UM OLHAR SOBRE O FUTURO

NA ÓTICA DE UM NOVO CONTEXTO INDUSTRIAL

FIERGS IEL

A INDÚSTRIA ESTÁ EM TUDO

2013

NAGI – Núcleo de Apoio à Gestão da Inovação

GESTÃO DA INOVAÇÃO
ARQUITETURA DE INOVAÇÃO

PRÁTICAS DE INOVAÇÃO


Inovação Exploratória


Inovação Disruptiva


Inovação Incremental

PRODUÇÃO

BLOCOS DE SUPORTE


Estruturas Organizacionais


Treinamento


Imagem e Comunicação


Rede de Inovação


Estratégia e Objetivos


Processos e Metodologias


Plataformas de Suporte

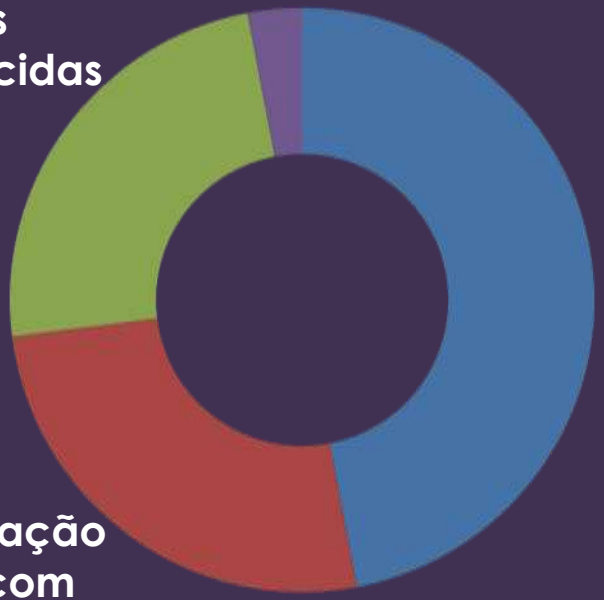

Métricas e Avaliação

SUPORTE

GRAU DE MATURIDADE

24% Inovação com alguns processos e estruturas estabelecidas

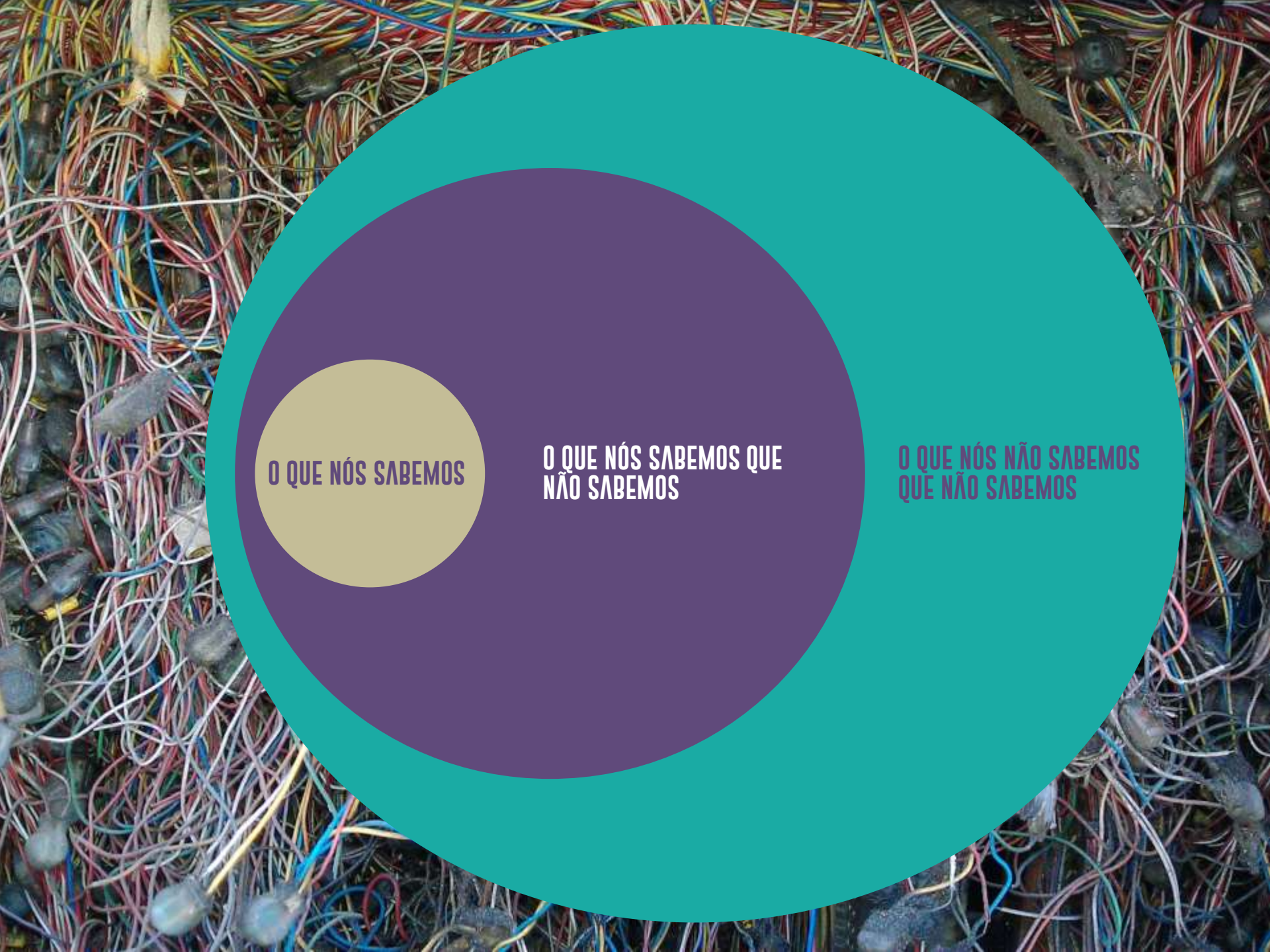
3% Inovação com processos críticos estabelecidos e estruturas de apoio definidas



47% Inovação pontual e sem estruturas definidas

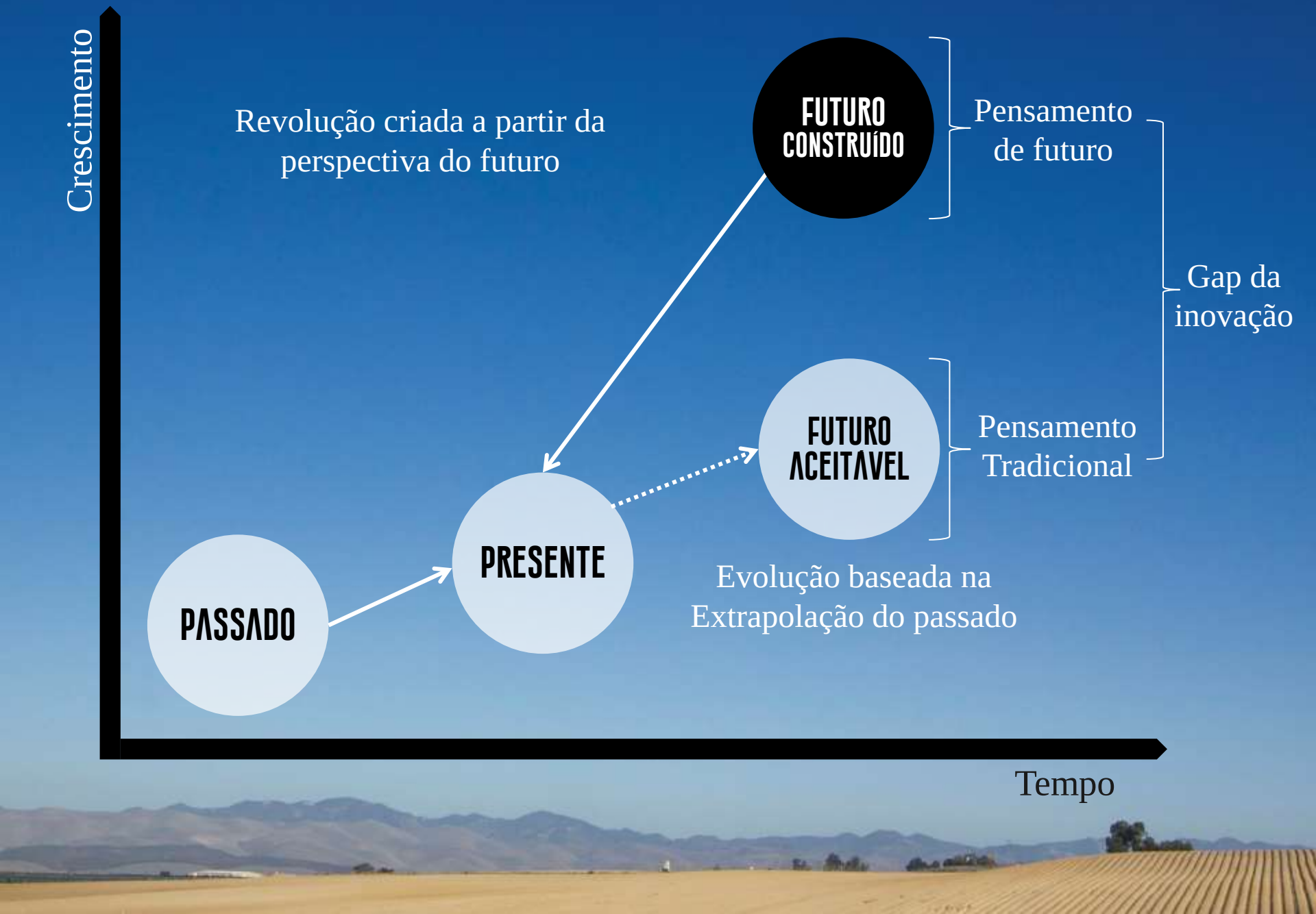
26% Inovação pontual com estruturas estabelecidas

