

Chapter 2: Management of the Information Economy

TOPICS: ROLE OF INFORMATION IN BUSINESS - ELICITING INFORMATION DEMAND
- MANAGING INFORMATION SOURCES - MANAGING INFORMATION QUALITY

👑 Personas

👑 Balanced Scorecards

👑 Semantic Web

👑 Data Warehouses



Information Management

Managing Information Management

- IT Strategy
- IT Governance
- IT Processes
- IT HR
- IT Controlling
- IT Security

Management of the Information Economy

- Demand
- Supply
- Usage

Management of Information Systems

- Data
- Processes
- Application Life Cycle and Landscape

Management of Information and Communication Technologies

- Storage
- Processing
- Communicating
- Tech Stacks

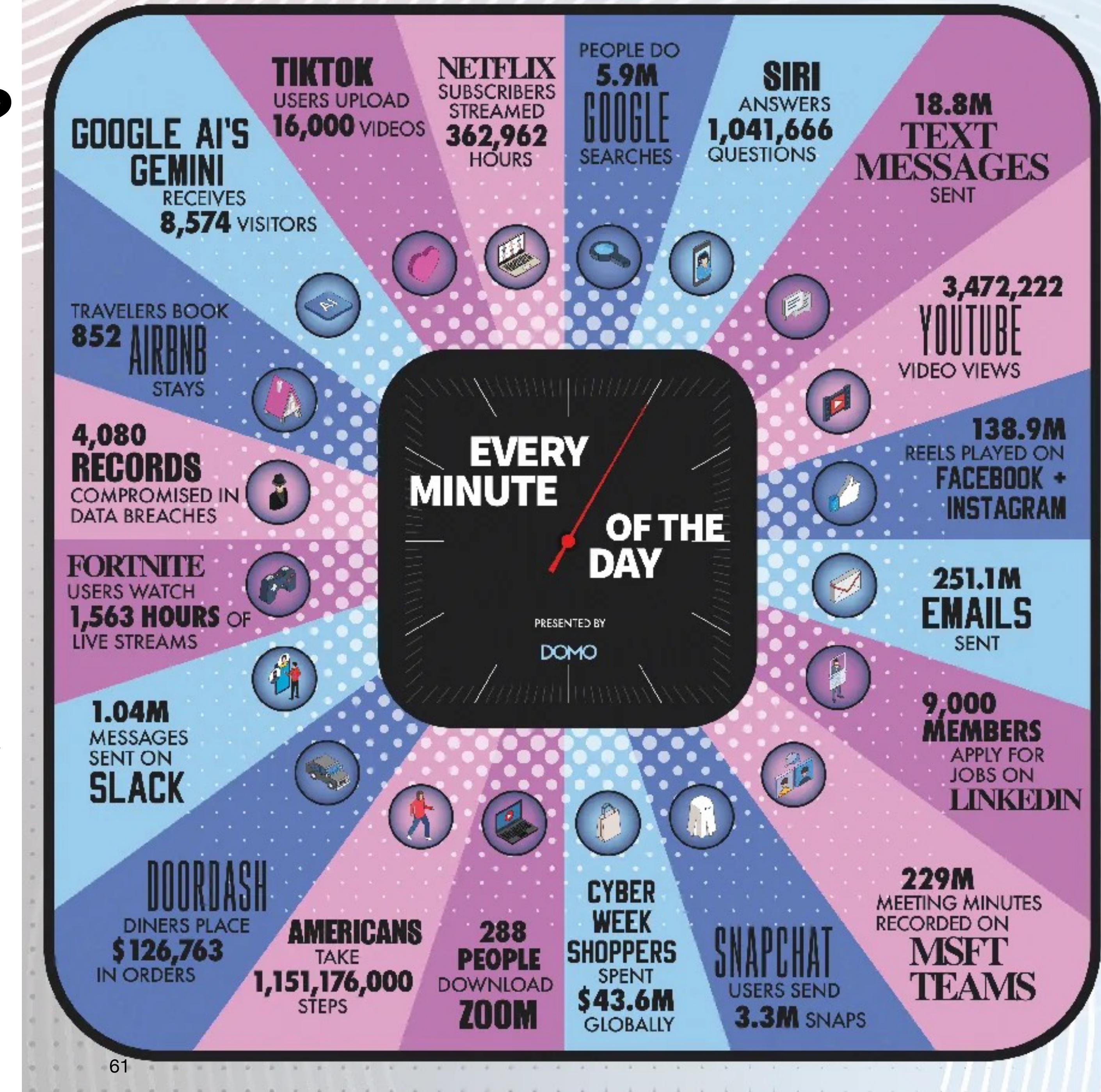
Information Economy?

