Design 5: A Knowledge Commons for Community-Led Action on Sustainability and Climate Change
Client: ECOLISE
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1. Summary

This is an **iterative design** that employs the **Design Web** as the basis for success cycles of **action learning**. Design work began in early 2017; implementation began on a pilot basis in early 2018 and is ongoing since then. At the time of this write-up, in Spring 2021, the design process is in its third cycle:

- Conceptual development (stages 2.1 to 2.5; March-June 2017)
- Pilot implementation (stages 2.6 to 2.8; June 2017-June 2020)
- Second stage implementation (stages 2.9, 2.10 and ongoing since June 2020)

Conceptual development was a largely abstract process aimed at identifying an appropriate technical architecture. The pilot implementation phase tested this technical architecture, in the absence of any systematic social design. Second stage implementation involves both a refinement of the technical design and an initial social design, whose aim is to enable formation of a wider stewardship circle who will agree a set of rules for operation and governance, and apply, monitor and tweak these on an ongoing basis. Action learning is thus an ongoing feature of this design, which spirals out from an initial small design team to an expanding community of curators and other contributors.

2.1 Vision

The vision for the design arose during my preparation for an interview as Knowledge and Learning Coordinator at ECOLISE in March 2017. This post involves delivering on relevant areas in the ECOLISE strategy, concerning mobilising knowledge of and about community-led initiatives for inspiration, action and policy change and supporting and facilitating new knowledge co-creation activities.
To prepare for the interview, and drawing upon learning from Designs 2, 3 and 4, I created a vision for a framework that could bring different knowledge creation processes into mutually beneficial interrelationship. This took the form of an **outline design** following the SADI process (see Appendix 1), which summarised my thinking at that point and became the first iteration of the design cycle (sections 2.2 to 2.5 below).

2.2 Ideas

The key learning from previous designs that shaped this one is that ongoing action learning is central to the work of all the movements of community-led initiatives (CLIs) who are part of the ECOLISE network. For example, many ecovillages, LAND centres and other land-based projects are sites of active experimentation and education for sustainable living. Permaculture is an action learning methodology, and networks of permaculture practitioners form action learning communities. Transition sees itself as a learning network. All of these networks have, in different ways and from different starting points, sought to develop relationships with formal research that could complement and support this.
My own experience of collaboration with Transition Network and the Permaculture Association, supported by **observation** of and reports from similar initiatives in related networks (such as the Global Ecovillage Network), is that each of these activities was struggling to maintain capacity and momentum due to a shortage of resources. The overall idea was to create a linking context to enable collaboration, sharing of resources and synergy among different efforts – strengthening each of these while also preserving and sustaining their autonomy and working productively with their differences.

2.3 Helps

A brief informal **survey** of existing relevant activities that could feed into this raised the following key points:

- ECOLISE includes among its members various Specialised Members whose core expertise are in research and/or learning: FCiências.ID (Lisbon University Science Faculty), Schumacher Institute, DRIFT, Gaia Education.
- Many ECOLISE member networks maintain resources that could contribute to and benefit from links with a knowledge commons, notably: the Transition Research Network resource collection, Permaculture Knowledge Base and GEN Solution Library
- In addition, all the main ECOLISE member European networks have created some sort of associated research body: the Permaculture International Research Network, Transition Research Network and Global Ecovillage Network's Research Working Group
- An increasing number of research projects are producing potentially useful data and insights on CLIs; many of these involve ECOLISE members or close allies, for example the major EU-funded research projects BASE-Adaptation, GROW Observatory, TRANSIT, TESS, ARTS, PATHWAYS and GLAMURS, along with numerous national-level and other smaller scale projects
- Many ECOLISE members are running their own projects and/or learning programmes that could benefit from access to a knowledge base and themselves produce useful information, including CLIPS (GEN-Europe), Municipalities in Transition (Transition Network), 52 Climate Actions (Permaculture Association), SiRCLE (GEN-International), Ecovillage Design Education (GEN and Gaia Education), Transition Training, and permaculture diploma programmes in Britain and Germany

2.4 Principles

Through the lens of the **permaculture ethics**, the design brief can be interpreted as a need to promote approaches to research and learning that are ethically aligned with community action and of practical value:

- Earth Care: contributing to sustainability action, and research and learning and allowing more efficient and effective use of the resources invested in education and research
- People Care: indirectly through providing information that serves social justice aims, and directly by enabling ready access to knowledge, information and opportunities for individual and shared learning
- Fair Shares: inclusive and accessible knowledge, and recognising and honouring the value of different kinds of knowledge (especially, giving the informal and experiential knowledge of sustainability practitioners equal status to knowledge arising from formal, institutionalised research)

I identified the following **permaculture principles** as particularly important:

- *Produce no waste:* avoid futile efforts at knowledge generation that duplicate existing work, fail to address important questions or never reach audiences that could make use of it. For example, huge amounts of effort go into university student dissertations every year, which could be a valuable renewable resource for gathering and sharing useful information.
- *Capture and store energy*: thinking of knowledge and information as energy, create a framework that can simply harvest information from diverse sources in a form easily accessible for multiple different uses.
- *Integrate not segregate: combine* different types of knowledge, subject areas and fields of study, showing their complementarity and integration.

