



# Technology Needs of the Life Sciences Industry



# Why Change is Hard

## Regulated Industry

Regulations create individual responses, and lead to inertia


## Technical Debt

Enhance access to high quality data and enrich data quality through artificial intelligence

## Culture

Biopharma Companies are not software companies



A black and white photograph of Satya Nadella, CEO of Microsoft, speaking at a conference. He is wearing glasses and a dark t-shirt with a white logo. His hands are clasped in front of him, and he is smiling slightly. The background is blurred, showing an audience.

*“EVERY business  
will become a  
software business.”*

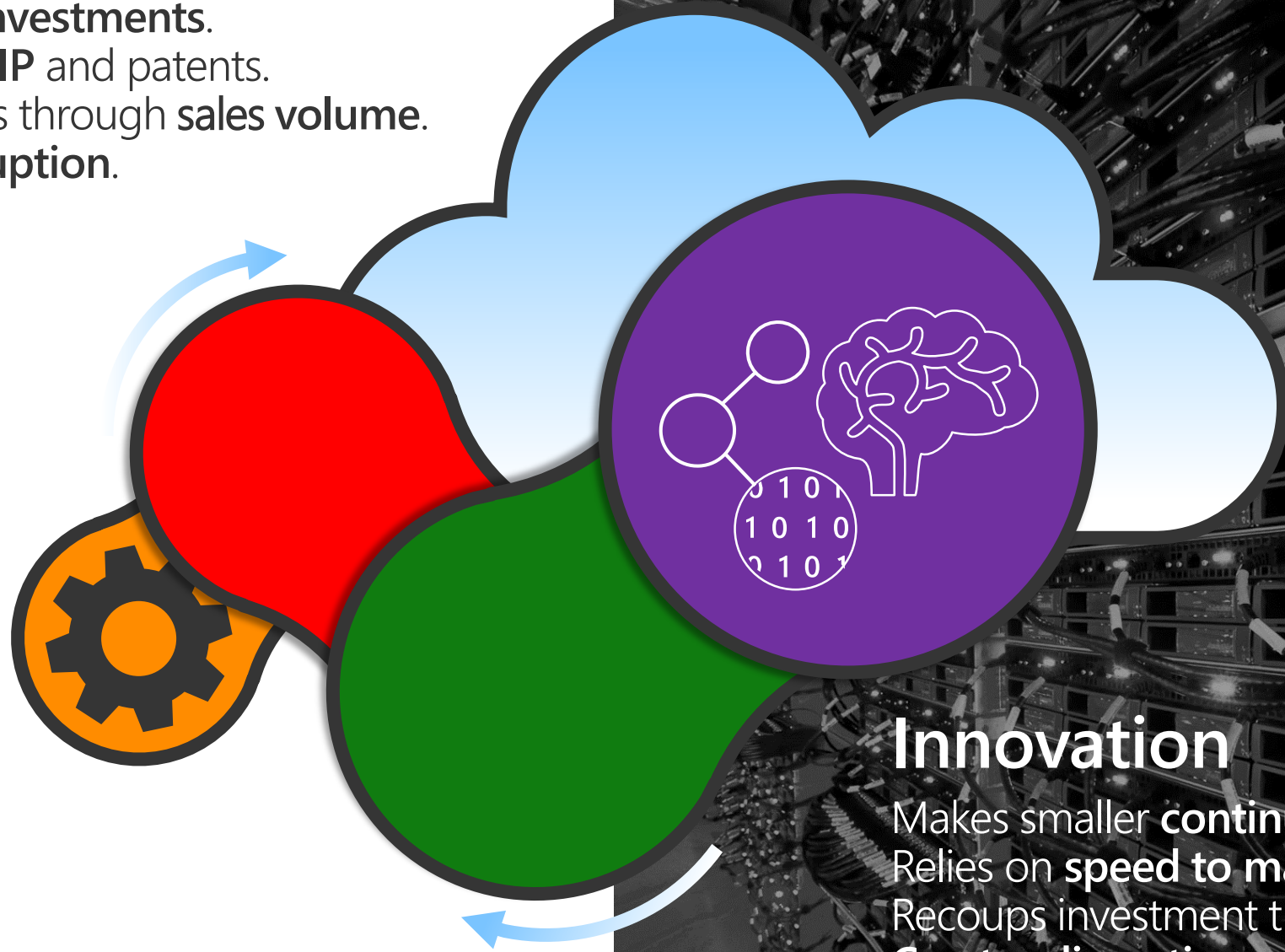
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SATYA NADELLA  
[CEO, MICROSOFT]



