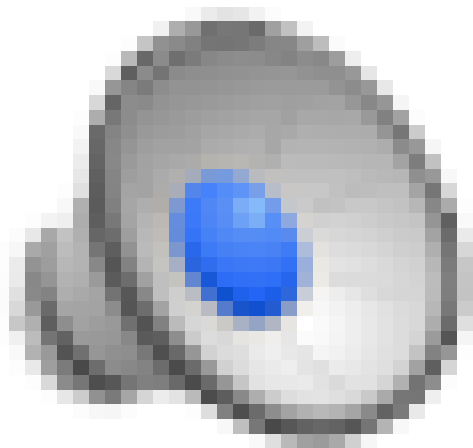




Exponential Technologies (Singularity) & Exponential Organizations

Keynote by Yuri van Geest

November 30th, 2016





Singularity
University

*The best vision on
the future is
peripheral vision*

Accelerating Technologies

AI
Robotics
Biotech
Nanotech
Medicine
Neuroscience
Energy
Computing



Singularity
University

Exponential Technologies

	Cost (averages) for equivalent functionality	Scale
3D printing	\$40,000 (2007) to \$100 (2014)	400x in 7 years
Industrial robots	\$500,000 (2008) to \$22,000 (2013)	23x in 5 years
Drones	\$100,000 (2007) to \$700 (2013)	142x in 6 years
Solar	\$30 per kWh (1984) to \$0.16 per kWh (2014)	200x in 20 years
Sensors (3D LIDAR sensor)	\$20,000 (2009) to \$79 (2014)	250x in 5 years
Biotech (DNA sequencing of one whole human DNA profile)	\$10 million (2007) to \$1,000 (2014)	10,000x in 7 years
Neurotech (BCI devices)	\$4,000 (2006) to \$90 (2011)	44x in 5 years
Medicine (full body scan)	\$10,000 (2000) to \$500 (2014)	20x in 14 years

Declining Costs

Increasing
Capabilities

Audi RS 7 - Autonomous Car



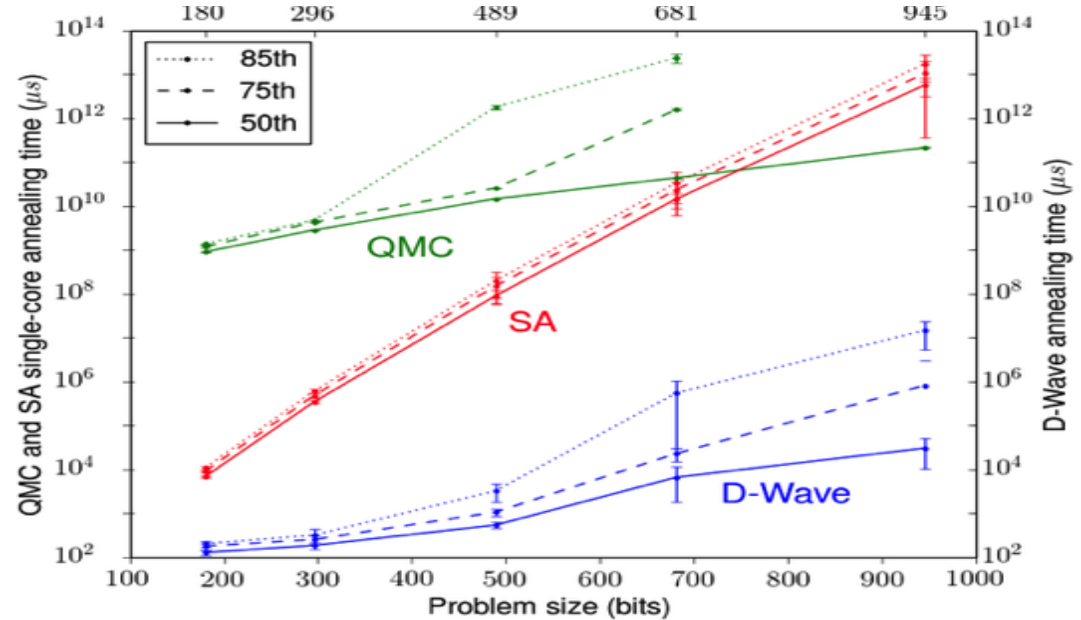
Audi RS 7 piloted driving concept







Google & NASA - Quantum Computing



The D-Wave 2X quantum computer is **100 million times faster** than a **conventional computer** with a proof-of-concept optimization problem. Leaps in Big Data & AI.



THE GLOBAL BRAIN

Viv radically simplifies the world by providing
an intelligent interface to everything.

