

Winning your next proposal: “Buzz Tactics” to increase the chances of success

Joseph Lane, Jennifer Flagg, James Leahy

Center on Knowledge Translation for Technology Transfer,
University at Buffalo

Session Objectives

- Introduce key concepts and buzz words.
- Understand federal funding sponsor needs for increased uptake and use of R&D outputs.
- Identify where you are now and where you're going with your technology-based R&D projects.
- Secure valid “Voice of the Customer” through proper focus group methods.

Objective 1. Key Concepts and Buzz Words

Know what to do and what to avoid.



Knowledge Translation (KT)

- A process for moving knowledge generated through research into implementation and application by various stakeholders.
- Key definition – Canadian Institutes for Health Research (CIHR).
- Origins – Systematic reviews to vet literature, and evidence-based practice to achieve efficacy.
- Current KT focus on linear model of research diffusion, and assume conduct of grant-based scholarly activity.
Not sufficient for R&D proposals!

Technology Transfer (TT)

- A process for moving technology-based prototypes generated through development into application and exploitation by stakeholders.
- Key definition – Wikipedia’s is as good as any.
- Origins – Shifting control over invention from one sector to another, or from one application to another, to generate additional value.
- TT process focused on the Path to Market (PtM) where outputs from Research and Development become valid inputs to Production (R/D/P).

Path to Market

- **Supply Push (SP)** – Where R&D generates a discovery or invention independent of target application. Underlies “linear model” where scientific outputs are assumed to eventually and somehow lead to innovations.
- “Message in a Bottle”
- Governments fund such exploratory or inquiry-driven activity in universities. Their Technology Transfer Offices (TTO’s) are saddled with the efforts to match the “solution” to a problem.

Path to Market

- **Demand Pull (DP)** – R&D is initiated in response to identified problem in society, unmet need in the marketplace, or fundamental requirement by industry.
- “Lassie rescues Timmy”
- Only pre-competitive needs can be addressed publicly due to competitive nature of industry. Solutions lack recipient input for customization.



Relevant “Buzz Words”

- **Corporate Collaboration (CC)** - R&D projects conceived, implemented and operated in full partnership with company or industry. Partnership rather than passing solution from one party to another.
- “Hand-tailored Suit”
- Corporate Collaborations focus on the optimal creation of innovative technology-based devices for the marketplace.

Analogies between KT and TT

- “End of Grant” KT = Supply Push. Open-ended search for a way to apply conceptual discovery output from basic inquiry-driven science.
- “Integrated KT” \approx Demand Pull TT. Emphasis on research prolongs timeframe and typically generates a sub-optimal discovery/invention.
- “Prior to Grant” KT = Corporate Collaboration. Validate need and design solution in partnership to complete optimal path for market success.
- Science Rigor + Industry Relevance = Impact!



“Translating Three States of Knowledge: Discovery, Invention & Innovation”

Lane & Flagg (2010)

Implementation Science

<http://www.implementationscience.com/content/5/1/9>

Delivering Solutions to Problems Involves Progress Across Three Knowledge States

Research → **Discovery** → Translation → Utilization ↓

Development → **Invention** → Transfer → Integration ↓

Production → **Innovation** → Release → Lifecycle ↓



Integrate Concepts

- Knowledge embodied in three distinct states: Know role of Research, Development and Production methods in context of project – plan and budget accordingly.
- Initiate with industry engagement: Government and academia projects intended to benefit society fail to cross gaps to becoming market innovations.
- Apply evidence-based framework: Links three methods, communicates knowledge in three states, and integrates key stakeholder who will determine eventual success.

Objective 2: Understanding Federal Funding Sponsor Needs for Increased Uptake and Use of Funded Research by All Stakeholders

James A. Leahy

Center on Knowledge Translation for Technology Transfer

University at Buffalo

<http://kt4tt.buffalo.edu/>



Federal Sponsor Needs

- Using NIDRR of the US Department of Education as an example
- In NIDRR RFP's for RERC's the following requirement appears:

“Increased transfer of RERC developed technologies to the marketplace. RERCs' must contribute to this outcome by developing and implementing a plan for ensuring that all technologies developed by the RERC are made available to the public.” Hence the need for a technology transfer plan.
- Why?



Federal Sponsor Needs

- NIDRR intends to improve "marketplace" outcomes from RERC's.
- NIDRR has set specific goals to increase such outcomes by 20% by the year 2013.
- NIDRR needs to meet this goal to demonstrate results to the Office of Management and Budget. This is a serious program level mandate, with NIDRR's future funding in question if the performance goals are not met.



