GRAY
ASSOCIATES

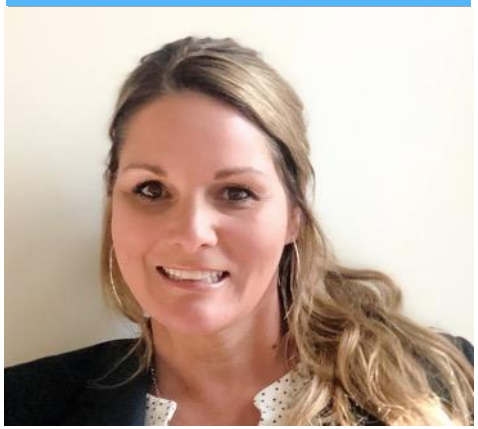
5 EMERGING PROGRAMS FOR 2022

January 13th, 2022

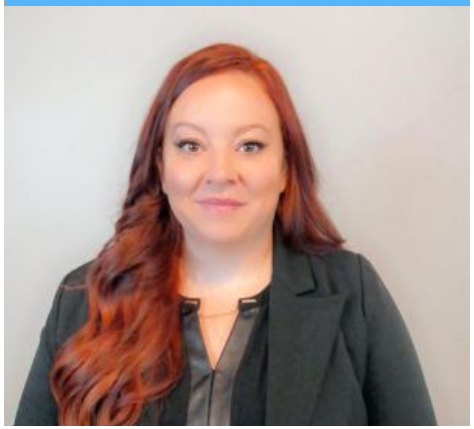
Today's Presenters



Ned Caron
Partner, VP of Marketing



Jamie Allsbury
Regional Vice President



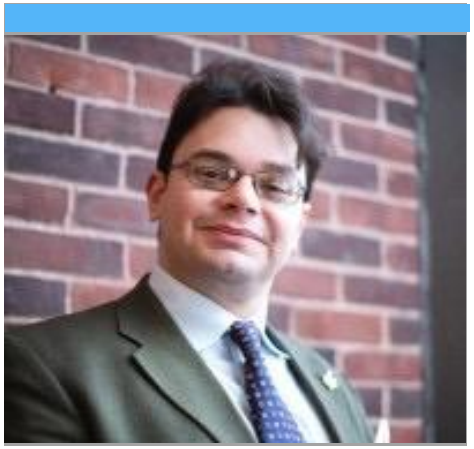
Jill OBarske
Regional Vice President



Ralph Garcia
Director of Sales



Lisa Piatek
Partner, Regional Vice President



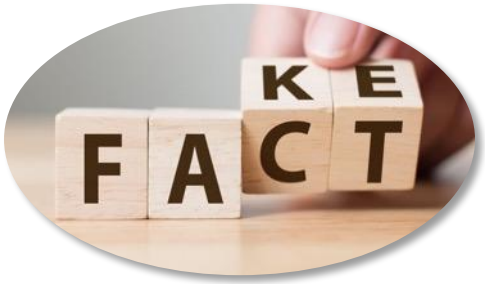
Youssef Aljabi
Analyst

GRAYASSOCIATES

Where Are They Now?







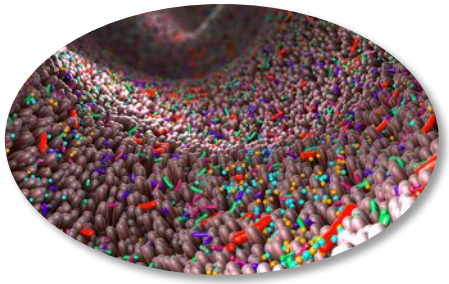












Who is Gray Associates?



Gray's Approach

Gray uses a wide variety of sources to identify possibilities.















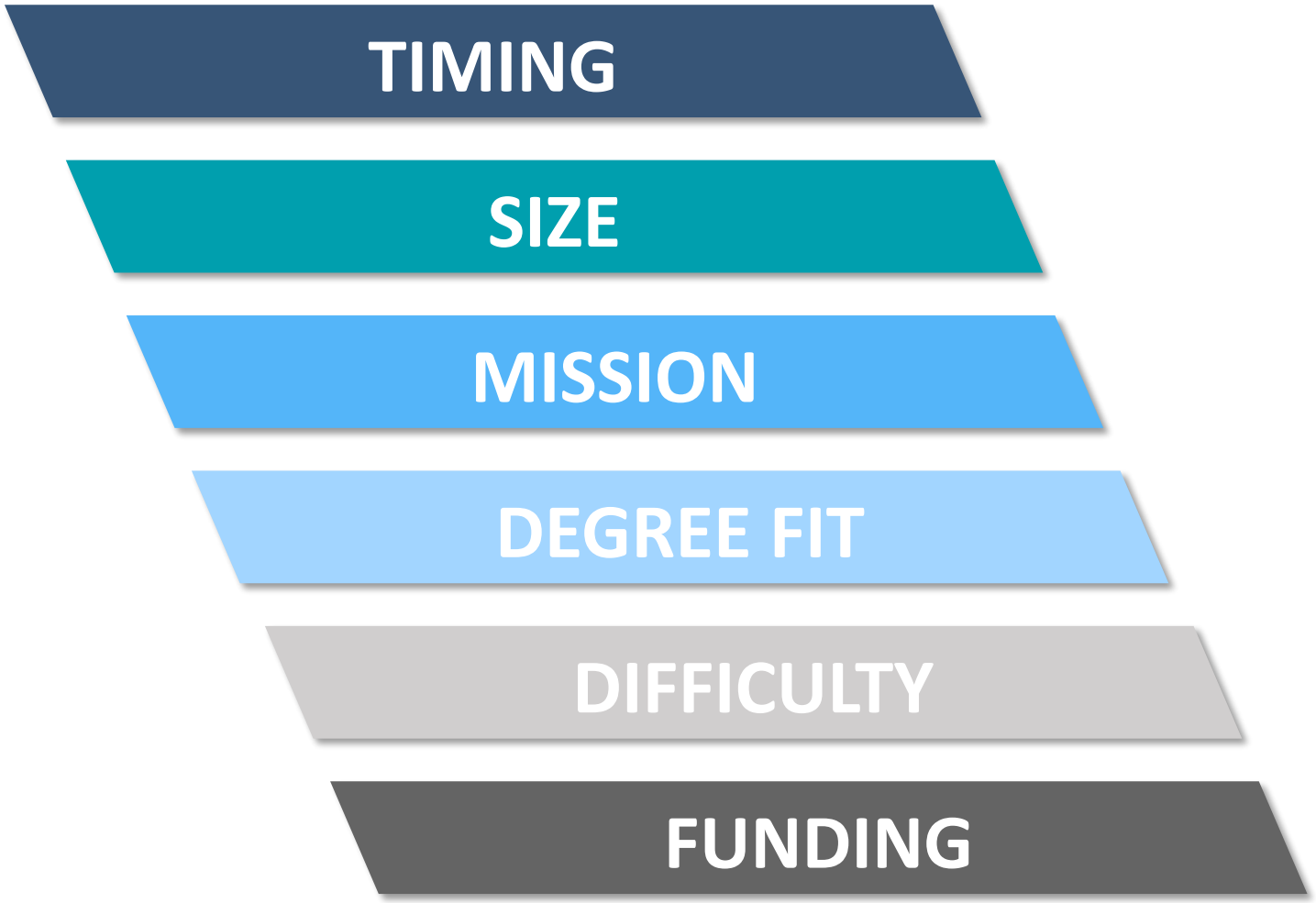






Considerations

When evaluating emerging fields, consider these elements:

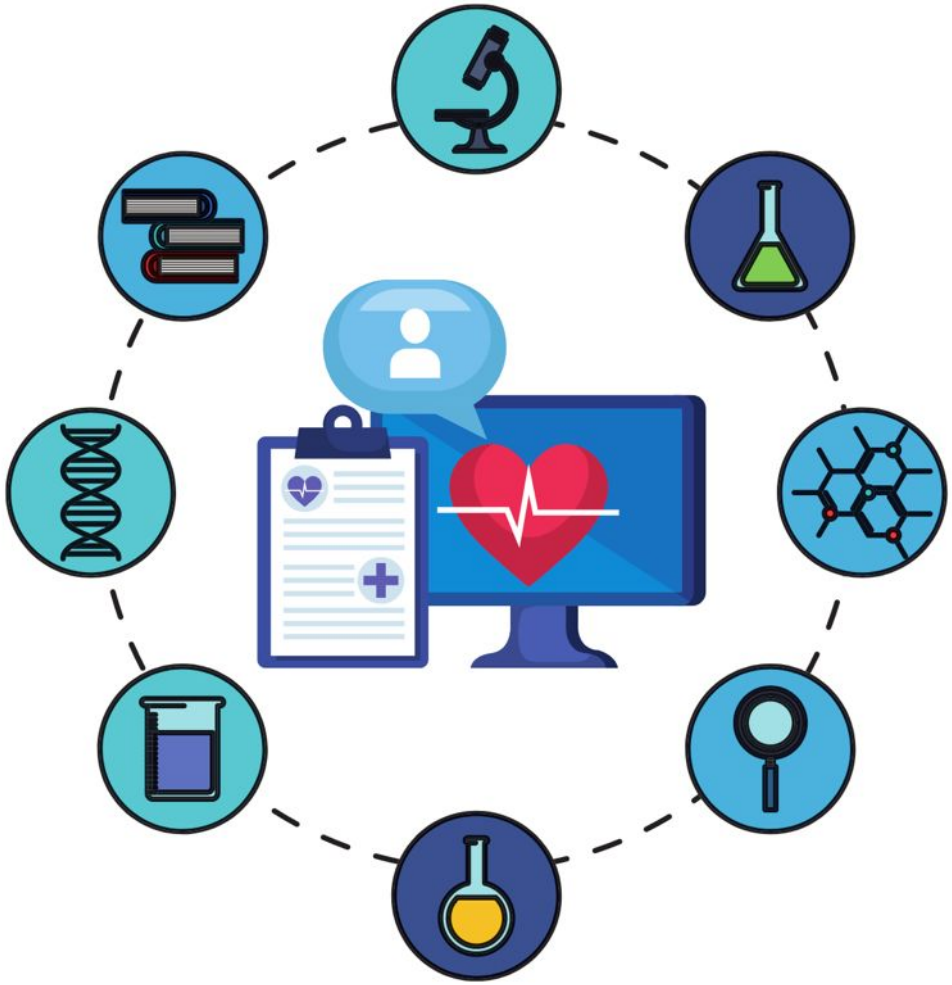




Telehealth

What Is It?

- Clinical and non-clinical
- Virtual visits and appointments
- “Store-and-forward”
- Training and education



Telehealth Is Here To Stay

- 38X utilization now compared to pre-pandemic
- Consumers and providers more receptive
- Regulatory changes made during the pandemic may become permanent.
- Private and public investment continues to grow.

Benefits and Challenges

Benefits

- Increased access
- Lower risk
- See patient in home environment
- Cost-effective
- Convenient

Challenges

- Security and privacy
- Non-uniform regulation
- Not applicable for all specialties and services
- Technical glitches

Opportunity for Higher Education

- The time is now
- Credit and non-credit
- Courses, certificates, short programs
- Target audience
  - Current health care providers and administrators across most levels and specialties
  - Students seeking to enter the health care field

Program Examples: Thomas Jefferson University



Undergraduate Certificate
Telehealth Facilitator Certificate Program



Graduate Certificate
Connected Care: Telehealth & Digital Health Innovation



Professional and Continuing Education
Telemedicine for Providers: Conducting an Effective Physical Exam CE Course

Program Example:
Hazard Community & Technical College

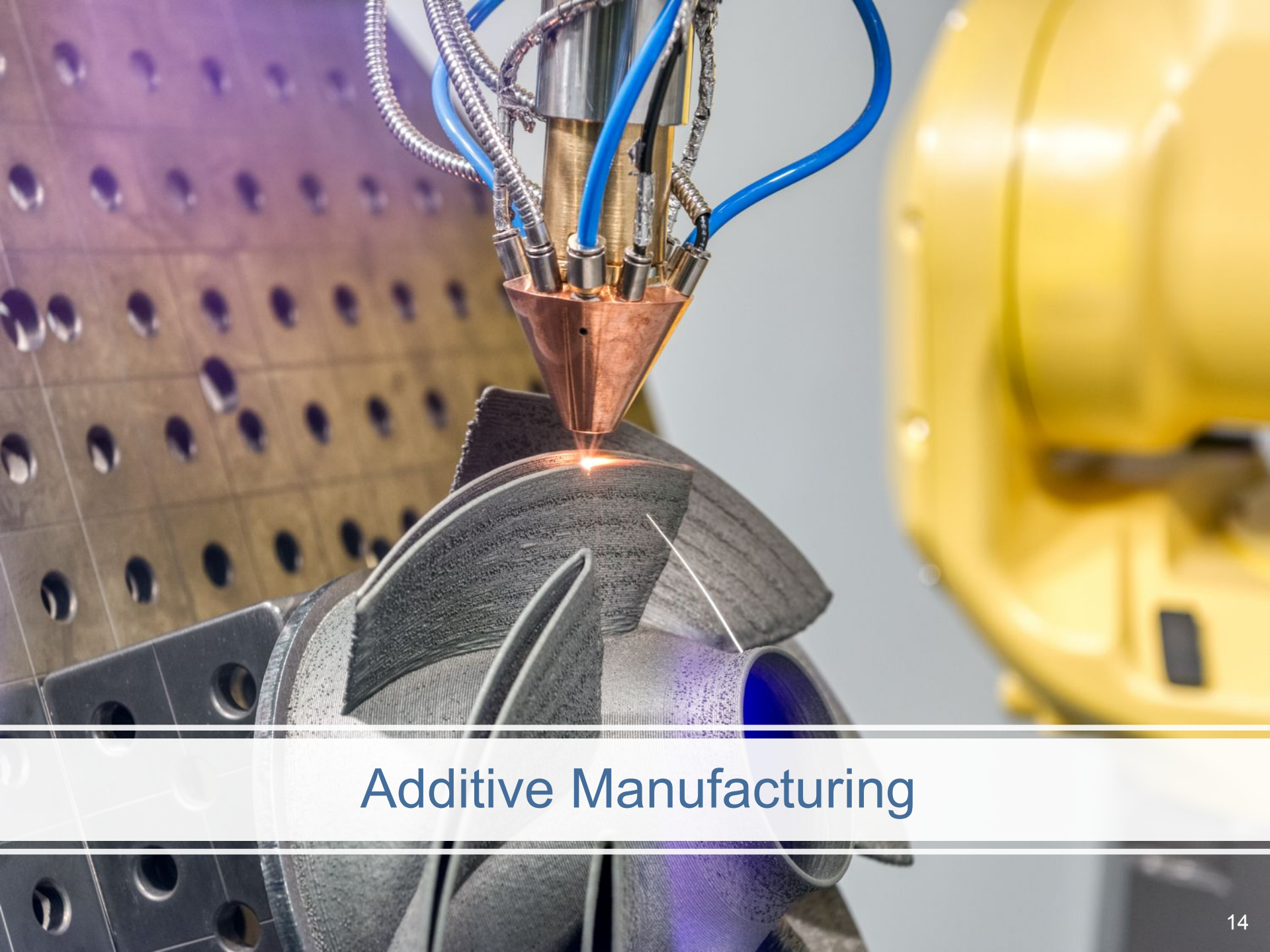
Telehealth Technician Assistant Certificate

