Transcript: Guide to Produce Scoping Literature Reviews Using AI Tools

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Slide 1: Title/Intro

[Script for Slide 1]
Welcome, everyone. I'm thrilled to share with you a guide that's not just a tool, but a pathway to mastering the art of scoping literature reviews with the help of AI. This is the *Guide to Produce Scoping Literature Reviews Using AI Tools*, brought to you by Tony Bailetti, Ph.D., from the Technology Innovation Management program at Carleton University. Now, let me tell you, this isn't just another academic resource. It's a blueprint for clarity, efficiency, and ethical research practices. And as we dive in, you'll see how it can transform the way you approach literature reviews—making the process not only manageable but truly rewarding.

Slide 2: Objective

So, what's the goal here? This guide is designed to take you by the hand and lead you through a clear, step-by-step method for using AI tools in your scoping reviews. From crafting that perfect review question to sharing your final insights with the world, we've got you covered. But it's not just about the steps—it's about doing it right. We focus on keeping the process ethical, up-to-date, and, most importantly, easy to follow. Whether you're a student or a faculty member, this guide is your companion for navigating the complexities of literature reviews with confidence and integrity.

Slide 3: Target Audience

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Now, who is this guide for? It's specifically tailored for TIM students and faculty—those of you who are on the front lines of technology and innovation management. Here's what you can expect: First, you'll learn to formulate clear and effective review questions—because a great review starts with a great question. Second, you'll conduct thorough and reproducible scoping literature reviews, ensuring your work stands up to scrutiny. Third, you'll harness AI tools to select and screen relevant studies, extract and synthesize key findings, and maintain ethical and transparent reporting practices. And finally, you'll generate feedback on your review drafts and contribute to improving this guide, fostering a collaborative learning community. This isn't just about individual success—it's about building a community of scholars who support each other's growth.

Script for Slide 4

Let me ask you something: have you ever built a house? If you have, you know it all starts with a foundation—solid, dependable, unshakable. That's exactly what we're doing today with Part 1 of this guide: laying the Foundation of Scoping Reviews. Picture this as the groundwork that holds everything together. We'll start with a glossary—because you've got to know the language before you can speak it fluently. Then, we'll walk through an introduction, and here's a key question: when should you choose a scoping review over a systematic one? We'll answer that, and then explore the frameworks that give structure to your work. Now, let's talk about something exciting—the benefits of using AI for scoping reviews in the TIM context. It's powerful, it's innovative, but——it's not perfect. We'll cover the limitations of scoping reviews and the pitfalls of relying too much on AI tools. AI biases? Yes, they exist, and we'll tackle them head-on. Human oversight? Absolutely essential. Then, we'll guide you step-by-step through grey literature searches—because the best insights often hide in the shadows—and wrap up with reference management, the unsung hero of clarity. This foundation isn't just important—it's everything. Get this right, and the rest falls into place.

Script for Slide 5

Now, let's roll up our sleeves and get to work—because Part 2 is where the magic happens: The Method to Produce Scoping Reviews. This is the blueprint, the step-by-step process that turns ideas into results. It begins with an introduction, setting the stage, and then we dive into Step 1: formulating the review question and scope. Why does this matter? Because a great question is like a compass—it points you exactly where you need to go. From there, Step 2: searching for articles. Step 3: selecting the ones that matter. Step 4: extracting the data that tells the story. Then, we hit Step 5: analyzing and synthesizing that data—turning raw information into gold. Step 6? Interpreting your results—making sense of it all. Step 7: writing the scoping review with clarity and power. But wait—Step 8: incorporating ethical considerations. This isn't just about doing it right; it's about doing it responsibly. Step 9: disseminating your findings—sharing your work with the world. And to tie it all together, a checklist for authors and reviewers, so nothing slips through the cracks. This isn't just a process—it's a journey of purpose and precision. You're not just producing a review; you're crafting a legacy.

Script for Slide 6

And now, we arrive at Part 3: Updating the Scoping Review Guide. Let me tell you something—this isn't the end; it's a new beginning. This guide isn't carved in stone; it's alive, breathing, growing—because knowledge evolves, and so must we. We'll start with an introduction, then unveil a version control and updates system to keep this guide fresh and relevant. AI assistance? It's a powerful ally, but human oversight keeps it honest—and we'll lay that out in a clear disclosure statement. Now, here's where you come in: ways to contribute. Yes, you—because this guide thrives on collaboration, on the collective wisdom of a community. We'll take a moment to acknowledge those who pour their hearts into this work—because gratitude matters. And we'll close with an epilogue, a reflection on what we've built

together. This part is about the future—about keeping the flame of learning alive. So, step up, contribute, and let's make this guide a masterpiece for generations to come.