Zero-employee Robot Factories



Toyota - Japanese automotive manufacturer

Softbank - Japanese telecom & Internet corporation

Foxconn - Taiwanese electronics manufacturer

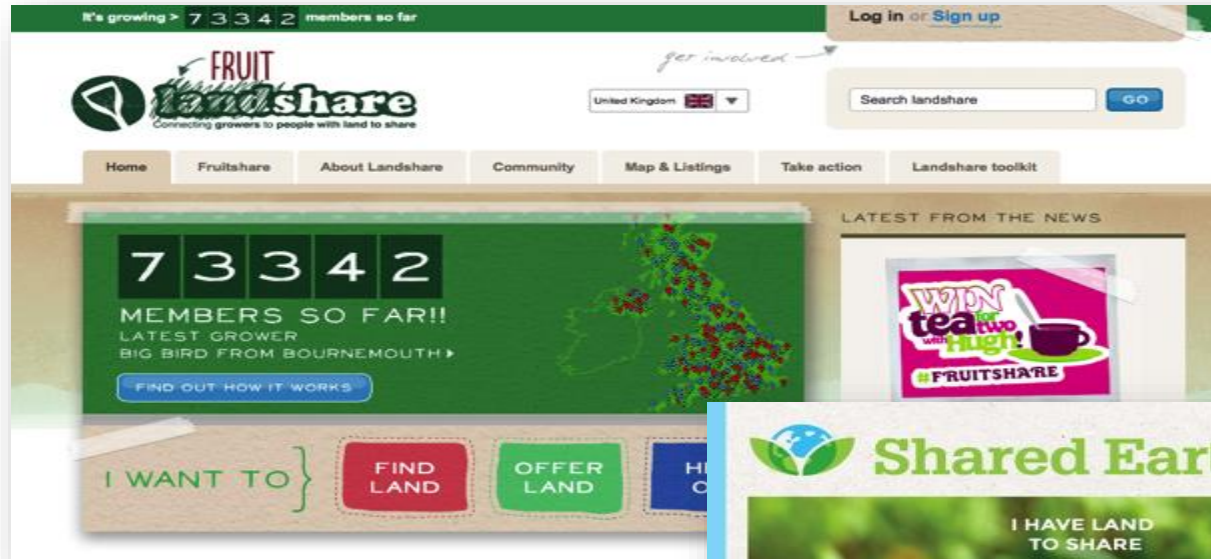


Factories with robots creating new robots (STM Machines)

Started 2016

Humans are
best at being human

Shared Land (Collaborative Consumption)



Crowdsourcing

Community



Open Source Seed Initiative

Community

Open Source

29
seeds
available



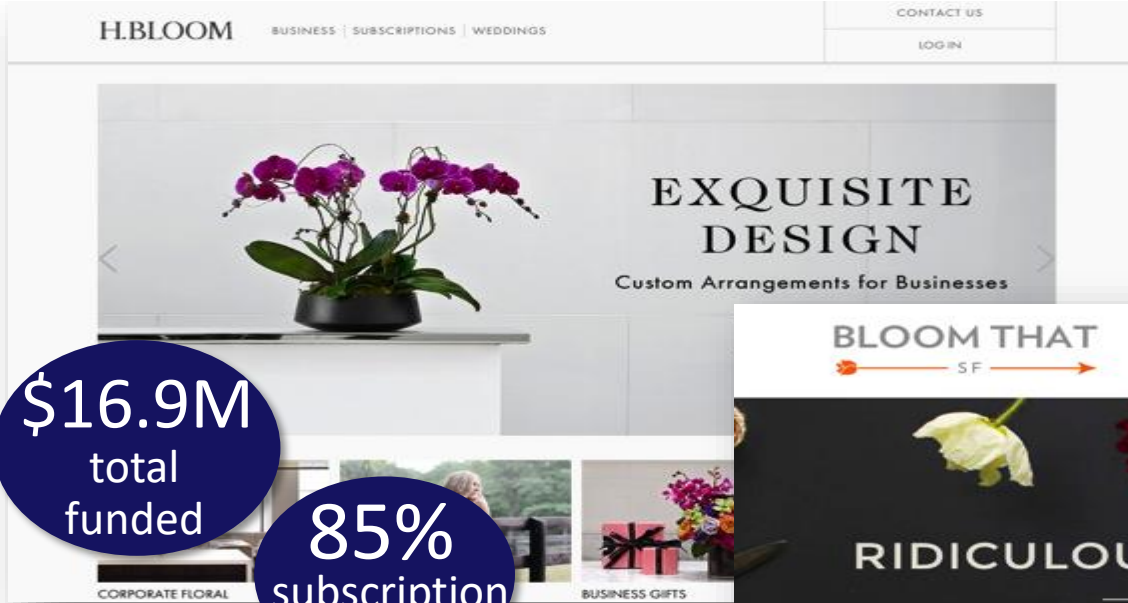
This Open Source Seed pledge is intended to ensure your freedom to use the seed contained herein in any way you choose, and to make sure those freedoms are enjoyed by all subsequent users. By opening this packet, you pledge that you will not restrict others' use of these seeds and their derivatives by patents, licenses, or any other means. You pledge that if you transfer these seeds or their derivatives they will also be accompanied by this pledge.

