

Innovation at the Northern Centre for Sustainability



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We are design researchers who work collaboratively using design methods and mindsets to inform strategies for transitions to sustainable societies. We are Masters of Design candidates at OCAD University in the Strategic Foresight and Innovation program.

We would like to thank the team at Ecology North and Natale Danko for helping to facilitate our research, and everyone who shared their thoughts with us while we were in Yellowknife.

Acknowledgment of land and knowledge

We researched and prepared this report on the traditional lands of the Yellowknives Dene First Nation. We have been honoured to learn from and listen to Indigenous communities, the true sustainability experts, who have been doing this work since long before us.

Mahsi cho.

What is this report?

A note from Ecology North:

Ecology North has a history of working to advance sustainability in Yellowknife and the Northwest Territories. This is a region where the effects of climate change can be seen and felt first-hand, where energy costs high, where food and supplies often have to be shipped in from elsewhere, and where extraction-based industries have produced tangible environmental damage. Since 1971, Ecology North has been promoting sustainable ways of living in the North through a variety of programs, educational initiatives, and partnerships. We are now working on a new project to take the impact of our work much further.

The Northern Centre for Sustainability will be a living demonstration of green building design in downtown Yellowknife, with the aim of enabling climate action across the North. An innovation hub inside the building will serve as a centre for knowledge exchange, partnership development, and research in the areas of green design and community sustainability. The initiative has been met with enthusiasm and support from local partners, stakeholders, and residents, which leaves Ecology North ready to move into the next phase of the project: developing this vision into a concrete reality. To this aim, we hired innovation experts who could help translate our ideas for the Hub into a grounded strategy for fostering new growth in the North.

The researchers, Tara and Ariana, spent a week in Yellowknife meeting with key project participants, conducting informational interviews, and facilitating a co-design community workshop. They were able to bring a new perspective to the project, along with a focused methodology for developing specifics about the Hub, its programs, and its goals. Their work here has helped create a buzz in the community, and has brought new ideas, different voices and another level of clarity to the project. We're excited to see this work taking form.

- Will Gagnon & Kristel Derkowski, Ecology North

What you will find in this report:

- Definitions of innovation and sustainability
- Examples of innovation hubs
- The challenges and needs the innovation hub could help address
- Possible hub components including a: 1) coworking space & incubator, 2) sustainability living lab, 3) makerspace & resource library, 4) programming & learning space, and 5) community living room.

Ecology North is an environmental non-profit organization based in Yellowknife, Northwest Territories, Canada formed in 1971 to support sound environmental decision-making on an individual, community, and regional level.

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1

Background

In this section we introduce key concepts and review examples of innovation hubs. We provide an overview of our research and how we engaged the community in Yellowknife to understand and imagine innovation at the Northern Centre for Sustainability.

Overview.

There is much to learn from the unique knowledge, environmental position, and inventive communities of the Canadian North. The Northern Centre for Sustainability seeks to foster, support, and share northern sustainability and inspire innovation globally.

The Northern Centre for Sustainability

The Northern Centre for Sustainability (NCFS) is a proposed carbon-negative building in downtown Yellowknife, designed to encourage cultural reflection and advance innovation for sustainability in the North and beyond. The NCFS aims to serve as a hub for knowledge transfer between remote northern communities and research partners throughout Canada and around the globe.

The NCFS is currently being developed by Ecology North in partnership with the Yellowknives Dene First Nation (YKDFN). The vision for the NCFS has been framed around the United Nations' Sustainable Development Goals, as well as local, territorial, and national sustainability goals. The proposed building also aims to meet the Living Building Challenge, the most holistic sustainable building certification.

Innovation Research

In the winter of 2019, Ecology North asked us to explore what innovation could look like at the NCFS, and the value it could bring to Yellowknife and the Northwest Territories.

The NCFS will exemplify green building practices and the space will serve as a dedicated innovation hub - bringing together disparate organizations and community members to address issues of sustainability in the North.

This report outlines our research and engagement with the community in Yellowknife with whom we collectively imagined sustainable community futures shaped by possible versions of the Northern Centre for Sustainability.

The **Sustainable Development Goals** are a collection of 17 global goals for the year 2030 covering social, environmental, and economic issues set by the United Nations General Assembly in 2015

The **Living Building Challenge** is a sustainable building certification program created by the International Living Future Institute to encourage the development of a more regenerative built environment by shifting building standards from an emphasis on doing the least harm to contribute positively to the environment

Key Concepts.

Sustainability

The NCFS will serve as a hub to encourage sustainability in the North, but what does sustainability mean, exactly? Simply put, sustainability is about living today in a way that does not compromise the ability of future generations and other life to flourish.

Though sustainability is often strongly tied to the natural environment, the needs of present and of future generations extend beyond environmental needs to economic, social, and cultural needs as well. Additionally, these resources do not stem from isolated systems; the human activities affecting the natural environment are deeply intertwined with economic and social systems. A holistic understanding of sustainability therefore includes environmental sustainability, economic sustainability, social sustainability, and cultural sustainability because none can exist in isolation and are all important in allowing for the flourishing of all future generations.

Innovation

Innovation is a widely-used term without a common definition; it can mean many different things in different contexts. Successful innovations balance feasibility, desirability, viability, and sustainability.

Innovation is about bringing a new thing of value into being.

new borrowed from elsewhere, remixed, a new combination, made new again, an alternative to business-as-usual, incremental or radical change. Novelty is contextual, so something new for some people may not feel new to others.

thing product, technology, process, service, organization, business model, etc.

value social, cultural, economic, or environmental value, or a combination of these. It might be valuable to some and not valuable to others.

into being at a personal level, at a community or organizational level, at a global level, etc.

