



Faculty of Design

2022

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Itseuwa, Osioke, McLeod, Angus, Meyne, Nick and Piovesan, Federico

Suggested citation:

Itseuwa, Osioke, McLeod, Angus, Meyne, Nick and Piovesan, Federico (2022) Identity and Digital Spaces: A cooperative experience. In: Proceedings of Relating Systems Thinking and Design, RSD11, 3-16 Oct 2022, Brighton, United Kingdom. Available at <https://openresearch.ocadu.ca/id/eprint/4318/>

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Relating Systems Thinking and Design
2022 Symposium
University of Brighton, Brighton, UK,
October 13-16, 2022

Identity and Digital Spaces: A cooperative experience

A case study on the design of digital identity and trust networks for a cooperative ecosystem

Osioke Itseuwa, Angus McLeod, Nick Meyne, and Federico Piovesan

Co-op Credentials¹

Democratically governed, and collectively-owned cooperatives and modern digital platform cooperatives have been unable to access the plentiful capital investment available to established powerful platforms such as Amazon, Airbnb, Uber and Spotify. Guided by the International Cooperative Alliance (ICA) 'Principle 6'², cooperatives are wired to cooperate, not compete with each other, but in practice, this advantageous cooperation between cooperatives has been difficult to realise or fund. Despite the good intent, silos have persisted.

To grow the cooperative sector as a whole, the connections between cooperatives need to be efficient and focused on mutual value-creation. Connections cannot flourish without identification, discovery and trusted safe interaction. Co-op credentials is a project from a consortium of cooperatives seeking to provide an infrastructure of identity and trust for cooperatives and their members.

¹ <https://coopcreds.com/>

² ICA Principle 6 states that "Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures." <https://www.ica.coop/en/cooperatives/cooperative-identity#:~:text=6.,national%2C%20regional%20and%20international%20structures.>

In this submission and work-in-progress paper, we explain the project as a story of collaboration within a complex ecosystem and present our experience in action research and co-design for a community of cooperatives.

The most important metric of growth “is not the increase in the number of users but the growth of the number of interactions between them.” (Hirel, 2016).

Therefore, we have framed a very broad question for our action research:

“How can cooperatives cooperate better in order to improve their cooperative experience?”

We have kept the question as open as possible so that in the discussion, we can uncover more of the hidden, implicit opportunities for valuable interaction between cooperatives. We believe co-ownership and community participation are essential to the co-design process and that an adaptive, evolutionary approach to co-design is the way forward.

We expect the work of Bateson on “aphanipoiesis” and “Warm Data Labs” (Bateson, N. 2021) to be informative in our research and the design of our cooperative ecosystem. In particular, we will consider coalescence and the merging, mixing and fusing of context across diverse cooperatives from a variety of industrial, social and economic sectors.

KEYWORDS: identity, trust, community, platform cooperatives, ecosystems, systemic design, cooperatives, co-operatives, collaborative

RSD TOPIC(S): Cases & Practice, Economics & Organizations

Presentation context

Cooperatives and platform cooperatives

At least 12% of people on earth are a *cooperator*—a member of any of the three million cooperatives on earth. Cooperatives provide jobs or work opportunities to 10% of the employed population. The three hundred largest cooperatives or mutuals generate 2,146 billion USD in turnover while providing the services and infrastructure society needs to thrive. (World Cooperative Monitor, 2021)

Platform cooperatives represent a growing ecosystem in consolidation. The Platform Coop Consortium³ has mapped 506 cooperative platforms in 33 countries across multiple industries like tourism, mobility, delivery, local marketplaces, health and many more.

Opportunities and challenges

The world has changed after COVID; 66% (Nielsen, 2015) of consumers are willing to pay more for environmental care, social responsibility and good governance, and 82% (Uberall, 2021) will shop more locally, some out of choice, and some out of necessity, from food banks. These new consumers are good timing for coops—organisations that follow a cooperative code of caring and democratic ownership and are overwhelmingly local, with community roots.