www.opensourcseedinitiative.com

Flower marketplaces

Distribution

Marketing



\$16.9M
total
funded

85%
subscription
revenue

\$7.6M
total
funded



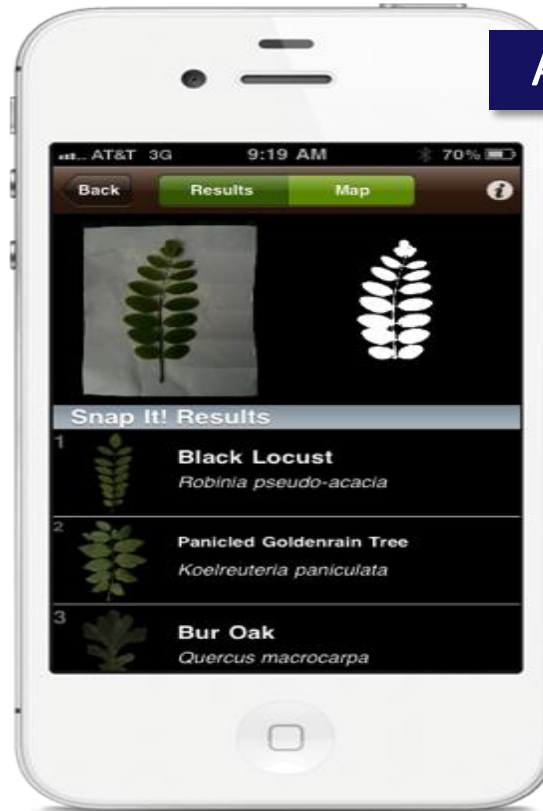
Roamlar - Retail/POS check

Crowdsourcing

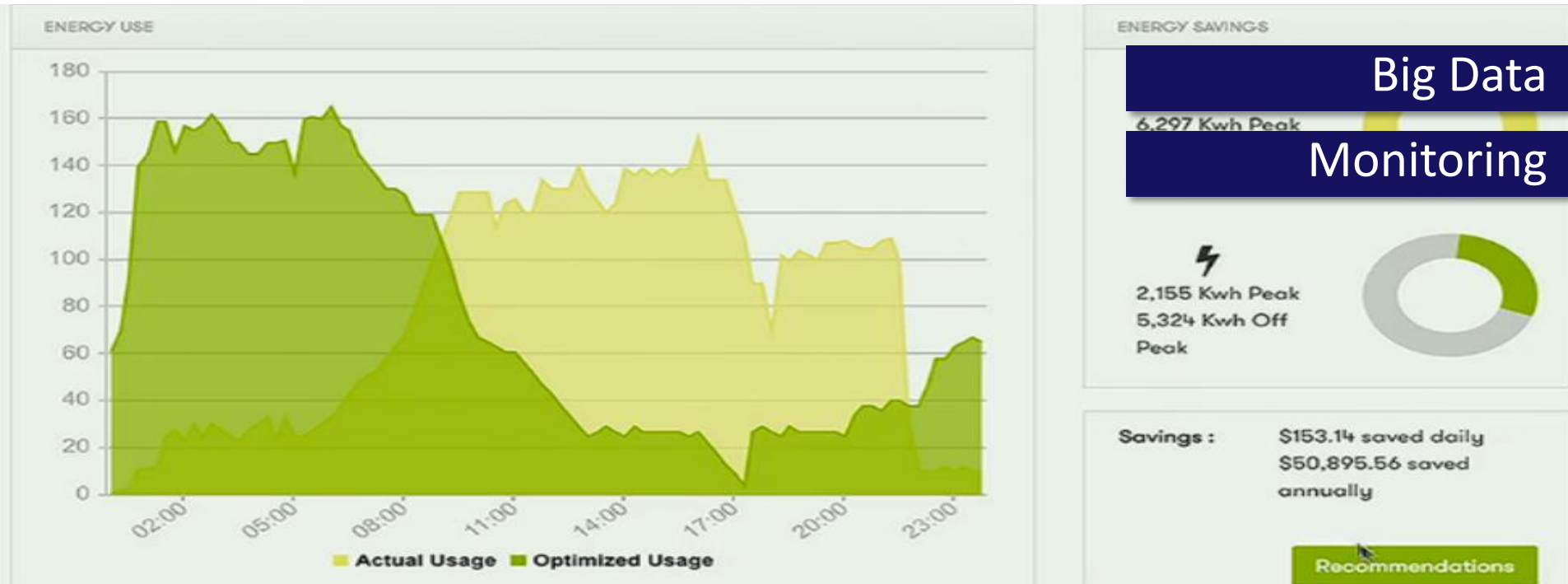


Mobile recognition services

Artificial Intelligence



Agrilyst - Greenhouse Analytics Platform



Helping greenhouses run their operations more efficiently by pulling in data from sensors (CO2, light, humidity, energy) and giving information and recommendations about crop yields. Winner of TechCrunch Disrupt 2015.