Innovation + Sustainability

The entanglements of innovation and sustainability can commonly be broken down in two ways:

1. Sustainability innovation

Implementing new things (processes, products, services, etc.) for the purpose of addressing social, environmental, or economic sustainability issues.

This might be better understood as **innovation for sustainability**.

Examples here could be innovating to help systems sustain themselves or developing sustainable technologies, services, materials, etc.

2. Sustainable innovation

Implementing new things using processes and considerations of sustainability.

Sustainability here is integrated into how innovation is practiced, from research and development through to implementation. This might be understood as **innovation with sustainability**.

Examples here could be innovating using sustainable techniques, materials, energy, etc.

Innovation + Sustainability at the NCFS

Sustainability is an important consideration in innovation because the types of new things that are created and the ways in which they are created both matter. When new things of value are introduced and assimilated, they affect both the present world and the world of future generations. Embedding sustainability as a core concept in how and why we innovate helps develop responsible innovation practices. Responsible innovators do not innovate for the sake of innovation, they innovate with attention to the responsibility involved when bringing new things of value into the world.

Innovation Hubs.

Where does innovation happen?

Innovation can happen anywhere the environment allows. Individuals, organizations, governments, communities, and social groups can all bring new things of value into the world. Additionally, bringing together people, knowledge, and resources from different disciplines can often inspire innovation.

Innovation hubs

An innovation hub is a space specifically dedicated to inspiring its occupants to bring new ideas to life. These hubs provide resources, knowledge sharing, and incentives to inspire innovative mindsets and practices. In contrast to traditional work environments that focus on the completion of specific tasks, innovation hubs are designed intentionally to provide time and space for taking risks and experimenting. Innovation hubs often bring together people and industries that commonly work independently. We use the term “innovation hub” to refer to a space that is intentionally designed to encourage innovation but acknowledge there are many spaces that serve as such without using such a characterization.

Inspiration

An innovation hub can manifest in many different forms and models. The Northern Centre for Sustainability can draw inspiration from existing innovation hubs, adapting ideas for the northern context. On the following pages we outline three examples of hubs that encourage innovation through different models, two of which have an explicit focus on sustainability:

- NorthLight Innovation, *Whitehorse, Yukon*
- The Centre for Alternative Technology, *Powys, Wales*
- Climate Ventures, *Toronto, Ontario*



NorthLight Innovation

Whitehorse, Yukon

Established 2014

NorthLight Innovation is an innovation hub in downtown Whitehorse, housing both the first Canadian makerspace north of the 60th parallel as well as a community-driven co-working space for freelancers, entrepreneurs, and small businesses.

NorthLight Innovation is housed within a recently converted multi-tenant facility, a move made possible through support from the federal and territorial governments, and a partnership with a developer. The Yukon Development Corporation, a territorial corporation working on economic development, and Yukon College's cold climate innovation department have both moved in as anchor tenants.

The hub, which employs 10 staff and has over 170 active members, cultivates a vibrant and innovative community through programming and events like workshops, seminars, and hackathons.

Innovation models

- Makerspace
- Training: workshops, mentoring, seminars
- Repair café
- Co-working space
- Afterschool programs

Key takeaway

NorthLight Innovation has assembled government, private industry, and the public together in one space to develop novel partnerships and bring their project to life.



Centre for Alternative Technology

Powys, Wales

Established 1973

The Centre for Alternative Technology (CAT) in Wales is a demonstration and educational centre aimed at promoting sustainable ways of living. Built in the 1970s on the site of an abandoned slate quarry, the CAT is a living laboratory for experimenting and prototyping innovations in sustainable energy, housing, agriculture, and food production. As a prominent tourist attraction, the CAT allows its visitors to participate in and explore alternative lifestyles.

Beyond educating its short-term visitors, the CAT also offers residency and non-residency graduate degrees in architecture and science, as well as short skills-based courses on sustainable living such as sustainable food production, upcycling, and rewilding.

Innovation models

- Education: courses, certifications, degrees
- Tourism and demonstration
- Living laboratory

Key takeaway

The CAT provides unique, accessible, hands-on demonstrations and experiences to its visitors. Their residency-based programs allow participants to explore and prototype sustainable practices and ways of living.



Climate Ventures

Toronto, Ontario
Established 2018

Climate Ventures is a coworking space and incubator for entrepreneurs, innovators, and ventures tackling climate change. It is housed at the Centre for Social Innovation (CSI) in Toronto, creating communities and shared workspaces for entrepreneurs and organizations with social impact ambitions across sectors. Climate Ventures provides office space, a community of like-minded organizations, and sustainability-related programming like competitions and fellowships.

Climate Ventures incubates and accelerates new and emerging climate-focused ventures through mentorship, training, and networking programs. They also manage a community through events, socials, and online groups.

Innovation models

- Coworking
- Incubator/accelerator
- Fellowships
- Competition

Key takeaway

Climate Ventures has used shared knowledge and training to foster innovation while intentionally curating relationships and building community. With low capital investment from CSI, the model has created innovative partnerships and sparked climate-focused projects.

Our Research.

How might an innovation-dedicated space foster sustainable northern ways of living?