Script for Slide 7

Let me share a secret with you: every great journey begins with understanding the language. That's why we start with a glossary—because words are the tools of thought. Take Boolean operators—AND, OR, NOT. These aren't just fancy terms; they're the keys to unlocking exactly what you need in a flood of information. Grey literature? That's the hidden treasure—reports, conference papers, things you won't find on the usual shelves but packed with insights. Human oversight? That's you, the captain, steering the ship, making sure the machines don't run wild. PRISMA-ScR—it's your compass, the framework that keeps your scoping review on course. And a scoping review itself? It's like a treasure map, showing you what's out there and where the gaps lie—without getting lost in the weeds of study quality. Compare that to a systematic review, a microscope zooming in on one precise question with rigor. These aren't just definitions, folks—they're the foundation of everything we're about to explore. Master them, and you're already ahead of the game.

Script for Slide 8

Picture this: you're standing on a hilltop, gazing out over a vast, uncharted landscape. That's a scoping review—it shows you what's known and, even better, what's still waiting to be discovered. In Technology Innovation Management, this is pure gold. Why? Because those gaps you spot—they're not just blanks; they're opportunities! New markets, new products, new ways to innovate—they all start right here. Whether it's blockchain commercialization, open innovation, or AI startups, a scoping review helps you see what's out there and where you can step in. And here's the kicker: pair your know-how with AI tools, and you can dig through piles of studies—even the quirky, offbeat ones—and pull out insights that shape the future. Now, don't confuse this with a systematic review. That's a laser, sharp and focused, perfect for narrow questions. But a scoping review? It's a wide-angle lens, ideal for fast-moving fields where the rules aren't set yet. So, if you're exploring big ideas, spotting trends, or chasing possibilities, this is your tool. Narrow questions about effectiveness? Save those for the systematic approach. It's all about picking the right path—and we're just getting started.

Script for Slide 9

So, when do you pick a scoping review over a systematic one? In TIM, it's crystal clear: when your question is big and bold! Imagine you're curious about how AI platforms are flipping technology commercialization upside down across industries. You're not measuring success yet—you're exploring. A scoping review lets you roam free, gathering the full picture. Or what about new frontiers, like quantum computing in startups? The field's fresh, the concepts are fuzzy, the gaps are wide open. That's when a scoping review shines—it maps it all out for you. And here's another gem: when the studies are all over the place—engineering, business, sociology, you name it—trying to herd them into a systematic review is like herding cats. But a scoping review? It thrives on that variety. Take AI across healthcare, finance, manufacturing—it pulls those threads together without breaking a sweat. It's about seeing the whole tapestry, not just one stitch. That's when you know it's time for a scoping review.

Script for Slide 10
Let's keep this rolling—when else do you reach for a scoping review? When you don't need to play judge and jury on every study's quality. Say you're cataloging strategies for open innovation. You're not here to score them or crunch numbers—you just want to see what's on the table. A scoping review lets you do that, no fuss, no muss. And here's my favorite: when you're hunting for gaps and trends. Picture blockchain in supply chain management. You're not proving what works best—you're spotting the empty spaces, the untapped opportunities, the next big questions. It's like shining a light into the shadows, showing you where to go next. That's the magic of a scoping review—it's not about final verdicts; it's about opening doors, sparking ideas, setting the stage for what's to come. When that's your mission, this is your tool.

Slide 11: Key Frameworks

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 Let me tell you something, folks: frameworks are like the blueprints for a house. You wouldn't build without one, would you? In scoping reviews for Technology Innovation Management, we've got five key frameworks to guide us—and each one's got its own magic. Arksey and O'Malley? That's flexibility for fast-moving fields. Levac and company? They're all about engaging the players who matter. The JBI framework? That's your ticket to rigor and transparency. PRISMA-ScR? It's the gold standard for reporting—making your work stand tall. And recent updates? They're tossing AI into the mix, taking us to the next level. Here's the secret: you don't have to choose just one. Blend them, shape them to your purpose, and watch your review go from solid to spectacular. It's not about rules—it's about building something that lasts, something that inspires.

