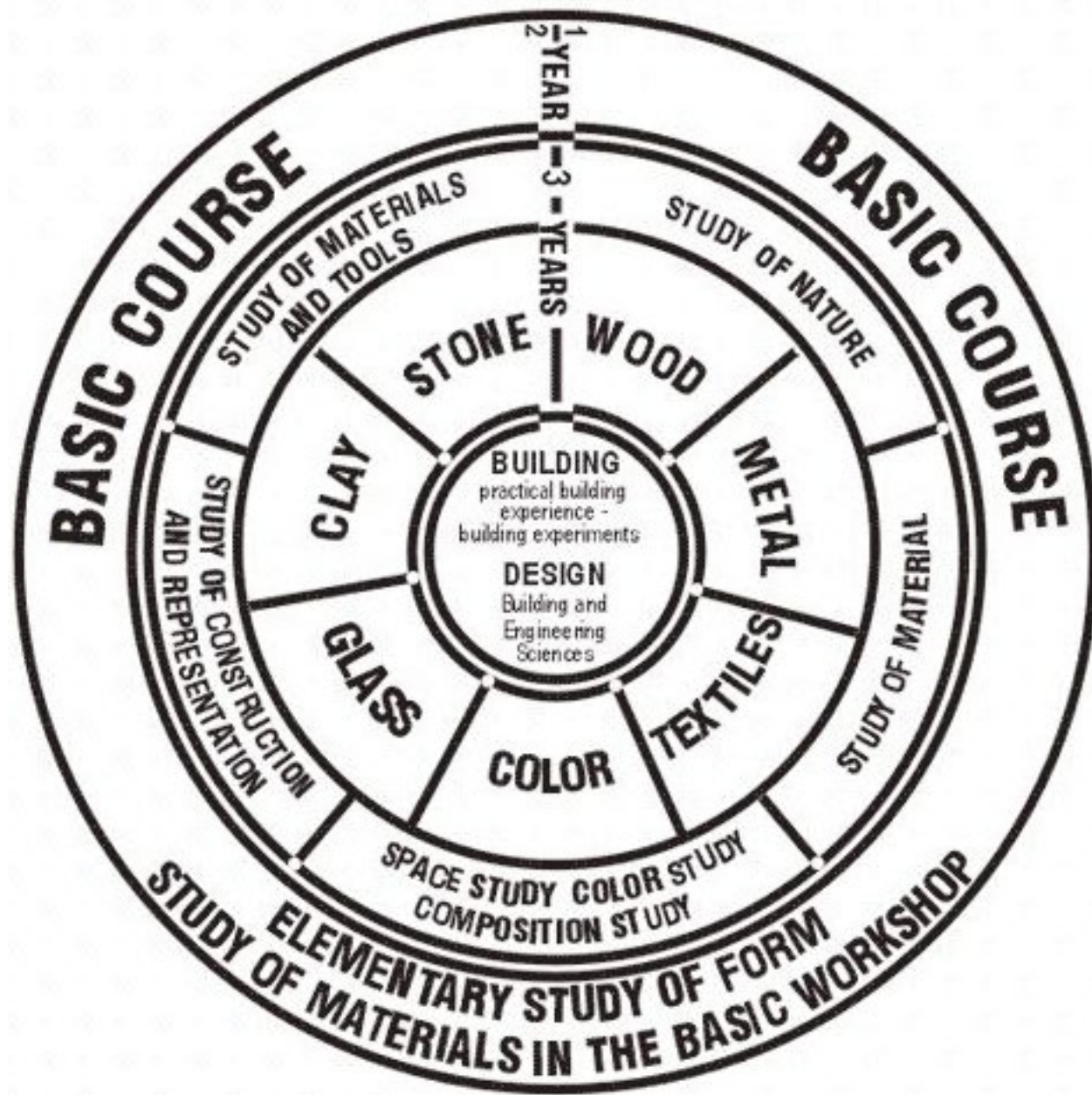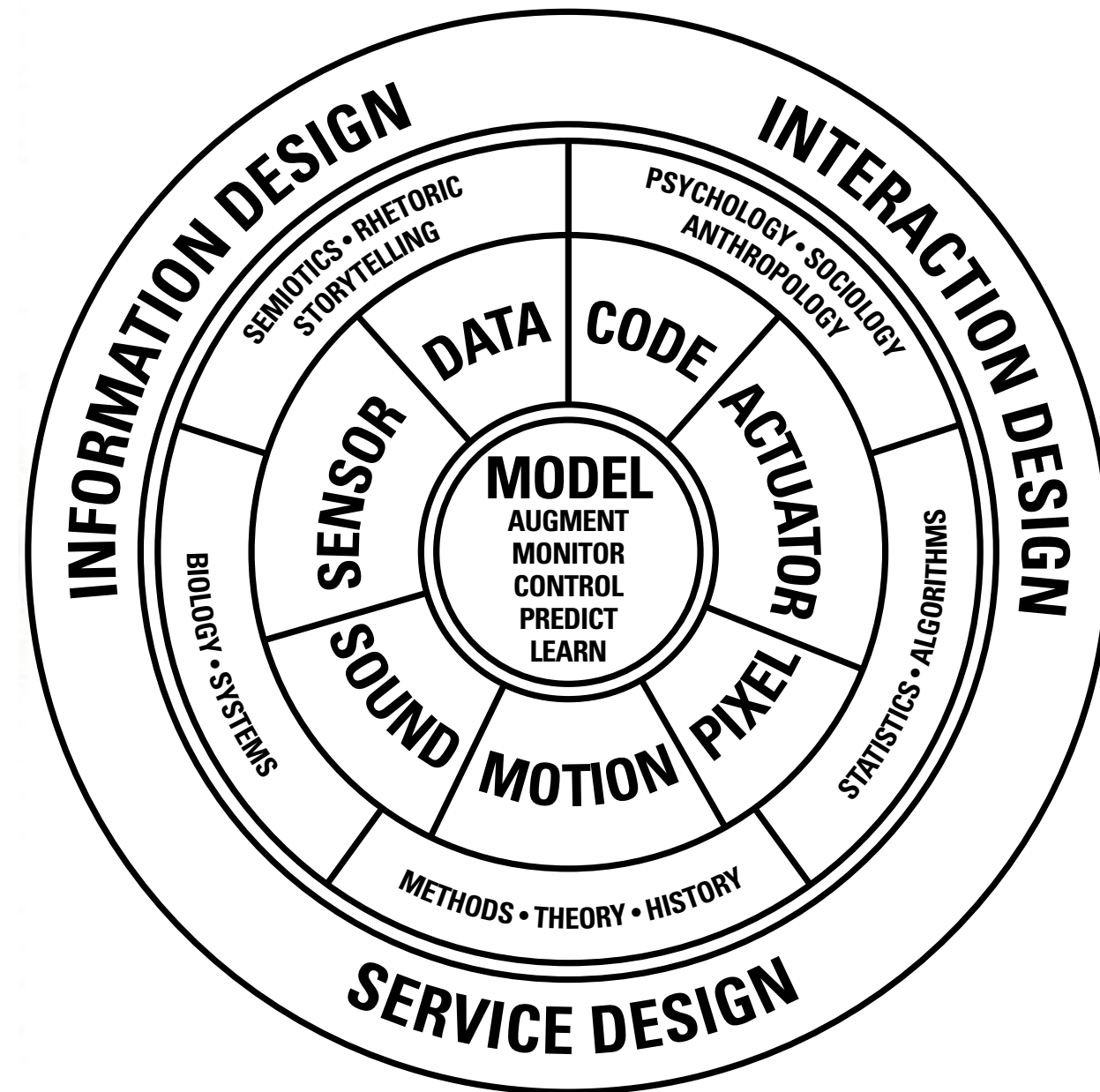# Three models for thinking about the future of design

