Frictionless Forestry:

Field-Level Research & Resource Needs

A Forest Business School Report

January 2026

Applied Research

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Compiled by S. Bick, CF

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This report reflects what people working at the ground level of the forest and forest economy say actually helps them do better work, and where research and institutional support too often fall short. Based on a survey of Forest Business School alumni, public agency staff, and practicing forestry professionals, the findings point to a consistent theme: the problem is rarely a lack of research, but the friction that accumulates between research outputs and real-world decision making. Respondents described relying on familiar tools, templates, and judgment not out of resistance to science, but because many newer products are burdensome to use, poorly supported, or misaligned with how work gets done. They expressed strong interest in research that is durable, easy to apply, and attentive to economic and operational realities, along with information products that clarify rather than complicate choices. Where gaps exist, practitioners are already adapting—simplifying workflows, bypassing formal systems, or turning to general-purpose tools such as AI to reduce effort. For researchers and public agencies, the message is clear: applied work is most useful when it reduces friction, respects time, and fits into existing practice, and when it does not, it is quietly set aside regardless of its technical merit.

Listening First: Why This Report Exists

This report begins from a simple premise: people working at the ground level of the forest and forest economy already make consequential decisions every day. They do so under real constraints—time, money, weather, regulations, landowner expectations, organizational requirements, and imperfect information. The purpose of this work is not to explain forestry to them, nor to evaluate their performance, but to listen carefully to what they say helps them do better work and what gets in the way.

The survey that underpins this report was designed as a listening exercise rather than an assessment. Respondents were not asked whether they were satisfied with existing research or extension offerings. Instead, they were asked what tools they actually use, why they use them, what formats they find usable, where decision support systems fall short, and what kinds of assistance would meaningfully improve their work. In other words, the questions were framed to surface practical realities, not preferences in the abstract.

The survey was distributed to several overlapping groups. It was sent to 110 graduates of the Forest Business School's six-month Essentials program, all of whom have completed an extended course of study focused on applied forestry, business operations, and decision-making under real-world constraints. It was also shared with state-level public agency staff involved in wood utilization and forest economy issues in the Northeast and

Midwest, as well as a smaller selection of ground-level forestry professionals working in both the public and private sectors across the Northeast. The intent was not to assemble a statistically representative sample, but to hear from people whose daily work sits at the intersection of forest management, economic reality, and institutional accountability.

The people who responded represent a cross-section of the forest economy and its supporting institutions. Most have direct responsibility for management decisions, business outcomes, or both. Some operate private businesses, some work within public agencies, some advise landowners, and some straddle multiple roles. Several have decades of experience. What unites them is not a shared ideology or technical approach, but the fact that their decisions have consequences on the ground and in the marketplace.

Respondents reported relying on a wide mix of resources: long-standing silviculture guides, growth and yield models, mapping tools, templates inherited or self-created, peer-reviewed research, field experience, and increasingly, general-purpose digital tools. They also reported frustration, fatigue, and skepticism alongside appreciation for solid research and credible institutions. Taken together, these responses point less to a lack of information than to a mismatch between how information is produced and how it is used.

This report is written for two audiences at once. For those who responded to the survey, and others like them, it is meant to reflect back what was heard, in language that respects their experience and constraints. For researchers, extension staff, and public agencies, it is meant to make visible the conditions under which their work is taken up, adapted, or quietly set aside. The intent is not to criticize for its own sake, but to clarify where effort is landing and where it is being lost.

Throughout the report, references to what “respondents reported” are paired with explanation and interpretation. The goal is not to catalog opinions, but to understand patterns that have implications for how applied research, tools, and information products are designed, supported, and shared. Listening, in this context, is not a passive act. It is the first step toward changing how help is offered in a way that actually helps.


Who We Heard From, and Why It Matters
The findings in this report are grounded in feedback from a cross-section of professionals who make critical decisions in the forestry sector every day. This infographic identifies these key groups to underscore the practical, real-world basis for the report's conclusions.
Forest Business Leaders & Owners
Responsible for daily management and business decisions.
Public Agency Staff
Provide program, policy, and utilization oversight.
A Foundation of Shared Experience
The overlap between these groups highlights a common ground of applied judgment and accountability.
Ground-Level Professionals
Handle field-based planning and implementation.
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How Work Actually Gets Done in the Field

One of the clearest messages in the survey responses is that forest management work rarely begins with a blank page or a clean analytical slate. Respondents described workflows that are cumulative, iterative, and shaped by prior decisions as much as by new information. Prescriptions are often built by revisiting earlier work in similar cover types, adapting existing templates, or layering new observations onto established approaches. This is a practical adaptation to time constraints, accountability pressures, and the reality that many decisions must be made with incomplete or imperfect data.

Several respondents reported that their starting point is not a model or a report, but a conversation, a site visit, or a remembered stand. Landowner goals, past management history, local market conditions, forest health threats, and institutional requirements frequently set the boundaries within which technical decisions are made. Tools and information products enter the process later, often to confirm, justify, or fine-tune a direction that has already been shaped by experience and context.

This layered approach challenges the implicit assumption—common in research and decision-support design—that decisions proceed linearly from data collection to model output to prescription. In practice, respondents described moving back and forth between field observation, professional judgment, and formal tools. Growth and yield models, for example, are sometimes used to explore scenarios or meet reporting requirements, but just as often they are treated as reference points rather than decision-makers. Several respondents were explicit that “experience and gut” still play a central role, particularly when tools feel disconnected from field conditions or require excessive effort to operate.

Templates and inherited practices featured prominently in the responses. Some respondents rely on formal templates developed through programs such as Master Logger training, while others use materials they have built themselves over years of practice. These templates serve multiple purposes: they save time, ensure consistency, meet regulatory or organizational standards, and provide a defensible structure when decisions are later questioned. Their persistence highlights an important reality: tools that integrate smoothly into existing workflows tend to endure, regardless of whether they reflect the latest research.

Respondents also described the work as inherently adaptive. Many noted that they “jump around” between tools, abandon systems that become too cumbersome, or selectively adopt new resources when they clearly reduce friction. This adaptability is often mistaken for resistance to innovation. The survey responses suggest the opposite. Practitioners are willing to experiment, but only when the cost of trying something new does not exceed the perceived benefit. Ease of use, speed, and clarity frequently outweighed analytical depth when tradeoffs had to be made.