Unfortunately, coops have been unable to access the level of capital investment available to powerful platforms such as Amazon, Airbnb, Uber or Spotify. Even platform capital ventures such as the troubled WeWork found it easy to attract investment in capital markets. The democratically governed and collectively-owned platform cooperative alternatives are small by comparison and disadvantaged in scale and growth because they are effectively not 'for sale' to venture capital. Without the vast sums typically spent on platform launch and promotion by the platform capital competition, the challenge is for the new consumers to find the coops they are likely to

³ <https://platform.coop/>

love and trust and for coops to work better together to reach and serve these new digital consumers better.

Cooperation between cooperatives

A cooperative is generally bound by the ICA *Guiding Principle 6 statement on cooperative identity*. Our hypothesis is that to make Principle 6 a reality and to grow the cooperative sector as a whole, the connections between cooperatives need to be efficient and focused on mutual value creation. Cooperatives and their apex organisations (such as ICA and the Platform Cooperativism Consortium) lack the underlying identity and trust infrastructure to do so. In particular, despite good intent, silos in identity management solutions have persisted across cooperatives.

Co-op Credentials

The Co-op Credentials⁴ project is a collaboration or micro-consortium and, to date, has won support from the EU Horizon Next Generation Internet eSSIF-Lab⁵ programme.

Our project has four key pillars of success:

1. **Community-driven:** Use of a community forum to welcome anyone interested in the project and invite all to participate. Use of business research activities (surveys, community calls, interviews) to help bring new stakeholders into our community.
2. **Legitimacy:** Co-op Credentials partners with the Platform Cooperativism Consortium, an internationally recognised organisation hub that helps start, grow, or convert to platform co-ops. We reach out to the ICA and other cooperative bodies.
3. **Standards-based:** We have established a work item with strong support from the W3C technical community and are able to learn from parallel standardisation efforts in Education Credentials (VC-EDU, Openbadges).

⁴ <https://coopcreds.com/>

⁵ <https://www.ngi.eu/ngi-projects/essif-lab/>

4. **Open Source:** The open-source community is an important part of our 'meta' community of platform shapers: An action-focused, agile culture that favours delivery and “show before tell.”

Identity and trust and Co-op Credentials

We aim to offer an infrastructure of identity and trust for common cooperative membership with privacy-respecting single-sign-on so that new consumers can more easily find, connect with and buy from local cooperative services while protecting their privacy and personal information. We suggest this will be convenient for the consumers: They don't need to enter personal information and provide proof documents again and again - they can 'tell the co-ops once'.

The infrastructure also benefits coops, allowing them to collaborate to reach and cross-sell to new consumers and members—a 'market commons' of digital and authentic consumer membership. This must respect the privacy of members, sharing by consent only what is necessary to transact—ethical cross-selling.

Identity systems and ecosystems are in themselves complex: “Identity is a “Wicked” problem” (Pranke, 2011). There are many possible interactions between the different cooperatives and their members, and there are many potential risks and pitfalls in digital identity. This project takes a socio-centric view of identity, something that is essentially human and rooted in the relationships between humans, not an individualistic, internalised identity mapped crudely to a digital self (Smith, 2012), recognising that "Digital identity today isn't really human at all" (Sheldrake, 2022). It also acknowledges the importance of dialogue and storytelling as an anchor of identity (MacIntyre, 1984). Reductionist attempts to create a digital identity can even be dangerous, with the risk of serious individual harm in some socio-political contexts (Allen, 2020). "Put starkly, many millions of people have been excluded, persecuted, and murdered with the assistance of prior identity architectures, and no other facet of information technology smashes into the human condition in quite the same way as digital identity" (Sheldrake, 2022).

Today's identity solutions and systems

Some platform cooperatives build trust-based communities in silos, which often require users and members to crudely share personal documents and credentials in order to collaborate across cooperative entities. Too much information is shared and scattered across the ecosystem. Many fall back on mainstream solutions (sign-in with Apple, Google, Facebook, etc.) from big tech companies that are easier to use, implement and support but which use federated identity and sign-on to aggregate and systematically exploit user data.

Self-sovereign identity (SSI)⁶ is an alternative approach in which users hold and control their 'verifiable credentials, which they may consent to present to verifiers, who should ask for only what they need in order to interact or transact. For example, in a trading or supply chain, aggregation of users' personal data by dominant traders 'relying parties' can lead to worker exploitation or systemic risk of failure in the ecosystem. A less centralised approach can help to both increase supply chain resilience – less dependence on a dominant platform – and reduce worker vulnerability – more privacy and 'portability' of worker identity (Hickman, 2021).

