

## **Day Two - Emerging enablers that can help us develop new innovations and technologies.**

### *Innovation Enablers*

We use tools and technologies - many of them recent inventions themselves - to develop innovations and new ideas. They serve as innovation enablers. For example:

The ability for [amazon.com](https://www.amazon.com) to operate as the world's largest book seller, and increasingly, provider of all types of retail items was not possible without the development of the internet and world wide web.

Many of the hand tools we use in our gardens, the items we longingly review at Lee Valley Tools, require advanced machining and extrusion tools to be able to create.

**When we think about innovation and technology in urban agriculture and local food, often the real skill lies in being able to build on these innovation enablers to create the products, services and strategies that can help us be better food producers and distributors.**

We are seeing a number of emerging innovations and technologies that have the potential to serve as enablers for innovations in Urban Agriculture and Local Food. We know that, increasingly, traditional agriculture involves large scale, capital intensive, operations that are dependent on significant chemical and petroleum inputs. The approaches used to engage in innovation and technology development in traditional agriculture don't fit as well with urban agriculture and local food which involves smaller scale operations, lower capital intensity and a focus on sustainable production practices. Yet, the same time we also want to find ways to generate sufficient returns to allow producers to be viable.

Many of the innovation enablers described below have emerged around the DIY (do it yourself) movement. DIY approaches are generating interest and activity in many different sectors; they offer similar possibilities for urban agriculture and local food. As you review these potential innovations through the lens of urban agriculture and local food consider how they (or variations of these ideas) could be used.



Lets look at four enablers

- new approaches that make it easier to **access financial resources** - the capital and operating funds that producers require
- new approaches that can **support marketing, promotion and sales**
- new options to **structure, own and operate** urban agriculture and local food enterprises
- new ways to **develop new tools and technologies** that can improve how we produce and distribute local food.

### **Accessing financial resources - capital and operating funds.**

Access to financial resources is always a challenge for many small-scale organizations, including urban agriculture producers. Producers require funds to purchase equipment and land as well as to manage the challenges of obtaining adequate cash flow (costs for inputs in planting and early growing required well before any revenues from the sale of harvested goods).

Traditional financial institutions often don't serve urban agriculture and local food very well. Small enterprises, creative artists, inventors face similar challenges. For example, one approach that has been developed in Urban Agriculture and Local Food are CSAs. In addition to the marketing and customer relationship benefits, the CSA model represents one approach to accessing financial resources in different ways as producers are able to pre-sell some of their potential harvest as a means to generate early revenues to cover some of their planting and growing costs. What other options could be considered?

The emergence of "**crowdfunding**" may offer new possibilities. Crowdfunding provides a way for producers to generate funds in novel ways, in particular by pre-selling or pre-committing products and services to the people who provide funds. Typically this does not require the producer to give up a share of the business or to offer collateral.

Popular sites such as **Kickstarter.com** ([www.kickstarter.com](http://www.kickstarter.com)) and **indiegogo.com** provide a way for people who need funds to solicit contributions from others. These sites now support thousands of campaigns and stimulate the transfer of millions of dollars.



Take a look at a couple of recent kickstarter challenges related to urban agriculture:

<http://www.kickstarter.com/projects/1162494771/breaker-urban-micro-agriculture-challenge?ref=search>

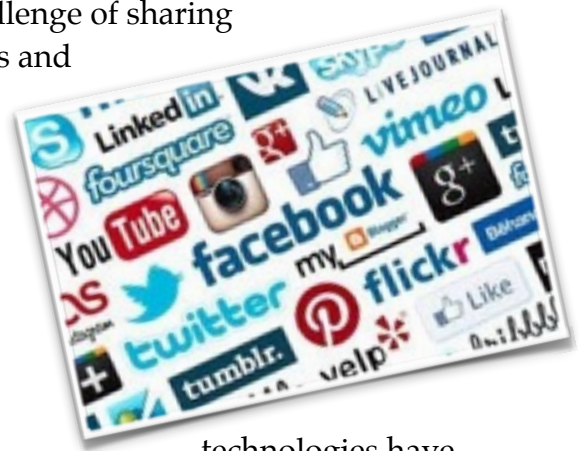
<http://www.kickstarter.com/projects/redshirt/native-agricultural-cooperative?ref=search>

