



2014

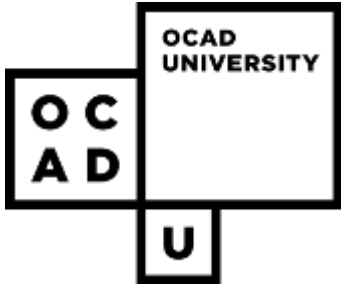
# Reimagining the future: The biomimetic economy

Church, Ryan and Benifand, Ksenia and Ahmed, Nihal

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# Reimagining the Future

## The Biomimetic Economy

Ryan Church | Ksenia Benifand | Nihal Ahmed

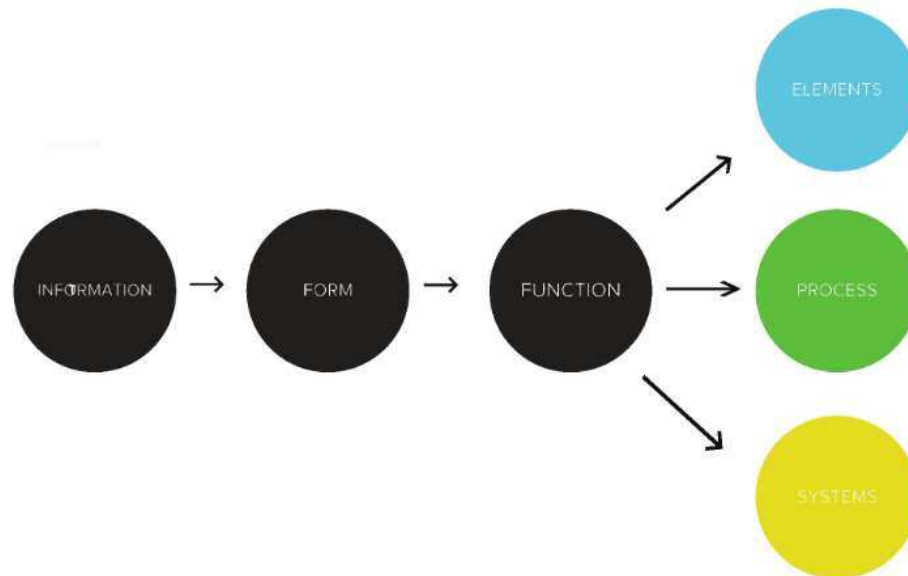


# What is Biomimicry?

A science that studies nature's models and then uses these designs and processes to solve human problems.

# Why Biomimicry?

Nature has been dealing with dynamic change for more than **3.8 billion years.**



## Research Purpose

Explore how Biomimicry design principals can be applied to our economic system.

# The Challenge

Businesses today are poorly prepared to deal with unexpected adverse social, environmental, and economic impacts.

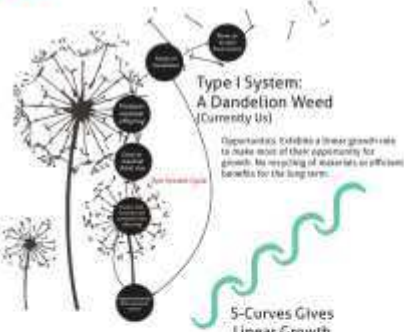
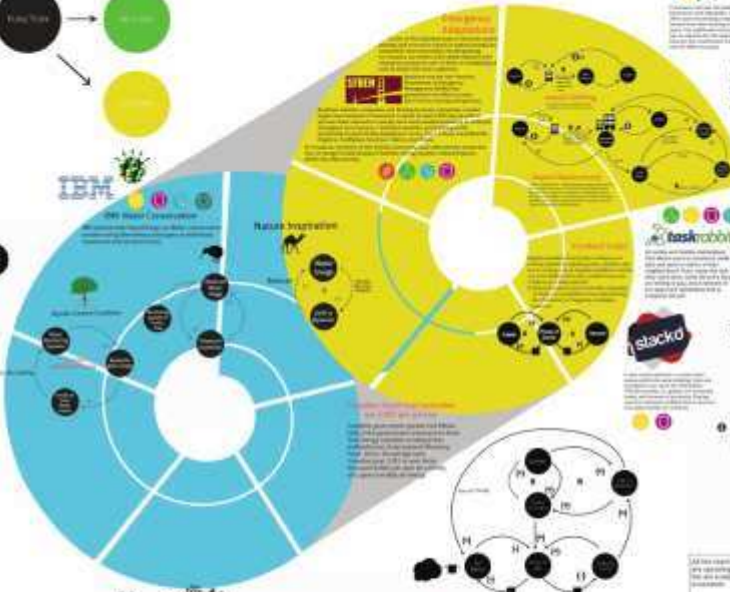
# Biomimicry

The strategic process of looking to nature for inspiration. It is the study of how nature's systems of all levels have the most advanced solutions to all problems on earth, and then to learn from those natural solutions. In the elements and systems of nature, biomimicry is used to give things which grow faster. Through the process of evolution, nature has been tested in the harshest of ways - and it is no one as the designers in business can design which combined 20,000 years of complex human positions.

