



INDUSTRIAL INNOVATION SPACES

*Enhancing Industrial
Economies in
Vancouver*

March 2018

This report was produced for the Vancouver Economic Commission (VEC) as part of the Planning Studio Course at UBC's School of Community and Regional Planning (SCARP).

This project was conducted in partnership with VEC staff and under the mentorship of SCARP faculty.



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About the SCARP Planning Studio

SCARP's planning studio (PLAN 526) is an intensive, eight-month, professionally-oriented course in which graduate students partner with a community, municipal, and private sector organizations to identify problems and propose solutions. Students work in teams with complementary skills and abilities, drawing upon their own life experiences and the cumulative academic learning from their other courses.

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EXECUTIVE SUMMARY

This report focuses on the challenges and opportunities of industrial enterprises in Vancouver and aims to explore the feasibility for sustainable and affordable industrial innovation spaces in the False Creek Flats, and throughout the city. It provides robust definitions of three types of industrial innovation spaces — Co-location Hubs, Commercialization Spaces, and Economic Community Centres — through case studies of eight precedent models from across North America to explore their usefulness in supporting industrial innovators. Ultimately, this report contributes to a city-wide policy and investment framework being developed by the **Vancouver Economic Commission** and the City of Vancouver: the Industrial Innovation Affordability Initiative.

Vancouver is an emerging global destination in technology and innovation industries, yet only 6% of Vancouver's land base is industrial land, and there is a 1.2% vacancy rate for light industrial space. These land constraints and a general lack of greenfield sites in the Metro Vancouver region resulted in a 50% increase in industrial land values between 2015 and 2016 and doubling of lease rates between 2012 and 2017. In addition to this, industrial spaces are under threat from land speculation and other development interests, particularly residential uses.

To address this issue, VEC together with the City of Vancouver launched the Industrial Innovation Affordability Initiative to ensure the sustainability of innovation spaces that are deemed critical to supporting the emerging industrial enterprises in the city.

The project team studied eight precedents of industrial innovation spaces based on their governance model, financing structure, policy support received, programming offered, space characteristics, and sustainability impacts. The outcomes found that, in general, industrial innovation spaces:

- directly contribute to economic development initiatives through high value, low-barrier job creation,
- reduce overhead costs of tenant businesses by sharing resources, and
- create business opportunities.

VANCOUVER ECONOMIC COMMISSION

The **Vancouver Economic Commission (VEC)** is Vancouver's economic development agency, working to position Vancouver as a globally recognised city for innovative, creative, and sustainable business.

Combined with their previous research and initiatives, VEC's Sustainable Community Development department has helped this project define, understand, and reveal pathways for the implementation of industrial innovation spaces in Vancouver's industrial core, contributing to the overall policy and investment framework for the Industrial Innovation Affordability Initiative.

Industrial innovators are “artisanal manufacturers that are doing small-batch production, clean technology startups that need space to prototype, and design and development firms such as those in biosciences, product design, and advanced Manufacturing.” - *The Flats Economic Development Strategy*, VEC

Industrial innovation spaces are “innovative forms of mixed use developments that combine industrial and non-industrial uses, unique parking solutions that require less land and can be utilized around the clock for a diversity of uses, and the activation of underutilized spaces for temporary or seasonal economic activity.” - *The Flats Economic Development Strategy*, VEC

VEC has identified three types of industrial innovation spaces that are deemed critical to supporting emerging industrial enterprises in the Flats: co-location hubs, commercialization spaces, and economic community centres.

Co-location Hubs are light industrial spaces shared by independent, complementary businesses, and social enterprises. They primarily offer shared spatial amenities and come in both for-profit and non-profit forms, with significant capital required from multiple financing sources for startup and operations. Those jurisdictions where industrial land use policies allow for co-location see more successful innovative spaces, the size and style of which varies with the local demand, but most buildings are re-purposed, low-rise with high ceilings to accommodate large equipment. These spaces stimulate industrial employment and create low-barrier jobs with wages higher than those in retail or service industries.

Commercialization Spaces are incubator and accelerator spaces that serve a specific light industrial sector by providing shared resources like equipment, amenities, and mentorship. These typically have agile governance structures that rely heavily on partnerships. Mixed financing models with the need for government support are common, with support coming from local economic development agencies. Programming is Commercialization Spaces' strength, which typically includes access to workshops, education, networking, equipment, and more. Access to a large amount of space and multiple locations is necessary for their success and their greatest community impact is economic, rather than environmental or social.

Economic Community Centres are shared spaces and services that are open and accessible for supporting entrepreneurship, skills-training, employment, and networking among its members and the community at large. Our precedents were both for-profit businesses, yet had visions committed to sharing and collaboration. The majority of overhead costs are covered by membership fees for space and equipment rentals. 24/7 access to permanent and on-demand workspaces accommodate different operator and project sizes and budgets. A focus on local production attracts contract workers, hobbyists, part-time makers, and community-oriented members looking to use the shared amenities for special projects or events. Policy does not play a significant role in these business models.

These three models prove that there is value in bringing and retaining light industrial innovation spaces in the City; however, getting themselves established involved overcoming many challenges. Supporting institutions are often unable to help because they are not familiar with the viability of these light industrial innovation business models. Despite this, some have managed to survive without external support, but the more established ones have benefited from various partnerships and financial support from the government. This poses a lesson to the City to facilitate the development of Vancouver's industrial innovation economy through institutionalizing the role of an Industrial Concierge who would serve as a conduit to industrial innovators and the City, and involve supporting institutions as well. Further research on revising zoning bylaws and the contributions and sustainability elements of innovation spaces would help justify the need to protect these spaces.

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INTRODUCTION

Vancouver currently has the fastest growing economy in Canada,^{1,2} with a robust technology cluster and associated industries.³ This healthy economic climate has benefited from the City of Vancouver's efforts to position itself as the Greenest City in the world. The City is working on doubling the number of green jobs by 2020.⁴ Similarly, the Vancouver Economic Commission (VEC) created the **Vancouver Economic Action Strategy** to support local prosperity and innovation. One of its three major initiatives is to create an environment for sustainable economic growth by leveraging opportunities to promote innovation and partnerships, and to protect, enhance, and densify employment spaces.

Vancouver is now striving to become a global destination for technology and innovation economy industries and talent.^{5,6} Innovation economies are comprised of startups, local and multinational corporations, light industrial manufacturing, and research and design for products in fields like augmented/virtual reality and autonomous vehicles. These economies are the next step forward for cities as they harness the social and knowledge capital centralized in their urban cores. Innovation industries work best when located in close proximity to one another, and municipalities across the globe are updating their policies to reflect this and guide the development of innovation hubs and districts.

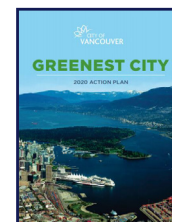
In innovation-friendly cities like Toronto and New York, zoning bylaws are being updated to allow for multi-tenant co-location spaces, which help non-profit innovators, social enterprises, and startups reduce their costs while enjoying the benefits of being in proximity to like-minded businesses and complementary services. These forward-thinking policies allow for projects that attract innovators, which in turn increases the profile of a city's competitiveness in the global marketplace.⁷

Protecting a city's industrial land base is essential to the success of their economic initiatives because it is where diverse jobs of different income and skills levels can operate. In Vancouver, industrial land currently accounts for only 6% of the city's land mix.⁸ Yet, in 2010, more than a quarter of Metro Vancouver's jobs were dependent upon industrial lands.⁹ Stabilizing the industrial land base within the city will increase its productive contribution, helping to secure the sustainable future of Vancouver's diverse economy.



Metro Vancouver 2040 Regional Growth Strategy (2011)

Focuses on land use policies to guide the pattern and form of development across Metro Vancouver. It is critical in maintaining harmony with nature, fostering community well-being, and ensuring economic prosperity.



City of Vancouver Greenest City 2020 Action Plan (2011)

Sets the course toward realizing a healthy, prosperous, and resilient future for Vancouver by achieving a green economy, zero waste, access to nature, and local food targets.



Vancouver Economic Action Strategy (2011)

Works to enhance the economic performance of Vancouver over the coming years, with special attention paid to Vancouver's high-growth innovation sectors.

VANCOUVER is an emerging global destination in technology and innovation industries, but several barriers exist for startup businesses to establish themselves in the city.

6%

of Vancouver's land base is industrial

1.2%

vacancy rate for light industrial space

50%

increase in industrial land values between 2015 and 2016

Metro Vancouver's **2040 Regional Growth Strategy** and the City of Vancouver's **Greenest City 2020 Action Plan** highlight the importance of protecting Vancouver's industrial land base and promoting opportunities for innovative green businesses and social enterprises. Aligned with these strategies, the **False Creek Flats Area Plan** and the **Flats Economic Development Strategy** outline how to preserve and enhance one of Vancouver's most central industrial districts, the False Creek Flats (the Flats).

The False Creek Flats Area Plan, approved by Council in May 2017, aims to intensify employment opportunities in the area. In July 2017, the Plan was brought to City Council chambers a second time with robust provisions essential for delivering innovative light industrial employment spaces. Given the recognition and protection of the Flats' industrial lands, this report focuses on the area, but aims to inform policy directions for the wider city.

Bound by Main Street to the West, Clark Drive to the East, Prior Street to the North, and Great Northern Way to the South, the Flats is located in close proximity to Vancouver's Central Business District (Figure 1). It is a 450 acre industrial district composed primarily of non-residential zoning to favour land uses that support employment. It makes up 15% of Vancouver's industrial land base and provides 10% of Vancouver's wholesale, manufacturing, and waste management jobs. Combining creative, artistic, and green businesses, there are more than 600 thriving and diverse businesses that provide over 8,000 jobs in the area.¹⁰

Employment in the Flats is expected to triple to over 30,000 jobs in the next 30 years.¹¹ In addition to increasing economic opportunities



Figure 1. False Creek Flats area boundaries

THE FLATS is one of Vancouver's most central industrial districts, providing a significant industrial land and employment base.

15%

of Vancouver's industrial land base

10%

of Vancouver's wholesale, manufacturing, and waste management jobs

30,000+

jobs anticipated by 2042, up from 8,000 jobs in 2017

100%

increase in lease rate values between 2012 and 2017



False Creek Flats Area Plan (2017)

Is a framework to harness unique opportunities, create employment, and realize hidden potential to support both the businesses leading the economy today, as well as those poised to alter the economic landscape tomorrow.



The Flats Economic Development Strategy (2017)

Outlines how the Flats industrial district can accommodate mixed-use development and higher employment densities while protecting the light industrial role the Flats currently plays in our local economy.

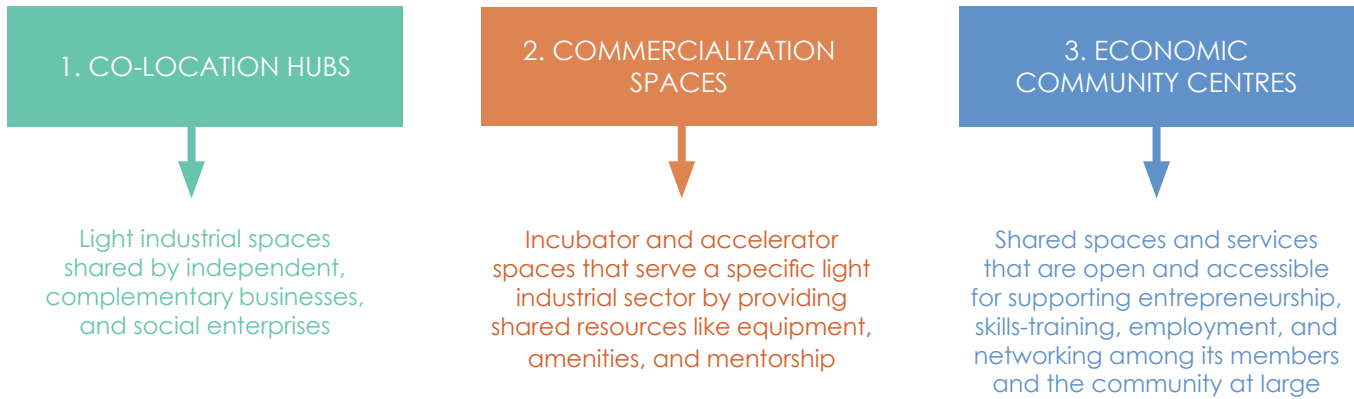
in the Flats, there is growing competition for light industrial and service-commercial spaces and a need for affordable industrial space and manufacturing facilities in Vancouver.¹² However, the City of Vancouver's industrial land base has significantly eroded over the last several decades, and industrial land values in the Flats rose by 50% between 2015 and 2016, with lease rates having increased by up to 100% from 2012 to 2017.¹³ Combined, these trends threaten the viability of diverse industrial activities near the urban core and the future of a sustainable economy, locally and regionally.

Over the past 15 years, there has been a shift away from businesses occupying large spaces (over 20,000 square feet) to businesses occupying small and medium-sized spaces

(below 10,000 square feet) in Vancouver.¹⁴ Anticipating a three-fold increase in the amount of jobs in the Flats by 2042, VEC is seeking ways to accommodate industrial and commercial mixed-use development and higher employment densities while also protecting the affordability and availability of light industrial spaces.

Although there is considerable literature on industrial land policy and development, there is a lack of available data on the space needs for new forms of industrial spaces across North America. This report addresses the urgent need to understand the breadth and depth of support required for startup industrial innovators to successfully establish themselves in the Flats.

VEC has identified three types of industrial innovation spaces that are deemed critical to supporting emerging industrial enterprises in the Flats:



The **goal of this report** is to contribute to the **Industrial Innovation Affordability Initiative**, a city-wide policy and investment framework being developed by VEC and the City of Vancouver to address the affordability of light industrial space. The research focuses on challenges and opportunities in the Flats, and aims to explore the feasibility for sustainable and affordable industrial innovation spaces in the Flats and throughout Vancouver.

Affordability of industrial space is an issue not only in the Flats, but across all of Vancouver. The **Industrial Innovation Affordability Initiative** is a city-wide initiative to develop an investment and policy framework to support and secure affordable industrial spaces. Research and a city task force will assist in identifying the role of the city in enhancing the affordability of industrial space.

