Evidence & Precision Medicine

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“Evidence: The available body of facts or information indicating whether a belief or proposition is true or valid.

www.lexico.com/definition/evidence

CERTAINTY LEVELS

Uncertain	Possible	Likely	Definitely true

DATA LAKES

Demographic

Clinical

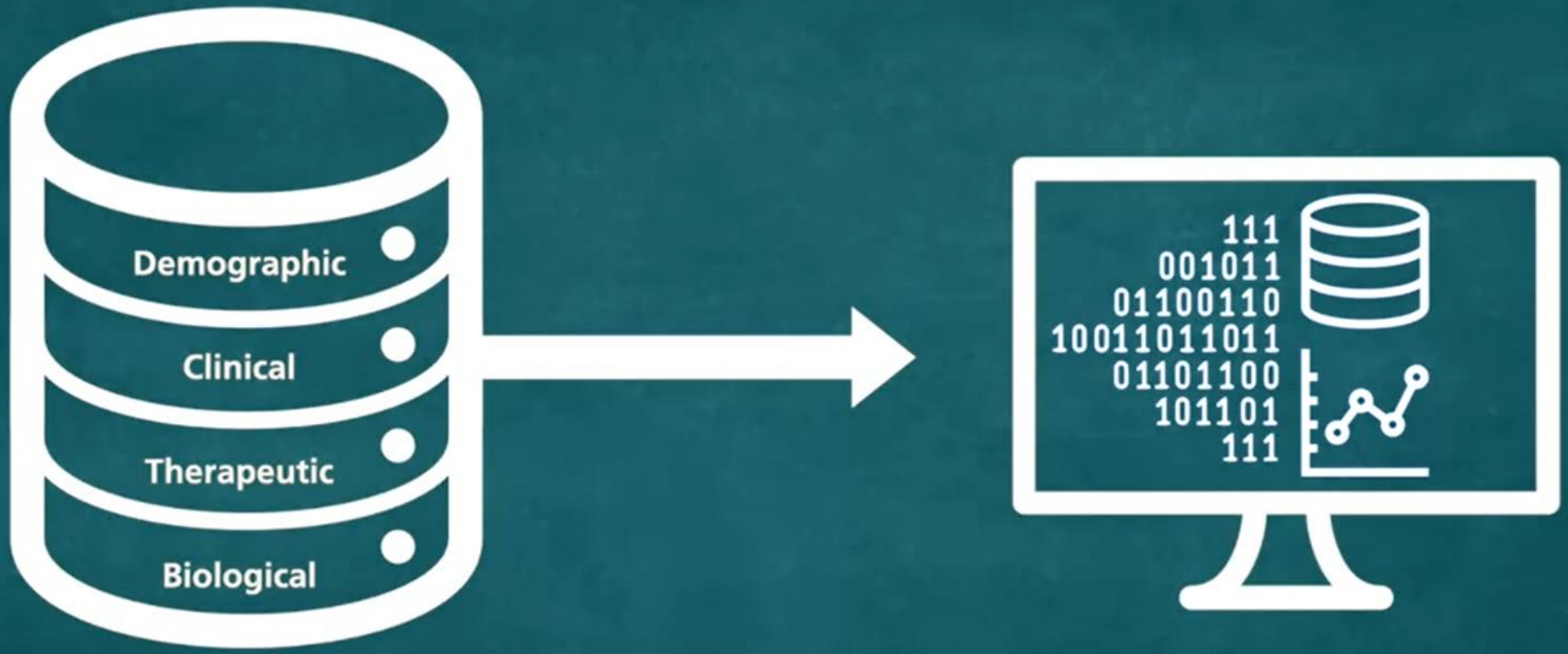
Therapeutic

Biological

Continued evidence building is needed

Documentation should be:

- Comprehensive
- Updated
- Reader-friendly
- Transparent


Demographic
Clinical
Therapeutic
Biological
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TWO SYSTEMS TO ENSURE ETHICAL AND LEGAL DATA PROCESSING

Ethics commitee

Research ethics

- Human rights
- National Legislation
- Ethical Guidelines

Research institution

Data protection

- GDPR
- National data protection legislation

CONSENT

Research ethics instrument

Informed consent to research participation

Data protection instrument

Lawful basis for data processing (which can, but does not need to be, consent)