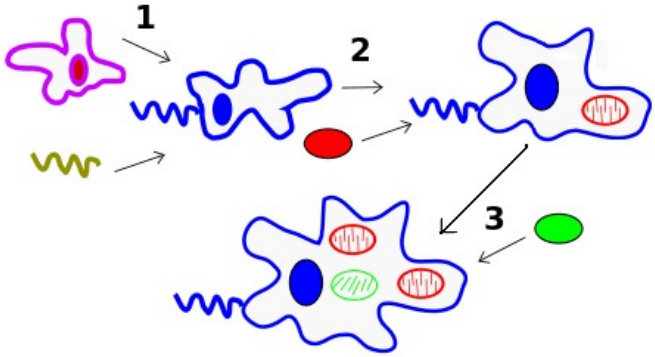
- *Design from pattern to detail:* create a general framework that can be adapted to the specific needs and capabilities of different user groups and the requirements of different subject areas.

2.5 Patterns

Previous work in this area (including, notably, findings from the Transition Research project in Design 3), identified a number of recurrent **patterns of erosion:**

- Knowledge generation processes tend to be fragmented and dispersed, taking a project-focused mentality that limits opportunities for integration, collaborative action and incremental working
- Inadequate documentation and evaluation of much community-led action – practitioners tend to be focussed on action, move onto the next thing, and often lack knowledge or capacity for proper documentation, analysis and evaluation, and access to the skills and capacities that would allow them to do this.
- Related, a fairly common tendency exists to reinvent the wheel rather than build on existing knowledge
- Formal research conducted by universities is often extractive in nature: designed according to academic criteria and treating communities as research subjects and sources of data, and rarely aligned to the needs and priorities of practitioners
- Relevant academic knowledge is often inaccessible: in specialised journals or theses that might be hard to find, often behind paywalls or in institutional archives, and in forms and formats that are not comprehensible to non-academics or relevant to their interests
- Practitioner knowledge, especially when informal, experiential and/or embodied is poorly recognised and often ignored or unvalued..
- Dominant knowledge regimes often do not fit well with community-led learning processes; in particular, there is a culture clash between individualistic regimes that emphasise individualism, separation and competition as opposed to more communitarian approaching based on sharing and cooperation

Figure 1: Endosymbiogenesis



Assessment of the helps in the light of these limiting patterns (applying the principle of the *solution in the problem*), along with the ethics and principles, I identified the following **design patterns**:

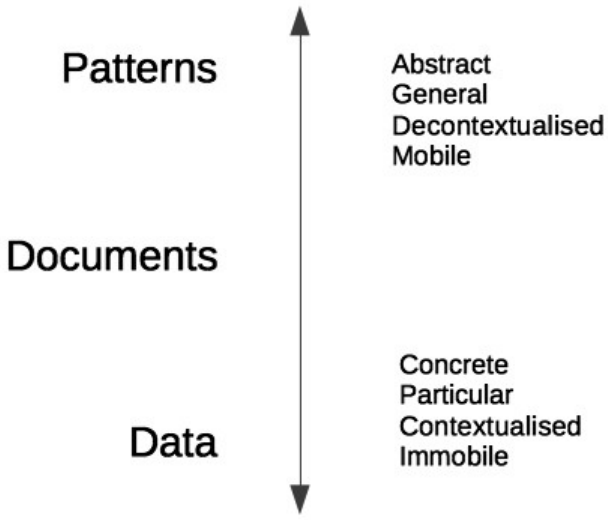
- Knowledge commons
  - An inclusive, co-created medium for collaborative knowledge generation and sharing
  - Connects and makes visible formal and informal knowledge, across multiple knowledge domains and user communities
- Relevant principles of commons design identified by Elinor Ostrom:

    - Any commons comprises three main elements: a *resource* (in this case, an information resource), the *user community* who co-manage the resource, and the *rules of use* through which they do this
    - Commons governance is organised as a hierarchy of several levels of rights and responsibilities
- Pattern Language as an established medium for integrating diverse forms of knowledge, oriented towards practical action
- Use of open source platforms as most consistent with the ethics and principles of commons, and the operational needs of pattern language
- *Endosymbiogenesis* as the key design pattern from nature: the combination of several kinds of prokaryote cells to make up the eukaryote cell. In parallel fashion, the knowledge commons intends to provide a single connecting medium for multiple different knowledge generation processes (Figure 1).