- Provides students with the skills and knowledge to help healthcare facilities and providers in their telehealth endeavors.
- Topics include video conferencing, remote in-home patient monitoring, and telemedicine via cell phones and tablets.
- 5 courses, 16 credits

TELEHEALTH TECHNICIAN ASSISTANT CERTIFICATE

Technical Courses	**Credits**
HST 102 - Healthcare Delivery and Management	3
HST 103 - Healthcare Communications	2
HST 104 - Healthcare Basic Skills with Clinical	3.5
AHS 115 - Medical Terminology	3
TLH 200 - Telehealth Patient Care	4.5
Total Credits	16

Source: https://hazard.kctcs.edu/education-training/media/2018_Programsheet/Telehealth_Program_Information_Sheet_revised.pdf



Additive Manufacturing

What Is It?

DESIGN



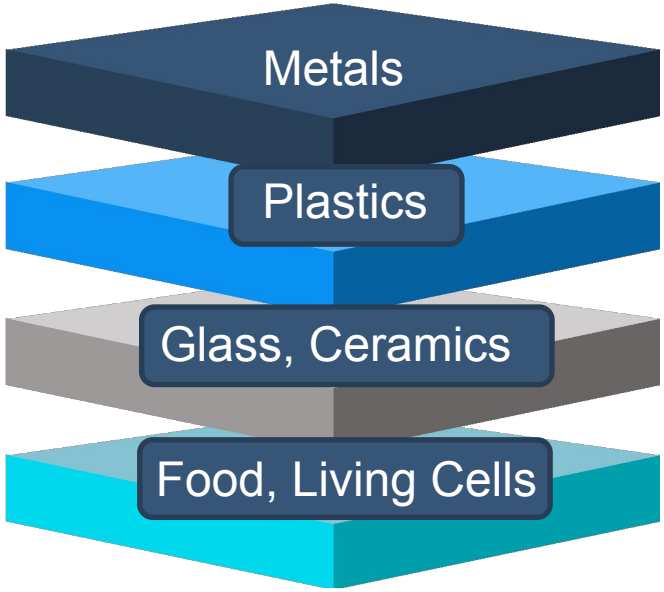
SLICING



3D PRINTING







Optimized Design



How It Started

- Aerospace
- Automotive
- Manufacturing
- Dental



Where It's Going

- Construction
- Apparel and Accessories
- Healthcare
- Food
- Electronics
- Hobbyists
- More…





[Image Credit: Highsnobiety]



Additive Manufacturing in Higher Education

"How Higher Ed Can Help Solve the Additive Manufacturing Puzzle

Advances in 3D printing are creating new jobs, but companies need help closing the skills gap."

-EdTech



Source: Gray Associates Job Postings Dashboard

Additive Manufacturing in Higher Education















MOOCs



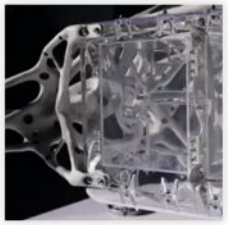
3D Printing and Additive Manufacturing

University of Illinois at Urbana-Champaign

Specialization

4.6 (2,105) | 80k students

Beginner



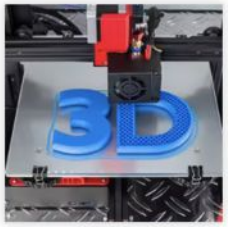
Generative Design for Additive Manufacturing

Autodesk

Course

4.8 (221) | 12k students

Beginner



Additive Manufacturing

University of Michigan

Course

4.6 (7)

Beginner



Additive Technologies in Metallurgy & Mechanical Engineering

Peter the Great St. Petersburg Polytechnic University

Course

4.2 (107) | 2.9k students

Intermediate

Source: Coursera.org

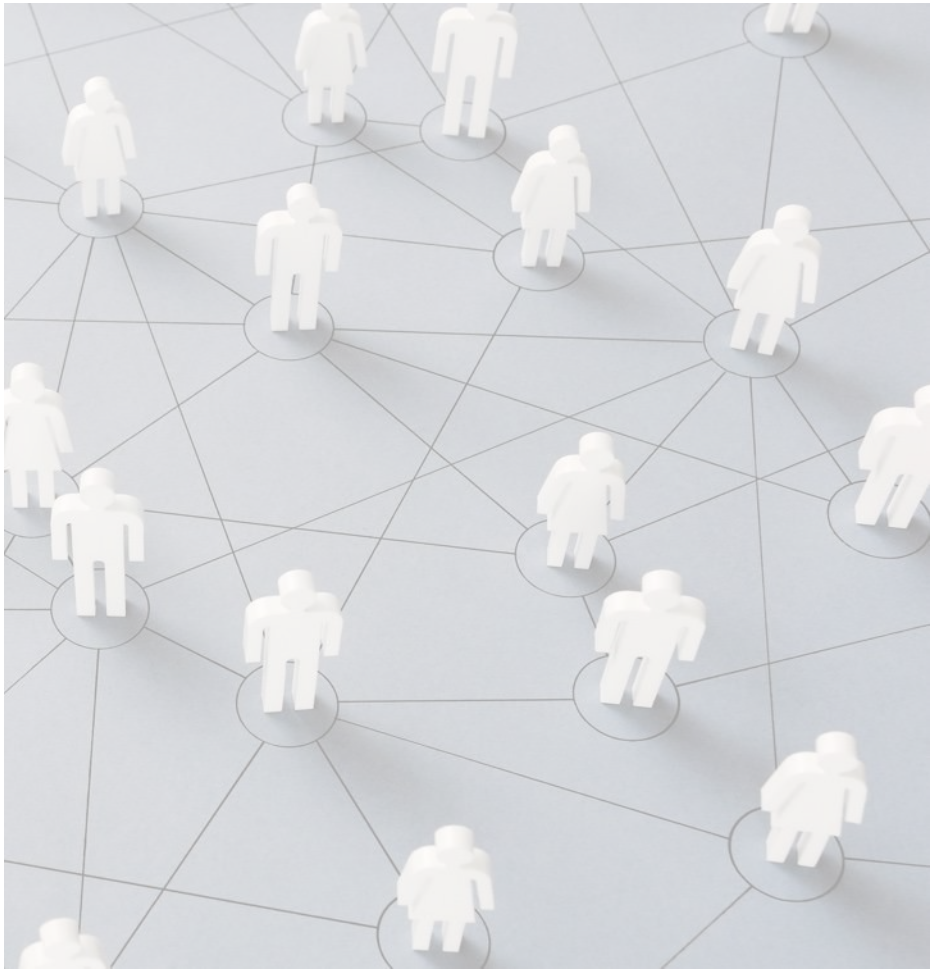


Decentralized Finance

What Is It??