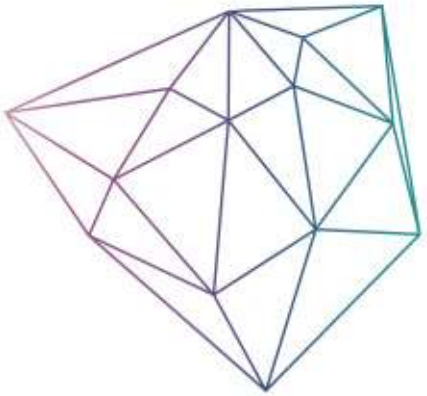
0% Inovação no centro da estratégia, com operação sistematizada


O QUE NÓS SABEMOS
O QUE NÓS SABEMOS QUE NÃO SABEMOS
O QUE NÓS NÃO SABEMOS QUE NÃO SABEMOS

TOMADA DE DECISÃO

TOMAMOS NOSSAS DECISÕES COM BASE NO PASSADO

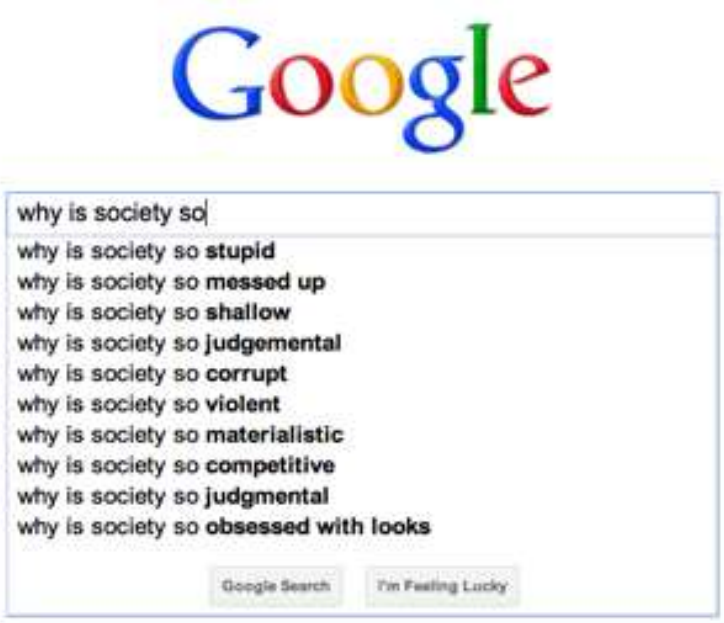

Crescimento
Revolução criada a partir da perspectiva do futuro
FUTURO CONSTRUíDO
Pensamento de futuro
Gap da inovação
FUTURO ACEITÁVEL
Pensamento Tradicional
PRESENTE
PASSADO
Evolução baseada na Extrapolação do passado
Tempo



COSMOS

A inovação está lá fora.

P	O	L	Í	T	I	C	A		
A	M	B	I	E	N	T	E		
S	O	C	I	A	L				
T	E	C	N	O	L	O	G	I	A
E	C	O	N	O	M	I	A		
L	E	G	A	L					



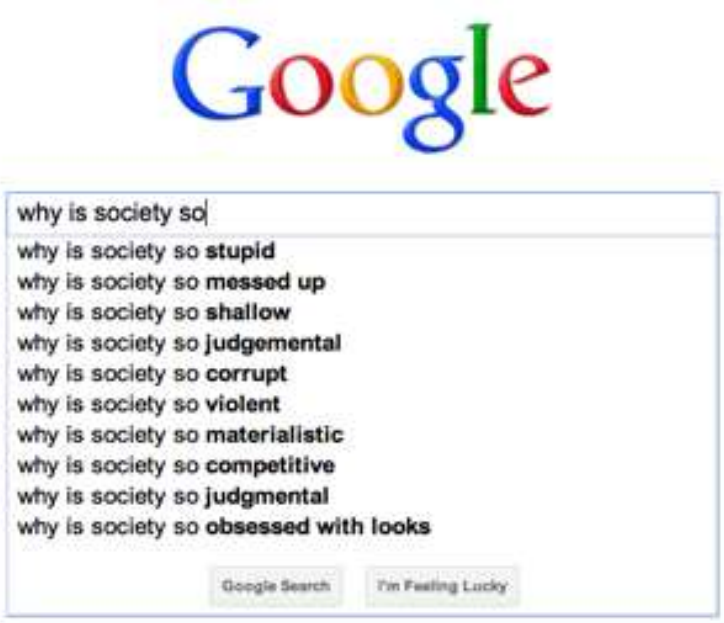
World Economic Forum
www.weforum.org

Public Intelligence
publicintelligence.net

Project Syndicate
www.project-syndicate.org

Wired
www.wired.com

Fast Company
https://www.fastcompany.com/



O Futuro das Coisas

ofuturodascoisas.com

Trend Hunter

www.trendhunter.com

PWC - Strategy&

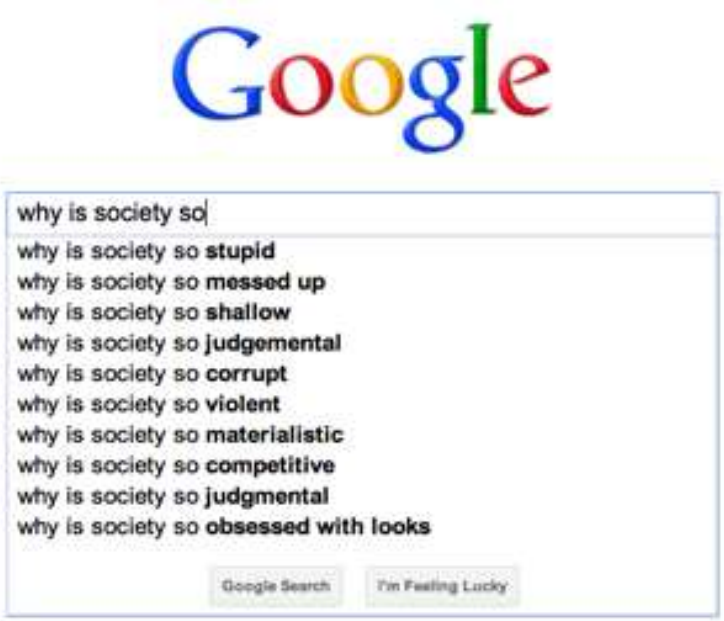
www.strategyand.pwc.com/industry-trends

Accenture

www.accenture.com/br-pt

McKinsey

http://www.mckinsey.com/brazil/our-insights



The Futures Centre
www.thefuturescentre.org

Copenhagen Institute for Futures Studies
cifs.dk

WGSN
www.wgsn.com/pt

Box 1824
pontoeletronico.me

Gartner
www.gartner.com

MIT
www.technologyreview.com/lists/technologies/2017/

REVOLUÇÕES PÓS DIGITAL
NOVO CONTEXTO INDUSTRIAL
ORGANIZAÇÕES EXPONENCIAIS

REVOLUÇÕES PÓS DIGITAL

Fórum Econômico Mundial

- Três Megatendências
  - **FÍSICAS** (Veículos com direção autônoma, impressão 3D, Robótica avançada, Novos Materiais)
  - **DIGITAIS** (IoT)
  - **BIOLÓGICAS** (biologia sintética, DNA)

PROJETO INDÚSTRIA 2027
CNI

- Oito Tecnologias
  - IoT
  - Tecnologia de Redes de Comunicação
  - Inteligência artificial
  - Big Data
  - Produção inteligente conectada (ind. 4.0)
  - Bioprocessos e biotecnologias avançadas
  - Nanotecnologia
  - Materiais avançados

MIT Technology Review

10 Breakthrough Technologies 2016

Immune Engineering	*Genética/Molecular*
Precise Gene Editing in Plants	*Genética/Molecular*
Conversational Interfaces	*Robótica/Inteligência Artificial*
Reusable Rockets	*Robótica/Inteligência Artificial*
Robots That Teach Each Other	*Robótica/Inteligência Artificial*
DNA App Store	*Genética/Molecular*
SolarCity's Gigafactory	
Slack	
Tesla Autopilot	*Robótica/Inteligência Artificial*
Power from the Air	*Nanotecnologia*