Information Economy?

- The more information, the better.
- Plenty of data available.
- Decision makers don't need data, but **information**.
- Decisions still have to be made faster and faster (-> global competition)

Bottomline: We need information systems to convert data to relevant information (at real time).

<https://uk.pcmag.com/the-why-axis-serie/155957/gone-in-60-seconds-heres-what-happens-on-the-internet-every-minute>

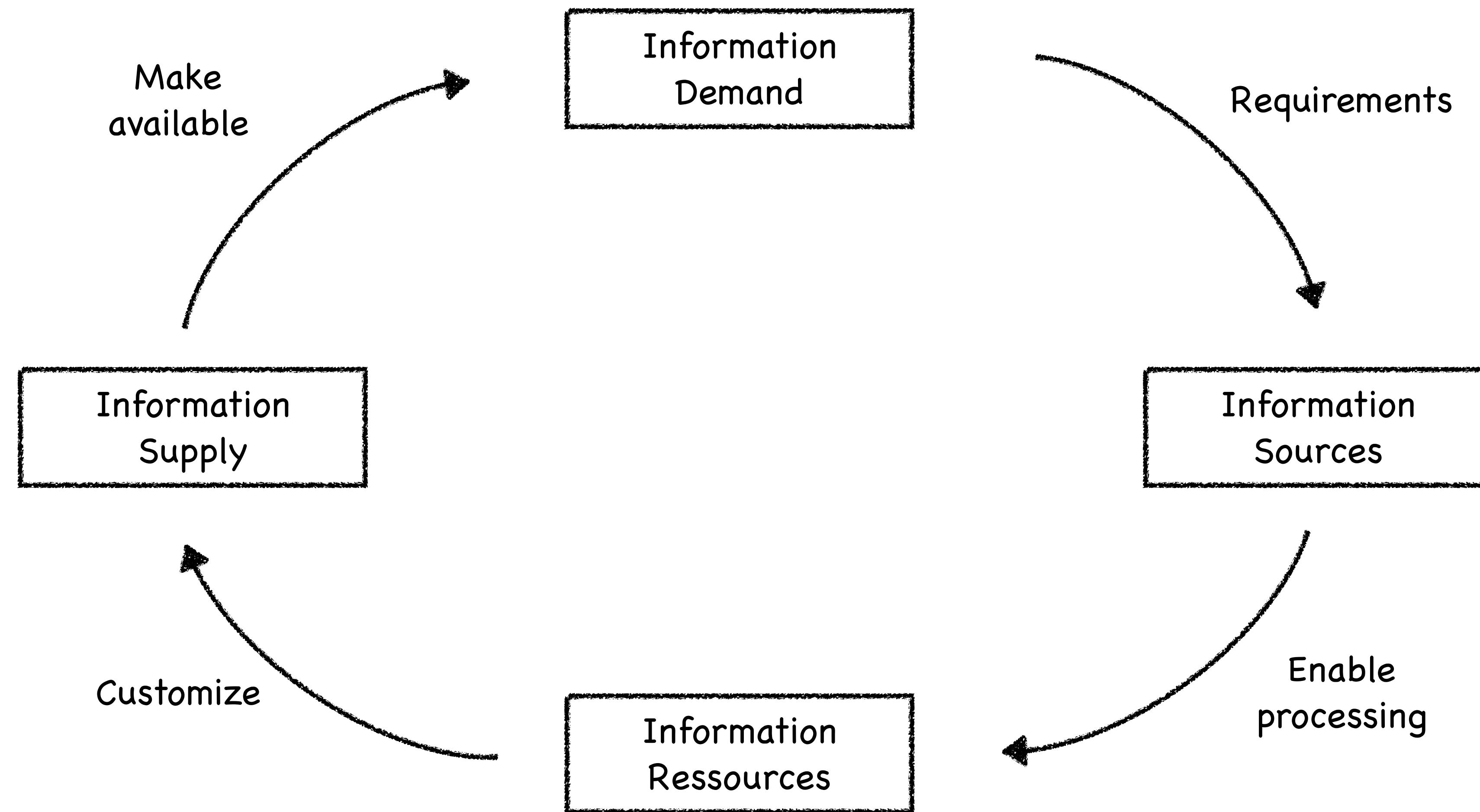


Information Logistics

- Logistics originally defined by Jomini (1830) as ...