2.6 Integration

With input from ECOLISE colleague's Markus Molz and Gil Penha-Lopes, I integrated the above information into a **concept note**, which describes the second iteration of the design (Appendix 2). It identified three main levels of representation of knowledge: raw data (including maps), documents and patterns derived from thematic integration of information in documents (Figure 2).

Figure 2: Levels of knowledge representation



The concept note also identified several **domains** of possible content formats (I consider these equivalent to **sectors** in a traditional design format, as they reflect different ways that knowledge moves through the system). By combining levels and domains/sectors in a matrix, we created a preliminary **design map** that guided subsequent activity (Figure 3).

We visualised information flows within domains using a metaphor of nutrient flows from the soil through a tree, which Gil Penha-Lopes and I had developed in a previous collaboration (Figure 4). This captured the understanding that information flows are cyclic, in that patterns both capture existing data and documentation, and are generative of new documents, which might in turn stimulate and help guide generation of new data. This could be further developed as a forest garden metaphor, showing the aspiration to interconnect knowledge co-creation processes of different kinds in a **knowledge ecology** based on open sharing and free reuse of information, to the individual and mutual benefit of all.

Building on this, an analysis of **functions, systems and elements** identified the main elements of the technical and social architecture necessary to accommodate the three levels (Figure 5), and specific platforms that could make up the technical component.

Figure 3: Preliminary Design Map

Domains:	A. Research	B. Education	C. Practice	D. Maps	E. Media
Layer 3: Knowledge	A3: Pattern-level summaries abstracting general lessons from research-based information	B3: Learning pathways, programmes and curricula	C3: Transferable Solutions	D3: - Mapping Templates - Maps of occurrence of patterns	E3. Media templates
Layer 2: Information	A2: Research outputs/ publications	B2: Course Notes, Session Plans, Workshop Schedules	C2: - Project & Event Reports - PC Diploma design write-ups	D2: Multi-layer, annotated and/or analytical maps	E2: Stories
Layer 1: Data	A1: Research Data	B1: Records of workshops, courses, trainings	C1: Project/ initiative/ event records	D1: Descriptive/ illustrative maps	E1: Media items (and collections of media items

