

**THE POWER OF BEGETTING—
HOW GRANT PROJECTS BEAR SEEDS FOR THE FUTURE,
INCLUDING AN AI-AUGMENTED FUTURE**

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THE CONCEPT OF BEGETTING

Ten years ago, Lumina Foundation convened more than 100 key stakeholders at the National Credentialing Summit to develop a roadmap for a more coherent and effective credentialing system. The Summit laid the foundation for the Connecting Credentials Campaign which produced a framework for understanding the competencies and levels represented by different credentials, a 7-part action plan to strengthen the emerging learn-and-work ecosystem, and a communications campaign to raise national awareness of credentialing reform.

Now, on this ten-year anniversary, it is worth asking:

1. Did the Connecting Credentials Campaign withstand the test of time?
2. Do grant-funded projects continue to influence policy and practice after the grant ends?
3. How can we—and how *should* we—preserve a historical memory of this work in an AI-augmented future?

The short answer to each: Yes. Projects can and do exert influence after their formal end. And yes—we should retain historical memory.

A related question is whether there are conditions or decisions that can help a project “take root” versus fade when funding ends.

This paper focuses on two “begetters” to highlight a message worth considering: What matters is not only the project you see in the moment, but what that project begets. These two initiatives were seeded by Lumina Foundation, and I had the good fortune to engage closely with both. Each had a start and end date and could have been forgotten—but these seedlings sent out shoots—and those shoots continue to grow today: Connecting Credentials and the Funders Mapping Initiative.

Let’s start with a definition of begetting: *A phenomenon where the influence of a project continues long after the initiative ends—through its ideas, tools, networks, and conceptual frameworks, often*

in ways not planned or foreseen. Begetting is the ongoing life of an initiative beyond its funding cycle, as its “offspring” show up in later work, new collaborations, or next-generation tools.

CONNECTING CREDENTIALS (2015–2018)

At first glance, Connecting Credentials, led by the Corporation for a Skilled Workforce (CSW), looks like a short-lived effort. Its website stopped updating in 2018, and it might appear the initiative ended there. But look closer.

CSW led the Connecting Credentials Campaign, working with over 100 national organizations and more than 2,000 stakeholders to improve connectivity, transparency, and equity across degrees, certificates, industry certifications, badges, and emerging credentials.

The campaign recognized that postsecondary credentials—whether degrees, certificates, or industry certifications—are the currency through which skills and knowledge are recognized, connecting people to jobs, education programs, and career pathways. It developed several principles around the concept of connecting credentials. One of these morphed into a caption, “all learning counts,” and that caption gained traction in many other efforts. Its vision also gained traction: an interconnected, student-centered, learning-based credentialing ecosystem that ensures educational quality, increases access, aligns industry with education and credential issuers, reduces social inequities, and fosters progress toward market-valued credentials.

The initiative produced a website and curated resources in five areas: (1) Learner Mobility, (2) Common Language, (3) Employer Leadership, (4) Data and Technology, and (5) Trust and Quality Assurance. It also produced a 7-point action plan, 25 recommended actions, more than 100 strategies, five workgroup reports, and a glossary of foundational terms—resources that continue to circulate throughout the ecosystem.

Notable too, it developed the Connecting Credentials Framework which describes eight levels of achievement based on the complexity and scope of knowledge, skills, and abilities demonstrated by learners. It is designed to help stakeholders—including employers, educators, credential providers, and learners—understand and compare the value and rigor of different types of credentials.

Those familiar with Qualifications Frameworks (QFs) in other nations will recognize its structure of “level” gradations for credentials. The framework draws on internationally recognized practices while being tailored to the U.S. context (e.g., more attention was placed in the framework on sub-associate degree credentials because that was where many of the emerging credentialing considerations were focusing (on short-term credentials, digital badging, microcredentials). The framework continues to influence efforts in curriculum design, transparency work, credential mapping, and workforce alignment.

Today, the Connecting Credentials website is preserved in the Learn & Work Ecosystem Library’s Archive to ensure its foundational concepts and resources remain discoverable. What seemed to “end” in 2018 has, in many ways, continued through initiatives like Credential Engine, C-BEN, and the T3 Innovation Network.

This is the power of begetting.

