Sources for and Practical Use of Real-world Data
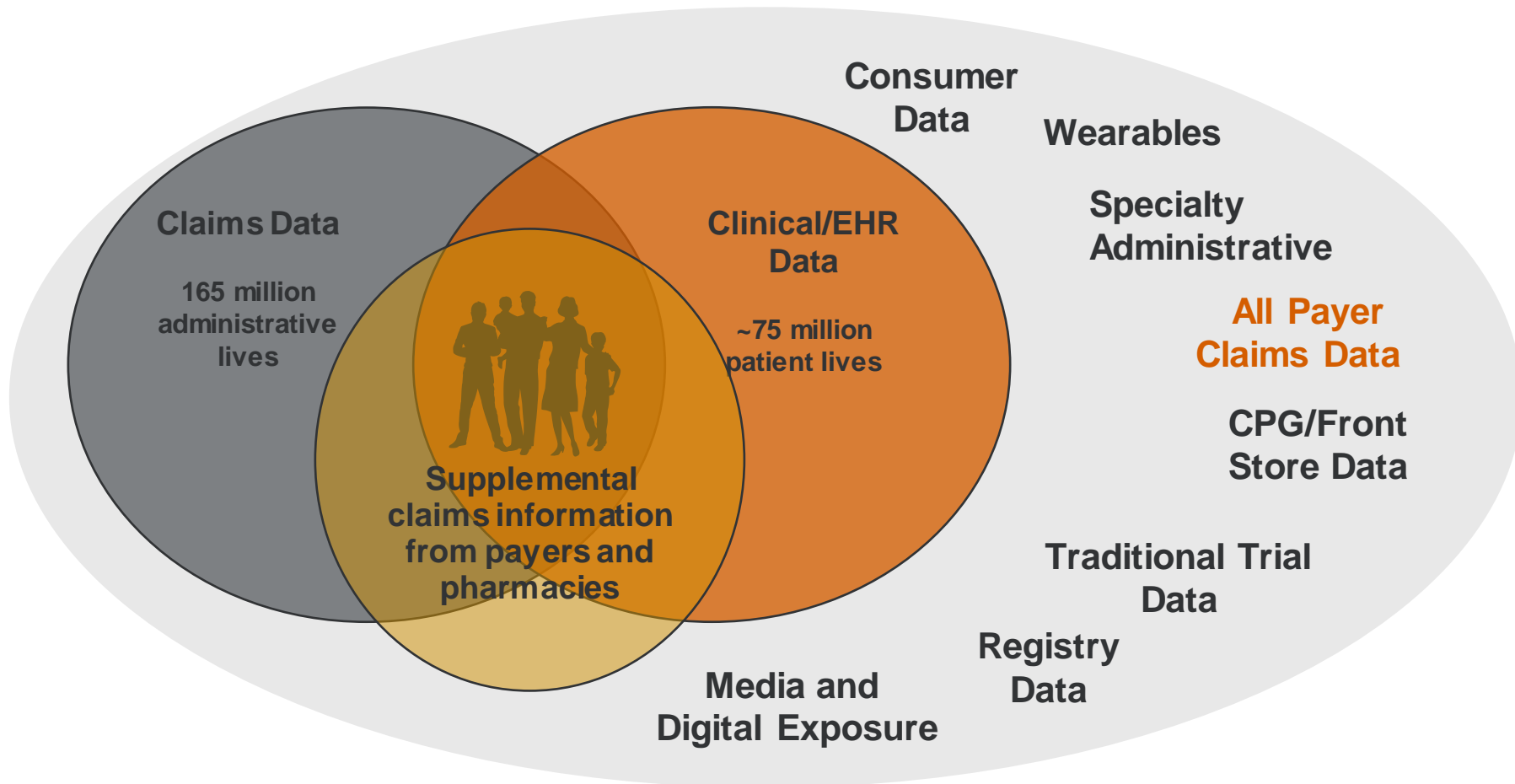
Potential for Data Analytics