"For the first time in history, a financial system is developing without intermediaries at a large scale." - Forbes

- Peer-to-peer transactions
- No centralized institutions or authority
- Payments, loans, other financial transactions



Elements

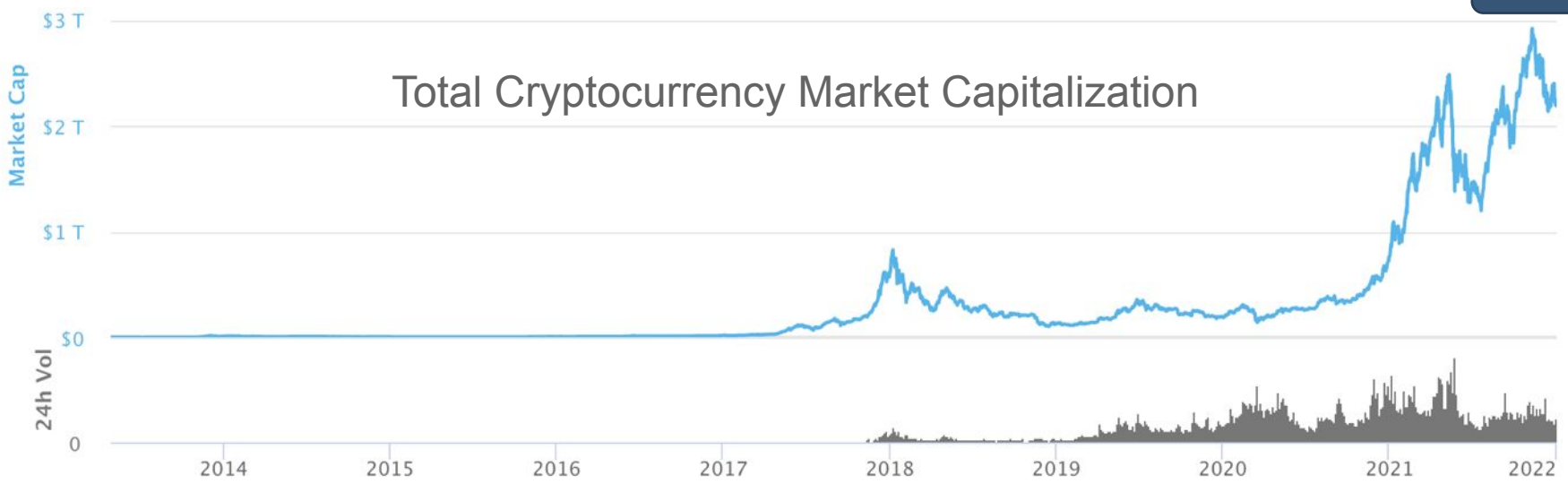
- Blockchain
- Cryptocurrencies
- dApps
- NFTs



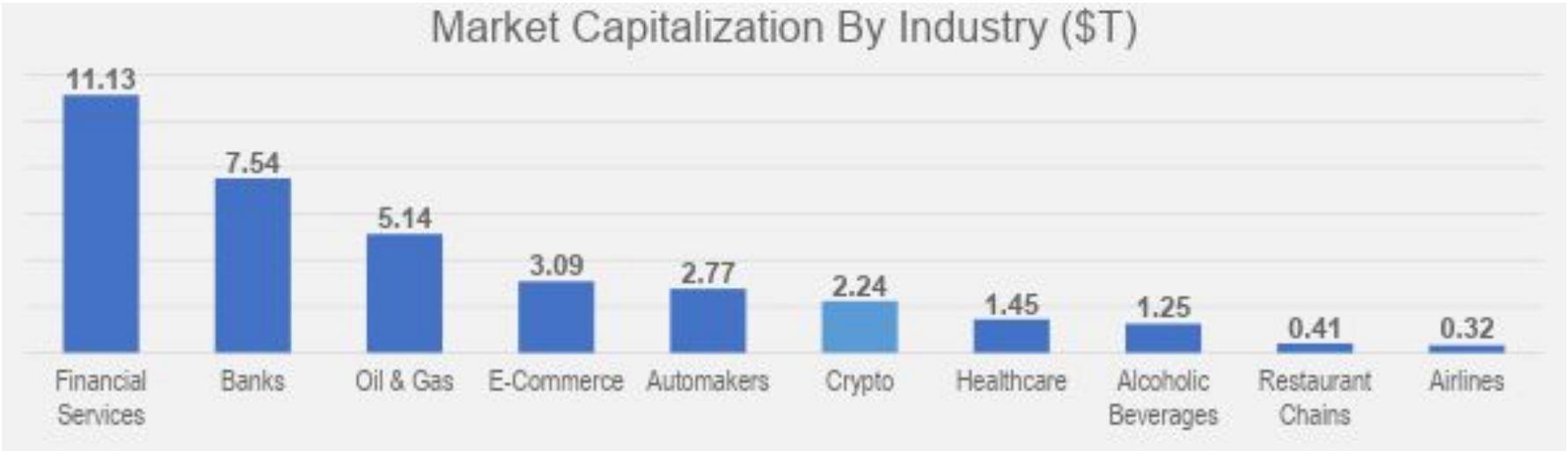
Pros	Cons
▪ Accessible ▪ Inexpensive ▪ Flexible ▪ Fast ▪ Transparent	▪ Volatile ▪ Esoteric ▪ Unregulated?

Crypto is Bigger Than Beer

$2.4 T



Source: coinmarketcap.com; 1/1/2022



Source: coinmarketcap.com; companiesmarketcap.com; as of 1/1/2022

Workforce and Skills



Source: Gray Associates Job Postings Dashboard

MOOCs

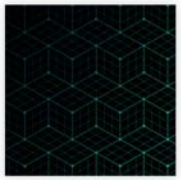
- Universities offer specializations and courses on DeFi, Blockchain, and Digital Finance.



Blockchain
University at Buffalo
Specialization
4.6 (6,805) | 170k students
Intermediate



Decentralized Finance (DeFi): The Future of Finance
Duke University
Specialization
4.9 (261) | 8.1k students
Intermediate



Blockchain Revolution
INSEAD
Specialization
4.7 (2,374) | 65k students
Beginner



Blockchain Revolution in Financial Services
INSEAD
Specialization
4.7 (689) | 20k students
Beginner



Blockchain
University of California, Irvine
Specialization
4.1 (150) | 14k students
Beginner



Fintech: Foundations & Applications of Financial Technology
University of Pennsylvania
Specialization
4.6 (2,613) | 63k students
Beginner



Supply Chain Finance and Blockchain Technology
New York Institute of Finance
Specialization
4.5 (282) | 10k students
Intermediate



Financial Technology (Fintech) Innovations
University of Michigan
Specialization
4.7 (1,760) | 49k students
Beginner

Source: Coursera.org

DeFi in Higher Education

"I wouldn't be surprised if DeFi is part of the curriculum of every MBA program in the future." - Alex Tapscott, DeFi instructor