Utility and adoption

Unfortunately, few SSI technologies have been tried in the platform cooperative ecosystem, and none have been adopted at scale. There are many privacy-respecting technical innovations in the area of SSI and active standards development at W3C. However, they have not been widely adopted, lacking network growth as a consequence of a chicken and egg problem, or Metcalfe's Law: "the value of a telecommunications network is proportional to the square of the number of connected users". However, an

⁶ Self-Sovereign Identity is a loosely-used term that lacks a normative definition since originally being coined to by Christopher Allen to summarise a set of principles (<http://www.lifewithalacrity.com/2016/04/the-path-to-self-sovereign-identity.html>) The headline we use for SSI is "agency of individual subjects over the holding and disclosure of information about them". In the digital realm, cryptographic technologies are used, but in the physical human context, a person's wallet or purse containing paper certificates or cards as 'proofs' from trusted issuers could be said to be an example of SSI. Note that information property rights are not directly required or implied, and nor are the use of additional identifiers.

important metric of growth “is not the increase in the number of users but the growth of the number of interactions between them” (Hirel, 2016). What is it that will act as a magnet (Choudary, 2013) or catalyst (Evans & Schmalensee, 2016) to draw in and retain more people to actively participate in the ecosystem? Or, as one of our community members more succinctly asked: "Where's the sizzle?"

Understanding the detail of what these interactions are, or could be, and how they are valuable is often overlooked in the optimistic world of platform cooperativism:

Ultimately, if platform coops are to have any success at all they will need a solid value proposition for its entire ecosystem, including non-member stakeholders such as regulatory entities and consumers of whatever product or service is marketed. (Van Doorn, 2017)

He quotes Saskia Sassen: platform co-ops also need a broader focus on overcoming barriers such as

... lack of resources, lack of motivation, lack of interest in low-income households, individuals, and localities, and so on. Important, and too often overlooked, is that the types of applications that are being developed mostly do not address the needs and limited resources of low-income workers, their households, and their neighbourhoods.

The requirements analysis for such applications was not inclusive or empathetic towards these communities and segments. They solved the wrong problems.

We do not know if initial use-case hypotheses floated in the Co-op Credentials community address the right problems: Are they sufficiently relevant or representative to form a viable ecosystem? Therefore, we have framed a broad question for our action research among our community of participating cooperatives.

“How can cooperatives cooperate better in order to improve the cooperative experience?”

We have kept the question as open as possible so that in the discussion, we can empathise better and uncover more of the hidden, implicit opportunities for valuable

interaction between cooperatives, their members and stakeholders. We believe co-ownership and community participation are essential to the co-design process.

Identity ecosystem governance

The typology and taxonomy of identity systems have been refined through the efforts of many in the field to elevate the importance of a governance dimension and to elaborate it as part of a technical stack, for example, within the Trust over IP (ToIP) stack. The ToIP Ecosystem Foundry Working Group (ToIP, 2022) is a valuable community of (emerging) practice. Cooperative governance mechanisms typically involve participative and collective democratic decisions by member stakeholders. Joosten et al. observe that

... trust and assurance work best in a community of parties that have some common objectives, and because of that, find it more beneficial to work together in some areas than having to do all the work themselves. They do not seek to provide rules/standards that should be followed worldwide, but rather they consent to a set of rules that they can all work with for the particular purposes that they share and the concerns they collectively want to address. They will often allow others to join if they find that beneficial. (Joosten et al, 2021 [23])

The corollary of this is the proposition that cooperative business models and mechanisms may be useful and relevant in the governance of an identity ecosystem.

Data commons

Assertions of data ownership, individual sovereignty and consent can become complex where multilateral information exchange is involved. Cooperative constructs such as data commons are proposed as an opportunity for simplification and mutual benefit.

According to Mehta, Dawande and Mookerjee (2021), a data cooperative is an organisation that collects data from its members, processes and monetises the pooled data, and compensates the members for their individual contributions. These cooperatives establish an ecosystem of trust, which brings the benefit of collective control over the quality as well as the quantity of data, coupled with better bargaining

power through aggregation and better potential monetary compensation. A privacy-first approach combined with cooperative governance provides a firm foundation.