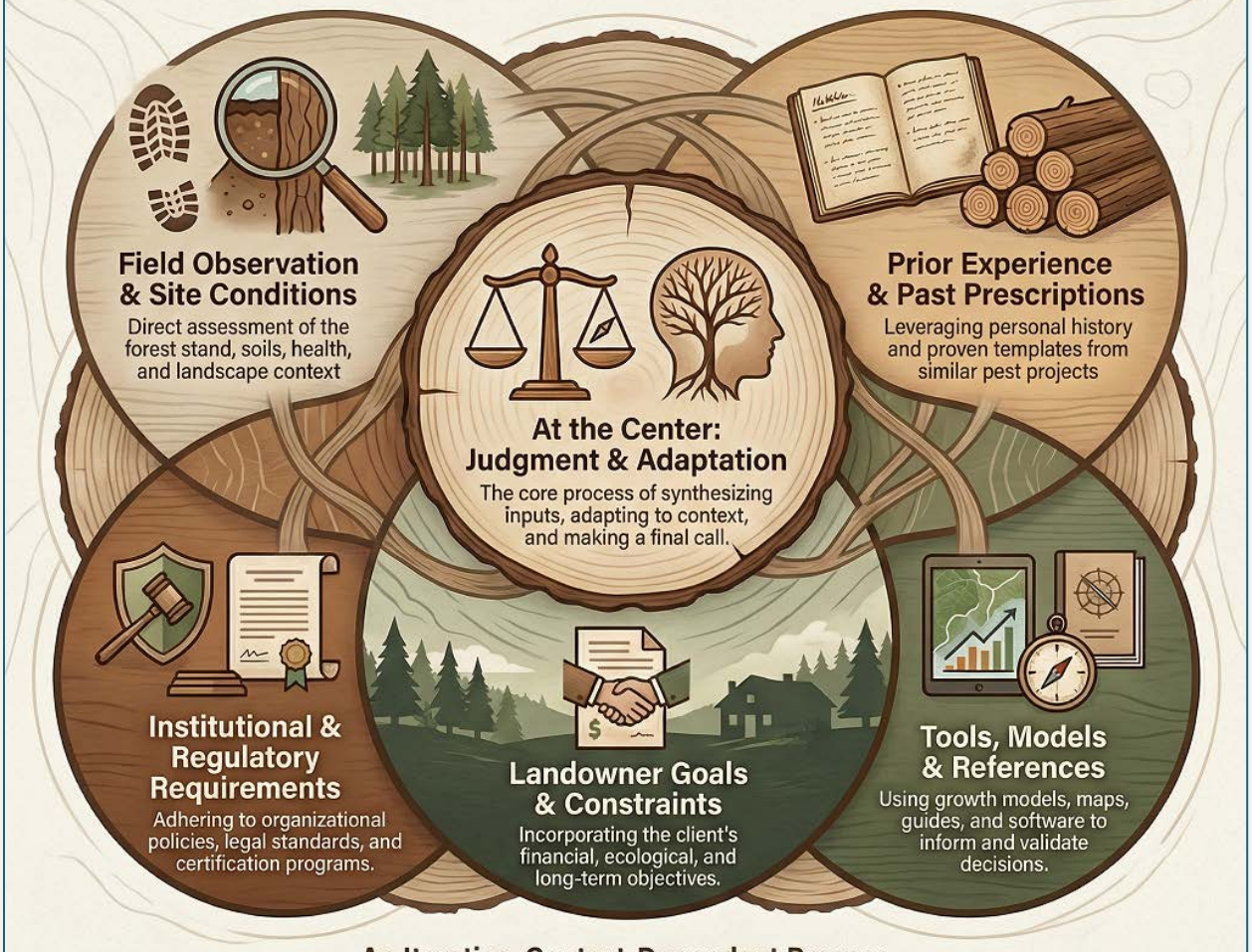
Taken together, these responses paint a picture of forest management as a craft informed by science, rather than a technical exercise governed by it. Research and tools are most useful when they acknowledge this reality and fit into how work is actually done. When

they do not, practitioners adapt anyway—by simplifying, bypassing, or reverting to what they trust. Understanding this workflow is essential, because any attempt to "help" that ignores it is likely to add burden rather than value.

"Honestly, I have decision fatigue and information overwhelm. There are so many resources and possibilities for learning. I need simplification."

How Forestry Decisions Are Actually Made

Forestry professionals make decisions through a dynamic, iterative process that blends multiple inputs, relying on professional judgment to synthesize information from the field, past experience, stakeholder goals, regulations, and technical tools.



An Iterative, Context-Dependent Process

Decisions move back and forth between these elements; no single input dominates.

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Trust, Familiarity, and the Long Half-Life of Forestry Tools

Across the survey responses, respondents repeatedly returned to tools and references that have been in circulation for decades. Yield tables developed by well-known authors, silviculture guides "of old," long-established defect manuals, and legacy growth and yield references continue to shape decisions, even when respondents openly acknowledged that some of the underlying data may be outdated. This persistence is not accidental. It reflects how trust is built and maintained in applied forestry.

Respondents reported using these tools because they are understandable, defensible, and stable. Many noted that they trust the author, know the assumptions embedded in the work, or have seen the tool perform reasonably well across many real stands. In some cases, the appeal was simply that the reference exists, is accessible, and does not change unexpectedly. Familiarity reduces cognitive load. When decisions must be made quickly or explained to landowners, supervisors, or regulators, a known reference can be more valuable than a more sophisticated but opaque alternative.

Several respondents explicitly contrasted older tools with newer products that promise greater precision but require substantially more effort to use. In those cases, the tradeoff was clear. A tool that demands extensive data entry, unfamiliar workflows, or ongoing maintenance can feel like a liability rather than an asset, particularly when its outputs are difficult to interpret or defend. As one respondent implied, simplicity is not a concession; it is a design requirement for long-term use.

"Simplicity is the key to long-term sustainment. Build your tools around your needs, not your needs around your tools."

The long half-life of these tools also reflects the risk environment in which forestry decisions are made. Respondents operate in contexts where being "wrong" has real consequences, while being approximately right is often acceptable. A tool that is widely recognized and institutionally accepted provides cover in ways that a novel or experimental product does not. This is especially true in regulatory or public-facing settings, where consistency and defensibility can matter as much as analytical rigor.

Importantly, the continued use of legacy tools does not signal indifference to new research. Many respondents expressed strong support for peer-reviewed science and a desire to stay current. The friction arises at the point of translation. Research findings that are not accompanied by stable, usable, and well-supported tools struggle to displace existing references, no matter how compelling the science may be. In practice, new information is more likely to be layered onto familiar frameworks than to replace them outright.

For researchers and public agencies, this pattern has clear implications. Tools that endure do so because they respect how trust is built over time. They minimize unnecessary complexity, make their assumptions visible, and remain available long enough for users to internalize them. Without those qualities, even technically strong products risk becoming short-lived experiments rather than lasting contributions to practice.


Why Older Forestry Tools Persist
Practicing foresters often rely on familiar tools as a rational response to the "friction" created by newer systems, choosing options that are durable, easy to apply, and reduce workload.
Long-Standing Tools:
Legacy Guides, Tables & Experience
Newer Systems:
Complex Models & Decision Support Tools
Trusted & Defensible
Based on established authors, familiar assumptions, and professionally accepted track records.
Stable & Consistent
These tools provide a reliable and unchanging baseline for decision-making over time.
Low Cognitive & Time Burden
Requires minimal data input and training, fitting easily into existing workflows.
GROWTH MODELS
SILVICULTURE TABLES
GROWTH MODELS
FIELD MANUAL
SITE INDEX
High Data & Maintenance Burden
Often require significant data entry or creation of secondary data structures to function.
Steep Learning Curves
Complex interfaces can be difficult to master, leading to information overwhelm.
Uncertain Longevity & Support
Risk becoming "one-offs" that are abandoned when grant funding ends or personnel change.
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Decision Support Systems: Where Friction Replaces Insight

When respondents discussed decision support systems and growth and yield models, their comments were often less about the quality of the underlying science and more about the experience of using the tools. Systems such as FVS, SILVAH, and custom regional models were referenced frequently, but rarely with enthusiasm. Respondents reported using them because they are required, freely available, widely recognized, or already embedded in organizational workflows, not because they feel especially well suited to how decisions are made in the field.

A consistent theme was the burden associated with data preparation and entry. Respondents described having to build or maintain parallel data structures simply to make a decision support system function, a task many viewed as disproportionate to the value gained. Time spent cleaning data, navigating interfaces, or managing databases was often seen as time taken away from fieldwork, planning, or communication with landowners. Several respondents were explicit that "time is money," and that any system which ignores this reality creates its own barrier to use.