19 October 2016

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Sources of RWD – Optum's Approach

Merged via Encryption of Identifying Information

Consumer Data

Wearables

Specialty Administrative

All Payer Claims Data

CPG/Front Store Data

Claims Data

165 million administrative lives

Clinical/EHR Data

~75 million patient lives

Supplemental claims information from payers and pharmacies

Traditional Trial Data

Registry Data

Media and Digital Exposure

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Scraping Information from Information Systems within Provider Networks
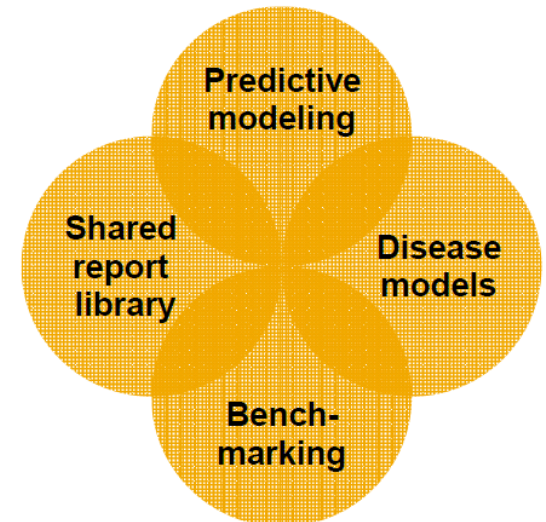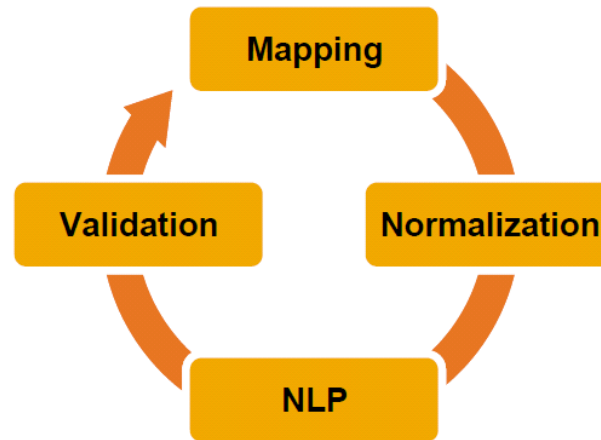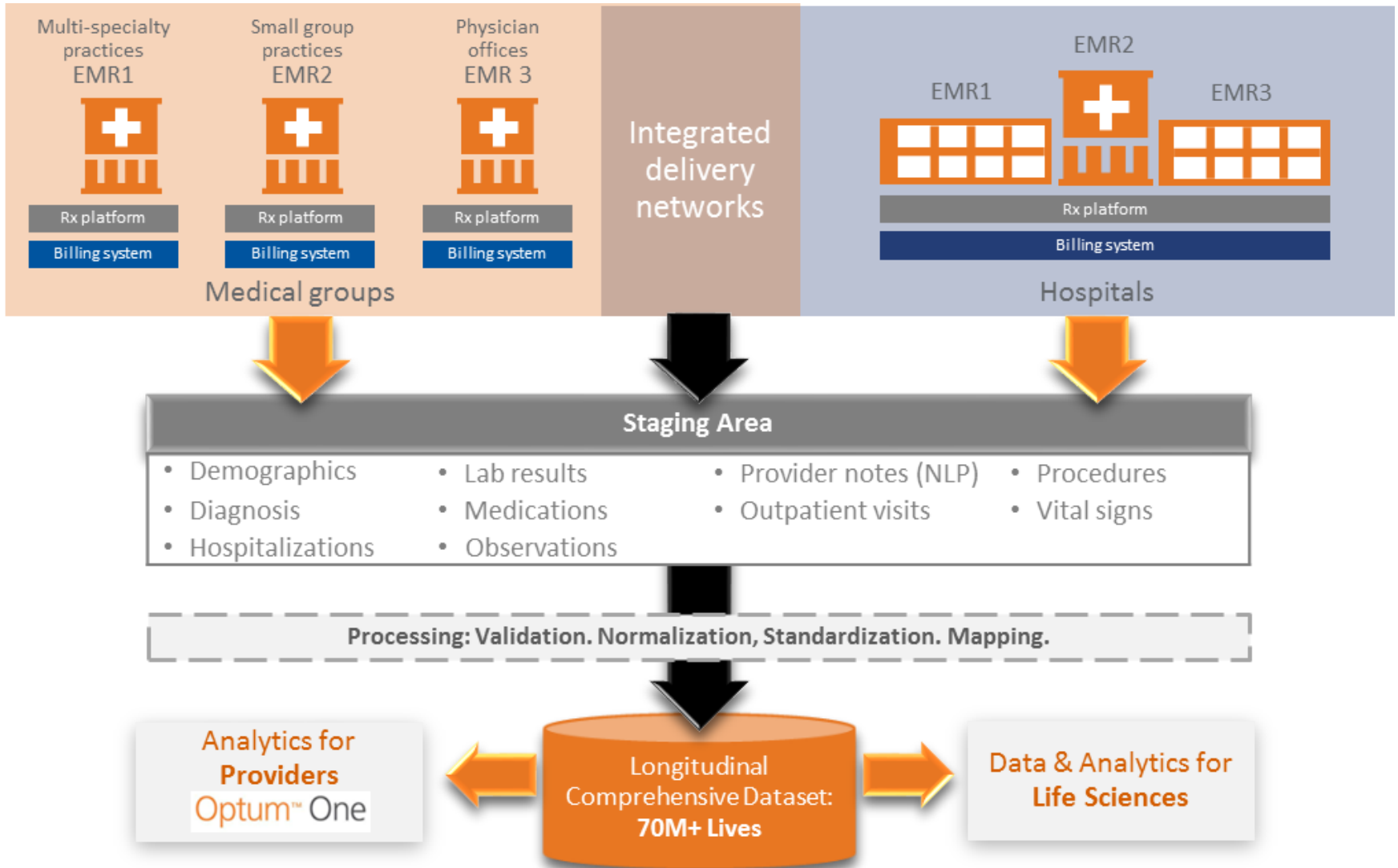
Electronic Health Records