There are opportunities to inform the development and growth of the ecosystem through privacy-respecting transparency of the ecosystem data for participants, following open data principles.⁷ A value flow matrix could be shared among participants. Informative visualisations could be plotted as a chord diagram for our target ecosystem to highlight the potential for network effects and cross-selling (Figure 1).

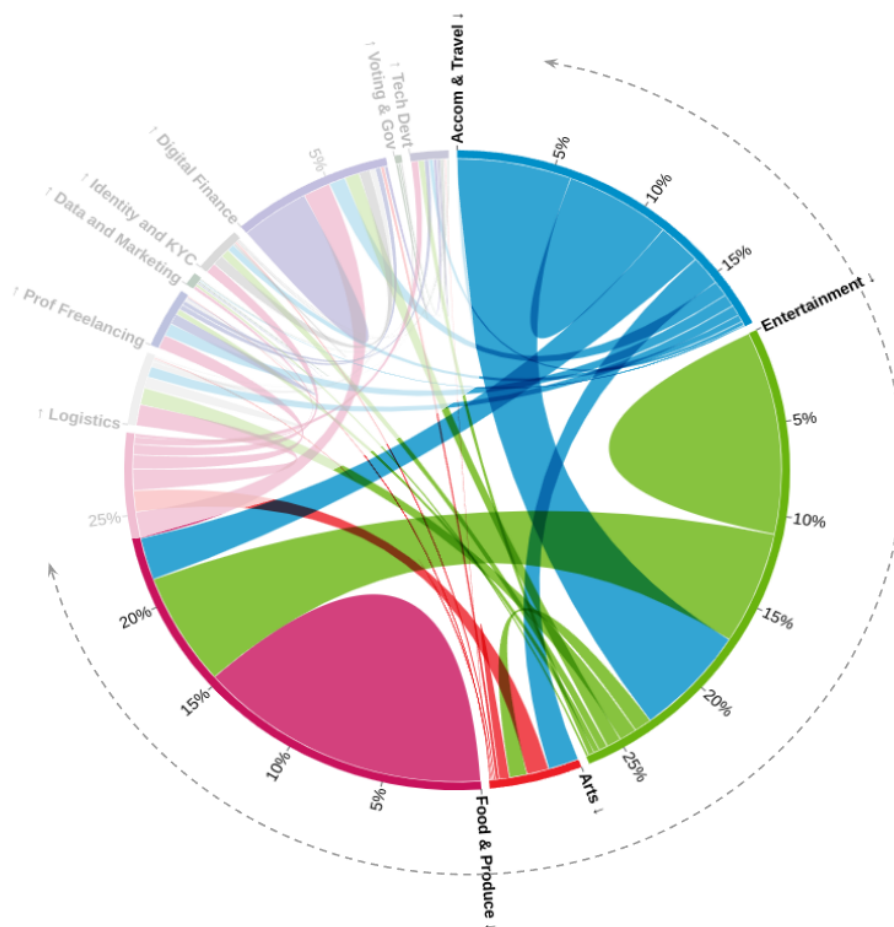


Figure 1. Chord diagram highlighting the potential for network effects and cross-selling.

⁷ See Open Knowledge Foundation. (2022). <https://okfn.org/>

Methodology

Design thinking and co-design

We will use an iterative, adaptive and collaborative design process to discover the social and economic interactions of the greatest overall value to the ecosystem and try to focus the design on features that propagate and sustain these and other related interactions.

We refer to Nora Bateson's term "aphanipoiesis", described as "the way in which life coalesces toward vitality in unseen ways" and "coalescence," the merging, mixing and fusing of context (Bateson, 2021) in our research and in the design of our cooperative ecosystem alongside the more overt economics of a design for value exchange. In particular, we hope our requirements dialogue will provide space to consider this coalescence and the merging, mixing and fusing of context across diverse cooperatives from a variety of industrial and economic sectors. We also hope that taking the time for dialogue and iteration will lead to a more inclusive and empathetic approach to community needs. Sheldrake (2016) has been highly critical of a lack of "discussion of autopoiesis and cognition amongst the identity digerati," and Beeson (2001) has pointed to similar deficiencies in the entire discipline and practice in information systems when faced with complex community systems. Beeson helpfully suggested we "shift focus from abstraction, representation and design toward cooperation and use" and "develop a much richer approach to the design of IS ... to build systems that support, reflect and project their users' inward assimilation of their lived experiences" (2001).