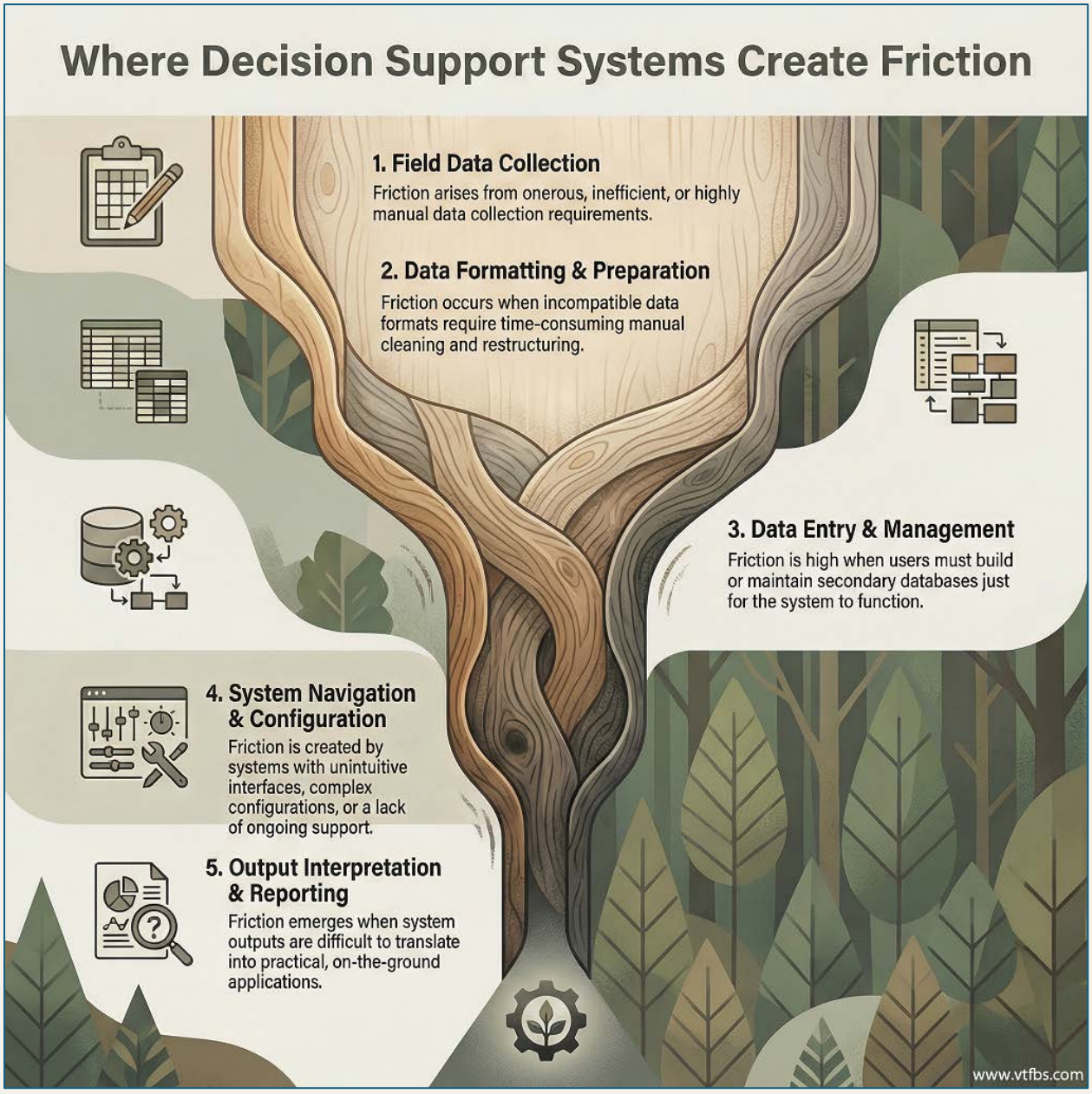
Interface design and workflow complexity emerged as additional sources of friction. Respondents reported abandoning or avoiding tools that required too many steps, were difficult to modify once set up, or produced outputs that were hard to interpret. In some cases, respondents acknowledged that the models were capable but felt that the effort required to operate them outweighed their benefits for most routine decisions. The result was selective use: models might be run to satisfy reporting requirements or explore broad scenarios but are not relied upon as central decision-makers.

"Having to build or maintain a secondary data structure just to use a decision support system creates a significant barrier."

Support and longevity also mattered. Several respondents noted frustration with systems that lacked ongoing maintenance or user support, particularly when those systems were developed within public agencies or academic settings. Tools associated with specific grants or graduate projects were described as becoming effectively unusable once funding ended or personnel moved on. This pattern reinforces skepticism and encourages practitioners to rely on more stable, if less sophisticated, alternatives.

It is also notable that a subset of respondents reported intentionally avoiding decision support systems altogether. These respondents emphasized field experience, intuition, and qualitative judgment, not as a rejection of science, but as a response to tools that felt poorly aligned with real conditions. For them, a system that does not reflect what they see on the ground, or that cannot be easily adjusted to local nuance, is not a decision aid but a distraction.

Taken together, these responses suggest that the primary challenge with decision support systems is not analytical capability, but friction. When insight is buried under layers of complexity, the system fails to support decision-making, regardless of its technical merits. For researchers and agencies, this raises a fundamental question: whether the goal is to build more powerful models, or to design systems that genuinely reduce the effort required to make sound decisions.


Where Decision Support Systems Create Friction
1. Field Data Collection
Friction arises from onerous, inefficient, or highly manual data collection requirements.
2. Data Formatting & Preparation
Friction occurs when incompatible data formats require time-consuming manual cleaning and restructuring.
3. Data Entry & Management
Friction is high when users must build or maintain secondary databases just for the system to function.
4. System Navigation & Configuration
Friction is created by systems with unintuitive interfaces, complex configurations, or a lack of ongoing support.
5. Output Interpretation & Reporting
Friction emerges when system outputs are difficult to translate into practical, on-the-ground applications.
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Format Matters

When respondents talked about information products, they were not debating the value of research itself. Many expressed strong support for peer-reviewed science and emphasized the importance of rigorous studies as the foundation for sound management. The tension arose at the point where research findings are translated into materials meant to be used, shared, or defended in real situations. Respondents reported that format often determines whether information is taken up at all.

Preferences varied by context, but clear patterns emerged. Respondents reported relying on short fact sheets, concise technical summaries, infographics, and targeted briefs when communicating with landowners, coworkers, or decision-makers outside their immediate discipline. Longer technical reports and full research papers were valued, but typically as reference material or for deeper study, not as day-to-day working documents. Several respondents noted that they want to know quickly whether a paper or report is worth reading in full before committing the time.

These preferences are often misinterpreted as a desire for simplification at the expense of substance. The responses suggest something different. Practitioners want materials that respect their time and help them move between levels of detail as needed. A clear summary, visual explanation, or well-designed fact sheet does not replace the underlying research. It functions as a gateway to it. When that gateway is missing, research results are harder to access, even for technically sophisticated users.

Respondents also emphasized the importance of visuals that genuinely explain, rather than decorate. Photos, diagrams, and infographics were valued when they clarified relationships, illustrated processes, or supported communication with non-specialists. Several respondents noted that well-developed forestry infographics are surprisingly rare, despite their potential usefulness. Poorly executed visuals, by contrast, were seen as distracting or even undermining credibility.

The format question also intersects with accountability. Many respondents must justify decisions to landowners, agencies, or supervisors. Information products that can be shared, printed, or referenced easily become part of that justification process. Materials that are difficult to extract from dense reports or proprietary systems are less helpful, regardless of their scientific merit.

For researchers and public agencies, these responses point to a simple but often overlooked reality: format is not an afterthought. It is part of the work. Decisions about how findings are packaged, summarized, and illustrated shape whether those findings ever influence practice. Treating format as a core design consideration, rather than a dissemination step at the end, would go a long way toward making research more usable where it matters most.

Matching Information Format to Real Use

Practicing forestry professionals report a “friction gap” between research outputs and real-world application. Information is most useful when it reduces effort and fits into existing workflows; otherwise, it is often set aside regardless of its technical merit.