Lines of Inquiry

In order to frame innovation for sustainability within the context of Yellowknife and the Northwest Territories and understand what it might look like within the proposed NCFS, we oriented our research around the following lines of inquiry:

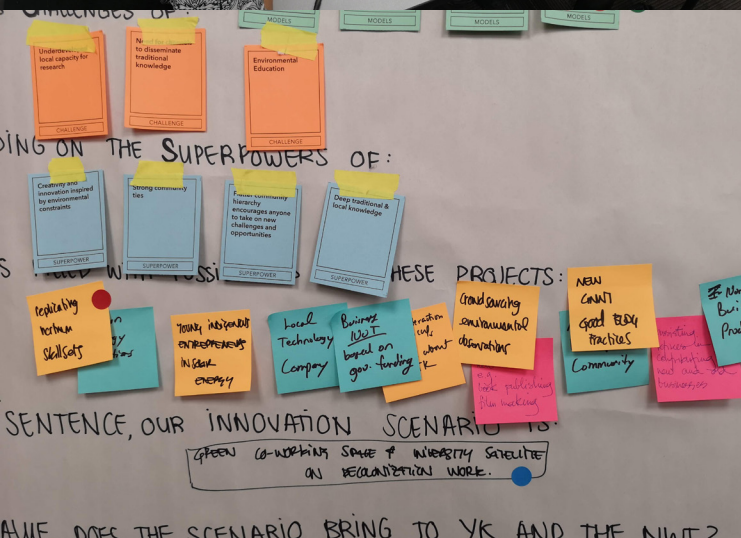
- **What does sustainable innovation mean** to Yellowknife and the Northwest Territories?
- What **current challenges** could innovation for sustainability address in Yellowknife and the Northwest Territories?
- What **existing strengths** provide opportunities for innovation?
- **What might happen at the NCFS** to encourage innovation?

The Toolkit

The outputs from our multi-phase community engagement allowed us to co-design our recommendation for what the NCFS might look like and what might happen there to promote innovation for sustainability.

We employed a variety of primary research methods:

- **spending time in the community** and gathering insights through informal discussions
- **exploratory interviews** conducted with a diverse representation of potential users and partners of the NCFS
- a **co-design workshop** to generate ideas for how the NCFS as an innovative space might address specific community challenges



Interviews

Purpose

- to understand innovation within the specific context of Yellowknife and the Northwest Territories by gathering perspectives from a variety of organizations, local businesses, and community members
- to inform the design of the workshop

Participants

We conducted 10 interviews with representatives from Ecology North, the City of Yellowknife, the Government of the Northwest Territories, private businesses, the Yellowknives Dene First Nation, and the community.

Co-Design Workshop

Purpose

- to better understand and frame community challenges, needs, and strengths
- to collectively imagine which innovation models, activities, and practices at the NCFs would bring the greatest value to communities in Yellowknife and the Northwest Territories
- to co-design principles for a successful innovation space to be used in our recommendations

Participants

We recruited workshop participants through our interviewees, word-of-mouth, public posters, and Ecology North's network and circulation channels.

We had 20 participants attend, divided into 5 groups. Our participants came from government, the private sector, non-profit organizations, education and academia, or were retired. Each group was managed by a facilitator with deep knowledge of the project.

Activity 1: Who's here?

Our co-design workshop brought together a diverse group of stakeholders from the Yellowknife community. We began with an icebreaker activity to see who was in the room.

Activity 2: Where do you stand?

Participants reflected on the future of innovation in Yellowknife, and their power to participate in creating their community's future.

Activity 3: Innovation Scenarios

In mixed groups, participants were guided through an exercise intended to help them collaboratively propose a model for a community innovation space. Each group put together a vision for innovation at the NCFS, building upon three framing parameters:

1. Innovation Models

Activities, programs, partnerships, or resources that could encourage innovation at the NCFS

2. Challenges

Challenges the innovation hub could help address

3. Superpowers

Unique strengths of the community to be leveraged in the development and ongoing flourishing of the NCFS innovation hub

Activity 4: Pitch & Reflect

These scenarios were then presented back to the group as a whole for discussion and reflection.



2

Context

In this section, we discuss the specific context of Yellowknife and the Northwest Territories. With an understanding of the place-based history, challenges, needs, and strengths, we begin formulate a vision for innovation at the Northern Centre for Sustainability.

Place.

While the NCFS is an emerging project, it will be situated within a complex history of deep connection between people and land. For the Indigenous peoples of Yellowknife and the Northwest Territories, the land is valued as a primary source of education, spirituality, culture, history, and livelihood, as well as a defining part of community identities.

Yellowknife *Sòmbak'è*

Yellowknife is the capital of the Northwest Territories, located in the traditional territory of the Yellowknives Dene First Nation (YKDFN) on the northern shore of Great Slave Lake. The population is around 20,000 with a significant proportion identifying as Indigenous. Just outside of the City of Yellowknife are Ndilq̓ and Dettah, two communities governed by the YKDFN.

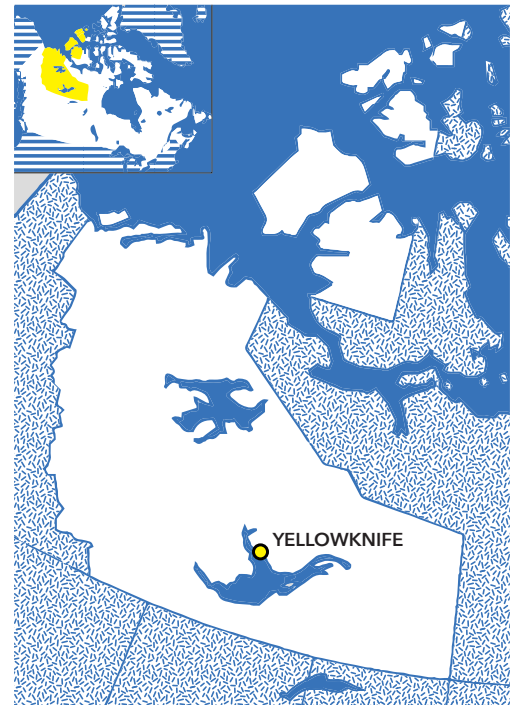
Yellowknife was settled by gold prospectors in the 1930s and grew into a municipality around that industry. While the gold mines have since shut down, the city has developed as a hub for government services. The mining industry was revitalized in the 1990s with the discovery of nearby diamonds, and tourism, communications, and transportation have also emerged as major industries.

