INTERNET2® InCommon®

1 March 2024

Promoting Digital Collaboration
Futures2 Strategy

A 5-YEAR OUTLOOK
FOR IAM

TABLE OF CONTENTS

PROMOTING DIGITAL COLLABORATION

Executive Summary

Over the next five years, InCommon leads as the collective authority in devising creative, sustainable IAM best practices for research & education.

Through a four-step, repeatable process, InCommon will effectively engage the community to achieve its strategic objectives.

I. DEFINE THE CHALLENGE

II. ENGAGE EXPERTS IN AN INNOVATION CYCLE

LEVERAGE THE INCOMMON ECOSYSTEM

IV. IMPLEMENT FEEDBACK

III. EVALUATE & PUBLISH SHARED APPROACHES

STRATEGIC OBJECTIVES

AN EVOLVED, STRONG VALUE PROPOSITION

TRUSTED COLLECTIVE FOR IAM WITHIN R&E

CLEAR GUIDANCE & TECHNICAL RECOMMENDATIONS

HOW TO:

SELECT | IMPLEMENT | MAINTAIN

IAM INFRASTRUCTURE

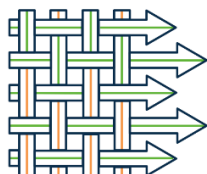### A SECURITY-FOCUSED INNOVATION GROUP

FOR EMERGING PROTOCOLS IN IAM

IMPROVED TOOLS & SERVICES IMPLEMENTATION & INTEGRATION
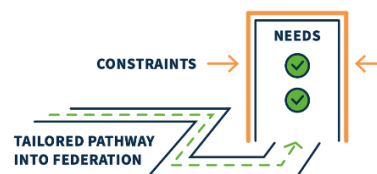
IMPLEMENTATION

INTEGRATION

TO INCREASE ENGAGEMENT WITH FEDERATION & TRUSTED ACCESS PLATFORM

EASY TO NAVIGATE TOOL & SERVICE OFFERINGS

FOR ALL AUDIENCE GROUPS

NEEDS

CONSTRAINTS

TAILORED PATHWAY INTO FEDERATION

ADDRESSING AN EVOLVING IAM LANDSCAPE

| INTEGRATING NEXT GEN SECURITY | NEW DIGITAL LEARNING MODALITIES | SKILLS GAP & KNOWLEDGE LOSS | PROLIFERATION OF COMMERCIAL OFFERINGS | UNIFICATION, AUTOMATION, INTEROPERABILITY |

Created by SecondMuse

InCommon's New Direction

02 **INTRODUCTION**

InCommon's Strategic Direction

Since its inception, InCommon, Internet2's provider of security, privacy, and identity and access management (IAM) tools, has been an important resource to the research and education (R&E) community as a trusted partner for IAM. As a tapestry of digital infrastructure, tools, services, and legacy knowledge for R&E, InCommon is a standard-bearer for academic collaboration at scale. As such, InCommon has the potential to radically move the market segment of IAM forward in service of digital R&E collaboration.

Over the last 20+ years, the IAM landscape has changed dramatically with new commercial entrants in the space, emerging security concerns, and growing skills gaps and knowledge loss in the IAM community. This has left InCommon grappling with critical questions about what infrastructure is required to support their organizations in the coming decade. InCommon is in a unique position to help the community navigate these questions and ensure continued, secure, accessible collaboration for years to come. It will be critically important for InCommon to evolve its role to enable secure, seamless collaboration across R&E institutions at scale.

> *During the next five years, InCommon must step into the role of collective authority for IAM best practices in R&E — responsible for creating and disseminating guidelines, best practices, and shared solutions from the combined experience of the federation.*

During the next five years, InCommon must step into the role of collective authority for IAM best practices in R&E. It is primed to facilitate and promote best-in-class digital collaboration by recommending the appropriate blends of IAM-related tools and services as well as providing governance, support, and resources to R&E institutions and their partners. This offering will provide value to the community adjacent to commercial offerings. It will also amplify the value of the collective by convening multiple perspectives to investigate and solve shared challenges.