Figure 4: Information flows and knowledge production cycles

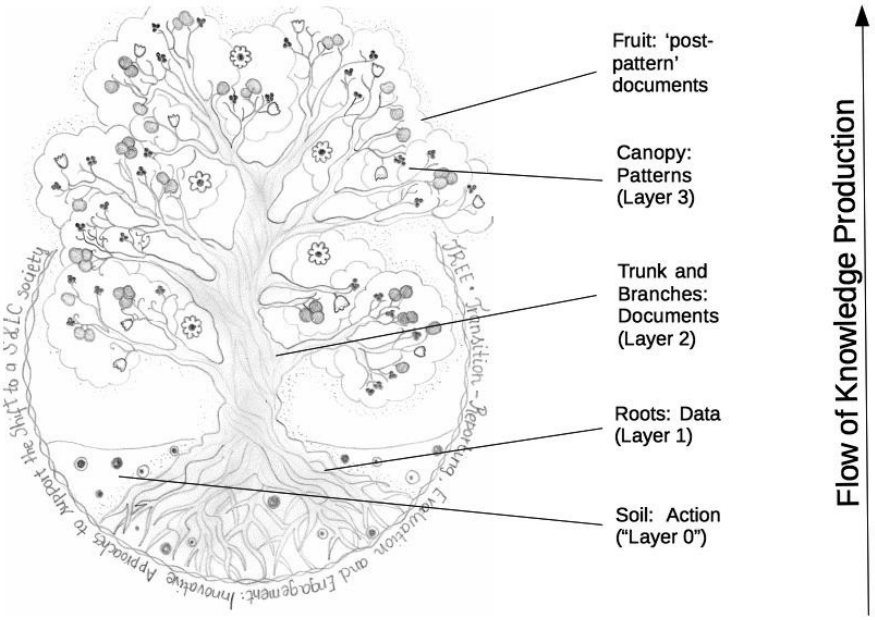


Figure 5: Functions, Systems, Elements

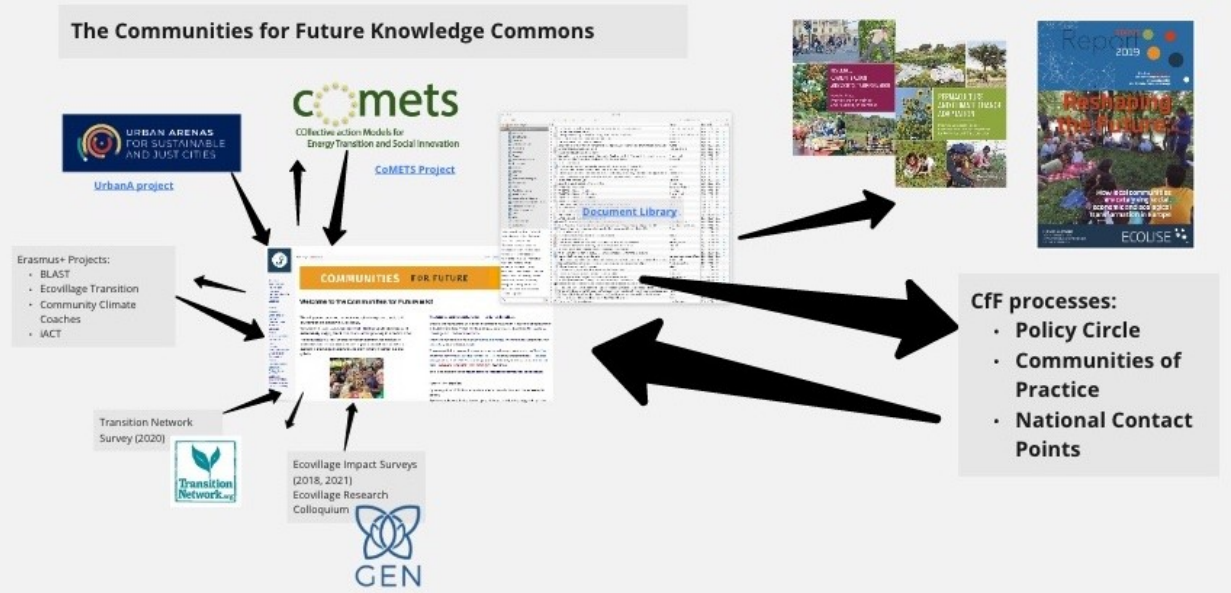
Function	System	Elements
Gather existing knowledge on community-led initiatives, making it visible and accessible	Document library	A dedicated open access library on the Zotero bibliographic platform
		Agreements for content tagging and organisation
		Guidelines and support for users
Make existing knowledge on community-led initiatives visible, accessible and useable, in forms relevant to key applications (research, action, policy).	A pattern language for community-led action on sustainability and climate change, as a dynamic and open source medium	MediaWiki as an online technical platform for the pattern language
		Training and induction processes for users and contributors
		Facilitated processes to enable governance and management by the user community
Map occurrence of community-led action and allow geographical analysis	Online mapping platforms and mechanisms for sharing data across them	Various existing open source, open data mapping platforms: Transiscope, RedeConvergir, Map of Tomorrow

2.7 Action

Pilot testing of the design ran from June 2017 until June 2020. This involved setting up the initial platform, and experimenting with its use in connection with various ongoing projects:

- The first Status Report on Community-Led Action on Sustainability and Climate Change, which Gil Penha-Lopes and I were editing with input from several collaborators. We compiled all existing documents consulted during creation of the report in our Zotero library, and used the wiki as a collaborative writing platform on which we developed background analyses and draft texts.
- UrbanA, a major EU-funded research project on urban sustainability and justice in which ECOLISE was a partner (along with our research group at FC.ID in Lisbon University): developed a parallel infrastructure based on the same platforms, especially a wiki, licensed creative commons in order to allow easy information-sharing and future integration.
- Various other funded projects involving ECOLISE included a commitment to capturing their knowledge on the knowledge commons.
- We initiated conversations with key networks within ECOLISE (ecovillages, transition, permaculture) and closely related networks (social solidarity economy) about how they could use and contribute to the knowledge commons to support and connect their own work.

Figure 6: Implementation Map (September 2020)



An **implementation map** shows the relationships among these in late 2020 (Figure 6). It includes (at the centre-right), elements in the emerging Communities for Future programme (CfF, initiated by ECOLISE from 2019 and publicly launched in September 2020) that were integrated after the pilot phase.

2.8 Reflection

Late 2019 and early 2020 provided an opportunity for reflection, following release of the first Status Report and connections with project work having developed somewhat. The following **PMI evaluation** indicates the main conclusions from this, which fed into design decisions in the second implementation cycle.