10 Breakthrough Technologies 2014

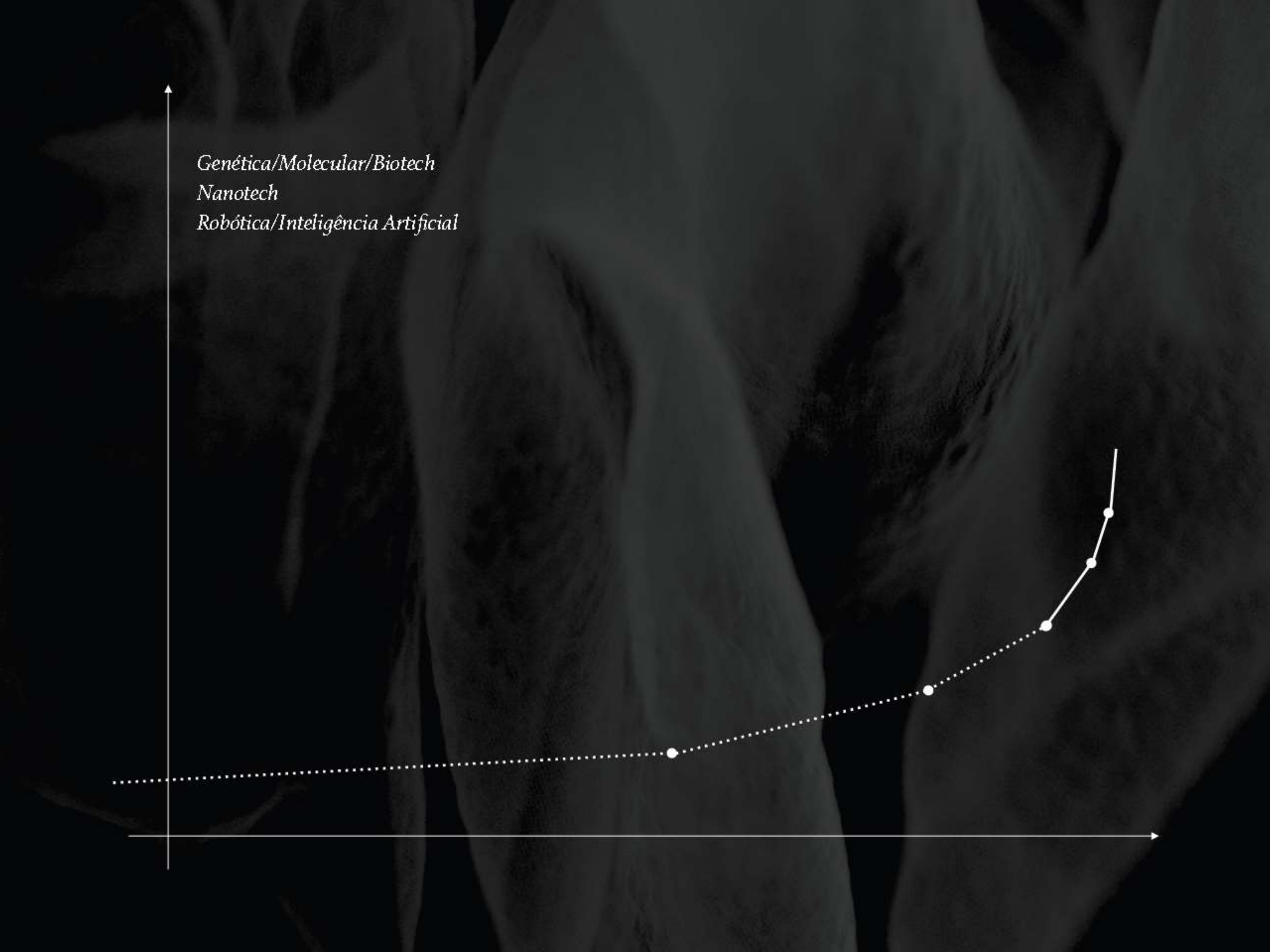
Introduction

Robótica/AI	**Agricultural Drones**
Robótica/AI	**Ultraprivate Smartphones**
Genética/molecular	**Brain Mapping**
Genética/molecular	**Neuromorphic Chips**
Genética/molecular	**Genome Editing**
Nanotecnologia	**Microscale 3-D Printing**
Robótica/AI	**Mobile Collaboration**
Robótica/AI	**Oculus Rift**
Robótica/AI	**Agile Robots**
Robótica/AI	**Smart Wind and Solar Power**

10 Breakthrough Technologies 2015

Introduction

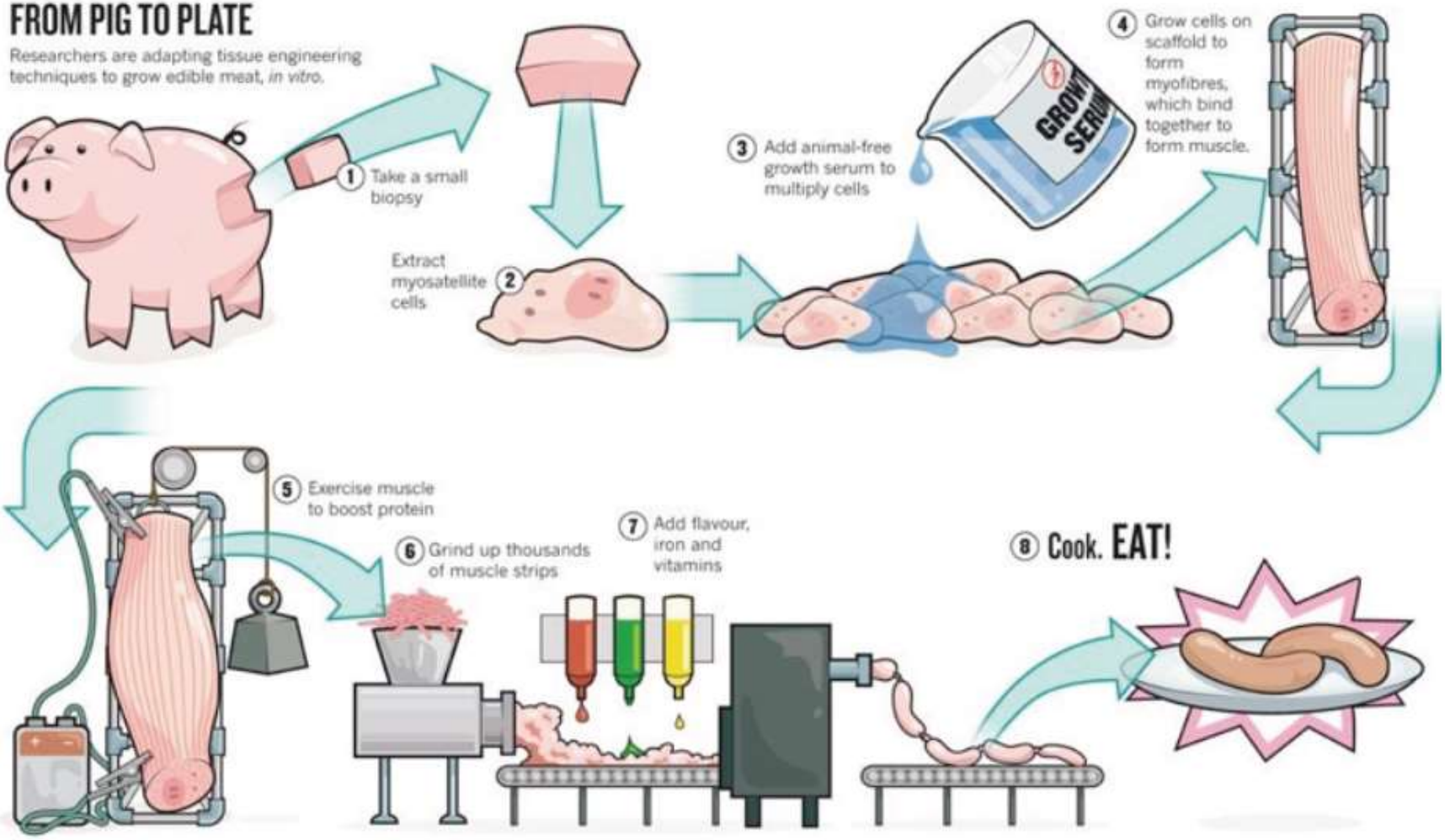
Magic Leap	*Robótica/AI*
Nano-Architecture	*Nanotecnologia*
Car-to-Car Communication	*Robótica/AI*
Project Loon	*Robótica/AI*
Liquid Biopsy	*Genética/molecular*
Megascale Desalination	*Genética/molecular*
Apple Pay	*Robótica/AI*
Brain Organoids	*Genética/molecular*
Supercharged Photosynthesis	*Genética/molecular*
Internet of DNA	*Genética/molecular*


Genética/Molecular/Biotech
Nanotech
Robótica/Inteligência Artificial

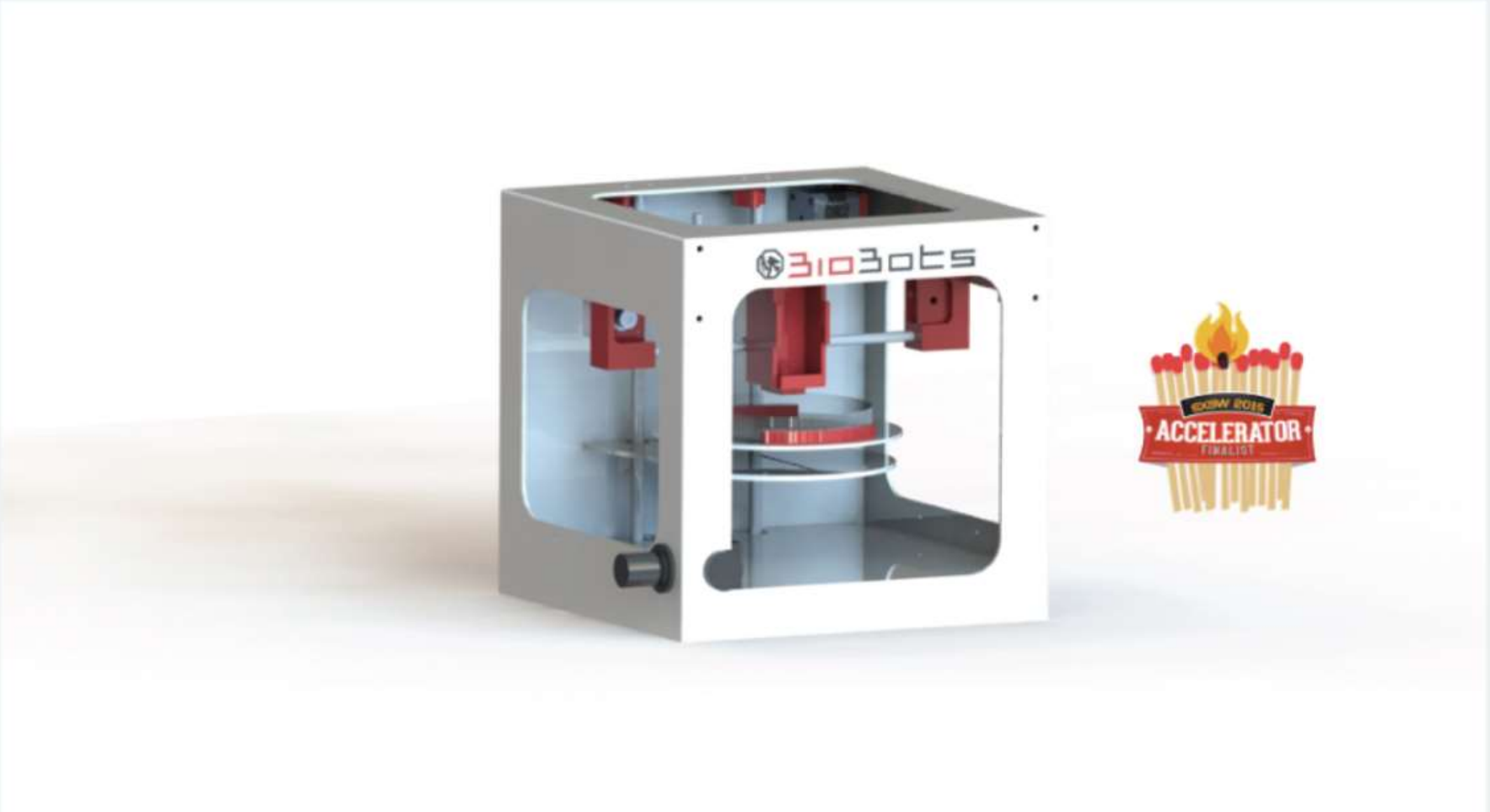
BIOTECH

FROM PIG TO PLATE

Researchers are adapting tissue engineering techniques to grow edible meat, *in vitro*.