- INSPIRE** - Understand what nature's systems do, how they work, and how they have evolved. This is the first step in the process of biomimicry, and it is the most important. It is the process of learning from nature's solutions and applying them to human problems.
- IMAGINE** - Use the inspiration to create new ideas and solutions. This is the second step in the process of biomimicry, and it is the most creative. It is the process of taking what you have learned from nature and applying it to your own problems.
- INNOVATE** - Develop and test new ideas and solutions. This is the third step in the process of biomimicry, and it is the most practical. It is the process of taking your ideas and solutions and making them real.
- IMPLEMENT** - Put your ideas and solutions into practice. This is the fourth step in the process of biomimicry, and it is the most important. It is the process of taking your ideas and solutions and making them a part of your organization.
- IMPROVE** - Monitor and evaluate your ideas and solutions. This is the fifth step in the process of biomimicry, and it is the most important. It is the process of taking your ideas and solutions and making them better.

# Reimagining the Future: The Biomimetic Economy

3.8 Billion Years of Research and Development



# Sharing/Circular Economy

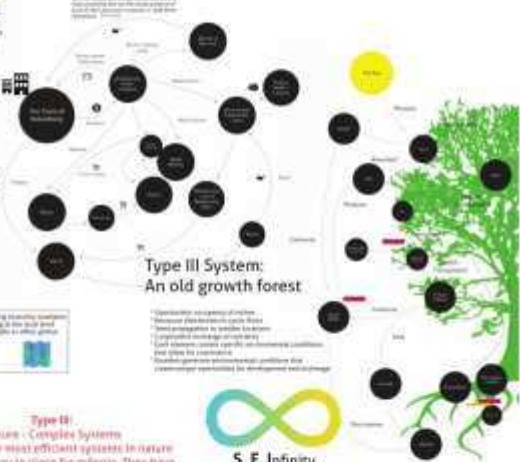
**What is Sharing Economy?**  
The sharing economy is a type of economic organization, in which the means of production, distribution, and consumption of goods and services is different people and organizations.

**Why Sharing Economy?**  
Sharing economy has many benefits, including: it is a more efficient way of using resources, it is a more sustainable way of using resources, and it is a more equitable way of using resources.

**How does it work?**  
Sharing economy is a type of economic organization, in which the means of production, distribution, and consumption of goods and services is different people and organizations.

**51 trillion in business opportunities.**

1.2 billion of business opportunities  
4.4 of sharing economy in the average home in each country  
Every year, 100 million of people are looking for ways to share their skills and talents  
The average person has 100 of their own possessions at home