RESEARCH APPROACH

This research is divided into two parts:

1. understanding the needs of industrial innovators to overcome the barriers they face, and
2. investigating established precedent models to learn about their drivers of success and what opportunities exist for the City of Vancouver to better support industrial innovators.

1. UNDERSTANDING THE NEEDS OF INDUSTRIAL INNOVATORS

At the outset of this project, our team focused on identifying the barriers industrial innovators have faced when trying to setup an innovation space in Vancouver as well as the demand for innovation spaces in the Flats. This was pursued through stakeholder engagement sessions with the founders of two local startup organizations looking to begin operating in the Flats: **Nestworks** and the **Upcycle Materials Hub**. The former organization is categorized under the commercialization space typology, and the latter is categorized under the co-location hub typology.

Through these engagements, the project team was able to gather insights on the current needs and experiences of entrepreneurs and businesses looking to locate their innovation organizations in the Flats and elsewhere in Vancouver. No consultation was done for the Economic Community Centre typology as there is not yet a precedent model with the characteristics outlined in this study.

Preliminary results from Nestworks' ongoing market survey indicated a demand for co-working and low-cost industrial spaces among small businesses in Vancouver. The results show that the majority of the respondents are self-employed individuals who currently make use of their home office (39%) or coffee shops (22%) as their place of work, so they are used to spending a minimal amount of money on workspace. When asked what they need to be able to produce their creative goods (Figure 2), a makerspace and office were at the top of the list, while other amenities such as a kitchen, storage, communal space, and childcare were also indicated by a few.

Nestworks is a vision for a family-friendly, shared office, warehouse, co-working, event rental, and makerspace in Vancouver. It enables Vancouver-based entrepreneurs and parents to capitalize on efficiencies through shared workspace and amenities, while providing an opportunity to integrate child care while at work.

Upcycle Materials Hub is a shared R&D, wood processing, training, and distribution facility for emerging businesses and non-profits in deconstruction, material recovery, remanufacturing, and upcycling. It caters to artists, de/construction companies, waste companies, developers, contractors, and social enterprises.

Networks' preliminary survey captured 76 respondents who are entrepreneurs located across Metro Vancouver. They ranged from individual entrepreneurs to business owners with less than 50 employees, 65% of whom are self-employed. From these results, the greatest need identified was for makerspace and office space.

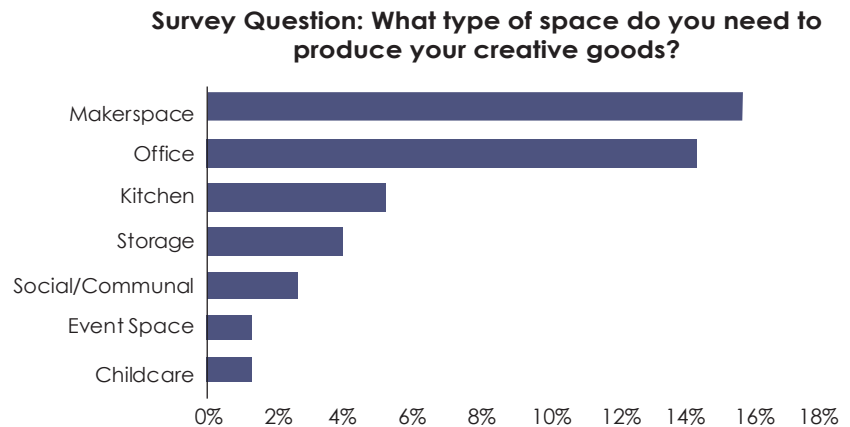


Figure 2. Networks' preliminary survey results, "What type of space do you need to produce your creative goods?"

2. LEARNING FROM PRECEDENT MODELS

Similarly, interviews with the Upcycle Materials Hub revealed the increasing need for a shared space to launch an innovative deconstruction venture in line with the City of Vancouver's green initiatives.

The project team sent a follow-up survey to Networks' prospective clients to gather more detailed information about their expectations for a future shared space, and had planned to hold focus groups with entrepreneurs who used (or were interested in using) the shared services of Networks and the Upcycle Materials Hub. However, during our planned engagement sessions in early 2018, Networks had to relocate and the Upcycle Materials Hub was in the final stages of real estate negotiations on their new site in the Flats. These constraints prevented further engagement.

The second part of the project focused on identifying pathways to improve the affordability of light industrial spaces by investigating precedent models of innovative space types across North America. To better understand their specific characteristics and needs, this was done through a case study approach that used the three space typologies as case study categories. For contextual comparison, our research included at least one Vancouver-based model, and at least one outside Vancouver, for each category.

Eight precedent models were selected in total. Found in the *Space Types* section, these precedents show a variety of business model structures established in locations with contexts similar to Vancouver (i.e. with rising land values and diminishing industrial land). Our criteria for selecting these precedents also considered whether their experiences can offer lessons to help shape the policy and investment framework for the Flats Industrial Innovation Affordability Initiative. In the case of co-location hubs, four models were studied to shed light on the various programming structures that exist.

EVALUATION CRITERIA

Consistent with the proposed recommendations in the Flats Economic Development Strategy (Appendix B), the project team evaluated precedent models using three criteria themes:

- Tools
- Approaches
- Sustainability Impact

The evaluation criteria will allow for a better understanding of how each business was set up, what services they offer, and what forms of institutional support they receive.

This information was gathered by collecting relevant information online, and was supplemented via individual interviews with key leadership members from each model/business (Appendix C).

TOOLS

The project considered each model's governance structure, financing, and policy support as tools that have enabled them to establish and grow their businesses.



Governance

How are these innovation spaces setup?

This looked at the organization's business type (for-profit or non-profit), whether the spaces are leased or owned, and how the properties are being managed.



Financing

Where did the funds come from?

This looked at the funding sources used to establish the innovation spaces. Sources include private investments by founding members, investors, grants, subsidies, or other forms of financial support coming from various levels of government. This also looked at the financial sustainability of their business and what forms of support they need.



Policy

What government policies and regulations are in place to support their businesses?

This looked at whether these businesses have benefited from any policy directives or regulations that allowed them to utilize grants, subsidies, tax breaks, zoning (i.e. permitted floor space ratio), and more. This also looked into any government interventions that were used to sustain business growth and success.

APPROACHES

Each model offers a unique approach to serving their clients' needs. These approaches vary in the way services are offered and the size of space provided.



Programming

How are services offered, i.e. through membership, pay per use, or other methods?

This looked at the facilities and amenities provided, and other benefits that are available to the members or tenants. Although belonging to the same space typology, each business tends to have different ways of offering their services and generating revenue from these.



Space Characteristics

How big are the occupied spaces? What spaces would they ideally occupy?

This looked at the physical features of the space, the area occupied, how they are subdivided, and how its key location features contribute to its success. This also considered how the spaces were setup and whether they were built to suit the needs of the business or retrofitted from a previous tenant.

SUSTAINABILITY IMPACT

To recognize the value of light industrial innovation spaces, it is important to note their economic, social, and environmental contributions that support Metro Vancouver's 2040 Regional Growth Strategy and the City of Vancouver's Greenest City 2020 Action Plan.



Economic, Social, Environmental

What are the organization's impacts on the local and/or regional economic, society, and environment?

This looked at the beneficial outcomes from sharing resources. Considerations included the number of jobs created, each business' social purpose, program and mentorship support for startup businesses, as well as efforts to minimize their ecological footprints.

LIMITATIONS

While this project looked into a range of aspects that characterize established models of innovation spaces, these are not wholly complete and are subject to the following limitations:

- The eight precedent models should not be taken as a comprehensive representation of the three space types. Rather, they offer examples of what innovation space types can become in Vancouver and highlight the conditions necessary to produce an environment that supports their establishment and longevity.
- Many of these precedent models have been in operation for less than five years and are mostly small- to medium-sized businesses. There are older and/or larger-sized models that were not included due to time constraints that could provide richer lessons in establishing and operating industrial innovation spaces in Vancouver.
- Detailed information is limited in many of the selected precedent models, with the exception of Greenpoint Manufacturing and Design Centre in New York.
- Online research and remote interviews are not enough to cover all aspects of their operations, especially their economic, social, and environmental impacts. While interviews with staff provided operational information, further studies can benefit from interviewing users and members of the spaces to better understand the end user experience and preferences.

SPACE TYPES

As spatial and equipment resources have become less readily available and increasingly expensive, entrepreneurs are beginning to see how sharing these resources is a way to reduce operational costs. Popularized in the office world by 'hot-desk' conglomerates like SpaceList and WeWork, **industrial innovators** have taken their own approach to finding ways to make their lean business structure work, and in turn, reduce their risks during the early stages of business development. This often results in minimizing startup costs through the use of shared resources.

As suggested by VEC, three types of shared spaces that support light **industrial innovation spaces** have been identified: co-location hubs, commercialization spaces, and economic community centres.

Co-location Hubs offer lower rental/lease rates and share rarely used, yet necessary, amenities such as loading bays by offering like-minded tenants the ability to co-lease, sub-lease, or even strata-own a space zoned for industrial or commercial uses.

Commercialization Spaces benefit users by allowing members to share high-cost equipment and learn together, acting similarly to incubators and accelerators.

Economic Community Centres are newly emerging spaces that allow users to share knowledge and resources by providing services like skill-sharing and networking opportunities.

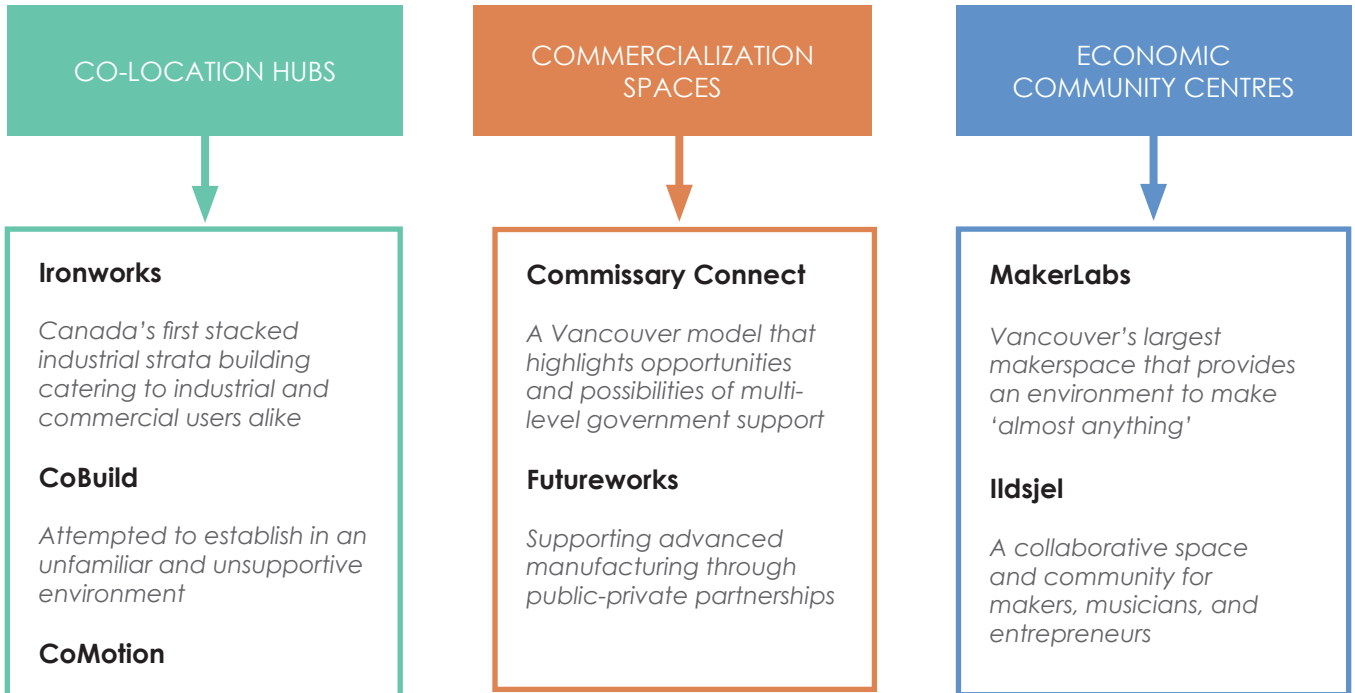
These three space types have become increasingly popular among innovative industrial businesses that seek agility rather than corporate dominance.

DEFINITIONS

Industrial innovators are “artisanal manufacturers that are doing small-batch production, clean technology startups that need space to prototype, and design and development firms such as those in biosciences, product design, and advanced Manufacturing.”
- *The Flats Economic Development Strategy*, VEC

Industrial innovation spaces are “innovative forms of mixed use developments that combine industrial and non-industrial uses, unique parking solutions that require less land and can be utilized around the clock for a diversity of uses, and the activation of underutilized spaces for temporary or seasonal economic activity.” - *The Flats Economic Development Strategy*, VEC

CASE STUDIES AND PRECEDENT MODELS



1. CO-LOCATION HUBS

Key Feature

Space synergies at its best.

The space synergies of co-location hubs allow low-growth businesses and social enterprises to enter new markets and have stronger socio-environmental impacts.

Co-location hubs are independent, complementary economic hubs that cater to small-to-medium size businesses and social enterprises requiring limited support to launch. Co-location hubs are usually managed by a single entity that provides collaboration opportunities for shared financing, logistics, and visibility, all of which contribute to reducing costs. The management team purchases or leases the space and provides services, amenities, and equipment to tenant businesses at lower costs than they would have paid for on their own. Typical partners in developing and maintaining these hubs are independent entrepreneurs, since banks and investors have generally been hesitant to support this new tenancy model.

The success of a co-location hub is not necessarily measured by its economic development contribution but instead its collaborative contributions to reducing operational costs, providing long-term tenancy opportunities, and reducing greenhouse gas emissions.

PRECEDENT MODELS



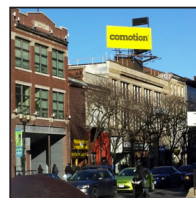
Ironworks

Vancouver, BC, Canada
[SEE PAGE 13 & APPENDIX A, PAGE 44](#)



CoBuild

Hamilton, ON, Canada
[SEE PAGE 13 & APPENDIX A, PAGE 44](#)



CoMotion

Hamilton, ON, Canada
[SEE PAGE 14 & APPENDIX A, PAGE 45](#)



Greenpoint Manufacturing and Design Centre

Brooklyn, NY, USA
[SEE PAGE 14 & APPENDIX A, PAGE 45](#)

IRONWORKS VANCOUVER, BC

A local, innovative strata building model that stacks two levels of industrial flex space with a third level of office space.