The Right Format for the Job

	Use Case			
	Day-to-Day Decision Making	Communication with Landowners & Non-Specialists	Internal Justification & Documentation	Deep Technical Reference & Study
Infographics & Visuals	○	✓	○	○
Two-Page Fact Sheets	✓	✓	✓	○
Technical Summaries	✓	○	✓	✓
Full Research Papers	○	○	○	✓
Dashboards & Tools	✓	○	○	○

Key Principles for Effective Information

No Single Format Fits All Needs

Different tasks require different tools; a portfolio of formats increases overall research impact.

Shorter Formats are Differently Useful, Not Less Rigorous

Fact sheets and summaries serve immediate needs for application and communication.

Deep-Dive Formats Remain Essential

Full research papers are the foundation for technical reference, though used selectively.

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The Quiet Role of Business Reality in Technical Decisions

Although the survey focused on tools, information, and decision support, respondents repeatedly raised issues that sit squarely in the realm of business. Cash flow, scheduling, costs, utilization, financing, and profitability surfaced across roles and experience levels, including among respondents whose formal titles are technical or ecological. These concerns were not framed as distractions from good forestry. They were presented as conditions that shape what is possible.

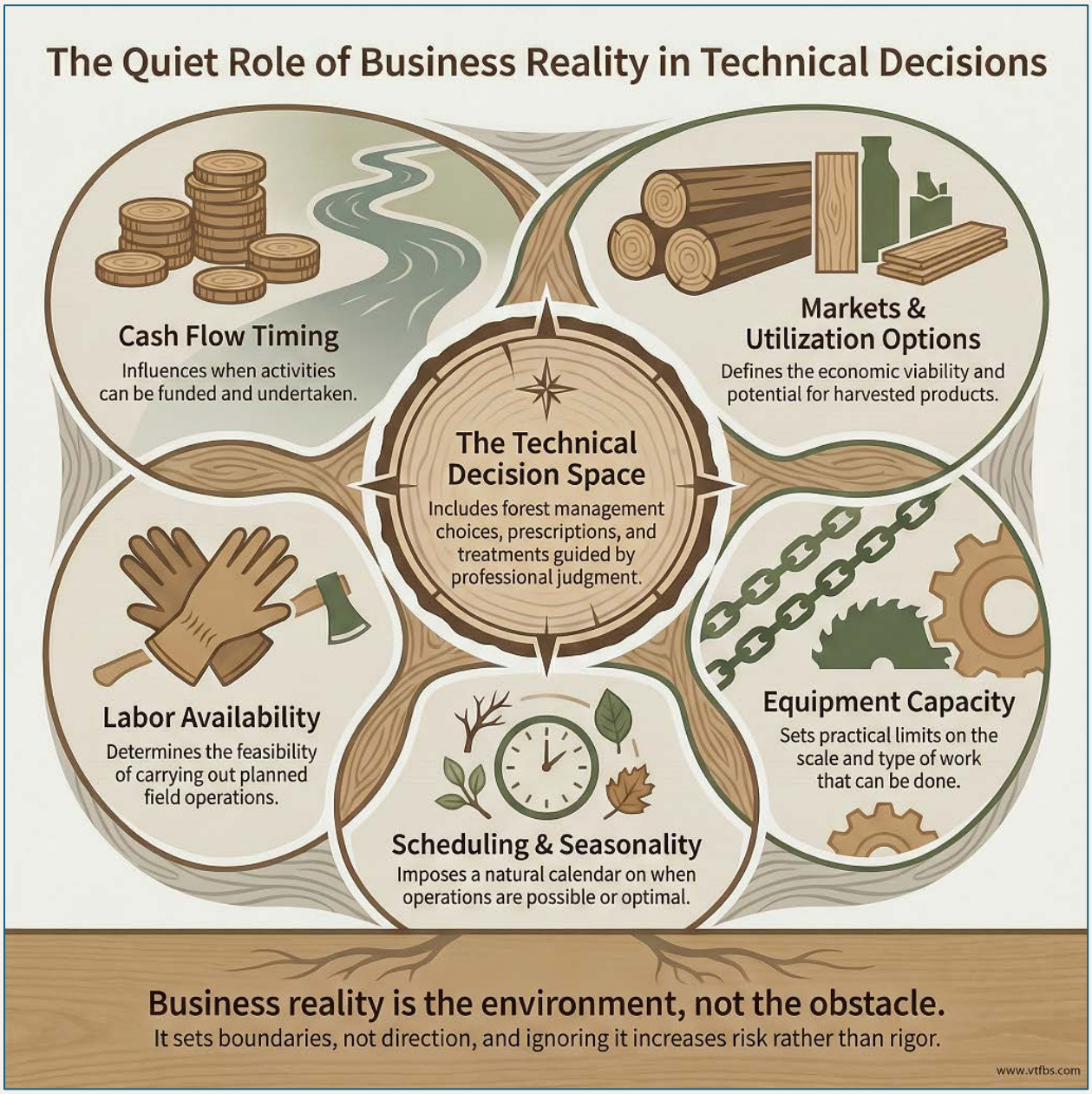
Respondents reported that many technical decisions are constrained by economic realities that are rarely addressed directly in research or extension materials. Choices about harvest timing, prescription intensity, or investment in data collection are often influenced by cash flow needs, market volatility, labor availability, or financing requirements. When research outputs ignore these pressures, they can feel disconnected from the decisions practitioners are actually trying to make.

Several respondents explicitly asked for assistance with financial management, feasibility analysis, and business planning. Others described needing help translating technical work into formats that lenders, investors, or internal decision-makers can understand. Even respondents who expressed strong confidence in their silvicultural judgment noted that business uncertainty introduces risk that technical tools alone do not resolve.

This dynamic is particularly visible in discussions of utilization and markets. Respondents working in wood utilization and forest economy roles emphasized the importance of understanding where material can go, what it is worth, and how those conditions are likely to change. Without that context, prescriptions may be technically sound but economically fragile. Respondents did not ask researchers to become business consultants, but they did ask for research and tools that acknowledge how economic signals influence management choices.

The presence of these concerns does not diminish the value of ecological or silvicultural research. Instead, it highlights a gap in integration. When business considerations are treated as external or secondary, practitioners are left to bridge the gap themselves. Some do so successfully, drawing on experience or informal networks. Others struggle, particularly when facing new markets, new ownership structures, or changing policy environments.

For researchers and public agencies, the implication is not that every project must address economics in depth. It is that applied work is more likely to be used when it recognizes the financial context in which decisions are made. Even modest attention to costs, timing, or economic tradeoffs can make technical findings more relevant and easier to act on.


The Quiet Role of Business Reality in Technical Decisions
Cash Flow Timing
Influences when activities can be funded and undertaken.
Markets & Utilization Options
Defines the economic viability and potential for harvested products.
The Technical Decision Space
Includes forest management choices, prescriptions, and treatments guided by professional judgment.
Labor Availability
Determines the feasibility of carrying out planned field operations.
Equipment Capacity
Sets practical limits on the scale and type of work that can be done.
Scheduling & Seasonality
Imposes a natural calendar on when operations are possible or optimal.
Business reality is the environment, not the obstacle.
It sets boundaries, not direction, and ignoring it increases risk rather than rigor.
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AI as a Workaround, Not a Vision

When respondents discussed artificial intelligence, they did so in a notably pragmatic way. AI was rarely framed as transformative or aspirational. Instead, it appeared as a set of tools being used quietly and selectively to reduce friction in everyday work. Respondents reported using large language models and related tools for drafting documents, summarizing material, preparing communications, analyzing data, learning unfamiliar topics, and organizing information. In most cases, AI was described less as a decision-maker and more as an assistant.

What is striking is where AI is showing up. Respondents did not report using it to replace field judgment, silvicultural reasoning, or professional responsibility. They used it to speed up tasks that are time-consuming, repetitive, or cognitively draining. Writing permit drafts, summarizing long documents, preparing tables, learning a new regulatory requirement, or exploring how others have approached a problem were common examples. In this sense, AI is filling gaps left by existing systems rather than introducing entirely new workflows.