Slide 12: Arksey and O'Malley (2005)

Script
Let's talk about Arksey and O'Malley—two names that gave us a five-step outline as adaptable as it is brilliant. Why does that matter? Because in fields like fintech or wearable tech, the ground shifts fast—miss a step, and you're yesterday's news. This framework lets you tweak as you go, keeping your review alive and kicking. Picture this: you're mapping wearable tech for remote patient monitoring. You're pulling from journals, patents, industry whitepapers—the whole landscape. That's not just research; that's a treasure map, showing product developers where the innovations hide and where the market's wide open. It's like standing on a hilltop, seeing every opportunity stretch out before you. If your world moves at warp speed, this is the framework that keeps you in the driver's seat.

Slide 13: Levac et al. (2010)

Script
Now, Levac and her crew took Arksey and O'Malley's foundation and said, Let's raise the stakes. How?

By putting stakeholders front and center. In Technology Innovation Management, you don't just study—you connect. Startups, incubators, R&D teams—they're not sidelines; they're your co-pilots. Imagine a scoping review on IoT-based smart manufacturing. You bring in accelerators, manufacturers, regulators—the people who know the game. Their insights tweak your scope in real time, making sure you're answering the questions that keep industries awake at night. It's like tuning a radio until the signal's crystal clear—suddenly, you're locked in on what matters. Want your work to hit the mark? Stakeholders aren't optional—they're your edge.

Slide 14: Joanna Briggs Institute (JBI) Scoping Review Framework

Script
Let's shine a light on the JBI framework—it's like the Swiss Army knife of scoping reviews. Refined, precise, and built for rigor and transparency. In TIM, where you're wrangling patents, standards, market analyses—sources that don't always line up nice and neat—JBI keeps you steady. Say you're exploring 3D-printing for rapid prototyping. You plan systematically, search methodically, and execute with clarity. The payoff? A review so transparent, so rock-solid, that when you pitch to investors or partners, they don't just nod—they believe. It's not about doing the work; it's about showing the work—proving you've covered every angle. That's JBI: it's credibility you can stand on.

Slide 15: PRISMA-ScR

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PRISMA-ScR — on the other hand is the gold standard for reporting scoping reviews. Why should you care? Because in TIM, trust is everything. Whether you're crafting a tech roadmap or shaping policy, this framework makes your work credible, repeatable, undeniable. Take blockchain in supply chain management. You follow PRISMA-ScR—flow diagrams, clear criteria, the full package. When you hand that to investors or collaborators, they don't just see data—they see proof you've vetted the market, the tech, the whole deal. It's like laying out a roadmap with every mile marked, every turn justified. Standardized reporting isn't a chore—it's your ticket to being taken seriously.

Slide 16: Recent Updates (2020–Present)

Script
Now, let's step into the future—recent updates from 2020 on. What's the big news? AI-powered tools that supercharge your scoping reviews. Innovation studies are piling up fast—too fast for old-school methods. AI's here to save the day, speeding up collection, analysis, everything. Picture a review on digital entrepreneurship post-COVID-19. You've got social media trends, preprints, a flood of data. AI cuts through it like lightning, screening, extracting, keeping you on top of the latest shifts. It's not about

replacing you—it's about making you unstoppable, letting you ride the wave of change instead of drowning in it. Want to lead the pack? These tools aren't the future—they're the now.

Slide 17: Benefits of Using AI for Scoping Reviews in TIM Context 1/3

Script

We're in an age where data is coming at us like a tidal wave—every day, every hour, every second. And in Technology Innovation Management—TIM for short—if you're not moving fast, you're already yesterday's news. That's where AI comes in—like a rocket booster for your scoping reviews. It's not just a tool; it's a revolution! Why? Because AI tackles massive, messy piles of data—articles, patents, reports—quickly, consistently, and with precision. It gets you to market faster, finds that perfect product fit, keeps you ahead of disruptive tech, and uncovers opportunities—or threats—before anyone else sees them coming. Let's dig in. **Speed and efficiency**—imagine sifting through thousands of studies, boom, done in minutes, not months. Rapid screening? AI's got it. Patents, startup case studies, you name it—organized in a flash. And duplicates? Poof, gone with automated deduplication. Time saved, effort slashed—that's power in a fast-changing world. Now, **enhanced discovery**—this is where it gets exciting. AI doesn't just skim the surface; it dives deep—academic journals, preprints, corporate sites, even social media. Real-time insights into markets that move at warp speed! And those intelligent recommendations? They're like a spotlight on the hidden stuff—startup whitepapers, conference talks—giving you the whole innovation landscape, not just the obvious pieces. This isn't research; this is your edge.