- Plus
  - Feedback from a range of sources indicates that the idea of a knowledge commons has general appeal, and support in principle.
  - Many pages already rank highly in internet searches on the topic, which indicates they address important knowledge gaps.
  - Additionally, some ECOLISE colleagues not actively engaged reported having found (and used) relevant wiki pages, and used them, when researching for presentations or other pieces of work.
  - We had successful proof of content, based on two main strands of work
    - Use of the wiki as the content creation platform for the first Status Report on community-led action on sustainability and climate change (released May 2019) amounts of a successful proof of concept.
    - Creation and use of a wiki as a dedicated content creation platform within the UrbanA project

- Minus
  - Lack of any centralised system or framework for organising content in either the wiki or Zotero library meant that different contributors had applied their own conventions on an ad hoc basis, with no indication that any coherence was likely to emerge from this.
  - Many people reported that the wiki (and Zotero library) were very hard to use, both in terms of finding information and editing or contributing new content.
  - Accessibility and usability issues meant it was very difficult to stimulate sustained input (and often, any input at all) from beyond a small core group.
  - Additionally, project teams tended to engage with the wiki as a secondary platform rather than integrating into into existing work flows as hoped, meaning that contributing content became an extra task (and hence often overlooked).

- Interesting
  - During 2019, ECOLISE decided to launch its new Communities for Future programme as a key framework for operationalising its new strategy, and principal focus for all our work.
  - We had encountered a number of other open source platforms with overlapping aims and content (e.g. Solecopedia run by the RIPESS social solidarity economy network and the Appropedia wiki of appropriate technologies, which has a strong permaculture focus): as well as endorsing our idea (because other people had also thought of it), this provides opportunities for connection, information-sharing, and other forms of collaboration.
  - Although we had not managed to begin development of the mapping or data layer, some major research projects on community-led initiatives had mentioned that they have substantially underused datasets potentially available for reuse. In addition, ECOLISE

had made closer connections with some of the key mapping platforms (including Transiscope and Map of Tomorrow), some of whom are also exploring knowledge co-creation in other layers and exploring interconnection, interoperability and data sharing across platforms.

2.9 Momentum

Impetus for the second action learning cycle arose in early 2020, from various sources:

- Launch by ECOLISE of the Communities for Future programme
- New insights into how to apply the **pattern language** concept in wiki design
- Addressing accessibility and usability of the technical platform
- Identifying different user groups and the needs and potential contributions of each

With ECOLISE committed to Communities for Future as its main strategic focus, it made sense to rebrand as the Communities for Future Knowledge Commons. Communities for Future also includes two major organisational features that can form part of the social design: Communities of Practice (CoPs) addressing specific themes and each with its own learning needs and knowledge co-creation processes, and National Contact Points (NCPs) responsible for coordination within their own country. Each would be well placed to curate content within its domain of interest or responsibility – the theme of each CoP and NCPs at national level. Each would most likely also benefit from access to a dedicated knowledge co-creation infrastructure and the knowledge ecology arising from connections among thematically and geographically grouped knowledge.

Mario Yanez provided a **critical review** of the initial concept note and pilot design, making various observations. Two of the most important concerned design of the information architecture. First, to distinguish between *patterns* and *entities* (communities, organisations, initiatives, projects, networks or other concrete instances of collective action that each demonstrate various patterns in action). Second, to recognise that patterns arise at several levels of abstraction. Building on the experience from the Transition Research Pattern Language (Design 4), we identified four key levels, from concrete to abstract: concrete practices; approaches or pathways that cluster some combination of related practices; principles or conceptual frameworks that help guide the choice of practices and approaches; and overarching values. Mario also offered the important insight that patterns, particularly at the very concrete level of practices, can be units of evaluation as well as documentation, which was integrated into the ongoing design as an aspiration that the knowledge commons also house a monitoring and evaluation framework for CfF.

Attention to usability benefited from the recruitment to the ECOLISE research team of Nara Petrovič, a dedicated amateur archivist. This skill-set and extra capacity allowed us to create a clear organisational structure for both the wiki and document library, establish a clear set of orienting guidelines criteria for contributors, and devise and implement more hands-on and structured processes to engage and support those interested in getting involved.