... the art of well-ordering the functionings of an army, of well combining the order of troops in columns, the times of their departure, their itinerary, the means of communication necessary to assure their arrival at a named point ...
- The *logistical principle* as defined by Augustin (1990):
Supply
 - the right information
 - at the right time
 - in the right amount
 - at the right place
 - in the required quality.

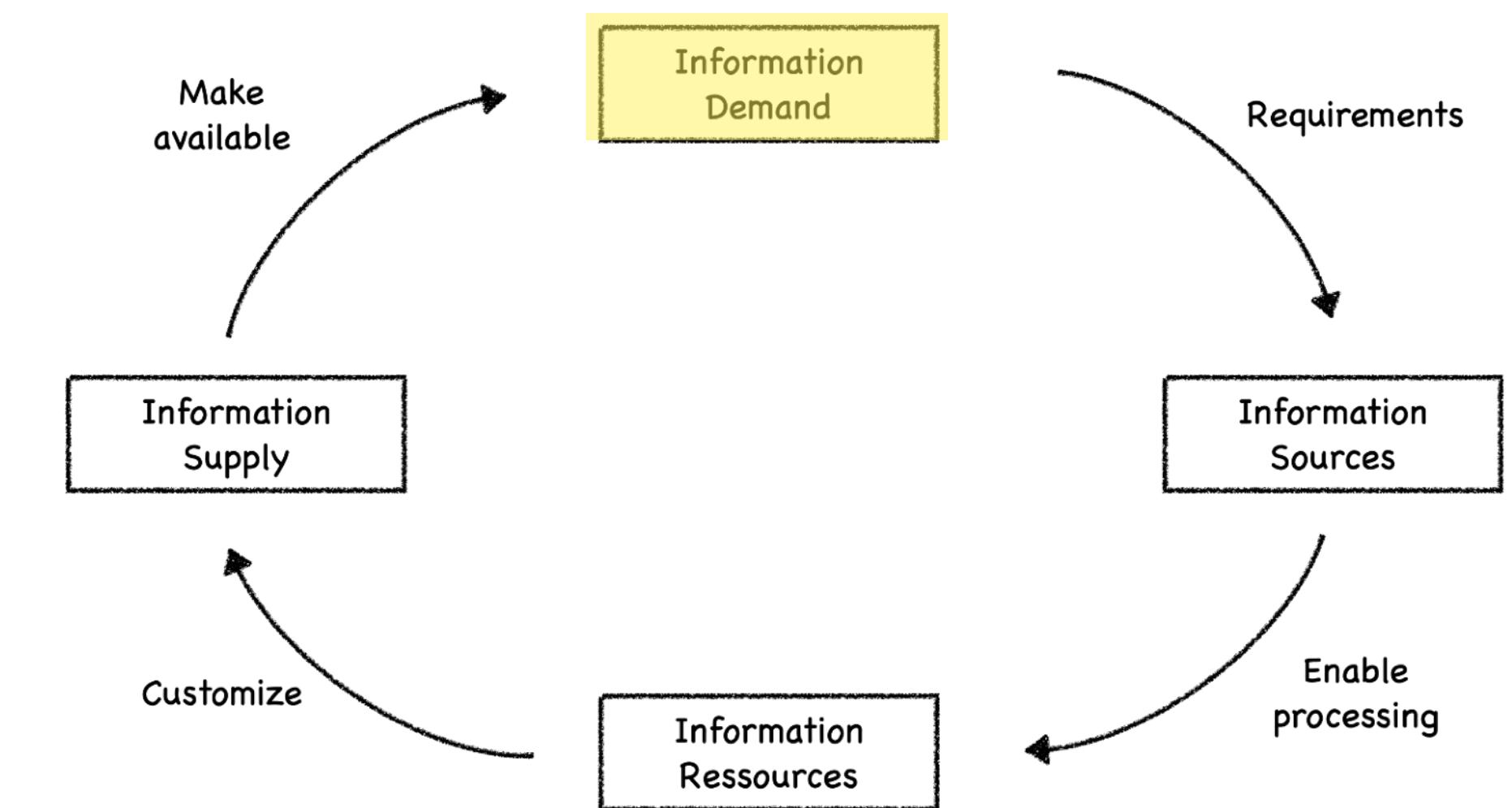
Baron de Jomini (1830). Tableau Analytique des principales combinaisons De La Guerre, Et De Leurs Rapports Avec La Politique Des États: Pour Servir D'Introduction Au Traité Des Grandes Opérations Militaires. p. 74.
Quoted after <https://en.wikipedia.org/wiki/Logistics>