Quick Facts

- Anticipated to begin operations in 2019
- Occupies two buildings on a 2.3 acre lot, with units ranging between 3,000 and 14,000 square feet
- Unprecedented demand for these units has resulted in two more developments of this style by the developer

Unique Features

- Challenges the single vision design and occupancy of industrial buildings in Vancouver's increasingly expensive real estate market
- Prospective buyers are screened to ensure the building is comprised of local owner-occupiers rather than speculative investors
- Their approach celebrates and maintains the industrial legacy of the area while welcoming new local business trends

FOR MORE INFORMATION, SEE APPENDIX A PAGE 44



COBUILD HAMILTON, ON

Hamilton's first industrial co-working space offers lessons from its short-lived, and ultimately unsuccessful, model.

Quick Facts

- Operated between May 2016 and September 2017
- Occupied 55,000 square feet of industrial space

Unique Features

- Pioneered light industrial co-location in Hamilton by providing warehouse and industrial spaces for small businesses
- Offered minimal cost for tenants through the use of shared services and amenities, such as shipping and receiving, tools, storage space, in-house forklift truck and driver, boardrooms, a kitchen, and other spaces
- The City's building code required an advanced fire suppression system to accommodate multiple light industrial users, but the business was too undercapitalized to make the upgrade

FOR MORE INFORMATION, SEE APPENDIX A PAGE 44

COMOTION HAMILTON, ON

One of the largest co-working networks in Southern Ontario to provide flexible and accessible office space for a diverse entrepreneurial community.

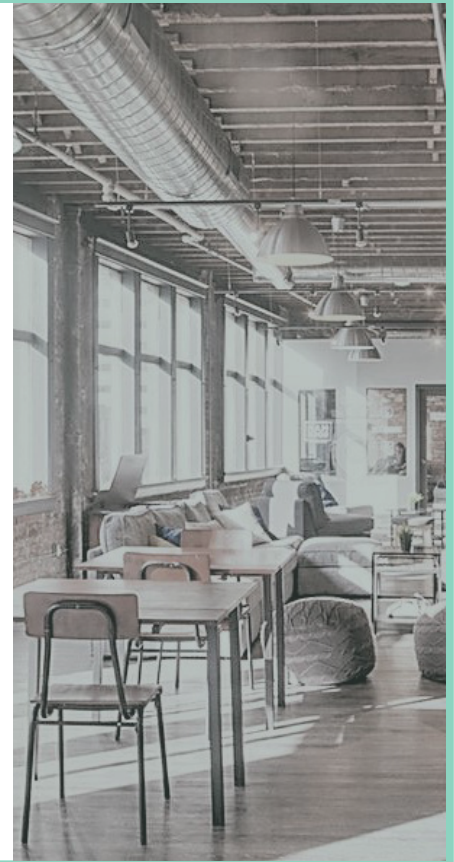
Quick Facts

- Established in July 2015
- Operates two locations, occupying spaces of 10,000 square feet and 5,100 square feet

Unique Features

- The space serves businesses and professionals looking for office spaces and office amenities
- Membership and user rates are benchmarked on CSI's¹⁵ non-profit rates
- Management is flexible and allows exchange of services for discounts on rates

FOR MORE INFORMATION, SEE APPENDIX A PAGE 45



GREENPOINT MANUFACTURING AND DESIGN CENTRE (1102 ATLANTIC AVENUE) BROOKLYN, NY

New York City's oldest non-profit industrial developer that established themselves through robust public-private and multi-level government partnerships.

Quick Facts

- Established in 1992
- Occupies 7 buildings (5 of which are owned by GMDC), totaling 600,000 square feet
- 1102 Atlantic Avenue offers 50,000 square feet throughout 14 units, with units ranging from 1,200 to 6,100 square feet

Unique Features

- Non-profit real estate development that provides reduced rental rates and long-term leases (5+ years) to industrial and creative manufacturers
- Utilized a mixed funding model that drew on public, private, and philanthropic sources as well as tax credits to purchase the 1102 Atlantic Ave building and fund its subsequent redevelopment
- GMDC is supported by NYC Economic Development Corporation's 10-point Industrial Action Plan

FOR MORE INFORMATION, SEE APPENDIX A PAGE 45

EVALUATION OF TOOLS, APPROACHES, AND SUSTAINABILITY IMPACTS

GOVERNANCE

Ironworks, CoBuild, and CoMotion are all for-profit enterprises while Greenpoint Manufacturing and Design Centre (GMDC) is a non-profit developer. Ironworks' unique and innovative stacked industrial-commercial strata allows them to reduce their capital costs. Instead of selling off the units to the highest bidder, buyers were screened to ensure that they would be owner-occupiers, rather than investors or speculators. They were required to be local businesses that would appeal to the building's community-oriented approach as well as the neighbourhood character. Furthermore, Ironworks made an effort to welcome complementary as opposed to competing businesses.

Slated to open in 2019, Ironworks will be managed by a strata management company while each of CoMotion's buildings has a full-time community manager.

Operating seven different buildings across New York City, with 1102 Atlantic Avenue as the newest, GMDC runs all its buildings as non-profits that are held accountable by a twelve member Board of Directors. GMDC can offer below-market lease rates to its tenants through a City of New York grant for non-profit organizations. This grant is customized to each GMDC building and is bound by a restrictive use covenant that stipulates GMDC must offer long-term, affordable leases on all its buildings.

"We're literally just a landlord. With a mission." - Cassandra Smith, Senior Project Manager, GMDC

GMDC's main objective is to keep tenants in their buildings, so tenants are not allowed to sub-lease to anyone else and lease increases are outlined in advance. Common Area Maintenance (CAM) charges are not included in any of GMDC's leases, so 100% of the

available space is leased to tenants. At all of GMDC's buildings, tenants are required to have insurance and worker's compensation so the building doesn't get mired in insurance claims.

FINANCING

Each of these precedent models has a unique financing structure, making for a useful discussion on the various ways that co-location spaces can be developed and the different opportunities that exist in different jurisdictions. Since Vancouver's Ironworks is being developed by Conwest, they have utilized a standard developer investment model.

In Hamilton, CoBuild was initially set up in the former Ball Packaging plant on Victoria Avenue North, then moved closer to downtown on Barton Street East. The business was financed entirely from personal investments by its four co-founders. Additional funds were generated through pre-selling memberships to pay for the lease of the building. Within three months, occupancy was almost full and operations were breaking even. Despite this, CoBuild decided to close shop in September 2017 due to its inability to finance the installation of a fire suppression system that was required to accommodate a variety of light industrial businesses in the building.

CoBuild's sister organization, CoMotion, was similarly financed from personal investments by its four co-founders and two others who bought in. Additional financing from lending institutions was difficult to access as many of these institutions in Hamilton were not familiar with the business model of co-working spaces. Even so, CoMotion is able to sustain its business from existing sources and revenue generation. A nominal funding grant from Startup Canada also funded a number of the workspaces as part of its program to support start-up entrepreneurs. And although currently feeling boot-strapped, they are able to manage the high capital investment from building improvements and extensive amenities they provide while at the same time offering low

lease rates benchmarked on the Centre for Social Innovation's non-profit rates.¹⁶ They also allow flexible payment terms and/or exchange of services to better accommodate their clients' needs.

1102 Atlantic Avenue has the most diverse funding mix of the four precedents, drawing on a variety of sources to fund their renovations. The building was purchased by GMDC in 2012, with financial support from both public and private sector partners as well as the New Markets Tax Credits (NMTCs). Two of the project's primary financial partners were Enterprise Community Partners and Bank of America Merrill Lynch.¹⁷ The NMTCs are available to organizations that invest in low-income communities that have been identified as needing economic revitalization.¹⁸ Despite being eligible for a 10% federal Heritage Tax Credit, GMDC declined to pursue this because the project was deemed too small.¹⁹

Furthermore, GMDC was able to leverage municipal finance capital to maximize private funding, enabling them to get away from relying purely on public funds.²⁰ GMDC originally purchased the building for nearly \$5 million, with financing provided by the Brooklyn Delegation of the New York City Council and the Brooklyn Borough President's Office, who contributed \$4.1 million and \$500,000 respectively.²¹

To secure the development of this building in New York's highly competitive real estate market, GMDC collaborated with community development entities and leverage lender Enterprise Community Loan Fund to secure NMTCs. "Enterprise provided \$7.5 million in New Markets Tax Credit Allocation, and Enterprise Community Loan Fund provided a \$3.85 million term loan and \$4.55 million in bridge financing. Bank of America was the New Markets Tax Credit (NMTC) equity investor and provided an additional \$5 million of [New Markets Tax Credit] Allocation."²² In addition to this, the New York City Industrial Development Agency (NYCIDA), through their Industrial Incentives Program, granted GMDC a real estate and sales tax exemption for this project.²³ Mortgage and operating expenses are paid for by the leases from the tenants while retrofitting in collective areas is done through debt refinancing.

POLICY

In residential-focused Vancouver, Ironworks' site is zoned for a 3 FSR mixed-use development, which would have allowed Conwest to develop the 2.3 acre property into a 300,000 square foot building. With concerns about market absorption and a site that posed many grade, soil, and environmental challenges, the design team **reconsider** the FSR uptake and settled on 2 FSR for the building. *Despite these considerations, Ironworks has experienced such high demand that the developer now wishes they had found a way to use the full 3 FSR.* Conwest is already developing two more similar buildings in South Vancouver and Mount Pleasant. Their development permits are currently under review and their FSR will be a "function of the approval process."²⁴

Floor Space Ratio (FSR) is the ratio of a building's total floor area (gross floor area) to the size of the piece of land upon which it is built.

CoBuild did not have a problem with the zoning, but instead with the existing building code, which restricts different light industrial businesses from being located in the same building without a high capacity fire suppression facility. *Since this required significant capital investment that the owners did not have at the time, CoBuild had to close its business after less than two years of operation.*

In Industrial Brooklyn, 1102 Atlantic Ave is zoned M1-1 (1 FSR). Although this project is not sited in one of the city's Industrial Business Zones (IBZs), the six other GMDC buildings are. "[C]ity planners created Industrial Business Zones (IBZs) to ensure the industrial lands that existed were secured from residential, commercial, or mixed-use rezonings" after more than 200 blocks of Williamsburg were rezoned away from industrial uses in the early 2000s.²⁵ Developing these IBZs saw the creation of the Office of Industrial and Manufacturing Businesses at New York City Hall, which employed six people at its height but by 2014 had been collapsed into one desk at the NYCEDC.²⁶

The City of New York's Industrial Business Service Provider program was developed by the NYCEDC to support businesses that operate in Industrial Business Zones. Currently administered by the City's Small Business Services Agency, they provide a host of services, including advice on how to save money and maintain a competitive edge with government incentives, financing assistance, recruitment and training services, and advice on how to navigate governmental red tape. The program operates through partnerships, with the Evergreen Business Exchange in North Brooklyn assisting GMDC and 1102 Atlantic Ave with industrial business services.

In a further attempt to preserve Brooklyn's industrial lands, the NYCEDC announced their **10-point Industrial Action Plan** in November 2015 to stimulate industrial business activity in NYC. While access to this program was unavailable during the 1102 Atlantic Ave development, the Action Plan has provided a funding grant to the GMDC's current development in Ozone Park, Queens.²⁷

New York City Economic Development Corporation (NYCEDC) developed the **10-point Industrial Action Plan** in 2015, a comprehensive strategy to protect core industrial areas from encroachment, provide loans and grants for new firms, and train New Yorkers for 21st century manufacturing jobs. These efforts will help ensure that both longstanding businesses and new firms have the space to grow and evolve within inner-city New York.

PROGRAMMING

Ironworks does not have any programming other than given their strata management model, strata owners will benefit from the shared amenities (discussed in more detail in the next section: *Space Characteristics*).

CoBuild's membership-based program gave members access to a boardroom, kitchen, forklift and operator, basic utilities, internet, security, shared event space, 24/7 access, and flex spaces. These shared services were available for \$12 to \$18 per square foot depending on location. Large equipment such as a planer, CNC machine, and lathe, and smaller equipment like a 3D printer are available for rent to members. CoBuild also offered workshops for a minimal additional fee to cover the instructor cost. Ironworks does not yet have any particular programming planned for its tenants.

CoMotion, as a typical co-working office space, offers the widest array of membership benefits, such as mail and printing services, internet, tech-equipped meeting rooms, kitchenette, rooftop patio, lounge, access to mentors and investors, discounts on business supplies, business listing, member townhall meetings, book library, free coffee and tea, and a web-based member hub for payments and bookings. Additional fees are charged for meeting room and event space rentals. Membership fees range from \$83 per month for a starter pass to \$780 per month for a private office.

Both CoMotion sites include a community manager, who also doubles as a receptionist, to assist with organizing events and helping members connect.

Since tenants of 1102 Atlantic Ave rent directly from GMDC at below market rates, there is no programming or membership benefits available beyond offering cheaper, long-term rental opportunities for industrial and creative entrepreneurs. While 1102 Atlantic Ave does not offer shared amenities for their tenants and members, Ironworks, CoBuild, and CoMotion do.

SPACE CHARACTERISTICS

At 200,000 square feet across two buildings, Ironworks occupies an entire East Vancouver block. The two sites have three levels with 26' high ceilings which allows for flex space (warehouse, showroom, and mezzanine) on levels one and two; level three offers less flexibility and only has office space. Units range from 3,000 to 14,000 square feet. Ironworks will offer underground parking including visitor parking, electric car parking and bike storage. Other shared amenities include, a common loading dock, freight and passenger elevator access, a common rooftop, and end-of-trip facilities with lockers, washrooms, and showers.²⁸ This is all included in their strata opportunities for industrial and commercial uses.

