Precision Oncology
Where we are and where we need to go

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COMPLEX SYSTEMS

Complex

[adj., v. kuh m-pleks, kom-pleks; n. kom-pleks]
–adjective

1.

composed of many interconnected parts; compound; composite: a complex highway system.

2.

characterized by a very complicated or involved arrangement of parts, units, etc.: complex machinery.

3.

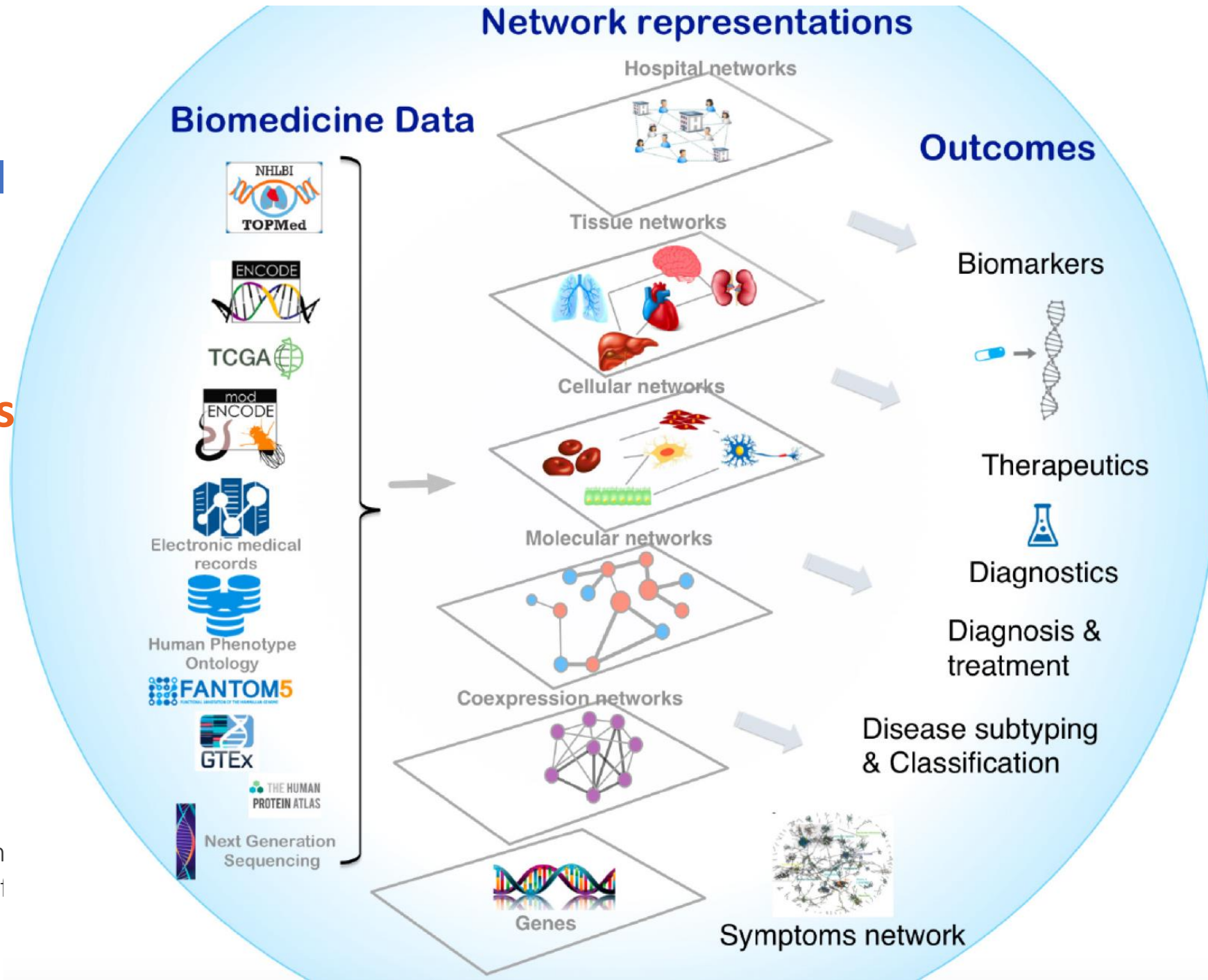so complicated or intricate as to be hard to understand or deal with: a complex problem.