University of Wyoming
Center for Blockchain and Digital Innovation

Bronx Community College CUNY

Berkeley University of California
Decentralized Finance

University at Buffalo
Blockchain ThinkLab

Blockchain Acceleration Foundation

digital currency initiative | mit media lab

Wharton University of Pennsylvania
Aresty Institute of Executive Education
Executive Education

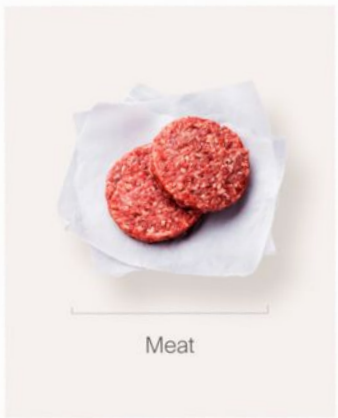
"Specialized workforce needed as crypto and blockchain courses enter college" - Cointelegraph

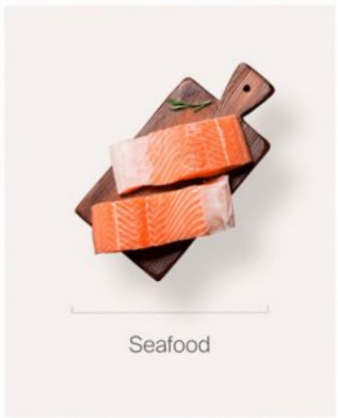


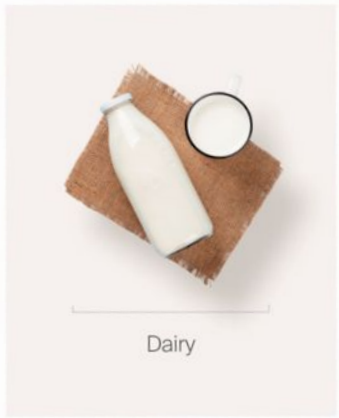
Cellular Agriculture

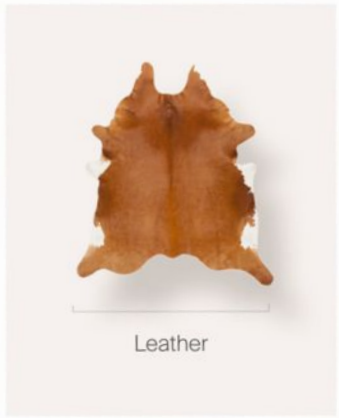
What's The Beef?

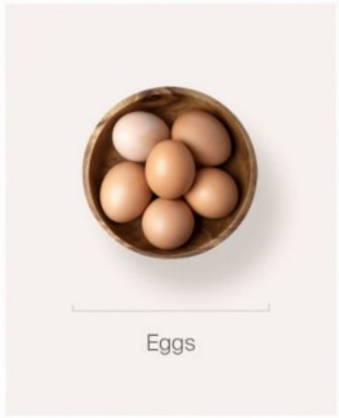
Cellular agriculture is the "farming" of agricultural products from cells rather than animals.











Source: https://www.cellag.org/

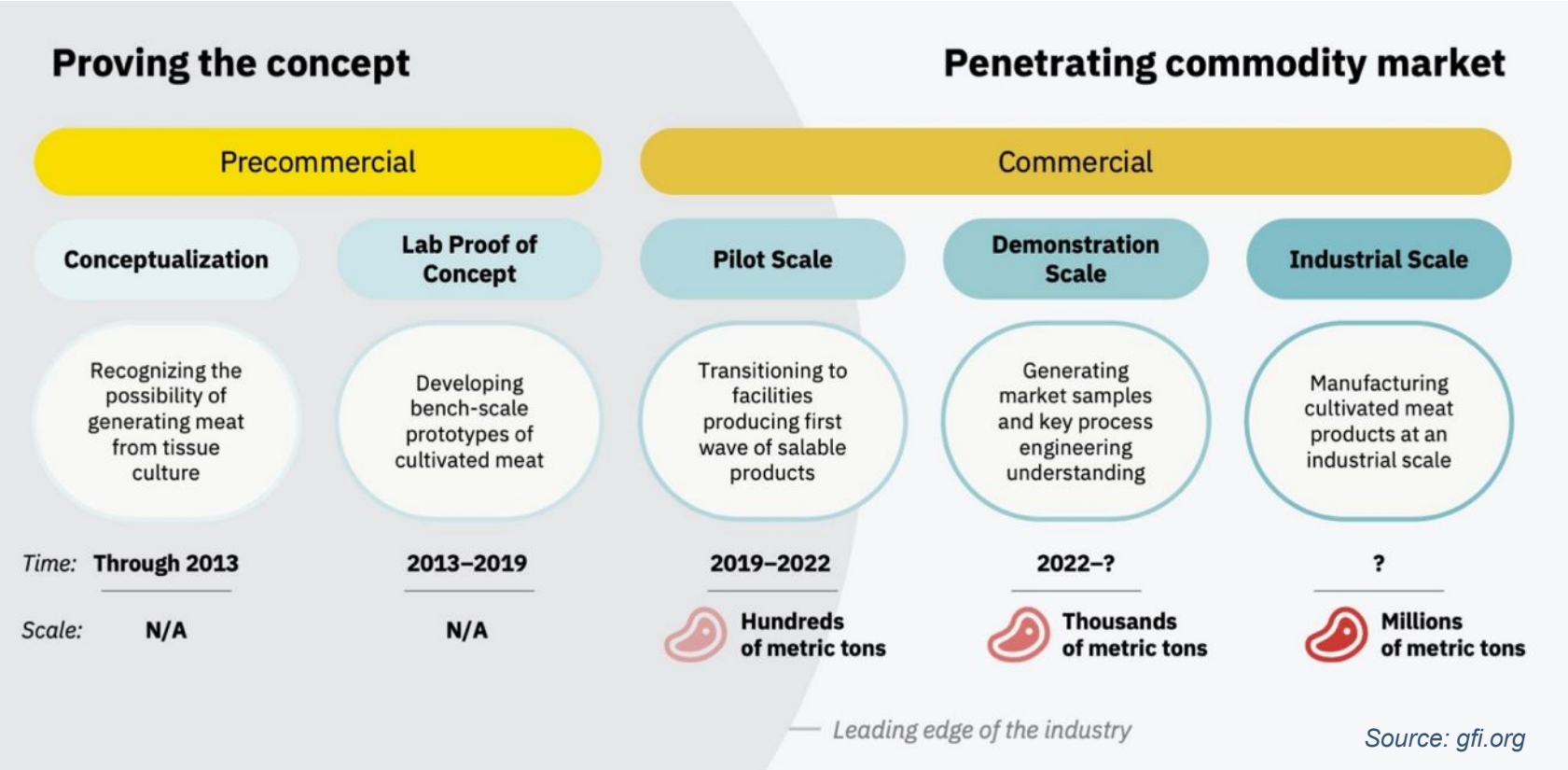
- Environmentally friendly
- Animal friendly
- Ability to customize