Augustin, S. (1990). Information als Wettbewerbsfaktor: Informationslogistik – Herausforderung an das Management. Köln.



Step 1: Eliciting information demand.

- ① Identify stakeholders and personas.
- ② Elicit people's needs and perceptions.
- ③ Understand company needs.



Step 1: Eliciting information demand

- **Subjective approaches:**

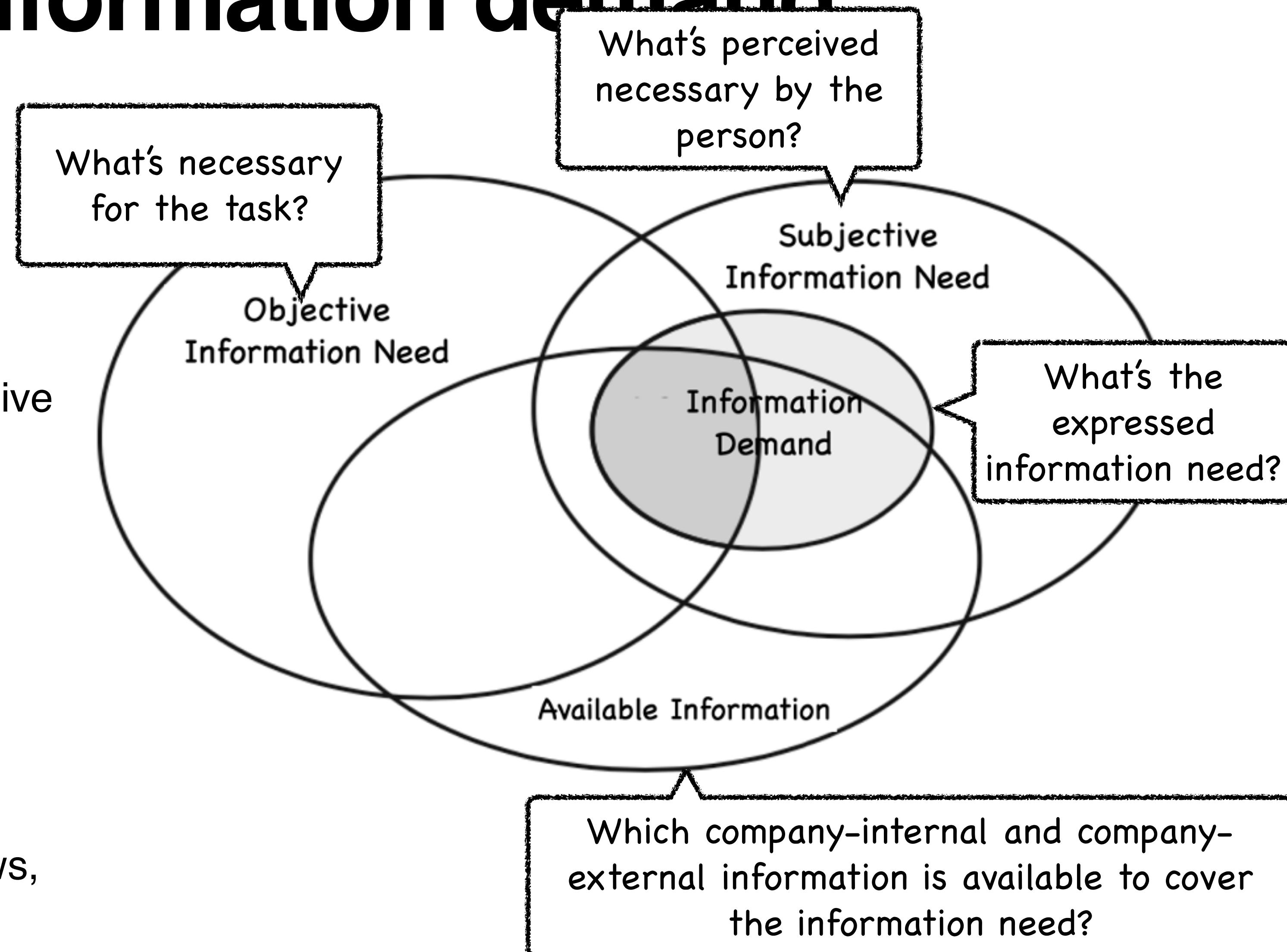
Deriving requirements based on a subjective interpretation of the task
(Interviews, Wishlists)