Hugh Dubberly

Data, AI, and predictive models are the materials of design for the 21st century.
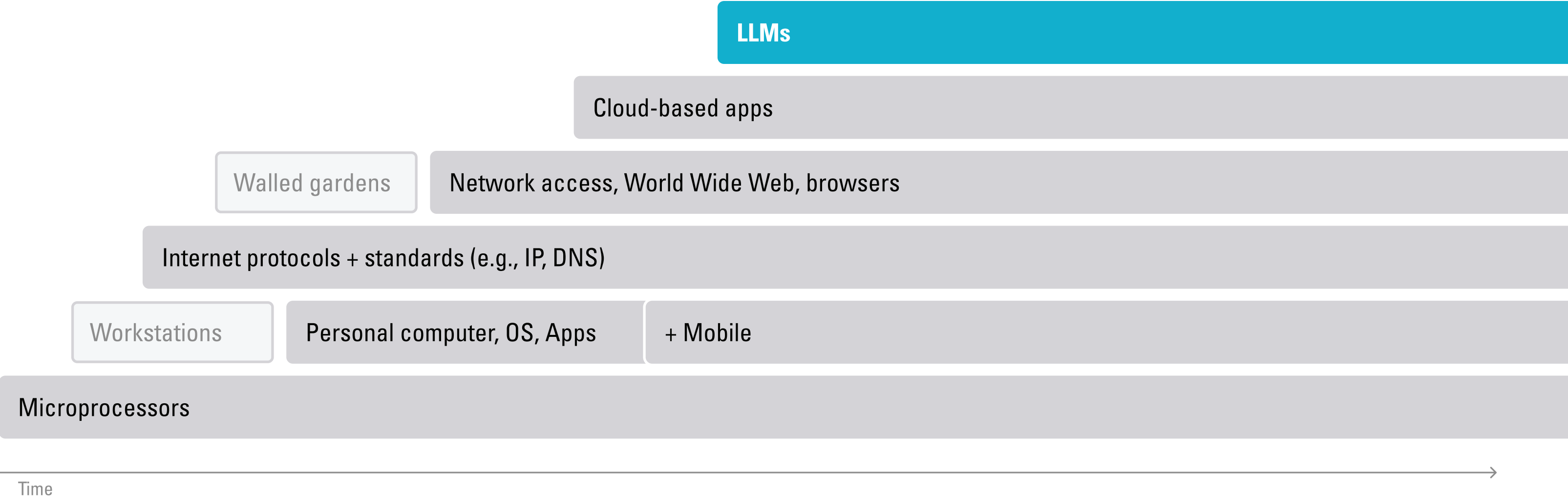

The Bauhaus Curriculum wheel...

...re-imagined for the information revolution

LLM's have become a new layer in the internet tech stack — available on-demand via API.

LLMs

Cloud-based apps

Walled gardens   Network access, World Wide Web, browsers

Internet protocols + standards (e.g., IP, DNS)

Workstations   Personal computer, OS, Apps   + Mobile

Microprocessors

Time →

New uses of LLMs are developing quickly:

1 After decades of research, they have reached enormous scale

2 ChatGPT 3.5 release; massive hype but mostly a curiosity

3 LLMs added to the search business: Microsoft Bing AI vs. Google Bard

4 Everyday use of LLMs by consumers for summarizing and drafting texts

5 Bolting LLMs onto existing applications:
ChatGPT + Domain-specific Knowledge Graphs = Built-in assistant features

6 Experiments with using LLMs to create network diagrams, e.g., concept maps

7 Apps built on the foundation of LLMs, e.g., custom proposal generators

LLMs and other AI models all tend to work in a similar fashion; **begin by compiling a large body of data.**

1. Gather histories

Sensors make a series of point-in-time measurements. As measurements accumulate, an historical record emerges.