# Design Principles



Resilience



Systems Based



Optimizing



Value Based



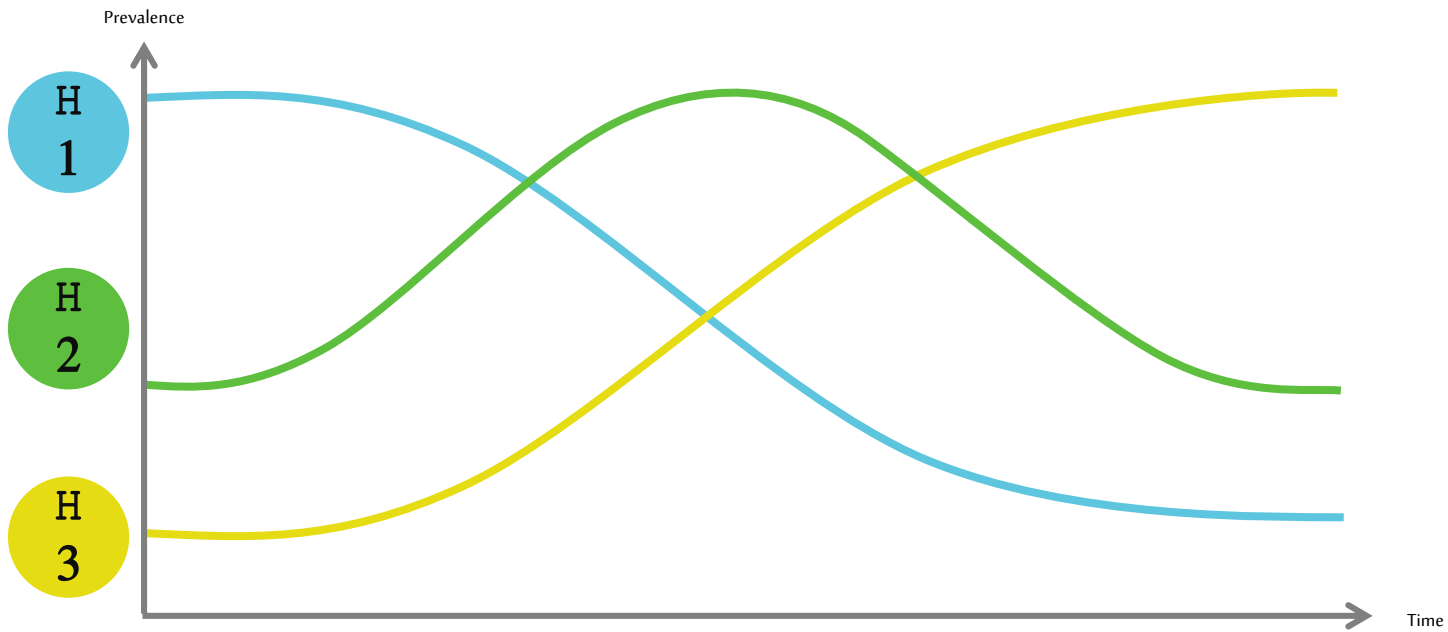
Adaptive



Life Supporting

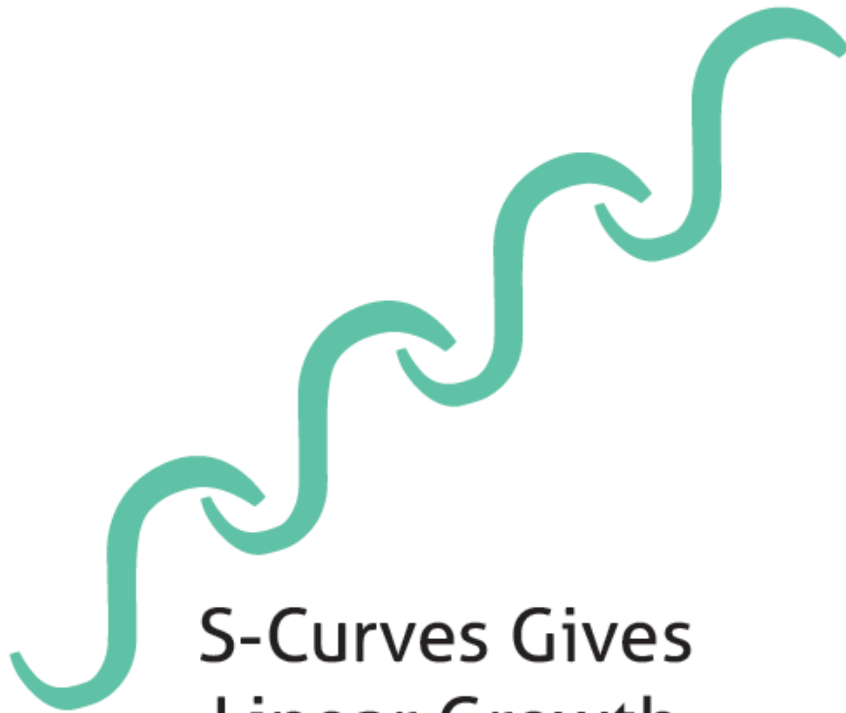