Figure 7: Input-output analysis of knowledge commons user groups

User Group	Need/s from knowledge commons	Contribution/s to knowledge commons
Readers	Information about community-led initiatives	Site stats show how much it is being used, which parts are most popular, and how users move through the site
Engaged readers	Information; dialogue about how that information is presented	Offer direct feedback on content to editors and curators
Content editors	A platform to share their own knowledge; visibility to and opportunities to connect with others with shared interests	Provide content; improve completeness and accuracy
Content curators	Dissemination and impact channels for their work; opportunity for co-creation in their subject areas	Curation of content areas; close connection with key work in curators' subject areas
Site curators	Opportunity to shape an important shared resource	Overall responsibility for knowledge commons

To better understand potential contributors and how best to support them to engage productively, I applied two design tools I encountered in a course on value flows in networks that I followed in March and April 2021: **levels of engagement** and the **contributions scaffold**. Previous work had already identified four levels of engagement: users, editors, content curators and site curators. The contributions scaffold makes visible potential contributions at different levels of engagement, and the ways these contributions are valued (or could be). I systematically characterised six different forms of contribution this way (Appendix 3). This forms the basis of an input-output analysis that outlines contributions and needs of different user groups (Figure 7).

2.10 Action

The second implementation phase began following the launch of Communities for Future in September 2020, and is ongoing at the time of writing in April 2021. Its main emphasis is initiating an **emergent social design**, based on a more tightly organised technical platform and involving an open-ended co-creative process open to participation to anyone interested in engagement with the knowledge commons, at any level.

Strengthening of the technical platform involved the following:

- Agreement of a new content organisation system:
  - Four parallel strands of wiki content (thematic areas, concepts, movements of community initiatives, and countries), each linked from the front page and connecting to every content page.
  - Introduction and active maintenance of organisational categories for wiki pages that reflect both content areas and technical features (such as the state of development of a page and what kind of page it is)
  - A new filing system for the Zotero library, using categories and tags, that closely maps onto categorisation of wiki pages.
- Adding extensions and templates that provide new functionality to the wiki, particularly:
  - A visual editor that makes it easier to create content without having to enter code
  - Templates that provide a common structure for each type of page
- Improved and more extensive background information on the wiki:
  - Fuller user guides that include links to technical information and a clear account of the editorial and other conventions already in place
  - More extensive information on the conceptual background behind the design, in particular the application of theories of knowledge commons and pattern language.

Figure 8 is a screenshot of the front page of the new CfF wiki following these changes: the four columns respectively link to the four main content areas. Figure 9 is a screenshot of the Zotero library, indicating the main content categories within it.

The social design process combines a set of general activities with bespoke processes to connect with specific key groups of users already involved in creating important content. At the time of writing, general activities are of three main kinds:

- Introductory sessions for newly-interested people, open to all and consisting of a presentation about the knowledge commons and opportunity for discussion.
- Regular and on-demand induction sessions for contributors, to support them to master the technical medium and understand site conventions well enough to begin contributing material.
- Co-design sessions, open to those already familiar with the knowledge commons and either actively contributing content or intending to do so. These are scheduled to be held monthly and anticipated to evolve into an overall site curation circle, linked with content curation circles each dedicated to a particular subject area.