Yellowknife's unique climate boasts the longest snow cover and coldest winter of any Canadian city, and the sunniest spring and summer.

Northwest Territories *Denendeh*

The Northwest Territories is a federal territory in the Canadian North. It covers an estimated 14% of Canada's land mass and has a population of over 40,000, about half of whom identify as Aboriginal (which includes First Nations, Inuit, and Métis peoples).

The Northwest Territories' economy currently largely revolves around natural resource extraction, including mining, and oil and gas extraction.



Challenges & Needs.

What needs and challenges might the NCFS address?

The following needs and challenges in Yellowknife and the Northwest Territories are based on insights from our research with community, as well as from these documents on the right:

- **GNWT** Knowledge Agenda with research priorities for the NWT
- **CANNOR-SINED** Priorities from the Canadian Northern Economic Development Agency
- **City of Yellowknife** Goals and objectives from 2016-2018
- **YKDFN** Annual report

1. Climate action and environmental stewardship

- Healthy and resilient ecosystems
- Environmental education
- Mitigation of ongoing environmental impacts from industrial projects

3. Economic diversification

- Reduction of dependency on resource-based activities and resulting market fluctuations
- Responsible development of renewable and non-renewable resources
- Local production of food and other resources
- Adaptation of existing technologies for the northern context

5. Thriving, desirable, resilient communities

- Downtown revitalization in Yellowknife
- Continued development of the North as desirable place to stay

2. Decolonization

- Indigenous autonomy and ownership
- Cultural sustainability and cultural safety
- Collaboration on Indigenous priorities
- Maintenance of the health and sovereignty of Indigenous communities

4. Build northern capacities

- Increased local capacity for research
- Expertise in emerging technology
- Education and training to prepare for future jobs, industries, and lifestyles
- Development of forward-looking infrastructure

6. Understand, support, and share cultural knowledge

- Develop channels to disseminate and cultivate local and traditional knowledge in the contemporary context
- Increased communication between communities, businesses, and services
- Assertion of northern concepts and ideas

Strengths.

The place in which the NCFS will be situated provides opportunities to leverage existing strengths toward a unique, place-specific definition of innovation.

Through our interviews, co-design workshop, and casual interactions with community members in Yellowknife, we heard so much about what makes this place unique as a context for innovation.

1. Eco-literacy

- Deep traditional and local knowledge building on a history of Indigenous land stewardship
- Recognition that human well-being is dependent on healthy environmental, social, and ecological systems

2. Strong community

- Tightly connected and embracing community
- Flatter community hierarchies encourage anyone to take on new challenges and opportunities
- Deep sense of community pride
- Spirit of sharing and support that encourages collaborative access to services, goods, and resources

3. Innovation inspired by unique environment

- Creativity and innovation inspired by extreme environmental constraints
- History of entrepreneurial mindsets
- Transient nature of major industries provides an ongoing influx of interesting people

3

Concept

In this section we illustrate what innovation might look like concretely at the Northern Centre for Sustainability. Using the innovation models we co-designed and co-generated through our community engagements, we propose a concept for how the NCFS might leverage community strengths and address community challenges through a combination of possible components.

Overview.

Now that we have explored the opportunities for an innovation hub in Yellowknife, what might it look like in practice?

The building housing the Northern Centre for Sustainability has been envisioned as carbon-negative, constructed from responsible materials, with passive heating and cooling, solar panels, a water purification system, and possible elements like a rooftop greenhouse or garden. The building will be innovative in and of itself, but innovation at the NCFS aims to go beyond the physical building to permeate the activities that take place within it. What will these activities and innovation practices look like? What will happen inside and around the NCFS to promote innovation?

The proposed NCFS will house offices for Ecology North and the Yellowknives Dene First Nation, as well as other organizations, businesses, researchers, and community members. The innovation practices will be rooted in collaboration and the northern context to develop local solutions to local (and global) problems. Programming will emphasize the centre as a space for education and inspiration. Importantly, the NCFS will emphasize decolonization by recognizing that Indigenous peoples are deep experts in sustainability and place-based and relational lifestyles. The YKDFN will be leaders in the design and innovation programming at the NCFS.

Innovation Intent

advance sustainable ways of living in the North for a pristine and healthy environment, economy, society, and culture

Potential Innovation Focus Area



Housing



Culture,
Tradition, & Arts



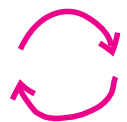
Food



Transportation



Energy



Sharing
Economy

Aspirations.

Through our community engagement, we co-developed aspirations for innovation at the Northern Centre for Sustainability.

1. Be a source of inspiration

Serve as an example of what is possible in sustainability-oriented innovation for all of Canada and beyond, and inspire greener lifestyles and alternative futures.

2. Promote northern self-sufficiency

Strengthen the people, ideas, and resources of the North by relocalizing through place-based initiatives grounded in northern resourcefulness and traditions.

3. Reskill for the green economy

Focus on training skills for sustainable lifestyles. Build capacities to repair and maintain sustainable technologies and prepare people for existing and future jobs.

4. Provide a space for conversation

Create accessible and high-quality commercial and community space where impact-oriented people can mix, intergenerationally, interculturally, and interdisciplinarily.

5. Build collaborative partnerships

Build bridges between organizations and communities, and establish relationships around a collective investment in sustainability. Put indigenous-led innovation at the centre.

6. Develop the commons

Develop and govern shared physical, cultural, and intellectual resources that are openly available to the community to promote new forms of ownership, sharing, and relating.

7. Make innovation inclusive

Empower the community and people at the margins to innovate through inclusive and accessible space and programs. Lower the barrier to entry for entrepreneurship.

