

Distillation of WG members' observations about the survey and conversation material

FOCAL QUESTION: "What does the future of scholarship, education, and research look like in the next 10-15 years?" -and- "How can federations optimally position their offering to enable and support scholarship, education and research?"

Our scenarios should tell a story. [1] Then we will

1. consider the differences or similarities in the way scholarship, education and research is carried out in the stories
 - a. Different scales and priorities between research and education, global vs local vs national -- the scenarios may affect research very differently than education
2. Consider the experiences of the individual users, the "middlebodies", and the service providers in the stories
3. THEN how do federations resist or align the trends in the different stories to support scholarship, education, and research. [2]

The charter:

[1] review the past and current states and formulate possible future scenarios for the evolution of research and education federations.

[2] This data will be analysed and synthesised to articulate the value of R&E federation, identify potential changes that may increase that value, and recommend actions that R&E Federations and others can take to increase their value over time.

Prospective Axes

Mission of The Academy: Internal vs External Priorities

What academic objectives are pursued and how they are pursued is always subject to many forces. Researchers, scholars, and pedagogists discern how best to advance their disciplines. Funders, politicians, regulators, and providers of services to communities have their own agendas and needs and advance them in part through influencing activities of The Academy.

Correlates:

- How open or closed academic activities are (external pressure)
 - Boundaries of research collaboration
 - Constraints and objectives of research
 - Constraints and objectives of education
 - Access to data vs control over who can collaborate
- Whether The Academy remains a single mission shared globally across academic organisations, or if it splits across national, political, or corporate boundaries
- How the various academic disciplines are valued

Resources for The Academy: More vs Less

Governments, public and private organisations, and students all contribute to the bottom line of each academic organisation to varying degrees that are subject to an extremely complex mixture of external economic and political forces. Individual academic organisations differentiate and compete for their share of the pie. How does The Academy respond when the pie gets substantially smaller or larger?

Correlates:

- Concentration, commodification, and centralisation of services and operations is a response to lower funding
- Specialisation of services and operations is enabled by greater funding
- Ability to sustain skills to innovate solutions to The Academy's problems
- How open or closed academic activities are (internal pressure)
 - Open source, open science
 - Paywalls to fund academic collaboration

Impact of Social-Technological Change on The Academy: Slower vs Faster

In what ways does The Academy change due to changes in the way its researchers, scholars and students conduct other aspects of their lives, and how quickly does it respond to those pressures? Do academics want their academic life to be like the other aspects, or do they want it to remain apart and with its own character? What happens if the response is too slow? What happens if it is too fast?

Correlates:

- Engagement in The Academy across different generations
- Simplicity vs customisation of means by which academics collaborate
- Disruptive technologies such as WebAuthn
- Impact of socialID, national, or self-sovereign identity
- Role of academic organisations in establishing academic identity
- Role of academic organisations in providing (online) spaces for academic collaboration
- Privacy in The Academy

Inequity in The Academy: More vs Less

Those with more resources urgently want to solve their problems and move on. But their solutions can be out of reach of those with fewer resources, limiting their participation in forwarding the mission of The Academy. Will they be left behind, or what will propel participation to be global?

Correlates:

- Simplicity vs customisation of means by which academics collaborate
- Ability to sustain skills to innovate solutions to The Academy's problems
- Institutional vs Research/Scholarly Community control

Scenario Assessment

Lenses through which to think about different scenarios.

Stakeholders

There are so many! What are their interests, how do they react in different scenarios?

- Individual students or academics
- Independent scholar
- Principal Investigator
- Research and scholarly communities/disciplines/VOs
 - Larger, more resources
 - Smaller, with less
- Academic organisations
 - Leading edge
 - Long tail
- Service/support provider
- Commercial interests
- Funders
- Governments/political
- Regulators/standards bodies
- Libraries
- Society at large?

Functional Roles

These can also be seen through a stakeholding lens, but here we consider how different scenarios enable or hinder performance of various academic activities.

- Students
- Teaching & Learning
- Science & Research
- Scholarship & Arts
- Administration
- Service to the community

Other Characteristics

- How does trust work through each scenario, ie, how do academics gain sufficient trust to proceed?
- Disruptive vs incremental change

Commented [1]: Older material below this line.

HOW IDENTITY IS PROVIDED/ SUPPORTED/ MAINTAINED

Centralised vs Decentralised operations

Commented [2]: Possibly look at examples in other industries? (Banks - ATM networks; even eduROAM?)

Commented [3]: Or even aaS models that can skew toward centralized services and lower transaction costs between distinct instances of the service.

Think of this both in federation structure AND control of identity AND in the structure of how research & education is performed.

R&E Federation is the foundation of a global infrastructure and ecosystem through which federated user access happens. How many parties should provide that foundation? Is a predominantly by-nation approach necessary or desirable? How does this fit with the growing access ecosystem, in which there are many operators, eg, of proxies and gateways, in addition to home organisations and federation operators? Will things shake out so that only a few instances of federated access systems are used across many disciplines, or will there be many, large and small, each closer to specific collaborations, disciplines, or other particular purposes? Would it happen that many instances are operated by only a few organisations on behalf of all?

Federation operator (scalable centralized control of auth* agreements & policy) vs Service providers (peer to peer negotiation of auth* agreements & policy)

Another take - individual-driven vs organization-driven: Who is the primary "owner" of the identities, the individuals themselves (which may suggest a centralized model, or something more like a social identity model) or the organizations (home organizations as today)

General Purpose vs Purpose Built; Design for R&E vs Use Global Solutions

Commented [4]: Also consider "hybrids" with commercial or governmental federations providing some of the heavy lifting and proxies or bridges handling R&E needs?

