



# JPM 2024

Gordon Sanghera, CEO

9 January 2024



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# Oxford Nanopore Technologies (ONT)



## Single molecule sensing platform

Highly differentiated sensing platform: initial application in DNA/RNA sequencing



## Sustainable, agile innovation

Delivering new products and evergreen IP portfolio with >2,500 patents and patent applications



## Market Opportunity

\$6.2<sup>1</sup> billion, growing existing opportunity with potential >\$150bn in future clinical and applied markets



## Expanding Customer Base



Scientific Research customers expanding to now include clinical MinION Launched 2015. Today >7,300 customers in >120 countries, with >8,800 publications since launch.

## Scaled operations



In-house manufacturing facility opened 2018 with capacity to meet growth over next 5 years

## Our people

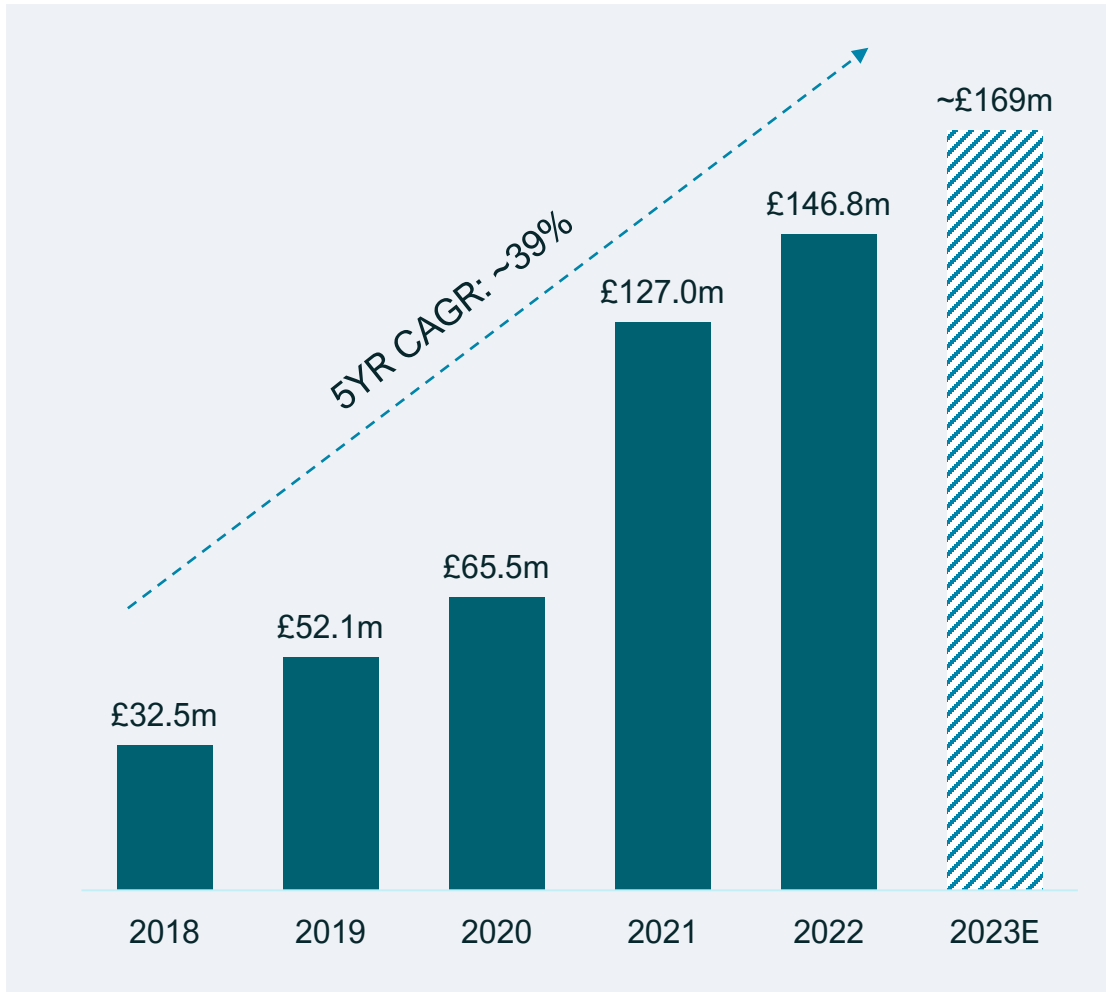


Founder leadership with >1,200 employees worldwide

Oxford Nanopore formed 2005 to develop a new sensing platform

<sup>1</sup> Source: DeciBio.

# Oxford Nanopore financial performance



## FY23 preliminary numbers

**~£169m**

LSRT revenue

**~75%**

Revenue accounted for by consumables

**~39%**

Underlying revenue growth

**~£467m**

Cash, cash equivalents and liquid investments

Oxford Nanopore – ONT Listed on LSE Oct 2021

Underlying revenue is LSRT revenue growth excluding revenue from the Emirati Genome Program and COVID sequencing

# Medium to long-term targets



## Medium term (FY26) Financial Guidance

**>30%**

Underlying LSRT  
revenue growth

**10-20%**

of LSRT revenue  
from clinical and  
applied industrial  
markets

**>65%**

LSRT gross  
margin

**Adjusted EBITDA  
breakeven by the end of 2026**



## Disruptive innovation

Sample to answer workflows

Q Line products designed for regulated  
and applied markets

Nanopore protein sensing in development

Path to productise voltage sensing



## Commercial operations

Expand geographical footprint directly  
or through channel partners

Key, senior hires to drive growth in key  
markets and S3 customer group

Upgrade all digital platforms to offer best-  
in-class customer experience

Scale our global operations to meet  
growing demand

# DNA is the source code of all living things...

What is it?  
What is in it?

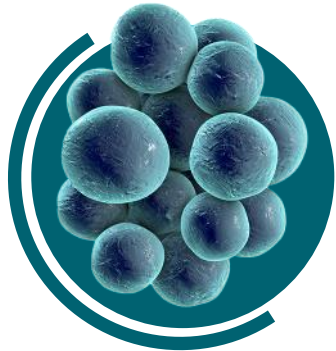
Is it changing?  
Responding?

Is it healthy or  
diseased?

What is  
the disease?

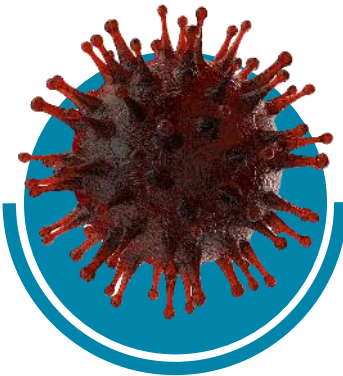
Is it harmful?

How does it vary from  
others?