CoBuild occupied a 55,000 square feet industrial space that included six industrial roll up doors in addition to 15,000 square feet of warehouse and maker space. CoMotion on King Street, which is located in the prime downtown area of Hamilton, offers 10,000 square feet of bookable space consisting of 39 offices, 21 desks, and 18 sofas. Its second space, CoMotion 302, is located in East Hamilton and offers a much smaller space: 5,100 square feet, with 22 offices and 11 bookable desks spread out across two floors.

Housed in a former auto parts warehouse, 1102 Atlantic Ave provides industrial production facilities for local entrepreneurs. There are 14 units within 50,000 square feet of space that range between 1,200 and 6,100 square feet.²⁹ All of GMDC's buildings rent between \$17 to \$19 per square foot.

SUSTAINABILITY IMPACT

ECONOMIC

Ironworks estimates that 35 high-tech, service-oriented businesses will provide 500 permanent jobs when its doors are open.³⁰ CoMotion's two locations have housed about 145 companies and created approximately 200 jobs. CoBuild, in its under two years of operation, was able to support 18 light industrial businesses in Hamilton.

GMDC focuses on providing living wage employment opportunities to low-income New Yorkers. 1102 Atlantic Ave now houses 14 small and medium-sized manufacturing businesses providing 50 new or retained jobs for workers making an average of \$47,000 USD per year. This is well above local living wage standards and significantly higher than average for the retail sector in New York. Addressing the community priority of low-barrier, middle class job creation, 1102 Atlantic Ave created 102 full-time jobs during construction and 76 permanent manufacturing jobs in the traditionally low-income neighbourhood of Crown Heights, Brooklyn. GMDC was nominated as a semi-finalist for the National Development Council's NDC Academy 2015 Awards in the Job Creation Category.³¹

SOCIAL

Ironworks has attempted to create a triple-bottom line for their sustainability impact, focusing on selling the units to owner-occupiers that operated local businesses rather than simply for the highest price.³² Furthermore, they tried to set people up for success by welcoming complementary as opposed to competing businesses.³³

Meanwhile, both CoMotion spaces have contributed to community preservation by revitalizing older buildings in Hamilton. CoMotion on King is housed on the historic former offices of the Hamilton Spectator newspaper. CoMotion 302 occupies the former Cumberland Avenue building, a converted two-storey turn-of-the-century factory, located in a quiet neighborhood area in East Hamilton.

In line with GMDC's emphasis on supporting local entrepreneurs, 1102 Atlantic Ave is comprised entirely of Brooklyn-based businesses.







ENVIRONMENTAL

There is a strong focus on environmental sustainability at Ironworks. The stacked design minimizes the building footprint. Their sustainability features include the use of automatic lighting in common areas and unheated stair and elevator cores to reduce energy consumption, on-demand heating and cooling, south facing exposures that utilize passive cooling techniques, and electric vehicle charging stations.³⁴

Both CoMotion buildings use an innovative sun tunnel design to ensure that the common work areas receive 100% natural sunlight.

Their locations encourage members to bike to the office. CoMotion on King is at the core of downtown and in close proximity to transit, while CoMotion 302 is located near a bike sharing facility.

GMDC's building on 1102 Atlantic Ave provides sustainable and affordable electricity to the building's businesses. The building has installed a 56 kW solar power array.³⁵ This, along with a photovoltaic system on the roof,³⁶ contributed to the building's Leadership in Energy and Environmental Design (LEED) Silver award in 2016.³⁷ Further contributing to a sustainable NYC, GMDC emphasises that two-thirds of their tenants and their employees walk, bike, or take transit to work.³⁸

TOOLS	GOVERNANCE		Mix of for-profit and non-profit organizations
	FINANCING		Significant funding and capital was needed to startup and maintain operations. Multiple types of financing were used, with many banks hesitant to provide loans because they did not understand these new business models.
	POLICY		Industrial land use policies varied by jurisdiction, with some allowing for co-location and others not. FSR limits varied throughout the projects but were no higher than 3.
APPROACHES	PROGRAMMING		Co-location spaces provide spatial amenities such as loading docks, kitchens, and meeting rooms at a low monthly cost.
	SPACE CHARACTERISTICS		Spaces vary on the local demand, but most buildings are low-rise with high ceilings to accommodate large equipment and innovative manufacturing endeavours.
IMPACT	ECONOMIC, SOCIAL, ENVIRONMENTAL		Three of the Four buildings are repurposed, while one is a new build. This repurposing of space reduces their carbon footprint. GMDC promotes active transportation among its tenants. All the spaces stimulate industrial employment, which creates low-barrier jobs with wages higher than those in retail or service industries.

2. COMMERCIALIZATION SPACES

Key Feature

Propelling businesses to grow.

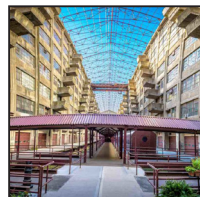
A large focus of commercialization spaces is on support services such as mentoring, training, and networking for startups and small- to medium-scale entrepreneurs to access low-barrier pathways to success. Significant programming is provided to launch businesses with high return economic development outcomes, such as job creation, intellectual property development, commercialization, and regional gross domestic product (GDP).

These are co-working spaces that provide significant incubation and acceleration support, focusing on business growth from market entry to exit. Commercialization spaces primarily serve startups and small- to medium-scale entrepreneurs with high growth potential or users developing new and innovative products and services. Users of these spaces typically come from the same sector and have similar equipment and support/programming needs. Commercialization spaces are usually managed by a single operator, and significant investment is dedicated to space and equipment.

PRECEDENT MODELS



Commissary Connect
Vancouver, BC, Canada
*SEE PAGE 21 &
APPENDIX A, PAGE 46*



Futureworks
Brooklyn, NY, USA
*SEE PAGE 21 &
APPENDIX A, PAGE 46*

COMMISSARY CONNECT VANCOUVER, BC

A commercial kitchen that attracts and supports startup food business in Metro Vancouver by offering space, production tools, and networking opportunities.

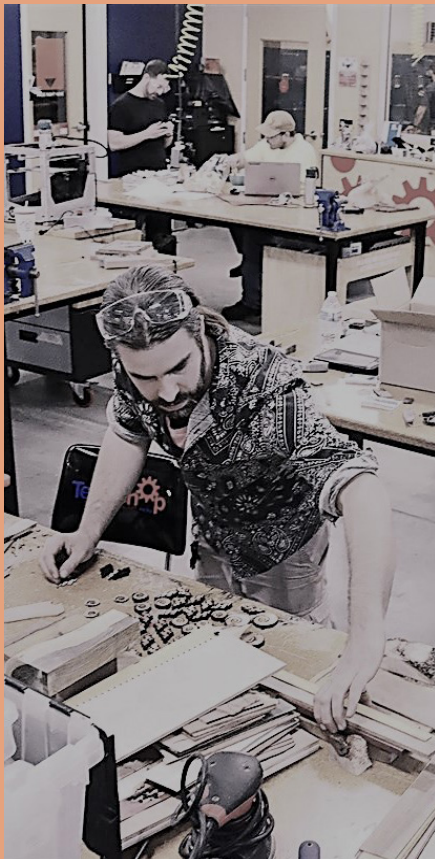
Quick Facts

- Established in 2012
- Occupies three locations in Vancouver, totalling 13,000 square feet
- Rents two locations in False Creek Flats and owns the land at their third location in the East Fraser Industrial Lands

Unique Features

- Primarily serves small, local food businesses by providing them with low-barrier space, equipment, and businesses support
- First of its kind in North America, providing a strong support system with the potential to initiate a regional 'food hub' through their entrepreneur-based model
- Operating on 5-year leases in the Flats, with lease rates doubling after the most recent lease cycle

FOR MORE INFORMATION, SEE APPENDIX A PAGE 46



FUTUREWORKS BROOKLYN, NEW YORK

Meeting the industry where the industry is, their spaces and programs support manufacturing and design-driven entrepreneurs and connects them to markets across NYC.

Quick Facts

- Established in November 2015
- A program managed through the NYCEDC
- Supported various entrepreneurs throughout its network of spaces to advance industrial prototyping facilities across NYC

Unique Features

- Since its establishment, the initiative has supported more than 300 organizations through the provision of space, funding, and business development opportunities
- Uses public-private partnerships to engage the private sector with an aim to expedite opportunities for industrial innovators to access markets
- Partnered with OPS21³⁹ advanced manufacturing program to offer mentorship in digital manufacturing and robotics to advance new manufacturing technologies

FOR MORE INFORMATION, SEE APPENDIX A PAGE 46

EVALUATION OF TOOLS, APPROACHES, AND SUSTAINABILITY IMPACTS

GOVERNANCE

The governance models of these organizations differ greatly. Commissary Connect is a for-profit business that operates within three facilities and is run by a team of three while Futureworks is a non-profit organization headed by the NYCEDC. Furthermore, Futureworks operates from an ever growing list of industrial partners committed to supporting manufacturing and design-driven entrepreneurship in New York.

One similarity between these two precedent models is their network of partnerships to strengthen their abilities to support entrepreneurs and contribute to innovation within their respective industries. Although for-profit, Commissary Connect has multiple non-profit partners, most of which are related to the local food and agriculture sectors. These partners connect Commissary Connect members to markets, offer educational workshops and business support services, and provide them with opportunities to grow their businesses. Likewise, Futureworks has an emphasis on public-private partnerships and contracts with a mix of both non-profit and for-profit advanced manufacturing organizations across New York City. RFPs are issued to attract potential partners looking to help entrepreneurs access equipment, education and training opportunities, as well as makerspaces and prototyping spaces.

FINANCING

Commissary Connect and Futureworks tell different stories on how their organizations started, especially in terms of financing.

Commissary Connect was initiated by CEO and Founder, Sarb Mund, in 2012 after he realized the immediate need for kitchen space for food truck businesses operating in Vancouver. The retrofitting and equipment for Commissary Connect's first location in the Flats was funded entirely from Mund's personal investment, with the help of family and friends. After securing his first location, Mund went

on to lease a second site in the Flats near the first, and has most recently expanded its operation to a third site in the East Fraser Industrial Lands. This time, he was able to tap into financial support from VanCity Bank to purchase their own site. Commissary Connect also receives funding from other institutions and government organizations, including the BC Ministry of Agriculture, to help support their contributions to agro-industrial innovation. Flexible membership fees, starting from \$450 per month, contribute to covering Commissary Connect's overhead costs.

As a major initiative of NYC's Industrial Action Plan, NYCEDC allocated \$8 million USD to the Futureworks program in an effort to increase local production and support advanced manufacturing in New York. Grants in the tens of thousands of dollars are provided to partners who successfully respond to any of Futureworks' RFPs to run a program and/or space that contributes to the innovation economy ecosystem, with most agreements lasting around 18 months.

POLICY

Support is growing for these types of commercialization spaces within both Vancouver and New York through economic strategies, multi-level government policies, and neighbourhood plans to revitalize industrial and manufacturing jobs in the cities.

Commissary Connect is supported by VEC through their Vancouver Economic Action Plan and the Flats Economic Development Strategy. These two documents envision the growth of startups through increasing entrepreneurs' access to affordable industrial innovation spaces in Vancouver. Furthermore, Commissary Connect's role in fostering food security allows them to benefit from provincial and federal plans and policies, including business development support from the BC Agrifood and Seafood Strategic Growth Plan and funding support from the Growing Forward 2 policy framework.

In NYC, Futureworks' integral role in activating NYCEDC's 10-point Industrial Action Plan allows them to benefit from public and private partnerships that are dedicated to increasing local production and supporting advanced manufacturing. With the support of their respective city-wide economic development agencies, these organizations and the space types they provide are becoming increasingly recognized in their greater communities in terms of bringing economic and social prosperity.

The New York Works Jobs Plan (2017) is looking to create 100,000 jobs in a variety of sectors over a ten year period. *Initiative 13: Make the Brooklyn Army Terminal a home for traditional and advanced manufacturing* of the plan aims to add 1,300 industrial jobs through a \$49 million USD investment to activate the BAT as a centre for innovative manufacturing production. Futureworks will be instrumental in creating partnerships with innovation organizations that operate spaces and programs at the BAT.

Furthermore, zoning and land use designations have also supported the implementation for these organizations. Commissary Connect's facilities are all located on I-2 zoning (general industrial), which permits a wide variety of uses including warehouse, lab, wholesale, ancillary office, and limited retail uses.⁴⁰ The allowed use of retail is essential to Commissary Connect's operations, especially where their community pop-up cafe/retail space is present. Meanwhile, development of the Brooklyn Army Terminal (BAT), which houses Futureworks' flagship site, was made possible through the State Planning Department Brownfield Opportunity Areas designation and the city's IBZ zoning policy.^{41,42}

PROGRAMMING

Commercialization spaces are highlighted for their programming and member services to help startup and small- to medium-scale businesses succeed. In many cases, organizations that provide commercialization spaces rely on partnerships and industry networks to provide classes, training, and other professional services that can

relate to business, marketing, branding, or manufacturing. Commissary Connect members benefit from educational classes provided by the BC Food Processors Association. Similarly, Futureworks partners with a variety of local incubators to offer

“We are providing the ability to give businesses a path to success, not just a space.” - Sarb Mund, CEO & Founder, Commissary Connect

workshops, mentoring, and showcasing opportunities for its members. Futureworks' support for light industrial innovation businesses has taken the form of:

- The creation of a network of partner spaces
- Incubators, ran by their partner Secondmuse, currently serve 84 companies
- Workshops and education programs
- The Advanced Manufacturing Center at Brooklyn Army Terminal, managed by NYCEDC

Futureworks develops its programs by identifying the sector the City of New York wants to invest in, assessing their needs, creating a rough program outline, and then pitching it internally to the NYCEDC board and the NYCIDA board. Once a program is approved, a budget is approved by the NYCEDC president and an RFP is issued. While the process to enter these two organizations varies, their users enjoy similar benefits and programming. Commissary Connect has an open application process that welcomes any local food business. Users must pay a fee-based “pay for what you use” membership that is flexible and can be personalized to suit the business needs. Membership starts from \$450 per month, and contracts can vary from month-to-month, to year-long periods. Commissary Connect's patent-pending technology allows businesses to share equipment efficiently, easily accommodating the varying needs of its more than 60 members.

While there is no membership fee to take part in the Futureworks program, potential members must go through an application process that evaluates new users on an annual intake. This is done through an RFP process where Futureworks competitively selects an operator to run a program they have on offer. Criteria for selection includes the proposal quality, the team's experience, whether it is a minority and/or women-owned, and how much capital Futureworks is expected to invest based on the potential partner's fee structure.