Plant & Soil sensors

Monitoring

Nanotechnology

Parrot®



EDYN

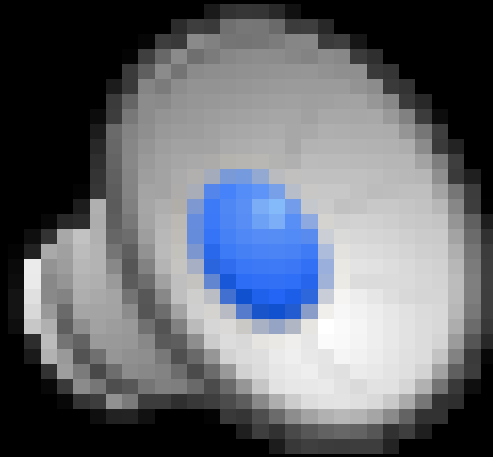


SenSprout

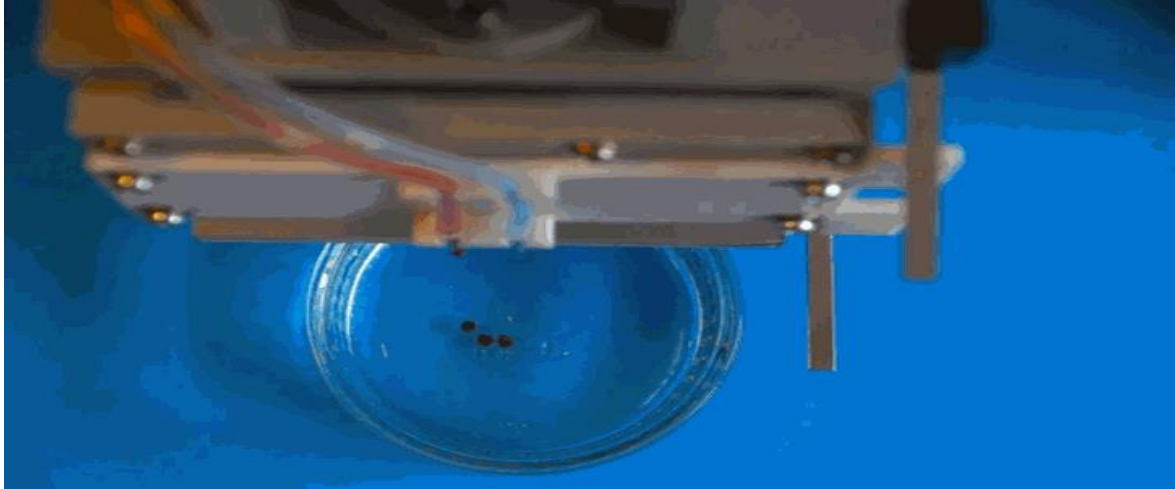


Printable
with
nano ink!

SCiO - Molecular Spectrometer



Nufood Robot 3D Printer - 3D Printed Fruit



Using a process called spherification - creating a gel-like skin around liquid - color, taste, texture, size and shape are fully customizable.



Wyss Institute, Harvard - 4D flowers



Agriculture Robots

Robotics



 **ATC**

 **HARVEST**
AUTOMATION



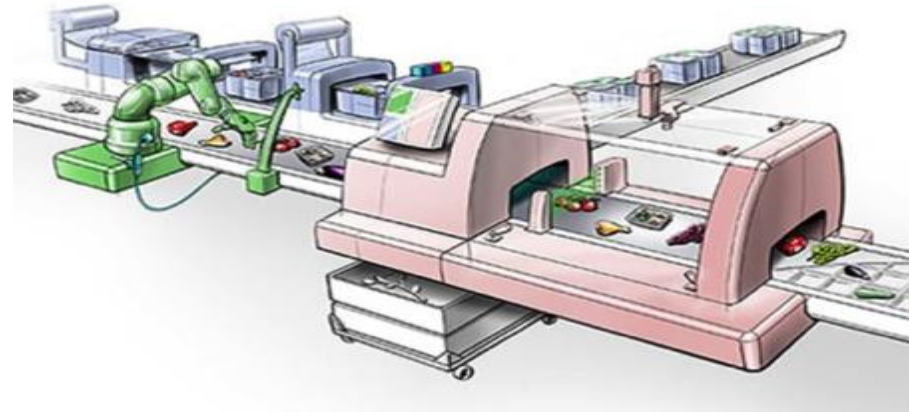
Picking & Sorting initiatives (NL)