Figure 8: Front page of the CfF wiki, April 2021

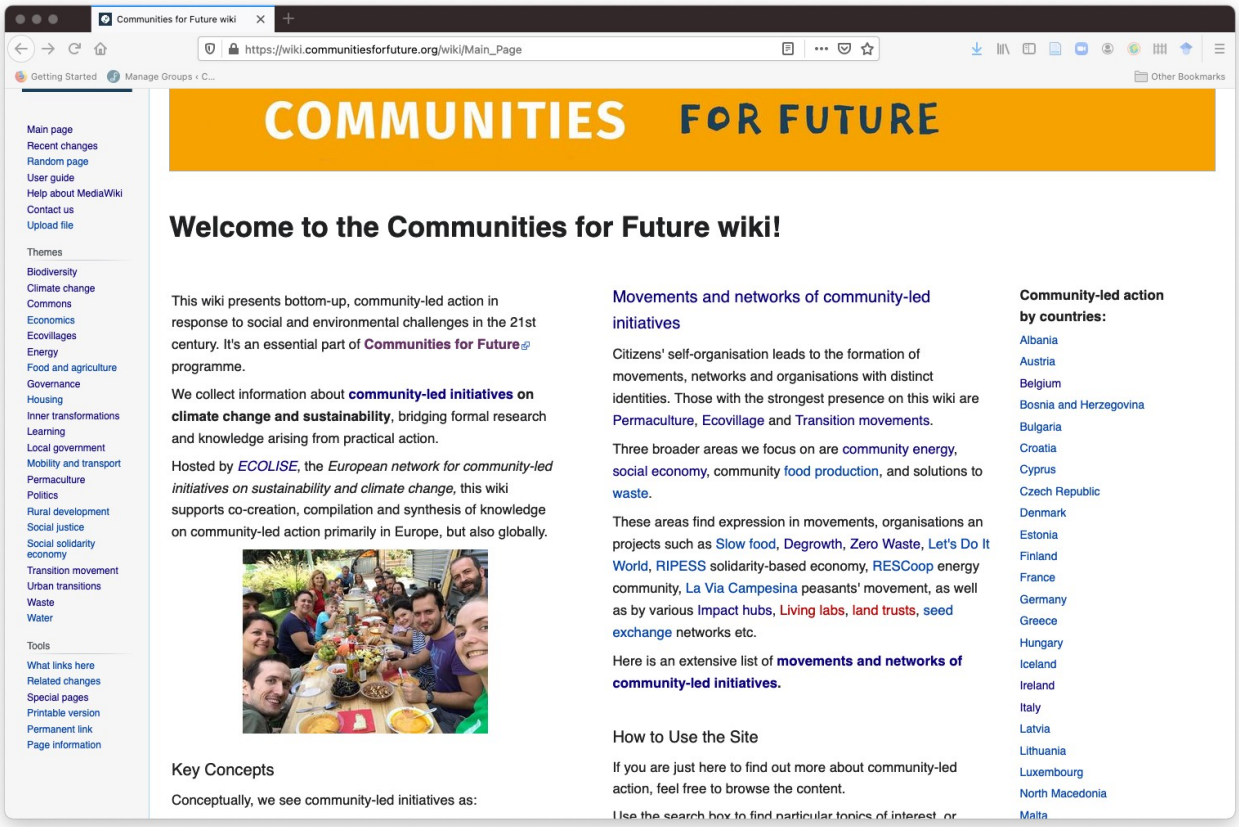
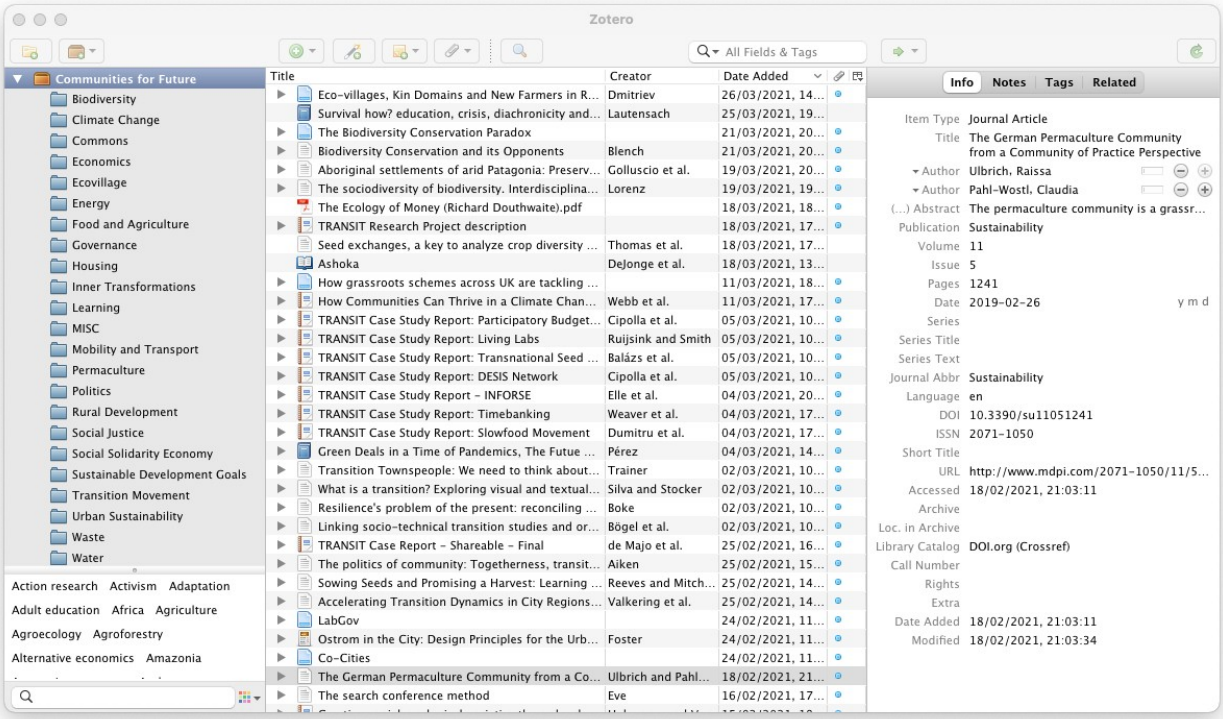


