



Application and Prospect of AI in the Pharma Industry

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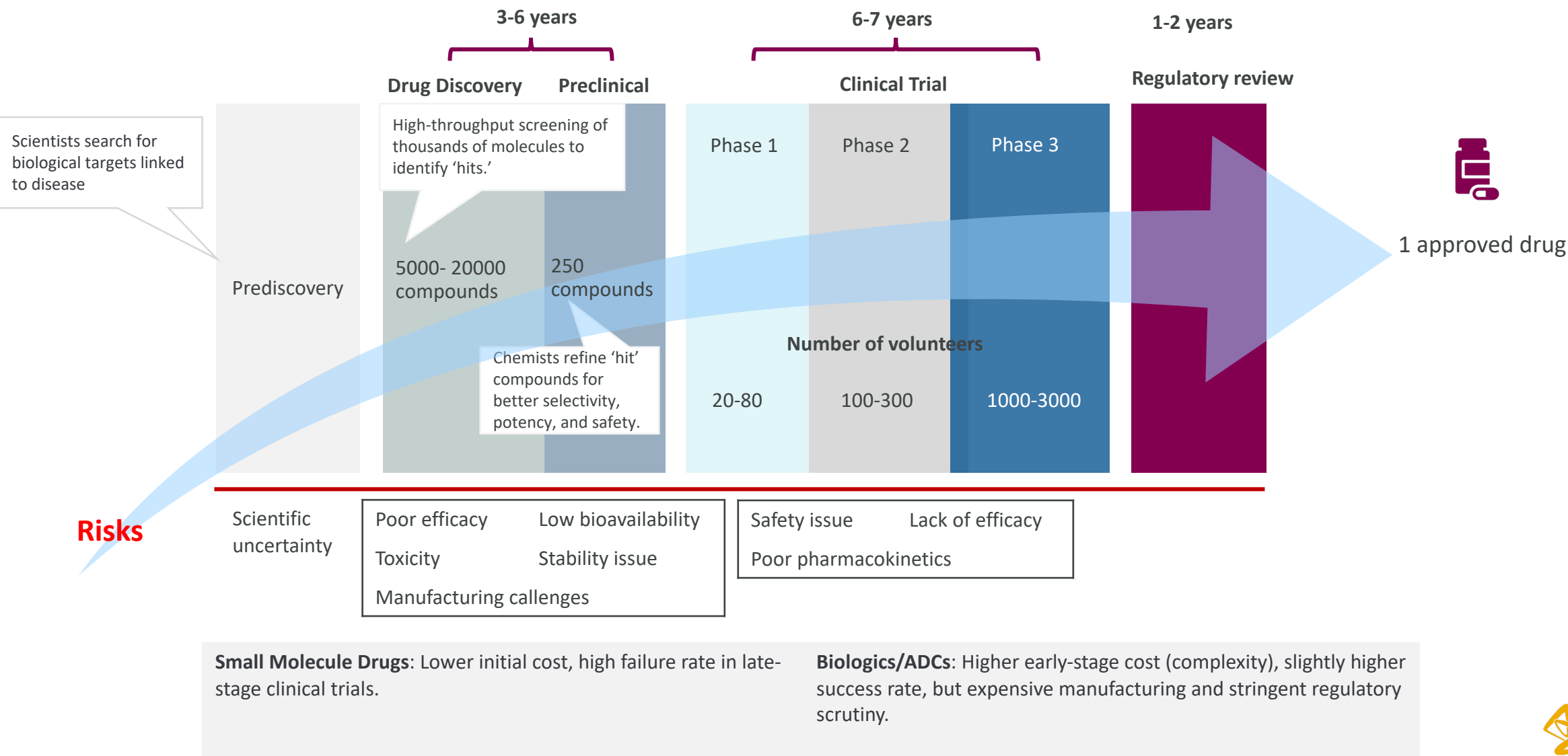
AstraZeneca R&D China

