

Developing and Executing Your Technology Transfer Plan

A 10-point checklist

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Table of Contents

Introduction	3
R&D and T2 Applications Vary	3
What: Describe the problem and proposed technology	3
1. Define the problem	3
2. Describe the proposed solution	4
Who: Identify the stakeholders involved in the plan	4
3. Identify the stakeholder groups by name and role	4
4. Analyze stakeholder alignment and interest	4
5. Organize communication tracking for stakeholder groups	5
How: Develop and execute the plan.....	6
6. Develop engagement plans and engage potential adopters	6
7. Identify resources to engage all stakeholders	7
8. Identify and address barriers to adoption	7
9. Establish an MOU between early adopter and research sponsor	8
How well: T2 performance.....	8
10. Metrics	8
Outputs	8
Outcomes and Impacts	8

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Introduction

A technology transfer (T2) plan outlines the people and organizations involved in the T2 Process and the roles they play, the activities they undertake, and the desired outcomes to help assure that a particular technology will be adopted. The T2 Team, led by a T2 Coordinator, proposes to develop a T2 Plan that will identify the steps needed to ensure the technology in question is useful and usable and is adopted as widely as possible. In proposing this plan, the T2 Team aims to maximize the technology's positive impact on the public good.

The proposed document becomes a guide for the T2 Team to effectively plan and execute activities that present the problem addressed through research and development (R&D), including functional and decisional needs, and the relevant stakeholders, potential barriers to adoption, and engagement methods that can be used to foster nationwide adoption.

R&D and T2 Applications Vary

Federal agencies sponsor R&D through various mechanisms, e.g. grants, cooperative agreements, contracts, etc. As the T2 Coordinator, it is your job to identify the person responsible for executing T2 activities and for implementing research results. In DOT, for example, most Federally-funded research is performed by an entity in the public or private sector (academia or industry), which makes it critical that a person responsible for the T2 of that research be clearly identified. Below are some scenarios to consider:

- a) If an entity is paid to conduct the research, the sponsor will be responsible for overseeing the research and for transferring the results to other entities who may consider adopting and implementing them.
- b) If an entity is paid to transfer the results, the sponsor will be responsible for overseeing the transfer of the results to other entities who may consider adopting and implementing them.
- c) If an entity is paid to conduct the research and transfer the results, the sponsor will be responsible for overseeing the research and transfer of those results to other entities who may consider adopting and implementing.
- d) If an entity is paid to conduct research and the sponsor is the adopter and implementer, the sponsor will be responsible for overseeing the research and adopting and implementing the results.

Applications vary and as the T2 Coordinator, you can follow the questions and directions in this document to collect necessary inputs to develop and execute a Technology Transfer Plan.

What: Describe the problem and proposed technology

The first part of the T2 Plan will:

1. Define the problem

As the T2 Coordinator, describe and contextualize the problem. The problem consists of both functional needs and process needs. The functional needs input will come directly from the R&D group.

The functional needs relate to the technical solution that address the problem: a new tool, hardware and software, an improved process that helps solve the problem. The problem could be that people are hurt, money or time is wasted, and services are not delivered.

Describe the process needs for adoption, for example awareness of the problem, awareness of available solutions, and factors needed for decision-makers to decide positively to invest in the solution.

2. Describe the proposed solution

Describe how the technology solves the problem, its feasibility of use, and the value of the technology. The Team will both address the functional and the decisional/process components of the technology. Distill the decisional value of benefits such as:

- Accuracy
- Effectiveness
- Cost-effectiveness
- Speed
- Quality

Who: Identify the stakeholders involved in the plan

The second part of the T2 Plan will:

3. Identify the stakeholder groups by name and role

Create and vet with the sponsoring agency a list of stakeholder groups, describe their roles relative to the adoption of the technology, and assess the level of authority they have. Use the list to strategically develop effective ways to approach and engage six fundamental stakeholder categories:

- a. Sponsors of research and T2
- b. Researchers and developers
- c. Deployment team
- d. Early potential adopters and problem owners
- e. Late potential adopters that follow the technology's development
- f. Others: allies and foes, such as trade organizations, regulators, suppliers, etc.

4. Analyze stakeholder alignment and interest

Categorize the stakeholders by their role and responsibility to determine how to approach potential adopters (PAs). Potential adopters can be directly contacted to request information that will help determine an engagement approach.