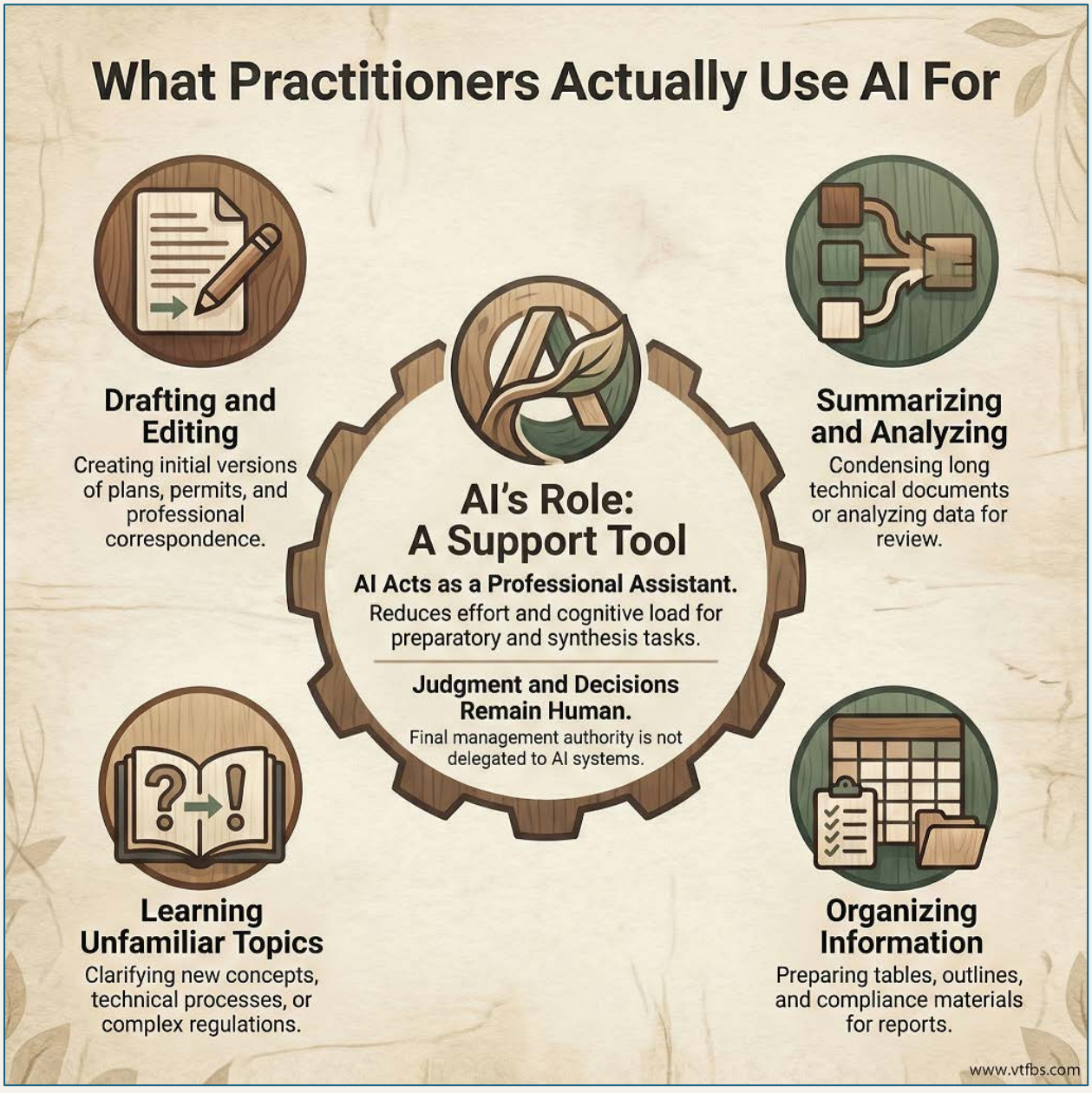
Several respondents noted that they are still early in their use of AI, experimenting cautiously and often without formal training. Others reported using it frequently, but in narrow, well-defined ways. Interest in additional training was present, though often framed as a desire for guidance grounded in their own materials and work contexts rather than generic demonstrations. Respondents were clear that usefulness depends on relevance and control, not novelty.

"So far, I've used AI mainly to summarize information and learn processes. It's about saving time, not replacing judgment."

The way AI is being adopted offers an important signal for researchers and public agencies. Practitioners are turning to general-purpose tools because they are accessible, flexible, and responsive. These tools require little setup, impose few data requirements, and provide immediate feedback. In contrast, more specialized systems often demand significant upfront investment before yielding any value. The appeal of AI in this context is not intelligence per se, but responsiveness.

This pattern shows that AI use should be understood diagnostically. It highlights where existing tools, publications, and systems are failing to meet basic needs for synthesis, translation, and communication. Rather than asking how to build AI into forestry tools, a more productive question may be what kinds of work people are outsourcing to AI, and why. The answer points back to long-standing issues of format, accessibility, and time.

For applied research, the implication is modest but important. AI does not replace the need for sound science, durable tools, or trusted relationships. It does, however, expose where those elements are missing or poorly aligned. Paying attention to how practitioners are using AI can help researchers and agencies identify opportunities to simplify workflows, clarify outputs, and reduce unnecessary burden—without chasing technology for its own sake.


What Practitioners Actually Use AI For
Drafting and Editing
Creating initial versions of plans, permits, and professional correspondence.
Summarizing and Analyzing
Condensing long technical documents or analyzing data for review.
AI's Role: A Support Tool
AI Acts as a Professional Assistant.
Reduces effort and cognitive load for preparatory and synthesis tasks.
Judgment and Decisions Remain Human.
Final management authority is not delegated to AI systems.
Learning Unfamiliar Topics
Clarifying new concepts, technical processes, or complex regulations.
Organizing Information
Preparing tables, outlines, and compliance materials for reports.
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What Respondents Say They Actually Need Help With

When respondents were asked what kinds of assistance would help them do better work, their answers did not cluster neatly around a single topic or discipline. Instead, they reflected the complexity of working at the intersection of forests, markets, institutions, and people. Needs were often expressed at boundaries: between silviculture and operations, between planning and implementation, between technical judgment and communication, and between ecological intent and economic reality.

Several respondents described needing support with silvicultural challenges that remain unresolved in practice, even when the theory is well established. Oak regeneration was a prominent example. Respondents working in both public and private contexts described the difficulty of achieving reliable outcomes on private land, where tools such as prescribed fire may be unavailable and where incentives are misaligned across landowners, loggers, and foresters. The need here was not for more general guidance, but for applied techniques that acknowledge real constraints and tradeoffs.

Forest health and emerging threats also surfaced repeatedly. Respondents expressed frustration with how information about pests and diseases is disseminated, noting delays, fragmentation, and difficulty locating practical guidance once research is complete. In some cases, respondents felt that information arrived too late to be useful, or in forms that were difficult to translate into action. The implication was not that research is absent, but that pathways from study to practice are unclear.

Market and utilization questions appeared alongside ecological ones. Respondents involved in wood utilization and forest economy work emphasized the importance of understanding current and future markets, regional wood supply, and how changing conditions affect risk. Others noted a need for better baseline yield information for common cover types, particularly where full inventories are impractical. These needs point toward decision-making under uncertainty, where rough but defensible information can be more useful than precise estimates that are costly to obtain.

Communication and human engagement emerged as a quieter but persistent theme. Some respondents emphasized that success in forestry depends heavily on the ability to work with landowners, operators, agency staff, and the public. Technical competence alone was described as insufficient. Understanding people, managing expectations, and building trust were seen as skills that deserve more attention in training and continuing education, yet are often treated as secondary.