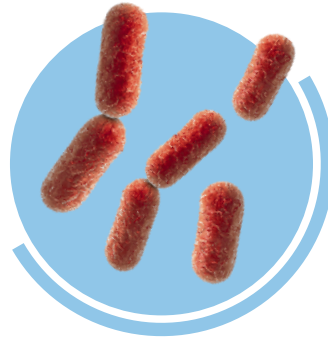
## Metagenome

Mixed species



## Virus

Eg Influenza A  
8 segments of RNA  
~13.5Kb



## Bacteria

Eg E.coli  
4.6Mb  
(4.6 million base pairs)



## Mammal

Eg cow  
3Gb x 2  
(3 billion base pairs x 2)



## Human

3Gb x 2



## Crop

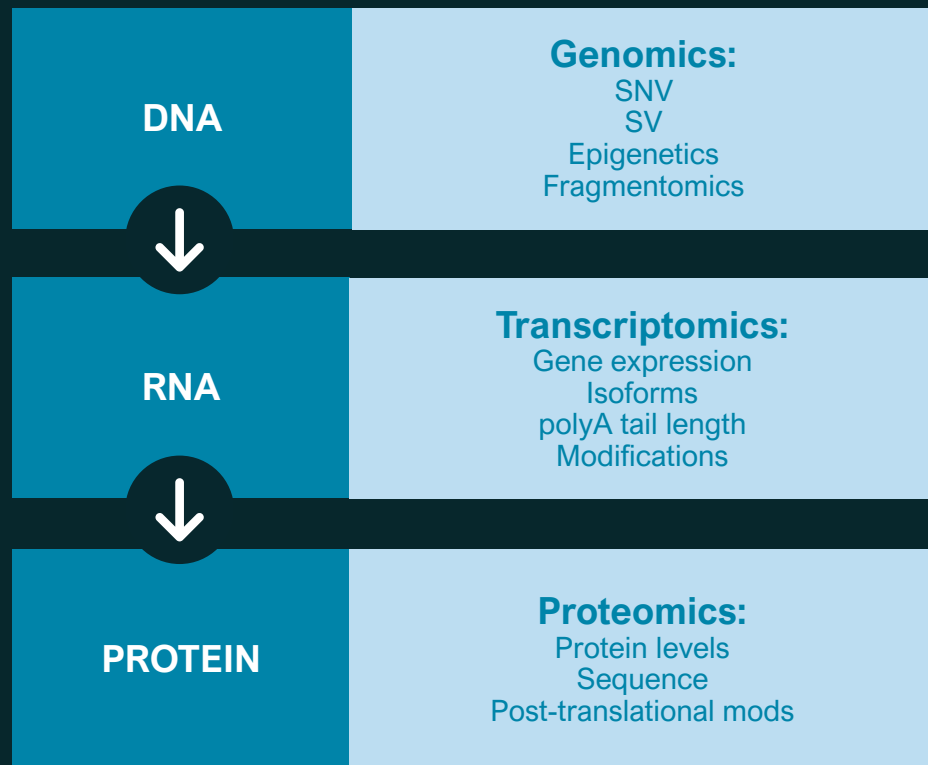
Eg wheat  
17Gb x 6



# ...and is the source code of biological function

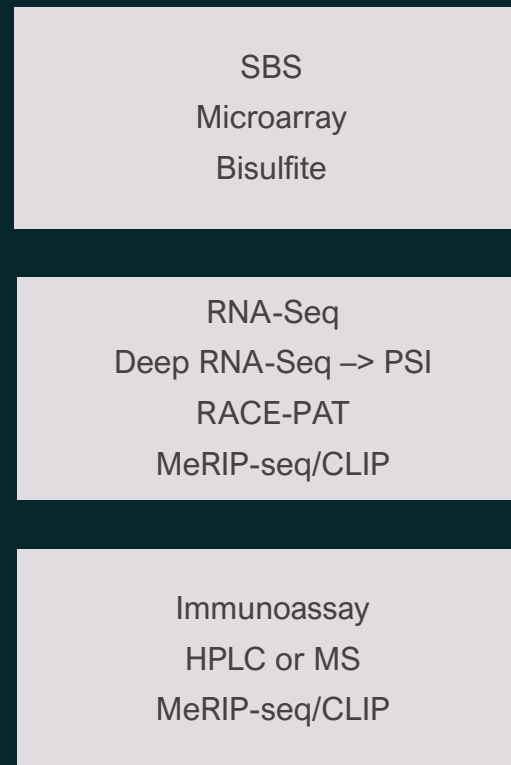
Beyond DNA, Oxford Nanopore is changing the meaning of multiomics

## Central Dogma of Biology

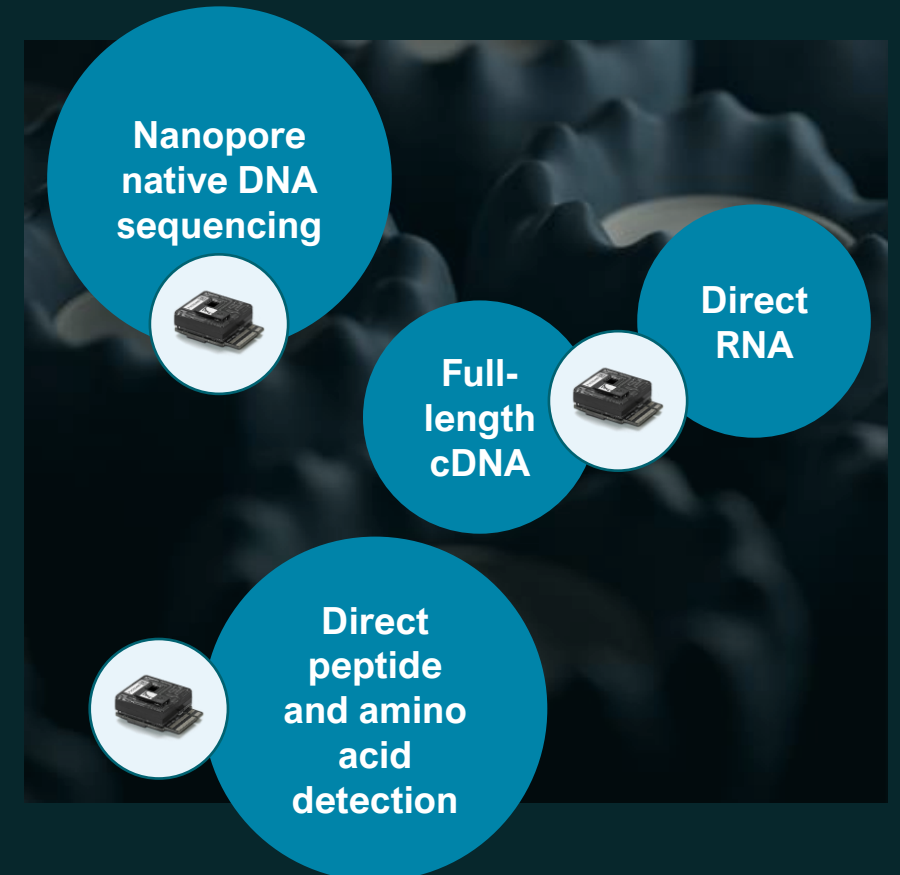


## Legacy Multiomics

\$\$ and complex



## Nanopore Multiomics



# Our Journey

## Strong technology foundations



1 Channel

**Axopatch**

1 Nanopore channel  
~1 experiment per person per week

512 Channels

**MinION**

512 channels per flow cell

128,400 Channels

**PromethION P48**

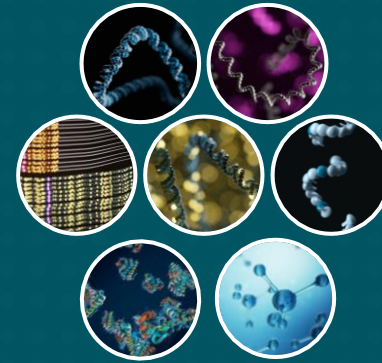
2675 channels per flow cell



### Foundational IP:

Oxford | Harvard | UCSC | Texas A&M | UMass | VIB

## Powering today's products...and future ones



10,000 – 100,000  
Channels per flow cell

**Flongle**  
**MinION**  
**GridION**  
**PromethION 2**  
**PromethION 24 / 48**

One platform

**Multomics**

DNA , RNA, PHASING  
EPIGENETICS  
FRAGMENTOMICS  
PROTEINS  
SMALL MOLECULES

**Voltage Sensing**

Potential for 1-hour genomes

### More than 2,500:

ONT-assigned & in-licensed  
granted patents and applications  
32 Licence agreements in evergreen IP Portfolio