8. Reflect on knowledge and culture

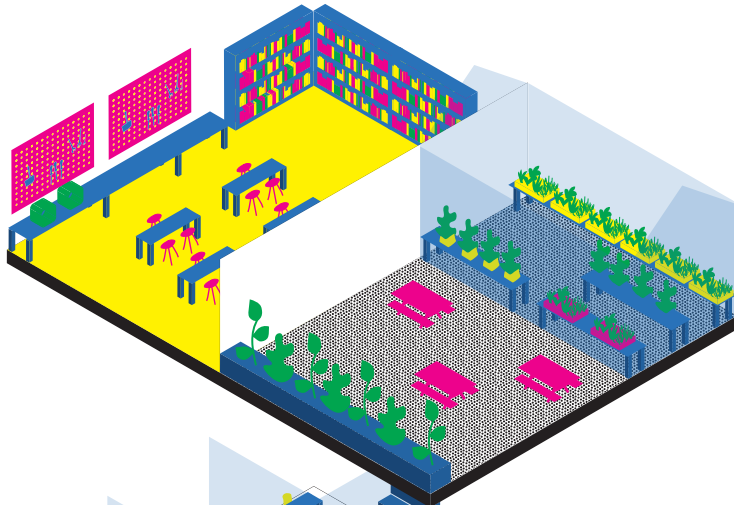
Properly care for and develop situated and traditional knowledge relevant to contemporary sustainable Northern living.

9. Co-generate community futures

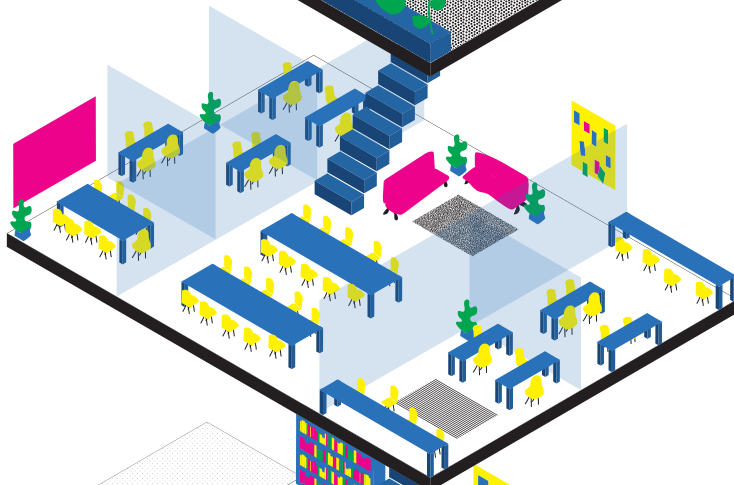
Provide a flexible space that will grow and adapt as the community and its context changes, guided by an explicit, co-created vision of sustainable community futures.

Proposed Components.

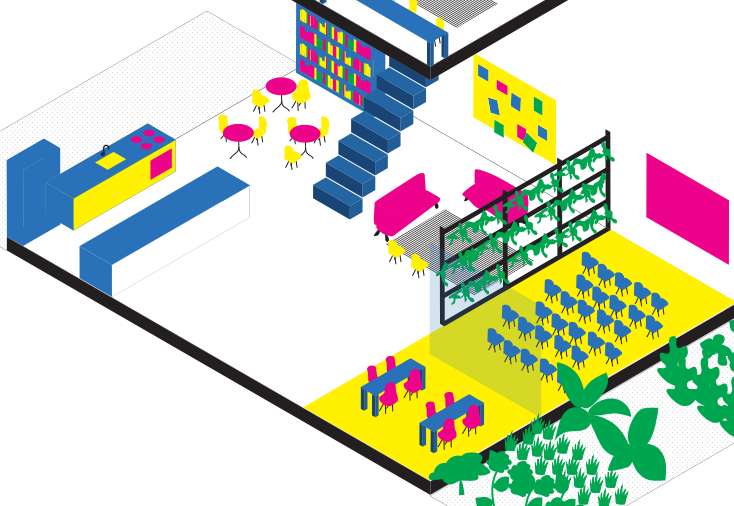
Here we outline the 5 models to encourage innovation that were routinely envisioned during our community engagements.



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Sustainable Living Laboratory p. 23



Makerspace & Resource Library p. 24

Space for Training & Programming p. 25

Community Living Room p. 26

Coworking Space & Incubator

An NCFS coworking space would be a shared office space with communal workplace resources, used by a variety of organizations and individuals with a common interest in sustainability. With a flexible combination of private offices and open desks, the space would be able to accommodate the diverse needs of its occupants. Resources like meeting rooms and office equipment would also be provided.

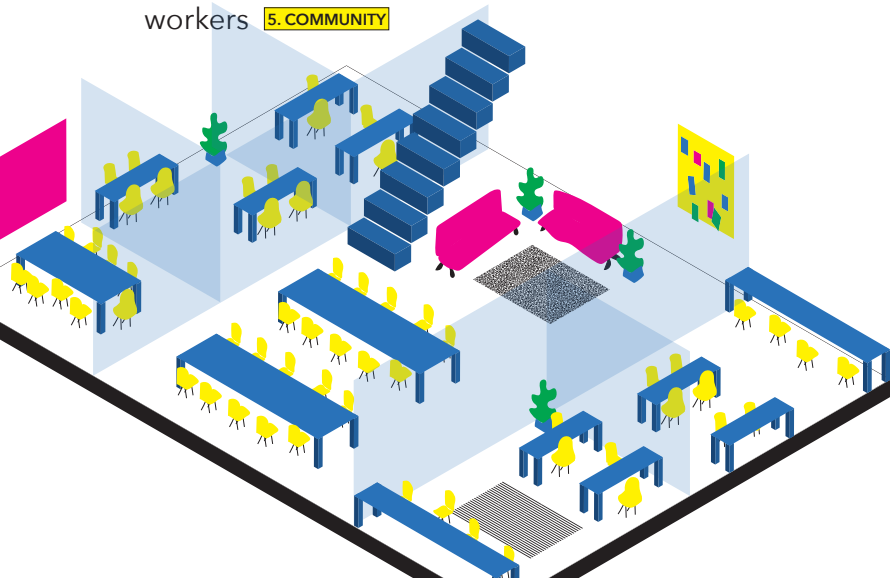
Beyond the shared physical resources, the coworking space would provide shared human resources as well, such as mentorship or grant writing training to encourage and incubate new business ideas and sustainability initiatives.

