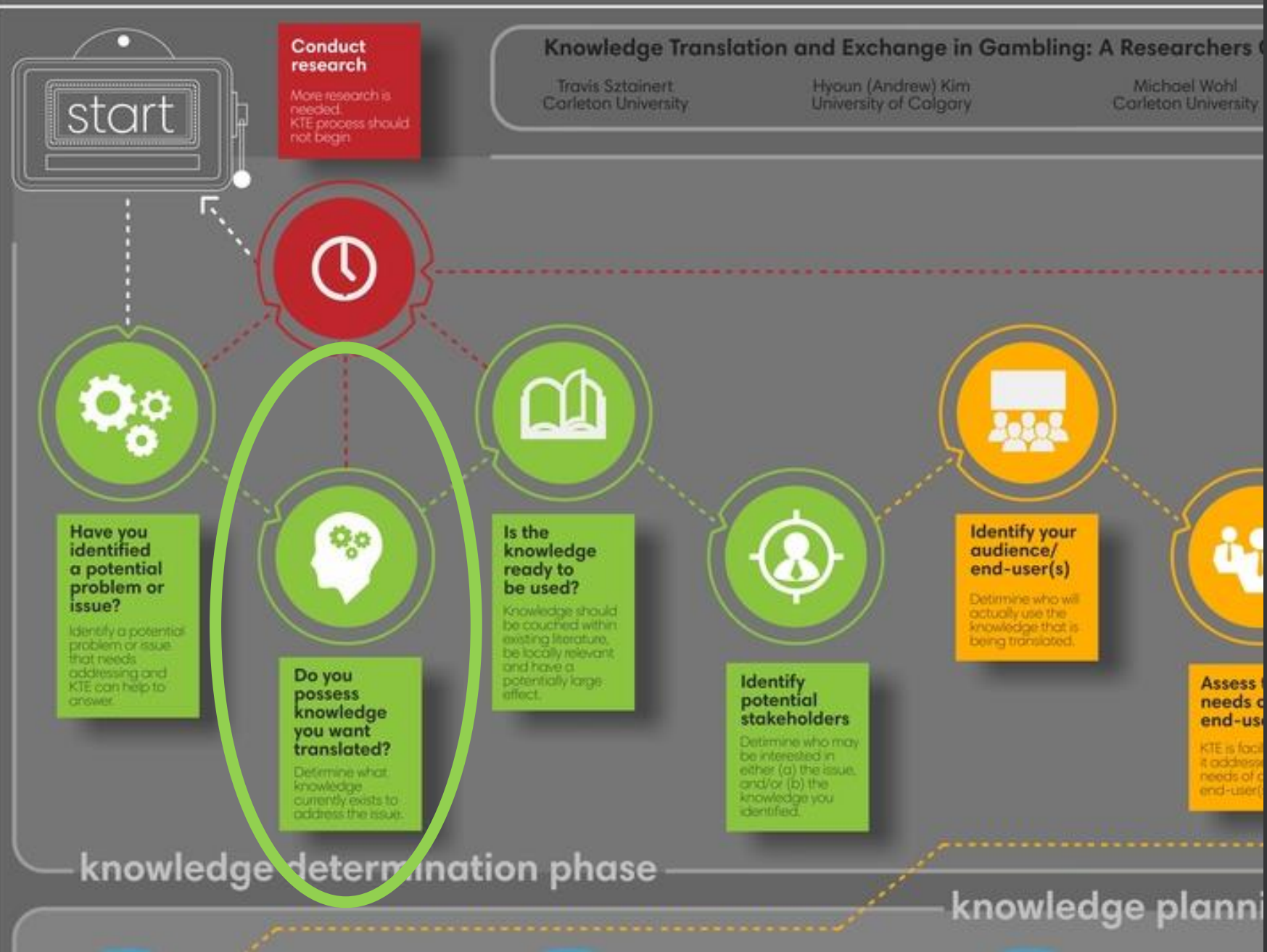
Knowledge Translation and Exchange in Gambling: A Researchers