Members of these organizations have several benefits. In the case of Commissary Connect, members have access to a food cart with a Downtown street food license and pop-up retail space at one of their locations. Futureworks' programming benefits include mentorship and networking opportunities as well as grant funding opportunities and business development programs, both of which are managed by the NYCEDC office. Futureworks' goal is to invest up to \$13 million for services that support industrial innovation industries, such as access to prototyping, fabrication, and production equipment for businesses. Free memberships are offered at its Advanced Manufacturing Center at the Brooklyn Army Terminal, which acts as an economic development catalyst for the sector.⁴³

SPACE CHARACTERISTICS

Affordable and widely available space is an essential aspect to successful commercialization models.

Commissary Connect occupies three industrial facilities across Vancouver, each ranging between 2,300 and 6,000 square feet. The two facilities in the Flats are occupied on short-term leases while they own their newest facility in the East Fraser Industrial Lands. The latter location houses their largest facility. It was developed for member businesses whose growing operations require a larger space and the corresponding health code requirements that allow for increased production capacity. In reality, their existing locations in the Flats are ideal for these larger-scale businesses, given its proximity to Downtown and transportation terminals. However, there is currently a low

availability of industrial land that suits the needs of these large-scale food production businesses, and continually rising lease rates in the Flats present an affordability issue.

With industrial lease rates doubling over the past five years in the Flats, Commissary Connect decided to purchase the land that they operate on in order to provide secure, long-term spaces for businesses while also providing low-cost membership fees.⁴⁴ In addition to having hopes to own land, they are actively looking for larger spaces, over 8,000 square feet, with approximately 85% warehouse space, 10% retail or showcase space, and 5% office space.⁴⁵

Although Futureworks is a program ran through the NYCEDC focused on providing opportunities for industrial innovators through public-private partnerships, they do have a space at the Brooklyn Army Terminal in North Brooklyn. In 2017, Futureworks agreed to have industrial co-location conglomerate TechShop manage a 20,500 square foot portion of the BAT. However, this agreement ended when TechShop abruptly went bankrupt in early 2018, emphasizing the limitations of public-private partnerships.

SUSTAINABILITY IMPACT

ECONOMIC

Acting as incubator and accelerator organizations, the impact of these commercialization models is highlighted by their economic contributions to regional GDP and job creation.

Commissary Connect generates \$40 million in regional GDP in terms of successful businesses, work wages, product sales, etc over 5 years.⁴⁶ Since its inception in 2012, Commissary Connect has grown to support approximately 60 businesses, and are aiming to influence not only Vancouver businesses, but those within Metro Vancouver where a need for commissary kitchens has been identified. Commissary Connect is committed to developing industrial employment opportunities in Vancouver, and is in the process of expanding their client base to other industrial sectors.







Similarly, Futureworks supports approximately 85 businesses, helping emerging and existing manufacturers adopt advanced technologies and increase local production. By 2022, Futureworks anticipates the creation of over 2,000 advanced manufacturing jobs.⁴⁷

SOCIAL

These commercialization models contribute to social sustainability through their business support initiatives such as connecting businesses with educational classes and workshops, and drive sector ecosystems and networks. They reduce barriers to employment and connect entrepreneurs to the market. Commissary Connect indirectly contributes to social sustainability by supporting initiatives and programs that reduce barriers to employment and healthy lifestyles, such as those initiated by Potluck Cafe Society in Vancouver. Futureworks does not have any specific social impact objectives, but does look for potential partners to hire locally when considering an RFP response.

ENVIRONMENTAL

In addition to their economic and social impacts, both Commissary Connect and Futureworks have strong mandates for environmental sustainability. Futureworks provides grants for emerging and existing manufacturers to adopt advanced technologies and increased local production, several of which incorporate sustainability into their product designs. Commissary Connect partners with creative and innovative ventures to support environmental sustainability projects throughout Vancouver, such as the Greater Vancouver Food Bank to help redirect food surpluses to the food bank instead of the landfill. Futureworks does not have specific environmental sustainability measures but each project has metrics tailored to its scope and overall objectives.

TOOLS	GOVERNANCE		Lean governance structures that rely heavily on their partnerships.
	FINANCING		Commissary Connect has a mixed-funding model reliant on personal and private investment as well as public sector grants. On the other hand, Futureworks provides financing for industrial innovators through public-private partnerships.
	POLICY		Supported by local economic development agencies through plans and policies that support economic development initiatives and broad land use policies.
APPROACHES	PROGRAMMING		The specialty of Commercialization Spaces; includes access to workshops, education, networking, equipment, and more.
	SPACE CHARACTERISTICS		Access to a large amount of space and multiple locations is necessary for their success.
IMPACT	ECONOMIC, SOCIAL, ENVIRONMENTAL		Economic focus, but have indirect community and environmental impacts.

3. ECONOMIC COMMUNITY CENTRES

Key Feature

Networks that make a difference.

A key feature for the envisioned economic community centres (ECCs) is that they use a non-profit business model to capitalize on financial support, subsidies, and partnerships to ensure their operations and sustainability.

Before defining these space types, it is important to highlight that there are no models labeled with the specific name of Economic Community Centres. This definition is a vision based on similar creative industrial production spaces. ECCs are envisioned to become creative, collaborative, and sector-specific spaces that cater to light industrial manufacturers in the arts, culture and design sectors. ECCs are managed by a centralized entity but open to all who are willing to pay a membership or drop-in fee. ECC users enjoy an array of accessible services that support skills training, tool sharing and literacy, and experimentation. These community oriented models are known for running programs that showcase their members' work, thereby attracting more support in the form of increased users or subsidies.

The precedent models chosen are creative industrial production spaces with some characteristics similar to those envisioned for ECCs.

PRECEDENT MODELS



MakerLabs

Vancouver, BC, Canada
SEE PAGE 28 &
SEE APPENDIX A, PAGE 47



Ildsjel

Toronto, ON, Canada
SEE PAGE 28 &
APPENDIX A, PAGE 47

MAKERLABS VANCOUVER, BC

The Lower Mainland's largest makerspace connecting makers of diverse backgrounds and abilities with the space, tools, and training to make 'almost anything'.

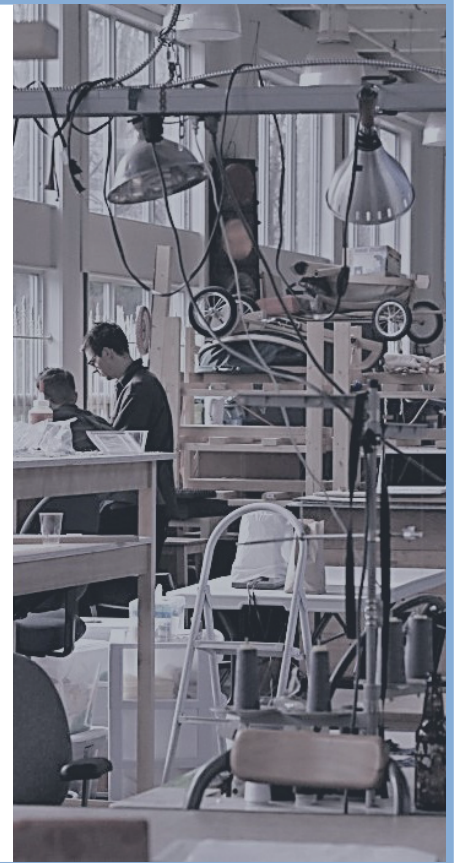
Quick Facts

- Established in May 2014
- Currently operates in a leased 10,000 square foot space, and recently leased a second 21,000 square foot building across the street

Unique Features

- Began as a pop-up laser shop in 2013, expanded to a warehouse in 2014, and leased a second warehouse by 2018
- Offers fabrication services and makerspace setups in addition to space, tools, and workshops
- Business model includes a strong educational program that can be customized to the client needs and location

FOR MORE INFORMATION, SEE APPENDIX A PAGE 47



ILDSJEL TORONTO, ON

A creative collective designed for collaboration and innovation amongst a community of artists, makers, and entrepreneurs.

Quick Facts

- Established in May 2017
- Occupies 6,100 square feet of co-working space catering to individuals/businesses in the arts and culture industries

Unique Features

- Located in the Toronto Port Lands area where rents are a third less than in the city centre
- The co-working space includes a print studio, event space, recording studio, and light manufacturing laboratory
- Founding members lease the Ildsjel space, but parts are subleased to smaller businesses such as the RHC music studio and the OmiTech makerspace

FOR MORE INFORMATION, SEE APPENDIX A PAGE 47

EVALUATION OF TOOLS, APPROACHES, AND SUSTAINABILITY IMPACTS

GOVERNANCE

Both Ildsjel and MakerLabs are for-profit businesses operated by medium-sized management teams. MakerLabs has a nine-person team made up of six makers who run the fabrication services and three community managers who run their member services and workshops. During an on-site interview, one of their staff members said that despite not having traditional roles, they all take turns on the key deliverables such as finance and marketing. Ildsjel's four-person team has clearer delineation of roles such as the "talker," the person in charge of the creative aspect; the "thinker," the person in charge of overall operations; the "engineer," the person in charge of running the makerspace; and the "reporter," who is in charge of marketing.⁴⁸

FINANCING

These two businesses are mostly self-sustained through the space and equipment rental fees paid by its permanent and one-time users. Additionally, MakerLabs has two other unique sources of revenue. The first one is through their educational program that provides open workshops for seasoned and new creators alike. The second one is through their fabrication services, which help third party businesses with their production needs. While their exact operational costs are not available, their ability to open a second location indicates good financial health. Ildsjel also has an additional — although not sufficient — source of revenue: they sublease two of their larger spaces to the RHC recording studio, which runs the in-house audio recordings, and to OmiTech, who runs the makerspace to offer specialized services and facilities to creative individuals and businesses.

Despite these two businesses having substantial community benefits (see *Sustainability Impact* section), the for-profit nature of their business model prevents them from qualifying for any form of tax breaks or special funds. However, during a site visit, a MakerLabs community manager told us that some of their members apply and get funding to run programs at their respective studios within MakerLabs. Unfortunately, the community manager did not have more details on these grant programs.

POLICY

Neither business was able to align to or benefit from any kind of multi-level policy framework. Yet, they both showed interest in being considered for tax breaks given the community-oriented nature of their businesses.

PROGRAMMING

As shown in the table below, both businesses offer diverse work or studio spaces to accommodate different needs and budgets. MakerLabs provides 24/7 access to its facility to its members who rent a 250 square foot studio (the largest size available). In the Ildsjel case, all-day access is available for those with a full membership. The two creative collectives also have online booking systems to reserve specialized equipment like 3D printing and laser cutting as well as amenities for work, special projects or events. The events, which can be member-sponsored or external events, are held in the flex space.

ILDSJEL	MAKERLABS
<ul style="list-style-type: none"> • Three different types of memberships • Shared workspaces (\$5 per hour) • Makerspace (\$20 per hour) • Meeting space (\$20 per hour) • Recording studio (\$45 per hour) • Live music room (\$45 per hour) • Event space (\$200 per hour) 	<ul style="list-style-type: none"> • Maker membership (\$125 per month) • Studio rentals (\$2.50 per square foot per month) • Maker Studio Affiliate (\$70 per month), gives access to an existing member's studio during regular hours

MakerLabs provides fabrication services to help third party businesses with their production needs, ranging from woodwork, metalwork, sewing, product design and 3D modelling, electronics, or installations. Furthermore, they have a strong educational program that can be customized to the needs of the client and even brought to their location. Lastly, MakerLabs can help aspiring maker entrepreneurs set up their own makerspace. In the Ildsjel case, they have two permanent tenants, the RHC recording studio and the Omitech makerspace. Ildsjel's latest addition is a 'Live Room' that can be rented out for music practice or jam sessions. Ildsjel's organized concerts and workshops also encourage community gatherings and exchange. These open programs not only diversify revenue streams, but also foster community networks.

SPACE CHARACTERISTICS

Both businesses offer permanent and on-demand workspaces to accommodate different sizes and budgets, and shared amenities for special projects or events.

MakerLabs is currently the largest makerspace in the Lower Mainland. Their existing site on 780 E Cordova is 10,000 square feet, and they just signed another lease for a 21,000 square foot site on 889 E Cordova.⁴⁹ Ildsjel's site has 6,100 square feet. In both businesses, only those with a full membership can have 24/7 access to the entire facility. MakerLabs' evolution from a pop-up laser shop in 2013, to a warehouse in 2014, and adding a second warehouse by 2018 highlights the significant demand for makerspaces in Vancouver.

Both Ildsjel's and MakerLabs' creative mandates shaped the design of their space through a light industrial lens. MakerLabs' two-story building allocates all heavy uses on the main floor and lighter uses on the second floor. All 47 studios range from 50 to 250 square feet in size and are rented for \$2.50 per square foot on a month-to-month basis. The studio tenants can use the space from floor to ceiling

and are responsible for building the wall structures, but must do so in consultation with the community managers. The Ildsjel space is a former commercial lighting showroom, making it an ideal open space with dedicated areas for the studio and showroom. The event space comprises approximately half of the area (2,700 square feet) with access to a garage door that provides for equipment loading.

MakerLabs had to ensure that the overall building used a comprehensive building/fire code to allow for the constant transformation of the space due to the space's flexible use and high user turnover.⁵⁰

SUSTAINABILITY IMPACT

ECONOMIC

The space similarities in these two cases allow them to provide workspace and equipment at a reduced cost, making it possible for small- to medium-income artists and designers to have access to jobs, markets, partnerships, and ultimately more financial stability. Given the collaborative nature of the space, members tend to bring in jobs for other members, or seek unique talents within their peers to contribute to contracting jobs. Members of affordable and well-equipped creative spaces can put their energy into producing their work, as opposed to dealing with risk of forced moves due to rent increases or evictions.

Since Ildsjel's opening in May 2017, they have supported approximately 10 small businesses, and the equivalent of 20-30 jobs.⁵¹ MakerLabs was unable to provide specific economic metrics since some of their members are hobbyists or part-time makers. That said, of the 47 fixed studios, many of its users have been there since day one.⁵² MakerLabs' spokesperson said that, on average, they have between one and four studios that become available each month. This shows the regular demand for industrial makerspaces in Vancouver.