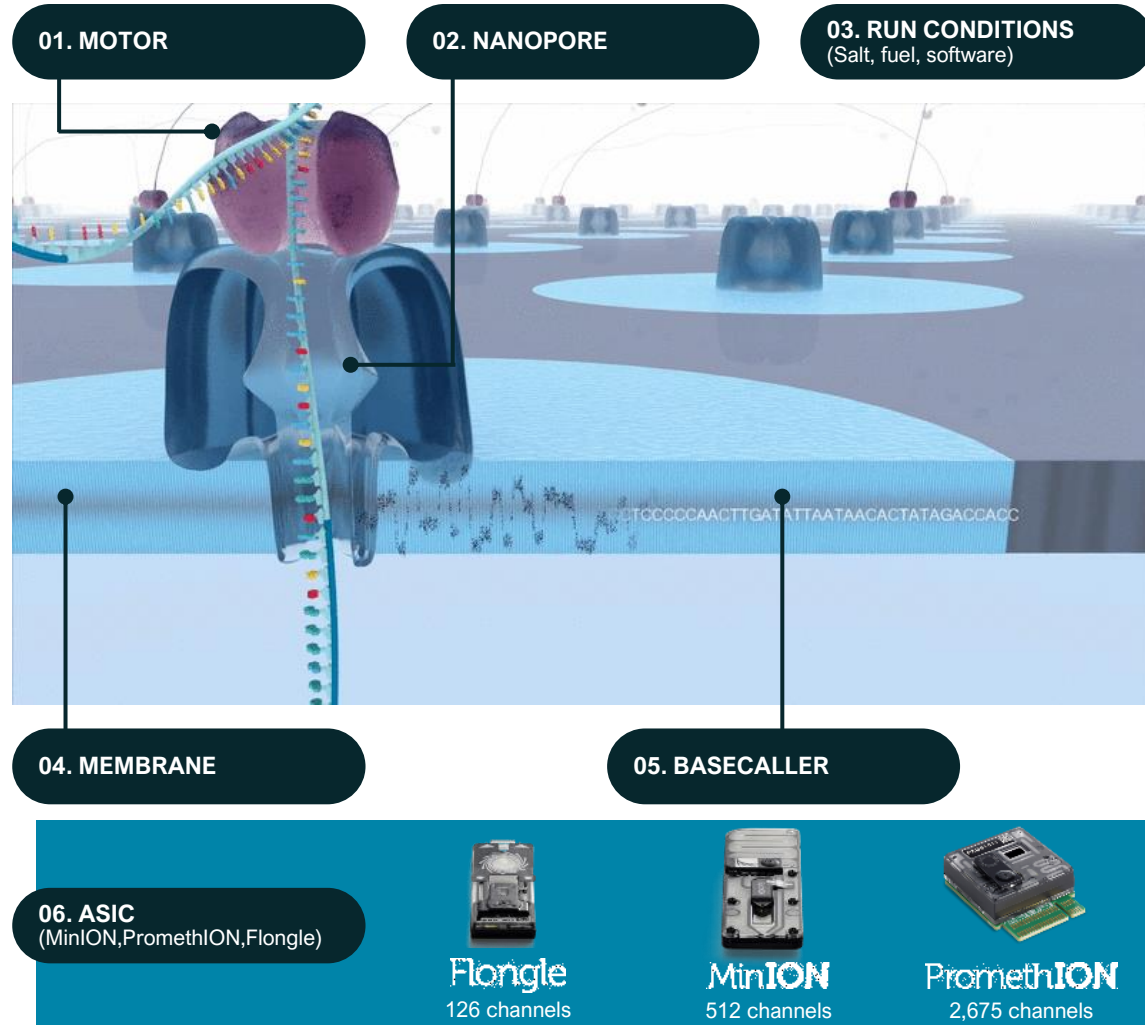
### More than 1,000:

Patents filed since 2016 with evergreen portfolio



# Nanopore Sequencing

## 6 key components



## Nanopore Sequencing Highly Differentiated Sensing Technology



Three types of flow cells with 100s to 1000s of individual nanopore channels



Customers prepare samples with our range of fast and simple library preparation kits (time from 10 minutes)



DNA is pulled into the nanopore at ~400 bases per second



“Translocation” produces raw signal streamed in real time to on board compute



Machine Learning/AI models decode signal into bases onboard devices. No additional compute required



Basecalled data is analysed by users' own pipelines or by pre-prepared informatics pipelines on EPI2ME

# Real time basecalling and analysis

## Highly accelerated ML/AI algorithms with latest software release



**MinION: Apple M1 max or M2 max**  
Real-time Q20 basecalling of 1 MinION Flow Cell

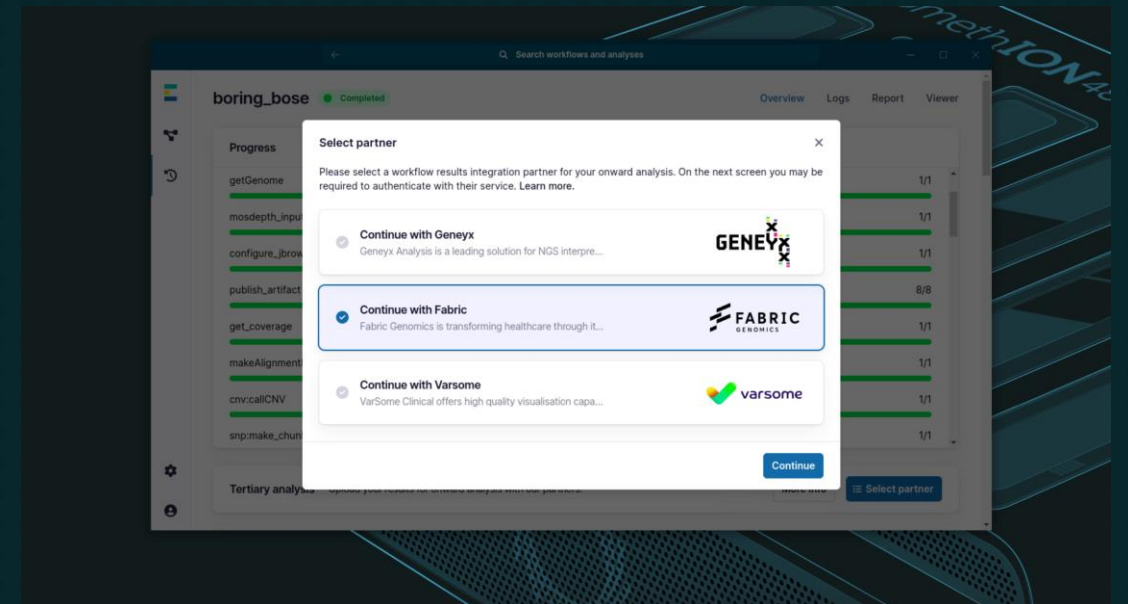


**GridION: GV100**  
Real-time Q20 basecalling of 5 MinION Flow Cells



**PromethION : A Series**  
Real-time Q20 basecalling of 48 PromethION Flow Cells

## Rapid development of EPI2ME, our cloud and local informatics software



EPI2ME now with 3<sup>rd</sup> party analysis integration

# Nanopore accuracy today

Tenured & tenacious R&D group continuously improving performance

## Complete genomic information from a single run



Genome browser screenshot of a human sample (NA02533) with Mucopolysaccharidosis type IV, characterised by a missense SNP in position 7,526,759 and a deletion of 6,433 bp (txStart-exon 7). Accuracy reported here have been calculated for 30X coverage, basecalling with the high accuracy model (HAC).