Bots → crawl → Web Text + Images 1, 2, …, n → aggregate in → Catalog historical record
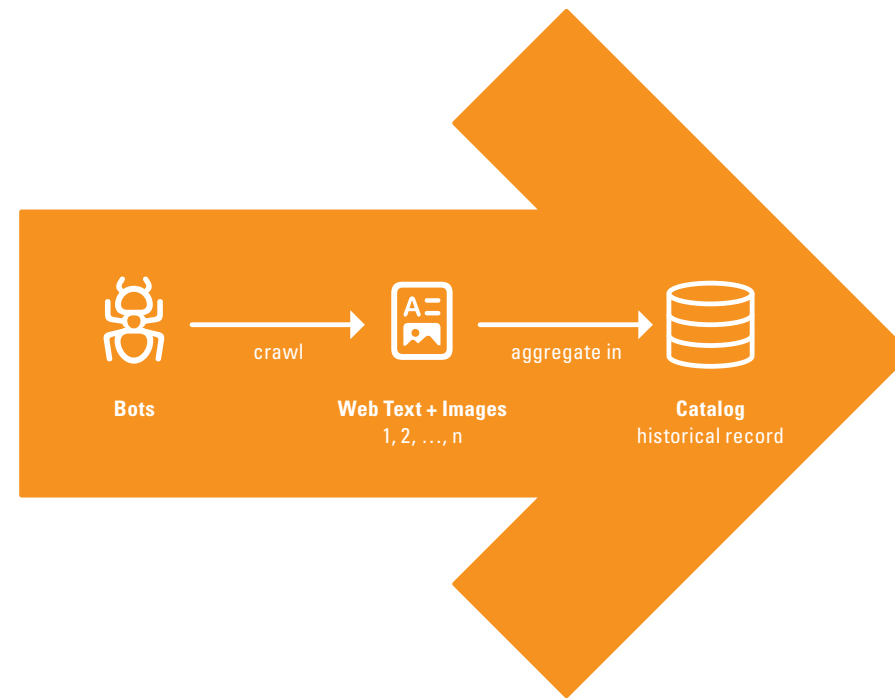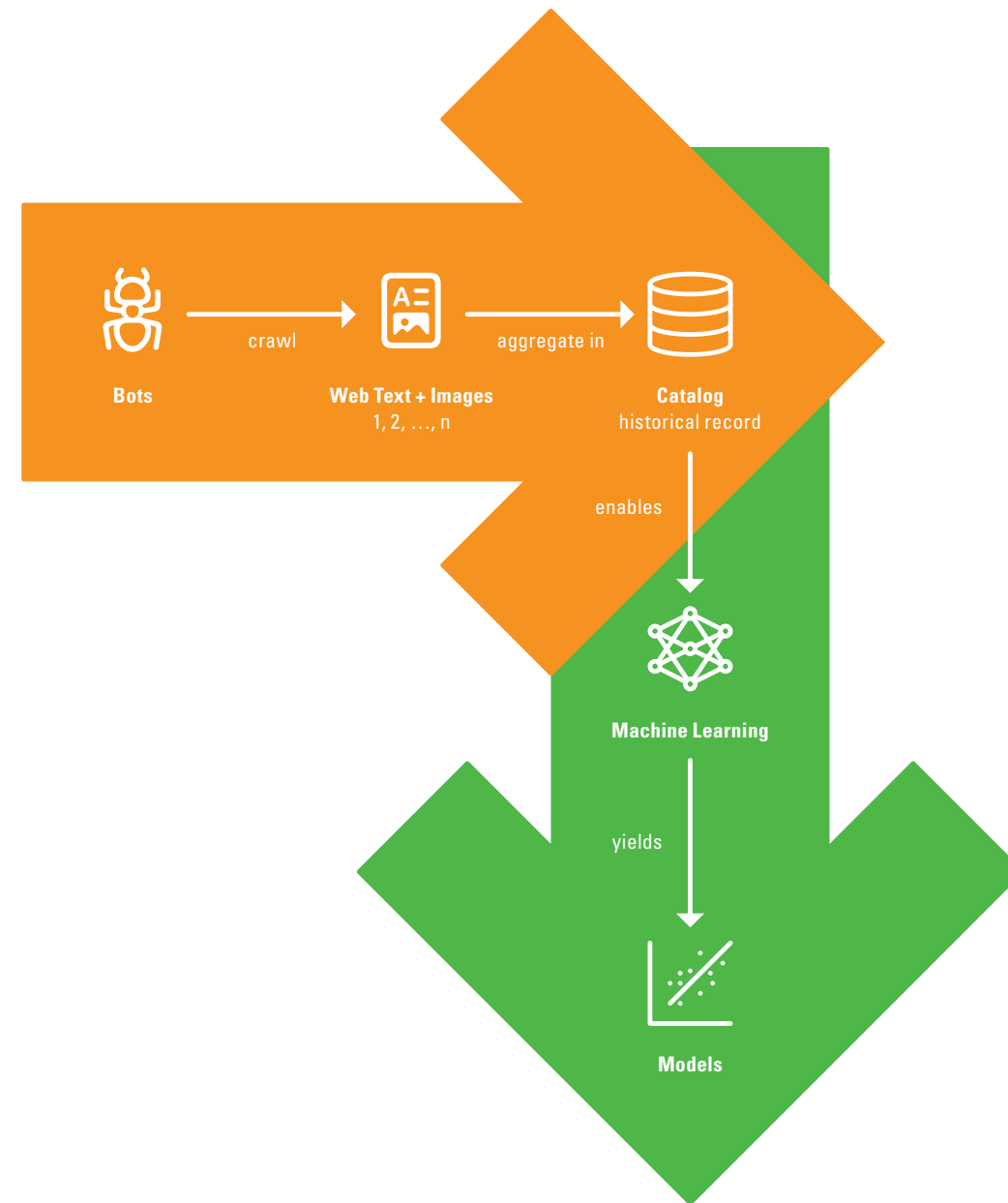
Then feed the data through an algorithm to create models —
in this case a neural network with hundreds of billions of parameters.