FUNDERS MAPPING PROJECT (2018–2020)

Around the same time, Lumina Foundation, JPMorgan Chase & Co., and Schmidt Futures convened some 30 national funders to map investments across the learn-and-work ecosystem and identify goals for a more connected learn-and-work ecosystem. Those goals:

- Build credential transparency infrastructure.
- Accelerate ecosystem developments through alignment and alliances.
- Create and implement technology, data, and standards to drive and connect systems.
- Advance employer and workforce signaling for credential transparency.
- Advance navigation tools, verifications, and quality assurance.
- Expand messaging related to credential transparency.

The first map included 17 large-scale projects that fell within these goal areas, Later versions expanded to 22, then 36. ([An updated map of the learn-and-work highway, 2020](#)).

The mapping revealed more than funding patterns. It surfaced fragmentation, duplication, and gaps. It exposed a growing challenge: how to reliably access information about the ecosystem when journalism continues to shrink, websites proliferate, and meaningful synthesis is rare.

Key lessons included:

1. Maps must be continuously updated—the pace of change is too fast for static tools.
2. Users vary widely in their information readiness—resources must serve novices and experts alike.
3. Accessible design matters—while information needs to be credible and trusted, a didactic, academic style will not be as usable and accessible to information seekers. Builders of databases should make good use of graphics and color schemes to help with navigation.
4. References/citations and links are critical for users who want more information.
5. Communication must be ongoing, not one time, to let people know about the availability of aggregator resources.
6. The site and the information must be neutral and nonpartisan, not reside within any one intermediary or foundation—because of the competitive nature among intermediaries and necessary boundaries between grantees/projects and funders.

Today, the [Connected Learn-and-Work Ecosystem: a guide to the key initiatives](#) still appears at Lumina Foundation’s website but it is preserved in the Learn & Work Ecosystem Library’s [Archive](#) to ensure its concepts and resources remain discoverable.

What seemed to “end” in 2020 influenced the creation of the Learning & Work Ecosystem Library. Another example of the power of begetting.

THE SEEDLING: THE LEARN & WORK ECOSYSTEM LIBRARY

The lessons from the Funders Mapping Project seeded a new idea: the need for a centralized “information aggregator database” that could surface connections, reduce duplication, and retain a historical record of the learn-and-work ecosystem. That seed became the [Learn & Work Ecosystem Library](#).

Two research studies conducted at George Washington University's Program on Skills, Credentials & Workforce Policy (PSCWP) during 2021 further informed the design of the Library:

- Findings from a survey of 300 ecosystem experts informed the development of the Learn-and-Work Ecosystem Wheel with 12 components, the organizing structure for the Library's content.
- A study of 17 major higher education intermediaries' websites revealed navigation barriers and the need for synthesized access to credible, neutral information.

Launched in December 2022 after nearly two years of research and development, the Library has grown into a comprehensive, open-access, curated resource to serve a wide range of stakeholders—including researchers, practitioners, funders, policymakers, students, and employers.

Features include:

- Content organized across 12 ecosystem components
- Three glossaries: alphabetical, subcategory glossaries, abbreviations
- Topic briefs
- Initiatives
- Organizational profiles
- Weekly and monthly analytics, including usage trends and Google search referrals
- Archive preserving disappearing documents and websites
- Accessibility-compliant
- Available in 12 languages
- Operates under Creative Commons license
- Community engagement via wiki model
- Newsroom with blogs, articles, reports, other
- Search and discovery tools including keyword search, AI bot, 26 stakeholders, detailed indexes

A growing service at the Library is partnering with organizations (or coalitions of organizations) to apply the Library's resources in special use cases. Examples include:

- SHRM Foundation: Powering the *Skills First Future Library* supporting SHRM's skills-based hiring initiative.
- AACRAO LER Accelerator: A digital hub for the national coalition on Learning & Employment Records (LERs), including a dynamic inventory of initiatives from 13 national higher education organizations.
- Rebooting the Web of Trust (RWOT): Preserving some 70 peer-reviewed papers on digital identity and interoperability, ensuring continued public access.

The latest Library Lens Trends Report (Fall 2025) reviews the growth and impact between June 2024 and October 2025. It highlights recently added features such as the launch of an AI Library Bot, redesigned main page, expanded glossary tools, and increased outreach through newsletters, social media, and even crossword puzzles. Usage data shows most visitors are working professionals accessing the Library from desktops during weekdays, with the majority coming from the U.S. and Germany. Analytics also depict growing SEO rankings for the Library.