SOCIAL

Through diverse mediums and perspectives, creative spaces communicate and celebrate a community's history and vision. They, in turn, inspire action and change.

Both MakerLabs and Ildsjel have accessible programs for members and non-members alike that encourage and support diverse community gatherings. In MakerLabs' case, they offer workshops and team building activities for schools and businesses. They also run residency programs to share their knowledge and tools, and to continue growing the maker community. Their current residency is 'Tools for Women', a two-month program where they invite women, irrespective of level of experience, to learn or polish their crafting skills. The first month is all about learning and the second month is all about teaching, with an end goal to empower women.

MakerLabs' essence of community and camaraderie is highlighted throughout their space and programming, with members and visitors exchanging their products and services in a 'gift' bulletin board located in the MakerLabs lounge. Some of the trades were: language lessons, pottery skills, film production skills, clothing alteration, improving sewing patterns, sports partners, and more.







"All we do is communal. We have skills training for the community. We participate in fairs where we teach the community. Here we have a community." - Adrian, MakerLabs Community Manager

While Ildsjel does not have educational programs, the creative, collaborative, and open nature of their programs also foster community networks. The part-time workspace at Ildsjel doubles as an event space where they host concerts, galleries, and markets. The RHC recording studio is open to both signed and independent artists while the Live Room next door is an insulated music practice space available for anyone wanting to jam. The creative and empowering activities offered by these two business models inject life, culture, and pride into their respective communities.

ENVIRONMENTAL

While neither model has metrics to track their environmental impacts, [the sharing and collaborative essence of these spaces mirrors a sustainable ethos](#). At MakerLabs, they recycle e-waste and have a scraps recycling system whereby one creator's waste becomes another's treasure. The site is also located within a two-minute walk from three different bus routes. Additionally, they have ample bike storage, which is often used to capacity.⁵³ This shows the positive impact that both the site and its users have on the environment.

Ildsjel also aims to operate in an environmentally sustainable manner and encourages their members to do the same. They have a suite of environmentally friendly initiatives from zero single use water bottle policy, to encouraging members to use bikes by providing in-house bike storage, and minimizing waste. The Ildsjel site is also two minutes away from public transit. The one negative impact that we noticed in these two sites is that given their operations from a warehouse-like space, there is little access to natural light.

TOOLS	GOVERNANCE		Both precedent models are for-profit businesses.
	FINANCING		The majority of overhead costs are covered through space and equipment rental fees paid by permanent and single use members.
	POLICY		Policy does not play a significant role in either of these business models.
APPROACHES	PROGRAMMING		24/7 access accommodates different needs and budgets, with their various spaces and industrial innovation tools primarily attracting community-oriented members.
	SPACE CHARACTERISTICS		Permanent and on-demand workspaces accommodate different operator and project sizes and budgets, in addition to shared amenities for special projects or events.
IMPACT	ECONOMIC, SOCIAL, ENVIRONMENTAL		A focus on local production attracts contract workers, hobbyists, and part-time makers and accessible programs for members and non-members emphasize these spaces' commitment to sharing and collaboration.

DISCUSSION

BENEFITS OF INDUSTRIAL INNOVATION SPACES

DIRECTLY CONTRIBUTING TO ECONOMIC DEVELOPMENT

The eight examples of industrial innovative spaces presented in the *Space Types* section have illustrated how sharing workspaces, services, resources, and amenities can lower the startup and operating costs of businesses. More importantly, these models have created opportunities to retain a diversity of manufacturing and light industrial jobs in highly urbanized cities, contributing to a local economy's stability. Each of the precedent models evaluated in this report was shown to have created employment opportunities for local workers, often as long-term sustainable employment paying middle class wages, as seen in the GMDC case.

REDUCING COSTS

Housing similar businesses together reduces their operational costs. Through membership and user fees as well as partnerships, initiatives, and agreements with governments and their agencies, shared spaces are able to offer below-market lease rates. This results in both long-term (more than five years) and short-term (five years or less) leases, or more flexible terms ranging from monthly to daily or hourly access.

CREATING BUSINESS OPPORTUNITIES

Sharing resources allows these organizations to expand their business and community networks. Co-location Hubs create an atmosphere of cross-pollinating entrepreneurs while Commercialization Spaces nurture these businesses and networks by allowing them to share equipment and learn from one another. Economic Community Centres provide them with much needed support and services, such as workshops and mentorships that allow them to grow.

CHALLENGES ENCOUNTERED

LIMITED FINANCIAL ACCESS

These precedents have shown that it was not easy for these businesses to establish themselves, and required significant financial support. CoBuild, CoMotion, Commissary Connect, and Ildsjel, each had to pool together capital from their founding members and/or investors. Their access to financing was limited since these types of business models are not well known, and their long term profitability has yet to be proven.

CoMotion founders were unable to access external financing because lending institutions were unfamiliar with their business model. When it started in 2012, Commissary Connect was the the first business of its kind in Canada. This meant banking institutions would not take them seriously, and as a for-profit enterprise, they were unable to benefit from City of Vancouver grants. To open their third location, Commissary Connect was able to secure a loan from VanCity Bank to purchase the lot on its third site, but the viability of this location will be contingent on its financial stability.

Commissary Connect is now finding new opportunities, such as the proposed '**food hub**' in the Flats, where they are advocating to take on a larger role in the region's local food economy. However, the development of a food hub in the Flats is a slow-moving process that requires support from the City and their partnerships with other local food organizations like the Greater Vancouver Food Bank.

A large part of the capital for developing industrial innovation spaces goes to retrofitting the buildings for older structures to fit the needs of new users. CoBuild had to invest a substantial amount of capital to bring their building's fire suppression system to its highest capacity, in order to satisfy the building code requirement. Due to their limited capital at the time, CoBuild had to forego the retrofit and were forced to close the business less than two years after it began. Similarly, Commissary Connect has dedicated significant funds to retrofit a newly leased building, raising concerns about their capital cost outflows.

GMDC, which benefits from local government assistance, had to endure "several years of arm-twisting, political goodwill, and a lot of meetings...to purchase the building for \$1, [and a City investment of] \$1,000,000 to begin renovations," according to its CEO Brian Coleman.⁵⁷

Located in 'Produce Row', at the northern border of the Flats, the **Food Hub** is part of a larger Innovation Hub planned for the Flats. Policies will be provided to protect and intensify land use that supports food related businesses in the Flats by exploring synergies and efficiencies between food businesses, community groups, and business clusters. A Food Centre of Excellence will be established on this site to improve access to healthy food within Vancouver.

RISING COST OF REAL ESTATE

Lack of familiarity of these kinds of business models also limits these organizations' ability to locate in industrial areas.

Ildsjel approached several potential buildings but were constantly turned down because landlords could not understand their business model. Fortunately, they were able to find a space in an area outside Toronto's downtown core, which was slated for redevelopment and offered lease rates one-third cheaper than in the Central Business District. But they are still struggling with low user demand due to low foot traffic in this area, which has low accessibility to the surrounding downtown neighborhoods of Corktown, Leslieville, and the Distillery District.

Commissary Connect is questioning the long-term viability of their businesses in the Flats since they are facing a 100% increase in lease rates after their initial five-year term contract. However, moving to another location would also pose a significant investment on their part since it would require them to retrofit the new space. Given the choice, Commissary

Connect would like to buy land within the Flats in order to secure long-term space for their members and expand their operations, but they are constrained by the limited industrial spaces available in the Flats and elsewhere in Vancouver.

There is high demand for light industrial spaces in Vancouver, an opportunity that Ironworks could have accommodated had it maximized the allowed 3 FSR on its 2.3 acre property. Due to some initial concerns by the developer, they instead opted for 2 FSR, and underutilized the allotted space.

GMDC is also having difficulty competing in the New York real estate market as industrial buildings are continuously being converted for residential and other uses that do not necessarily create well-paid manufacturing jobs. The biggest hurdle for GMDC moving forward is still the ability to acquire affordable real estate that will in turn provide small manufacturers with affordable production space.

NYC's conversion of industrial areas for residential and other uses

In 2005, then Mayor Michael Bloomberg designated certain areas of New York City as Industrial Business Zones (IBZs) to protect industrial companies that did not own their properties from the real estate pressures causing significant rent hikes that nearly doubled in a ten-year period. But outside these IBZs, industrial areas around the city are being rezoned for other purposes, resulting in a loss of more than half of NYC's manufacturing jobs between 2001 and 2011.

"Factors both global and domestic have contributed to the broad decline of manufacturing in the United States, but the loss of these jobs has been significantly more acute in New York City than other parts of the country. While the nation on the whole has shed about 30 percent of its manufacturing workforce since 2000, New York City lost 58 percent of its manufacturing jobs over the same time period."⁵⁵

ZONING RESTRICTIONS

Zoning can work both ways: it can restrict the flexibility of having multi-use and multiple business types in one location, or it can allow for different uses to co-opt industrial space via zoning changes. The permitted uses of CoMotion 302's location in Hamilton is being challenged since it is zoned as light industrial in close proximity to a residential area. Its current zoning limits the type of activities that can be done in the space, which then limits the type of businesses that can locate there. GMDC, on the other hand, struggles to secure industrially zoned spaces within New York City since the limited industrial lands the city has left are in danger of being converted to allow for other uses that favour residential, tourism, and consumption uses.

SUCCESS DRIVERS

FINANCIAL SUPPORT

Futureworks, GMDC, and Commissary Connect all benefit from some form of support from the local, provincial, and/or federal government allowing them to expand their operations. The former two are based in New York and are registered as non-profit organizations. Aside from private investments and charitable donations, GMDC has benefited from financial support from NYC council, NYCEDC, NYCIDA, in addition to other public and private partners, as well as support from elected officials.

How do innovation spaces expand their revenue base?

- Ildsjel actively markets their business online to expand their client base
- MakerLabs relies on its complementary fabrication services for additional revenues
- CoMotion actively pursues creative ways to provide a complete supportive environment to their clients, e.g. they have approached commercial banks to occupy a workspace in their buildings to allow startups to inquire about financing opportunities

Commissary Connect was able to tap into a grant from the Ministry of Agriculture for the development of their innovative technology, which seeks to increase the agricultural sector's competitiveness and sustainability. For their third and newest location on Laurel Street in South Vancouver, the land was purchased through a loan from the VanCity bank. Without this external financial support, Commissary Connect would not be able to expand their organization through membership fees alone.

SELF STARTERS

The others were able to establish themselves independent of local, provincial, and/or federal support, as discussed previously. Ironworks, which has the longstanding developer Conwest on its side. Others who were faced with limited capital have benefited from the high demand for affordable light industrial spaces in cities with increasingly high cost of real estate. The three innovation space types allowed for the sharing of spaces and resources that resulted in low startup costs for these organizations, allowing them to establish precedent models that draw in budding entrepreneurs and professionals. In all the models studied here, their founding members' tapped into professional networks and developed a strong social media presence to get their businesses off the ground.

BUILDING DESIGN

Innovative building designs offer cost savings to the users, such as Ironworks' use of stacked industrial warehouses to maximize the space. The Urban Design Policies and Guidelines⁵⁶ for the Flats Innovation Hub, derived from the policy objectives of the Flats Area Plan, recognize the benefits of building massing vertical stacked designs. Renovation of old buildings seen in the New York and Hamilton models also allows businesses to minimize their costs.

ROLE OF THE CITY AND NEXT STEPS

Light industrial innovators in Vancouver are a step ahead of their counterparts in other North American cities. Both the Greenest City 2020 Action Plan and Metro Vancouver's 2040 Regional Growth Strategy highlight the commitments of local and regional governments to protect Vancouver's industrial land base. At a finer grain, the False Creek Flats Area Plan and its corresponding False Creek Flats Plan Implementation: Policy and By-law Amendments bring forward zoning changes, amendments, and accompanying development policies and guidelines to manage future development in the area, with the latter document outlining support for light industrial businesses through:

- Provisions for retaining and intensifying core industrial economy serving lands
- Development of appropriate bylaws that support innovative economies
- Encouraging amenity contributions that support economic enabling activities
- Introducing rezoning opportunities for character and historic buildings

Given these and other supporting mechanisms already in place, there are still opportunities for the City to advance its support for industrial innovation in Vancouver. The main opportunity areas include championing industrial innovators through awareness campaigns and institutionalizing the Industrial Concierge's role as an advocate for the sector. Further opportunities exist through planning's strongest tool: zoning.

COMMUNICATIONS AND AWARENESS

Recommendation #1: Build awareness of successful light industrial innovation spaces.

Our research found that lack of access to financial resources is the biggest hurdle that innovative space models encounter. In most cases, the reason for this is landlords and lending institutions are unfamiliar with these business models. These spaces are understandably new, but the successful models found in this report and beyond are illustrative of their viability. The City should also initiate a dialogue or consultation with prospective industrial innovators in Vancouver to better understand their needs and find more targeted means to help them establish footing in the city. The responsibilities of the newly hired Industrial Concierge (discussed below) integrates most of these.

Recommendation #2: Document high demand for affordable light industrial spaces.

Light industrial innovation spaces tend to survive with little local, regional, provincial, and/or federal support because the spaces they offer are in very high demand. Currently, historical data on this can be drawn from online platforms like Spacelist, which advertises available industrial spaces and collects information on needed spaces. This task can be integrated into the Industrial Concierge's role so demand data can be provided to lenders wishing to understand and support the neighbourhood context and potential viability of these models.

Recommendation #3: Update the public's perception of industrial spaces.

Industrial areas have previously been viewed as highly pollutive and noisy, and are therefore separated from residential neighbourhoods. There are now fewer heavy industrial businesses in cities, with many being replaced by light industrial businesses in recent years. These light industrial operations do not pose the same level of environmental disturbance as their heavy industrial counterparts but instead operate using energy efficient building technologies, promote the use of transit with their central locations, and offer a variety of jobs to the city's residents.

Recommendation #4: Recognize interdependence of residential and light industrial land uses

It is common for a major city like Vancouver to lose industrial areas in favor of residential development. The communication and education efforts going towards affordable and quality housing in the city should also highlight the importance of protecting and supporting the light industrial land base as this provides many residents with employment space.