Typically, Crowdfunding occurs around a defined campaign. Owners develop an idea that they feel will be of interest, actively promote it and use the crowdfunding site as a way to gather financial contributors. Contributors do not purchase shares or receive any sort of a financial return. Typically campaigns offer contributors a reward for investing, most commonly access to a pre-determined amount of the products or services produced, (e.g., an individual who invests \$100 would receive one food basket with the following products. The reward tends to be similar to the cost of purchasing the product or service through regular channels.)

Crowdfunding provides new ways to access capital and serves a powerful way for producers to promote their offerings.

### **Promotion, Marketing and Sales**

Small enterprises frequently struggle with the challenge of sharing information and getting news about their products and services to potential customers. They find it difficult to invest the time and resources that are required to promote and market their entities. Increasingly, urban agriculture and local food producers want to move beyond traditional approaches such as farm visits, local farmer's markets and CSAs as they seek to connect with customers.



The emergence of social media and easy-to-use technologies have allowed smaller enterprises to look and act like organizations that are much larger and better funded. We have seen a proliferation of tools such as web sites, blogs, Twitter, Facebook, YouTube, Pinterest, to name a few that allow you to connect with others. It is possible to create professional, well-designed social media resources that can profile the good work being done by producers and food marketers. The key principles of social media include:

- share rather than sell,
- focus on stories, and
- emphasize listening and dialogue.

For more information on the use of social media in agriculture, look at a short, informative slide share presentation by Jessica Laccetti, through the University of Alberta on social media in agriculture.

[http://www.slideshare.net/JessL/social-media-in-agriculture?from\\_search=7](http://www.slideshare.net/JessL/social-media-in-agriculture?from_search=7)

For many of us involved in urban agriculture and local food social media is becoming a bigger part of our lives. The ability to provide a highly professional presence with present and potential customers, to educate and inform and further the interest in urban agriculture and local food is now accessible to any and all producers. Spend some time looking at what local producers are doing on-line to see if there are any ideas that you could implement.

For example, look at City Farms Co-op in Vancouver site

<http://www.cityfarmscoop.ca/index.html>

and some of the individual producers who are part of the co-op.

### Ownership, structure and Forms

Traditionally, we have viewed organizations as being one of private for-profit, public or not-for-profit entities. Each of these has advantages and limitations.

We are seeing the emergence of modified

organizational forms as well as increased interest in options such as co-operatives.

These alternative organizational structures offer urban agriculture and local food new approaches and possibilities. In particular, we are seeing the rapid growth of **social enterprises**, which are organizations that engage in commercial activities with a goal to further human and environmental well being.

Social enterprises provide new options for local food producers and marketers. They encourage collaboration and the sharing of ideas and resources and use market forces but are not obsessively focused on maximizing financial returns.

For example, take a look at this eight-minute video where Britta Riley discusses how she used a global network of interested citizens and open-source concepts to develop a simple window farming design that allows urban dwellers to grow food in their apartment windows

<http://8020vision.com/2011/12/04/innovation-2-0-open-source-urban-agriculture/>

Using social enterprise concepts allows us to think about alternative ways to structure and engage in urban agriculture and local food operations. We can envision activities that actively engage with consumers, including where consumers may actually volunteer and be actively involved as opposed to simply purchasing and consuming.



We can find ways to reduce costs, reinvest profits into future activities and leverage cooperation to find efficiencies.

