Transdisciplinary Thinking

Idea In Short

Some problems are too tangled for any one discipline, and too human for experts alone. Climate adaptation, public health, and urban design all involve science, markets, and the lived experience of the people affected. Transdisciplinary thinking goes beyond combining fields. It integrates knowledge across disciplines and with non-academic stakeholders, and it aims to produce frameworks and methods that no single field held before. For organizations, the approach offers a way to tackle complex, shared challenges while keeping practical value in view. This article explains what makes the approach different, how it works in practice, and what leaders should watch for when they adopt it.

A city water utility wants to prepare for heavier storms. Engineers propose bigger pipes, ecologists propose wetlands, and economists propose pricing changes. Residents of the flood-prone districts say that their basements flood from a source none of the plans mention. The utility invites them to a joint working group, and the problem is redefined.

Beyond combining fields

Transdisciplinary thinking builds on cross-disciplinary work and adds two features. First, it integrates knowledge from non-academic sources. Second, it treats the framing of the problem as a shared task.

The Utrecht University field guide defines transdisciplinary research as research that integrates knowledge across academic disciplines and with non-academic stakeholders to address societal challenges. It adds that, like interdisciplinary research, it produces knowledge that goes beyond the existing disciplines, and it admits that the definition remains heavily debated, with broad consensus on valuing stakeholder knowledge.1

The utility's story shows the difference. A cross-disciplinary team of engineers, ecologists, and economists would have improved the plans. Including residents changed the question.

Between, across, and beyond

The prefix in the name carries meaning. A reference entry explains that as the prefix trans indicates, transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond each individual discipline. It also says that disciplinary and transdisciplinary research are not antagonistic but complementary.2

This helps clear up a common worry. Transdisciplinary work does not abolish expertise. It depends on deep disciplinary knowledge and on the ability to combine it with other kinds of knowing.

Leaders should expect to need specialists. The new element lies in how their knowledge is joined with that of practitioners and affected communities.

New ways of understanding

The University of Technology Sydney describes its transdisciplinary school's approach in practical terms. It says that, rather than simply combining perspectives, transdisciplinary research creates new ways of understanding problems and developing solutions grounded in real-world contexts and needs, and that it addresses root causes, not just symptoms.3

The same page lists the gaps the approach tries to bridge: between disciplines, between research and practice, between academic expertise and lived experience, and between knowledge creation and real-world impact.

For a company, each of these gaps has an equivalent. Strategy teams and operations differ, analysts and customers differ, and insights and action differ. A transdisciplinary mindset treats these gaps as places to build.

Stakeholders as partners

A distinctive feature is the role of stakeholders. The Utrecht field guide on engagement says that transdisciplinary programs focus on the higher levels of inclusivity, with participation by stakeholders valued for its own sake, and that at the deepest level this involves co-creating and delivering the program.

Co-production differs from consultation. In consultation, experts decide and then ask for comment. In co-production, stakeholders help define the problem and the success criteria.

Practical steps include inviting stakeholders at the start, paying for their time where possible, and agreeing on how decisions will be made. Without such care, participation can slide into token gestures that damage trust.

Evidence from sustainability

Sustainability work offers many examples. A summary of research in sustainability science describes transdisciplinary research as integrating academic disciplines with non-academic stakeholders, co-creating knowledge and fostering reflexive inquiry across scales. It reports that favorable integration arises where supportive structures and empowered stakeholders co-evolve, in contexts such as urban water planning, extreme event preparedness, and climate services.4

The point for organizations is that structure matters as much as intent. Where leaders create supportive structures and give stakeholders real power, integration happens. Where they do not, it stalls.

Look for similar needs in your setting, such as a supply chain that includes small suppliers, or a product that serves a community with specific needs. Ask who holds knowledge that your team lacks.

The practical difficulties

The Utrecht guide on research processes names a core dilemma: participants bring different knowledge, assumptions, and interests, not all of which are compatible and easy to integrate. It also notes that projects may need to expand their teams or engage other stakeholders to find the right mix.

The OECD has reviewed the field. Its report on addressing societal challenges with transdisciplinary research describes it as combining knowledge from different scientific disciplines with that of public and private sector stakeholders and citizens, and it draws on case studies for practical lessons about bringing disciplines and stakeholders together.5

Time is a constant difficulty. Integration takes longer than a single-field project. Plan for the extra time, and set milestones so that participants see progress.

A process for organizations

Start by choosing a problem that matters to several groups and cannot be solved by one function. Describe it in plain terms and list who holds relevant knowledge, inside and outside the firm.

Convene a working group that includes specialists and stakeholders. Spend the first sessions on problem definition, and write down the shared statement. Expect it to change as people learn from one another.

Develop a framework together. This might be a decision model, a design principle set, or a new process. Test it in a small pilot, review what the group learned, and adjust. Share the results with the wider organization so that the learning travels.

Handling conflicting assumptions

Conflicting assumptions are normal. A scientist may value caution, a manager speed, and a community leader fairness. Surface these early by asking each person what a good outcome looks like and what they fear.

Use neutral facilitation. A facilitator who is not tied to any group can keep the discussion on track and make sure quieter voices are heard.

Agree on principles for handling disagreement, such as using evidence both sides accept and recording minority views. The principles prevent the group from stalling over disputes it could manage.

Roles for leaders

Leaders set the conditions in which this kind of work can succeed. They decide whether the group has a real mandate, whether stakeholders are paid for their time, and whether results can change policy. A group without such authority soon concludes that it is a show.

Leaders also model the habits that the work requires. They admit what they do not know, ask questions across ranks, and thank people who bring uncomfortable facts. The behavior tells others that the group values learning above status.

Finally, leaders can connect the group's work to the rest of the organization. Invite managers from affected units to review progress, and plan from the start how the new framework will be adopted, so that insights do not remain in a report.

A hypothetical example

Imagine a hypothetical regional food company worried about waste across its supply chain. Specialists in logistics, food science, and marketing work alongside farmers, retailers, and a food bank. The group discovers that most waste arises from mismatched order patterns and package sizes that nobody had linked.

Together they develop a framework that combines flexible order windows, smaller package options, and a donation pathway for surplus. Waste drops, and relationships with farmers improve. The case is invented, but it shows how defining the problem with the people involved can reveal levers that specialists alone would miss.

Cautions

Do not use the label to dress up ordinary consultation. If stakeholders have no say in the framing or the decisions, the work is not transdisciplinary.

Beware of overreach. Not every problem needs this scale of effort, and simple problems are better served by a simple approach.

Finally, protect rigor. Integration should not mean lowering standards of evidence. Agree on what counts as sound knowledge in the group, and keep to it.

- 1What is transdisciplinary research?
- 2Transdisciplinarity
- 3Our ways of working, UTS Transdisciplinary School
- 4Transdisciplinary approaches to sustainability science
- 5Addressing societal challenges using transdisciplinary research

Summary

Transdisciplinary thinking integrates knowledge from several fields with the knowledge of stakeholders and practitioners, so that problems are defined and solved together. It differs from simple team diversity because the aim is a new shared framework, grounded in real contexts, and not a tour of existing ones. The approach requires time, honest handling of conflicting assumptions, and genuine roles for people outside the usual expert circle. Leaders can start small with one real problem, invite affected stakeholders to define it with specialists, and agree on a shared outcome. Review at set points what the group learned, and what the new framework changes in practice.