

1st time in History,
Human brain scale AI,
coming to Slovakia in 2022

Tachyum™

January 17th, 2022
Dr. Radoslav Danilak



Tachyum™ ● HENDERSON, NEVADA



Increasing importance of AI



Research &
Development

3x increase in AI
publications
(2011-2019)

34.5%

increase in AI
journal
publications*

2x more attendees
on AI Major
conf.*



The Economy

4.5x more Investment
(cancer, molecular
and drug discovery)*

1.6x

increase in
private
investments*

27% increase in other half
no impact (flat) on AI
investments*
(McKinsey survey)



Human
resource

10x more AI job
postings in US
(2011-2019)

AI is the future, most countries realize this fact



Global

By 2030 the global GDP could be 14% higher due to AI take-up, equivalent of \$15.7 trillion.



Singapore

Vision 2030
 “Singapore will be a leader in developing and deploying scalable, impactful AI solutions, in key sectors of high value and relevance to our citizens and business.”



Finland

Strategy 2017
 “Become a leader in AI development within the EU.”



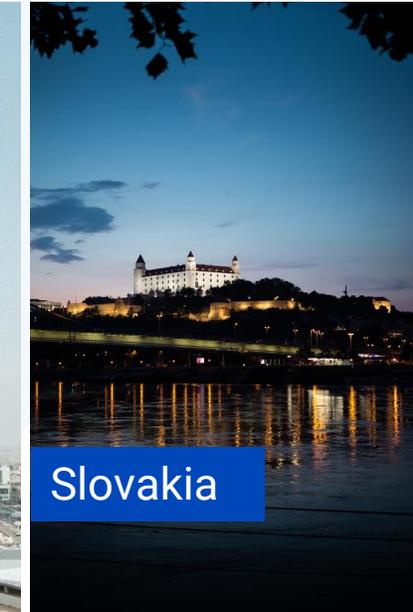
UAE

Vision 2031
 “AI leading country in the world”. UAE aims to be a developer of AI solutions, not just a consumer.



Saudi Arabia

Vision 2030
 “In top 5 countries globally in AI”, SA expects AI to create more than 25000 specialist jobs and to contribute by 12.4% of the GDP.



Slovakia

Strategy 2030
 “Development of AI as a key technology, the mastery of which is a prerequisite for future prosperity.”

Tachyum addresses the challenges

Today's technology challenges



Technological feasibility



Financial feasibility



Energy efficiency

Tachyum's Prodigy addresses the challenges workloads at



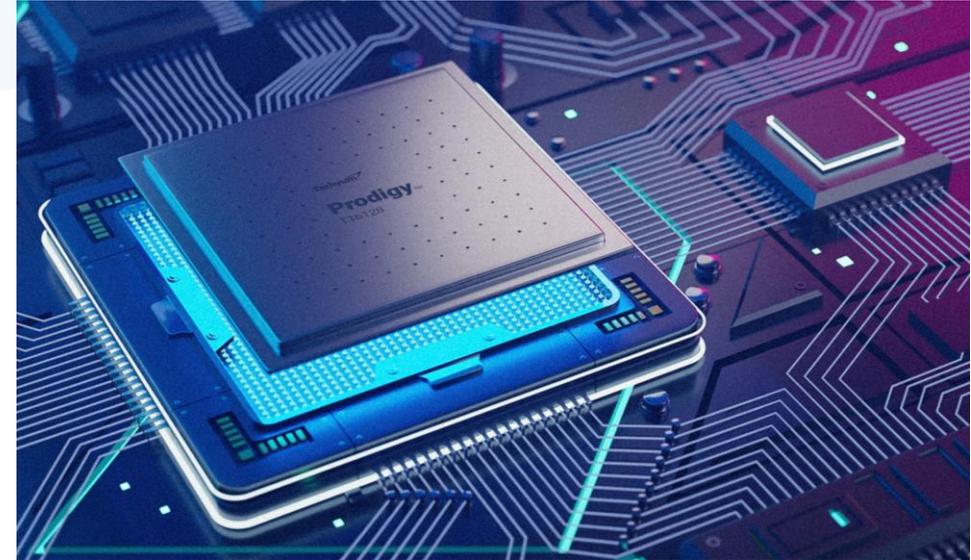
10x
Lower power



3x
Lower cost*



24/7
on-time = increase
in server utilization
and efficiency



Number of Cores	128
Maximum Frequency	4+ GHz
Memory	16x DDR5
PCIe	64 x PCIe 5.0
Process node	5 nm