### **Apps, Mobile tools and the Internet of Things**

The emergence of sensors and smart devices, connected to the internet provides new opportunities to more effectively monitor and manage our activities. Often called the **Internet of Things** these small scale, inexpensive and easy-to-operate sensors and devices allow for more precise monitoring and management.

For example, if we consider that over 30% of irrigated water is wasted, if we can continuously monitor soil moisture, rainfall and irrigated water distribution we can reduce water waste. The Internet of Things allows us to better monitor water, as well as many other applications. For an overview of the potential of the Internet of Things, review the following resource:

[http://www.libelium.com/top\\_50\\_iot\\_sensor\\_applications\\_ranking/](http://www.libelium.com/top_50_iot_sensor_applications_ranking/)

The Internet of Things links with the growing use of **mobile** devices and computers. Increasingly, we are able to use our smart phones and tablets to help us manage our work. The access to powerful computers, untethered from offices and wires, allows us to better manage our work and activities.

Take a look at these two videos to get a sense of the potential of mobile technologies:

<http://www.youtube.com/watch?v=B8Le9wvoY00&feature=c4-overview-vl&list=PLHFIHpPjgk713fMv5O4s4Fv7k6yTkXwkV>

<http://www.youtube.com/watch?v=PGtP6ZO6Lt8&list=PLHFIHpPjgk713fMv5O4s4Fv7k6yTkXwkV>

Enabling both the Internet of Things and our mobile devices is the use of **Apps**. Apps are software applications, specifically developed to work on mobile devices. Apps tend to be smaller, cheaper, easier to build and use than traditional software. The power of mobile apps is that they can be relatively easily created and applied. As well there are now hundreds of thousands of affordable apps that are available. For urban agriculture and local food producers, apps linked with mobile devices and using the power of the Internet of Things provides the capacity to be better at what we do.

For a few examples of simple apps that have been developed to help urban farmers, look at the following site:

[http://msue.anr.msu.edu/news/apps\\_for\\_urban\\_agriculture\\_and\\_market\\_gardens](http://msue.anr.msu.edu/news/apps_for_urban_agriculture_and_market_gardens)

Linked to the ability to develop and apply small-scale, specialized tools and technologies, many of which have the capacity to share information to the net and remote computers, there is a shift in the ability to **create these resources locally**. The emergence of the **Maker Movement**, the trend in which individuals and local groups apply creative skills to design, make and sell products on their own, has provided a foundation to be able to develop the local capacity to develop the types of products and services that can support urban agriculture and local food activities.

In many ways the Maker movement has always been part of agriculture. Farmers have always relied on the ability too improvise and invent solutions when required. This Do-it-Yourself movement is now being celebrated as a new trend.

The excitement of the Maker Movement exists at different levels. Embraced by creative individuals who feel disconnected from the traditional workplace, the ability to create and sell self-made products offers an entrepreneurial future. Others celebrate the movement as as way to restore our manufacturing capacity. Still others focus on different attitudes to quality of life and a shift away from a mass consumption consumer culture. However, the more important dimension, particularly for urban agriculture and local food, is that the ability to produce small-run, customized and affordable products and services offers an exciting opportunity to create the technologies and innovations that may not come from mainstream suppliers. We have already noted that given the size and scale of modern farming most agribusinesses do not pay a great deal of attention to urban agriculture. The emergence of the Maker Movement provides a different means to develop responsive and innovative products and services.

The success of the Maker Movement is linked to a convergence of factors including open source sharing of ideas; new design tools, including inexpensive computer assisted design resources; the ability to quickly and cheaply develop and test prototypes, using 3D printers; access to low-cost, small run manufacturing facilities; use of social media and on-line technologies to create and sell products, both locally and more broadly and a new sense of creative energy and interest in owning ones own business.

In summary, innovation enablers, such as crowdfunding, social media, social enterprises, the Internet of Things, and the Maker movement, can be applied to allow people to develop targeted innovations and technologies to support urban agriculture and local food.