Aggregate data across the continuum → **Clean, normalize and validate data** → **Transform data into insight**

Aggregate data across the continuum:
- Clinical claims & scheduling data
- Automated extraction
- Source system agnostic
- Person-centric MPI

Clean, normalize and validate data (cycle):
- Mapping
- Normalization
- NLP
- Validation

Transform data into insight:
- Predictive modeling
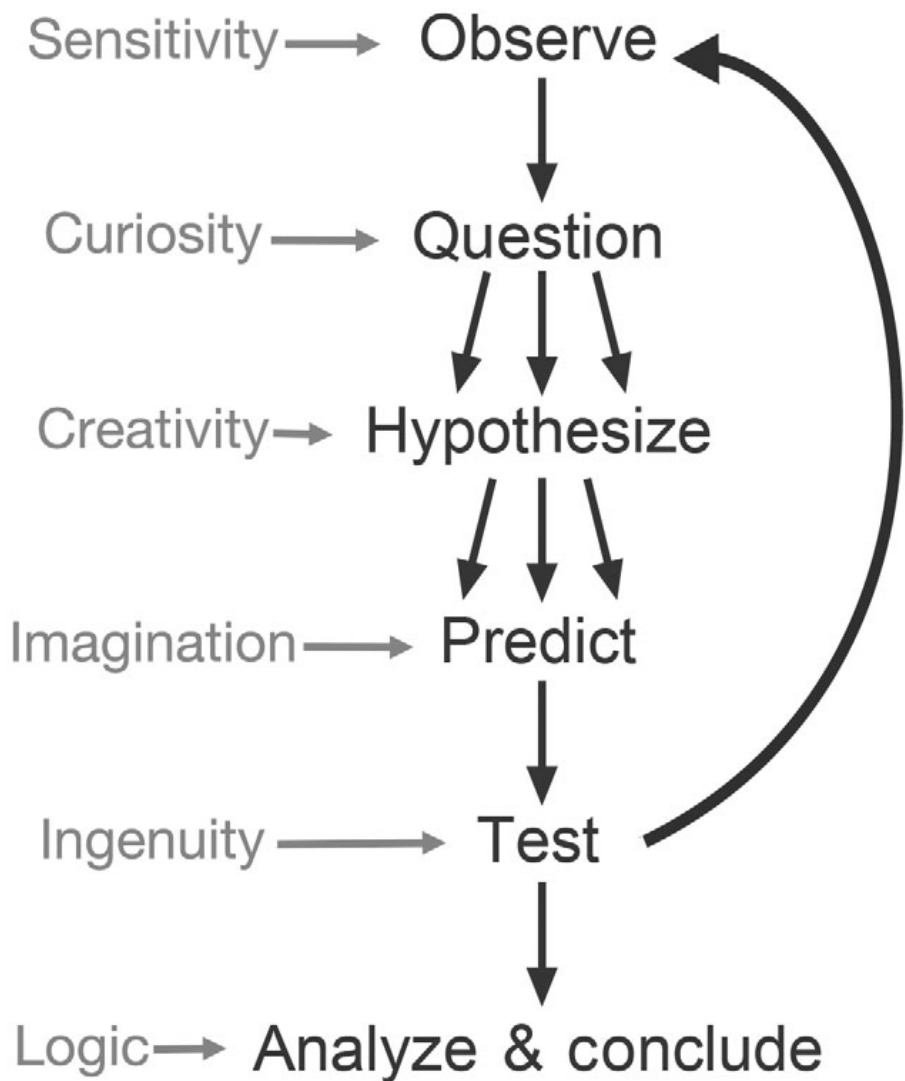- Disease models
- Bench-marking
- Shared report library

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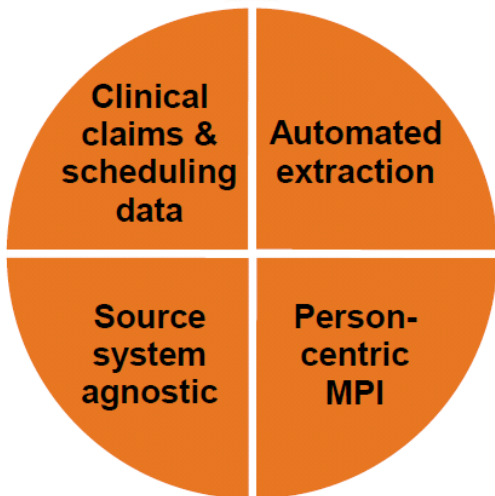
Aggregation Across Provider Networks – Seeking Scale

How do we use all these data?
Fudge's research planning as "measurement planning"

Sensitivity → **Observe**

Curiosity → **Question**

Creativity → **Hypothesize**

Imagination → **Predict**

Ingenuity → **Test**

Logic → **Analyze & conclude**

Look at the data, identify data elements

Talk to experts

Consider direct measures and remote proxies

Build an initial algorithm

Quantify operating characteristics

Finalize when good enough

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David D. Dore

Some Challenges

- The three V's of "big data:" Volume, Velocity, Variability[1]

- Governance of data linkage

- Extent of overlap of linked data

- Missing data methods – validation and computational tractability

- Implementation of collaborations to embed trials in routine care

  …

- And, of course, translation

[1]Mooney SJ, Westreich DJ, El-Sayed AM. Epidemiology. 2015;26(3):390-4. doi: 10.1097/EDE.0000000000000274.

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Thank you

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