2025-09-16

Company Restricted



Drug discovery and development: a long, risky road

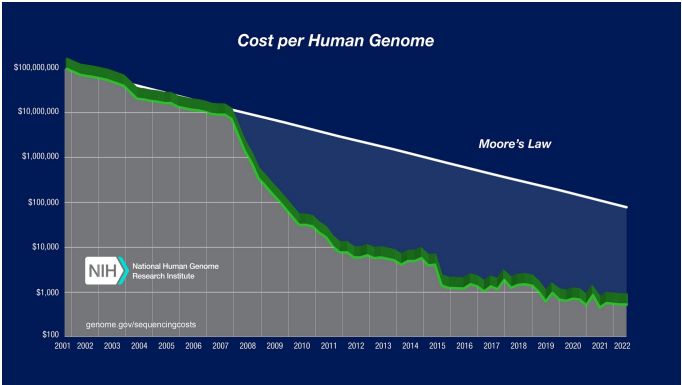


Major trends to enable a new era of drug discovery and development

Rise in human multi-omic data

Drivers

- Advancements in high-throughput sequencing technologies
- Reduced costs and improved accessibility
- Growing interest in precision medicine and biomarker discovery
- Increasing availability of well-annotated cohorts and biobanks

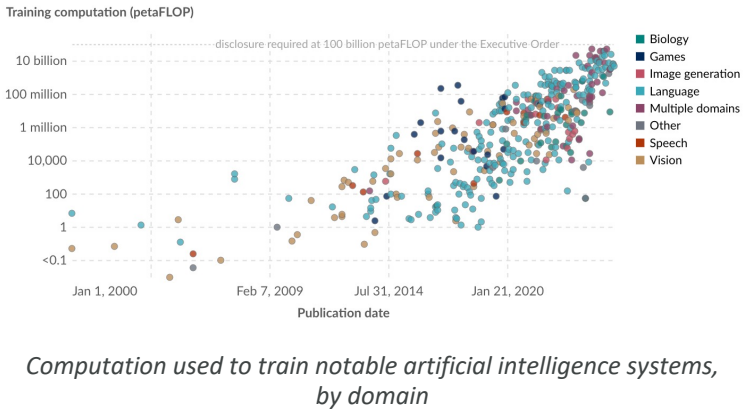


Source: National Human Genome Research Institute (NHGRI)

Advances in supercomputing

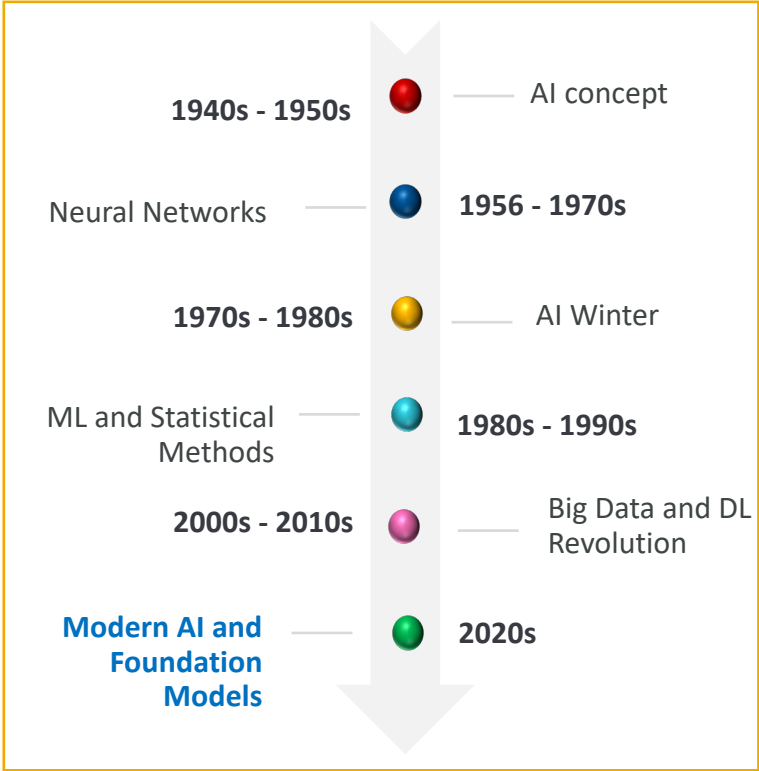
Drivers

- Miniaturization of transistors
- Architectural innovation
- Material and manufacturing advances
- Software and algorithm optimization
- Rise of specialized hardware