* at equivalent performance

Prodigy Target Platforms

Prodigy has multiple SKUs that align with a wide range of markets, applications, and workloads

AI/ML



High Performance Computing



Tachyum™
Prodigy™



Edge Computing

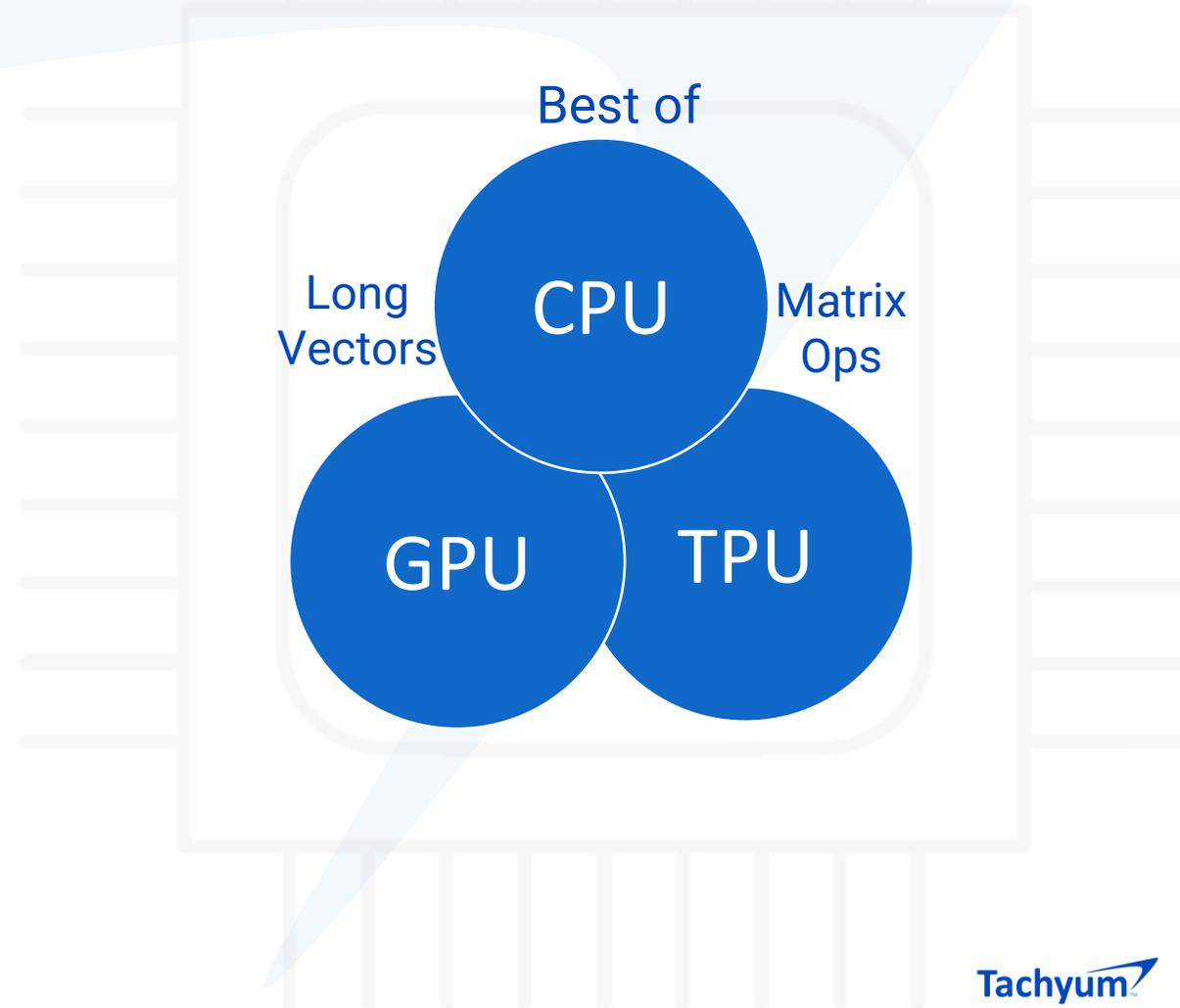


Hyperscale Data Centers

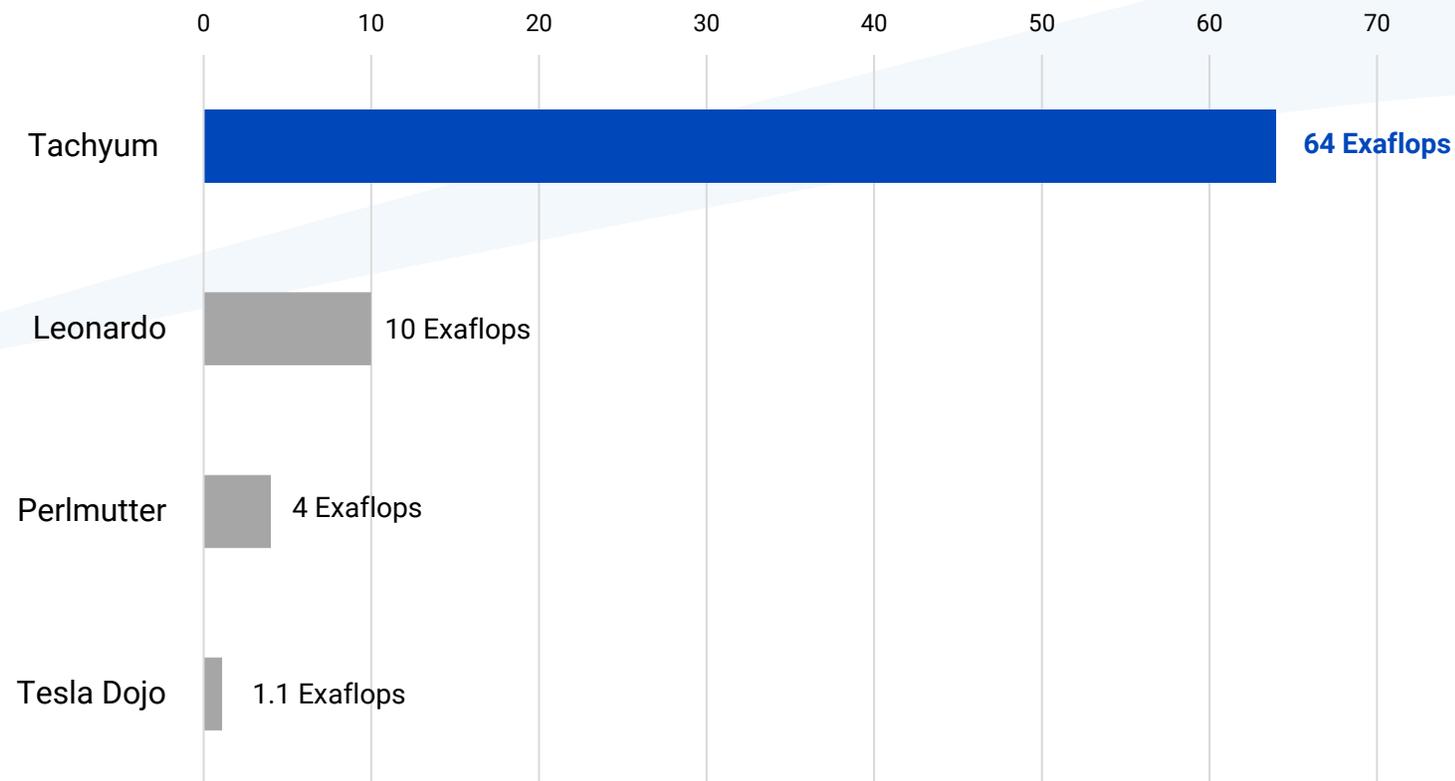


World's 1st Universal Processor for Servers / AI / HPC

- Hyperscale Server / Supercomputer / AI Chip
- 1st superhuman brain sized AI
- (>2x 512 – Bit) vector subsystem integrates functionality of GPU and TPU
- Flexible floating-point, DP (64-bits) to FP8 (8-bits)
- Advanced CPU architecture minimizing wire delays between functional units and maximizing performance
- 32TB/s Bandwidth Custom Data Mesh



