**2015 KT Conference: KT Solutions for Overcoming**

**Barriers to Research Use**

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Session: Technology Transfer Planning Template

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Ann Outlaw: So moving right along, let's stick to the schedule, let's hear from Jennifer Flagg, who is the co-PI at the Center on Knowledge Translation for Technology Transfer, or KT4TT. She has allowed time at the end of her presentation for questions because she will not be able to make our interactive discussion this afternoon. Jen, are you there?

Jennifer Flagg: I am. Thank you for the introduction.

We are here to talk about the Technology Transfer Planning Template, which can be used it perform a deep dive into the ins and outs of commercializing the outcomes of your research and development projects. So this presentation is geared towards those of you who intend to generate technological innovations you hope will one day make their way to the marketplace to improve quality of life for people with disabilities.

So similar to KT, what we have been hearing throughout all these presentations Monday and today is that you really need to budget the time and resources for these activities early on, ideally in your proposal stage. So planning at the proposal stage really helps to ensure that those resources will be available when they are needed later on in the process.

So the template I will describe here is intended to help grantees to ensure that they've considered as many of those potential expenses and time requirements as possible while also helping to investigate the market potential of their proposed projects.

So I'd like to just give an acknowledgment before we get going. NIDILRR is the sponsor for this work through a grant for the Center on KT for TT, and of course, you should not assume endorsement by NIDILRR, ACL, HHS, or the federal government. So jumping right in, let's first consider what makes a good technology transfer plan? So in a nutshell, you want to describe the proposed device and the project goals. What exactly are you creating, and what's your vision for an end product? So if your role ends early on in the project, what will be the ultimate end output? You want to detail who will be carrying out the project's activities. Is everyone working on the project internal to your organization? And if not, what -- yes?

Ann Outlaw: Hey, excuse me, Jen. Would you mind speaking a little bit louder? It's a bit hard to hear.

Jennifer Flagg: Sure. Is this better?

Ann Outlaw: It sounds good to me. Yes.

Jennifer Flagg: So the question here is everyone working on the project internal to the organization, and if not, are there subcontractors involved, consultants, or partners who might be brought on to contribute? Then we need to describe the key stakeholders. So beyond project partners and even beyond end users, we also have to consider the constellation of stakeholders who might have an impact on the purchase or use of a device. So for example, will the device have to be prescribed to a user, maybe by a doctor or a therapist? If so, those individuals are stakeholders in the project's success, and you should really consider involving them in the development process.

We want to demonstrate the competitive advantage. So here we are talking about identifying competing products, what are the alternative solutions, and then describe how the proposed device is superior.

And lastly, we have to identify potential barriers to success and, of course, ways to overcome those challenges. So of course, there will always be unforeseen barriers, but when we try to anticipate the challenges that may arise, we are in a much better position to make decisions that either prevent them from occurring, or we are prepared to handle them as they come about.

So the first three questions here are relatively straightforward. It's the last two where people often get stuck, and that's exactly where the TTPT, the Tech Transfer Planning Template, can become a valuable research.

So what is the TTPT? First, you should know the TTPT is currently under development, so after this presentation, please feel free to contact me if you are interested in being included in the development and testing effort. We've already conducted our needs analysis, but we are always happy to gain new perspectives and include new participants in the remainder of the process.

So as it stance, the TTPT is an online tool that asks simple questions to guide TT, tech transfer, and commercialization activities. Resources and examples are provided throughout the tool, and these give users an idea of how to respond to each question.

You may be wondering where the TTPT's questions came from, and they are derived from two sources. For one is the Need to Knowledge Model, NtK. This is an evidence-based step-by-step guide to best practices and technology transfer and was generated by our Center during our last funding cycle.

Two, the evaluation criteria for Small Business Innovation Research grants commercialization plans. So SBIR grants are awarded by 11 federal agencies in the U.S. These are to stimulate the commercialization of products, services, and technologies by small businesses who may not otherwise be able to afford the risk, working on new technological innovations.

So we found the same criteria was used by NIDILRR, NIH, the National Institutes of Health, and also the Department of Agriculture. We also included some of the criteria that was used by the National Science Foundation, as that expanded and elaborated a bit on the criteria from the other agencies.

So who is the TTPT for? Well, the idea was stimulated by the Rehabilitation Engineering Research Centers, the RERCs, who are funded by NIDILRR and are required to generate TT plans within their first year of funding. Our Center provides technical assistance to these grantees, and we were repeatedly asked if we had a template that the grantees could complete to produce their plans. So as we began work to develop this template, we also realized it could have value to folks who are crafting their SBIR proposals because small businesses are often in a position of needing to transfer their technologies to larger companies for manufacturing and sales. So therefore, many of the same questions apply to both types of grantees.