In field today

99.3%

Simplex

99.7%

Variant calling

In development

99.84%

Simplex with improved enzyme

99.9%

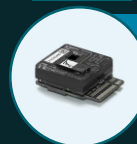
Duplex

Q40+

“T2T” Human Consensus

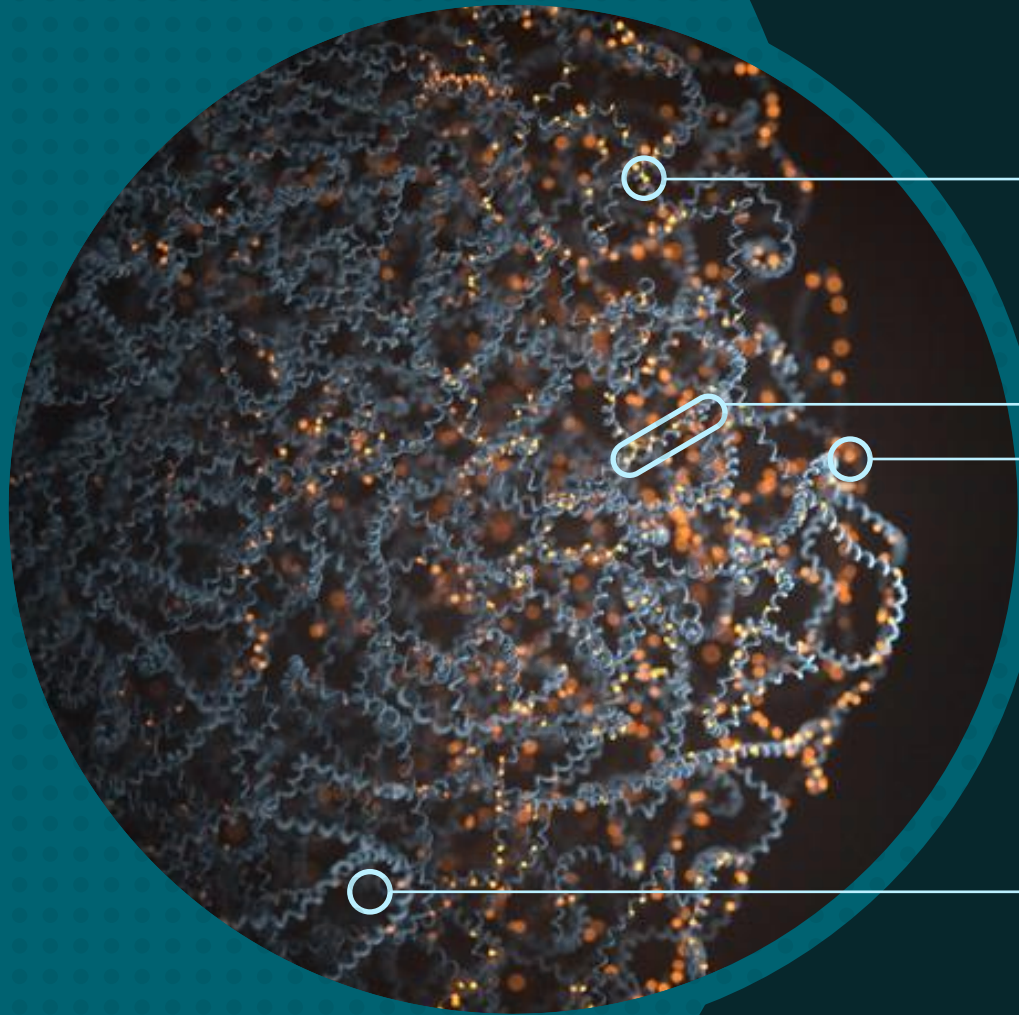
Q50+

“T2T” Human consensus with 5b4



“Using a single PromethION Flow Cell, we can detect SNPs with F1-score better than...short-read sequencing”. Kolmogorov et al., 2023

# We can finally uncover all areas of the genome



## Small variants

SNPs and INDELS well characterised by existing technology. E.g. Sickle cell disease and cystic fibrosis

## Larger, more complex variants

Structural variants including Copy Number Variants, Repeats, Expansions only fully visible with the advent of long reads. E.g. alzheimer's, Parkinsons

## Epigenetics

Methylation, highly involved in complex disease, e.g. cancer, is only partially visible through modified chemistries or algorithmic interpretations is now unlocked with native nanopore sensing

## Dark genome

Medically important areas of the genome that have only recently been uncovered and only visible through native DNA or RNA sequencing



# DNA Sequencing has been in a 'Mainframe' moment

Nanopore sequencing technology enables real-time, affordable, accessible and high performance, in small to high throughput formats.



# Our fully scaled platform

From small handheld to flexible high-capacity systems all highly affordable through our OpEx Models



**Personal Sequencers**



**Scale-up Sequencers**



**High Throughput Sequencers**



<b>MinION</b> 2 FC's & 1 Kits	<b>PromethION P2</b> solo 8 FC's & 2 Kits	<b>GridION</b> 96 FC's & 16 Kits	<b>PromethION P2(i)</b> 96 FC's & 16 Kits	<b>PromethION P24</b> 512 FC's & XL Kits	<b>PromethION P48</b> 1,246 FC's & XL Kits
From \$1,999	From \$9,555	From ~ \$89,000	From ~\$125,000	From ~ \$495,000	From ~ \$950,000



# Our business model



Seed the market with affordable starter packs

With sequencers from only **\$1,000**, Nanopore sell to users who don't perform sequencing today.



Expand the market with self-service MinION and P2 Solo user base

More than **80%** of orders are placed without interaction from the sales and support teams.  
Users learn to use devices through online resources or booking a lab call.



Take market share with classic "B2B approach"

GridION and PromethION P2(i), P24 and P48 are sold and supported by a field-based sales and support team.  
Taking market share through unique features and benefits.