Across these varied requests, a common thread runs through the responses. Respondents are not asking to be told what to do. They are asking for help navigating complexity. They want tools, training, and information that acknowledge the messy reality of practice and offer ways to move forward without oversimplifying. The assistance they seek is not abstract expertise, but support that is grounded, adaptable, and immediately usable in the situations they face.


Where Help Is Being Asked For
APPLIED SILVICULTURE
Often hard to implement under real-world constraints.
FOREST HEALTH & EMERGING THREATS
Characterized by high uncertainty and evolving information.
MARKETS & REGIONAL WOOD SUPPLY
Involves complex dynamics that are difficult to explain.
BUSINESS & FINANCIAL DECISION-MAKING
Requires applying principles under significant operational constraints.
COMMUNICATION & HUMAN FACTORS
Engaging landowners and stakeholders is a critical, complex skill.
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What This Means for Researchers and Public Agencies

Taken together, the survey responses point to a gap that is less about knowledge and more about alignment. Respondents did not question the value of research, nor did they dismiss the role of public agencies and universities in generating new insight. They explicitly praised the quality of foundational research. The disconnect appears at the point where that work is expected to inform day-to-day decisions made under time, budget, and institutional constraints.

One recurring concern was the tendency for applied tools and information products to be developed as stand-alone efforts, often tied to specific grants, projects, or graduate research. Respondents described encountering systems that showed promise but were never fully integrated into practice because they lacked long-term support, clear ownership, or a realistic plan for maintenance. Over time, this pattern erodes trust and reinforces reliance on older, more stable resources.

The responses also suggest that researchers and agencies often underestimate the cumulative burden their products impose. Each new tool, platform, or reporting requirement may be defensible in isolation. In aggregate, they contribute to decision fatigue and resistance. Practitioners respond by simplifying, selectively engaging, or opting out altogether. From their perspective, these are rational choices, not failures of adoption.

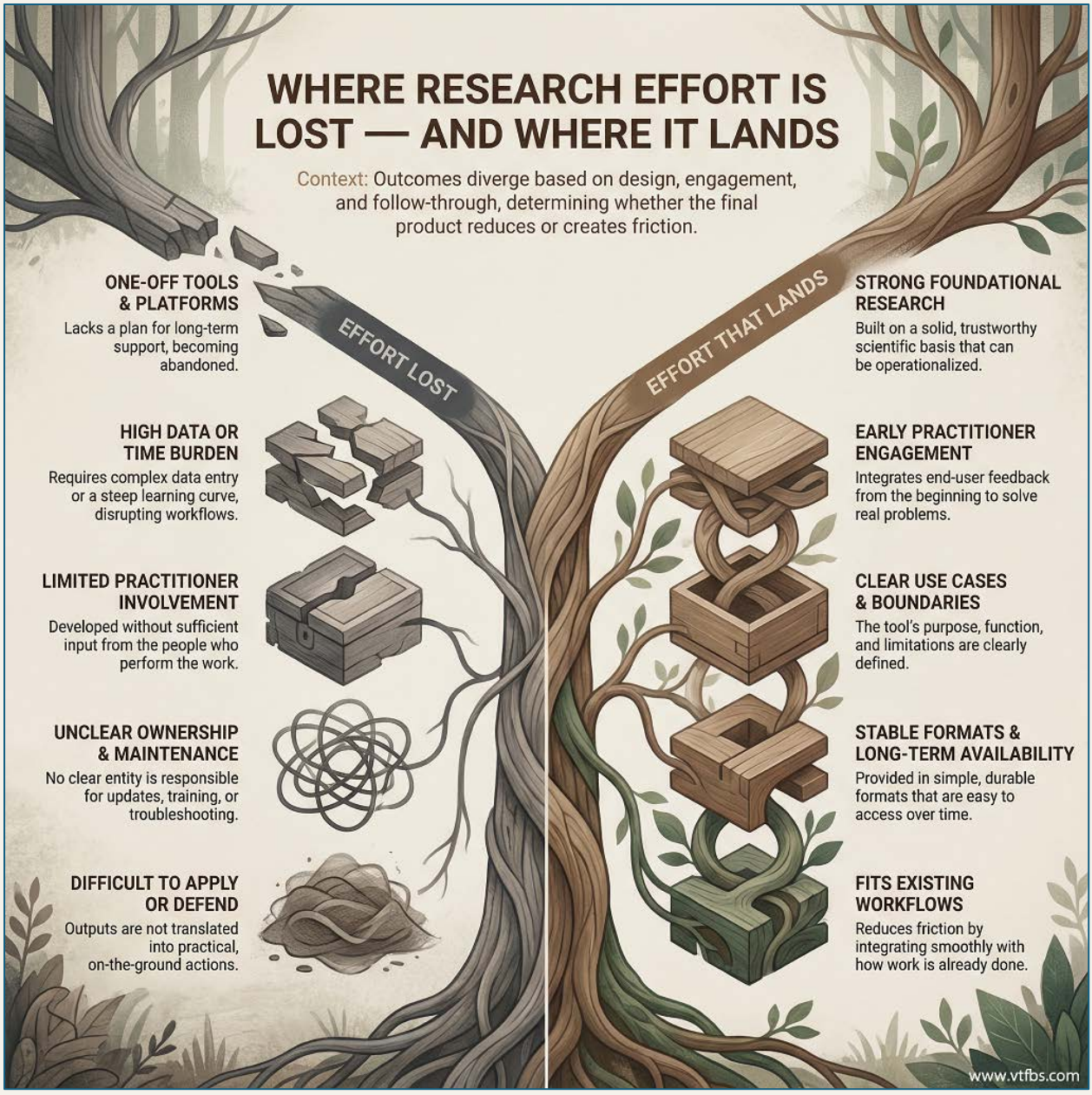
"Too often, efforts go into creating 'products' that miss the mark or become one-offs when the grad student moves on."

For public agencies in particular, the findings raise questions about role clarity. Several respondents argued that agencies are well positioned to support solid foundational research and establish shared baselines, but less well suited to act as long-term software developers or product owners. Where agencies attempt to fill that role without the necessary resources or incentives, the result is often fragile systems that struggle to keep pace with user needs.

The responses point toward a different model of engagement. Researchers and agencies may have greater impact by focusing on clearly defined contributions, partnering early with practitioners, and being explicit about what they will and will not maintain over time.

This includes recognizing when the most appropriate outcome of a research project is not a new tool, but data, insights, or design principles that others can operationalize more effectively.

Ultimately, the message for researchers and public agencies is not that they should do less. It is that they should do certain things more deliberately. Paying closer attention to how work is actually done, how trust is built, and where friction accumulates can help ensure that research efforts translate into real improvements on the ground. When alignment improves, usefulness follows.


WHERE RESEARCH EFFORT IS LOST — AND WHERE IT LANDS
Context: Outcomes diverge based on design, engagement, and follow-through, determining whether the final product reduces or creates friction.
EFFORT LOST
EFFORT THAT LANDS
ONE-OFF TOOLS & PLATFORMS
Lacks a plan for long-term support, becoming abandoned.
HIGH DATA OR TIME BURDEN
Requires complex data entry or a steep learning curve, disrupting workflows.
LIMITED PRACTITIONER INVOLVEMENT
Developed without sufficient input from the people who perform the work.
UNCLEAR OWNERSHIP & MAINTENANCE
No clear entity is responsible for updates, training, or troubleshooting.
DIFFICULT TO APPLY OR DEFEND
Outputs are not translated into practical, on-the-ground actions.
STRONG FOUNDATIONAL RESEARCH
Built on a solid, trustworthy scientific basis that can be operationalized.
EARLY PRACTITIONER ENGAGEMENT
Integrates end-user feedback from the beginning to solve real problems.
CLEAR USE CASES & BOUNDARIES
The tool's purpose, function, and limitations are clearly defined.
STABLE FORMATS & LONG-TERM AVAILABILITY
Provided in simple, durable formats that are easy to access over time.
FITS EXISTING WORKFLOWS
Reduces friction by integrating smoothly with how work is already done.
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Concrete Actions That Would Make Research Land Better

The survey responses do more than describe problems. They point, often implicitly, toward actions that would make applied research more useful in practice. These actions are not grand reforms. They are adjustments in emphasis, design, and follow-through that align research effort with the conditions under which decisions are actually made.