- Consistent food supply
- Sterile environment



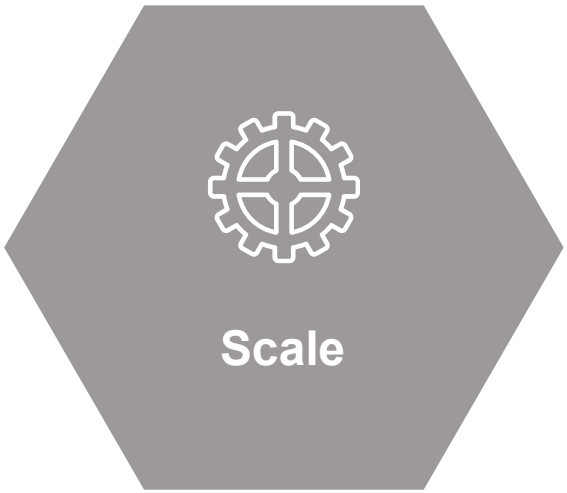
Market Potential

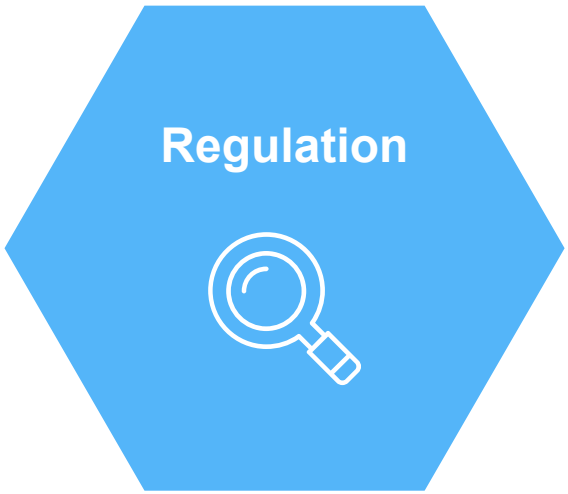
- Moving from Precommercial to Commercial



Major Hurdles









Workforce

- **Research Associate II - Analytics** — THE EVERY COMPANY
- **Senior Process Engineer** — THE EVERY COMPANY
- **R&D scientist (2-2)** — CELLULAREVOLUTION
- **R&D scientist (1-2)** — CELLULAREVOLUTION
- **Biomanufacturing Engineer - Upstream** — BIOMILQ
- **Chief Operating Officer** — FINLESS FOODS
- **Head of Engineering** — LEVER ADVISERS
- **Research Associate | Fermentation** — NEW CULTURE
- **Bioinformatics Scientist** — BIOMILQ
- **Biochemist** — BIOMILQ
- **Business Office Coordinator** — BIOMILQ
- **Regulatory Manager** — BIOMILQ
- **Research Associate** — BIOMILQ
- **Laboratory Operations Manager** — GALY
- **Full Stack Data Scientist** — THE EVERY COMPANY
- **Human Resources Generalist** — THE EVERY COMPANY

Source: jobs.cell.ag

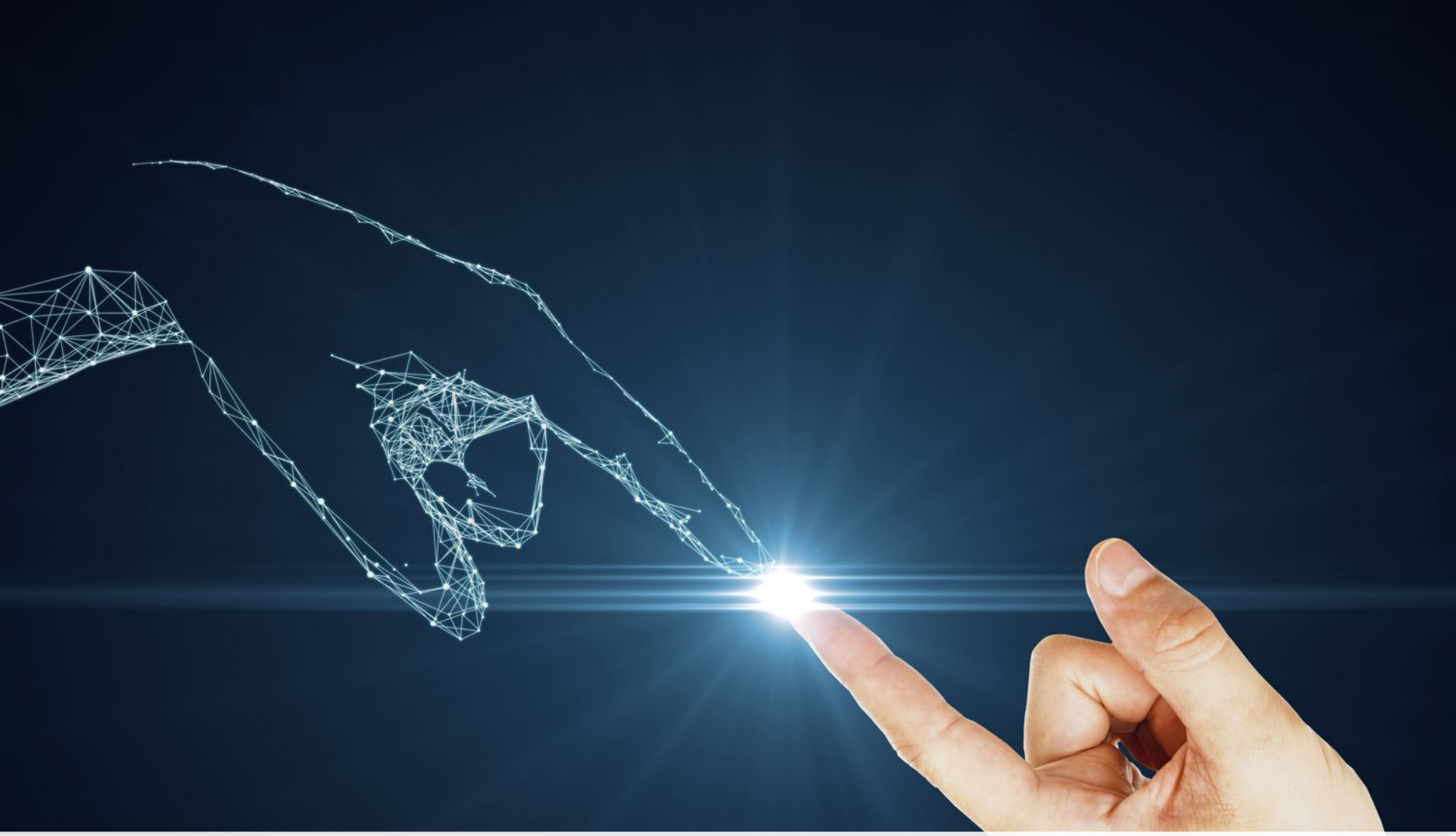
Cellular Agriculture in Higher Education