# Three Horizons

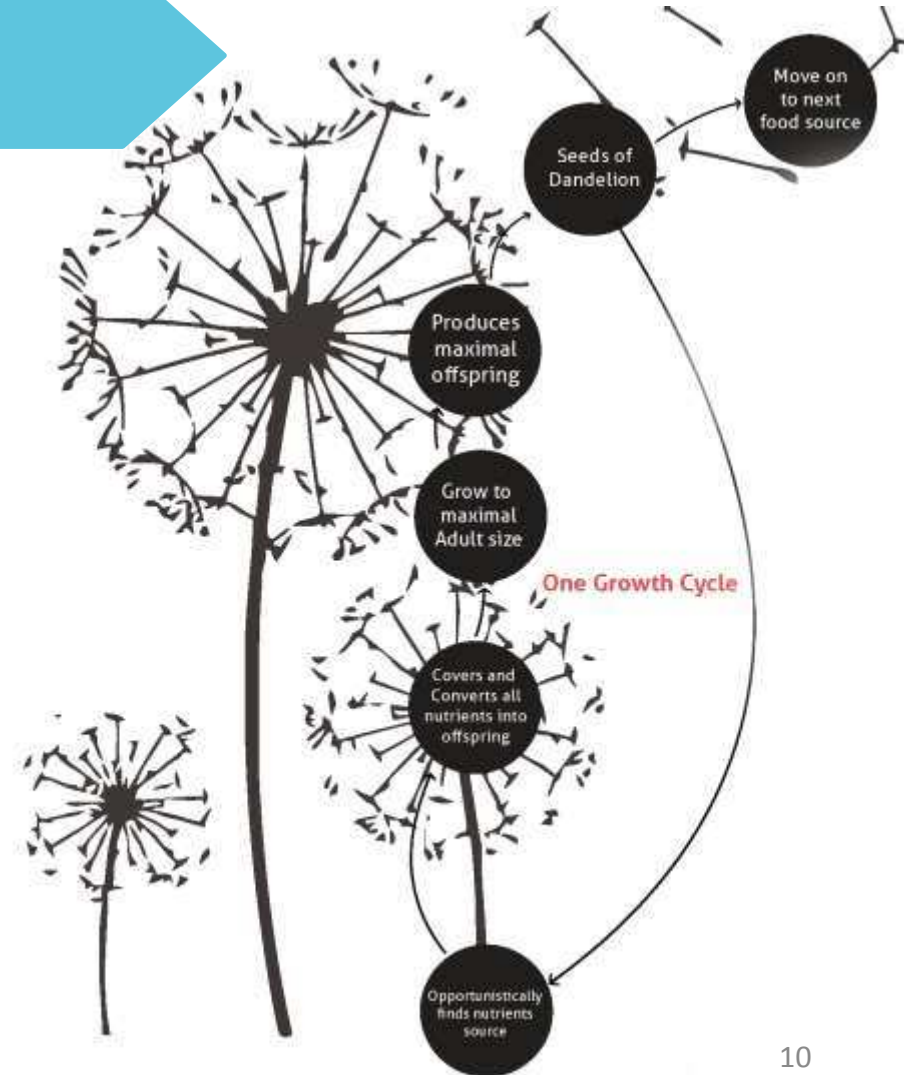


Source: Anthony Hodgson

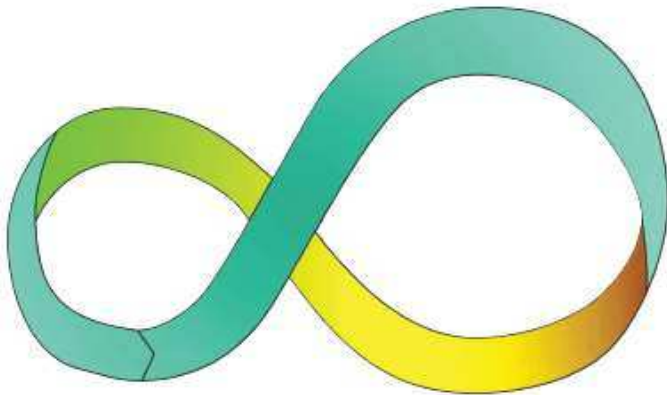
# Type I System



S-Curves Gives  
Linear Growth

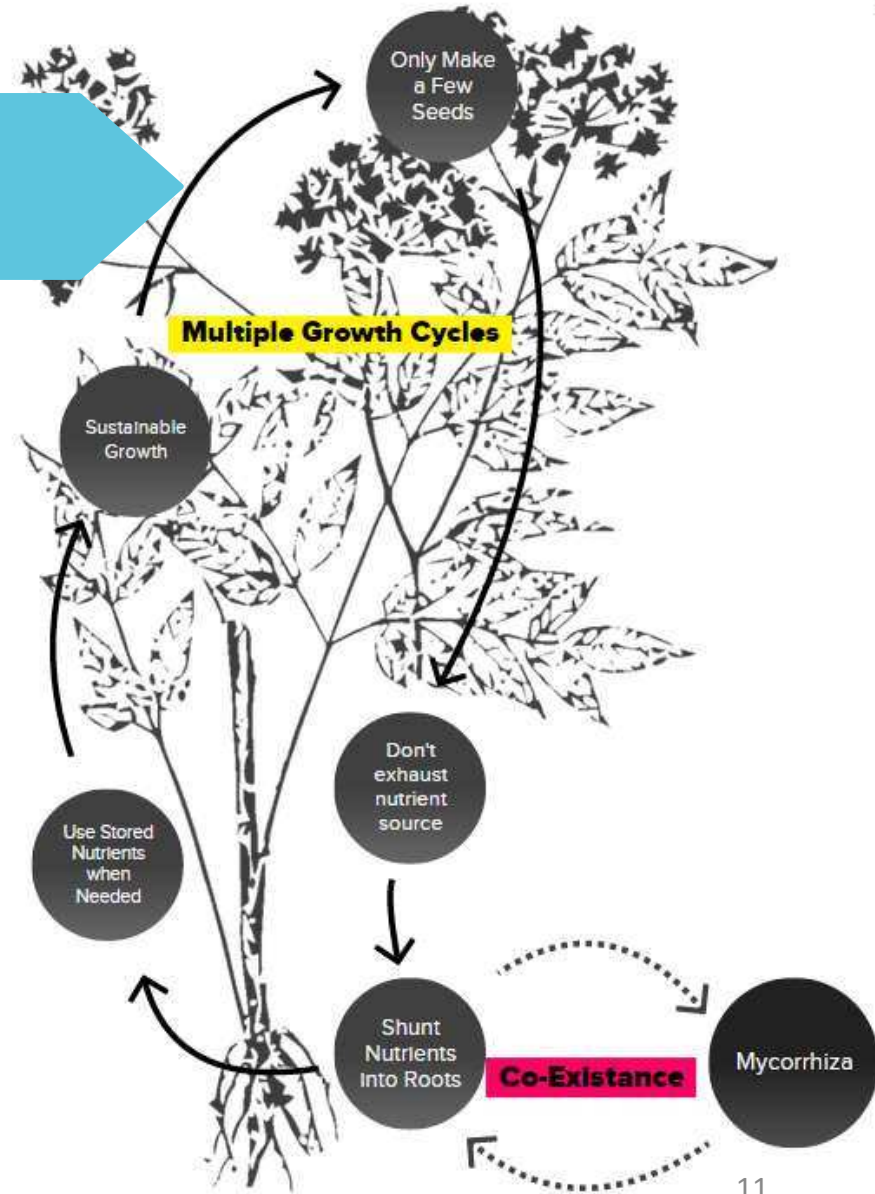


# Type II System



Panarchy