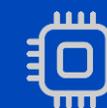
NSCC Slovak Supercomputer



Tachyum Prodigy platform



64 Compute Racks



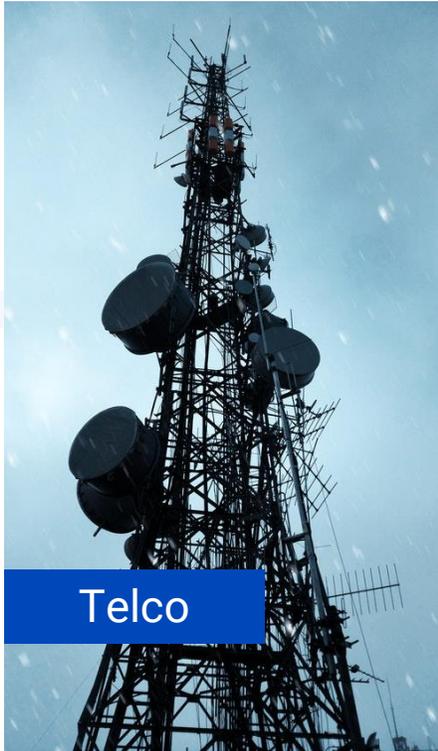
64 AI ExaFLOPs
>500 DP PetaFLOPs
19MWh consumption



16 – 32 Storage Racks
100 – 200 PB

Launch: End of 2022

Benefits for the world, where to use it



Sky is not limit anymore!