As the collective authority, InCommon will be responsible for creating and disseminating guidelines, best practices, and shared solutions from the combined experience of the federation. The community needs a trusted body not only to convene the experts, but also to synthesize their expertise and translate it into tangible outcomes.

This new strategic direction and all of its associated objectives were crafted based on a community-driven planning process. That process is detailed in the Appendix.

Background

Throughout this report, the term InCommon is used to reference all who contribute to its mission: organization, participants, community, and collective.

Here is a glossary of InCommon terms used in this report and their meanings:

- **InCommon Organization, or InCommon**: refers to Internet2 leadership and staff who manage the operation of InCommon's services, facilitate the governance structure and advisory committees, curate and steward the development of open source software, and provide training and upskilling programs.
- **InCommon Participant**: refers to an organization or institution that signed a formal agreement with InCommon to participate in its services, training, and events.
- **InCommon Community**: refers to InCommon participants, software users, international collaborators, support providers, and volunteers participating in governance and advisory committees to inform the collective's technology, policy, and business evolution.
- **InCommon Collective**: refers to both the InCommon community and InCommon organization.

03 LANDSCAPE, TRENDS & OPPORTUNITIES

These trends and opportunities were identified from the consultative process and desk research (Phase 2) of this project. They comprise the current landscape of how the InCommon community manages their IAM systems as well as direction for the future.

Next-generation security impacting IAM

The InCommon community is aware of new threat actors, challenges presented by new technologies, emerging solutions, trending security protocols, which could include OpenID Connect, OAuth, and Zero Trust, as well as cybersecurity frameworks provided by the National Institute of Standards & Technology and the U.S. Department of Defense. The community is looking to InCommon to lead in integrating these protocols and innovations into InCommon's central governance structure.

New learning modalities requiring more fluid credentialing

R&E institutions recognize that the needs of their audiences and stakeholders are evolving. We see examples of digitally-driven change all around us: institutions expanding their offerings to nontraditional students and lifelong learners seeking to take advantage of continuing education opportunities that are accessible outside of the classroom. This diversification of higher education's audiences and their needs will require more fluid credentialing from IAM systems. Technologies such as passkeys, bring your own identity, and eWallets are at large.

Growing skills & knowledge gap

The InCommon community noted a growing gap in knowledge and skills. This gap is fueled by increasing complexity in the field, difficulty for IAM departments to keep up with the evolving domain, and loss of legacy knowledge from events such as early retirement. Additionally, respondents from the consultations expressed that IAM system management and architecture require a particular skill set, and finding professionals who are willing to and capable of working in research & higher ed IT departments is challenging.

An expansion of commercial IAM solutions

Today, organizations have a range of IAM services to choose from, between InCommon's offerings and commercially available solutions. Many institutions benefit from a blend of commercial and InCommon service solutions. But in practice, blending services proves challenging. InCommon can better support community organizations that choose a combination of services by offering specific technical and strategic guidance that addresses the following challenges:

InCommon participants' IT departments report difficulty around integrating and using InCommon tools and services, specifically murky implementation pathways and costs, lack of communication about current software updates, elusive technical support, and little authority regarding next-generation security protocols.

On the other hand, when these IT leaders begin to consider using commercially available solutions, providers claim to address any IAM issue (regardless of domain or industry), eliminate integration challenges, and come with dedicated 24/7 support. While this is appealing, these solutions may not fit all the particular needs InCommon community organizations seek. Furthermore, IT leaders may even view the choice as a binary one (either a commercial solution *or* InCommon services) because the implementation pathways and costs to using a blend of services are unclear. With dedicated support and guidance here, InCommon can help IT leaders strike the right balance between commercial solutions and InCommon services.

Demand for unification, automation, and interoperability of IAM systems

The institutions consulted are focused on unifying, automating, and interoperating their IAM systems. Target improvements include creating integrated, seamless connections across platforms that achieve a sustainable multi-platform approach; strategically engaging third parties; and achieving or maintaining automation within IAM systems to reduce manual processes needed to support InCommon Federation.