Finally, anyone engaged in projects that intend to result with new devices in the marketplace may find the TTPT useful. So when would it be used? Well, audiences may wish to use the TTPT when they are fleshing out a project idea or generating a grant proposal. Here the questions can stimulate conversation in areas that may be unfamiliar to individuals who have not engaged in commercialization in the past. And of course, if you are an RERC who is generating a TT plan, this is for you. It could also be helpful for creating reports that can be shared with potential partners like manufacturers.

With the timeline function we plan to include, it will also be useful for logging and reporting project milestones or when seeking ideas to overcome a project barrier, you will be able to navigate to a question related to your issue and then review the resources and examples to gather ideas on how to proceed.

And lastly, if you were listening in to Jim Leahy's presentation on Monday, the TTPT could also be used to formulate elements of a CKP, a contextualized knowledge package, specifically one that's targeting industry partners, such as manufacturers.

So how is KTPT, The Knowledge Translation Planning Template that we just heard described by Melanie? Well, there are two particular places where it may come into play. For example, if we were using the KT Planning Template, and for question 5, which asked which knowledge users or audiences would you target, and you responded with private sector/industry, then the TTPT might be very appropriate for you.

And similarly, in question 7, you were asked what are your KT goals for each knowledge user/audience? If you had answered to inform products or patents, then again, this template would be helpful for you. Similarly, we link back to the KT Planning Template, so in cases where there's no intention for the project output to move on to become a commercialized product, then the TT Planning Template redirects users to the KT Planning Template.

So what will the TTPT look like? As I mentioned, the template is still under development, but here's a screenshot of the template as it currently stands. So this is the design we will be testing with participants this fall. You'll notice a navigation bar on the left with options for creating a new plan, editing saved drafts, and accessing a variety of resources, such as example plans, a video tutorial, and also a user manual. You'll also notice that the question here is followed by the beginning of a sentence. The problem is ...

So following this format with your responses allows the template to then structure those responses in paragraph form so that just minor tweaking would be needed to create a relatively readable executive summary.

I'd also like to point out the guidance, resources, and examples found under this question, so this just gives you a flavor of the type of assistance the TTPT can provide. In this case, the guidance provides a bit more elaboration on how to respond to the question while the resources list a variety of tools. So each of these tools can actually be clicked on to bring up additional information, including descriptions of the tool, identifications of the tool's strengths and weaknesses, and also links to sites where the tool itself or more information can be obtained.

Finally, the tools are followed by an example. This directs users to one of our case studies, which is an exemplar of how we answered similar questions for a device that has been successfully commercialized. So how does the TTPT currently work? Well, there are two sets of questions. The first set is used to generate a high-level overview of your project, while the second set gets into the specifics. So there in the second set, you'll define the device's market, document your research, development, and production plans; and outline the device's path to market. This is also where the timelines come into play and allow you to chart your plans and progress as you go.

As you saw on the screenshot, examples and resources are available for most questions, though some are simple enough that they don't warrant elaboration. And the outputs from responding to these questions include paragraph form summaries, tables of responses, and timelines. So in these next few slides, I am sharing a sample of the first set of questions from the TTPT, and again, these are used to create an executive summary of a project. So these are just give you an idea of the factors you should consider when engaging in TT.

So the first set's relatively straightforward. They deal with describing the project and detailing who is doing what. Questions include what are you creating and developing? As described by end users, what problem does your proposed device solve? Or what unmet need does it fulfill? How? How does it solve that problem or fill that need? What aspects of the project do you plan to complete? Are you conducting research, doing some engineering development, and/or producing the device? And if not, who will be responsible for those activities? Who will manufacture it, who will actually sell it and distribute it? And then who will service it once it's out in the marketplace?

On this slide, we have questions related to identifying the stakeholders whose input you may wish to consider as you develop your device. One of the most basic questions, of course, is who will use your device? But beyond that, it's really important to consider all of the stakeholders who may have an impact on the awareness and use of your device. So for example, as I mentioned before, would someone be prescribing this device? Similarly, it's important to consider who will pay for the device. So as an example, with products marketed to children, the parent is often the buyer. So again, it's important to consider their interests and make sure they are included in not only the device's design, but of course, in the final product's marketing plan.

As another example, if your device were to be prescribed by a doctor, maybe paid for by a third-party payer, then it would be of critical importance to ensure that the device meets the payer's requirements and, of course, is not more expensive than the price the payer would bear.