Robotics



CROPbS  "Clever Robots for Crops"



PicknPack

Soft Robotics

Robotics



Amazon PrimeAir - Drone Distribution

Drones (UAVs)

Distribution



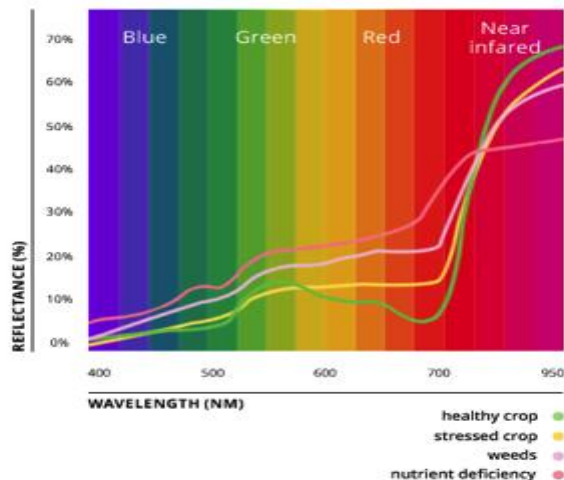
Gayama - Hyperspectral Imaging Cameras



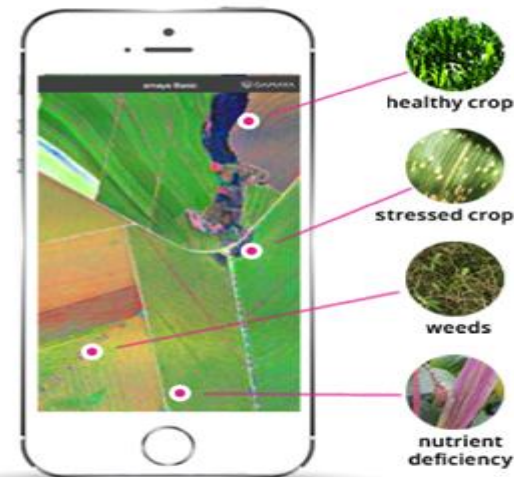
Measure reflectance of your crop using proprietary hyperspectral imaging camera mounted on drones or manned aircrafts



Analyze spectrum of reflected light and correlate it with crop and soil characteristics



Identify potential problems of your farmland (diseases, nutrient deficiencies, weeds, environmental stresses)



Planet Labs - Nano-Satellites



\$158M
total
funded

DJI AGRAS MG1 - Drone Spraying



Drones (UAVs)

Monitoring



Payload
10 kg
(fertilizer,
water)



Interchangeable Nozzle



Atomized Spraying



All round Spraying

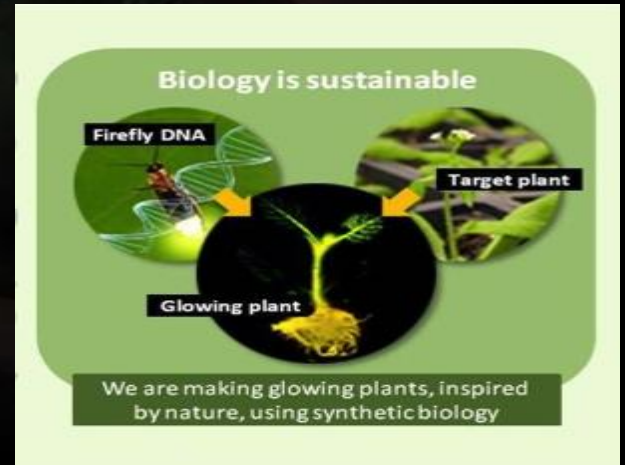
Glowing Plants Kickstarter (GM)

Biotechnology

Sustainability

\$484.013

total
raised



Phytelligence - Genetic Testing for Plants



(509) 350-8525



Biotechnology

[Home](#)

[Genetic Services](#)

GENETIC ANALYSIS SERVICES

[Home](#) > [Genetic Services](#)

DO YOU KNOW WHAT YOU'RE PLANTING?

Mistakes happen. Orders get mixed up. Plants are given the wrong labels.

The wrong thing gets delivered. It might be many years and many dollars later before you discover it.

Disputes can arise. Did you get what you paid for?

Issues around intellectual property related to new varieties and sports have become increasingly important. Do you have something really new, or does it belong to someone else? If you own a patented variety are you getting the royalties you are due?



AgBiome - Microbiome Research



Home

Our Team

Biotechnology

Sustainability

AGBIOME IS A PROVIDER OF EARLY STAGE RESEARCH AND DISCOVERY FOR AGRICULTURE.

Exploring the crop microbiome to identify products that reduce risk and improve yield.

Mission

\$52M
total
funded

Industry-leading discovery and
culture.