BioBots

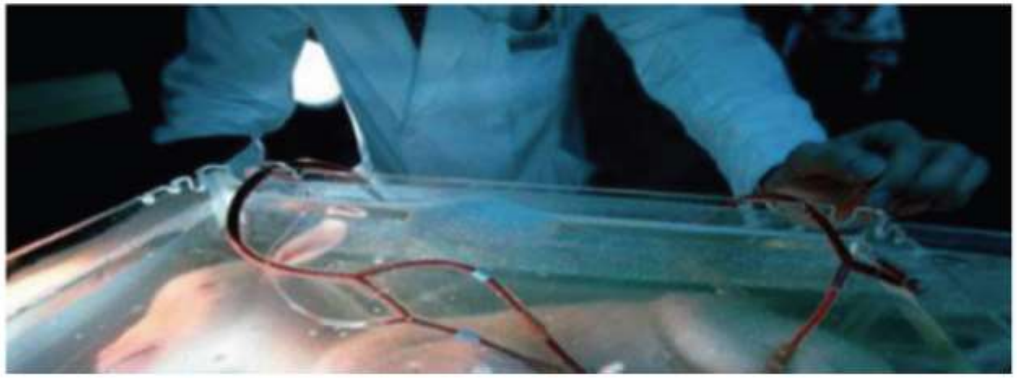


Impressora 3d para células vivas

TOP NEWS

The Artificial Womb Is Born: Welcome To The WORLD Of The MATRIX

By DNA on February 14, 2015



The artificial womb exists. In Tokyo, researchers have developed a technique called EUFI — extrauterine fetal incubation. They have taken goat fetuses, threaded catheters through the large vessels in the umbilical cord and supplied the fetuses with oxygenated blood while suspending them in incubators that contain artificial amniotic fluid heated to body temperature.

NANOTECH

RAW SCIENCE

ADVANCES THAT WILL CHANGE YOUR WORLD

BIOLOGY / DECEMBER 29, 2014

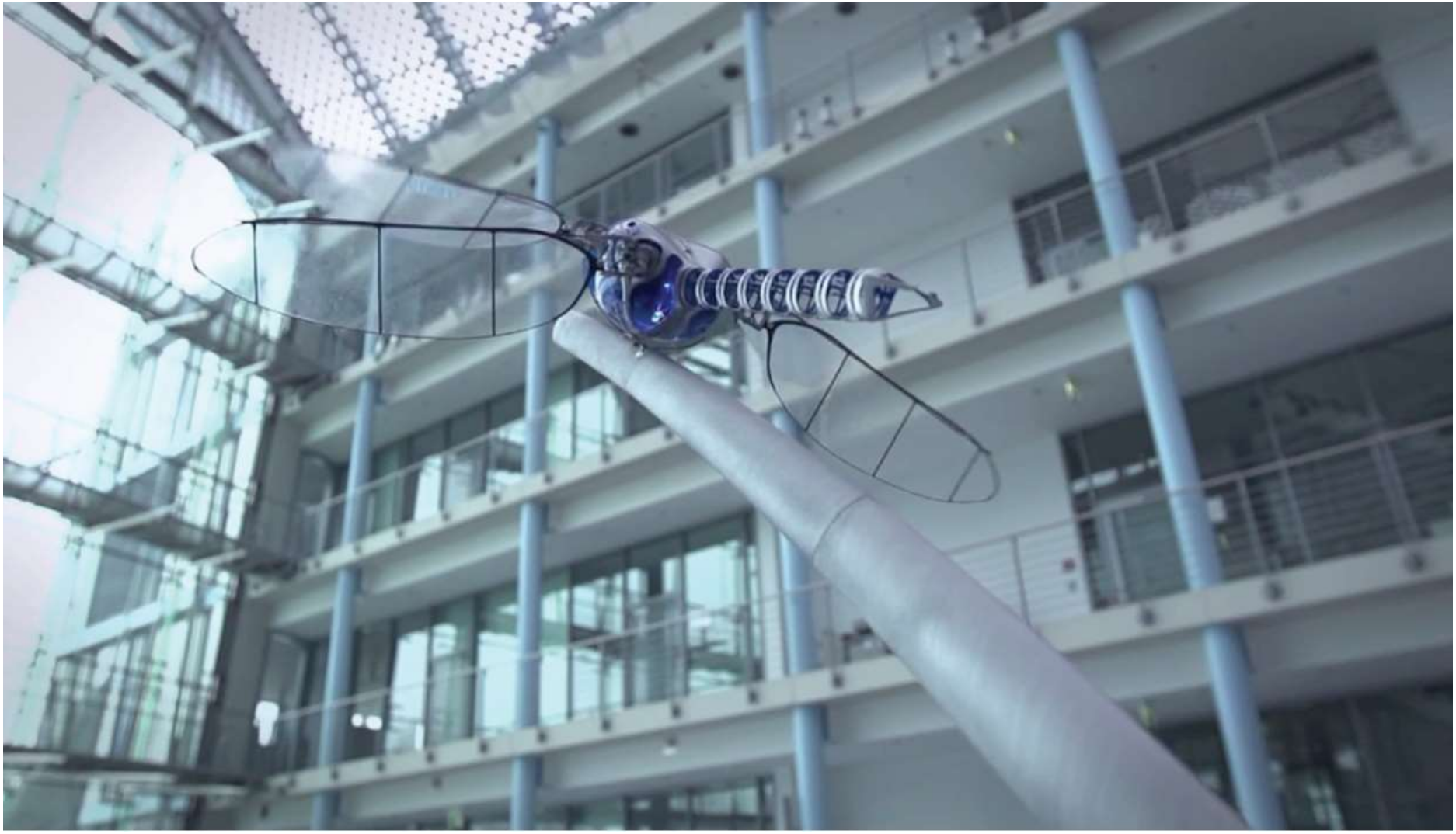
NANOBOTS FIGHT CANCER: FIRST HUMAN CLINICAL TRIAL IN 2015

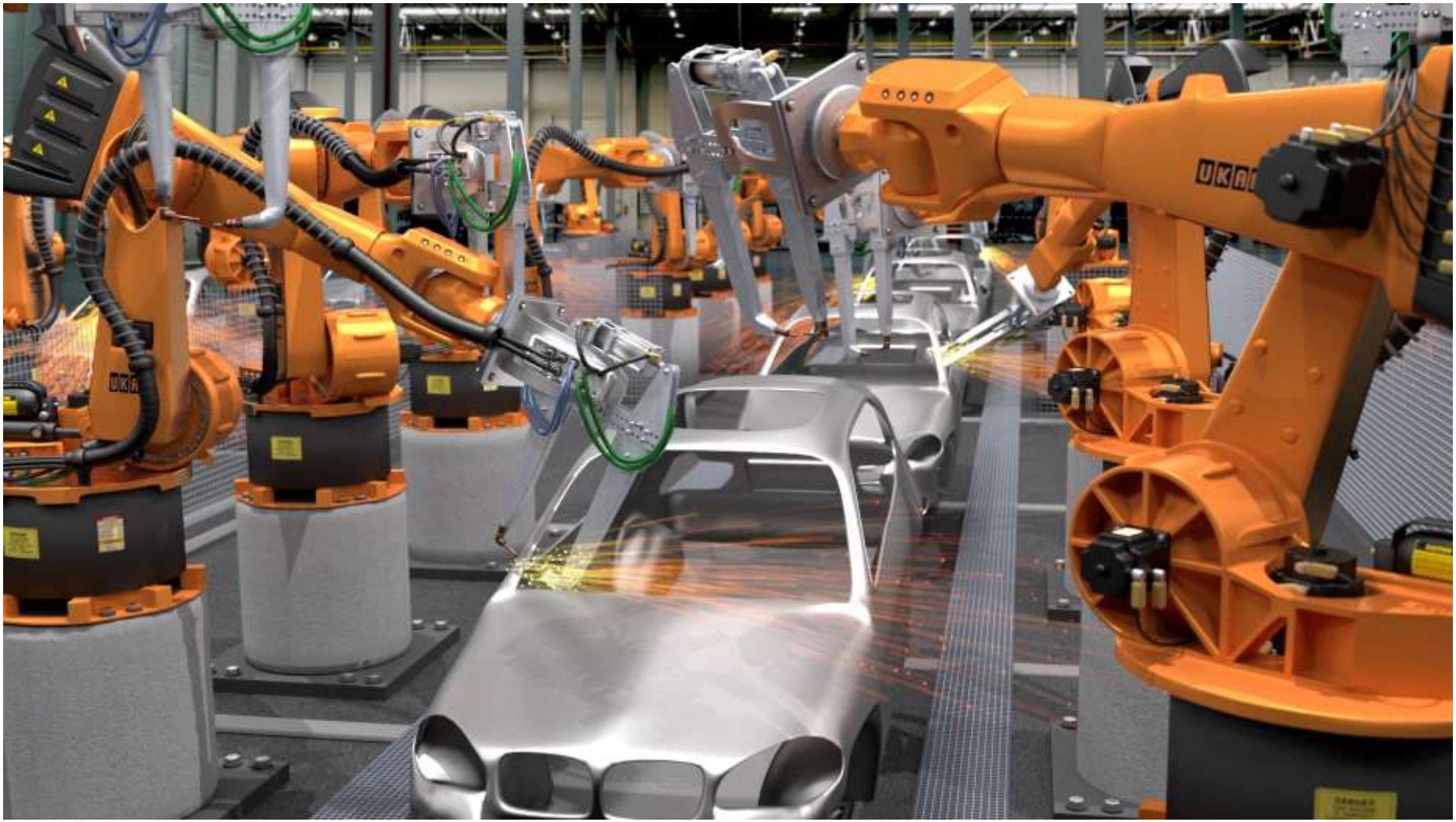
The first human clinical trial using nanobots to fight cancer will begin in 2015. The technology could later be used to repair spinal chords, improve epilepsy, and diabetes.