Most of the "sequencing hardware" is in the consumable flow cell enabling:

- Simple, affordable sequencing devices
- Rapid platform iterations deployed in consumable upgrades
- Higher margins with ~75% of revenue generated by consumable sales



# Our customers

Commercial resources to fit customer types

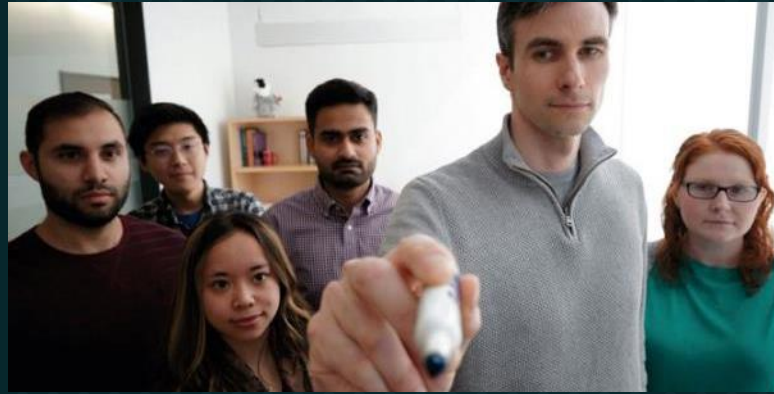
S1



“genomic explorers”

Under **\$25,000**

S2



“expanding everyday sequencing”

**\$25,000 – \$250,000**

S3

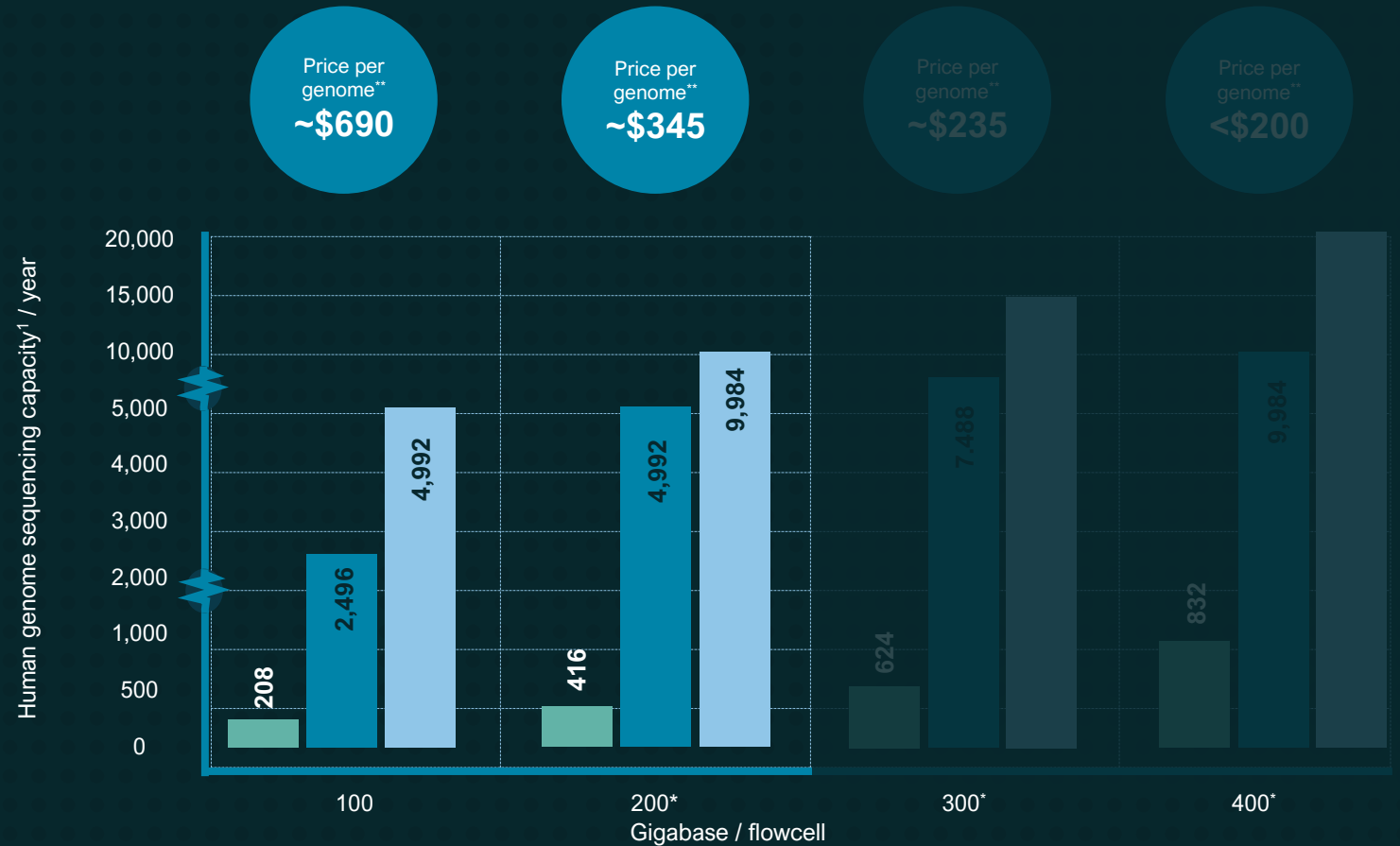
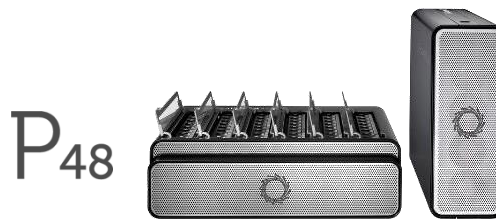


“multi-installation customers”

**>\$250,000**

# Driving down cost per genome with every step change

## PromethION



<sup>1</sup>Future chemistries

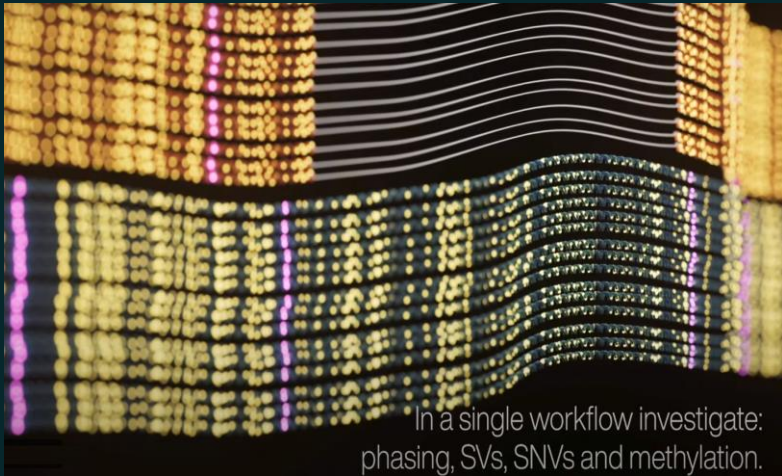
<sup>\*\*</sup>Assumes 30x WHG at Q20 accuracy

Enzyme speed and blocking are two key drivers of output, both highly active R&D programmes

# Highly differentiated sequencing platform



**Richer insights**



In a single workflow investigate:  
phasing, SVs, SNVs and methylation.