Join AgBiome

We know that we are only as good as our employees. We are driven to make AgBiome the best place for our team to make a positive impact on the world by improving agriculture through technology. [read more](#)

→



AgBiome @agbiome

Fall festival to celebrate the strain
collection and sequencing team!

pic.twitter.com/Ss5WBbgz3K

Expand

7 Nov

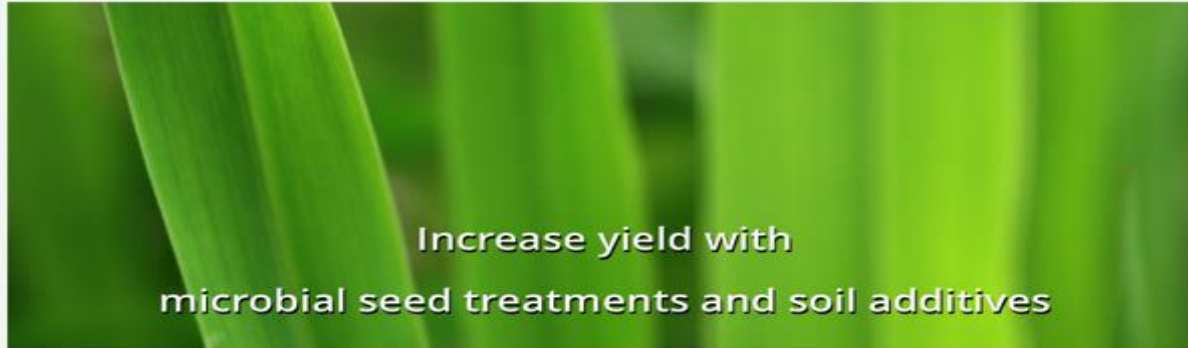
BioConsortia - Microbes control



HOME - ABOUT US - PRODUCTS - NEW - SERVICES - CONTACT US

Biotechnology

Sustainability



BioCo
effect
increa

We have developed a revolutionary R&D technology linking a powerful plant phenotypic selection process to new DNA-sequencing techniques to rapidly identify microbial teams that confer beneficial traits onto the plant via seed treatment.



\$15M
total
funded

What are microbial consortia?