**Type II**  
**K-Species:**  
Operate at or near the carrying capacity of a system



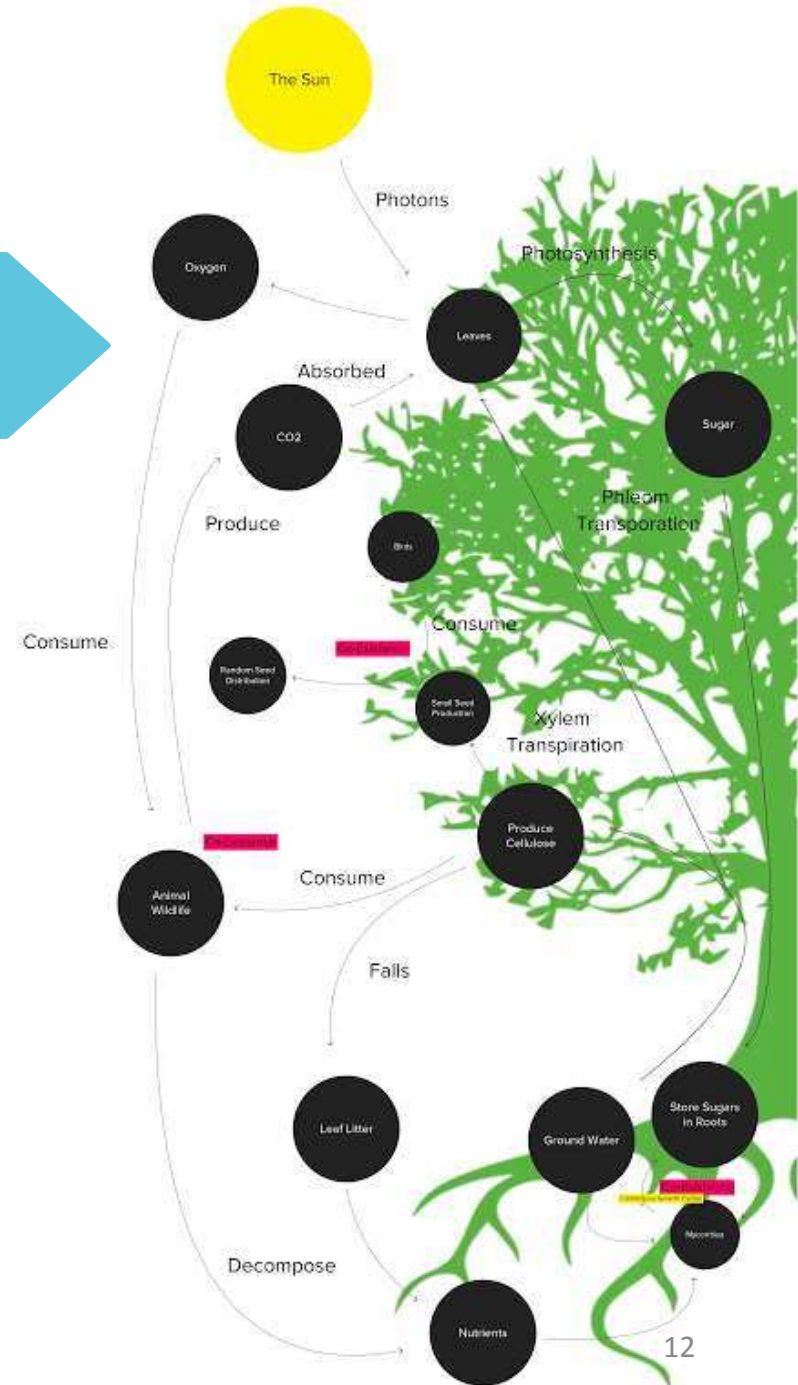
H3

# Type III System



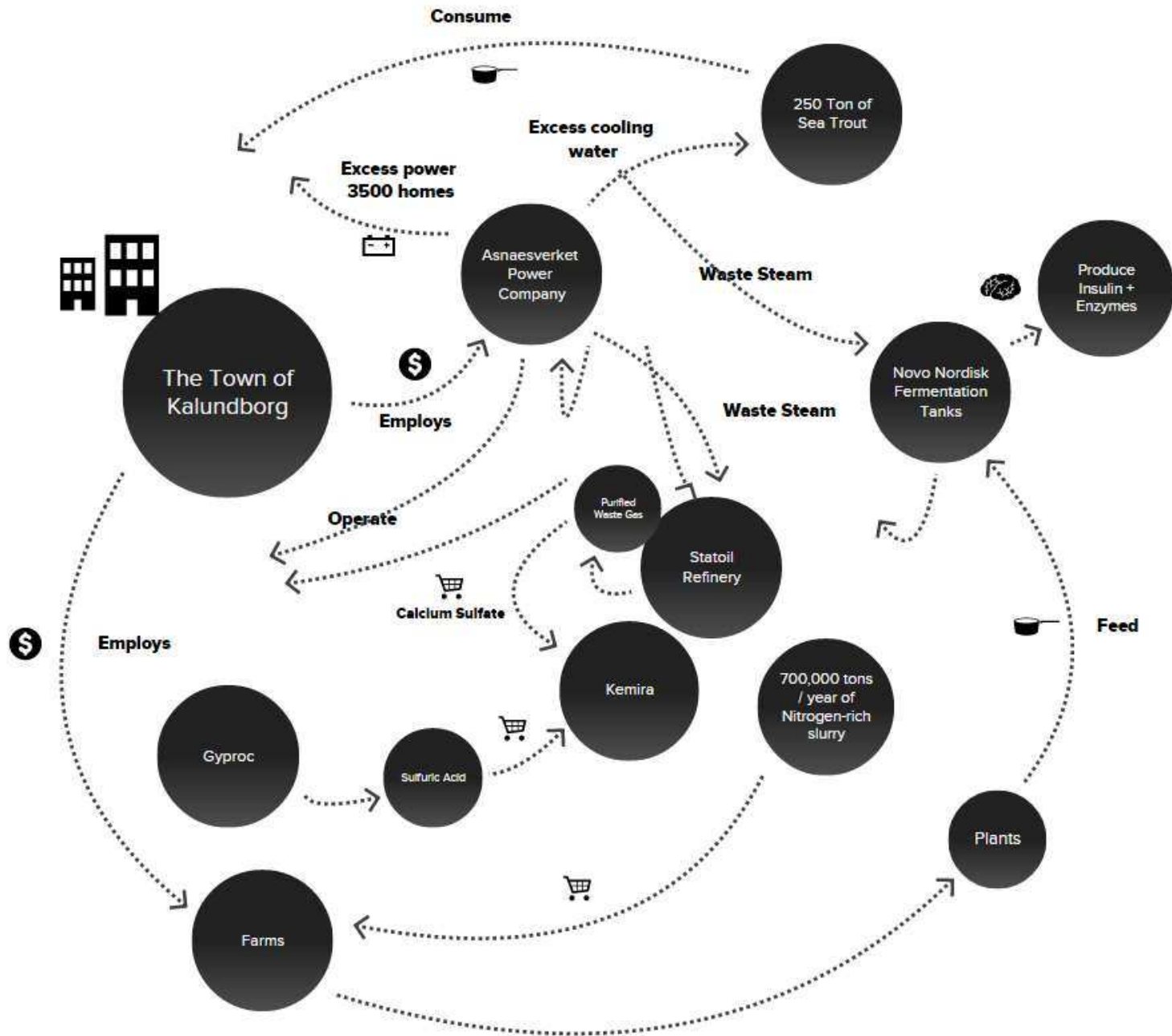
**S**hared  
**F**utures  
**Infinity**

Type III:  
Mature - Complex Systems



## Kalundborg Ecopark

First full realization of industrial symbiosis. Companies collaborate to virtually eliminate waste, and use the by-products and waste as net new input.