AI and Telco

Areas where AI has already begun to deliver tangible business results



Network optimization



Security

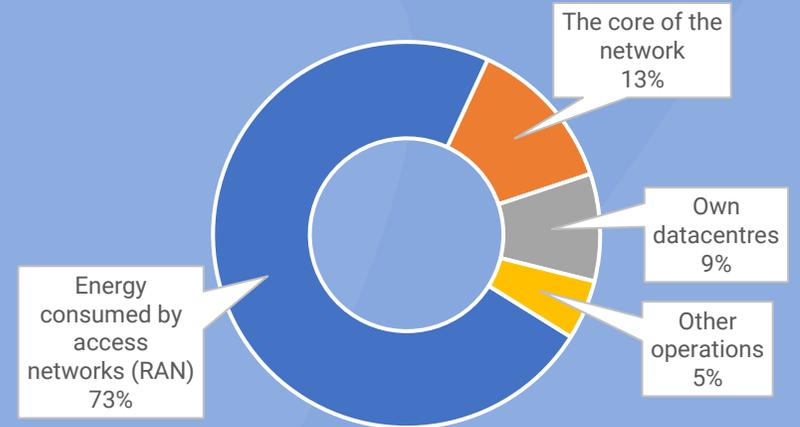


Improving customer service



Driving new business

Energy consumption in Telco

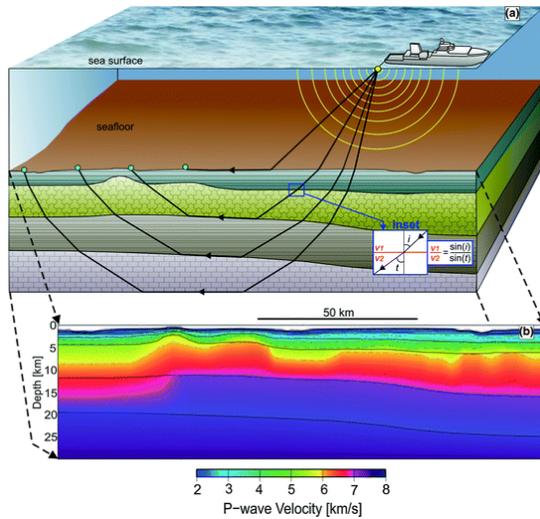


Prodigy's high efficiency helps Telco reach the carbon neutrality



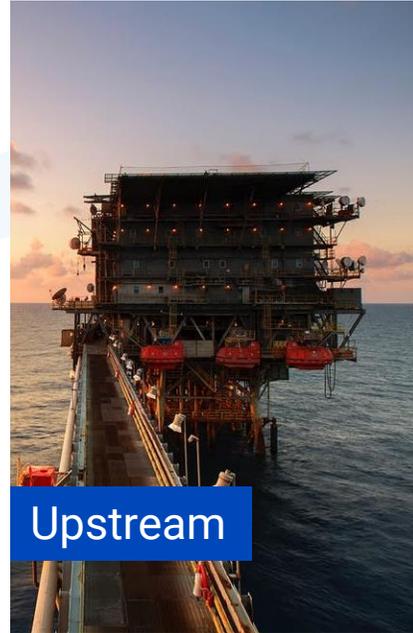
AI in Oil & Gas

HPC Implementations



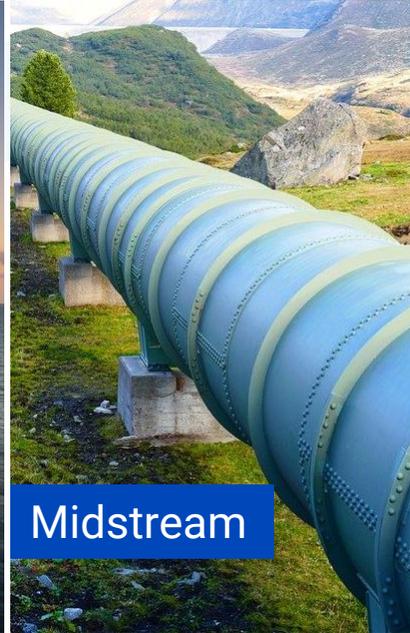
A **powerful hardware** that can process the calculation faster than collecting the 3D seismic dataset