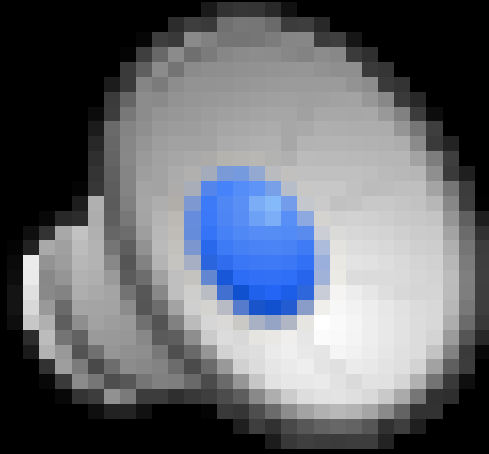


Revolutionary R&D Platform



Superior Products

NewLeaf Symbiotics - Probiotics for Plants



Solid Rain - Water absorbing powder



300%
more crop
yield

Others:
Agricel &
mOasis



Sustainability


SOLID RAIN
corporation

PLEASED - Biosensing Plants

MIT - Bionic Plant

Nanotechnology





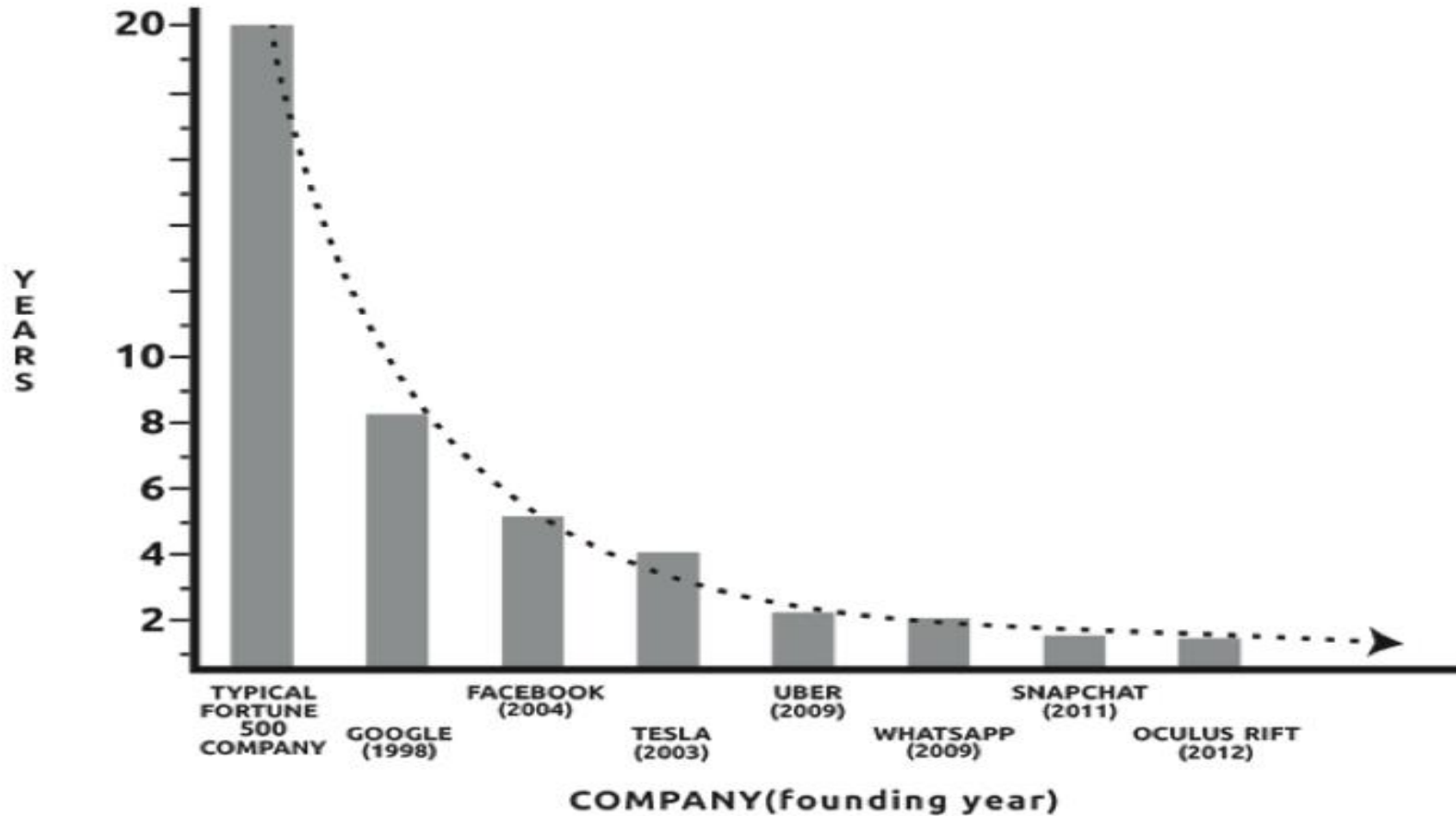
Exponential Organizations Overview

“The average lifespan of an S&P 500 company has decreased from: 67 years (1920’s) to 12 years (today).”

“The average half-life of a business competency has dropped from 30-years in 1984 to 5-years today.”*

*In IT it's now 2-years

Market Cap to \$1B



Why Exponential Organizations?

Scarcity vs. Abundance



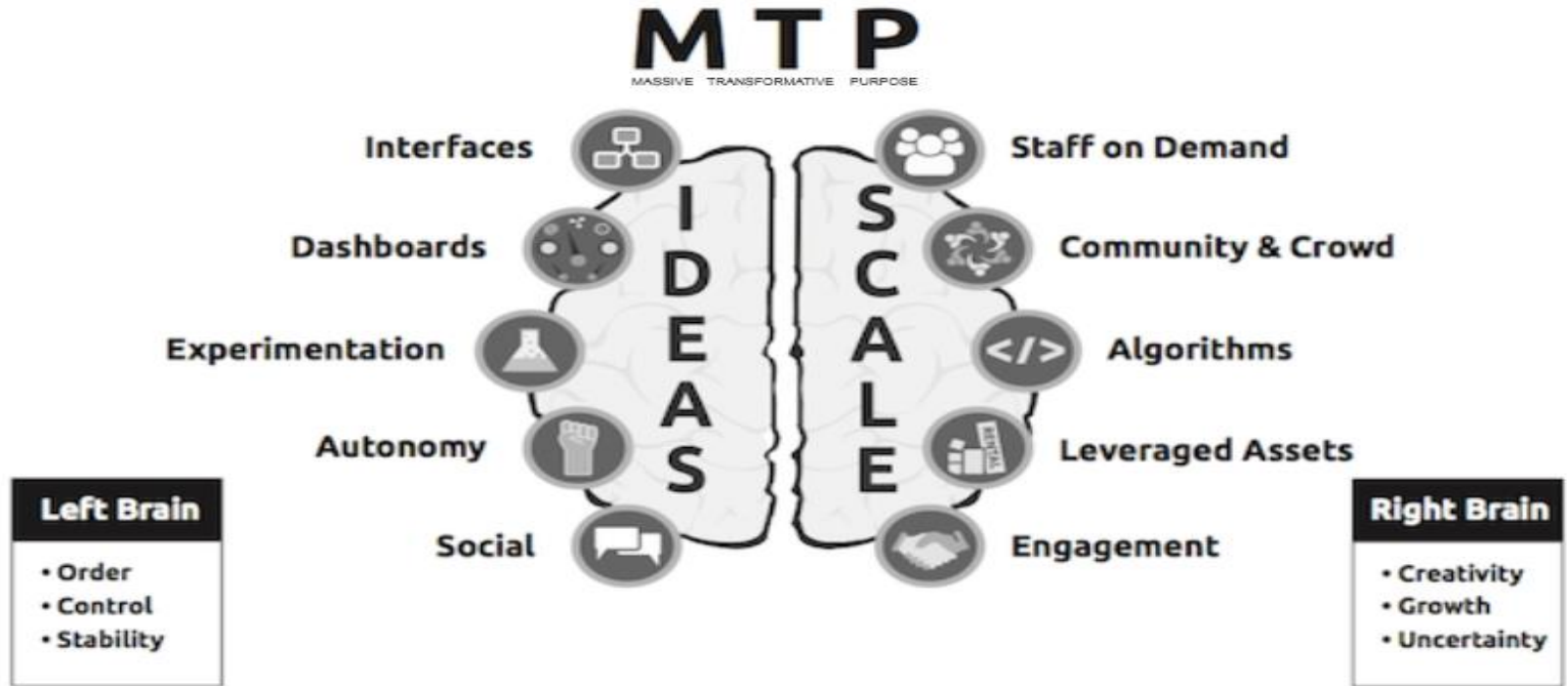
What are Exponential Organizations?