Take the needs of provisioning, deprovisioning, and managing user lifecycles and permissions. Today, practitioners and architects struggle to quickly assemble effective solutions and maintain them on their own. These constraints create technical debt and stretch IT departments beyond their means, leaving scant resourcing to keep up with rapidly changing compliance requirements. Additionally, the increasing variety of multifactor authentication standards between third party offerings makes it difficult for InCommon organizations to understand and comply with these standards. InCommon is positioned to align R&E towards common policy, functionality, and standards to improve interoperability across technology platforms and facilitate digital collaboration.

04 **FIVE-YEAR STRATEGIC OBJECTIVES**

The Five-Year Objectives below address these audience groups collectively with specific consideration given to the role types and areas of expertise within the groups consulted. The strategies presented for each objective will require that InCommon and Internet2 carefully consider and optimize for each audience group's needs.

1) InCommon releases an evolved value proposition to the community.

Objective: This value proposition communicates that InCommon is the trusted collective for R&E institutions looking to build trusted, cost-effective, up-to-date IAM systems.

Strategy: By developing and broadly communicating a strong value proposition, InCommon will demonstrate to the community that it is willing to take an active role as a standard-bearer for IAM systems within R&E. With this action, existing and prospective InCommon participants become confident that moving forward, InCommon is prepared to support and advise them on how to effectively use Internet2's IAM-related tools and services and strategically connect with commercially available offerings.

Potential Outcomes:

- **Clearly defined value proposition:** A newly written value proposition that is published on the InCommon website and in marketing materials.
- **Shared messaging resources:** A messaging toolkit to be leveraged by InCommon staff, advisory boards, and community that provides consistent, clear messaging across Internet2's and InCommon's brand touchpoints.
- **A community statement:** An outward-facing statement for the community to collectively advocate for federation.
- **Collective action campaign:** An advocacy and outreach campaign to increase willingness to support InCommon platforms by industry providers and third-party vendors.
- **Supportive sales & marketing:** Dedicated efforts to support this work, attract relevant leads, and improve community engagement.

2) InCommon provides the community with technical recommendations for how to select, implement, and maintain IAM infrastructure.
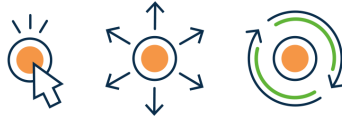
Objective: Organizations that are part of the InCommon community feel supported by the guidance Internet2 and InCommon offer them. Technical recommendations and guidelines address a variety of common needs and critical challenges specific to the audience groups of which the InCommon community is composed. This level of targeted support and leadership distinguishes InCommon as the collective authority on IAM for R&E. Participants can better identify their level of IAM maturity, and InCommon can better measure how well solutions are meeting specific needs within the collective.

Strategy: InCommon recenters its existing advisory and working groups around known challenge areas, including developing technical recommendations and blueprints. These advisory working groups should engage across InCommon's key audience groups. Over a one-year period using this repeatable process, these working groups should develop three recommended technical stacks that address the key challenges and needs of each of the various audience groups. An acceptable outcome in this process is also determining areas that InCommon considers out of scope with regard to its technical objectives. In this case, InCommon can maximize value for the community by recommending specific partners, products, or services that can address the challenge at hand. Internet2 staff should facilitate making these recommended technical stacks visible and available to the broader community via the InCommon newsletter, incommon.org, and internet2.edu. In this process, InCommon should also formalize and track the process for InCommon Catalysts to provide recommendations to community participants.

Potential Outcomes:
- **Technical blueprints:** Technical recommendations and blueprints are packaged and disseminated to the community.
- **Guidelines and best practices:** Clear guidance on critical areas for IAM success: how to select and assess IAM solutions/vendors, capacity building within IAM teams, maximizing interoperability, and other topics as surfaced by the community.
- **New partnerships:** InCommon's scope of work is clearly defined with complementary organizations in the broader ecosystem positioned and prepared to identify complementary or overlapping domain areas. New partnerships are developed.