As a shared space, it is also a social space. The community created through physical proximity will allow for knowledge to diffuse through the conversations between the occupants. Beyond housing the offices of Ecology North and the YKDFN, potential occupants might include workers from all levels of government, researchers and academics, and other local businesses, organizations, and community members.

Value

CHALLENGE *each value corresponds to challenges the NCFS could address (p. 16)*

- Encourage entrepreneurship and intrapreneurship **3. ECONOMIC**
- Share knowledge and collaborate across groups that are normally segregated **5. COMMUNITY** **6. KNOWLEDGE**
- Develop local capacity for research and keep research outputs in the North **4. CAPACITY**
- Provide a high-quality and affordable working space **5. COMMUNITY**
- Lower operating costs for organizations through the shared workplace resources **3. ECONOMIC** **5. COMMUNITY**
- Create a community and relieve the isolation of independent workers **5. COMMUNITY**



Potential Activities

- University research in collaboration with emerging ventures
- Cross-governmental hub for all levels of government to work together on issues of sustainability
- Training on how to write grants or investment proposals
- Meetups and events to cross-pollinate ideas between organizations and individuals working in the space
- Networking events

Key Players

- Local organizations and businesses
- Local satellites of larger, non-local organizations
- YKDFN
- Universities and researchers
- Government
- Entrepreneurs
- Independent workers

Inspiration

- Climate Ventures at the Centre for Social Innovation, Toronto

Sustainable Living Laboratory

The NCFS would promote innovation by acting as a living laboratory for prototyping, testing, and refining sustainable building, technology, and process innovations. Many of the innovations housed there would be new to the North, so the NCFS can act as a model for good building practices for other northern dwellings. The building itself will be used as a tool for learning about the design, repair, and the maintenance of sustainable technologies.

The NCFS could experiment with local food production and preparation through urban agriculture and an experimental kitchen, including elements like a rooftop garden, greenhouse, or indoor agriculture. The bathrooms and water systems could serve as prototypes for alternative waste management and water recycling initiatives. Renewable energy technologies like solar panels could also be put to the test. Beyond innovative technologies, the NCFS would experiment with sustainable social practices like the sharing economy, helping those ideas diffuse into the community.

Value

CHALLENGE each value corresponds to challenges the NCFS could address (p. 16)

- Advance Northern food security by encouraging healthy local food production **1. ENVIRONMENT** **3. ECONOMIC**
- Provide an environment in the North for training in sustainable building design and maintenance **1. ENVIRONMENT** **3. ECONOMIC** **4. CAPACITY**
- Put sustainable building innovations to the test and improve them for the Northern context **1. ENVIRONMENT**
- Demonstrate how cost of living can be reduced through low energy and utility usage **1. ENVIRONMENT** **3. ECONOMIC** **5. COMMUNITY**

Potential Activities

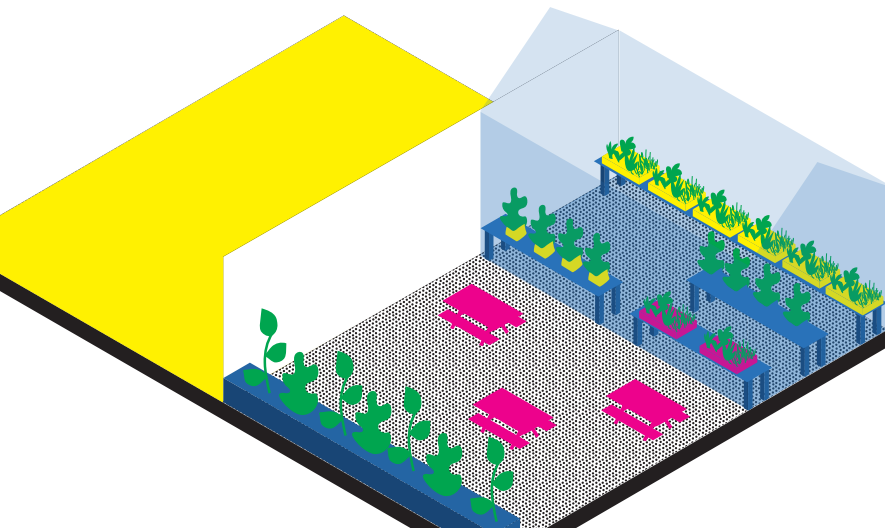
- Northern cooking show that utilizes local food production and shares traditional food knowledge situated in a contemporary context
- Food skills training for youth, to learn to cook, hunt, grow, in partnership with retirees or other volunteers
- Community test kitchen, way to get entrepreneurial businesses off the ground and strengthen the local market
- Greenhouse program to teach and encourage gardening and local food production

Key Players

- Universities and researchers
- Yellowknives Dene First Nation
- Entrepreneurs
- Community members

Inspiration

- MonViso Institute, *Ostana, Italy*
- The Centre for Alternative Technology, *Powys, Wales*



Makerspace & Resource Library

A makerspace and resource library would provide tools and materials to develop and practice skills related to sustainable ways of living in the North. It could provide tools and training for a variety of making disciplines such as carpentry, metal work, digital fabrication, electronics, video production, and fibre arts. The space would promote local production of goods, and training for new and old making traditions.