Areas where AI has already begun to deliver tangible business results



Upstream

- Surveying
- Drilling
- Well Completion
- Production
- Well Abandoning



Midstream

- Pipelines
- Other modes of transportation



Downstream

- Production of refined products
- Logistics

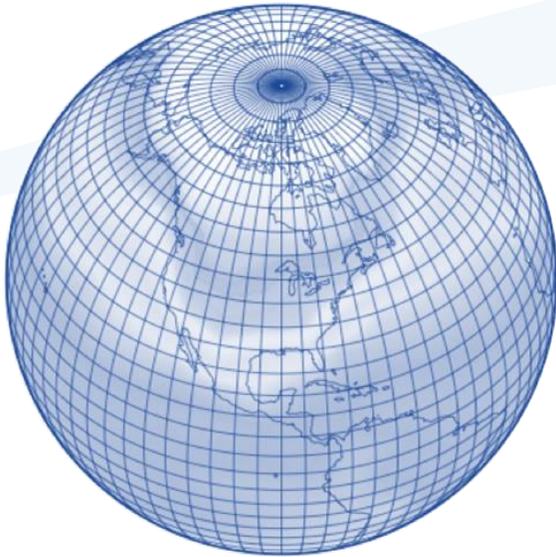


Others

- Fuel price forecasting
- Computer vision & NLP
- AI driven loyalty

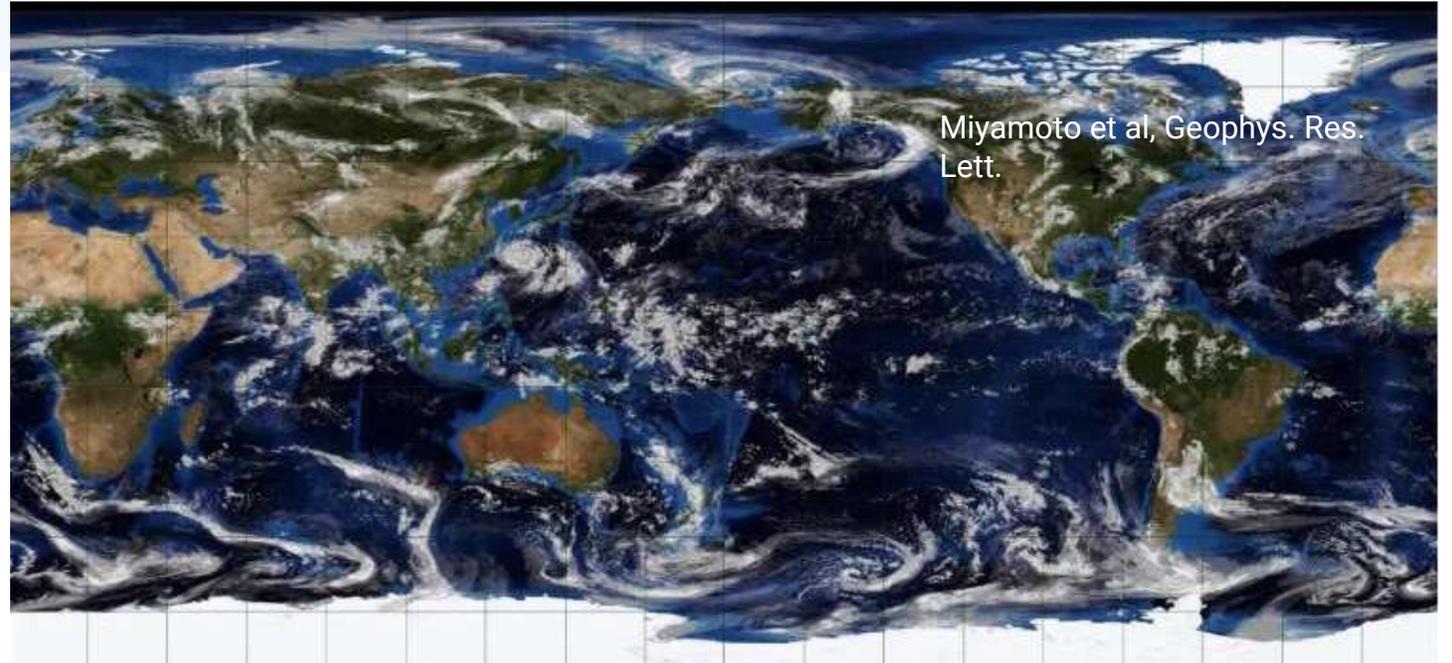
Key to Understand Climate Change

Existing models not accurate

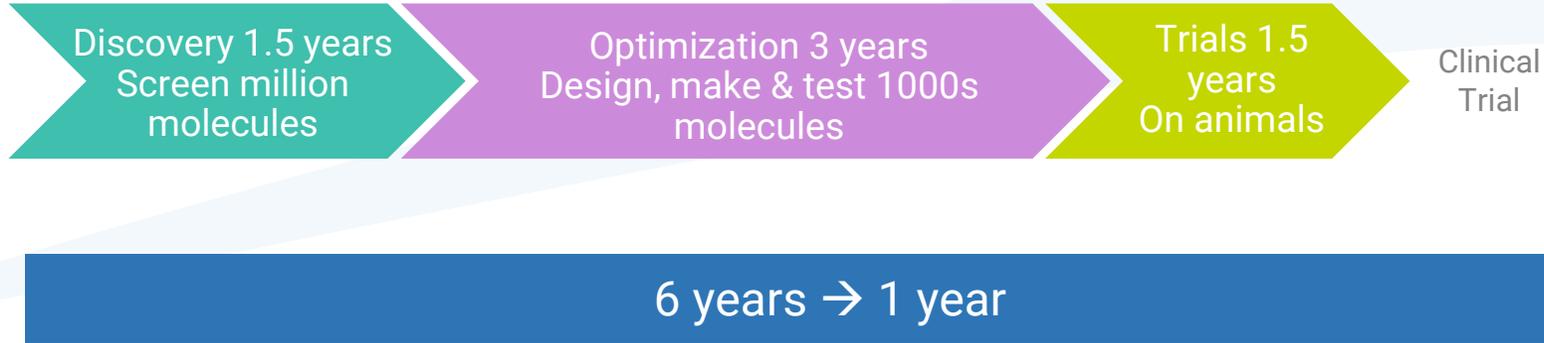


- Forecast weather trends
- Reduce companies CO₂ emissions
- Help to keep our planet green