- **Objective approaches:**

Deriving requirements based on an interpretation that is inter-subjectively validated
(Strategic Analysis, Process Analysis)

- **Mixed Approaches**

(First e.g. process analysis, then interviews, status quo analysis)



Step 1: Eliciting information demand

① Stakeholders and personas

A **Stakeholder** is a person or organization who influences a system's requirements or who is impacted by that system.

Note: Influence can also be indirect. For example, some stakeholders may have to follow instructions issued by their managers or organizations.

Glinz, Martin. "A glossary of requirements engineering terminology." Standard Glossary of the Certified Professional for Requirements Engineering (CPRE) Studies and Exam, Version 2.0.0 (2020)

Different stakeholders have **different interests, different values** and, thus, **different requirements**:

- Senior management
- Middle management
- Operational management
- Knowledge workers
- Data workers
- Production or service workers

Step 1: Eliciting information demand

RE-related considerations

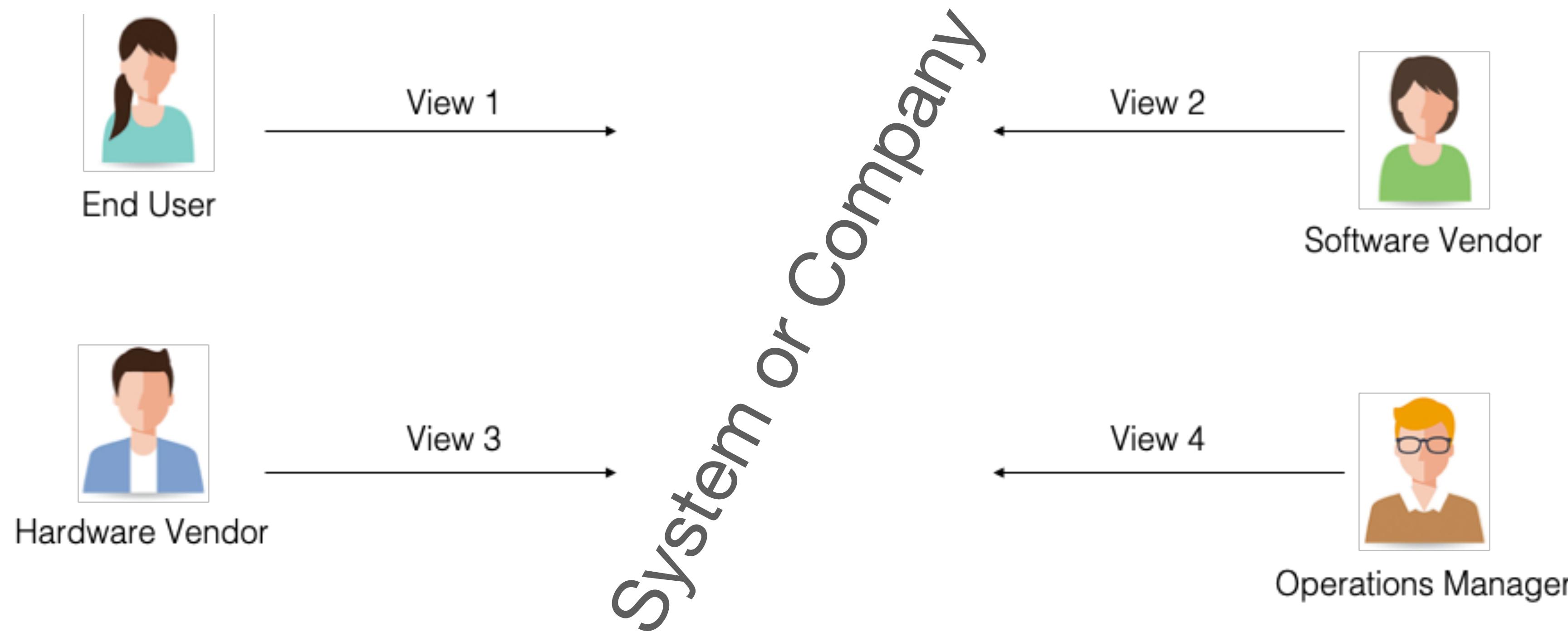
- Relevance for the project success
- Ability to commit to the project (with resources)
- Ability to approve requirements
- Ability/interest to formulate requirements
- Type of the interests and underlying goals
- ...