# Tradition

Makes large **initial investments**.  
Relies on **protected IP** and patents.  
Recoups investments through **sales volume**.  
**Threatened by disruption.**



# Innovation

Makes smaller **continuous** investments.  
Relies on **speed to market** and **adoption**.  
Recoups investment through **usage**.  
**Creates disruption.**

**Nightscout** uses Microsoft cloud technologies to help Type 1 diabetics achieve better glycemic control

“Nightscout makes my life easier because instead of my mom testing me all the time or asking me what my number is all the time, she just looks at her watch.”

— **Logan**, age 8  
Nightscout user



▶ [Watch](#)





# Medical Research

BUDGETARY PRESSURES  
CYBER ATTACKS

PATENT CLIFF

RISE OF CHRONIC DISEASE

AGING GLOBAL POPULATION

Personalized Medicine

Wearables  
IoT

INCREASES IN GLOBAL INCOME

New Research Paradigms

Natural interfaces

New classes of implants

Advanced analytics

# Technology Drivers

Least-invasive surgical techniques

Unified Communications

**INNOVATION**

GENERIC DRUGS

Bioinformatics

AI  
Bots  
Machine Learning

MORE EDUCATED CONSUMERS

Human error prevention

Social platforms

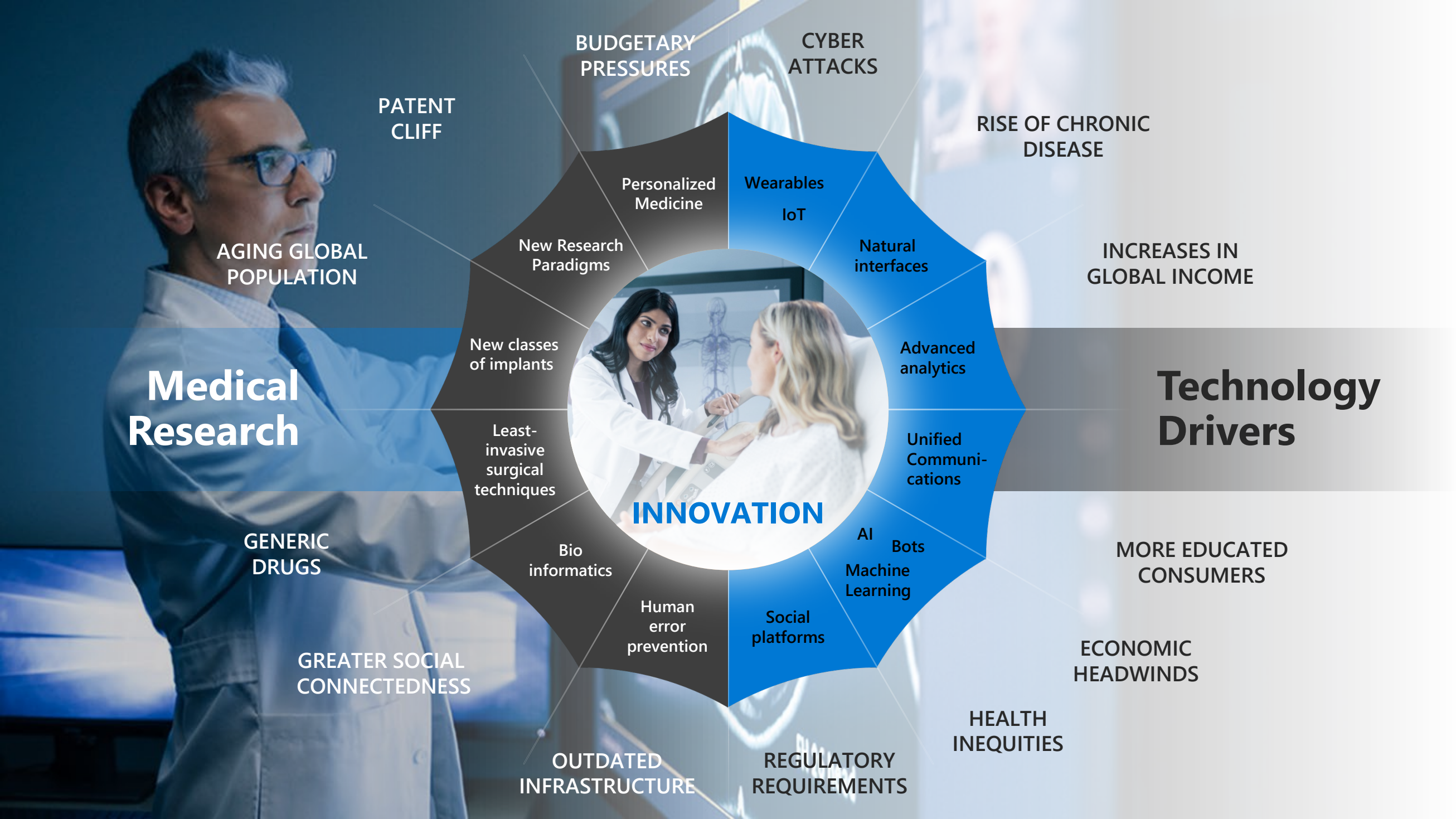
ECONOMIC HEADWINDS

GREATER SOCIAL CONNECTEDNESS

OUTDATED INFRASTRUCTURE

REGULATORY REQUIREMENTS

HEALTH INEQUITIES



# Technology Example - Blockchain

<b>The Challenge</b>	<b>Blockchain Can Provide</b>
Fragmented Medical Records	A decentralized health record with the patient at the center
Lack of confidence in the supply chain	Assurance of trust in a 100% digital supply chain
Issues with data integrity as documents move between systems	Assurance of the integrity and provenance of documents
Counterfeit Drugs	Smart Labelling, assured by blockchain
Lack of assurance in genomics data	Assurance that genomics data has not been tampered with
Few incentives for healthy patient behavior	System that tracks healthy behaviors and rewards patients in tokens



STATE OF THE ART  
Can Apple Think Outside the Device?