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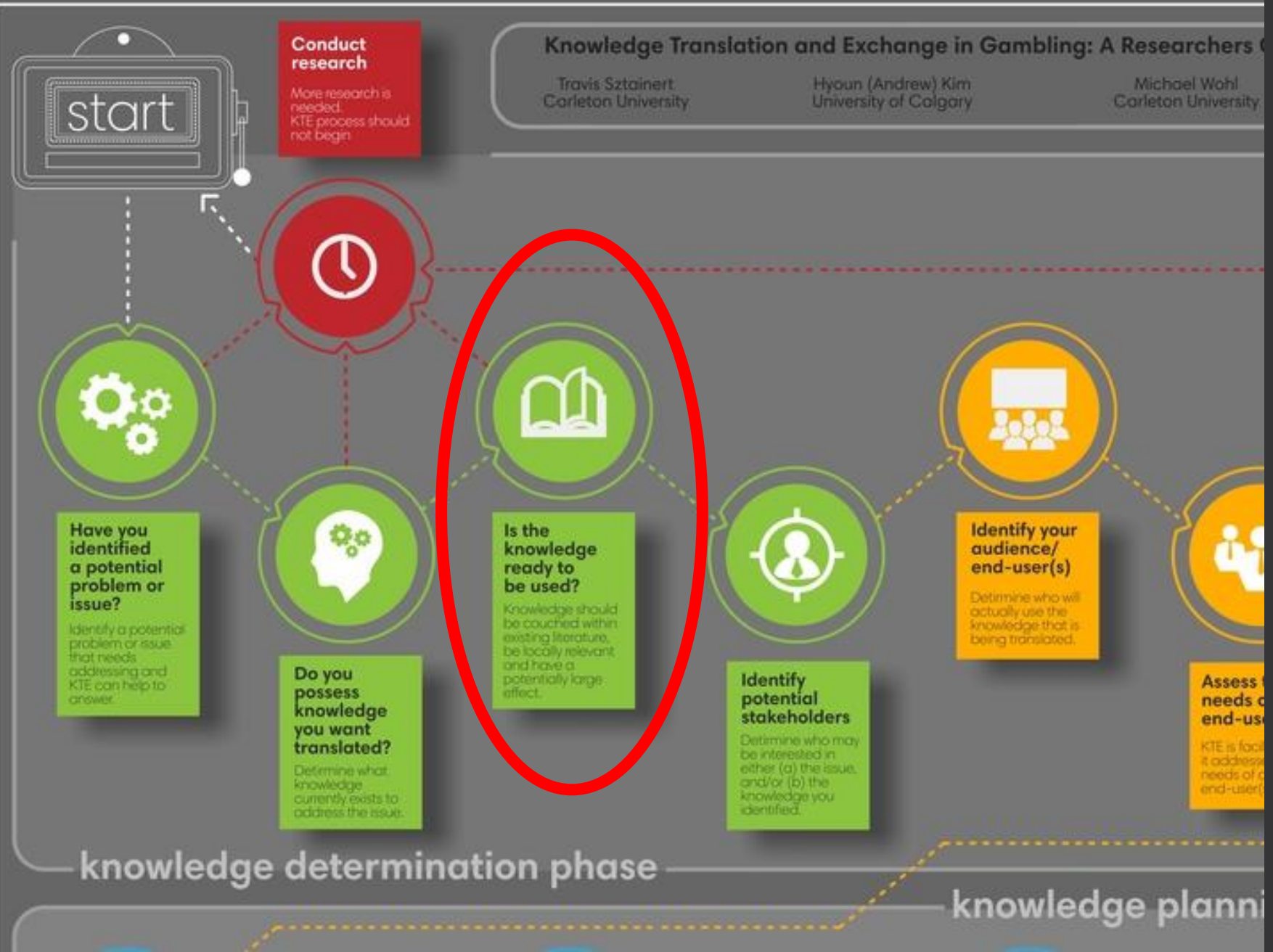
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Determining what knowledge currently exists



Determining if knowledge is ready to be used



How to determine readiness?

When considering end of grant KT activities, it is critical to consider the strength of the evidence and its significance and tailor our strategies as appropriate (p. 5).

Not all knowledge is born equal; it exists on a continuum of readiness for use.

- Thus, even though knowledge may exist to address an identified problem, it may not be ready for use.

Decisions about the extent and ambitiousness of KT plans should be guided by the reliability, validity, strength, and significance of research findings (p. 76).