Dr. Ido Bachelet (Mina and Everard Goodman Faculty of Life Sciences and Institute of Nanotechnology and Advanced Materials) has led a research team that will inject nanorobots made from molecular DNA that are able to identify and kill cancer cells into patients. This is not expected to affect healthy cells. According to the London Jewish Chronicle, a dozen types of cancer can currently be recognized by the nanobots including leukemias and solid tumors. See Dr. Bachelet's TEDMED Talk on how nanobots will change everything about medicine.

ROBÓTICA - INTELIGÊNCIA ARTIFICIAL


BostonDynamics





How IBM transformed Watson into healthcare resource

February 23, 2015 12:41 pm by Stephanie Baum | 0 Comments

There's an interesting article in USA Today this week about how IBM approach to its Watson division led to it playing a critical role in making big data less unwieldy, supporting digital health startups and becoming a resource for the healthcare industry. Not bad for a computer brain that got its start as a Jeopardy contestant.

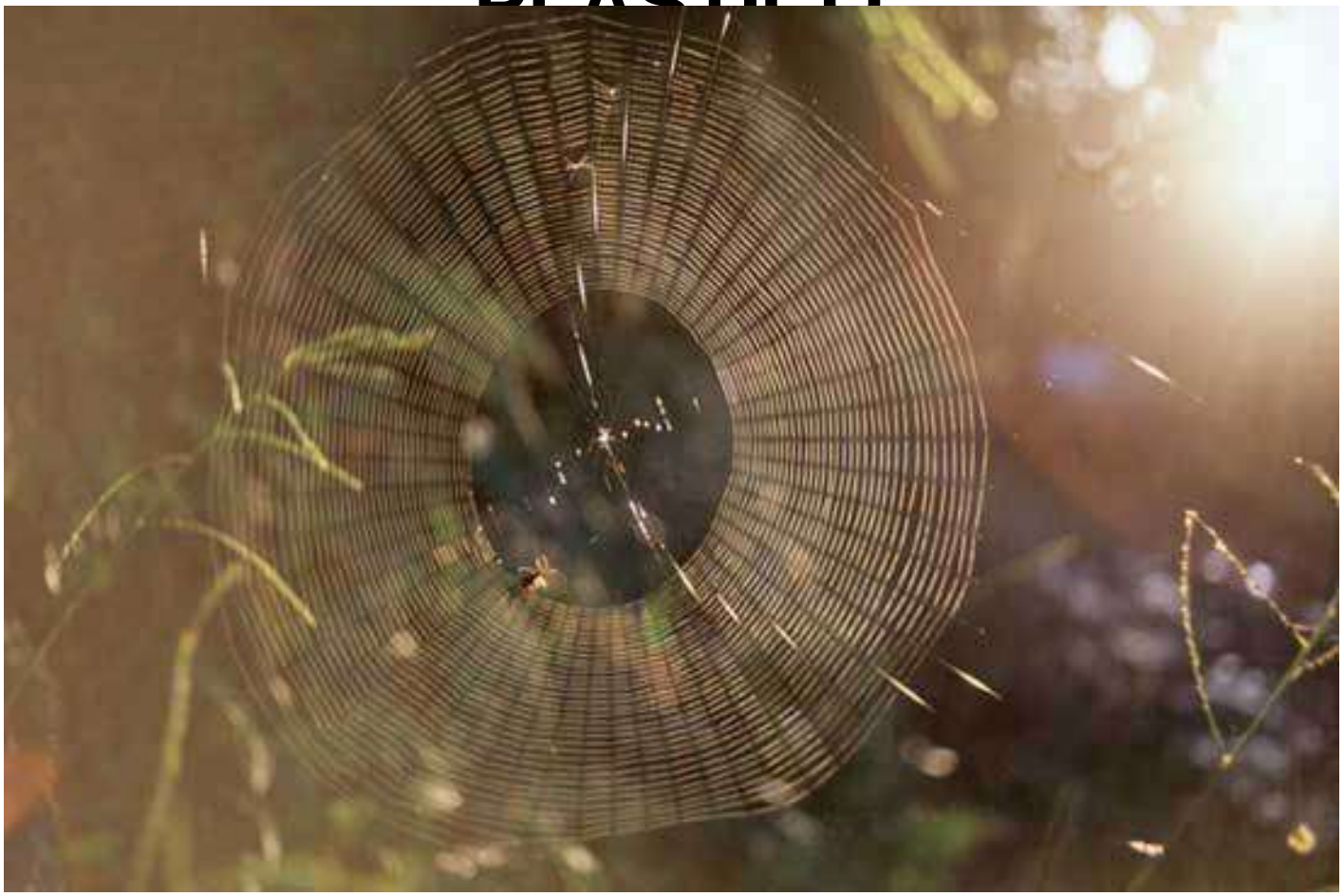
Mike Rhodin, who heads up IBM Watson, did the interview from the University of Michigan where he was scheduled to speak to a couple of entrepreneur groups. He noted that the freedom the Watson team had within IBM was key.

"What's important about the way we incubated Watson initially was that we isolated it. We gave them the freedom to operate as a startup; there really wasn't much marketing at first," Rhodin said.

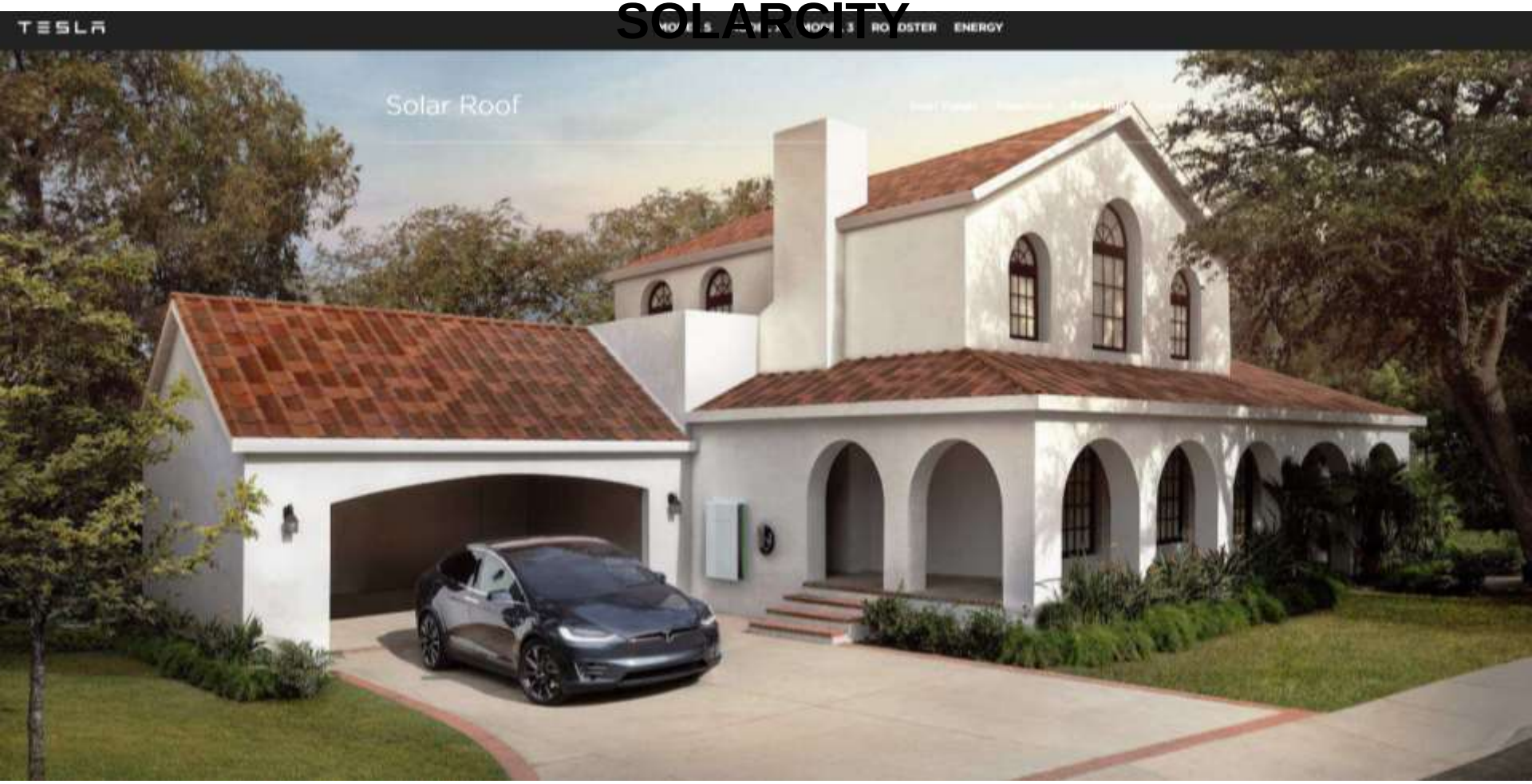
Because it recognized that its technology had wide variety of applications in different industry sectors, it made its cloud-based platform available to start-ups to build their own applications. It's been just over one year since the launch of IBM Watson. Since its commercial launch, Watson Group has collaborated with partners to build 6,000 apps, the article notes.