PREDICTING WHICH INITIATIVES MIGHT HAVE A LONG TAIL OF INFLUENCE

Looking back a decade, we can ask now two questions that are useful for predicting which initiatives might have a long tail of influence:

- What did we note or experience in an initiative that it might have a long tail?
- What surprised you about what the work ultimately “beget”?

Here are answers to both questions using Connecting Credentials as an example.

We noted high interest and enthusiasm among the participants in the initiative—and many folks were agreeing to participate on work groups. Attendance at meetings was good. There seemed to be a recognition that we were all onto something—the vision was solid.

And yes, there were surprises. It surprised the project staff that organizations we didn’t know were still coming to the project after it closed officially in 2018—asking to join the organizational list. That meant the original vision was important.

A second surprise: we were noting a lot of activity swirling around some of the same topics—though in other venues—after the project was completed. For example, the T3 Innovation Network at the U.S. Chamber of Commerce was developing a large network, gaining a footing, and receiving grants—several leaders in that work had played important roles in Connecting Credentials, especially around employer and data-related topics and emerging discussions around learning and employment records.

C-BEN which was very small at the time, was also picking up speed and several ideas around competency-based approaches had been an important component of the Connecting Credentials discussions.

Credential Engine and transparency issues were moving forward, spawned directly by the Credential Transparency Initiative, a research feasibility effort around credential transparency led then by Steve Crawford, Bob Sheets, Roy Swift. and others active in Connecting Credentials.

And there was “begetting” from the Connecting Credentials Framework by community colleges with leadership from the America Association of Community Colleges (AACC), because of growing awareness of the importance of sub-associate degree credentialing, coupled with growing awareness of both credit and noncredit pathways. AACC created the ‘Right Signals’ national initiative, which included trying out the Connecting Credentials Framework at several community colleges. Jennifer Worth at AACC was an important leader in Connecting Credentials and she helped take ideas forward into practice

HOW TO PLANT THE SEEDS FOR BEGETTING

Connecting Credentials and the Funders Mapping Project—two initiatives that unintentionally became begetters—embedded several conditions and strategic choices that allowed their influence to extend beyond the life of their original funding. These are not presented as a scientific or causal model, but may contain patterns that show what can help projects take root beyond their initial funding cycle.

1. **Anchor the work in a widely shared problem or long-term vision.** Projects that address cross-sector, chronic challenges tend to endure. They embed their ideas into the field’s larger conversations rather than remain tied to a single grant cycle.
2. **Build a durable network (not just a project team).** Create a coalition of respected experts, intermediaries, and institutional partners. When the project ends, these individuals and organizations can carry the ideas forward, adapt them, and attach them to future opportunities.
3. **Partner intentionally with intermediaries and “system carriers.”** Collaborate with associations, membership groups, regional collaboratives, and other intermediaries whose core mission includes dissemination, convening, and field-building. These organizations become “permanent homes” for concepts originating in the project.
4. **Create a persistent digital footprint.** Develop websites, repositories, and open resource hubs so the work is findable and citable.
5. **Commit early to openness, collaboration, and shared ownership.** Projects that position themselves as “field-building” rather than “brand-building” are more likely to be adopted and adapted. Openness creates permission for others to take up the work.
6. **Communicate broadly, consistently, and accessibly.** Use multiple communication channels—social media, newsletters, webinars, reports, brief policy briefs, podcasts, and information aggregators like the Learn & Work Ecosystem Library—and ensure content is readable and accessible.
7. **Produce adaptable tools, frameworks, and conceptual models.** Reusable outputs (frameworks, taxonomies, toolkits, templates) provide future projects with building blocks that can be integrated into new initiatives.
8. **Embed understandable evaluation and evidence-building from the start.** Collect data, stories, and evidence throughout the project to build credibility and provide a rationale for continuation. Make results digestible for diverse stakeholders.
9. **Map relationships with adjacent initiatives and movements.** Explicitly position the project within the broader ecosystem. Show how it complements, extends, or fills gaps in other major efforts. Begetting often occurs at intersections.
10. **Prepare for handoff—even if no handoff is planned.** Document processes, create knowledge briefs, write guidance for future adopters, and store materials in accessible repositories. A well-prepared “handoff packet” ensures the work can be taken up unexpectedly by others.