Overarching Criteria

1. **The evidence in hand is couched within a larger body of work and exists within a solid foundation of valid, high-quality theory and research.**
 - Do not place excessive emphasis on the results of single small studies, studies of poor methodological quality, or studies in which the strength of the evidence is low.
 - Helps to address cherry-picking and media-bias.
 - Important that the knowledge (be it from a primary study or a systematic review) is of high quality.
 - What is knowledge?
 - Rigor versus relevance; research versus practice-based evidence.
 - Some authors argue that knowledge synthesis (systematic reviews) should be considered the base unit of knowledge translation.

Overarching Criteria (cont'd.)

2. The evidence is relevant/appropriate for the targeted domain of use.

- Evidence should be considered of major significance to knowledge users.
- Evidence should be locally relevant and adaptable to its targeted domain of use.

3. The evidence will have a significant impact on the knowledge users or systems.

- If evidence has the opportunity to greatly impact the health or well-being of the knowledge users, it is worth furthering KT efforts.



Tool Design

The tool is divided into two sections:

- Quality and strength of evidence.
- Significance of evidence.

The tool is designed to be used by anyone who wants to assess the KT readiness of completed or near-completed research (i.e., end-of-grant), their own research, or the research of others.

Current checklist deals with “empirical evidence” (health and social science perspective).

- Initial considerations of the basis of empirical evidence are based on the evidence pyramid.
- This section can/should be adapted to meet the needs of your organization.

Tool Blueprint

Draft End-of-Grant Readiness Tool

END-OF-GRANT READINESS TOOL		
INITIAL CONSIDERATION		POINTS
What is the empirical basis of (i.e. evidence for) the knowledge?	Knowledge Synthesis	
	Meta-analysis	10
	Systematic Review	8
	Critically Appraised Synthesis	6
	Primary Research	
	Randomized Controlled Trial	4
	Cohort, case-controlled or epidemiological	2
	Observational	1
QUALITY AND STRENGTH OF EVIDENCE		
Is the empirical evidence high quality (methodologically or otherwise)?	YES	Up to +10
	NO	Up to -10
Is the evidence in line with an existing body of knowledge, or couched within an existing literature?	YES	+5
	LIMITED	0
	NO	-5
What is the estimated effect size of the outcome? Thresholds Compute	LARGE	+7
	MEDIUM	+4
	SMALL	0
	UNKNOWN	-2
Was the sample size adequate to detect the discovered effect size? Power analysis	MORE	+5
	ADAQUATE	+1
	UNKNOWN/LESS	-5
Is the evidence ecologically valid?	YES	+3
	NO	0
	UNKNOWN	-1
SIGNIFICANCE OF EVIDENCE		
Note: You may need to consult stakeholders or knowledge-users to help you answer some of these questions.		
Does the evidence fill a KU knowledge 'gap' or 'need'?	YES, determined via a specific request	+15
	YES, determined via needs assessment or formal consultation	+8
	YES, determined via local opinion	+6
	NO	-15
Can the evidence be applied to the target population?	YES	+5
	MAYBE - Can be adapted	+4
	NO	-2
Does the evidence directly address the desired change (in beliefs, attitudes, behaviour etc.)?	YES	+5
	TANGENTALLY	0
Does the evidence provide a new, novel or innovative way to address a desired change?	NO	-5
	YES	+5
	NO	0

Initial Consideration

END-OF-GRANT READINESS TOOL

INITIAL CONSIDERATION	POINTS	
What is the empirical basis of (i.e. evidence for) the knowledge?	Knowledge Synthesis	
	Meta-analysis	10
	Systematic Review	8
	Critically Appraised Synthesis	6
	Primary Research	
	Randomized Controlled Trial	4
	Cohort, case-controlled or epidemiological	2
	Observational	1

Quality and Strength of Evidence

QUALITY AND STRENGTH OF EVIDENCE		
Is the empirical evidence high quality (methodologically or otherwise)?	YES	Up to +10
	NO	Up to -10
Is the evidence in line with an existing body of knowledge, or couched within an existing literature?	YES	+5
	LIMITED	0
	NO	-5
What is the estimated effect size of the outcome? Thresholds Compute	LARGE	+7
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	SMALL	0
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Was the sample size adequate to detect the discovered effect size? Power analysis	MORE	+5
	ADAQUATE	+1
	UNKNOWN/LESS	-5
Is the evidence ecologically valid?	YES	+3
	NO	0
	UNKNOWN	-1