We have scheduled co-design workshops to co-create and co-design the future of what an initial 'cooperative credential' could be within the ecosystem. Briefly, representatives from different cooperatives will break out into pairs and, in a dialogue, attempt to understand and design improvements in cooperation between coops and the cooperative experience from each others' perspective, in turn. They are asked to consider the question from three different aspects or spheres of life: work, legal and play (Hickman).

- work - how can we benefit together from this?
- legal - how can we reduce our mutual risk / meet our obligations in this?
- play - how can we have fun / enjoy doing this together?

From this contextual work, we will draw what is needed to scope and structure the design of community and identity credentials and roles, patterns and potential software components, following established agile software architecture and design and open-source principles.

The trust and identity system infrastructure is only a supporting component of the ecosystem, offering some potentially common features.

- **A common community ID** for members/holders across multiple coops, with exchange and verification of credentials
- **Streamlined new member onboarding** for co-ops to quickly onboard new members/users by accepting 'identities' verified by other coops, eliminating username, password, and sign-up forms
- **Strong, passwordless authentication** and single sign-on tools for higher risk transactions
- **Reusable verification** and Know Your Customer aka Know Your Cooperator (KYC) across the ecosystem

The first iteration is experimental, exploring what features are necessary and used, and how they are perceived and found useful, if at all.


Which cooperatives are involved?

This is changing and dynamic, but active participants in the summer 2022 Show and Tell⁸ workshop introduced themselves (Figure 2). We are also in a separate discussion with coops working at the national level, looking for a common, cross-border approach to cooperative identity.

⁸ <https://community.coopcreds.com/t/co-op-credential-community-call-3-co-op-show-and-tell/291/9>


C

Co-op Credentials




Co-op Credential Community Call 3: Co-op Show and Tell

■ Events



osioke Co-operative Member

2  Jun '22

Our next community call will be on is 🌐 June 23, 2022 10:00 AM . We will be doing a Co-op Show and Tell where we all get to reconnect and talk about what we are doing and how that brings us here. This is part 1 of a 3 phase call/program we are doing to define/shape the future of Co-operative Credentials.

NI

Planning Our Next Co-op Credentials Community Call: An Asynchronous Co-Design Workshop

▼

The 3 phases:

1. Discovery / 'show and tell' - coops get to know each other better and scan / recap each others' inputs
2. Co-Design - workshop, as above - this will generate a lot of material...
3. Shaping and Planning - takes the output of 2 and builds an action plan / commitment

Please read through the linked topic to get more detail on the whole program.

Figure 2. Co-op Show and Tell workshop invitation.

What we have found to date

Our approach began with a small group of founding cooperatives to propose candidate use cases (or interaction scenarios or user stories) for discussion among the cooperative community. These remain candidates and hypotheses to stimulate discussion in the collaborative design process rather than pre-determined outcomes.

We began with a combination of digital surveys and interviews with these cooperatives: Responses covered more than 20 cooperative organisations, from those with thousands of members or sign-ups in the media and entertainment sector or tourism to growing networks of established agricultural cooperatives. Some are 'coops of coops' with a potentially large regional consumer reach. Some are small, brand new locally-based community start-ups incubating a variety of projects.

Overall, respondents aligned strongly with the problem areas we identified. Concerns about privacy were a given; all respondents identified with the issue. Cooperation among cooperatives was the topic that generated the most engagement and comments about the potential to do more. KYC featured strongly as an issue for larger, more established cooperatives and those starting up in strongly-regulated sectors like housing.

Example story-scenario: a cross-selling event in independent music tourism

As an example of cooperative interaction, we put forward an early hypothesis for a hybrid digital-local physical event scenario called Stay Fair Play Fair. We envisioned a business model for such an ecosystem (Figures 3 & 4).