# Circular Economy



New way of thinking about material flows, production and patterns of consumption.

## Underutilized Assets



1.3 billion tonnes of food per year are wasted.



25 % of clothing goes unworn in an average closet in North America



Private cars sit idle for 95% of their time



The average power drill, gets 12 minutes of use over the course of its life





**\$1 trillion**  
**in business**  
**opportunities.**

(Includes material savings, increased productivity, new jobs and creation of new product and business categories.)

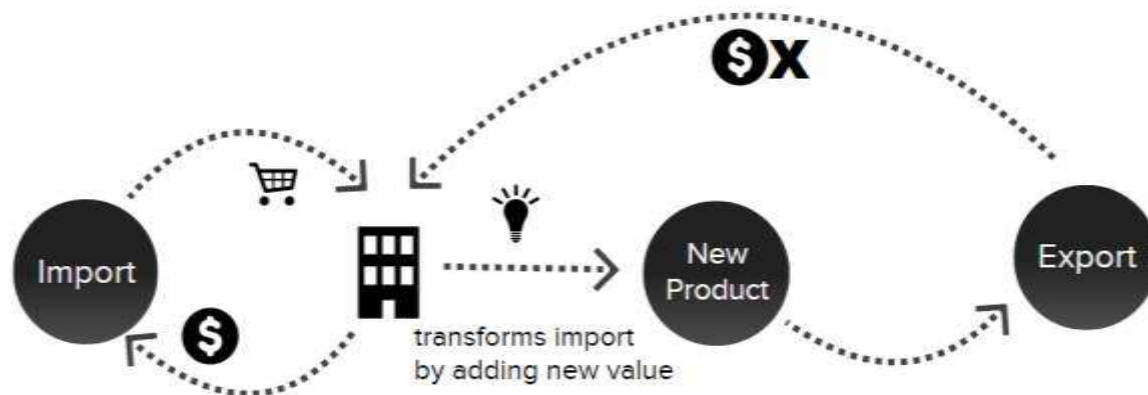
- Ellen MacArthur Foundation featuring analysis from McKinsey.

## Diverse Economies

In nature, successful ecosystems expand through diversity. Diverse economies also expand in a rich environment, created by diverse use and reuse of goods and services.

# Import Stretching

New value is added to an existing good or “import” and is turned into a new product for export.