Significance of Evidence

SIGNIFICANE OF EVIDENCE		
Note: You may need to consult stakeholders or knowledge-users to help you answer some of these questions.		
Does the evidence fill a KU knowledge 'gap' or 'need'?	YES, determined via a specific request	+15
	YES, determined via needs assessment or formal consultation	+8
	YES, determined via local opinion	+6
	NO	-15
Can the evidence be applied to the target population?	YES	+5
	MAYBE - Can be adapted	+4
	NO	-2
Does the evidence directly address the desired change (in beliefs, attitudes, behaviour etc.)?	YES	+5
	TANGENTALLY	0
	NO	-5
Does the evidence provide a new, novel or innovative way to address a desired change?	YES	+5
	NO	0

Readiness Outcomes

Each section contains scoring criteria that is then summed and that results in one of three readiness outcomes:

- Low readiness = More research + Passive dissemination
- Moderate readiness = Active dissemination
- Higher readiness = Implementation

Readiness Outcomes

Low readiness to translate:

- The evidence is not yet ready to be translated.
- More high-quality, highly significant research needs to be conducted.
- Passive dissemination (also called diffusion) strategies are appropriate.
- In addition, stakeholders should be consulted to make sure results of future research will be of value.

Examples:

- Presentations at academic conferences or sharing the knowledge on research-centered media.
- Focus groups with knowledge users and stakeholders facilitated to determine their most pressing upcoming issues.

Readiness Outcomes (cont'd.)

Moderate readiness to translate:

- Ready for more active approaches to dissemination.
- Targeting audiences other than researcher may be useful.

Active...approaches may include tailoring the message and medium to the specific audience; linking researchers and knowledge users through linkage and exchange mechanisms, such as small workshops focused on the dissemination of a synthesized body of knowledge or those focused on developing a user-driven dissemination strategy; engaging media; using knowledge brokers; or creating networks or communities of practice involving both researchers and knowledge users (p. 77).

Readiness Outcomes (cont'd.)

High readiness to translate:

- The evidence may be highly useful and therefore should go beyond the regular means of dissemination.
- Consider implementation of evidence into practice.
- For implementation, you need to decide if you want to use the knowledge to promote change in attitudes or behavior or to influence decision making.

Example

- You may want to begin with a small-scale pilot project targeting a population in a local setting. Make sure to secure early involvement of knowledge users and stakeholders.

What's Next?

End of Grant Readiness tool revised

END-OF-GRANT READINESS TOOL		
INITIAL CONSIDERATION		POINTS
What is the empirical basis of (i.e. evidence for) the knowledge? Select best available. See: Levels of Evidence Pyramid	Select From Dropdown	0
QUALITY AND STRENGTH OF EVIDENCE		
Is the empirical evidence high quality (methodologically or otherwise)?	Select From Dropdown	0
Is the evidence in line with an existing body of knowledge, or couched within an existing literature?	Select From Dropdown	0
What is the estimated effect size of the outcome? See: Thresholds See: Compute	Select From Dropdown	0
Was the sample size adequate to detect the discovered effect size? See: Power analysis	Select From Dropdown	0
Is the evidence ecologically valid?	Select From Dropdown	0
SIGNIFICANCE OF EVIDENCE		
Note: You may need to consult stakeholders or knowledge-users to help you answer some of these questions.		
Does the evidence fill a KU knowledge 'gap' or 'need'?	Select From Dropdown	0
Can the evidence be applied to the target population?	Select From Dropdown	0
Does the evidence directly address the desired change (in beliefs, attitudes, behaviour etc.)?	Select From Dropdown	0
Does the evidence provide a new, novel or innovative way to address a desired change?	Select From Dropdown	0
	Total	0

Partnership, Iteration, and Testing

Working with Dr. Belinda Goodenough from Dementia Training Australia to help inform a Readiness for KT Tool (R4KT) protocol.

Presented initial findings at the 2019 Australian Dementia Forum:

- Goodenough, B., **Sztainert, T.**, Spector, A., Davies, R., Burns, K., MacAndrew, M., . . . Thompson, J. (2019, June). *Joining the Pipelines: Readiness for Knowledge Translation (R4KT) protocol.*

Plan to publish this tool online as part of the web portal for Dementia Training Australia.



Thank you.



Always interested in collaborations
and sharing, so don't be shy!

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