Will support of the R&E mission be possible with general (consumer-focused?) trust frameworks or are purpose-built trust frameworks like R&E Federation, REFEDS Assurance Framework, SIRTFI, R&E Category, etc necessary? Will R&E's needs be met by commercial or governmental federation, or will it need to be separate to support the shared mission of The Academy?

Simplicity vs Differentiation/Competition

Users would like one pretty good access flow to work everywhere. Providers often differentiate themselves, either to compete for users, or because there's something inherently different about their resources, or just because they aren't aware of an agreed "common good" way or don't have the capacity to implement it.

Specialised/Diverse vs Easy/Cheap

More bespoke solutions to more specialised needs drives up cost and decreases usability and manageability. Where can we make do with simple, repeatable solutions?

User vs Middlebody vs Service Provider

Perhaps these are the different views all of which need to be represented in each future.

Whose interests are served first of all as users engage with federated services? In commerce, there's just consumers and producers. But in R&E there often are middlebodies too: funders, home organisations, libraries, research & scholarly communities. And there are even more parties, eg, governments and law enforcement, whose interests are orthogonal to R&E and sometimes even conflicting with each other. Does webauthn or other user-centric identity schemes change what their interests are or how they go about pursuing them?

A key interest at play is: who are the guardians of privacy of users' personal info?

-- see the first topic "Centralised vs Decentralised operations"

Local vs Outsourced; R&E vs Global/Commercial

What will happen if there does not continue to be a supply of skilled people working to support access to R&S services? Does it devolve to each research or scholarly collaboration? Do commercial/consumer versions of access systems take over somehow? Central IT at colleges used to innovate and was seen as strategic to the mission, but now it's commoditised, a cost center, lacking the ability to innovate. Will colleges redevelop the ability to grow skills needed to innovate to solve R&E's problems?

Open vs Sustainable; The Way Forward vs Economics of Getting There

Open source without ongoing funding is hard to sustain. Perhaps similar for open access to data and publications. Must everything essential ultimately be funded by governments? If we don't like some downsides of that, would we trade them for those we'd need to accept in a fee for service or subscription model? Or accept the constraints imposed by other middlebodies, eg, non-profits, private charitable funders, private venture funders.

Commented [5]: There are other commercial business model that are more elaborate, for example, amazon, uber, eBay, etc all make use of a "market place" model. Uber, for example, does not offer taxi services; it creates a market place to pair riders and drivers. In a way, that is closer to what federations do...

Changes to AuthN, AuthZ, Privacy (attribute release) and WebAuthN

Comments from Leif, Don H., on how the above are impacting users currently and in the future (needs a much better writeup here)

Maybe the tussel here is that between those who appreciate or perceive the strategic value of a thing and those with the resources to sustain that thing, among so many worthy things only a few of which they are capable of sustaining.

Identified vs Anonymous

What should be the default approach to user privacy in designing user access systems? Is there a universal right answer, or is it contextual? Highly related: how this setting affects how various party's interests can be pursued (cf. User vs Middlebody vs Service Provider).

THE THINGS THAT IDENTITY IS USED FOR

1st World/Early Adopter vs Long Tail

Those with more resources urgently want to solve their problems and move on. However, the problem of academic user access is intrinsically a long tail problem, ie, academics from less well resourced places are also essential to the research mission. What will propel solutions to be globally adoptable?

Politics vs Science

What impact will the political, social, and global climate have on research and scholarship? Will conservative, even regressive, economic and political forces hinder The Academy?

Institution-Sponsored vs. VO-Sponsored Research

Will VOs play a bigger role in research projects in the future, versus institution-sponsored projects? How do grant and funding agencies view these two? (Or are most VOs sponsored by an institution anyway?)

[Next Gen] R&E IAM Professionals AND Researchers vs. Corporate Counterparts

As the current leaders and thinkers in IAM and Federations retire, who will fill their shoes? Are we doing enough to make Federation "interesting" to "New Blood", apprenticeship opportunities? This also likely applies to researchers in various fields. Are we losing our replacements to commercial and higher-paying jobs in private/competitive research?

Innovation vs Incremental change

This may also be a lens to look at all the futures

Commented [6]: The outcomes resulting from the open, collaborative nature of research benefit all, e.g., through better understanding of our world, improvements in public health, etc. Interference from politics has wide-ranging negative effects.

Commented [7]: Many scholars/researchers/instructors are associated with multiple institutions., so no single digital identity, and the cluster of institutions or roles is in continual flux. Not sure this fits under "VO" but similar issues of combining or negotiating multiple sources of identity / attributes / trust.

Commented [8]: And will that always be the case? Some research collaborations don't have a clear institution home except by necessity that is not possible today to fund the entity centrally. (an example, Australian Genomics: <https://www.australiangenomics.org.au/>) Perhaps funders will eventually tire of paying the institution overhead and just administer the grant themselves.

(cf a comment about Shibboleth vs "mainstream SAML", multilateral vs unilateral)

Compare this to "Local vs Outsourced; R&E vs Global/Commercial" & "Open vs Sustainable; The Way Forward vs Economics of Getting There

Research, Scholarship, Education are Functional Roles. In each scenario we should determine how we continue to enable those activities.