The makerspace and library would provide tools and resources that might normally be unavailable to community members, allowing them to work on otherwise inaccessible projects and personal innovations, and potentially begin to develop them commercially. By creating a sharing economy around these tools and resources, the NCFS would help to lower the material burden of the community since individuals would have an option to borrow rather than own. Finally, it would provide a space for a community of local makers and fabricators to come together and collaborate.

Value

CHALLENGE each value corresponds to challenges the NCFS could address (p. 16)

- Develop and assert northern concepts and goods **3. ECONOMIC**
- Produce goods and technologies locally and adapt existing products for the northern context **1. ENVIRONMENT** **3. ECONOMIC**
- Help new small businesses to emerge **3. ECONOMIC**
- Lower community material intensity through shared resources and tools **1. ENVIRONMENT**
- Provide space and resources for traditional knowledge and making practices to be shared and cultivated **6. KNOWLEDGE**

Potential Activities

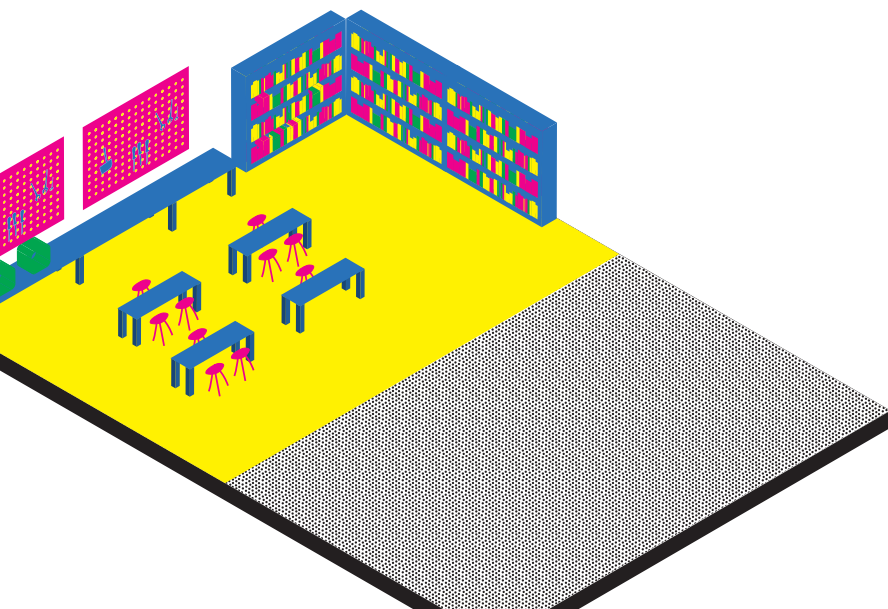
- Prototyping of sustainable furniture or clothing made from local materials
- Strengthening of traditional skills, instructing youth in traditional ways of making
- Tool and supply lending program to help community members take on their own sustainability projects at home
- Seed library

Key Players

- Community members
- Students
- Entrepreneurs
- Yellowknives Dene First Nation

Inspiration

- Toronto Tool Library, *Toronto*
- YuKonstruct, *Whitehorse*



Training & Programming Space

A flexible, shared space for training and programming would enable continuing education and training around sustainability. Though the Yellowknives Dene First Nation and various community groups currently organize workshops and training related to sustainability, a designated downtown space with shared resources and facilities would strengthen the capacity of the entire community to engage in this type of programming and position Yellowknife as a leader in Indigenous-informed sustainability education.

A programming space might have technology to allow for lectures, symposia, or workshops to be shared virtually with other communities. This would allow for more broadly disseminated knowledge and research while using resources efficiently and lowering the barriers to accessing sustainability education.

The space could also be used for sustainability-oriented activities like hackathons, competitions, or residency and fellowship programs.

Value

CHALLENGE each value corresponds to challenges the NCFS could address (p. 16)

- Provide high-quality space for education **5. COMMUNITY**
- Develop local education and training capacity **4. CAPACITY**
- Develop local skills for the green economy **3. ECONOMIC 4. CAPACITY**
- Share research that is being done in the North **4. CAPACITY**
- Reduce travel costs and environmental costs for conferences and other sustainability-related gatherings **1. ENVIRONMENT 6. KNOWLEDGE**

Potential Activities

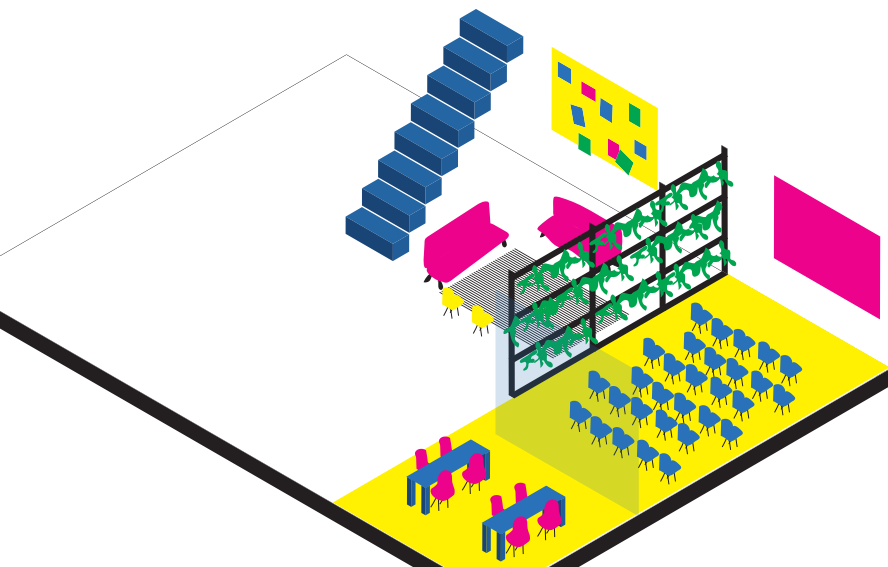
- Hackathons
- Competitions
- Conferences
- Residency program
- Apprenticeship program
- University satellite: offer certificates and education with a northern focus
- Lecture series