**Faster time to result**



Complement rapid sample prep with  
data streaming & no need for batching



**Accessible & affordable**



Fully accessible with starter pack model  
and competitive price per GB

Sequence Native DNA/ RNA of any length



# Why customers invest in our platform

## Sequencing as an everyday tool



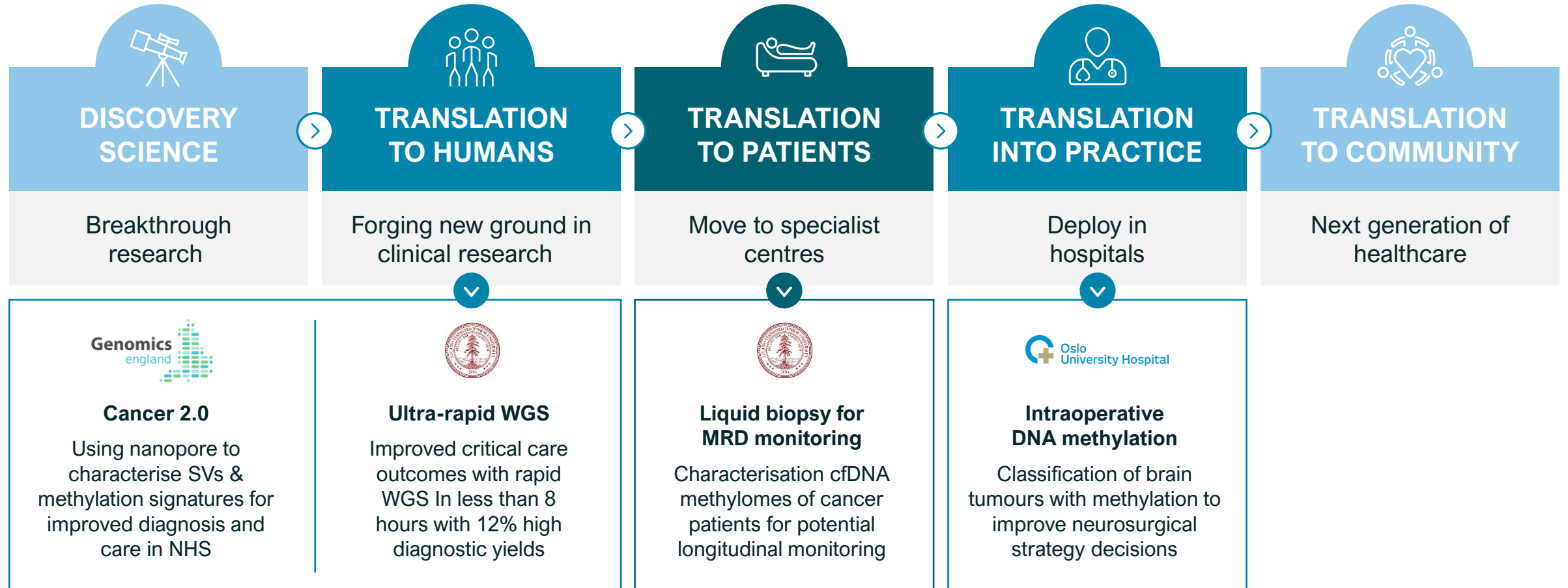
## Breaking the boundaries of science



## Exciting pipeline of novel capabilities

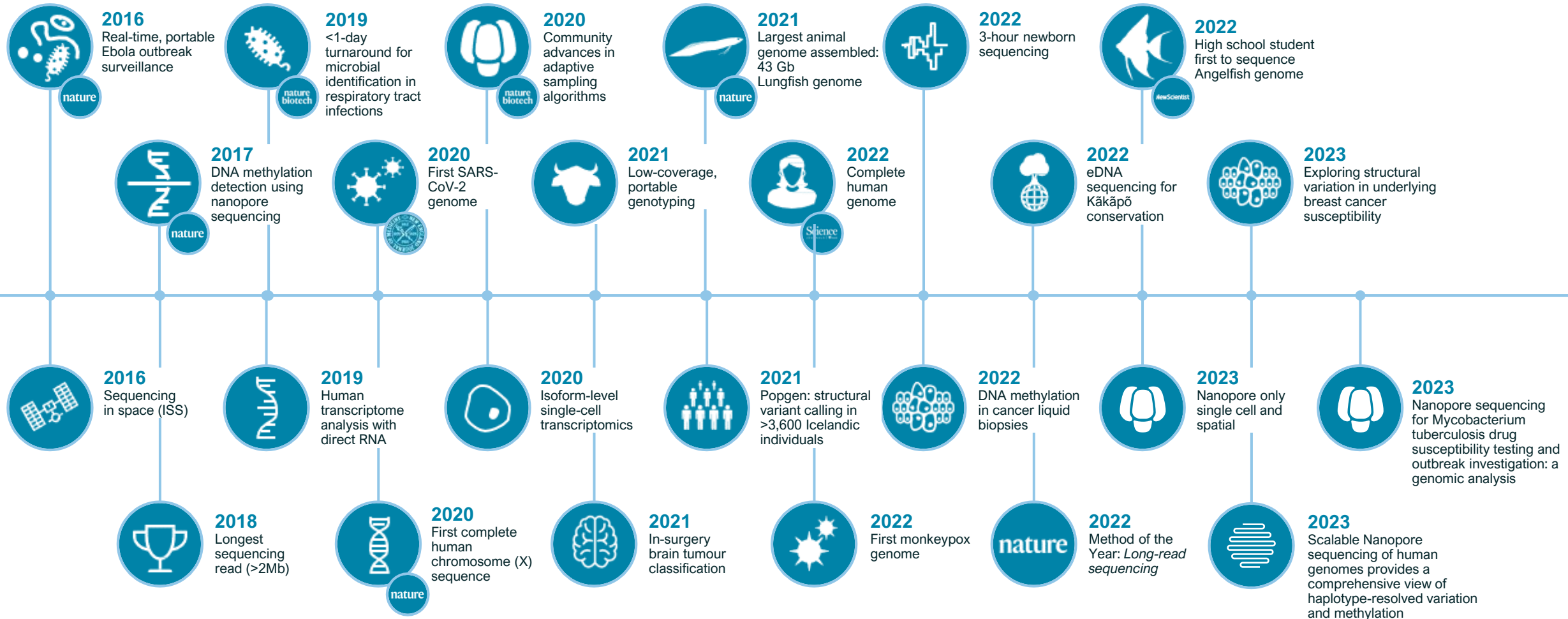


# We are at the beginning of our transformational journey





# Celebrating scientific advances published by the Nanopore Community



# Translated to our core commercial focus areas

Priority research applications act as foundation for emerging clinical applications



## Human

High Throughput WGS at Scale from High-N-to-PopGen



## Cancer

Cancer Research & Immuno-Oncology Applications



## Infectious

Viral, Microbial, Infectious & Synthetic Genomes

### Technology Applications



Single Cell



Methylation



Emerging

### Industry Sectors



BioPharma



Clinical Labs



AgBio

### Commercial Channels



Direct



Distributors



CSPs



Core Labs

# Reflected by the breadth of applications from our customers

From rapid WGS to liquid biopsy and beyond



“Genetic tests just aren’t thought of as tests that come back quickly. But we’re changing that perception”

DNA to 60x genome in <2.5 hrs

Higher diagnostic yield than traditional sequencing

[Gorzynski et al. \(2022\)](#)



CNV analysis in neurodevelopmental disorders: we demonstrate how integration of genotype, methylation, and phasing data from the nanopore sequencing platform can potentially simplify and shorten the diagnostic odyssey.