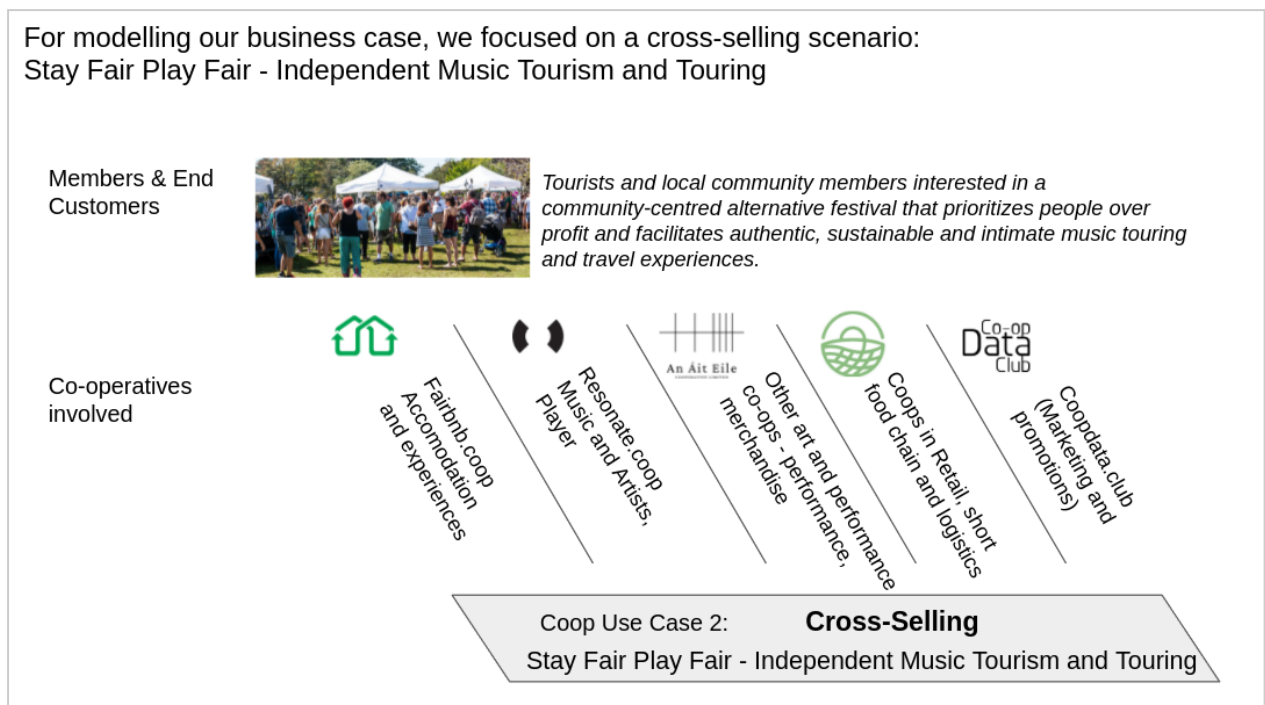


Figure 3. Stay Fair Play Fair business model.