Project-related considerations

- The decision-making process
- The reporting lines
- The “chain of command”
- ...

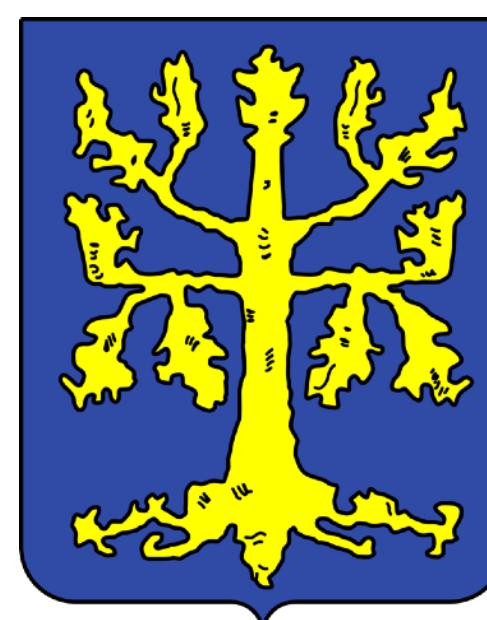
Step 1: Eliciting information demand

Views and view points of stakeholders





Choose your fighter:



Munich RE



URBANMAKER



OpenAI



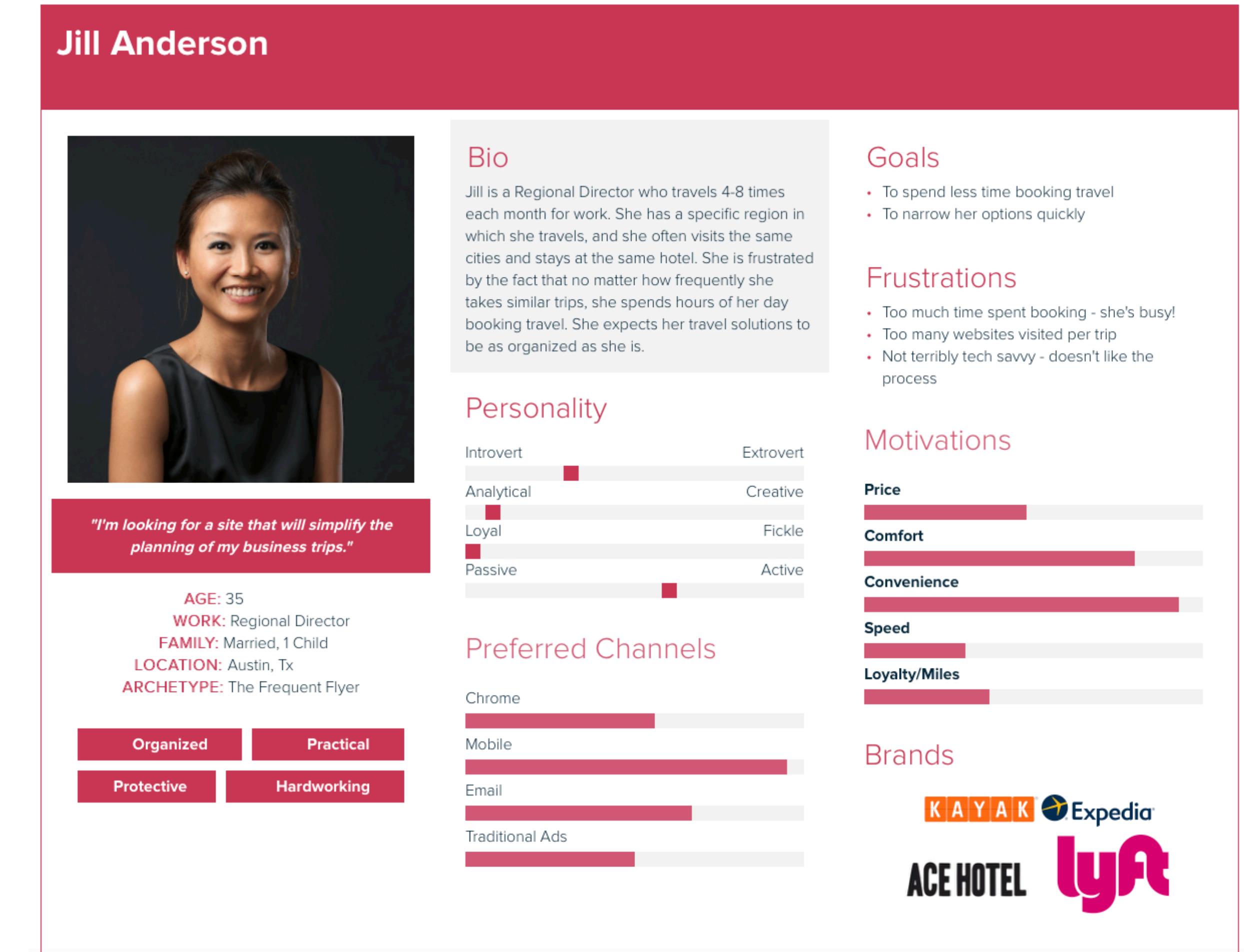
WAEZHLZ