3) InCommon assembles an Innovation Group that convenes the community around emerging security protocols and proactively advises participants on critical improvements and updates to IAM systems.

Objective: IAM experts within R&E should know that one of the valuable benefits of participation in the InCommon community is knowing how to quickly and efficiently learn about emerging protocols and requirements to integrate them into their IAM systems. With targeted guidance, participants shift from taking a reactive to a proactive approach with regard to enhancing their security approaches within their IAM infrastructure. Community engagement and retention increases. New community participants join the federation due to enhanced security offerings.

Strategy: InCommon assembles an Innovation Group to assess security challenges and opportunities specific to higher ed and research organizations. The group provides InCommon community with the confidence that they will be receiving valuable guidance on current security best practices and federal security regulations. It also leverages the community to make collective decisions around where to invest in new infrastructure and approaches. Solutions to address first include:

- Formalized recommendations around emerging security protocols (OIDC, O-Auth, Zero Trust) and authentication techniques (passkeys, bring your own identity, eWallets)
- Evolutions to the InCommon Trust Access Platform (TAP) software roadmaps
- A shared identity flagging system to ensure that when an identity is flagged or compromised at one institution, other institutions that may be affected are notified

In addition, these shared approaches and best practices are formalized into the technical recommendations and guidelines from InCommon. The Innovation Group sets clearly defined requirements for a tool or service development roadmap.

Potential Outcomes:

- **Recommendations around priority protocols:** Next-gen security protocols are identified and prioritized with InCommon integrating these into technical blueprints.
- **Exploring emerging areas of concern:** InCommon working groups explore and report on emerging challenges for the community, such as remote learning and fluid credentialing.
- **Collaborations with standards bodies:** Existing working relationships are amplified and expanded, and new ones are established.

4) InCommon promotes tools and services implementation and integration to increase engagement with InCommon Federation and the Trusted Access Platform (TAP).
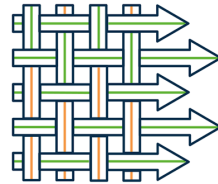
Objective: InCommon takes the lead in upleveling the community to better address the integration challenges that were expressed during the consultation process. These challenges speak to the experience that industry providers have in supporting InCommon tools and services: existing restrictions on admin accounts that are difficult to work around and the manual, labor-intensive processes required to integrate with InCommon.

Strategy: Using data from Phase II of this work, InCommon revisits its tools and services inventory to examine which are most used, for what purposes, and by which audience segments. This information will inform which tools and services to prioritize providing actionable guidelines and technical solutions for. The end goal is for InCommon to be the collective authority on what tools and services to use based on interoperability needs and implementation constraints.

Potential Outcomes:
- **Tools and services audit:** All InCommon offerings are consolidated into a list and assessed for usage and effectiveness. The most widely used will be prioritized for development and evolution in the areas of implementation, interoperability, and usability. Less utilized tools and services may be deprioritized or even decommissioned.
- **Updated roadmaps:** In the process of identifying top solutions to recommend, InCommon revisits TAP software roadmaps to define development needs.
- **Tools and services evolution:** Based on the audit and updated roadmaps, execute tools and services improvements that simplify implementation, maximize interoperability with other solutions, and improve overall usability.

5) InCommon communicates its tool and service offerings in ways that allow for all InCommon audience groups and prospective participants to find their own tailored pathway into federation that is unique to their institution's needs and constraints.

Objective: Each of the key audience groups that compose the InCommon community identified aspects of IAM system management that need improvement. While themes exist across the needs of these groups, institutions must be able to see their needs being anticipated by the solutions that Internet2 and InCommon present moving forward.

Strategy: Finding the right language and pathways to formulate its service offerings and support resources requires that InCommon first understand the nuanced needs of the community. Ultimately, offering clear pathways for engagement from within and outside the community will lead to an overall stronger position for InCommon within R&E as well as in the commercial IAM space.