MATERIAIS AVANÇADOS

SEDA A PARTIR DE TEIAS DE ARANHA COM O OBJETIVO DE SUBSTITUIR O PLÁSTICO



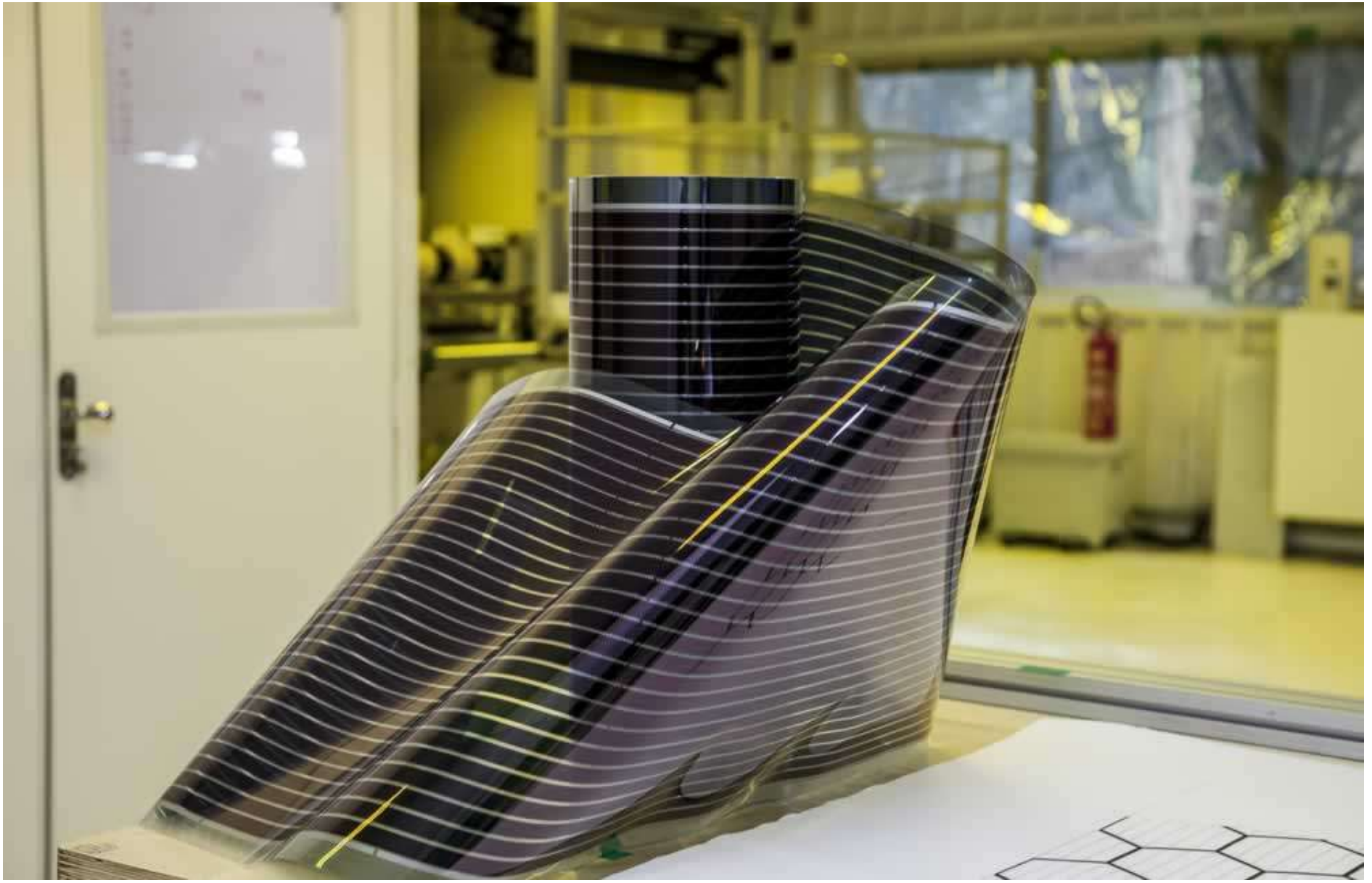
TELHADO SOLAR
AS TELHAS FOTOVOLTAICAS DA TESLA - SOLARCITY



FILMES FOTOVOLTAICOS ORGÂNICOS

Sunew (tecnologia nacional)

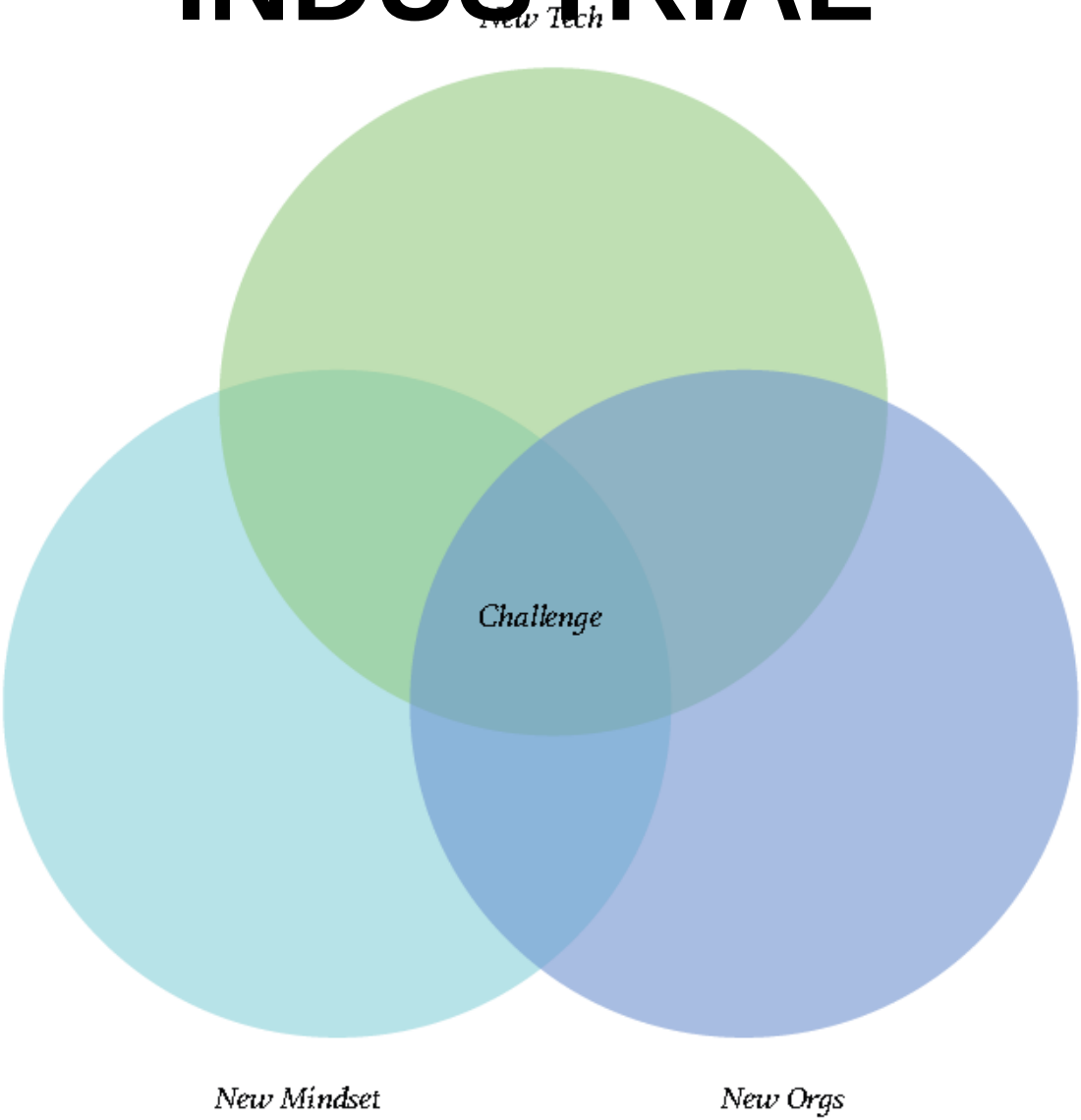
Os filmes fotovoltaicos orgânicos, também conhecidos como OPV (*Organic Photovoltaics*), são a terceira geração de células solares, capazes de gerar energia elétrica a partir da luz do Sol.



Fazendas do futuro – processo total de automação (da semente a colheita)

Aeroponia – Fazendas urbanas produzindo alimentos orgânicos **- Urban Farmcy** Porto Alegre

NOVO CONTEXTO INDUSTRIAL



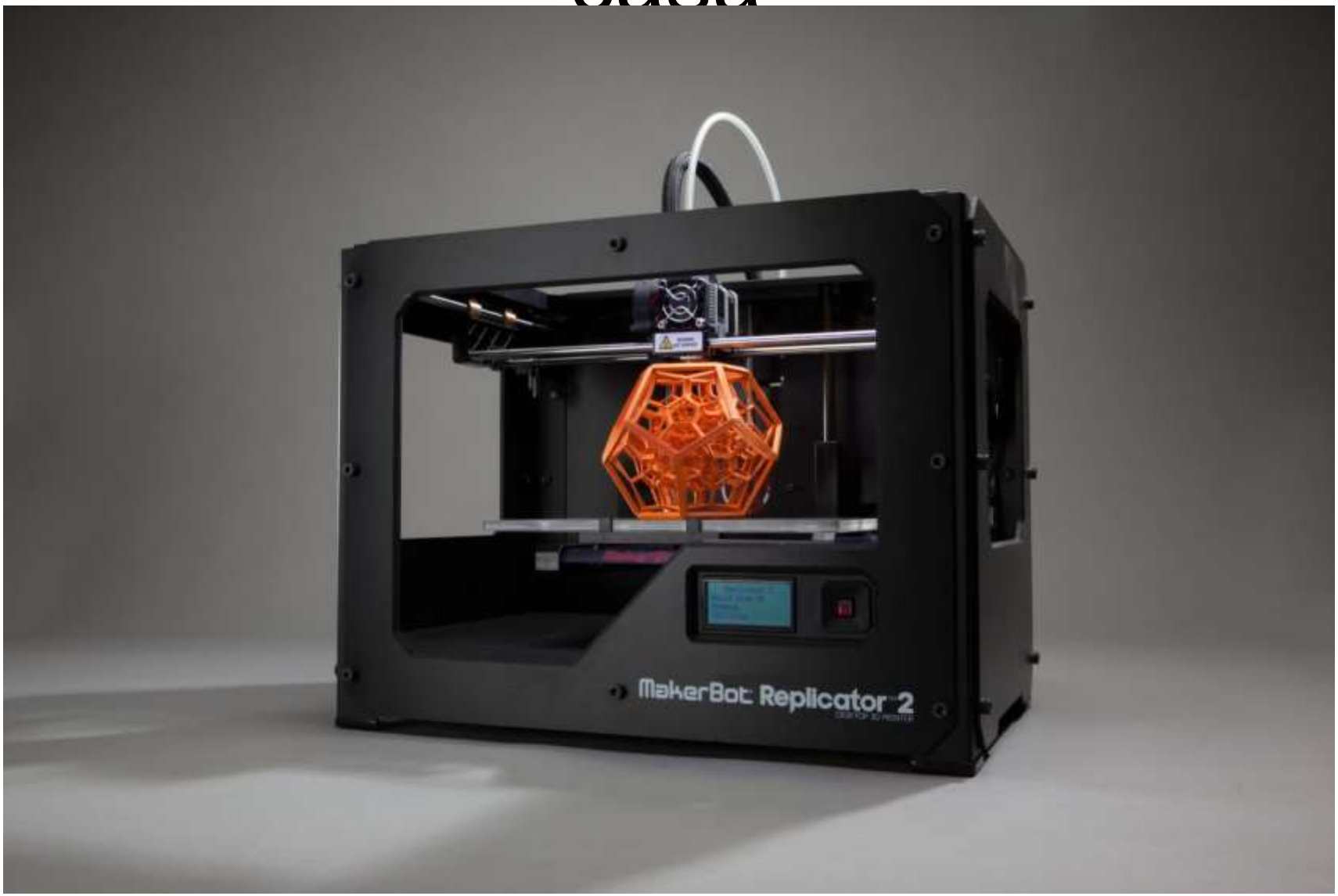
DIGITAL

INDUSTRIAL

AGRICULTOR

CAÇADOR / COLETOR

Todos podem ter fábricas em casa



How to Build 3D Printer?