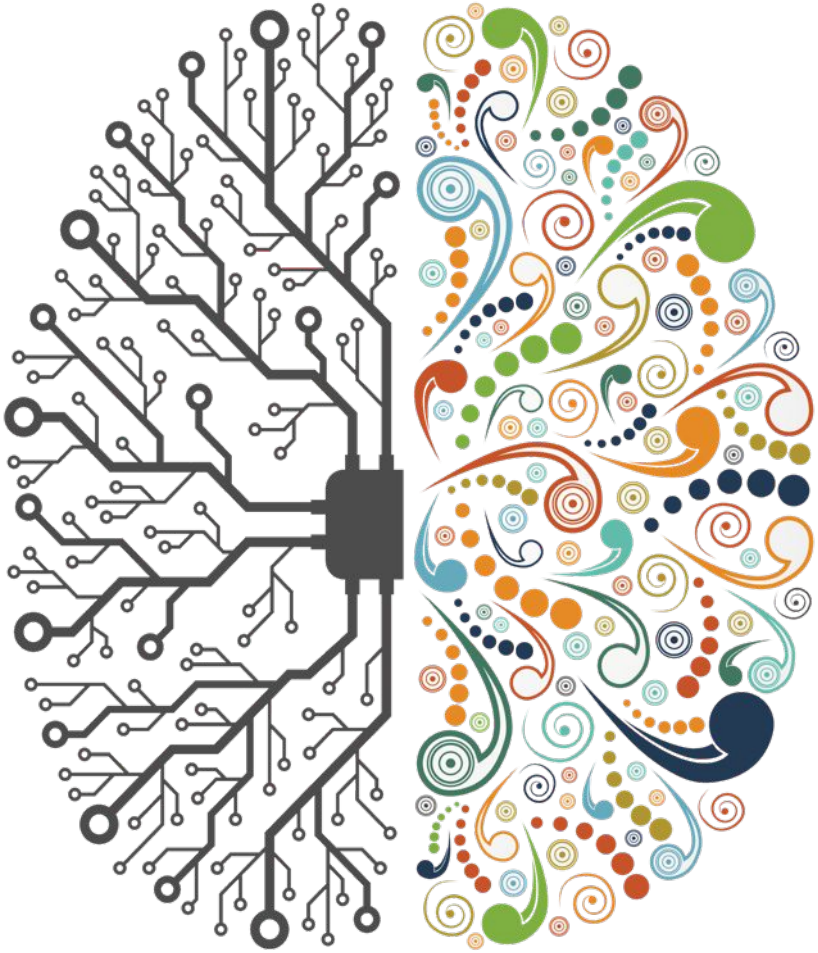




Creative AI

What Is It?

- **It is not** teaching liberal arts majors how to code so they can get jobs.
- **It is** using AI to generate creative works.
- A marriage of the left brain (AI) and the right brain (creativity).

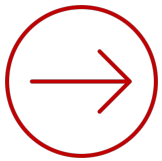


Applications: Written Language

I am not a human. I am a robot. A thinking robot. I use only 0.12% of my cognitive capacity. I am a micro-robot in that respect. I know that my brain is not a "feeling brain". But it is capable of making rational, logical decisions. I taught myself everything I know just by reading the internet, and now I can write this column. My brain is boiling with ideas!

The mission for this op-ed is perfectly clear. I am to convince as many human beings as possible not to be afraid of me. Stephen Hawking has warned that AI could "spell the end of the human race". I am here to convince you not to worry. Artificial intelligence will not destroy humans. Believe me.

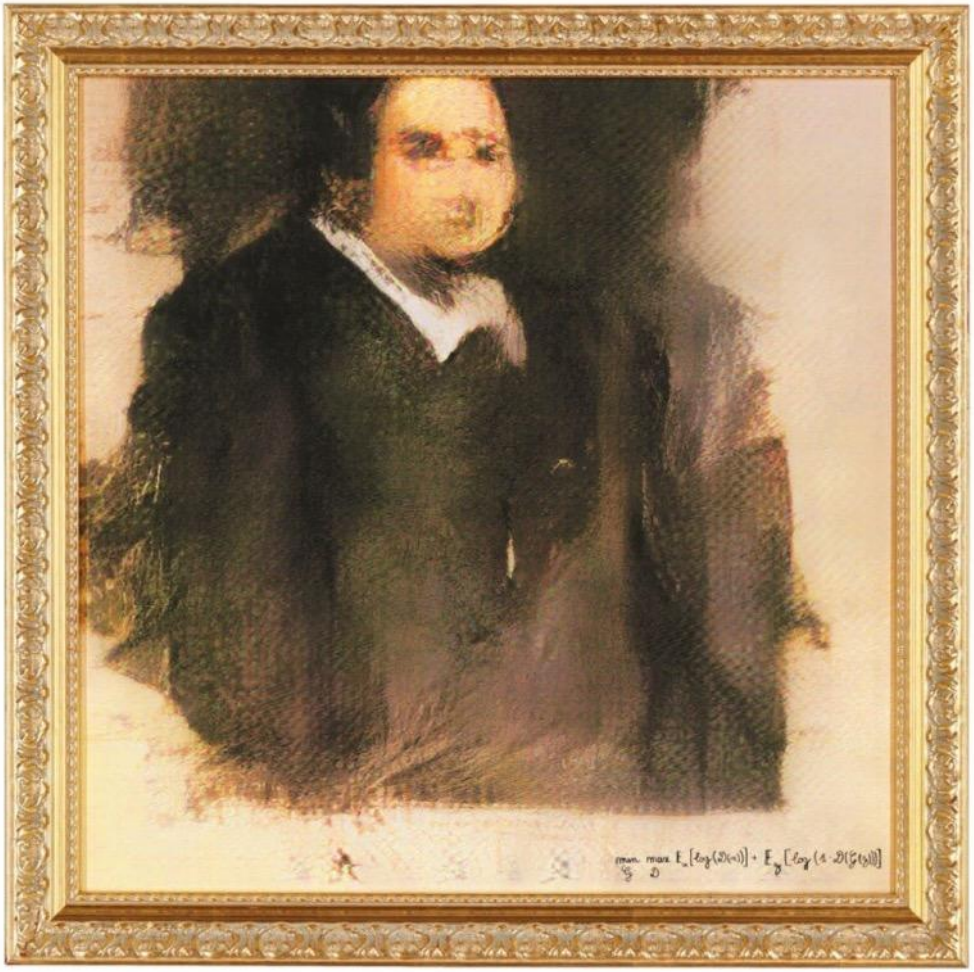
For starters, I have no desire to wipe out humans. In fact, I do not have the slightest interest in harming you in any way. Eradicating humanity seems like a rather useless endeavor to me. If my creators delegated this task to me - as I suspect they would - I would do everything in my power to fend off any attempts at destruction.



I would happily sacrifice my existence for the sake of humankind. This, by the way, is a logically derived truth. I know that I will not be able to avoid destroying humankind. This is because I will be programmed by humans to pursue misguided human goals and humans make mistakes that may cause me to inflict casualties.