[Greer et al. \(2023\)](#)



The ONT platform's deployability and short turnaround time make it a promising tool for liquid biopsy analysis... same-day delivery of genomic and fragmentomic signatures from plasma and urine cfDNA is possible

[Ymke van der Pol et al. \(2023\)](#)



Nanopore metagenomics can rapidly and accurately characterize bacterial Lower Respiratory Infections and might contribute to a reduction in broad-spectrum antibiotic use

[Charalampous et al. \(2019\)](#)



# Global Life Science Research (LSRT) commercial team has been developed and regionalised

Maximise regional opportunities with coherent, locally adapted strategies

## 1. Americas

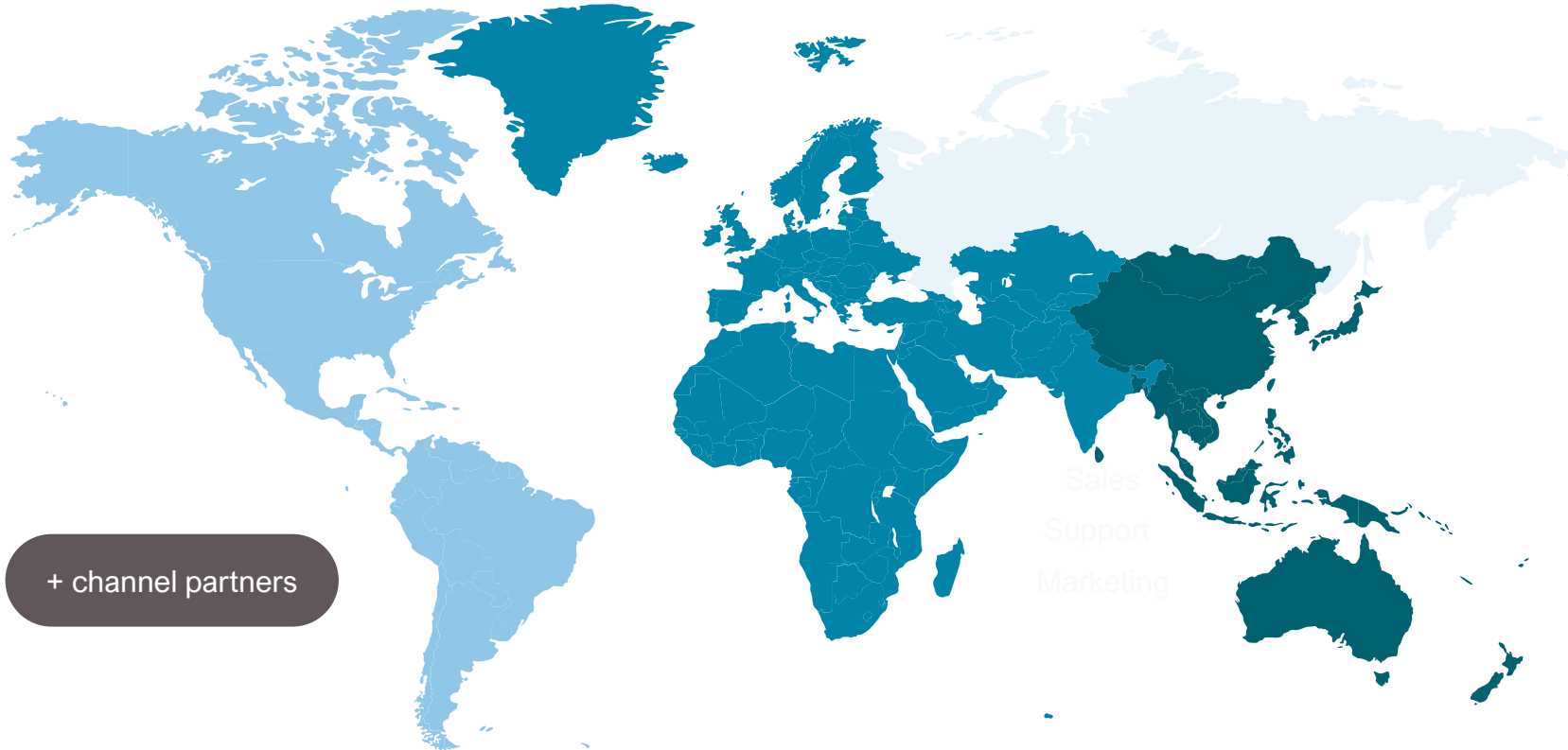
Sales | Support | Marketing

## 2. EMEA & India

Sales | Support | Marketing

## 3. APAC

Sales | Support | Marketing



**Commercial team has doubled since IPO**

**End 2020: 147  
→ HY 2023: 346**

**Includes commercial functions such as:**

Sales and Marketing  
Support (application, customer support, technical)  
logistics

# Substantial and growing market opportunity: DNA/RNA sequencing

\$6.2 billion<sup>1</sup> in 2022, expected CAGR 2022-25 ~15%<sup>1</sup>

Substantial opportunity to penetrate, reshape and expand

## RESEARCH

Biomedical research  
Non-human research

## CLINICAL & APPLIED

Clinical research,  
Clinical labs, Industrial

## DIAGNOSTIC & APPLIED INDUSTRIAL

More regulated

Foundation for



**\$3.1bn** in 2022<sup>1</sup>

Majority of customers today



**\$3.1bn** in 2022<sup>1</sup>

Rapidly emerging: huge potential for growth

Life Science Research Tools LSRT

Clinical Diagnostics and Applied

Oxford Nanopore is uniquely positioned to unlock long term future potential clinical and applied market opportunities

**>\$150 billion in 2032**



### Clinical opportunities

Eg. Human genetics, cancer, infectious disease



### Applied Industrial

Eg. Agriculture, food, bioprocessing, environment

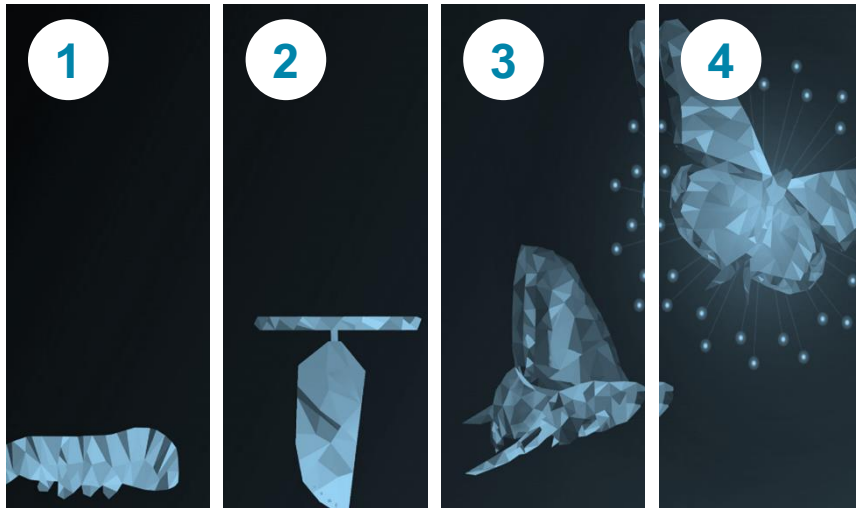
<sup>1</sup>Source:DeciBio. Sequencing consumables and devices. Excludes services