Slide 18: Benefits of Using AI for Scoping Reviews in TIM Context 2/3

Script

Now, let's talk about keeping things sharp—because in TIM, chaos is the enemy, and clarity is your weapon. AI doesn't just hand you data; it hands you order. **Improved organization**—picture this: articles sorted into neat little buckets—blockchain in supply chains, IoT in smart factories. Emerging subfields? Niches? You'll see them pop out like stars in the night sky. And automatic tagging? It's like having a librarian who never sleeps—keywords, metadata, topics like IP management or digital entrepreneurship, all tracked and ready. But it doesn't stop there. **Scalable analysis**—AI's built for the big leagues. Massive datasets—global patents, venture capital moves—AI eats them up and spits out gold. And it's dynamic—new studies drop, AI re-runs the search, keeps you fresh without lifting a finger. Here's the clincher: **reduced human error**. AI doesn't get tired, doesn't play favorites. Consistent screening every time—no slip-ups, no bias. And you can tweak it—focus on specific tech, markets, whatever you need. It's not about taking over; it's about making you unstoppable—sharper, faster, better.

Slide 19: Benefits of Using AI for Scoping Reviews in TIM Context 3/3

Script
Alright, let's bring it home with two big wins: insights and savings. First, **insight generation**. AI doesn't just pile up data; it cuts through it like a blade. Complex studies? Summarized in seconds—key findings like tech readiness or bold new business models, right at your fingertips. And trend detection? It's like a radar for the future—picking up signals, say, quantum computing in finance, before they're on everyone's radar. You're not just keeping up; you're leading the pack. Now, **cost savings**—because time is money, and AI saves you a bundle of both. Screening, extracting—those tedious hours? Gone. Streamlined workflows mean you're free to do what matters: dig into the meaning, talk to stakeholders, map out your next breakthrough. Resources redirected, energy unleashed—that's the beauty of it. In TIM, where every moment counts, AI isn't just nice to have—it's your ace in the hole. It's your partner in shaping what's next, in staying ahead, in building the future.

Slide 20 – Limitations of Scoping Reviews 1/3
Imagine, if you will, a broad canvas of ideas—a scoping review gives you that wide-angle view, especially in technology innovation management. Yet, with this broad lens come limitations. There's no deep critical appraisal, meaning you might capture low-quality studies—think of anecdotal claims without solid data. For instance, when you examine incubator outcomes, you might find speculative blogs mingling with success stories. And while you gain a high-level view of intellectual property strategies, the details needed for policy are missing. Lastly, without a formal strength-of-evidence assessment, you're comparing apples to oranges, from small case studies to large surveys. Pause and reflect on this balance between breadth and depth.

Slide 21 – Limitations of Scoping Reviews 2/3
Now, let's delve a bit deeper. Selection bias can creep in when you don't have strict criteria—focusing on the well-known can overshadow emerging, innovative fields. Picture a review on AI startups that only highlights famous articles while missing fresh voices. Additionally, mixing studies—from technical feasibility to municipal financing—complicates clear thematic analysis. And remember, without a meta-analysis, you won't find the effect sizes that speak to return on investments. Finally, consider the time and resources: digging through vast fields like green technology is an iterative, demanding process. Each of these points builds our understanding further.

Slide 22 – Limitations of Scoping Reviews 3/3
As we draw to a close, consider the challenge of defining the scope itself. In fast-paced fields like quantum computing, knowing what to include is a delicate balance—too wide, and you lose focus; too narrow, and you miss key insights. There's also the risk of overlooking grey literature, such as industry whitepapers or startup pitch decks, which could provide real-world applications. And as technology evolves, today's scoping review can quickly become yesterday's news, highlighting the need for frequent

updates. In every challenge, there lies an opportunity to refine our approach and keep pace with innovation.

Slide 23 – Limitations of Using AI Tools to Produce Scoping Reviews 1/3
Consider AI as a powerful assistant for mapping technology markets—but use it wisely. Sometimes it may 'hallucinate' citations, inventing references or misattributing authors in areas like cloud computing. Always double-check citations using trusted sources like IEEE Xplore or Scopus, and lean on tools like Zotero to keep your references in line. Also, remember: AI might miss the subtle details of complex innovation models. That's why human expertise is essential to add that necessary context.

Slide 24 – Limitations of Using AI Tools to Produce Scoping Reviews 2/3
Next, be aware of biases in AI content. It may favor research from Anglophone regions or well-funded labs. To counteract this, use diverse databases and verify insights through multiple sources. Also, AI often leans on recent literature, overlooking foundational works in technology transfer and early research. Counter this by manually tracing classic publications and references in key TIM studies. Finally, don't forget: AI can easily overlook grey literature like whitepapers or policy briefs. A targeted search and manual review will fill that gap.