Key Players

- Local organizations and businesses
- Yellowknives Dene First Nation
- Universities and researchers
- Government
- Community members
- Students
- Teachers

Inspiration

- Evergreen Brickworks, Toronto
- Hult Prize



Community Living Room

By functioning as a “community living room,” the NCFS would provide a much needed inclusive community space. Community living room models are designed to be welcoming to all and make a space feel engaging and comfortable. Winter months in such a northern climate make the need for an indoor social, communal space especially important.

By encouraging natural, casual interactions, the space could foster community engagement with initiatives from government offices or organizations housed in the building and provide a common location to learn about and contribute to community goings-on. The community living room would be housed on the ground floor of the NCFS, making the building a place that is immediately inviting to everyone and allowing conversations oriented around sustainability to imbue even casual discussions.

Value

CHALLENGE each value corresponds to challenges the NCFS could address (p. 16)

- Create high-quality indoor communal space **5. COMMUNITY**
- Facilitate engagement between community members and groups that do not normally have the opportunity to interact **6. KNOWLEDGE**
- Strengthen community integration **5. COMMUNITY**
- Help revitalize downtown Yellowknife **5. COMMUNITY**
- Get visitors interested in sustainability and environmental education by attracting them to a space where their community regularly gathers **1. ENVIRONMENT**

Potential Activities

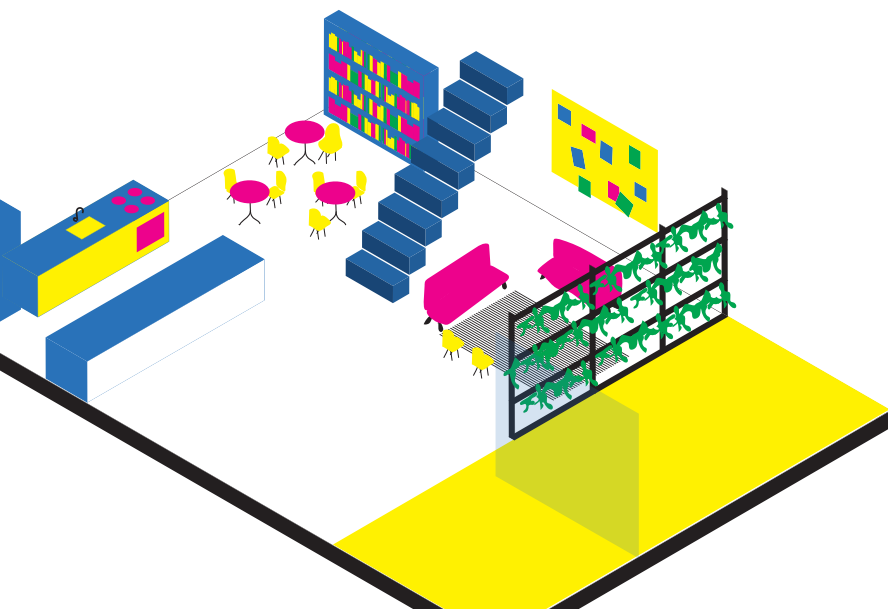
- Community cafe to test outputs of the sustainable kitchen/greenhouse
- Book club
- Interactive news bulletins
- Community messages and inspiration wall
- Sustainability-related games and activities for kids
- Space rental for events

Key Players

- Community members
- Government
- Activists
- Children and youth

Inspiration

- Community centres
- Libraries
- Cafes



4

Conclusion

In this section we reflect on our research and discuss next steps to ensure an innovative future for Yellowknife and the Northwest Territories through the Northern Centre for Sustainability

Reflections & Next Steps.

At a time when climate action and sustainable ways of living are increasingly urgent and important, dedicated spaces for sustainable innovation have the potential to bring communities together to offer creative, interdisciplinary, and novel approaches to complex problems. There is a clear need and enthusiasm for such a space in Yellowknife, and the NCFS can provide value to the Northwest Territories by creating an industry around sustainability innovation, and to the North more broadly by serving as a model for sustainable northern lifestyles and building practices. We have outlined a proposal for what innovation at the NCFS could look like based on an initial series of community engagements.

The strong presence and long history of Indigenous environmental stewardship in and around Yellowknife and the Northwest Territories provides a deep foundation for sustainability upon which an innovation hub can build. We see Indigenous leadership and ownership as a crucial component of the NCFS and an opportunity to model how sustainability centres around the world might partner with Indigenous communities and honour Indigenous knowledge and practices.

Because of the unique partnerships within the NCFS, it will be important to understand and design intentionally around differences in history, power, and needs between the occupants of the space. This will require the ongoing building of relationships and actively involving all NCFS participants in the development of the space.

Conclusion

Though bringing the NCFS to life will rely on investment and capital sources, it is clear from the enthusiasm and buy-in from the community that there is a widespread desire for this type of space and willingness to make it happen. The NCFS has the potential to create value by creating:

- jobs and activities for youth currently leaving for elsewhere
- a more diversified economy by providing an alternative industry to mining and tourism
- an inclusive community space intentionally designed to build upon the community's strengths and culture

The potential for real impact goes beyond Yellowknife, however. The NCFS has the potential to serve as a model for sustainability in northern climates and Indigenous-led sustainability initiatives. Projects generated within the space may begin in Yellowknife, but they can lead and spark innovation around the world.

Innovation at the Northern Centre for Sustainability

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