1. Gather histories
   Sensors make a series of
   point-in-time measurements.
   As measurements accumulate,
   an historical record emerges.

2. Derive models
   Sufficient historical data enable analysts
   to discover patterns and relationships—
   these are codified in models.

Bots

crawl

Web Text + Images
1, 2, …, n

aggregate in

Catalog
historical record

enables

Machine Learning

yields

Models

Finally, send a prompt to the model, which will predict what comes next.
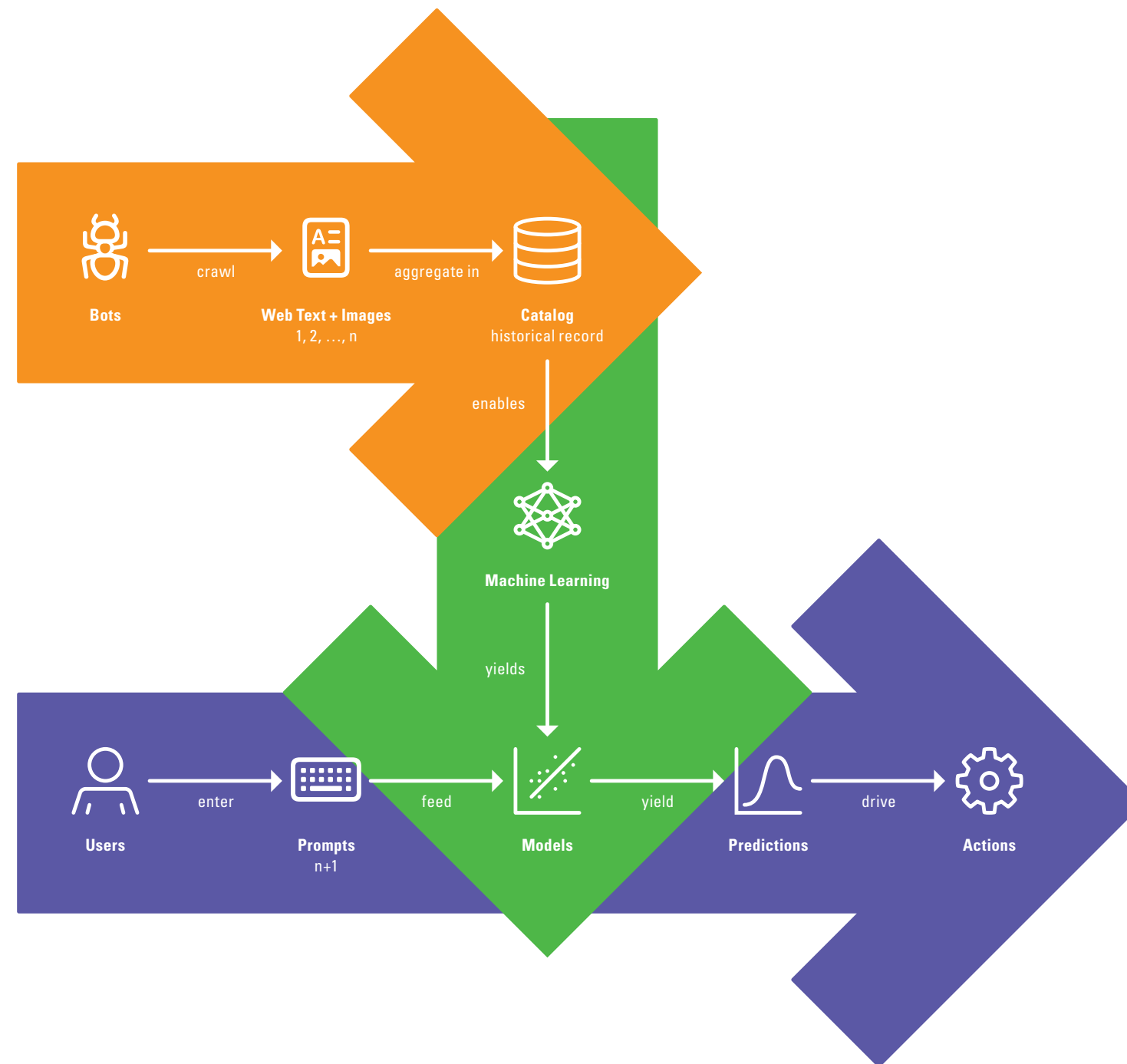
1. Gather histories
Sensors make a series of point-in-time measurements. As measurements accumulate, an historical record emerges.

2. Derive models
Sufficient historical data enable analysts to discover patterns and relationships—these are codified in models.

3. Predict futures
Once trained, new measurements are fed through the model to predict the future—enabling us to act today.

Bots — crawl → Web Text + Images 1, 2, …, n — aggregate in → Catalog historical record

enables

Machine Learning

yields

Users — enter → Prompts n+1 — feed → Models — yield → Predictions — drive → Actions

The results can then be returned as training data for the model to learn.

1. Gather histories
Sensors make a series of
point-in-time measurements.
As measurements accumulate,
an historical record emerges.