Federal Sponsor Needs

- KT4TT in the context of NIDRR Technology grantees means the application of KT theory & practice in R&D to more effectively apply TT processes and generate TT outputs.
- Goal is to have NIDRR technology grantees increase the application of their outputs by manufacturers, clinicians, researchers, policy makers, brokers, and consumers.
- University researchers, interested in having their research culminate in consumer products, must become skilled in translating their research findings into a format and language used by product manufacturers, clinicians, consumers and others.



Federal Sponsor Needs

- Grant proposal differentiates between research projects and research and development projects generating new prototypes.
- For projects that intend to conduct research and generate knowledge that is intended strictly for publication and scholarly application, this message is not relevant.
- This message is meant for projects that involve technologies and generate outputs intended for use by others, who in turn will generate outcomes with beneficial impacts for, in the NIDRR case, people with disabilities.



Federal Sponsor Needs

For example:

- Projects that intend to generate draft or final industry standards, clinical protocols or practice guidelines.
- Projects that intend to generate instruments or tools for use by others in research or practice.
- Projects that intend to generate hardware devices or software systems that will be made available for free access by request or direct download.
- Projects that intend to generate a device or service intended for release into the commercial marketplace.



Federal Sponsor Needs

So what are federal funding sponsors, such as NIDRR, looking for in proposals?

- Concrete evidence of an intent to transfer.
- Any project that intends to involve technology transfer requires articulation of a Technology Transfer Plan.
- We recognize that one might consider the expressed intent to transfer to be equivalent to a plan for transfer. But, it's not!!!



Federal Sponsor Needs

In your proposal for each Research and Development project you need to generate an operational framework describing:

- The stages/steps/tasks involved;
- The monetary and staff resources dedicated to each;
- The timeline and resource loading by the grantee and expected by others;
- Anticipated milestones for tracking and evaluating progress through the process.



Federal Sponsor Needs

Need access to a template or framework for this effort?

- Refer you to the NtK model at our website.
- Stage/gate framework articulates nine stages (three each for Research, Development and Production activity) and the steps and tasks for each stage.
- In cases where stages were completed in a prior funding cycle or completed by others, that information needs to be stated and shown on the project timeline.

Federal Sponsor Needs

- In cases where the proposed work may require the full grant cycle, with transfer to external stakeholders beyond the end of the grant cycle, this information should be stated and shown in timeline.
- Level of detail you provide should permit an independent external reviewer, to assess the quality and comprehensiveness of your R&D efforts.
- Level of detail you provide should allow sponsor to feel confident you will reach your stated goals.

Objective 3: Identifying Where You are Now and Where You are Going

Jennifer L Flagg

Center on Knowledge Translation for Technology Transfer

University at Buffalo

<http://kt4tt.buffalo.edu/>



Objective 3 Outline

- Need to Knowledge Model
- Template for Commercialization or TT Plans
- Gaant Charts
- Key Take-Aways

The Need to Knowledge Model

- Outline path to market
 - Begin with the end in mind!
 - Early identification of important downstream considerations
 - Early involvement of partners
- Stages and gates



Knowledge Base Main Page

KT4TT: KT4TT Knowledgebase - Windows Internet Explorer

http://kt4tt.buffalo.edu/knowledgebase/index.php

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★ Favorites KT4TT: KT4TT Knowledgebase



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KT4TT Home	KT4TT Knowledge Base
Research Activities	<p>Welcome to the KT4TT Knowledge Base! Here you will find information about the research, development and production processes involved in moving knowledge from scholarly discovery, through prototype invention, and out to a marketplace innovation. The content is NOT relevant to persons engaged in basic research, but rather is intended to guide applied researchers and product developers who intend to generate beneficial technology-based social and economic impacts. From this page, you may do the following:</p> <p>View the model for the development of commercial devices and services.</p> <p>Search the evidence base for information relevant to you and your organization.</p> <p>Provide feedback to the site and content developers.</p>
Development Activities	
Knowledge Base	
Publications & Conferences	
News	
Personnel	



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Internet 100%

Links Everywhere- What to click?