An Exponential Organization (ExO) is one whose impact
is disproportionately large

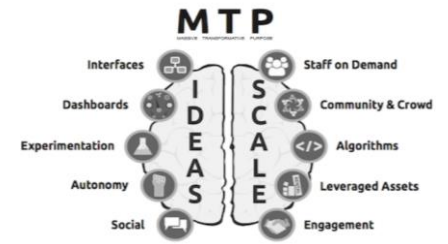
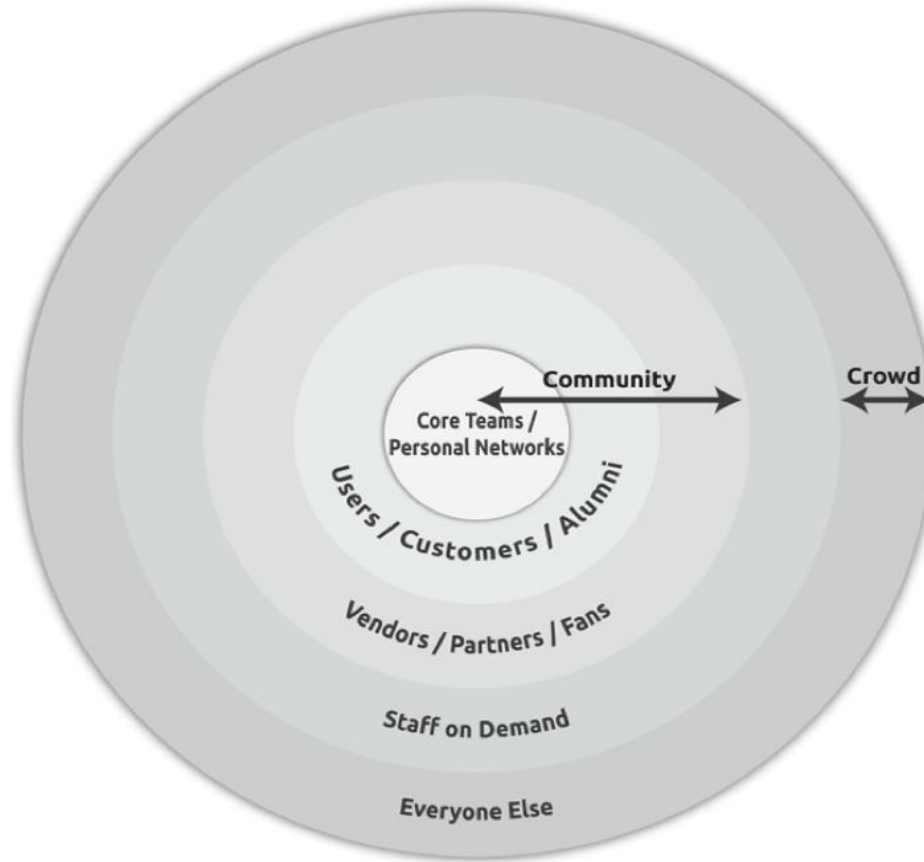
— at least 10x larger —

compared to its peers because of the use of new
organizational design and leveraging exponential
technologies.

11 Characteristic of ExOs



Ownership > Access



***REALITY IS A
PERMANENT
MUSEUM***

www.exoxo.co

yuri@exoxo.co