Potential Outcomes:

- **Audience-specific pathways into and through InCommon:** Participant journey maps document how to bring in and guide audience groups through establishing federated identities and joining InCommon. New supportive channels are established, particularly for small schools and research collaborations with tight budgets.
- **IAM reference architecture:** This maps the full scope of IAM for R&E and provides case studies showing how InCommon tools and services address specific functions and needs.
- **Small school pilot:** A regional pilot is established with an anchor institution to recruit small schools into InCommon; a successful pilot would conclude that a small college can easily find its own pathway into the InCommon Federation, or an under-resourced institution could reach out to the right point of contact and get support in vetting a particular federation entry pathway.
- **Participant acquisition infrastructure:** New participant acquisition infrastructure leverages audience-specific pathways and assets, such as new reference architecture, to demonstrate value and convert new participants.
- **Participant support infrastructure:** New participant success infrastructure supports existing participants staying in the federation.

05 **TACTICS & IMPLEMENTATION**

An Innovation Framework

InCommon will achieve these Strategic Objectives by leading the collective authority. This new lens will support realizing these objectives, leveraging the InCommon ecosystem in a new way to provide value for the R&E community.

> *InCommon should re-center the community and its advisory bodies on crafting shared solutions to common challenges by engaging in time-bound intentional innovation cycles that drive toward its strategic objectives during the next five years.*

This can be achieved through a four-step, repeatable process:

I. DEFINE THE CHALLENGE

Establish ongoing processes for community consultation to define challenges & desired outcomes.

II. ENGAGE EXPERTS IN AN INNOVATION CYCLE

Assemble IAM experts and stakeholders across audience groups to plan and execute experiments that mitigate the defined challenges and achieve target outcomes.

LEVERAGE THE INCOMMON ECOSYSTEM

IV. IMPLEMENT FEEDBACK

Establish continuous feedback cycles to ensure activities stay in line with community needs.

III. EVALUATE & PUBLISH SHARED APPROACHES

Assess experiment results and use those to formalize solutions, or iterate and continue experimenting.

Image 1: InCommon Ecosystem Process Diagram

I. DEFINE THE CHALLENGE	**InCommon prepares:** • Set the target outcomes • Identify problem areas to address • Clarify the theory or hypothesis
II. ENGAGE EXPERTS IN AN INNOVATION CYCLE	**Collective innovation process:** • Ideate how to experiment with in the problem area • Convene experts and stakeholders to gather perspectives from • Plan an experiment that brings the best idea to life: scope resources, roles and tasks, KPIs, areas of risk, markers of failure • Pilot that experiment, collectively discuss progress, communicate results to stakeholders, and stay within scope
III. EVALUATE & PUBLISH SHARED APPROACHES	**What are the results?** • Is proof of concept achieved? Is the idea ready to formalize? • Should any areas be revisited and iterated upon? • What is being learned?
IV. IMPLEMENT FEEDBACK	**Validate solutions with feedback:** • Implement lightweight ways of extracting and consolidating actionable feedback that measure against KPIs set earlier • These should easily inform whether community needs are being met by these newly implemented solutions

Image 2: Innovation Cycle Breakdown

I. DEFINE THE CHALLENGE AND TARGET OUTCOMES

Identify and prioritize the challenge your community is facing. Who does it impact? What systems are compromised? How might conditions improve if this challenge is mitigated? How will you know this issue is no longer prevalent? Start to answer some of these initial questions within yourself or a group of people who are also exposed to this challenge everyday.

- Do you have any ideas for how to mitigate this challenge and approaches for implementing some solutions? Jot them down in one place.
- Do you have a theory or hypothesis? Document it so that you can start to include others in your thinking.
- Make your goals ambitious! What would be fulfilling for you to work on? What are solutions that you believe are most valuable to your community? How do you want your environment, product, and team to be different after this work?