Internet Explorer

/model.php#table

Live Search

Stage/Gate	Steps Hide all	Tips Hide all
Discovery Phase		
Stage 1: Define Problem and Solution [Supporting Evidence] Pill crusher example 	<ul style="list-style-type: none"> 1.1 Opportunity for KT: Assess needs for device or service with input from relevant stakeholders from the six knowledge user (KU) groups. [Supporting Evidence] 1.2 Identify a problem (need). Identify audience for solution. Identify context for both. [Supporting Evidence] 1.3 Propose plausible solution (goal) to problem in the form of a device or service. [Supporting Evidence] 1.4 Determine scope of project (role); output as conceptual discovery, prototype invention or device/service innovation? [Supporting Evidence] 1.5 Consider path to market. [Supporting Evidence] 	<ul style="list-style-type: none"> Limit disclosure of information regarding solution and document all original thinking related to solution). [Supporting Evidence] Scope of project determines segments of KT4TT model involved with research generating discovery, development generating invention and production generating innovation level outputs. [Supporting Evidence] Consider resources, timelines, and partners when defining path to market. [Supporting Evidence]
Gate 1: Idea Screen. PI decides to either terminate or move forward with project to develop solution to problem. [Supporting Evidence]		
Stage 2: Scoping (Initial screen to validate innovativeness and value to target markets) [Supporting Evidence] Caller connect example 	<ul style="list-style-type: none"> 2.1 Define innovation opportunity. [Supporting Evidence] 2.2 Opportunity for KT: expanding on previously identified needs, perform preliminary valuability assessments (business, market and technical) on device/ service with input from stakeholders in KU groups. [Supporting Evidence] 2.3 Identify potential barriers. [Supporting Evidence] 	<ul style="list-style-type: none"> Delineate positioning strategy of future device/service. [Supporting Evidence] Preliminary market assessment- Create potential value proposition including target price and performance parameters. Is concept novel and useful? Will prototype have value to intermediary stakeholders? Will device/service have value by the time it reaches the marketplace? [Supporting Evidence] Preliminary business assessment – For profit, cost recovery or

Link to Example



[Pill crusher example](#)



Supporting Evidence Link



[\[Supporting Evidence\]](#)



Link to Glossary Definitions



[KU groups](#)

Supporting Evidence Links

- Supporting evidence links for stages and steps/tips/gates
 - Stages
 - Key themes
 - Citations related to each theme
 - All findings
 - Steps/Tips/Gates
 - Tools
 - Citations related to the step
 - All findings

New Interface-Coming Soon!



KTA for projects terminated at completion of Discovery Phase.

- 3 A
- 3 B
- 3 C
- 3 D
- 3 E
- 3 F
- 3 G

KTA for project terminated at completion of Invention Phase.

- 6 A
- 6 B
- 6 C
- 6 D
- 6 E
- 6 F
- 6 G

KTA for an un-launched innovation.

- 7 A
- 7 B
- 7 C
- 7 D
- 7 E
- 7 F
- 7 G



KT Table

Discovery Outputs

KU Group	Consumers	Clinicians	Policy Makers	Researchers	Brokers	Manufacturers
What to Share with Each KU Group	Strategic Use: Use initial needs assessment paired with research findings to develop talking points that demonstrate how knowledge (K) could lead to product development and improved Quality of Life (QoL)	Strategic Use: Use initial needs assessment paired with research findings to develop talking points that demonstrate how K could lead to product development and improved QoL.	Strategic Use: Use initial needs assessment paired with research findings to develop talking points that demonstrate how K could lead to cost savings and improved QoL.	Conceptual Use: Disseminate non-proprietary K to stimulate additional research (R).	Instrumental Use: Use needs assessment, valuability assessments and value proposition to demonstrate value of K. Develop preliminary commercialization package to promote benefits (financial and otherwise) to brokers and their clients.	Instrumental Use: Use needs assessment, valuability assessments and value proposition to demonstrate value of K. Develop preliminary commercialization package to promote benefits (financial and otherwise) to manufacturers.
How to Reach Each KU Group	Network with consumer advocacy organizations (CIL, Cerebral Palsy Association, AARP, etc.) and ask them to publish an article in their newsletter or have them email their constituents. Present at organizational meetings. Ask the organizations to have a link on their website to your website. Use fliers, emails, phone calls and face to face meetings.	Present findings at clinician oriented conferences (AOTA, APTA, CSUN, ISS, etc.). Use research papers, power point presentations, mailings, emails, presentations at conferences.	Presentations communicated to program directors, reply to invitations for comments or talk with elected officials. Use email, calls, face to face meetings, power point presentations.	Present findings at research oriented conferences (RESNA, etc.); publish in clinical and in AT research journals. Use research papers and power point presentations.	Face to face meetings with University TTO may be most effective. Utilize their invention disclosure processes. Develop a preliminary commercialization package (soft or hard copies) and use power point presentations.	Conduct face to face meetings with individual manufacturers at their home office, or at conferences/tradeshows (Medtrade, ATIA, etc.). Develop preliminary commercialization package (soft or hard copies) and use power point presentations and tailored emails.
Anticipated Knowledge Translation Outcomes	Consumers can use talking points to contact politicians to advocate for reimbursement of potential devices, or contact manufacturers and distributors to stimulate product demand.*	Clinicians can use talking points to contact politicians to advocate for reimbursement of potential devices, or contact manufacturers and distributors to stimulate product demand.*	Policy makers can use talking points as a basis for introducing and supporting legislation to provide reimbursement for potential devices.*	Researchers can use findings as a basis for additional research on related topics.*	Brokers can use preliminary commercialization package to stimulate discussions between manufacturers and researchers pertaining to application of research findings.*	Manufacturers can use preliminary commercialization package to engage in discussions with brokers and researchers pertaining to application of research findings.*