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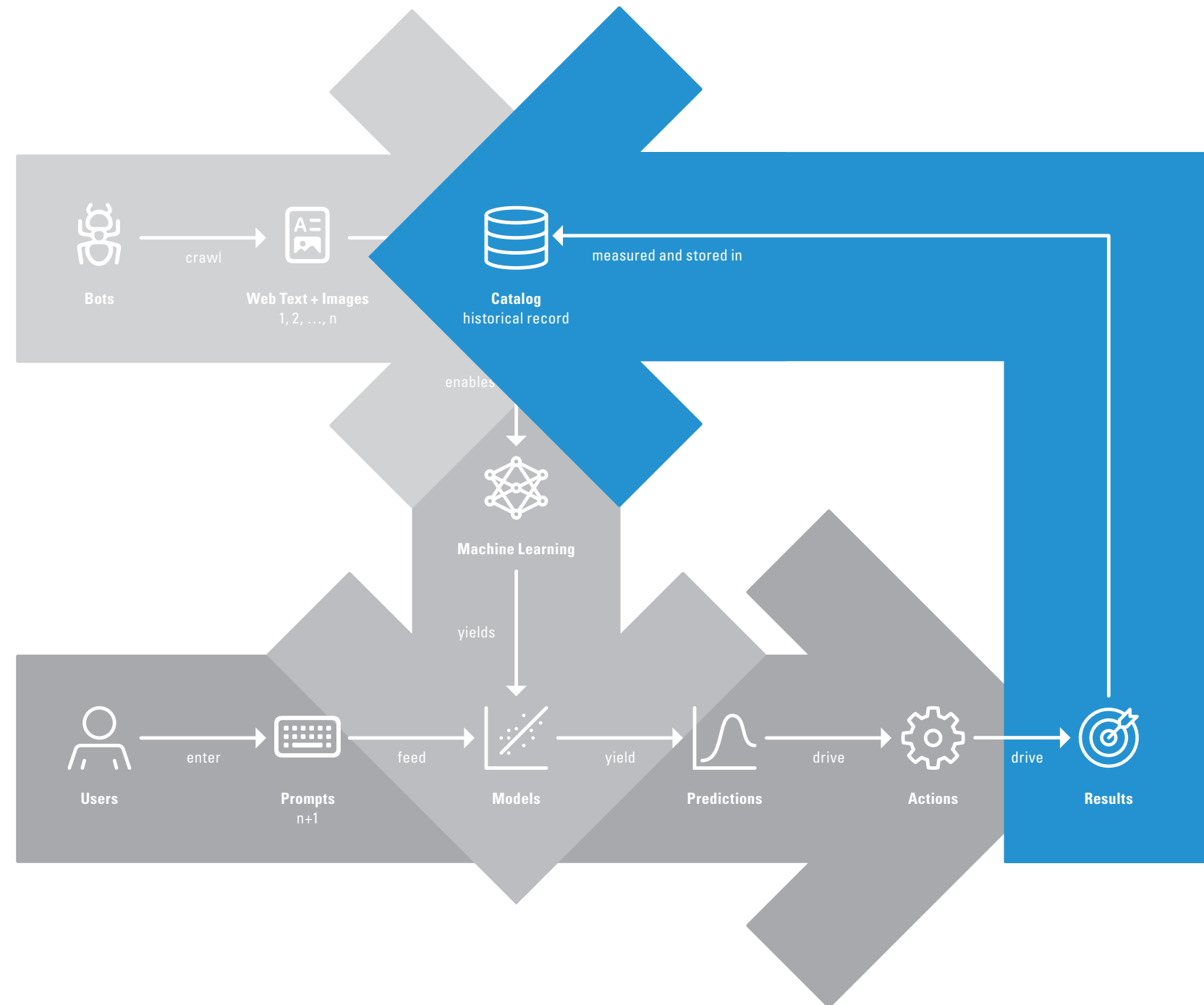
4. Improve performance
Additional measurements,
including observation of results,
enable iteration—and "learning."

Bots — crawl → Web Text + Images 1, 2, …, n → Catalog historical record ← measured and stored in

enables ↓

Machine Learning

yields ↓

Users — enter → Prompts n+1 — feed → Models — yield → Predictions — drive → Actions — drive → Results

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