One clear implication is the value of designing for minimum viable use. Respondents repeatedly signaled that systems requiring extensive data preparation, specialized expertise, or parallel recordkeeping are unlikely to become central to their work. Research products that start from the question "what is the least information needed to make a better decision" are more likely to be used than those that assume ideal data availability. This applies as much to models and tools as it does to publications and guidance.

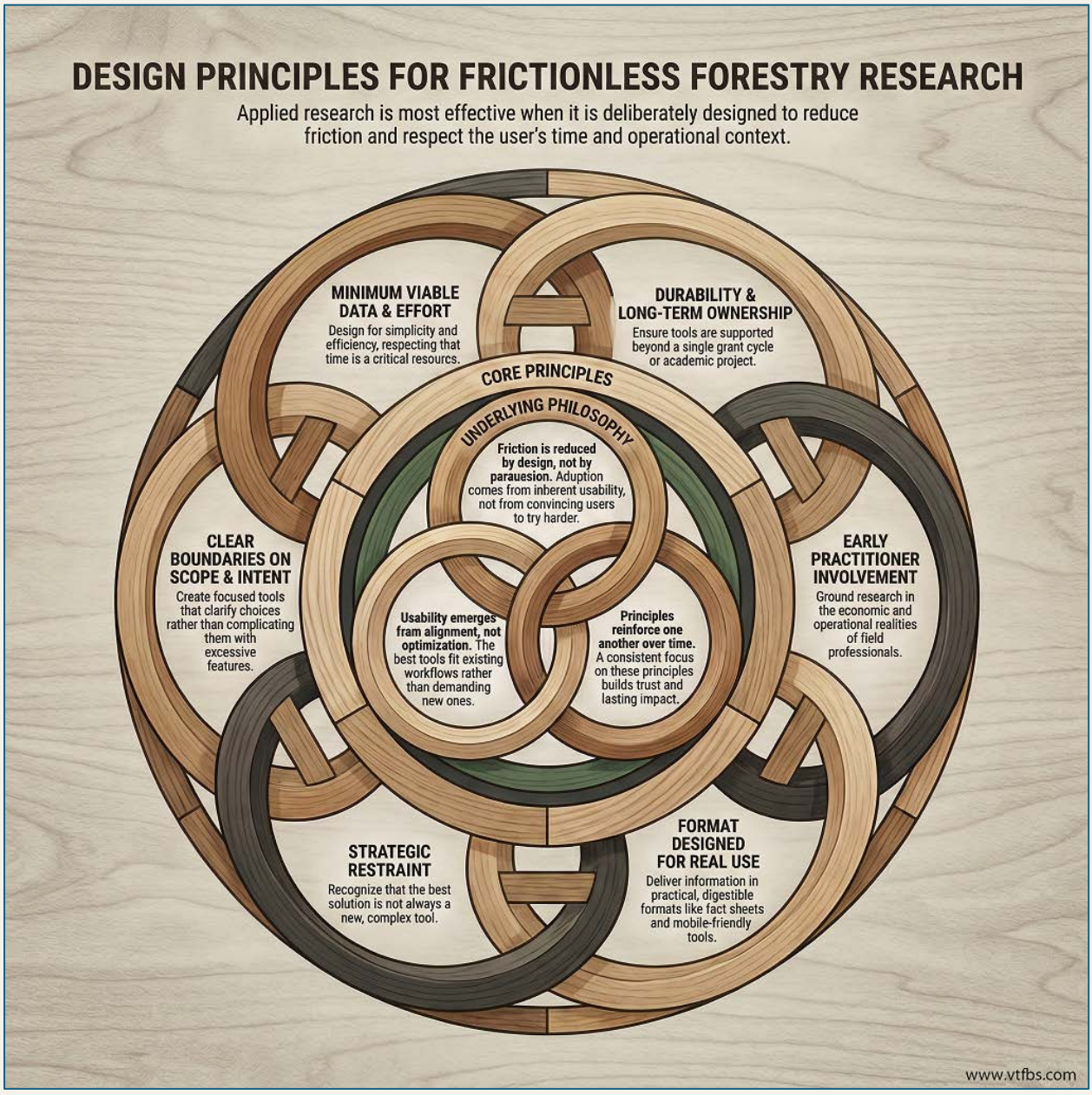
Another action concerns longevity and ownership. Tools and information products that persist tend to do so because someone has committed to maintaining them, clarifying their assumptions, and responding to user feedback over time. Respondents were wary of products that appear polished at launch but quickly stagnate. Researchers and agencies can improve impact by being explicit about the expected lifespan of a product, who will maintain it, and under what conditions it will be updated or retired. In some cases, the most responsible choice may be to avoid building a tool at all and instead support others who are better positioned to carry it forward.

Partnership timing also matters. Several frustrations described by respondents could likely have been avoided if practitioners had been involved earlier in design decisions. Early engagement helps surface workflow constraints, data realities, and use cases that are difficult to anticipate from a distance. It also builds shared ownership, which increases the likelihood that a product will be tested, refined, and trusted.

Attention to format is another concrete lever. Respondents consistently valued materials that allowed them to move easily between overview and detail. Providing clear summaries, visual explanations, and practical examples alongside more technical work lowers the barrier to entry without diluting substance. Treating format as integral to the research process, rather than as a dissemination task at the end, would make findings more accessible to the people they are meant to serve.

Finally, the responses suggest the importance of restraint. Not every insight needs to become a new platform, dashboard, or decision support system. Practitioners are asking for clarity, synthesis, and defensible baselines rather than new complexity. Choosing not to build something can be as impactful as choosing to build it, particularly when it prevents additional burden from being placed on already crowded workflows.

Taken together, these actions describe a shift in posture rather than a checklist. They ask researchers and agencies to see usefulness as a design problem, not an adoption problem. When effort is aligned with real conditions, research has a much better chance of landing where it matters most.


DESIGN PRINCIPLES FOR FRICTIONLESS FORESTRY RESEARCH
Applied research is most effective when it is deliberately designed to reduce friction and respect the user's time and operational context.
MINIMUM VIABLE DATA & EFFORT
Design for simplicity and efficiency, respecting that time is a critical resourc.
DURABILITY & LONG-TERM OWNERSHIP
Ensure tools are supported beyond a single grant cycle or academic project.
CORE PRINCIPLES
UNDERLYING PHILOSOPHY
Friction is reduced by design, not by parauesion. Aduption comes from inherent usability, not from convincing users to try harder.
CLEAR BOUNDARIES ON SCOPE & INTENT
Create focused tools that clarify choices rather than complicating them with excessive features.
EARLY PRACTITIONER INVOLVEMENT
Ground research in the economic and operational realities of field professionals.
Usability emerges fram alignment, not optimization. The best tools fit existing workflows rather than demanding new ones.
Principles reinforce one another over time. A consistent focus on these principles builds trust and lasting impact.
STRATEGIC RESTRAINT
Recognize that the best solution is not always a new, complex tool.
FORMAT DESIGNED FOR REAL USE
Deliver information in practical, digestible formats like fact sheets and mobile-friendly tools.
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Closing: Hearing Was the First Step

This report began with an act of listening. The people who responded to the survey took time to describe how they work, what they rely on, and where they struggle. They did so candidly, often with a mix of appreciation for solid research and frustration with how difficult it can be to apply that work in real settings. The value of their responses lies not in consensus, but in the clarity they bring to how decisions are actually made at the ground level of the forest and forest economy.