* Carefully consider this option, as disclosure may have a negative impact if unprotected IP is disclosed

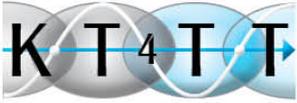


Now...

How can YOU use this
model for planning
purposes?

The KT4TT Need to Knowledge Model

Stages and Gates	Steps	Plans/Progress
Stage 1: Define Problem and Solution	<ol style="list-style-type: none"> 1.1. Opportunity for KT: Assess needs for device or service with input from relevant stakeholders from the six knowledge user (KU) groups. 1.2. Identify a problem (need). Identify audience for solution. Identify context for both. 1.3. Propose plausible solution (goal) to problem in the form of a device or service. 1.4. Determine scope of project (role); output as conceptual discovery, prototype invention or device/service innovation? 1.5. Consider path to market. 	<ol style="list-style-type: none"> 1.1. Met with two manufacturers, approximately 12 product end-users, three suppliers, and one broker to identify need and potential market for widget. 1.2. Used data from 1.1 to clarify unmet needs and narrow target market audience. 1.3. Used data from 1.1 to define widget parameters. 1.4. Decided to complete research and development phases in house, and plan to hand off project to manufacturer for production phase. 1.5. Met with <u>TTQ</u> to determine their role in identifying and securing a manufacturer, and to map out details of interactions with potential manufacturers.
<p>Gate 1: Idea Screen. PI decides to either terminate or move forward with project to develop solution to problem. REVIEWED INFORMATION FROM STAGE 1 WITH <u>TTQ</u> AND POTENTIAL PROJECT SPONSOR- DECIDED TO MOVE FORWARD.</p>		
Stage 2: Scoping (Initial screen to validate innovativeness and value to target markets)	<ol style="list-style-type: none"> 2.1. Define innovation opportunity. 2.2. Opportunity for KT: expanding on previously identified needs, perform preliminary <u>valuability</u> assessments (business, market and technical) on device/service with input from stakeholders in the six KU groups. 2.3. Identify potential barriers. 	<ol style="list-style-type: none"> 2.1. Worked with <u>TTQ</u> to determine if the proposed solution (widget) is innovative in light of current market conditions. 2.2 A. Preliminary market assessment- Worked with <u>TTQ</u> to create potential value proposition including target price and performance parameters. 2.2 B. Preliminary business assessment – Determined that the widget must fit into a for profit business model to make it attractive to potential manufacturers. Conducted SWOT analysis to identify barriers to development and production. Developed intellectual property strategy including NDA agreements. Examined regulatory and reimbursement issues. 2.2 C. Preliminary technical assessment – Engineering staff determined that the widget is technically feasible, and can be developed internally.
<p>Gate 2: Second Screen. PI must decide if envisioned project output and eventual device/service outcomes are still considered innovative in the light of results from assessments. PI decides if generation of new knowledge is required. If no, PI decides if project should move directly to invention phase or terminate. If yes, should they pursue external funding to conduct remainder of discovery phase?</p> <p>INVESTIGATOR AND <u>TTQ</u> REVIEWED MATERIALS FROM STAGE 2. DETERMINED THAT WIDGET IS INNOVATIVE AND CAN FEASIBLY BE DEVELOPED INTERNALLY. PROJECT TEAM WILL MOVE FORWARD TO SEE FUNDING FROM POTENTIAL SPONSOR.</p>		



Key Take-Aways

- Think ***Prior to Grant KT***.
 - Involve stakeholders early- ideally before project funding is obtained!
 - Needs of end users are not the only consideration.
- Your ***Path to Market*** will define your key stakeholders.
 - Do you need a manufacturer to achieve impacts?
- ***Contingency Plans*** are crucial!
 - Plan for the “what ifs.”