AI IS RESHAPING THE POWER OF BEGETTING

The power of begetting depends heavily on information, and there is no doubt that the ways we find, evaluate, and share information are changing dramatically:

- Traditional journalism is shrinking, leaving fewer reporters covering workforce, credentialing, and higher education.
- Websites proliferate, often siloed or gated, making it difficult to access information and see the full picture.
- Knowledge is scattered across reports, press releases, blogs, and institutional repositories.
- AI tools can surface information at unprecedented scale but may also generate errors or omit nuance.

AI is reshaping the information landscape in ways that influence every stage of begetting—from visibility and preservation to synthesis and reuse. While AI tools—ChatGPT, CoPilot, and others—

help process large volumes of information quickly, AI outputs depend on the data fed to them, and errors are not only possible—they are probable.

As the Library and other information aggregators move forward, they must increasingly leverage AI to:

- Aggregate and curate information from diverse sources, including AI-generated outputs.
- Preserve and share knowledge of past initiatives, ensuring the ecosystem’s collective knowledge remains accessible and actionable.
- Help users see the “big picture” without being overwhelmed.
- Vet and correct AI-generated outputs.

Large-scale synthesis still requires human judgment and domain expertise. Human-AI collaboration will be essential to sustaining begetting in an era of rapid information flow.

THE EVOLVING ROLE OF THE RESEARCHER IN AN AI-AUGMENTED FUTURE

AI is reshaping the R & D lifecycle—from discovery and analysis to communication and community-building. Researchers who want their work to beget future efforts in an AI-augmented future must adopt new roles. Consider these:

1. **Shift from “knowledge owner” to “knowledge steward.”** AI systems can surface and recombine knowledge at scale, but they need human judgment to ensure meaning, context, and ethical use. Researchers in an AI world become stewards who guide interpretation and application.
2. **Structure information for AI discoverability.** Projects that use structured metadata, machine-readable formats, and open repositories are more likely to be absorbed, remixed, and extended by AI-enabled initiatives.
3. **Engage in continuous sensemaking.** AI accelerates the pace at which new knowledge enters the field. Researchers’ value increasingly lies in synthesizing, curating, and contextualizing—not only producing—knowledge.
4. **Embrace transparency in methods, data, and limitations.** In an AI environment that can magnify errors or misunderstandings, openness about data sources and analytic boundaries becomes essential.
5. **Develop cross-sector communication skills.** Researchers translate complex ideas for diverse audiences: policymakers, practitioners, technologists, employers, funders, and AI tools alike. Clear communication is now a core competency.
6. **Cultivate and sustain durable networks and community relationships that carry ideas forward after the research ends.** The ability to convene, collaborate, and co-create with others becomes more important as AI automates certain technical tasks. Human networks are one of the strongest forces of begetting.
7. **Shape the ethical uses of AI in credentialing, workforce policy, and learning.** Researchers should stay aware of how AI tools are being deployed in their domain and contribute to safeguards that support equity, trustworthiness, and responsible use.

LOOKING BACK TO LOOK FORWARD

Initiatives have end dates; ideas do not. The power of begetting lies in the leaders, networks, and conceptual tools that carry ideas forward, often in new and unexpected ways. As the learn-and-work ecosystem becomes increasingly AI-augmented, the role of researchers, intermediaries, and information stewards becomes more essential. The work we do today is not only for the present—it is for the future it will beget.

Acknowledgements

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ATTACHMENT 1: RECOGNIZING WORK GROUP CONTRIBUTORS FROM CONNECTING CREDENTIALS

Common Language Work Group Report

Developing a common language to serve as a basis for a connected credentialing system

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Employer Engagement Work Group Report

Advancing scalable employer engagement approaches to improve demand signals and increase relevancy and currency of credentials

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Pathways for Equity Work Group Report

Creating flexible credentialing pathways leading to family-sustaining jobs to increase equity

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Quality Assurance Work Group Report

Create Nimble-End-To-End Quality Assurance Processes to Support Portability and Trust of Credentials

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Data-Technology Work Group Report
**Using real-time data and technology to empower credential users
and create continuous feedback mechanisms**

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