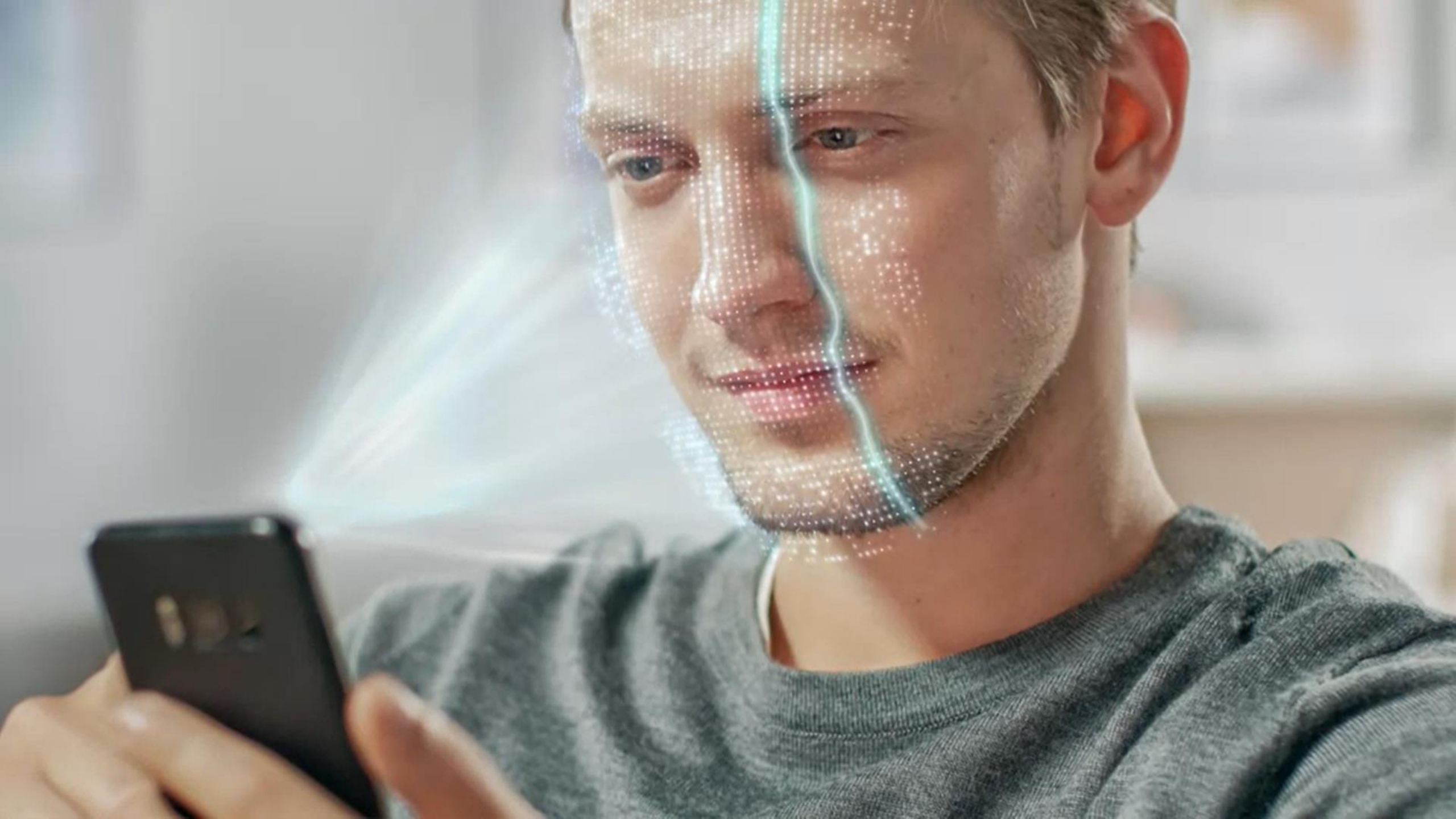
ETHICS APPROVAL

Research ethics instrument

INFORMATION SECURITY

Appropriate to the risks to the research participants

- **Unauthorized access or disclosure**
- **Accidental deletion**
- **Destruction of data**