Source: worldindata.org

Progress in AI and ML



AstraZeneca evolving portfolio delivers impact across the R&D value chain

Unifying Wet and Dry Labs



- AI for Biologics
- Safety Omics
- AI for Target Discovery & Validation

Optimising Our Medicines



- Combinations of existing drugs/assets
- Precision medicines (responders/non-responders)
- Indication expansion
- Dosing
- Delivery (modalities)
- Intervention planning (disease trajectories)

Transforming Clinical Trials - Speed, Cost & Success



- Algorithmic Patient Selection
- Computer Vision for QC and Endpoints
- Vocal Biomarkers and Audio Analytics
- AI Documentation

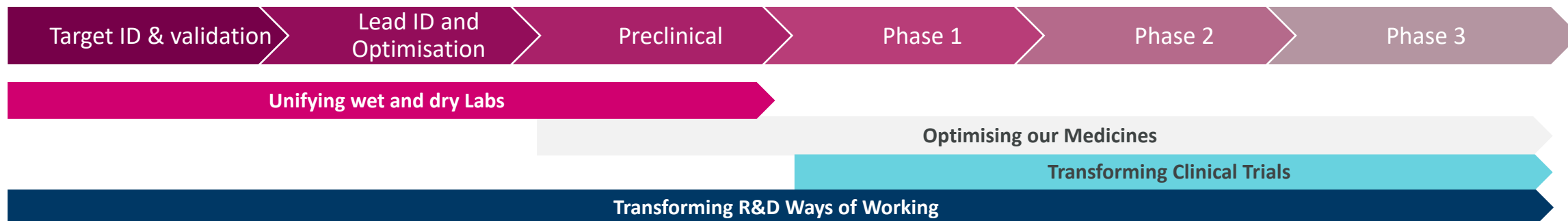
Transforming R&D Ways of Working



- Transforming Data Sharing & Access
- AI-Ready R&D Value Chain
- Data & AI Risk Programme

Using data & AI to drive, automate and unify wet and dry lab activities

Refine and scale new and existing technologies to enable the extraction of insight from diverse data types



AstraZeneca's six strategic R&D centers

End-to-end Value Chain to enable AstraZeneca's long-term success



Cutting-edge biology & AI/Data

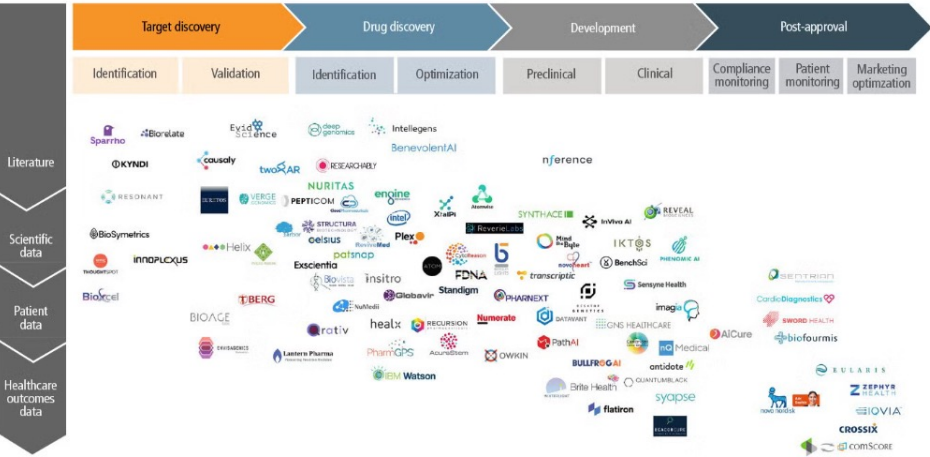
- Early-stage research
- Clinical development