Facebook Offers Tools for Those Who Fear a Friend May Be Suicidal



Uber Sets Sights on Leveraged Loans for Even More Money



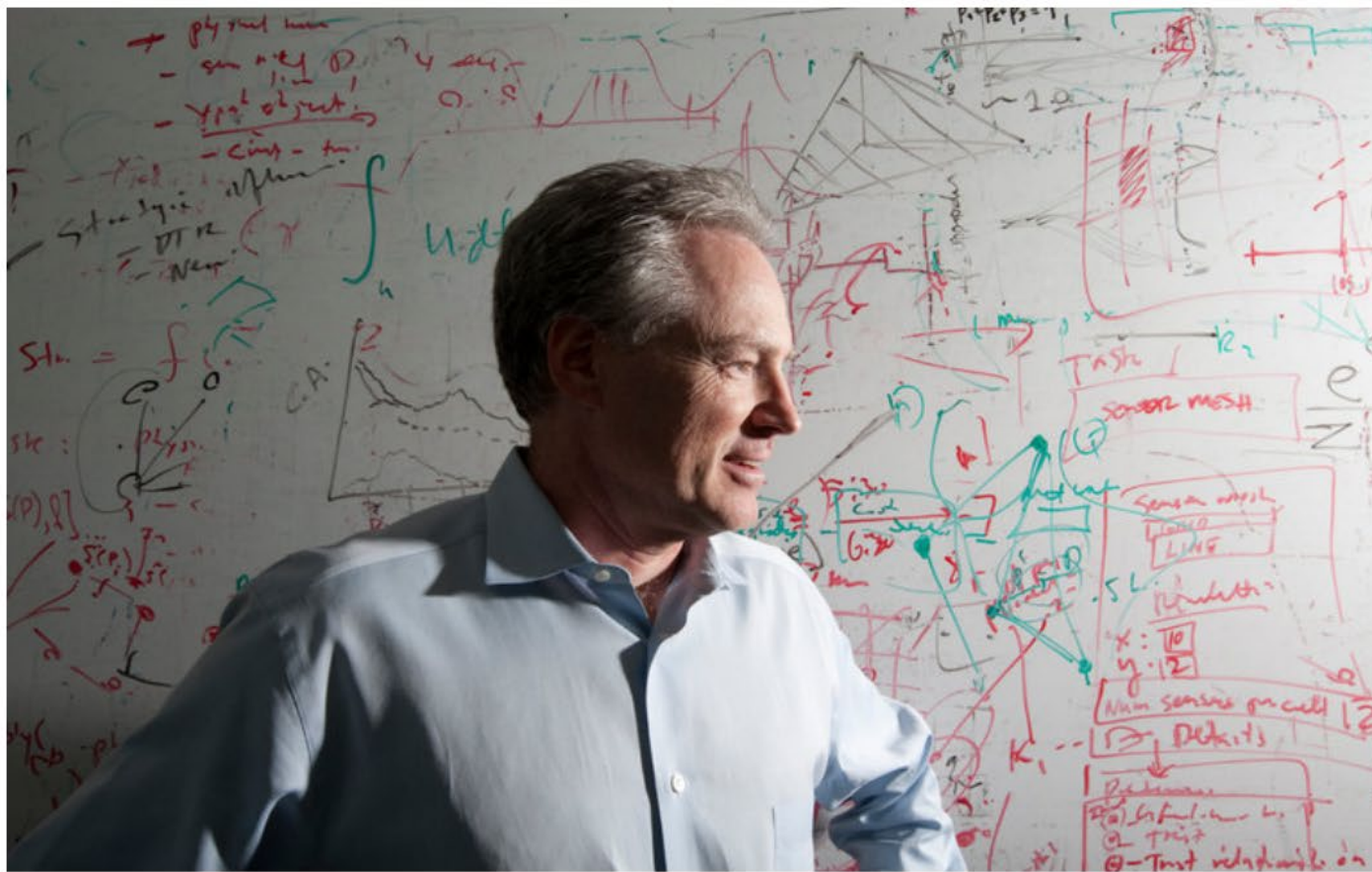
Twitter Invests \$70 Million in SoundCloud Music Service

PAID POST: OPPENHEIMERFUNDS  
Learn the Biology Behind How We Make Decisions



# Microsoft Finds Cancer Clues in Search Queries

By JOHN MARKOFF JUNE 7, 2016



Dr. Eric Horvitz is one of the Microsoft researchers who conducted the study.  
Kevin P. Casey for The New York Times

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# Digital Encoding of Biology Experiments

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## Synthace raises \$25.6 million to automate bio labs with software

KYLE WIGGERS @KYLE\_L\_WIGGERS DECEMBER 12, 2018 11:00 AM

Image Credit: Synthace

Join Ted Price, Brock Pierce, Nolan Bushnell and other game industry rock stars at GamesBeat Summit April 23-24. Limited tickets available.

U.K.-based startup Synthace wants to automate laboratory processes with a programming language designed for biological experiments, and it's getting the financial backing to do it.

The company today announced that it's raised \$25.6 million in a series B funding round led by Horizons Ventures, with participation from Luminous Ventures, SOSV, and individual investors. It follows a \$9.6 million series A raise in September 2017, bringing Synthace's total venture capital haul to \$35.2 million.

**SHORTLY** Don't Miss! - 04:03 Preview

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Questions?