So here we are moving on to consider competing products. The question asks how does the target customer currently meet need the device is addressing? Or if there are no readily available alternatives, how is the customer currently getting around this problem? A relatively straightforward question.

Now, the next question is where you identify your device's competitive advantage. Why is your device superior to existing alternatives? Is it lower cost? Does it provide better functionality? You must be able to describe how or why your device would be better than the existing alternative. The final overview question asks you to consider the barriers you might encounter throughout the project as well as ways to overcome or avoid those problems. Barriers can arise at any time. Some examples include problems in generating prototypes. Maybe you've had difficulty achieving your desired results. There may be trouble in testing, such as problems finding participants. In any case, considering the barriers early on enables you to devise solutions to hopefully avoid those barriers altogether, but at a minimum, to be able to move over, around, or through them and carry on your project towards a successful outcome.

So what can we expect once the first set of overview questions has been answered? Well, the TTPT, as I mentioned, generates an executive summary from those responses and also gives you a table that pairs questions with answers to allow for easy editing. Now, the next set of questions gets far more specific.

In this slide -- there we are. In this slide, I'll just touch on some of the areas reflected in the second set of questions. You can see that these questions are structured in groups related to research activities, development activities, and production. Of course, by using the timeline feature of the TTPT, you will be able to ensure that the sequence of activities does match your own project. So for example, if you were beginning your work by developing a prototype, which is then undergoing some research, you would be able to sequence the activities in this way.

So this set of questions asks about the process, timing, and goals of research activities, and this is where an option to explore the KT Planning Template appears. And again, that would be appropriate for projects that are not intending to move their outputs toward commercialization.

In relation to development activities, questions asked about how engineering specifications will be established, how end users will be involved in the development process, and for details regarding development and testing of alpha and beta prototypes.

Finally, in relation to production activities, questions ask about plans for acquiring materials for productions, what the manufacturer's production capabilities look like, for descriptions of marketing and sales plans, if test marketing will take place, and how the product will be launched, and again, how will after sales service and support be provided. To highlight the distinctions between research, development, and production activity, I have included an image of the game board version of the Need to Knowledge Model. I know this is very tiny. For a larger more readable version please visit our website and learn more about the steps for conceptualizing innovations.

When all questions have been answered, TTPT users are provided with a variety of outputs, including timelines, paragraph summaries, and lists of responses. These can then be used to create tech transfer plans, build business cases, and draft sections of grant proposals. Using the timeline feature of the TTPT will also allow users to track their projects and to ensure resources will be available for downstream activities.

So when will the TTPT be available for use? As I mentioned, we are engaged in testing this fall. Over the winter we will then be refining it based on participant feedback, conducting some beta testing in the spring, and then ta-da! Finally in summer of 2016, the big launch of TTPT for public use, and it will be available free of charge on our website.

Now, here is a screenshot on the right-hand side of the TTPT page on our website, which you can get to going through our homepage to R&D projects, development, and TTPT. I have also given you a link directly there. And just some resources to help you while the TTPT is under development. Feel free to check out our publications page. Also, our technical assistance page here, you can see I highlighted a couple things with this circle. Under RERC technology transfer plan resources, these were generated for the RERCs, but I think if you are engaged in TT, you will find them broadly applicable to anyone.

Finally, feel free to check out KTDRR's KT library. They have a wonderful tech transfer section. And there are also two volumes of assistive technology outcomes and benefits that have a variety of articles related to KT and TT that may be of interest to you. So I went a little long here. We have a couple minutes for questions. Thanks all for your attention. Any questions?

Ann Outlaw: Thank you so much, Jen. It looks like we have about two minutes for questions. Let's see. It looks like Pimjai just shared the link to the KT for TT website. Thank you, Pimjai.

Jennifer Flagg: Great. Thank you, Pimjai.

Ann Outlaw: We are really looking forward to see the TTPT next summer. How can folks get notified of its introduction if they are not already on your mailing list?

Jennifer Flagg: Oh, feel free to send an email my way, Jflagg@Buffalo.edu, and I will be happy to put you on our mailing list.

Ann Outlaw: Excellent. It looks like Kathleen and Pimjai are typing. So let's see what they have to say.

Jennifer Flagg: Great. Thank you, Pimjai.

Ann Outlaw: Yes, and there's Jennifer's email address. Once again, Jen, thank you very much for your presentation today. It's really neat to see the Planning Template in action. So without going much further into our break, we'll take a 20-minute break, and we will meet back here at 10 past the hour. So thanks again.

Jennifer Flagg: Thank you.