## Case Study

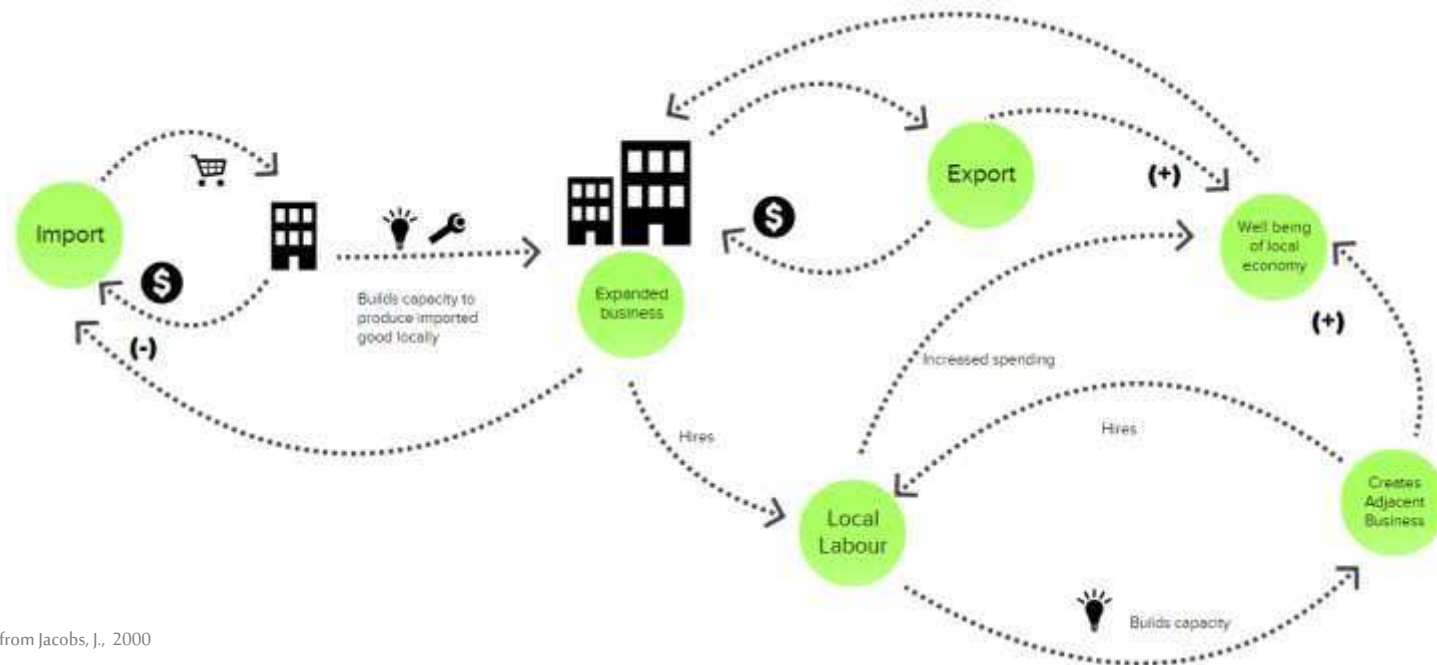


Rent your jeans for a year, after that you have 3 options: 1) keep it, 2) switch it, 3) send back.



# Import Replacement

Developing capacity to make things locally that used to be imported from afar.



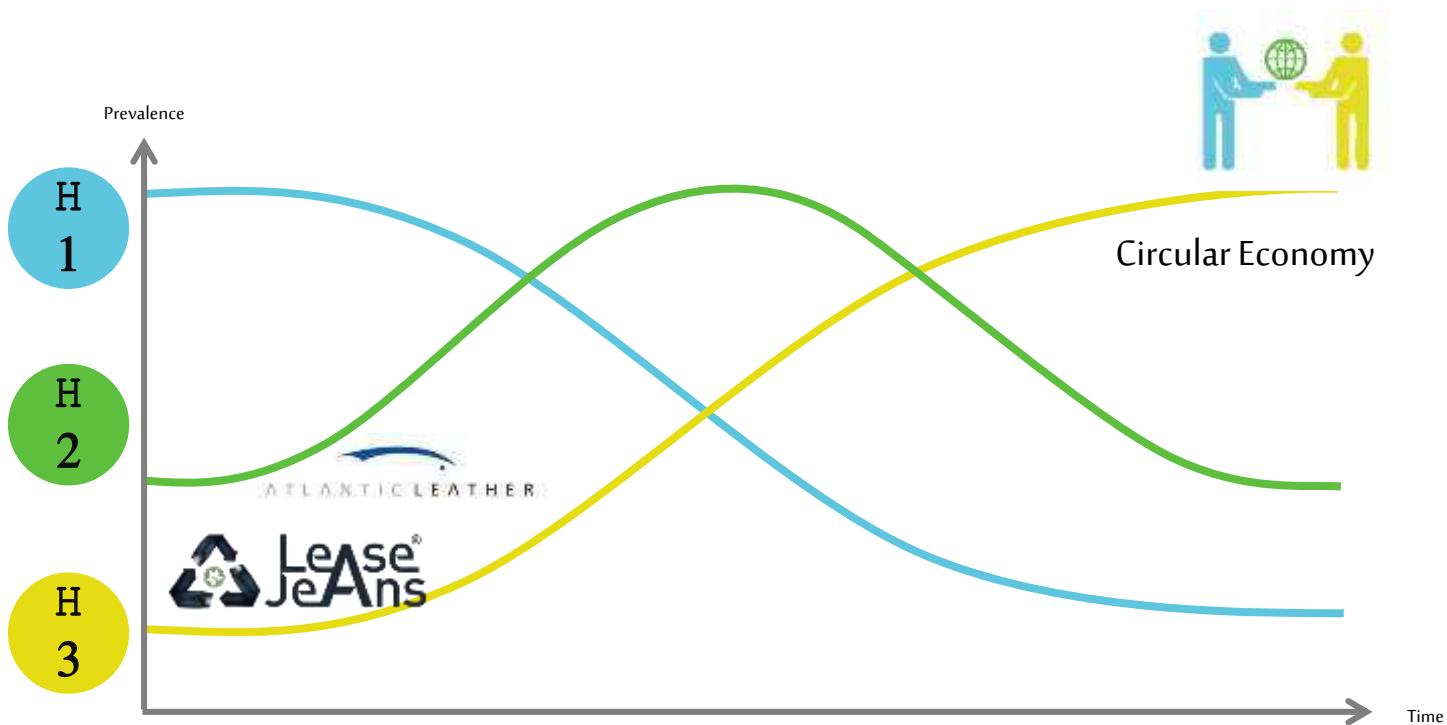
## Case Study



Icelandic company using fish scales for fashion forward shoes and clothing.



# Three Horizons



Source: Anthony Hodgson

## Next Steps

- Rethinking product design and production
- Fostering collaborative relationships across value chains
- Socializing new modes of consumption



*"Look deep into nature, and then you will understand everything better."*

- Albert Einstein

# Thank You!

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