The MakerGear Mosaic 3D Printer from **CNET 3D Printer Build Week**

1 – 3D Printer Build Week: Day One

2 – 3D Printer Build Week: Day Two

3 – 3D Printer Build Week: Days Three and Four

4 – 3D Printer Build Week: Wrap-Up

The MakerGear Mosaic 3D Printer

Part I: The Frame

Part II: The Y-Axis

Part III: The X-Axis

Part IV: The Z-Axis

Part V: The Extruder

Part VI: The Build Platform

Part VII: The Electronics

Part VIII: The First Print

RepRap Wiki: How to Make a RepRap (Mendel)

This tutorial is made by the RepRap community and is step-by-step tutorial to help you build your own RepRap Mendel. There are seven stages to making RepRap Version II "Mendel". They are:

1. Planning and preparing for a build

2. Downloading and Installing RepRap on your computer

3. Circuit board construction

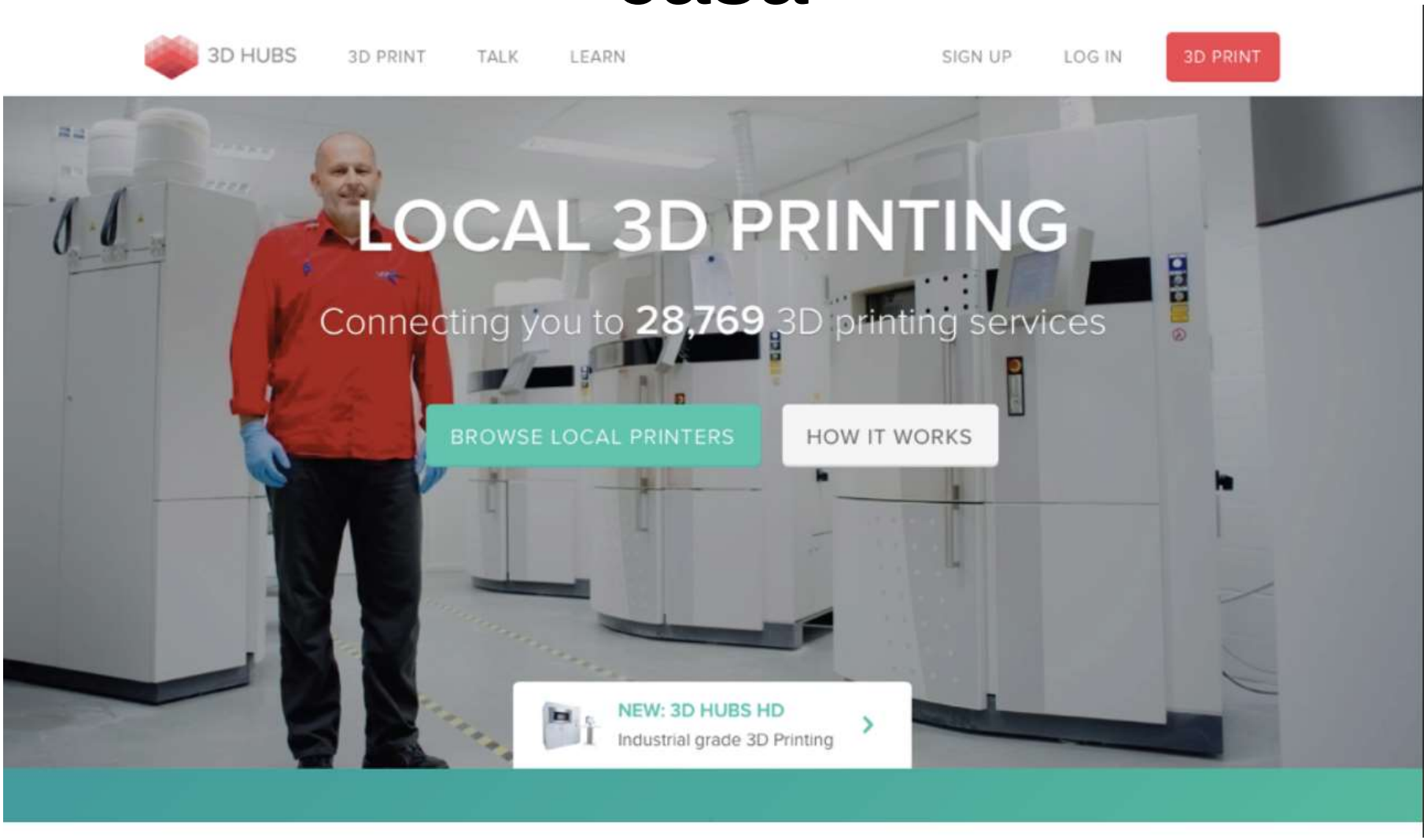
4. Microcontroller firmware installation

5. Mechanical construction

6. Electronic wiring

7. Commissioning

Ninguém precisa ter fábricas em casa



3D HUBS 3D PRINT TALK LEARN SIGN UP LOG IN 3D PRINT

How 3D Hubs works

Upload your 3D Design

In the .STL format

Choose a 3D Print Service

Compare by prices, materials and reviews

Pick up your Order

Or get it shipped

START YOUR 3D PRINT LEARN MORE

3D HUBS | 3D PRINT | TALK | LEARN | SIGN UP | LOG IN | 3D PRINT

File uploader

Files uploaded in MM CM IN

Drag 3D files here or browse for a file

Add voucher code

2. Choose a material to print in

GENERAL PURPOSE PLASTICS

Affordable, durable and widely available plastics like ABS and PLA.

Learn more

HIGH DETAIL RESIN

Intricate designs and sculptures with fine details and a smooth finish.

Learn more

STRONG & FLEXIBLE NYLON

Perfect all-rounder, allows for functional prototypes, end-use parts and complex designs.

Learn more

RIGID OPAQUE PLASTIC

Realistic prototypes with excellent details, high accuracy and a smooth surface finish.

Learn more

RUBBER-LIKE PLASTIC

Simulate rubber with various levels of elasticity.

Learn more

3D HUBS | 3D PRINT | TALK | LEARN | SIGN UP | LOG IN | 3D PRINT

3. Select a 3D printing Hub

Sort by DISTANCE BEST MATCH

New! You can now print with a range of ultra high detail prototyping materials.
Learn more about PolyJet materials