Scope & Sequence Target Outcomes

To achieve strategic objectives as a community and successfully leverage collective knowledge and decision-making, groups should scope their challenges and define target achievable outcomes. These target outcomes should be simultaneously prioritized and sequenced for this body of work to build upon itself and achieve broader strategic objectives. The target outcomes alluded to in this report can all be scoped and sequenced in 6-18 month cycles, depending on the complexity of the challenge area. Below is a sample of how InCommon might scope innovation cycles based on the strategic objectives.

STRATEGIC OBJECTIVE	CHALLENGE AREA & TARGET OUTCOMES
Value Proposition, messaging & advocacy [Objective 1]	**Cycle 1 | Value Proposition:** Craft a value proposition with messaging resources
	Cycle 2 | Draft a community statement: Leverage updated proposition to create public statements that advocate for federation
	Cycle 3 | Collective Action: Build an advocacy and outreach campaign to increase industry and vendor support of InCommon platforms
Technical Recommendations [Objective 2]	**Cycle 1 | Map technical blueprints:** Identify most valuable ones for the community
	Cycle 2 | Design blueprints: Craft a few priority blueprints to share
	Cycle 3 | Distribution & evaluation: Distribute blueprints to the community, gather feedback, and evaluate success to inform the development of future recommendations
Innovation & Security [Objective 3]	**Cycle 1 | Next-gen security protocols:** Assess and identify which to consider implementing into a tool or service roadmap or developing shared approaches around
	Cycle 2 | Develop recommendations around priority protocols: for integration into the InCommon approach
	Cycle 3 | Explore emerging areas of concern: Explore emerging challenges for the community (e.g.: remote learning, fluid credentialing)
Tools & Services [Objective 4]	**Cycle 1 | Tools and services audit:** Consolidate and assess TAP software and IAM services and tools for usage and efficacy
	Cycle 2 | Revisit roadmaps: Prioritize the most widely used tools and re-visit their roadmaps to define interoperability and integration needs
	Cycle 3 | Tools and services consolidation: Identify less utilized offerings and consider whether to deprioritize or even decommissioned
Wayfinding & support [Objective 5]	**Cycle 1 | Map audience-specific pathways into and through InCommon:** Create participant journey guides for establishing federated identities and joining InCommon
	Cycle 2 | Small school pilot: Facilitate a regional pilot with an anchor institution to recruit small schools into InCommon, identifying possible grant funding sources

	**Cycle 3	Participant support:** How might InCommon build participant success infrastructure to support existing participants staying in the federation?

Table 3: Sequencing Target Outcomes (Sample)

II. ENGAGE EXPERTS IN AN INNOVATION CYCLE

These suggested steps make up the bulk of the work to sketch, test, and implement solutions that address the defined challenges that build on each other:

A. Identify audiences to engage in designing an experiment that will test a solution to achieving the target outcomes defined
B. Determine the method by which you will convene the right experts and perspectives
C. Design your experiment
D. Communicate

A) Audiences to engage

Each challenge area will require a different combination of audiences to achieve the target outcomes. Audiences should be engaged based on 1) what domain expertise is needed to solve the challenge at hand and 2) what perspectives are required to ensure solutions meet the specific needs of organization types. Audiences to engage should include:

a. **Higher Education:** Larger universities can be leveraged for their technical expertise around federated IAM. Small schools, tribal colleges, historically Black colleges and universities, and the broader community of minority-serving institutions also have technical expertise that can be leveraged and must be engaged proactively to ensure representation across all U.S. higher education institutions.
b. **Research:** The unique use cases of research stakeholders can help identify where services and tools need to be in the future.
c. **Federal agencies:** Federal agencies are important stakeholders as they can drive engagement across the entire community.
d. **Industry:** Industry participants should be included for their expertise in areas of interoperability and making InCommon's TAP portfolio as easy to implement and integrate as possible.
e. **Catalysts, vendors, and architects:** These important InCommon partners should be engaged heavily as their contributions are key to ensuring the community is supported in developing and maintaining their IAM infrastructure.
f. **Ecosystem:** Additional ecosystem participants, such as libraries, should be defined and engaged on a case-by-case basis.