Figure 9: CfF document library, April 2021



Bespoke processes are underway with a range of knowledge generation processes somehow connected with ECOLISE, in order to explore how best to link those with the knowledge commons:

- Movement surveys being undertaken by Transition Network and GEN International

- Ongoing work within several research and learning projects in which ECOLISE is directly involved (UrbanA, CoMETS, CAMPAIGNers, Transformative Cities, BLAST, Community Climate Coaches, Ecovillage Transition in Action)
- Liaison with curators of parallel resources in closely-linked networks, such as the Municipalities in Transition database and Solecopedia
- Production of the second Status Report on Community-led Action on Sustainability and Climate Change, coordinated by ECOLISE and an Editorial Circle involving representatives of several key partners.

It is hoped that this will result in mobilisation of a wider community of curators and contributors able to plan and deliver the next action learning cycle as an expanded co-creative effort, closely linked in synergy with numerous relevant ongoing projects and monitoring and evaluation efforts.

3. Evaluation

My design evaluation uses the **six thinking hats**, which I feel provides an appropriate combination of simplicity in its application with ability to capture the complexity of an emergent and multi-dimensional project like this

Blue (big picture): the knowledge commons is part of a wider overall trend, towards creating commons-based alternatives to established methods and infrastructures, emphasising cooperation, sharing and solidarity rather than competition and individualism. This includes independent efforts on the part of knowledge generators in many different fields towards knowledge commons as a form of collaboration, and parallel (and often linked) maturation of the global pattern language community.

White (facts): According to the statistics page on the CfF wiki, on April 4th 2021 the wiki included 132 content pages with 1673 total edits by 27 registered users. The CfF Zotero library consisted of 1548 fully processed items, plus around an equal number (some of them perhaps duplicates of items already in the library) awaiting tagging and addition to the main library.

Red (feelings): I feel enthusiastic and optimistic about the idea, which builds on a long-standing ambition of mine to operate as a pattern language facilitator, and inspired to see it taking shape, growing and attracting interest and participation. On the other hand, I also feel a certain sense of precarity due to the reliance on a very small group (two people) within the ECOLISE staff to sustain momentum, and a level of pressure associated with this.

Black (negative): active participation is still rather low, and relies on coordination and guidance of a small number of people. Knowledge commoning seems to be a difficult habit to acquire, and requires some effort to reconcile with atomistic ways of thinking and working that tend to arise. This is particularly true in relation to project work, which is anticipated to be a major source of input - we have not yet reached a point where project teams can easily relate to the knowledge commons as an enabler of their work, rather than an addition to it, and will experience inertia until that time.

Yellow (positive): there are high levels of interest and rhetorical support for the knowledge commons. Successful efforts at translating that into action, especially within the UrbanA project, give grounds for optimism about translating this into concrete action. It represents a valuable innovation that expresses the transformative spirit of ECOLISE and associated networks, and builds upon and advances the boundaries of concepts and tools already in use. Its successful implementation will represent a major maturation in the work of these networks.

Green (new ideas): several new lines of development are opening up: integrating the knowledge commons with the CfF Status Report as an ongoing reporting process; inviting other networks to join as co-curators; integration of functionality for Monitoring and Evaluation, with patterns as units of monitoring as well as knowledge representation; establishing ongoing collaborations with universities whose post-graduate students can contribute to knowledge commons development; linking more closely with established resources like the permaculture knowledge base and processes like creation of diploma designs; active collaboration and co-creation with mapping projects and related wikis; and linking more closely with the pattern language and commons movements to advance the conceptualisation and application of their respective theories.

4. Reflection

This has been one of my favourite designs to deliver and write up. I like the way it integrates learning from the previous research designs (2, 3 and 4), and shows my learning and increasing capacity to operate at a higher level of ambition. It also combines several of my long-standing interests, in a practically effective way that synergistically pushes the edges of each. I am particularly please that the design web allowed me to capture its iterative nature, with the different cycles within this, and their spiral collective form, clearly visible.

In terms of the process of writing up designs, it also shows the benefits of ongoing documentation, which is a weakness of some of my other designs, particularly those taking place over an extended period. Write-ups, as designs, of the two previous iterations, along with the initial concept design, makes visible the evolution of my thinking and design technique, both of which have matured over the four years it has been underway.

One interesting feature is the open-endedness of the design - emphasised by writing up quite early in a new implementation cycle. I am interested to see how this design develops over the course of this cycle, and evolves beyond that as a larger number of people and networks, hopefully, take on active co-creative roles - especially any unexpected or emergent outcomes of this that might surprise or challenge me.