Source: Dictionary.com

Complexity, a **scientific theory** which asserts that some systems display behavioral phenomena that are completely inexplicable by any conventional analysis of the systems' constituent parts. These phenomena, commonly referred to as emergent behaviour, seem to occur in many complex systems involving living organisms, such as a stock market or the human brain.
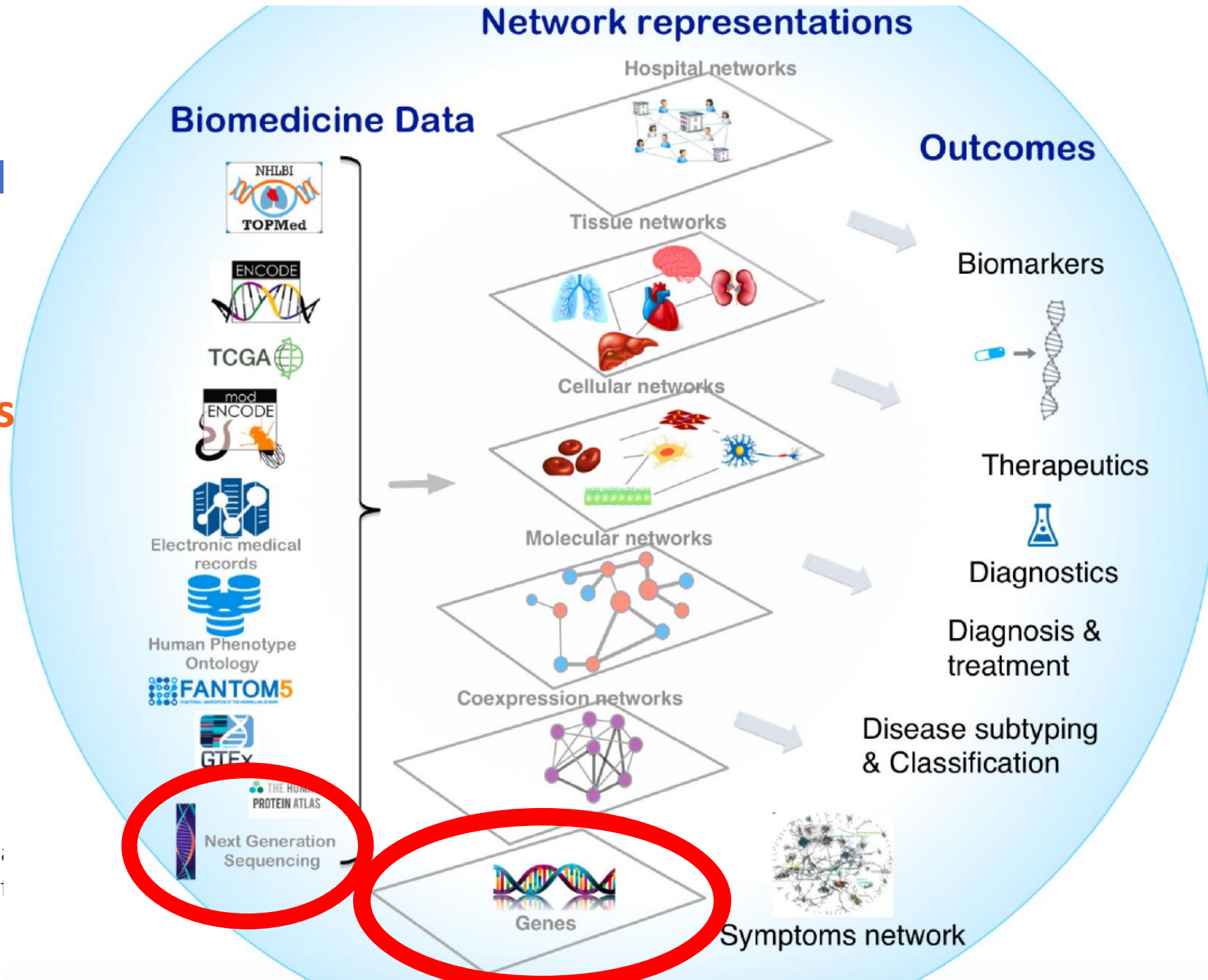
Source: John L. Casti, Encyclopædia Britannica

Complexity

Overview of network medicine approach depicting various biomedical data types

Sonawane AR, Weiss ST, Glass Kand Sh
(2019) Network Medicine in the Age of
Big Data. Front. Genet. 10:294. 2019

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Complexity

Raising the bar for cancer care

Precision Oncology
Where we are and where we need to go

- ## What we know
  - Inside the cancer cell
  - Around the cancer cell

- ## What we have
  - *Some* information about biological and clinical factors that can turn simple interactions into complex ones

- ## What we need
  - Network Medicine
  - Big Data implementation and handling
  - Molecular Tumor board