Collaborations: China Biotechs, Research Hospitals, and China's Technology Ecosystem



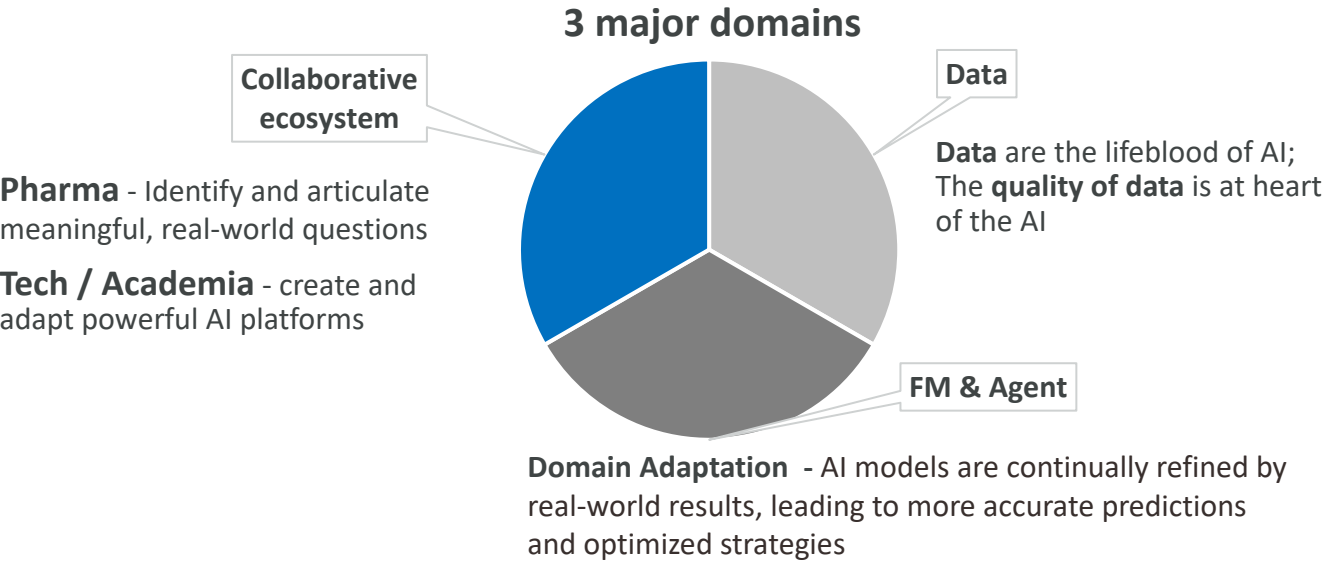
The connected future: bridging AI, data and science

AI thrives in drug discovery because of better data, well-defined tasks, faster iteration and fewer barriers		
Data availability and structure	Large, well-curated datasets (structure, chemical library, genomics, etc.)	More heterogeneous, less standardized, and often less available due to privacy, regulatory, and operational challenges
Problem definition and output	Problems are often well-defined with clear endpoints	Endpoints are complex, multifactorial, and data is influenced by human variability, comorbidities, and environmental factors
Regulatory and ethical barrier	AI models in discovery inform research decisions	Applying AI to patient data or decision-making in clinical trials raises regulatory, ethical, and legal challenges that slow innovation and implementation
Feedback and cost	Fast, relatively inexpensive feedback cycles allow for rapid model training and iteration	Slower, high-cost, and subject to more rigorous oversight



AI companies active across the drug life cycle

Source: L.E.K research



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