TRANSPARENCY

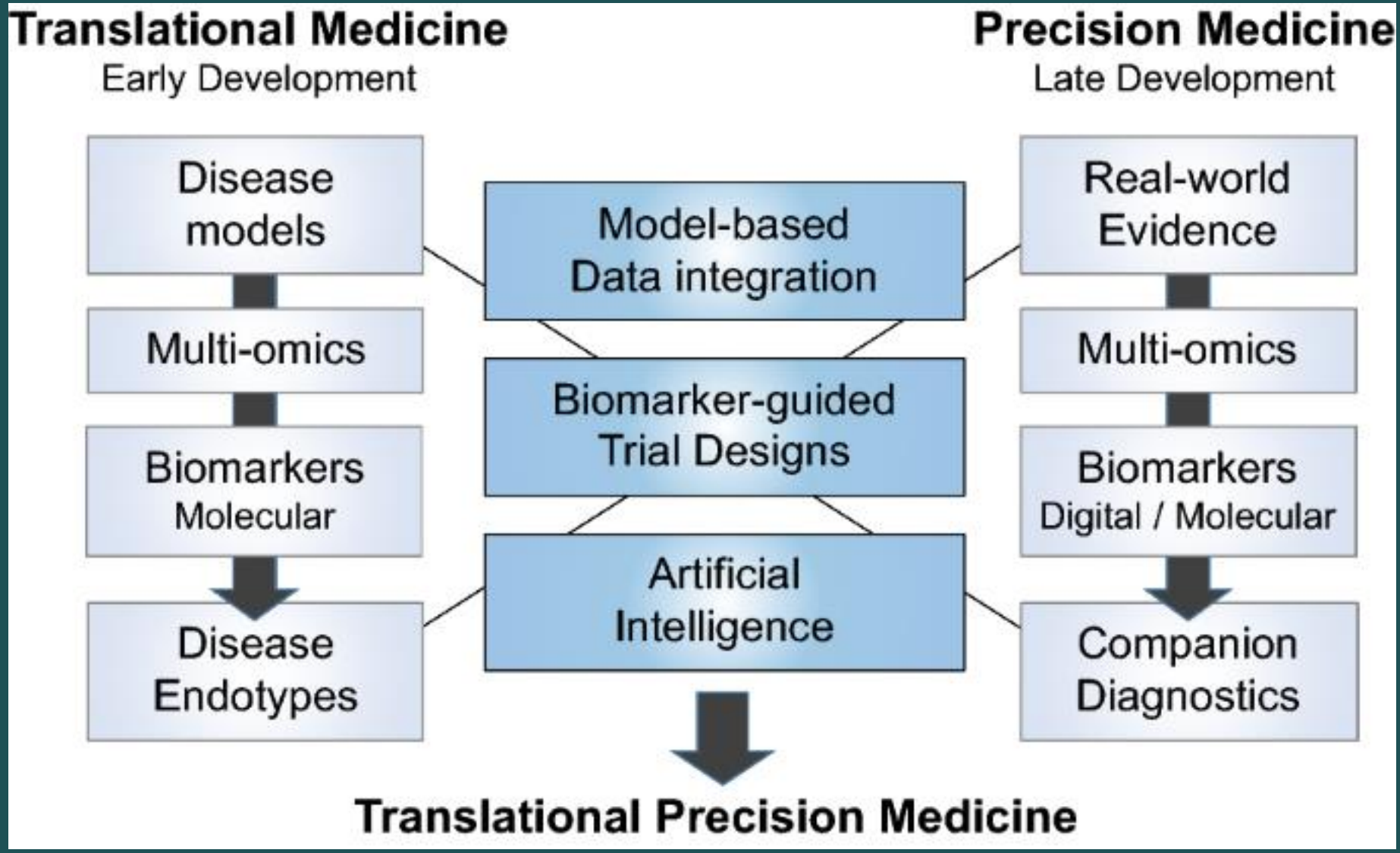
Challenging to explain AI tools in a manner that is:

Easily understandable | **Sufficient** | **Correct**

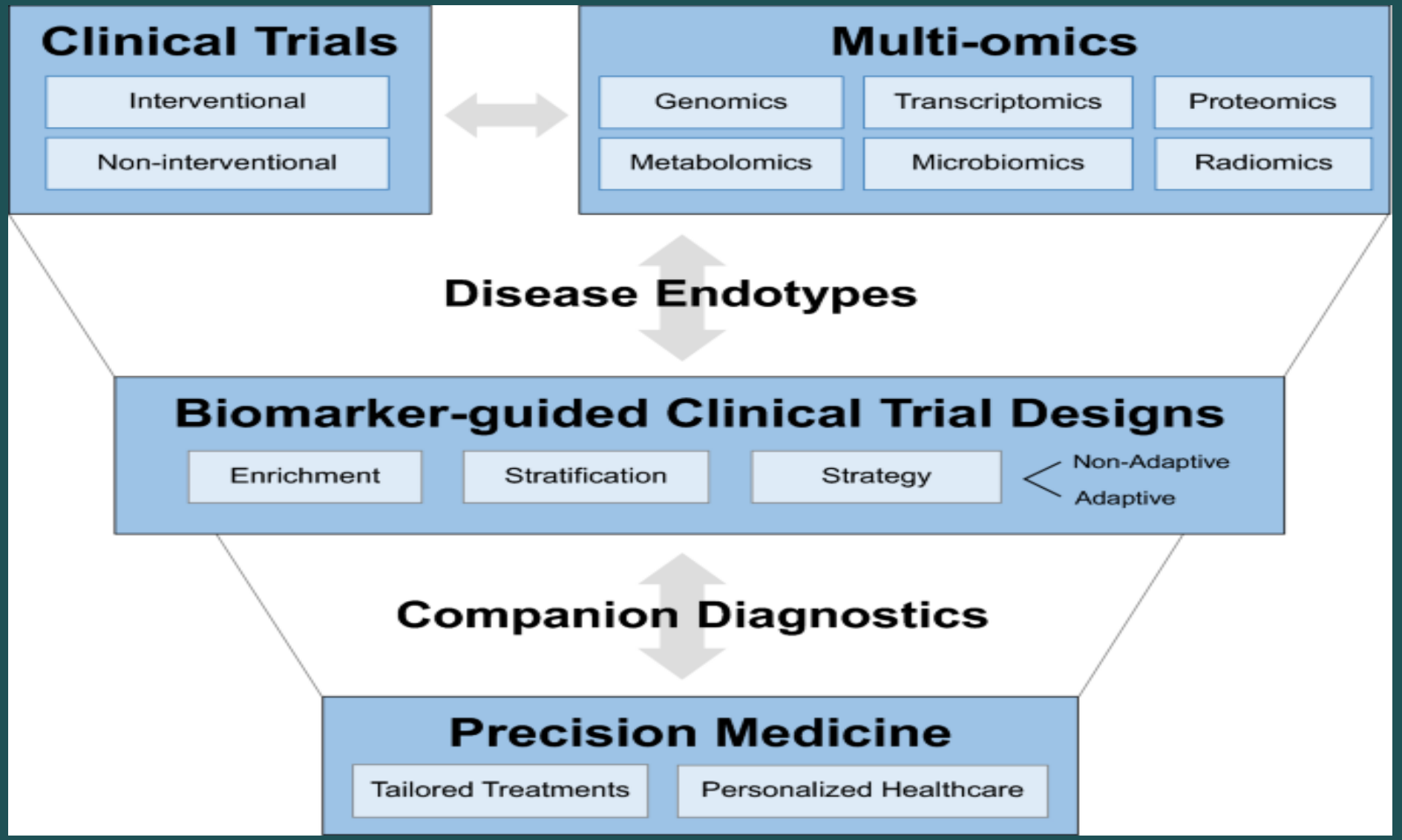
FAIRNESS

Biased training data

Biased algorithm



Hartl, D., de Luca, V., Kostikova, A. *et al.* Translational precision medicine: an industry perspective. *J Transl Med* **19**, 245 (2021). https://doi.org/10.1186/s12967-021-02910-6



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Precision Medicine - Paradigm Shift

InnVentis

	Yesterday	Today	Tomorrow
DATA	Symptom-based	Cohort-based	Algorithm-based
ACTIONS	Intuition Medicine	Evidence-based Medicine	Precision Medicine

Application of rules, algorithms and reference databases enables ACTIONABLE clinical decision support & PRECISE/EFFICIENT care

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