SHOW PRINTERS

Usina FabLab's Hub

LAST ACTIVE 7 DAYS AGO
★★★★★ 1 REVIEW
2.5 KM AWAY
PORTO ALEGRE, BR

Shipping
Pickup
Modeling

General Purpose Plastics from $5.00
Get it in 4 days

SEE DETAILS

3dPRI's Hub

LAST ACTIVE 12 DAYS AGO
★★★★★ 1 REVIEW
37.8 KM AWAY
NOVO HAMBURGO, BR

Shipping
Pickup
Modeling

General Purpose Plastics from $10.00
Get it in 3–4 days

SEE DETAILS

Snap 3D's Hub

LAST ACTIVE A MONTH AGO

Invoicing
Shipping

General Purpose Plastics from $3.00

Projetos 3D em abundância

3D PROJECTS BY

NETFLIX

3D PROJECTS BY

3D PROJECTS BY

The Pirate Bay

New Mindset

Ascensão do movimento make

RULES FOR INNOVATION
IN THE NEW WORLD OF
CRAFTERS, HACKERS, AND TINKERERS

THE MAKER MOVEMENT MANIFESTO

MARK HATCH
CEO, TECHSHOP

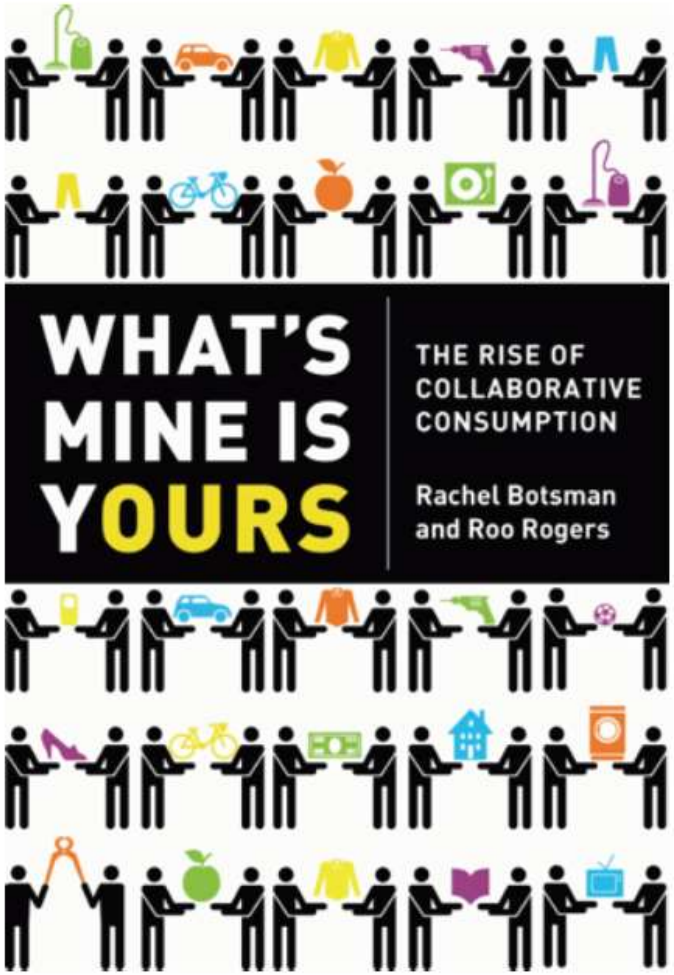

TechShop
BUILD YOUR DREAMS HERE
TORMACH


STAFF ONLY

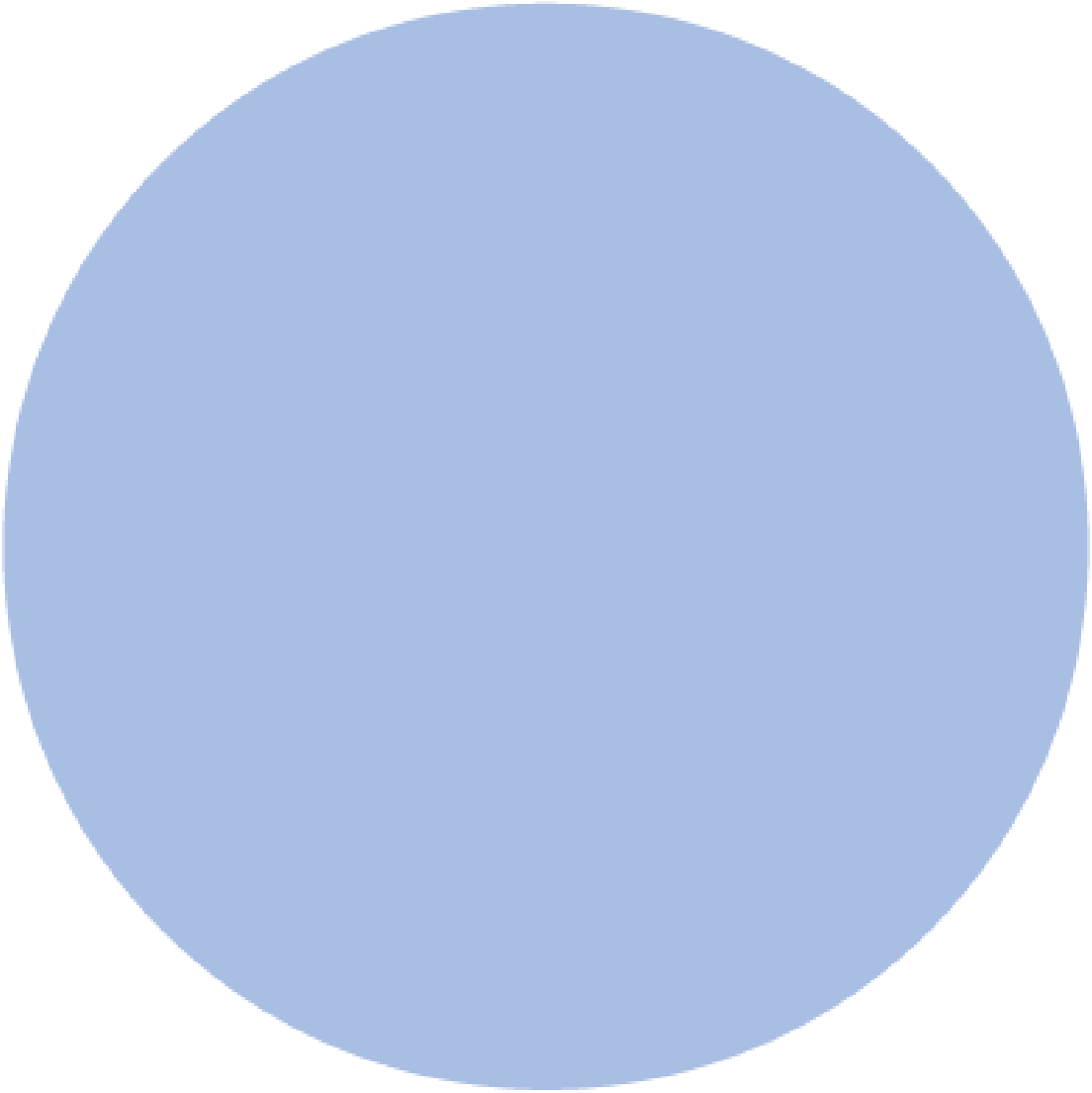

Replicator
Andy Filo


REDUCE,
REUSE,
RECYCLE

Acesso > Posse



Inspirado na filosofia do compartilhamento de sites como Wikipedia, Twitter e Flickr e mercados de trocas já bem conhecidos como eBay e Craigslist, o **consumo colaborativo promove o surgimento de redes de empréstimos, de compartilhamento de automóveis, e até de aluguel de uma cama em um apartamento**. Botsman e Rogers mostram como estamos economizando dinheiro, tempo, espaço, levando as pessoas a construir relações mais próximas e a passar de consumidores passivos a colaboradores ativos. **E ganhando dinheiro com isso.**


New Orgs

Industrial >> Exponencial

1. Apple
2. Google
3. Coca-cola
4. Microsoft
5. IBM
6. Toyota
7. Samsung
8. Ge
9. McDonald´s

1. GitHub

2. Airbnb

3. Uber

4. Indiegogo

5. Google

6. Quirky

7. Kaggle

8. Pinterest

9. Reddit

10. Tumblr

ORGANIZAÇÕES LINEARES	ORGANIZAÇÕES EXPONENCIAIS
Equipe fixa com competências predeterminadas	Equipe variável com competências sob demanda
Planejamento estratégico como extrapolação do passado	Focada em criar o próximo paradigma
Cultura organizacional moldada a punição e recompensa (adestramento)	Cultura baseada em autonomia, *empowement* e empreendedorismo
Dirigida a resultados financeiros	Dirigida a propósito
Recursos próprios	Comunidade & Crowd (co-criação)
Baixa tolerância a riscos	Experimentação
Proteção	Compartilhamento

Resumo

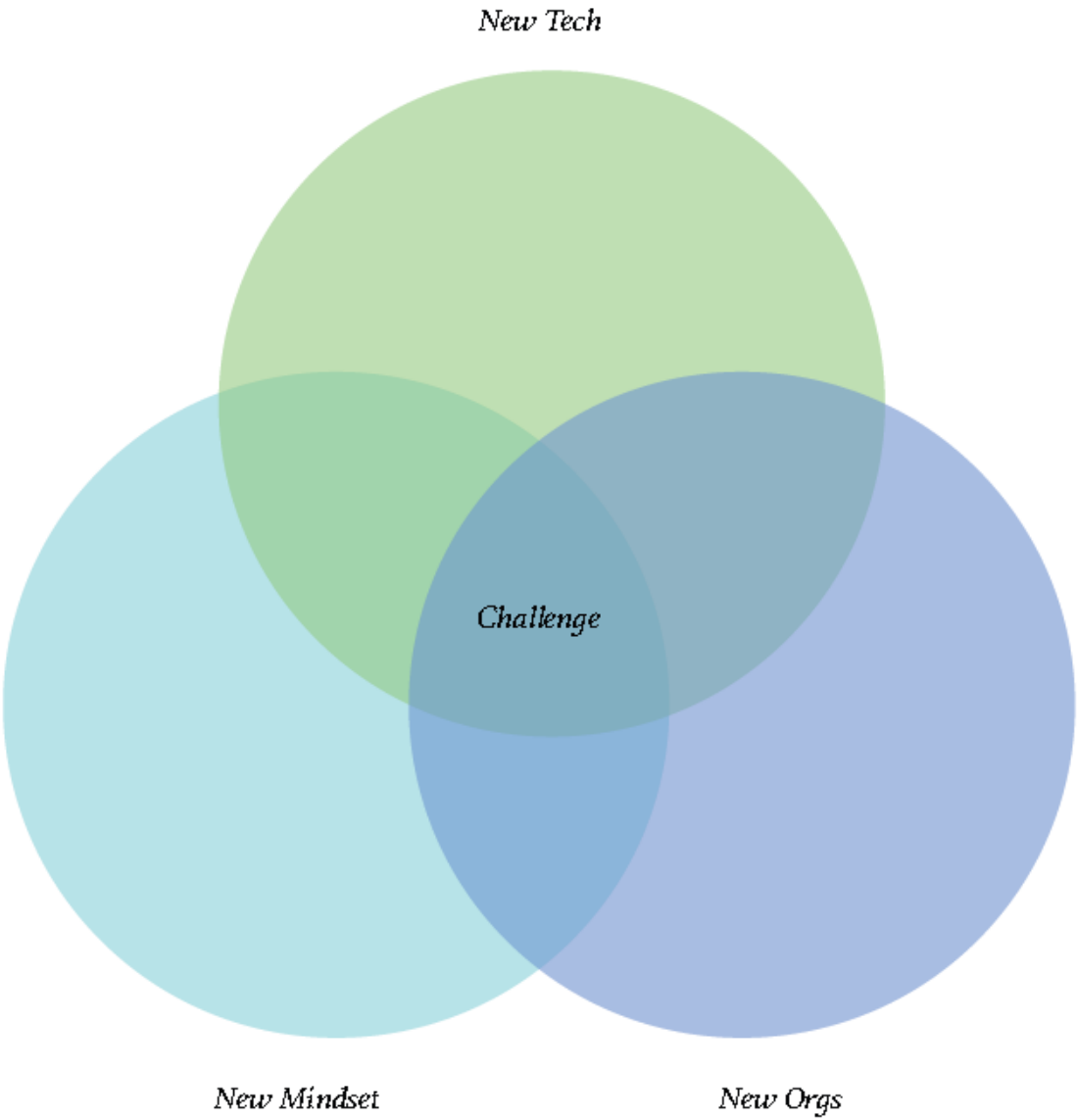
O Porquê de estudar futuros

- Cosmos
- Tomar decisões baseados no futuro e menos no passado

Revoluções pós-digital

- biotech
- nanotech
- robótica

Novo contexto industrial


New Tech
Challenge
New Mindset
New Orgs

Todos podem ter fábricas em casa

Ninguém precisa ter fábricas em casa

Ascensão do movimento maker

Reduce, Reuse, Recycle

Acesso > Posse

Industrial >> Exponencial

Cristiano Borges Franco

www.ielrs.org.br

cristiano.franco@ielrs.org.br

51.3347-8960