B) Methods of convening

There are many methods to convene the community toward shared solutioning. This can be done through leveraging existing advisory bodies to form committed working groups around the challenge areas. It can also be achieved by leveraging additional strategies to engage a wider audience, enlisting experts who are unable to commit to long-term engagement, and more efficiently managing resources.

a. **Committed working groups:** Groups of 5-12 stakeholders, actively facilitated by Internet2 staff, that convene regularly to generate a shared definition of the problem, ideate solutions, and build consensus around recommendations, resources, or solutions to pilot and build.

b. **Innovation challenges:** Short-term sprints that engage a broad audience in brainstorming and designing solutions, which can be run virtually or in-person through a dedicated event or built into existing conferences.

c. **Facilitated workshops:** One-time sessions that bring together key stakeholders to generate important inputs and feedback for InCommon initiatives.

d. **Software and services development fellowships:** Cohorts of emerging IAM professionals designed to provide capacity building while bringing talent together to achieve target outcomes.

e. **Development funds:** Pooling resources to invest in new solutions, governed by a decision-making body.

C) Design the experiment.

Scope out a pilot that tests the chosen approach. Get approval from a stakeholder for running it.

- What are the key performance indicators that would determine if a proof of concept is being achieved? What are the potential areas of risk and markers of failure? What strategies might you deploy if progress starts to go off track or doesn't go as expected?

- What resources are available to run this experiment? What is your budget? How much time will be needed?

- Is the right team in place to begin testing the proof of concept? Who should be part of this process and why? What specific skills and experience do they bring? Assemble the best team that will design and execute this experiment according to plan and scope.

- How will progress be tracked? What tool will be used? How often will the team meet to discuss this? What stakeholders will progress be reported to?

D) Run the pilot and communicate early, often, and with detail:

- Are you getting results? What are they? How are they received by the team? Are there varying interpretations of what the results mean? What is being learned?
- Keep an eye on the areas of risk and failure points identified earlier. Are you approaching these? Do you need to pivot or make a change?

III. EVALUATE AND PUBLISH SHARED APPROACHES

At the end of the pilot, how did things go?

- Was the proof of concept achieved? Should the idea be formalized with findings and best practices published and disseminated?
- Did things not go as the team expected? Should the pilot be revisited and the approach be iterated upon?
- Is it time to move onto another idea and leave this one behind? Why?
- Overall, what is being learned? How will these learnings be incorporated into future work? What more would the team like to learn about this approach and challenge area?

InCommon should take ownership of funneling this collective knowledge into valuable resources for the community. These resources can take many forms, including but not limited to:

- Messaging and communication resources
- Audience-specific toolkits
- Technical guidelines and blueprints
- Best practices and recommendations
- Recommended external partners, tools, or services
- Thought leadership on next-generation protocols and emerging technologies
- Tools and services improvements or roadmaps

This step is critical to positioning InCommon as the collective authority. For current and prospective participants who may not be deeply contributing to the creation of shared approaches, they will be able to trust that when they come to InCommon, they find guidance, resources, and compelling solutions.

IV. IMPLEMENT FEEDBACK

A final, crucial step is to continuously gather feedback from the community that validates results. Consider processes that are:

- Lightweight, automated, can run in the background
- Designed to extract and consolidate actionable insights that measure against the KPIs set in the planning phases of the experiment
- Able to easily inform whether community needs are being met by these new solutions
- Revisited regularly by the team, discussed, and shared with stakeholders

Combining a few methodologies can support the collection of robust feedback from a wide array of community organizations, and routing that feedback to the right people who can integrate the knowledge and put it into practice:

a. **Annual impact surveys:** Periodically surveying the entire InCommon community to measure the impact and efficacy of InCommon offerings to surface emerging challenges and opportunities
b. **Solution-specific consultation:** Surveys, interviews, focus groups, and other dedicated methodologies to gather feedback to improve specific offerings
c. **Evergreen webpage to submit feedback:** An easily accessible place, such as a dedicated web page, for community participants to leave feedback at any time

06 CONCLUSION

The dedicated IAM experts of the InCommon community were incredibly engaged in this work. Based on their feedback and participation, it is clear that this global collective values and promotes collaboration and learning.