What emerges from their input is not a call for more information, nor for more sophisticated tools for their own sake. It is a call for alignment. Respondents described a professional landscape crowded with products, platforms, and initiatives, yet still short on resources that consistently reduce effort, clarify choices, or stand the test of time. Their responses suggest that usefulness is not determined by innovation alone, but by whether a tool, publication, or system fits into the realities of daily work.

For those who participated in the survey, this report is meant to reflect their experience accurately and respectfully. Their comments make clear that many of the challenges they face are shared, even across different roles and institutions. Seeing those patterns laid out may not solve the problems directly, but it can help validate choices practitioners are already making as they navigate complexity with limited support.

For researchers and public agencies, the findings offer direction rather than indictment. They point toward specific opportunities to adjust how work is framed, developed, and carried forward. Small changes in design, partnership, and follow-through have the potential to make research more durable and more relevant. The responses also suggest that deciding what not to build, and when to hand work off to others, can be just as important as launching new initiatives.

Listening, however, is only the first step. The measure of success for this report will be whether it informs concrete action, whether respondents feel their perspectives were heard, and whether those positioned to shape research and extension efforts take these insights seriously. The people working in forests, mills, agencies, and businesses will continue to make decisions regardless. The question is whether the systems meant to support them will evolve in ways that genuinely help.

Appendix: A Role for The Forest Business School

The patterns described in this report point to a recurring gap between research and use. Practitioners are not short on insight, nor are researchers short on ideas. What is missing, more often than not, is a mechanism that can move knowledge across that gap quickly, translate it into usable forms, and keep it alive as conditions change. This is where the Forest Business School operates.

The Forest Business School is designed to work at the boundary between research and practice. Its role is not to duplicate the work of universities or public agencies, but to take solid research and make it usable in the contexts where decisions are actually made. That means converting findings into formats that fit real workflows, testing ideas against operational reality, and distributing material through channels practitioners already use.

Unlike most academic or public institutions, the Forest Business School is built for speed and adaptation. It can develop and deploy remote learning opportunities without multi-year approval cycles. It can turn useful research into mobile tools, short courses, presentations, podcasts, and visual materials that meet people where they are. It can revise and update content as feedback comes in, rather than freezing it at the moment of publication.

"FBS is one of the few sources of continuing education with attention to practical realities rooted in actual experience."

This flexibility matters. Many of the frustrations expressed by survey respondents stem from tools and products that were well intentioned but could not evolve once released. The Forest Business School model allows research to remain active rather than static. Findings can be translated into apps, calculators, decision aids, and explanatory materials that are refined over time, informed by direct use in the field.

The Forest Business School has also already integrated artificial intelligence into everyday work in ways that are practical rather than aspirational. AI is used to reduce friction: summarizing material, drafting documents, organizing information, and accelerating learning. These applications align closely with how practitioners themselves are adopting AI, and they can be deployed without the procurement, compliance, and governance hurdles that often slow public-sector adoption.

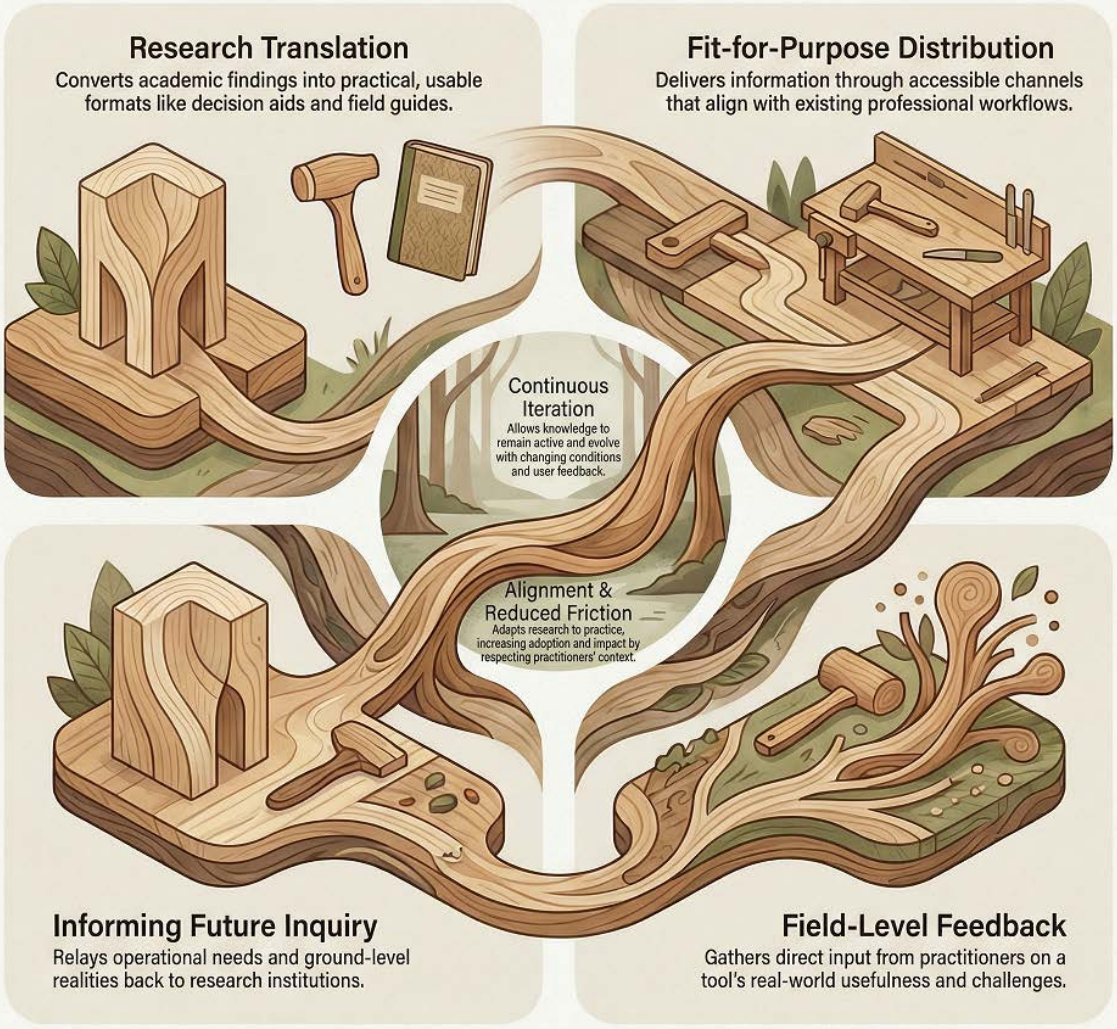
This work is grounded in long-standing relationships. Forest Business School Director Steve Bick has a long history of collaboration with public agencies and maintains extensive connections across the forest products supply chain. Those relationships allow the Forest Business School to move comfortably between research institutions, public programs, and private-sector operations, and to understand the constraints and incentives each faces.

Equally important, the Forest Business School operates as a convener. It maintains direct relationships with practitioners, business owners, consultants, and agency staff. This allows it to test whether a research output actually helps, and to provide feedback to researchers about what landed, what did not, and why. In this sense, it functions as a feedback loop that is often missing once research leaves its original context.

The opportunity, then, is not for the Forest Business School to replace existing institutions, but to complement them. Universities and public agencies excel at generating foundational knowledge and ensuring rigor. The Forest Business School excels at translation, deployment, and iteration. Together, they can reduce the friction this report describes—not by asking practitioners to adapt to research, but by adapting research to practice.

In a landscape crowded with tools and information, usefulness is a design choice. The Forest Business School exists to make that choice deliberately.

Appendix: A Role for the Forest Business School



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