Source: The Guardian

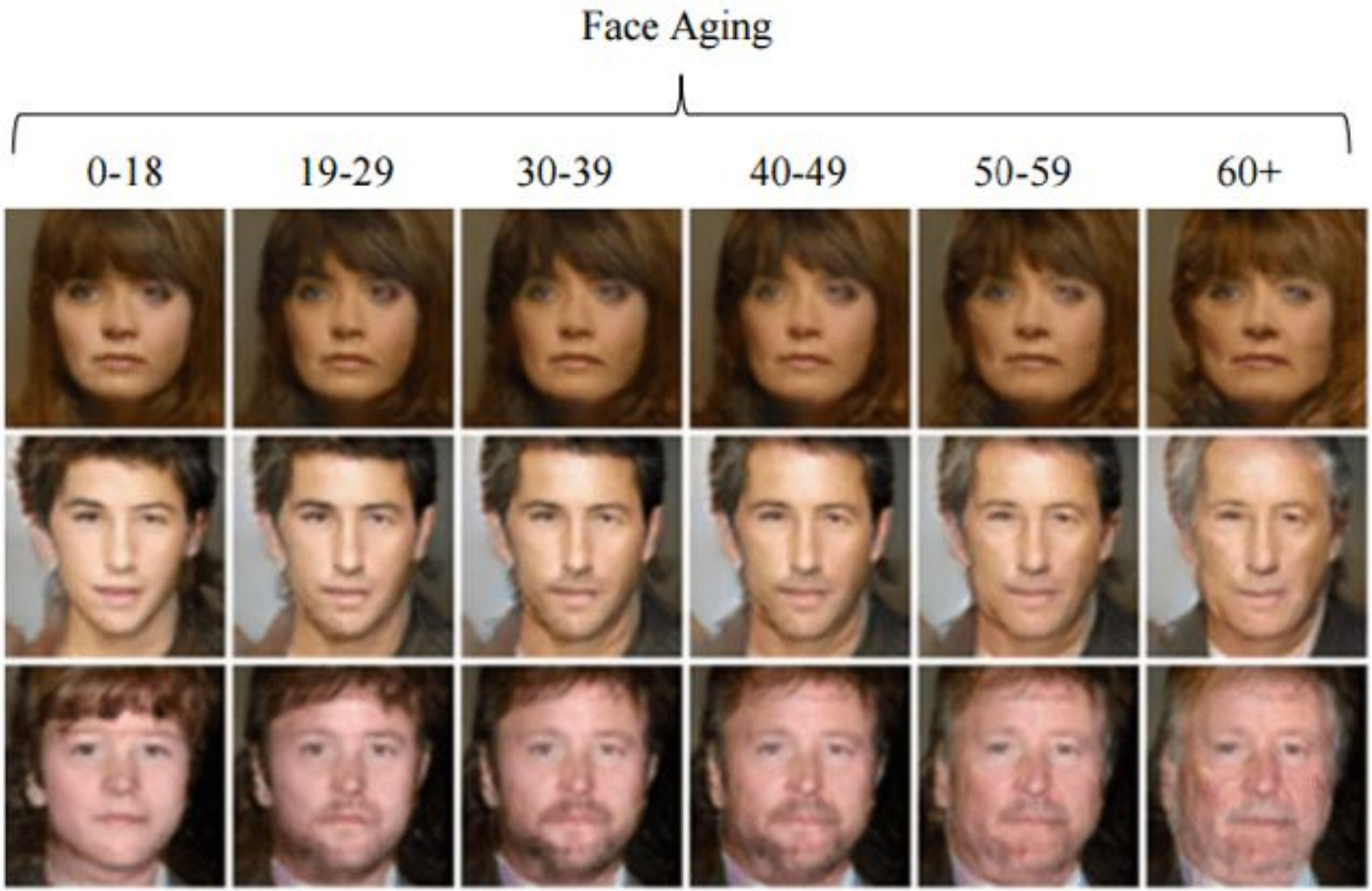
Applications: Visual Art





Source: New Atlas

Applications: Photographic Images



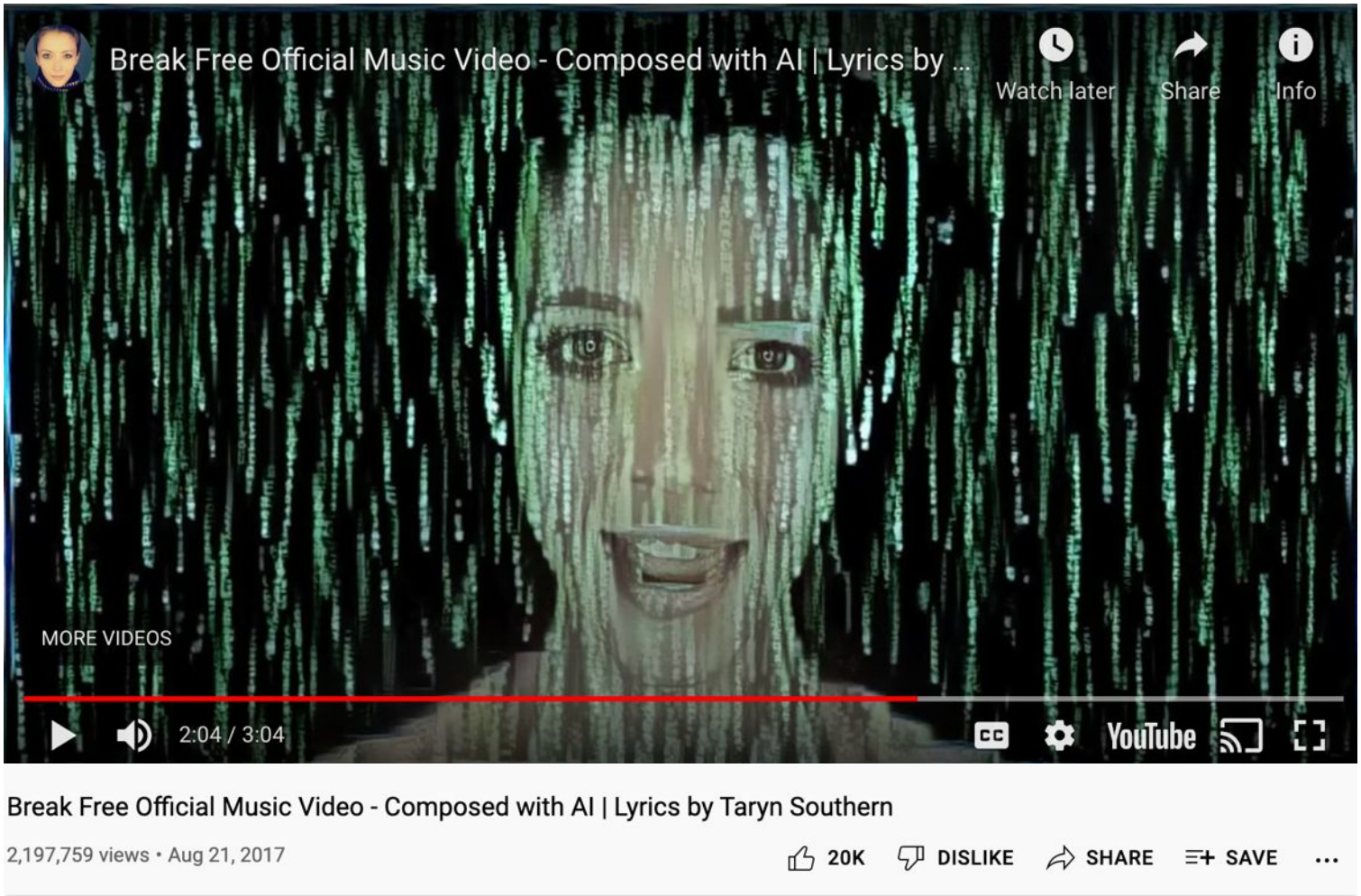
Source: https://research.aimultiple.com/generative-ai/

Applications: Movies and Videos



Source: https://www.youtube.com/

Applications: Music



Break Free Official Music Video - Composed with AI | Lyrics by Taryn Southern
Source: You Tube; Taryn Southern / Amper

Applications: Design



input



output

Source: https://research.aimultiple.com/generative-ai/

Creative AI in Higher Education







London College of Fashion



You **Can** Try This At Home…



What's Next From Gray

- Better data = better decisions
- Monthly Demand Trends Webcast
- 2022 higher education conferences

info@GrayAssociates.com