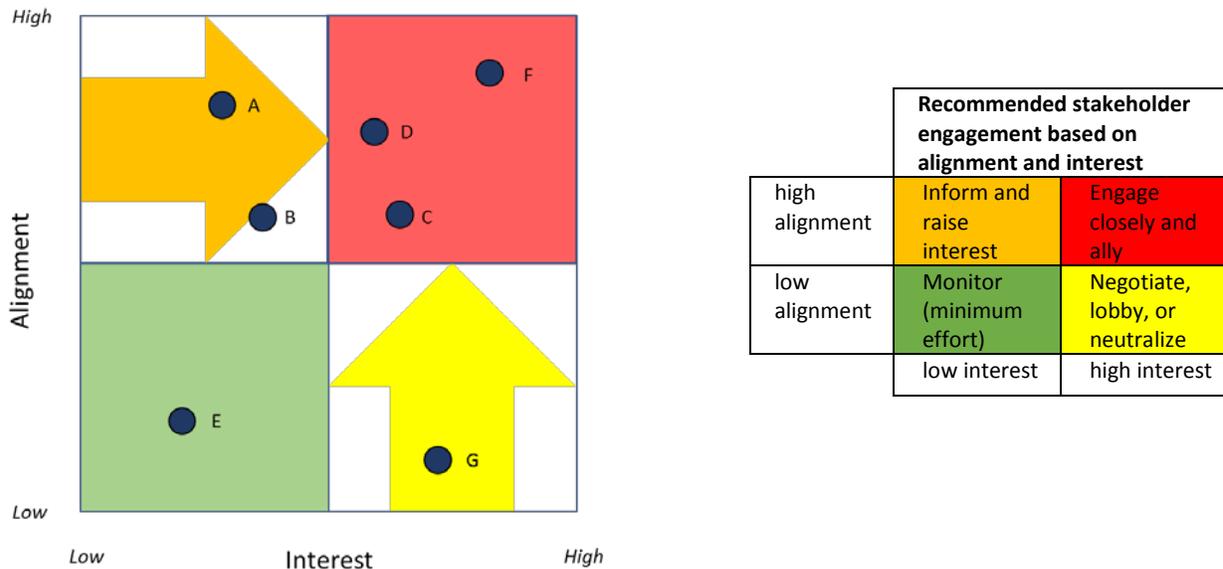


Figure 1. Stakeholder map and engagement quadrants¹

To help prepare for these vital conversations, analyze the stakeholders' relationships to the technology. How interested are they in whether the technology is adopted? How supportive or aligned are they? How much influence or authority do they have to decide? Map stakeholders by their alignment and interest, as shown in Figure 1.

Summarize the landscape of identified stakeholders, updating this map as the project moves forward with known changes in stakeholder interest or alignment. The stakeholder map will inform *how* to effectively engage the stakeholders. Use a customer relations management tool to track stakeholders effectively.

5. Organize communication tracking for stakeholder groups

For each stakeholder identified, and referencing the stakeholder map developed in section 4, develop a unique set of engagement activities for building relationships. Determine which stakeholders to engage earlier versus later, and track communications for each stakeholder group:

- Sponsors
- Researchers (if different from Sponsors)
- Early and Late Adopters – most of your time will be spent here
- Opponents – very important because they can come from any category above

There are four activities that you will perform as part of stakeholder engagement. Figure 2 illustrates this flow of information from research to T2 officials to stakeholders and back to research. You will interpret and package technical information to be easily transmitted and received by stakeholders.

- Receive information from R&D stakeholder for T2 analysis
- Send R&D stakeholder information to an adopter stakeholder for analysis
- Receive adopter stakeholder information for T2 analysis

¹ Adapted from the ODI Alignment, Interest and Influence Matrix ([AIIM](#))

- Send adopter stakeholder information to research stakeholder for analysis

The information analysis occurs in each box in Figure 2; communication is represented by the arrows.

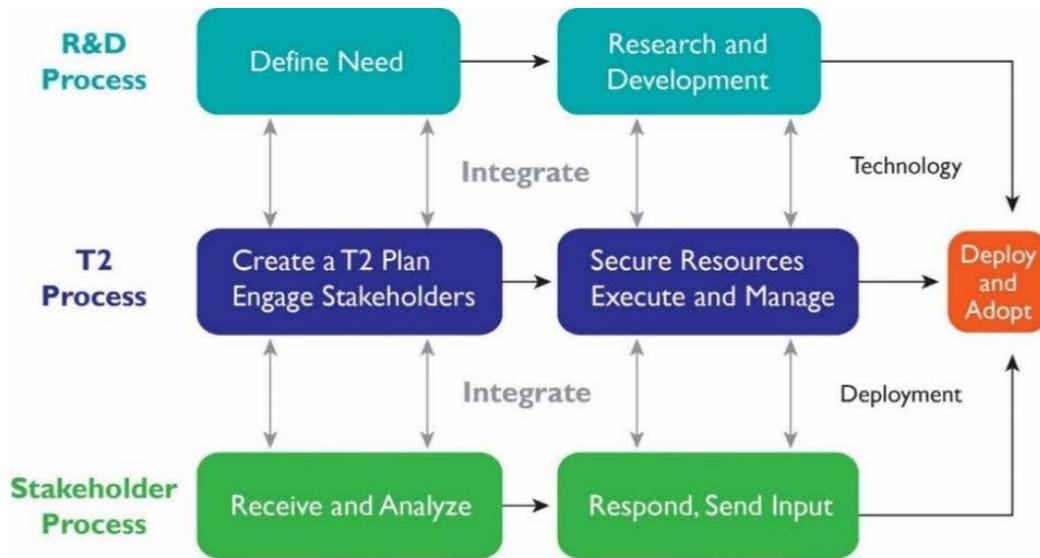


Figure 2 Flow and analysis of information between research, you, and stakeholders

By carefully tracking the flow of information, you will be able to more effectively craft each message in a way that helps stakeholders understand how to move to the next step of the process. Transparently tracking the information is the beginning of executing the stakeholder engagement plan.