Recommendation #5: Highlight the importance of protecting and supporting the light industrial land base through communication and education efforts

Recommendation #6: Communicate the valuable contributions of light industrial spaces.

Aside from creating jobs, light industrial spaces also contribute to the community and environment through:

- Product development
- (De)construction and materials recycling
- Retrofitting old heritage buildings
- Increasing local government revenue
- Supporting small and medium businesses and local culture

- Demonstrating and promoting the use of green building designs and energy efficient building technology

The City can play a key role in communicating these contributions to stakeholders to help advance, diversify, and secure economic opportunities for local manufacturers.

ZONING

Zoning is a key tool to ensure light industrial spaces can be accommodated within cities through the preservation of the industrial land base. To do this, the City of Vancouver's Planning Department should work with the Industrial Concierge to improve consultations and collaborations with innovation space founders. This can be facilitated by the Industrial Concierge and will allow the department to better understand the diverse needs of industrial entrepreneurs so they can work collaboratively towards a mutually beneficial solution.

Recommendation #7: The City's Planning Department should consult and collaborate with innovation space founders to find a mutually beneficial solution to preserving industrial land.

Currently, the False Creek Flats Innovation Hub permits a variety of uses such as laboratories, research development, digital or tech offices, arts and cultural facilities, spaces for local food economy, and residential uses. Residential uses where permitted are anticipated at the third level above the floors reserved for other uses.⁵⁷ Revisiting zoning categories after consulting with industrial innovators will allow for zoning bylaw updates that provide extended support for innovative product development and manufacturing. The feasibility of land uses free of zoning should also be explored.

Recommendation #8: Revise zoning bylaws to allow for low-restriction uses of light industrial manufacturing.

Recommendation #9: Explore the feasibility of land uses free of zoning.

ENHANCED RESEARCH DESIGN

Documentation of the detailed economic, social, and environmental contributions of industrial innovation spaces can be done through further studies of these and other successful models. Additional research methods should include:

- Site visits to understand effective building design
- Qualitative research designed to engage with staff and users
- Further investigation of cleantech and green innovation spaces

Recommendation #10: Develop deeper understandings of industrial innovation space through further research.

INDUSTRIAL CONCIERGE

The lack of readily available industrial space within the city is a challenge for innovation spaces in Vancouver. With this scarcity of space, industrial innovators within the Flats

identified the need for assistance in locating available land throughout the area and the City. On January 2018, VEC opened a position for an Industrial Concierge primarily to activate underutilized industrial spaces and identify opportunities for resource-sharing among businesses. The position is being pilot tested and is temporarily financed in part by VEC, the City of Vancouver, and business partners within the City.

We recommend this role be institutionalized to provide services similar to the Office of Industrial & Manufacturing Businesses and Industrial Business Service Providers in New York City. The list below is the Industrial Concierge's current responsibilities and suggested additions incorporated from the discussion above.

Recommendation #11: Institutionalize the Industrial Concierge role with the City of Vancouver and incorporate future responsibilities.

EXISTING INDUSTRIAL CONCIERGE ROLE	SUGGESTED ADDITIONS TO ROLE
Identifying underutilized industrial spaces	
Simplifying and facilitating industrial colocation for emerging and established green businesses	
Working with industrial businesses to navigate the colocation process, including partnership agreements, leasing terms, permitting & licensing	
Working with the City of Vancouver Building Services team to simplify the process of industrial colocation and communicate it effectively to the business community	Include working with lending institutions to help secure financing for prospective innovators
Supporting ongoing Industrial Insights research and communications efforts	Educate and build awareness on the importance of industrial innovation spaces in Vancouver's economic development trajectory, not just with industrial landowners, developers, and real estate brokers but also with: <ul style="list-style-type: none"> • Banks, Potential Investors, and Venture Capitalists • Policymakers • Employers and Entrepreneurs • Residents
Identifying opportunities to simultaneously reduce costs and environmental footprints of industrial businesses through resource-sharing and taking collective action on environmental challenges	

CONCLUDING REMARKS

In major cities such as Vancouver, the pressures of other land uses, in particular that of residential development, lead to fewer industrial lands. This diminishing stock, as well as the rising cost of real estate across the city, make industrial lands unaffordable to small- and medium-sized light industrial entrepreneurs.

This need gave way to the advent of inner city light industrial innovation spaces. The eight precedent models presented in this report have shown that these spaces:

- Contribute to the economy by creating industrial and manufacturing jobs that pay higher than jobs in retail or service industries;
- Contribute to the environment by giving life to old industrial buildings and by using energy efficient building technology;
- Promote environmentally sustainable practices and create and use environmentally sustainable products; and
- Address affordability through maximizing remaining industrial spaces and create cost efficiencies through sharing resources, thereby helping light industrial businesses establish and thrive.

This report recognizes the efforts by VEC and the City of Vancouver to address the affordability issue among light industrial businesses in Vancouver. However, this is just the start. More follow through is needed to ensure that the plans will continue to be implemented. Dialogue and consultations with industrial innovators are also important in understanding their needs. As this report found, simply building awareness among key stakeholders of what light industrial spaces are and how viable they can be is a significant step towards helping them become established. The recent addition of an Industrial Concierge to manage industrial spaces, coordinate with stakeholders, and provide research and communication work is crucial to support these initiatives from the City.

The experience and insights from the eight precedent models studied here only capture a fraction of the reality in Vancouver. Research questions for further consideration include:

- What is the feasibility of policy transfer for the models explored in this report to Vancouver?
- How will the existing policy and land use constraints affect the future of an industrial innovation district in Vancouver?
- What legislative opportunities exist through the Vancouver Charter?
- What are the legislative limitations to funding models that exist in Vancouver?
- What regional opportunities exist beyond the City of Vancouver?
- How can multiple stakeholders and different levels of government best collaborate to facilitate a flourishing industrial innovation district in the Lower Mainland?

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CO-LOCATION HUBS

IRONWORKS

200 VICTORIA DRIVE, VANCOUVER, BC

COBUILD

984 BARTON STREET E, HAMILTON, ON

TOOLS	 <p>GOVERNANCE</p>	<ul style="list-style-type: none"> For-profit, strata building Developer: Conwest Sales: Cushman & Wakefield 	<ul style="list-style-type: none"> For-profit enterprise Managed by full-time community manager who also doubles as a receptionist
	 <p>FINANCING</p>	<ul style="list-style-type: none"> Standard developer investment model No special constraints compared to other builds by the same developer 	<ul style="list-style-type: none"> Financed entirely by the four co-founders' personal investments Additional funds generated through pre-selling memberships Revenue not enough to cover fire suppression system Closed after 16 months of operations
	 <p>POLICY</p>	<ul style="list-style-type: none"> Located in an industrial area First stacked industrial design in Canada Market absorption studies and grade, soil, and environmental considerations made builder reconsider FSR uptake: 2 instead of 3 Units being sold to owner-occupiers 	<ul style="list-style-type: none"> Located in an industrial area
APPROACHES	 <p>PROGRAMMING</p>	<ul style="list-style-type: none"> Strata management building Common underground parking including visitor parking, electric car parking and bike storage Other shared amenities: loading dock, freight/passenger elevator, rooftop, and end-of-trip facilities with lockers, washrooms, and showers 	<ul style="list-style-type: none"> Membership-based program gives members access to a boardroom, kitchen, forklift and operator, basic utilities, internet, security, shared event space, 24/7 access, and flex spaces Specialized equipment (planer, CNC machine, 3D printer, and lathe) available to members Workshops available
	 <p>SPACE CHARACTERISTICS</p>	<ul style="list-style-type: none"> 200,000 sq ft across two buildings on a 2.3 acre lot Units range between 3,000-14,000 sq ft Two levels of stacked industrial units with flex space to allow for warehouse, showroom, and mezzanine Third level has commercial units 	<ul style="list-style-type: none"> 55,000 sq ft of industrial space + 15,000 sq ft of warehouse and maker space
IMPACT	 <p>ECONOMIC, SOCIAL, ENVIRONMENTAL</p>	<ul style="list-style-type: none"> Minimized building footprints with stacked design Screening process to ensure owner-occupiers 35 high-tech or service-oriented businesses to provide 500 jobs (Vancourier estimate) Auto lighting throughout buildings Heating and cooling on demand in indiv. units Electric vehicle charging stations 	<ul style="list-style-type: none"> Contributed to community preservation by revitalizing older buildings in Hamilton Innovative sun tunnel design provides common work areas with 100% natural sunlight Located near transit and active transportation routes







CO-LOCATION HUBS

COMOTION

115 KING STREET E, HAMILTON, ON
302 CUMBERLAND AVE, HAMILTON, ON

GREENPOINT MANUFACTURING AND DESIGN CENTRE

1102 ATLANTIC AVE, NEW YORK CITY, NY

TOOLS	 <p>GOVERNANCE</p>	<ul style="list-style-type: none"> For profit enterprise Managed by full-time community manager who also doubles as a receptionist 	<ul style="list-style-type: none"> Non-profit developer Twelve member Board of Directors 7 Buildings in total, but this research focuses on the 1102 Atlantic Avenue building
	 <p>FINANCING</p>	<ul style="list-style-type: none"> Financed by four co-founders and two partners Access to loans was difficult due lenders' unfamiliarity with co-working business model Additional funds through lease rates benchmarked on the CSI* non-profit rates 	<ul style="list-style-type: none"> Building purchased with municipal funding (\$5 million USD) Operations supported through public and private sector partners as well as the New Markets Tax Credits Main financial partners are Enterprise Community Partners and Bank of America Merrill Lynch
	 <p>POLICY</p>	<ul style="list-style-type: none"> Located in an industrial area 	<ul style="list-style-type: none"> Not on Industrial Business Zone, but all other GMDC sites are Grant from NYC allows GMDC to offer below-market lease Grants customized to each building and bound by a restrictive use covenant (to offer long-term, affordable leases) Common Area Maintenance charges not included in lease
APPROACHES	 <p>PROGRAMMING</p>	<ul style="list-style-type: none"> Membership benefits include mail, internet, and printing services as well as discounts on business supplies Amenity rentals including tech-equipped meeting rooms, library, event space Shared spaces: kitchenette, rooftop patio, lounge Access to mentors and investors 	<ul style="list-style-type: none"> No programming or membership benefits available beyond offering cheaper, long-term rental opportunities for industrial and creative entrepreneurs
	 <p>SPACE CHARACTERISTICS</p>	<ul style="list-style-type: none"> Downtown Hamilton site has 10,000 sq ft of bookable space consisting of 39 offices, 21 desks, and 18 sofas East Hamilton site has 5,100 sq ft with 22 offices and 11 bookable desks spread out across two floors 	<ul style="list-style-type: none"> 50,000 sq ft of space houses 14 units ranging from 1,200-6,100 sq ft All of GMDC's buildings rent between \$17-19/ sq ft Provides industrial production facilities for local entrepreneurs
IMPACT	 <p>ECONOMIC, SOCIAL, ENVIRONMENTAL</p>	<ul style="list-style-type: none"> Contributed to community preservation by revitalizing older buildings in Hamilton Innovative sun tunnel design provide common work areas with 100% natural sunlight Located near transit and active transportation routes 	<ul style="list-style-type: none"> 50 new or retained jobs for local middle-income workers GMDC was nominated as a semi-finalist for the National Development Council's Academy 2015 Awards in the Job Creation Category Won the Leadership in Energy and Environmental Design (LEED) Silver award in 2016 2/3 of tenants and employees walk, bike, or take transit to work

COMMERCIALIZATION SPACES

COMMISSARY CONNECT

401 INDUSTRIAL AVE, VANCOUVER, BC
 417 INDUSTRIAL AVE, VANCOUVER, BC
 8811 LAUREL STREET, VANCOUVER, BC

FUTUREWORKS

VARIOUS LOCATIONS ACROSS NEW YORK
 FLAGSHIP SITE ON BROOKLYN ARMY
 TERMINAL (BAT)

TOOLS	 <p>GOVERNANCE</p>	<ul style="list-style-type: none"> For-profit business Three-person staff team: founder, business operations manager, engagement manager Rent two sites and own one site Multiple non-profit partners in agrifood sector 	<ul style="list-style-type: none"> Non-profit organization headed by the NYCEDC Spaces provided through public-private partnerships and contracts
	 <p>FINANCING</p>	<ul style="list-style-type: none"> Retrofitting/equipment for first location funded from personal investment Third site purchased with VanCity loan Funding from BC Ministry of Agriculture and Growing Forward 2 Overhead costs supported through membership fees (from \$450/month) 	<ul style="list-style-type: none"> Benefited from \$8 million USD allocated by NYCEDC Provide grants in the tens of thousands of dollars to partners who run a program and/or provide space
	 <p>POLICY</p>	<ul style="list-style-type: none"> Located in an industrial area Business Development support from BC Agrifood and Seafood Strategic Growth Plan Supporting policy: Flats Economic Development Strategy and Vancouver Economic Action Plan 	<ul style="list-style-type: none"> Benefits from the State Planning Department Brownfield Opportunity Areas designation and the city's IBZ zoning policy Benefits from \$49 million USD investment provided through the NY Works Jobs Plan's initiative Other sites benefit from public-private partnerships
APPROACHES	 <p>PROGRAMMING</p>	<ul style="list-style-type: none"> Memberships starting at \$450/month 24/7 access Partners support the delivery of workshops, mentoring, and showcasing opportunities Members can book food cart with street food license (CoV) and pop-up retail space (Fraser Lands) 	<ul style="list-style-type: none"> Flagship site on BAT offers space and specialized equipment rentals Network of partner spaces Workshops and education programs available on all sites
	 <p>SPACE CHARACTERISTICS</p>	<ul style="list-style-type: none"> 3 Facilities across Vancouver ranging from 2,300-6,000 sq ft 10+ workstations per facility All with health codes corresponding to production capacity Looking for additional site with over 8,000 sq ft to include warehouse, retail/showcase space, and office space 	<ul style="list-style-type: none"> Flagship site on BAT is 20,500 sq ft co-location conglomerate Space characteristics vary per building
IMPACT	 <p>ECONOMIC, SOCIAL, ENVIRONMENTAL</p>	<ul style="list-style-type: none"> Regional GDP of \$40 million from one facility over five years in one facility Supports over 60 businesses Partnerships with community and environmental sustainability-driven organizations like Greater Vancouver Food Bank and Potluck Cafe Society 	<ul style="list-style-type: none"> Futureworks supports 85 businesses Creation of over 2,000 advanced manufacturing jobs by 2020 Reduce barriers to employment and connect entrepreneurs to markets Encourage affiliate businesses to include sustainability into their product designs