Slide 25 – Limitations of Using AI Tools to Produce Scoping Reviews 3/3
Lastly, AI might mix up different research methodologies, grouping a qualitative startup case study with a large-scale R&D investment analysis. Always confirm the study design manually and consult experts when needed. And be mindful of ethical concerns—AI-generated text can sometimes echo existing literature. Always cite your sources, use plagiarism checkers, and adhere to ethical guidelines. In every limitation, there's a chance to improve your approach and ensure the integrity of your research.

Slide 26 – AI Biases
Picture a lens that colors your view—when using AI for scoping reviews, biases can distort the picture. For example, selection bias may favor high-profile sources like top journals, overlooking rich insights from underrepresented regions. To balance this, extend your search to regional databases and local innovation hubs.

Slide 27 – Algorithmic Bias
Now, consider algorithmic bias. AI may overemphasize success stories from Silicon Valley, sidelining innovations from robotics or biotech. The key is to use multiple AI tools, cross-verify your results, and shine a light on emerging markets beyond the familiar.

Slide 28 – Confirmation Bias

Next, we see confirmation bias in play. AI can stick too closely to your initial search terms, like only highlighting 'successful' blockchain pilots while ignoring the failures. To counter this, actively include counter-narratives and critically review your results.

Slide 29 – Citation Bias

Then there's citation bias—AI often leans on widely cited, older works, especially in IP management. This can cause breakthrough, newer research in green tech to be overlooked. Regularly update your search parameters and be sure to include novel studies to keep your review fresh.

Slide 30 – Language and Accessibility Bias

Lastly, language and accessibility bias: AI tends to focus on English-language open-access journals, missing valuable studies in Chinese, French, or Spanish. To ensure a well-rounded view, use multilingual databases and seek translations of key non-English papers.

Slide 31 – Data Hallucination

Imagine chasing a phantom—AI can merge concepts, creating fake references like a 'highly cited' paper on IoT-based IP commercialization that never existed. Always verify references in trusted academic databases and manually check any suspicious citations.

Slide 32 – Human Oversight

In the realm of TIM, human oversight is key. Experts must monitor AI outputs for accuracy, ensuring that innovation frameworks and critical studies are correctly applied. Blend AI efficiency with your own contextual knowledge of technology markets and regulatory landscapes to maintain rigorous research integrity.

Slide 33 – Step-by-step Approach to Grey Literature Searches 1/4

Grey literature reveals the real-world insights often missed by journals. Start by defining your scope—pinpoint which reports, policies, or whitepapers align with your question, like exploring how corporate accelerators boost digital entrepreneurship. Then, pick core keywords—think 'open innovation' or 'venture capital trends'—and combine them with Boolean operators.

Slide 34 – Step-by-step Approach to Grey Literature Searches 2/4

Next, select your sources: government databases for policy frameworks, think tanks for global tech trends, industry reports from firms like Gartner, and patent databases to track innovation. Also, use

specialized databases such as OpenGrey, NTIS, ProQuest, or filtered Google Scholar searches for non-peer-reviewed material.

Slide 35 – Step-by-step Approach to Grey Literature Searches 3/4
Now, gather competitor information. List the players in your tech space—big or small—and check their websites for news, annual reports, and press releases. Monitor SEC filings and use tools like Crunchbase or Bloomberg to gain insights, but always cross-check for credibility.

Slide 36 – Step-by-step Approach to Grey Literature Searches 4/4
Finally, contact organizations and experts directly—reach out to government agencies, incubators, or tech association leaders for exclusive insights. Then, filter your sources by authority, credibility, relevance, and timeliness to ensure your findings truly answer your innovation management questions.

Slide 37 – Reference Management
In Technology Innovation Management, you're juggling hundreds of sources—from academic articles to market analyses. Reference managers help you organize everything: create folders for IP studies, automate citation formatting, collaborate in real time, spot duplicates, and integrate smoothly with your writing tools.

Slide 38 – Reference Managers
Here's my recommendation: start with Zotero. It captures webpages and works well with Google Docs and AI plugins. Mendeley offers AI-driven suggestions and strong PDF annotation, perfect for connecting with peers. And for large-scale data management, EndNote integrates with advanced AI tools. Choose the one that fits your needs and keep your research sharp.

Now, as we wrap up, remember this: every challenge is an opportunity to learn and grow. Whether it's navigating the limits of scoping reviews, managing AI biases, or harnessing the power of grey literature and reference tools, the key is to take decisive action. Embrace these strategies, refine your methods, and let your commitment to excellence drive you to new heights in technology innovation management. The path is clear—step forward with confidence and make your mark.