Tachyum enables <1 km resolution to accurately model clouds

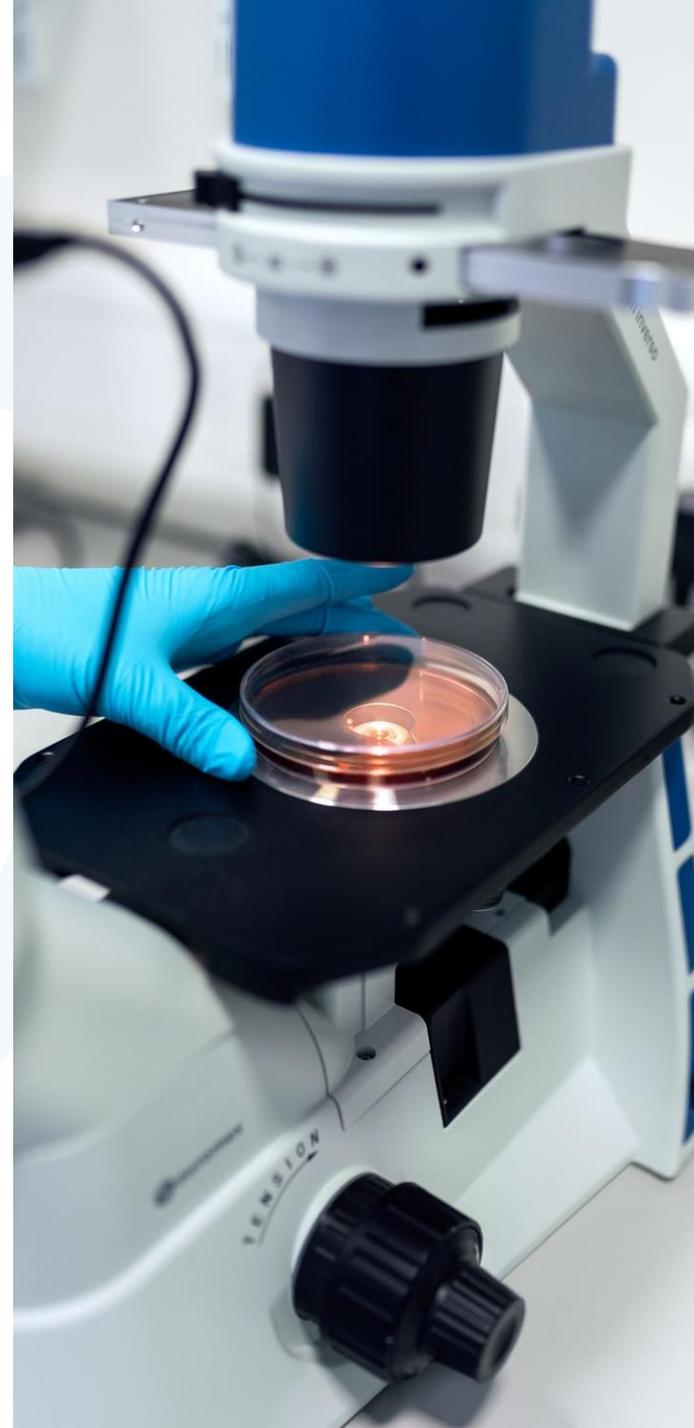


6x Faster Drugs and Vaccine Discovery



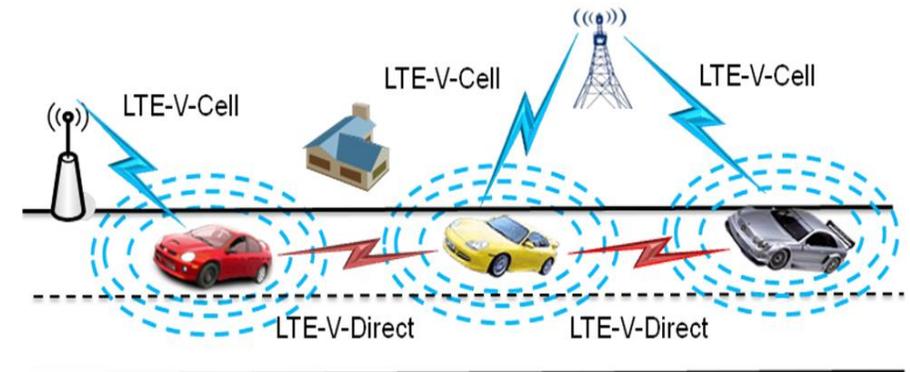
Tachyum Low Cost HPC & AI
Available for ALL