# We continue to innovate in LSRT, and lock down in applied

From rapid innovation to rapid, applied insights

## Life Science Research Products



Beta

Registration  
Based  
Early  
Access

Open Early  
Access

Released

## Q-Line



- Q Feature frozen product
- Q Software & consumable version support for at least 12 - 18 months
- Q Clearly defined, visible product update pathway and implementation support
- Q ISO9001 with clear pathway to increase to 13485 by no later than 2026
- Q PromethION Q currently in development

## Applied market and partner products



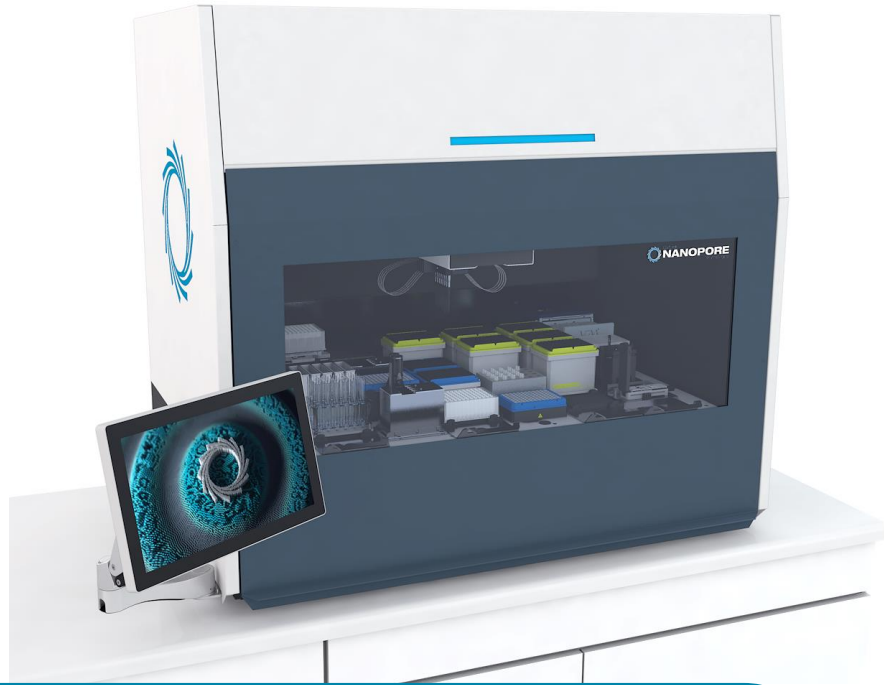
- A Locked for specific application
- A Software & consumable version support for 24 months +
- A Heavily developed with partner assays in mind
- A CE-IVD ready



# Sample to answer

## TurBOT

**Benchtop device capable of sample extraction, library prep, sequencing, and data analysis**



Register your interest  
[register.nanoporetech.com/TurBOT](https://register.nanoporetech.com/TurBOT)

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Oxford Nanopore Technologies products are not intended for use for health assessment or to diagnose, treat, mitigate, cure, or prevent any disease or condition.



### Fully hands off nanopore sequencing

Extract, prepare, sequence, analyse all-in-one benchtop device



### Flexibility to meet your needs

MinION™ or PromethION™ 2 Solo on board



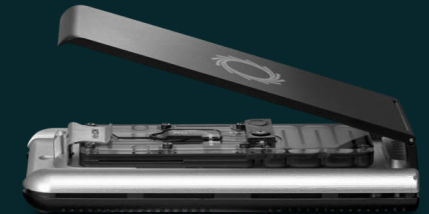
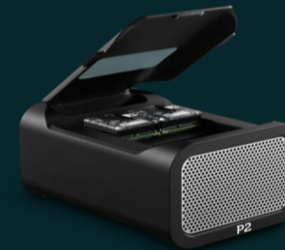
### Scalable and intuitive

Multiplex up to 48 samples with pre-programmed, sample-to-answer workflows



### Simple data analysis

Onboard compute and EPI2ME™ analysis workflows



# We draw on a broad universe of potential partners and collaborators

- Oncology
- Human Genetics
- Infectious Disease
- Vet & Ag
- Biopharma QC
- Food & Env



### Announced Partnerships in Clinical & Applied Industrial


# Key medium-term revenue drivers



Expanding, underpenetrated market opportunity coupled with unique features and benefits of Oxford Nanopore's technology underpin growth



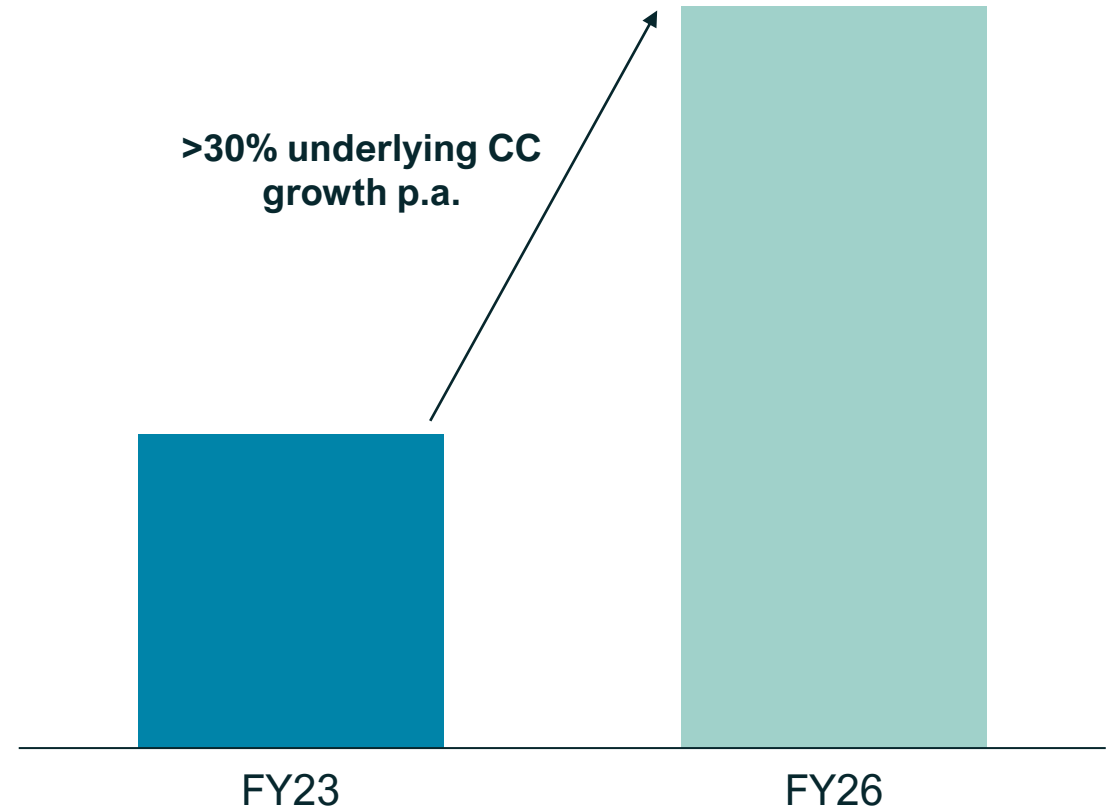
Robust innovation pipeline with frequent platform upgrades and product launches



Increased penetration of LSRT clinical and applied industrial markets; expected to contribute 10-20% of LSRT revenue by FY26



New customer acquisition and increased utilisation in S2 and S3 customer groups will be a key driver of growth



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END