ECONOMIC COMMUNITY CENTRES

MAKERLABS

780 E CORDOVA ST, VANCOUVER, BC
889 E CORDOVA ST, VANCOUVER, BC

ILDSJEL

4 CARLAW AVE, TORONTO, ON

	MAKERLABS	ILDSJEL
TOOLS	 <p>GOVERNANCE</p> <ul style="list-style-type: none"> For-profit business Four-person team: talker, thinker, engineer, and reporter Rent two locations in Vancouver's East Side 	<ul style="list-style-type: none"> For-profit business Nine-person staff team: founder/maker, 3 community managers, and 5 makers
	 <p>FINANCING</p> <ul style="list-style-type: none"> Self-sustained through space/equipment rental fees paid by members and one-time users Two other sources of revenue: educational programs and fabrication services Financial wellbeing demonstrated by their opening of a second location 	<ul style="list-style-type: none"> Self-sustained through space/equipment rental fees paid by members and one-time users Two permanent tenants (maker space and recording room) offer additional revenue
	 <p>POLICY</p> <ul style="list-style-type: none"> N/A Unable to align to or benefit from any kind of multi-level policy framework. Yet, they showed interest in being considered for tax breaks and/or grants 	<ul style="list-style-type: none"> N/A Unable to align to or benefit from any kind of multi-level policy framework. Yet, they showed interest in being considered for tax breaks and/or grants
APPROACHES	 <p>PROGRAMMING</p> <ul style="list-style-type: none"> 24/7 access available to tenants in large studios Online booking systems to reserve equipment/space Fabrication services On- and off-site educational programs Makerspace setup Event space available to members and non-members 	<ul style="list-style-type: none"> 24/7 access available for those with a full membership online booking systems to reserve equipment/space Live room, music recording studio, and maker space Event space available to members and non-members
	 <p>SPACE CHARACTERISTICS</p> <ul style="list-style-type: none"> Existing site has 10,000 sq ft with 47 studios (50-250 sq ft) Rent is \$2.50/ sq ft on a monthly basis Tenants can use the space from floor to ceiling Comprehensive building/fire code New site to have 21,000 sq ft. Space characteristics TBC 	<ul style="list-style-type: none"> 6,100 sq ft Diverse spaces to accommodate diverse interest: music, crafts, office work, and special events Comprehensive building/fire code to allow for flexible use of space
IMPACT	 <p>ECONOMIC, SOCIAL, ENVIRONMENTAL</p> <ul style="list-style-type: none"> Studio and equipment rentals Accessible to small- to medium-income individuals Opportunities for members and non-members On and off site workshops and team building Residency programs to share their knowledge/tools and to grow the maker community E-waste and scraps recycling system 	<ul style="list-style-type: none"> Workspace and equipment rentals Accessible to small- to medium-income individuals Opportunities for members and non-members Community networks fostered through sharing and collaboration Environmental initiatives: from zero single use water bottle policy, to encouraging members to use active transportation

FLATS ECONOMIC DEVELOPMENT STRATEGY

CHALLENGES	UNAFFORDABILITY OF SPACE	BARRIERS TO INNOVATION	LACK OF CONNECTIVITY + AMENITY	CLIMATE RISK + RESILIENCE
	<ol style="list-style-type: none"> 1. Demand for industrial space outstripping supply 2. Lease rates rising too high 3. Policy ineffective at suppressing land values 	<ol style="list-style-type: none"> 1. Global disruptions driving need to innovate 2. Limited capacity for R&D 3. Limited access to R&D resources and institutions 	<ol style="list-style-type: none"> 1. Limited access to amenities and social programming 2. Lack of brand / collective identity 3. Dead zones caused by underutilized space 	<ol style="list-style-type: none"> 1. Industrial businesses are most impacted by sustainability issues 2. The Flats is a liquefaction zone 3. Many businesses are too small to tackle sustainability challenges on their own
PROGRAMS	1A. Foster colocation and space sharing partnerships among businesses seeking space, and help facilitate the colocation process.	2A. Establish a skills-matching program to match industry challenges with resources from academia, government, and the community.	3A. Create opportunities for businesses and employees in the Flats to connect, share ideas, learn, collaborate, and brand the district.	4A. Host training and education programs to help Flats businesses collectively tackle sustainability and resilience challenges.
GOVERNANCE	1B. Establish a non-profit industrial development corporation to develop, manage, and program affordable industrial spaces.	2B. Establish a multi-stakeholder leadership group to develop and manage the skills-match program and demonstration licenses	3B. Foster the development of an industrial BIA dedicated to representing and advocating for the needs of the Flats business community.	4B. Build project teams made up of subject-matter experts, students, and business conveners to tackle individual issues.
SPACE	1C. Identify a portfolio of sites to develop, retrofit, manage, and maintain as affordable industrial spaces in the Flats, and establish mechanisms to secure these spaces long-term.	2C. Develop and manage a series of public demonstration and education spaces for startups.	3C. Establish and service mobile amenity zones in which service startups can test their business models.	4C. Secure small spaces where businesses can install shared sustainability infrastructure.
POLICY	1D. Develop the regulatory framework needed to secure economic development amenities in the Flats.	2D. Develop demonstration licenses to allow industrial innovators temporary access to publicly held land for testing and showcasing new products and services.	3D. Incent the use of orphan spaces and temporarily underutilized spaces such as parking lots and rooftops for economic and community uses.	4D. Identify policy barriers to implementing sustainability and resilience measures and seek ways to remove red tape.
RESEARCH	1E. Collect and publish annual data on emerging industrial space needs and common challenges facing industrial sectors in the Flats.	2E. Incorporate economic development criteria into City of Vancouver real estate dealings and infrastructure projects.	3E. Research collective community challenges in the Flats and identify and test solutions.	4E. Research collective sustainability challenges in the Flats and develop pilot projects to test various solutions.
FUNDING	1F. Explore developing a Flats Fund (Special Purpose Vehicle) to aggregate and deploy capital from development contributions for economic development amenities in the Flats.	2F. Streamline and simplify the process for small and mid-size businesses to locate, apply for, and obtain skilled individuals to help with R&D initiatives.	3F. Utilize the tax structure of Business Improvement Area associations to fund public realm improvements and community programming.	4F. Assemble funding on a project-by-project basis utilizing a combination of grants, government funding, and corporate sponsorship.

Source: Vancouver Economic Commission

INTERVIEW QUESTIONS

N.B. While our research team tried asking the questions below, some of them were not answered due to the interviewees' unfamiliarity with the information.

Interview Questions: Ironworks

- What would you say was the familiarity of the mixed commercial/industrial concept amongst lenders, designers, building code inspectors, strata management companies, etc?
- Was the mixed-stack industrial over industrial + commercial model really the first in Vancouver and Canada?
- Given the novelty of the mixed commercial/industrial design, was the application process with the City any different than for your other projects?
- During the design process, were there any discussions about having a childcare facility of some sort for parents to be able to bring their kids to work?
- Why did you think that taking advantage of the given FSR was risky? How would you capitalize on the same given 3 FSR next time?
- Was the screening process to select owner-occupiers standardized? If so, what kind of information were you looking for?
- I understand you're targeting the spaces to corporate offices, industrial manufacturing and warehouse facilities. Would you consider selling some of the units at Ironworks or future projects to a non-profit organization that may subdivide the space and rent it to social purpose businesses and/or small-medium entrepreneurs?
- Were there any challenges in making this project happen? What would you do differently next time?
- I read you're developing two other strata projects, one on Southwest Marine Drive but I could not find info on the other one. Where is it? Are these a mix of commercial and industrial as well? What is the FSR?
- How many units are left as of today?

Interview Questions: CoBuild

- Background on how CoBuild started
- What was the main challenge that it encountered?
- What can you tell us about the Catalyst-137.com project in Waterloo?
- Do you have advice for others starting a similar business?

Interview Questions: CoMotion

- Background on how CoMotion started
- How did you finance the business?
- Who are your key partners?
- What are the current challenges that you are facing?
- What kind of support could the Government have provided to help the business establish and grow?
- Advice or lessons for others looking to setup similar co-working space in Canada?
- Currently, both office buildings serve knowledge work and provide only office spaces. They are looking to expand to co-working spaces that caters to co-makers.

INTERVIEW QUESTIONS

Interview Questions: Greenpoint Manufacturing and Design Centre

- Does your building has a centralized management model? What type of lease do you offer your renters?
- How are your leases administered? Do you use any co-leasing models?
- What about your partnership agreements and legal contracts? Are they traditional leases with one anchor tenant or something else (more nuanced)?
- How are your rental subsidies determined?
- Do you offer anything like Rent Geared to Income?
- Cost sharing: is there an expectation of individual contributions to space maintenance, upkeep, safety/security?
- How do you make retrofit decisions in collective areas?
- Can you please explain the financing model for 1102 Atlantic Ave?
- What is 1102 Atlantic Ave's \$/SF?
- Was the zoning already in place to allow for co-location? Or was the site rezoned?
- Do you think Industrial Business Zones (IBZs) are an effective tool for your business model?

Interview Questions: Commissary Connect

- How did it start? Why did you choose the False Creek Flats area?
- What aspects of proximity to downtown is appealing to your organization? (transportation?)
- What is your relationship with the property owner, especially since the lease rate has doubled over the past five years?
- How many members/businesses does Commissary Connect support currently?
- How many workstations are provided in each facility?
- Did you purchase the land or are you leasing it?
- Was the building retrofitted or built-to-suit?
- How were you able to finance this?
- Any programs/support from CoV or others for the retrofitting?
- How long is the lease? How much is your rent per square foot?
- How much was the cost of land per square foot approximately?
- Why did you choose to locate your third facility away from the Flats? What are the benefits of being there? What barriers were there to locating in Vancouver, in general?
- What is approximately the square footage of your facilities?
- Is this space adequate for you needs?
- Do you hope to expand in the future?
- How much money was invested in equipment and land costs?
- Is the equipment owned, rented, or was it donated?
- Is this business model the first of its kind in Vancouver?
- You voiced that you believe you are providing a public service. Can you expand on that?
- Is Commissary Connect considered a non-profit, for-profit, or social organization?

INTERVIEW QUESTIONS

- Online it states that you receive funding from various organization, both from government and private institutions. What would you say is the percentage of funding is from private versus government or banks?
- Would you say Commissary Connect could sustain itself without this funding?
- Are their any key partners in running this organization?
- How has VEC and the City participated?
- Can you share some information on Commissary Connect's sustainability impact? Community, economic, environmental?
- What are some current challenges you are facing? In terms of space needs, or policies or zoning bylaws, or expanding your organization?
- What kind of support could the City or VEC do to support organizations looking to set up similar commercialization spaces in the Flats?
- Do you have any advice or lessons for others looking to set up similar commercialization spaces in the Flats, Vancouver, or Canada?

Interview Questions: Futureworks

- Can you tell me a bit about the organizational profile of Futureworks? Is it a non-profit, municipal agency, or something else?
- Can you clarify whether you are housed in the NYCEDC office or Brooklyn Army Terminal or somewhere else?
- How exactly do you support innovation businesses? What programs exist?
- What are your criteria for supporting them?
- Are any of these supported through partnerships? If so, with who?
- Do you have a space for your members to share equipment? Do you own that equipment or does someone else? What is the FSR of this building (and what is allowed)?
- What is your \$/SF?
- What role do IBZs play in supporting your initiatives?
- Are there any other government programs or initiatives that support Futureworks?
- Do you have any sustainability or community impact measures or goals?
- How does your organization define success?

Interview Questions: MakerLabs

- I've seen the floor plan for your two levels. I know your larger studio space is 250 sq. ft. Also, I counted 47 fixed studios in the main floor, and 50 studios on the second floor. Can you tell me what is the size range of all these spaces?
- Why and when did you move from your old location at 196 Kingsway location?
- What would you say was the familiarity of the colocation/maker concept amongst lenders, designers, building/fire code inspectors, etc?
- How does your insurance work?
- What was the process of getting permits, licenses with the City like?
- Is there anything the City can do to support the sustainability of your business?
- Were there any (other) challenges in making this project happen? If you had to start over, what would you do differently next time?
- Do you see a project like this coming to fruition in the Flats?

INTERVIEW QUESTIONS

- What type of business is MarkerLabs?
- I noticed that your staff team does not have very clear roles, you're all makers or community managers. How do you assign or share the finance, marketing, and operations roles?
- Are any of your users parents and have they shown interests in having child-care space? Could a place like MakerLabs make that happen?
- Do you know how many jobs your site creates on an average basis/year?
- What is the turn-over rate of tenants?
- We're trying to look at the accessibility of the spaces. Do you know where the majority of your members/users are coming from and how they get to work?
- What would say are your social or community and your environmental impacts? In other words, how do you contribute to the community and/or environment?
- Can you tell me a little as to how this business came to fruition? Locating the space, the financing, and the different stages/players?
- Do you get any tax breaks or special funds given the nature of the business?
- Do you have any key partnerships that help sustain this business? Access to markets, mentorship, funds, etc.
- Do you own the site? If no, who does and how much do they pay for it. What is the lease term? How do they ensure it does not keep increasing? Do they fear not being able to pay...?
- Your business is only 4 years old, what do you see as the long-term vision? Are you planning to expand?

Interview Questions: Ildsjel

- How ildsjel came about, what were the challenges you encountered in establishing the organization, and what were the key factors to its successful implementation
- What type of organization is Ildsjel (social, non-profit, or for profit)?
- How was it funded? Was the capital mainly from private individual investments? Were there grants or other incentives from the local government and/or supporting institutions?
- When was it established (started operations)?
- Is there a membership selection criteria?
- Are you aware of any local government or federal policies and strategies that helped in its establishment?
- At this stage, would you consider your organization as self supporting?
- What are its current challenges?
- What kind of support do you think should be given by the local government and/or the city's economic commission to help such organizations thrive?
- What advice and lessons learned would you share with others who wish to set up a similar space in other cities?