- Understand global health issues
- Develop treatments & vaccines
- Keep the world healthy



Getting Ahead Tesla In EU Automobile Industry

- **Tesla and Google is ahead in self-driving**
 - Tesla collecting 5M miles/day, ~15B miles collected
 - Would take many years for EU vendors to catch up
- **Legislation to have a camera on electric vehicle**
 - Camera + off-peak 5G data transfer
 - Allow EU to catch data set and exceed in 2-3 years
- **Tachyum to be used to process all these data**
 - Slovakia's supercomputer is a perfect fit
 - Later vendors can procure their own supercomputers

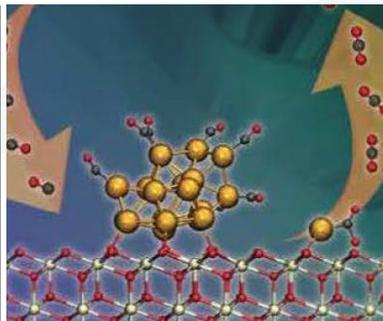


World-Wide Impact On Humanity

Climate change impact assessment



Biofuel catalyst design



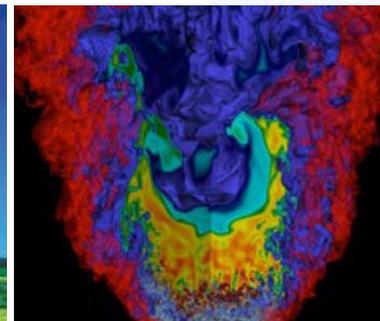
Next generation nuclear reactors



Improve efficiency and reduce cost



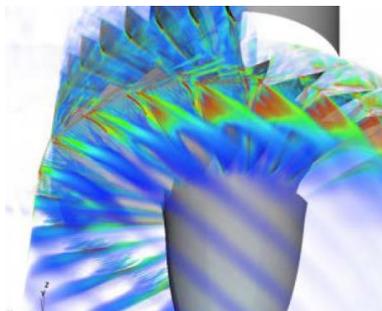
Design of low-emission engine



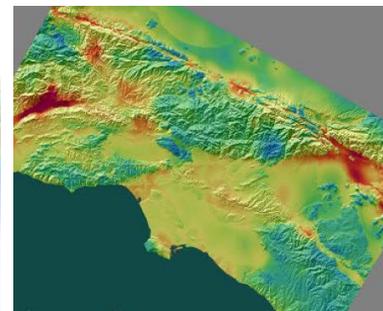
Energy and water nexus



Scaling carbon capture designs



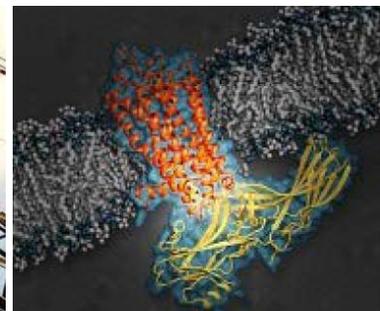
Modeling and risk assessment



Renewable energy planning



Protein structure and dynamics



Process of additive manufacturing



Protein structure and dynamics



Summary



Prodigy's breakthrough computational density will increase **Petascale and Exascale performance** across a broad spectrum of use cases



Prodigy will "democratize" HPC, due to its much **lower CAPEX and OPEX** compared to what is currently available



Prodigy **scheduled for release in 2022** enables a path to 50-100 AI ExaFLOPS by 2023 and conclude to **1st** in the history of humanity human brain scale AI

Tachyum™

Thank You!

visit

www.Tachyum.com