The group is ready to be led in the process of devising creative, scalable solutions for IAM. The community is looking to InCommon to lead as the collective authority in this effort. The optimism and deep industry knowledge from the community pave the way for an exciting future for InCommon. With InCommon leading the process of working toward the outlined Strategic Objectives, the community will:

- Be galvanized by demonstrated leadership and calls to action
- Achieve alignment toward a common direction through a shared understanding of this vision
- Feel seen in the process of being called upon to participate
- Be energized by being part of devising solutions that directly impact their local ecosystems
- Feel inspired as they are reminded that they are part of building the future of InCommon

In looking ahead toward fueling growth and innovation across the InCommon collective, there is plenty of opportunity to deepen working relationships across our community and to expand collaborations with adjacent, like-minded organizations. Such relationships might support InCommon through innovative programming or capital investment to achieve the strategic objectives outlined here. Additionally, the expansion of services and guidance to the InCommon community may warrant considering if they should contribute to funding these, and how.

By embracing an ecosystem-centered approach and tackling objectives in planned, repeatable cycles, InCommon will operationalize toward setting the R&E industry standard for flexible, dynamic, inclusive IAM infrastructure, facilitating important academic collaboration and scientific discovery for years to come.

07 **APPENDIX**

Futures2 Planning, Methodology & Execution

The Internet2 Trust & Identity Division and the InCommon Steering Committee initiated the Futures2 planning process to develop a shared statement of direction and strategic areas of activity that will drive where R&E's IAM capabilities collectively need to be in 2028. SecondMuse was engaged to bring InCommon's many stakeholders together to generate a vision for the future, leveraging human-centered design, systems thinking, and community development methodologies. An in-depth consultation process surfaced the needs, priorities, and collective knowledge of current and prospective participants across InCommon. The process included:

- Four facilitated focus groups that engaged 90 participants across InCommon's advisory committees, Internet2 staff, InCommon Catalysts, and component architects;
- A needs assessment survey distributed broadly to the community, collecting 126 responses;
- Desk research with a focus on competitive analysis;
- Eight 1:1 in-depth stakeholder interviews and an Areas of Opportunity Roundtable with seven stakeholder participants, engaging a total of 15 participants across R&E and industry.

The findings from this process uncovered clear priorities that have been distilled into the strategic direction and objectives outlined in this report.

Key Audience Groups

The table below defines the key audience groups consulted in this research.

Group	Audience	
Users in Research & Education	Large research universities Medium-sized universities/colleges Small colleges Community Colleges	Cultural orgs (museums, libraries) K-12 Research Federal Agencies
Partners	Industry Service Providers InCommon Catalysts Regional Research and Education Networks	International Collaborators Advisory Groups
Internet2 Staff	Internet2 staff members	

InCommon's New Direction

Table 1: Key Audience Groups

The table below shows the role types and areas of expertise within the audience groups consulted:

Area	Role	
Administrator or General Management	Regional Network Administrator Community manager	Training & Education Staff in a Finance or HR role
Business Contributor	Business analyst Business owner	Business development expert
C-Suite	CIO CISO	CTO CEO
IAM Contributor	IAM Architect IAM Practitioner	
IT Contributor	Other IT Contributor Network Operation & Telecom	IT manager
Leadership	IAM Director/Leadership Other IT Senior Leadership	
Library	Library professional	IAM for library services
Product & Program Operations	Product Manager Project Management	Program Manager Compliance Lead
Research Computing	Research computing Research infrastructure providers	Research and data professionals Data Community Facilitator
Security & Privacy	Security Analyst	Privacy & Security
Software	Developer	

Table 2: Audience Role Types and Areas of Expertise