How: Develop and execute the plan

The third part of the T2 plan focuses on how you will:

6. Develop engagement plans and engage potential adopters

Develop engagement plans for **whom** you will contact (potential adopters), **how** you will engage them (call, meeting, etc.), and **what** information you'll collect (based on the questions below) to package back to the researchers.

It is vitally important to be prepared to ask potential adopters the right questions to elicit the information you need. It is critical to understand and consider the background, roles, and portfolios of those you are trying to reach prior to initiating contact. You can use the following approach.

- a. Prioritize and contact potential adopting (PA) stakeholders
- b. Upon obtaining positive stakeholder engagement, set up a meeting to ask:²
 1. As a PA stakeholder for this technology, your role regarding the adoption of this technology is to seek and receive information from our T2 office, analyze it, and give

² Note that PRA clearance might be needed if >9 interviewees per group.

us detailed feedback about any concerns and interests you may have. Are you interested in participating at a low, medium, or fully engaged level?³

2. Is there anyone in your chain of command whom we should engage?
 3. If this technology addresses the functional problem, is there anything else (e.g., financial or administrative barriers) that could decrease the probability of adopting?
 4. Is there a formal process used to determine whether technologies are adopted?
 5. What questions would you like us to answer to support you in adopting this technology?
 6. Would you share with us any other information that could support you in adopting this technology?
 7. What is the best way to contact you: monthly calls, meetings, e-mail?
- c. Organize and create a summary of the adopter's responses, categorized by:
- Needs (functional: can be addressed by the R&D group; process: can be addressed by the T2 Team)
 - Barriers (can be addressed by you)
 - Level of commitment (low-high)
 - Preferred method of communicating

Help potential adopters discover the value of engaging with you by keeping everyone informed on how their input was and will be used. Initial engagements can tell you whom else to engage and help to fill in gaps in the stakeholder map. As a planning tool, it can be helpful to sketch out one or more potential adoption pathways, stories describing how a chain of events *could* plausibly lead to widespread adoption. These stories will help you to refine the questions you ask of subsequent stakeholders.

7. Identify resources to engage all stakeholders

To fully develop and execute this plan, you will need resources to support the activities involved in convening people. You may need to hire facilitators or rent space to organize demonstrations. You may engage and bring in early adopters of the technology who have discovered its value. There is sometimes a chain of users who are likely to convene in different venues. Identify where the potential adopters are going to be so that you can plan to be there. You may need to strategically select, get onto the agenda of, and present in different venues where the stakeholder groups will convene.

8. Identify and address barriers to adoption

Based on the stakeholder engagement, identify and track which factors (regulations, markets, reputations, guidebooks, and policies) could affect a potential adopter's decision. Adopter needs that are not met become barriers. These include both functional needs (technology does not meet objective criteria) and process needs (lack of awareness, institutional or regulatory constraints, perception etc.). Address them in two steps:

1. When unmet needs become barriers, create plans to address them; and
2. If barriers can't be mitigated, focus on other stakeholders and return later when they are ready.

³ Note: PAs may also enter into a formal MOU to archive engagement activities with your group. This will enable you to be closer to the technology's development than you would be with informally engaged stakeholders.

9. Establish an MOU between early adopter and research sponsor

You may ask early adopters to enter a memorandum of understanding with the R&D team to collect data on the technology's performance in the working environment when it is implemented. Were lives saved? Was money saved? These performance data will be used to measure baselines and changes that may be reported at the established frequency (quarterly, bi-annually, or other) to quantify and realize benefits.

How well: T2 performance

Measuring the performance of the T2 process is important to not only to document success and failure, but also to improve the process for future projects. You want to understand which communication channels and which stakeholder engagement strategies were most effective in producing positive outputs, outcomes, and ultimately impacts that will benefit society.

10. Metrics

You will collect data on metrics of T2 performance to evaluate success, inform success stories, and continuously improve T2 delivery.

Outputs

Summarize the following output metrics, and, if the data permits, develop visualizations to depict how your engagements led to outputs.

- Number of stakeholders identified in each category, based on sections 3 and 4 (research collaborators, deployment teams, early and late adopters, other allies, and opponents).
- Engagement Tools and Dissemination Vehicles (T2 plans, tools to disseminate information, e.g. websites, deployments, pilots, workshops, trainings, presentations, etc).

Outcomes and Impacts

Outcomes are the results of your work to foster research adoptions and include the following metrics. For example, Stakeholders invited who attended events, Stakeholders committed to adopt research outcomes, Technology adoptions, Stakeholders who collaborated on implementing research outcomes, and Stakeholder feedback form participants.

Evaluate the effectiveness of your T2 activities by identifying and documenting societal benefits and impacts (longer-term observations) such as: Number of Stakeholders who adopted and committed to providing feedback through signed agreements; Other realized benefits, e.g. saved time, money, and lives; Number of Success Stories (R&D, T2, adoption, implementation, and realized societal benefits). Benefits are credited to the R&D programs who were supported by your T2 program.