Objective 4: Identify and Articulate Appropriate Uses of Voice of the Customer

James A. Leahy

Center on Knowledge Translation for Technology Transfer

University at Buffalo

<http://kt4tt.buffalo.edu/>

Voice of the Customer in Funded Research and Development Projects

- Inclusion of consumer input early on in funded researchers proposal shows reviewers increased likelihood of successful product outcome.
- Historically, manufacturers of consumer products have made product design decisions without factoring in the needs, wants, and expectations of the full range of end consumers.
- This process leads to ineffective products in the marketplace, new product failures, and product abandonment. Failure rates for new product introductions vary by industry but range from 30% to 90%.
- The primary cause of these failures can be traced back to a point early in the product design process where significant consumer or device user information failed to be collected and analyzed prior to the initial fabrication of the device (aka prototype).

Voice of the Customer in Funded Research and Development Projects

- Method of inclusion of consumer input – Targeted Focus Groups!
- Targeted focus groups employ purposive sampling, rigorous primary and secondary recruitment screens, and state of the art product and feature demonstrations early in the design process.
- Focus groups allow new product developers to obtain specific design functions and features for the product being developed directly from the product's targeted end users.
- Farther on in the product development process these same targeted, educated, end users are reconvened to review functional prototypes of the new product prior to its initial production run.

Focus Group Methodology

Steps Prior to the Focus Groups

- Step 1: Identification of product target area.
 - Have you identified an unmet need in the consumer marketplace?
- Step 2: Identification of focus group participants and the use of purposive sampling.
 - With purposive sampling you are seeking a predefined group of consumers not a random selection of the general population.
- Step 3: Use of general media outlets to recruit potential focus group participants.
 - This includes newspaper, television or radio ads, and targeted placement of recruitment flyers.
- Step 4: Rigorous primary and secondary screens administered to potential focus group participants.

Focus Group Methodology

Focus Group Process

- Step 5: Decision point.
 - If this is a product refinement focus group, does the group have to be educated on the current state of the science through information or product demonstrations prior to the focus group so that the participants are not just identifying design functions and features of products currently available in the marketplace? If yes, see Step 6. If not, skip to Step 7.
- Step 6: Prepare state of the art product demonstrations.
 - Demonstrations will be performed prior to the start of the actual focus group. Or prepare a listing of the state of the art features currently available in products in the marketplace and discuss them with participants prior to the focus groups.

Focus Group Methodology

Step 7: Run the alpha focus groups or concept definition focus groups which involve consumers in defining product requirements and setting priorities for product design.

- To determine the current status and consumer satisfaction levels with their product function techniques and devices, the participants will be asked to provide background information on a variety of topics involving the product.
- On the topic of ideal product, participants will be asked to provide the attributes of what they perceive to be the ideal device to perform the function.
- The focus group participants undertake an evaluation of static product concept models prepared in advance for the groups.
- Purchase intent and price point questions are asked of the participants for both the conceptualized ideal product and for the concept models shown.

Focus Group Methodology

- Step 8: Beta Focus Groups.
 - Primarily allow the refinement of a product's appearance by the manufacturer through a critique of key design features of a prototype. They provide an opportunity to rank a product's function and design features previously identified in concept definition focus groups.
 - Beta focus group participants are a representative sample of the alpha focus group participants.
 - Two beta groups of twelve participants each are usually sufficient.
 - Beta groups provide the ability to score how well a prototype meets consumer expectations and gauge consumer desire or intent to purchase the product.

Focus Group Methodology

- Step 8: Beta Focus Groups.
 - Beta groups provide the ability to obtain quantitative data on the previously collected qualitative information and allows that data to be applied to the prototype being evaluated. They answer the question as to whether or not a prototype addresses the top function and design features a product must have to be deemed desirable by the consumer.





Voice of the Customer in Funded Research and Development Projects

Resources:

On the T2RERC web site is a Primary and Secondary Marketing Research Training Module which covers focus groups in detail and can be referenced at:

<http://www.t2rerc.buffalo.edu/pubs/training/mod4/PMR%20Module-%202009-%20Sept%2022.pdf>

Also on the KT4TT web site is a Resource Guide on Evaluation for New Product Development and that can be referenced at:

<http://kt4tt.buffalo.edu/publications/Eval%20Trg%20Module%20-%20a%20resource%20guide.pdf>

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