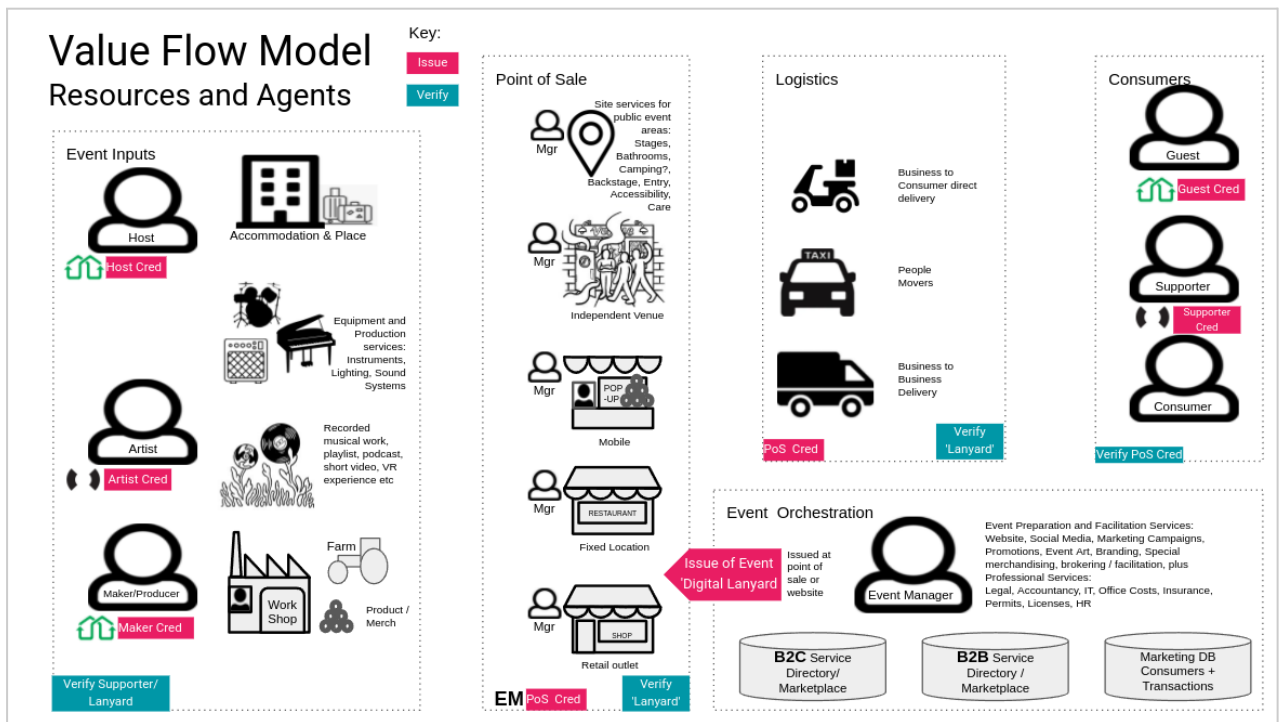


Figure 4: Stay Fair Play Fair Value Flows.

Next steps: structuring requirements for delivery

There are multiple and varied potential collaborative use-case examples, such as Stay Fair Play Fair in the possible cooperative ecosystem. The core offer of Co-op Credentials is to provide a common identity ecosystem, usable across all these use cases yet sufficiently adaptable to accommodate necessary differences and divergence in credential types, issuing protocols, wallets and verification.

We can learn from and use the work of ToIP as an identity reference architecture framework (ToIP 2020; 2022) and borrow more widely from the structure and terminology of enterprise architecture frameworks such as The Open Group Architectural Framework⁹ and Capgemini Integrated Architecture Framework.¹⁰

⁹ <https://www.opengroup.org/togaf>

¹⁰ <http://architectureportal.org/capgemini-integrated-architecture-framework-iaf>

For the economic modelling of the ecosystems, we propose to use elements of the ValueFlows methodology and syntax. Valueflows is a set of common vocabularies to describe flows of economic resources of all kinds within distributed economic ecosystems. This common vocabulary also underpins the common data approach for the ecosystem, helping to provide clarity in the governance of public persistent identifiers.

The work of Hickman is particularly helpful in considering the types of identity and appropriate levels of identity assurance in more socio-centric ecosystems, also typical of cooperatives:

In the realm of digital identity, much focus has been placed on the challenge of legal identification and national identity systems as an important route to accessing public services and engaging with the state. Yet in our digital lives, we spend more time either working or playing, where legal identification is not necessary. In fact, in many types of interaction, exposing our legal identity undermines other human rights such as the right to privacy. For this reason, it is useful in designing an identity system to consider three different spheres of life ... legal, work and play, and to experiment/prototype accordingly. (Hickman, 2021)

The design process will also address the well-known trade-offs between access, privacy and security. Finally, we will look to the work of the Ecosystem Foundry Working Group for patterns and emerging thinking on operating model tools for an "assurance community". For example, a 'yellow pages service' to help find the various credentials or catalogues of credentials of interest to participant coops, accreditation schemes for processes and organisation units (including authorised issuer lists) and reusable complex rules and decision trees. (Joosten et al., 2021)

Conclusion

We argue that although much has been written about global identity management and interoperability, it is in the practice of common identity management amongst a narrower ecosystem of participating cooperatives that we can best learn how to support a viable and sustainable community ecosystem with appropriate solutions without unacceptable risk. We hope that contextual conversations and inter-disciplinary dialogues will provide design space to encourage coalescence – that is, the merging, mixing and fusing of context across diverse cooperatives from a variety of industrial and economic sectors.

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