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Step 1: Eliciting information demand

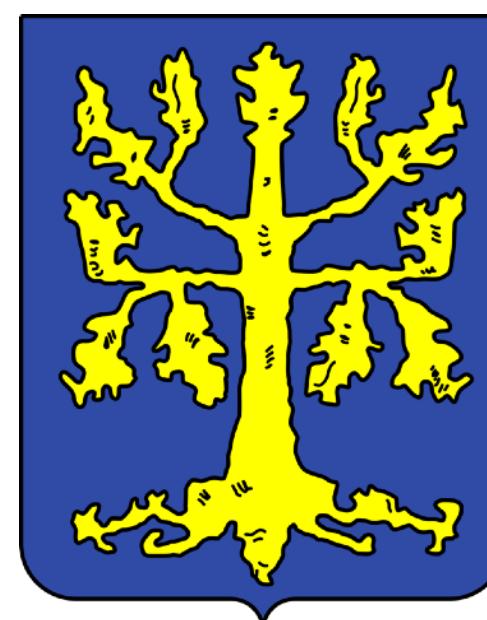
① Stakeholders and personas

- Personas are fictional individuals representing a user group
- An approach for analyzing and describing the user of a system
- Clear guidance instead of “elastic” user
- Data is collected empirically, then clustered, and prioritized





Choose your fighter:



Munich RE



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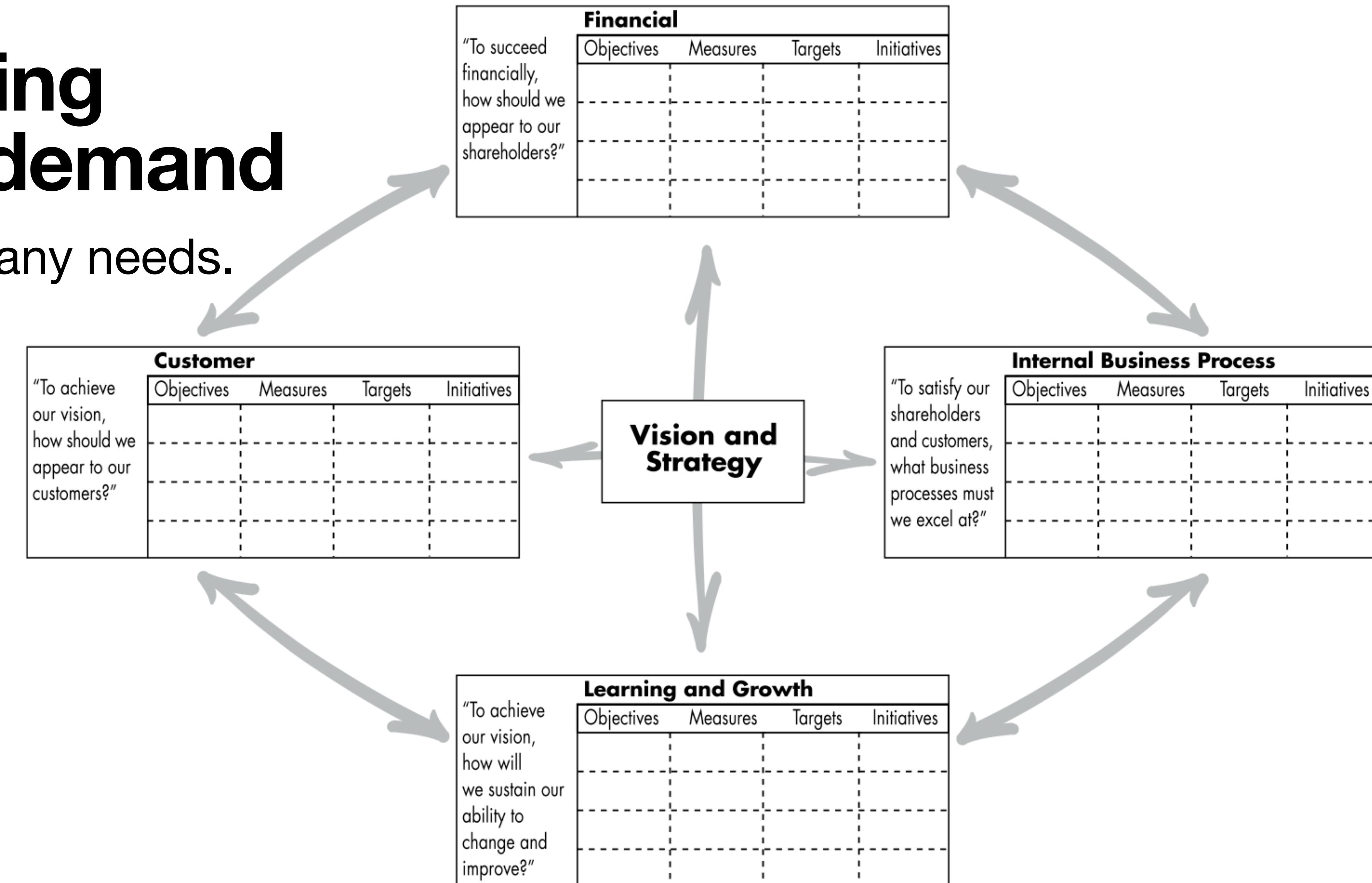
Step 1: Eliciting information demand

③ Understand company needs.



Step 1: Eliciting information demand

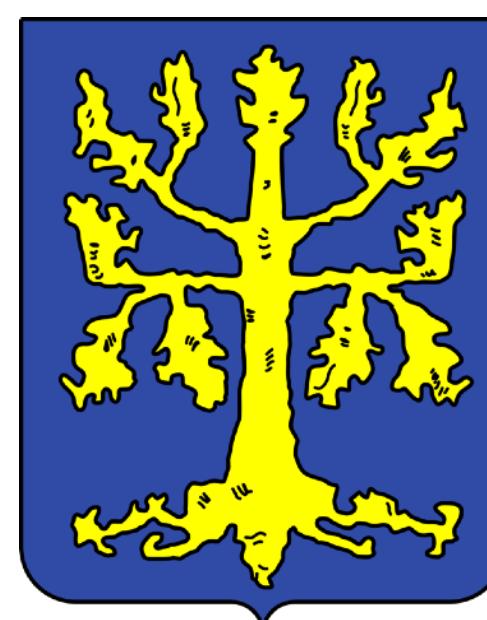
③ Understand company needs.



Kaplan, R. S., & Norton, D. P. (1996). Using the Balanced Scorecard as a Strategic Management System. Harvard Business Review, 74(1), 75–85.



Choose your fighter:



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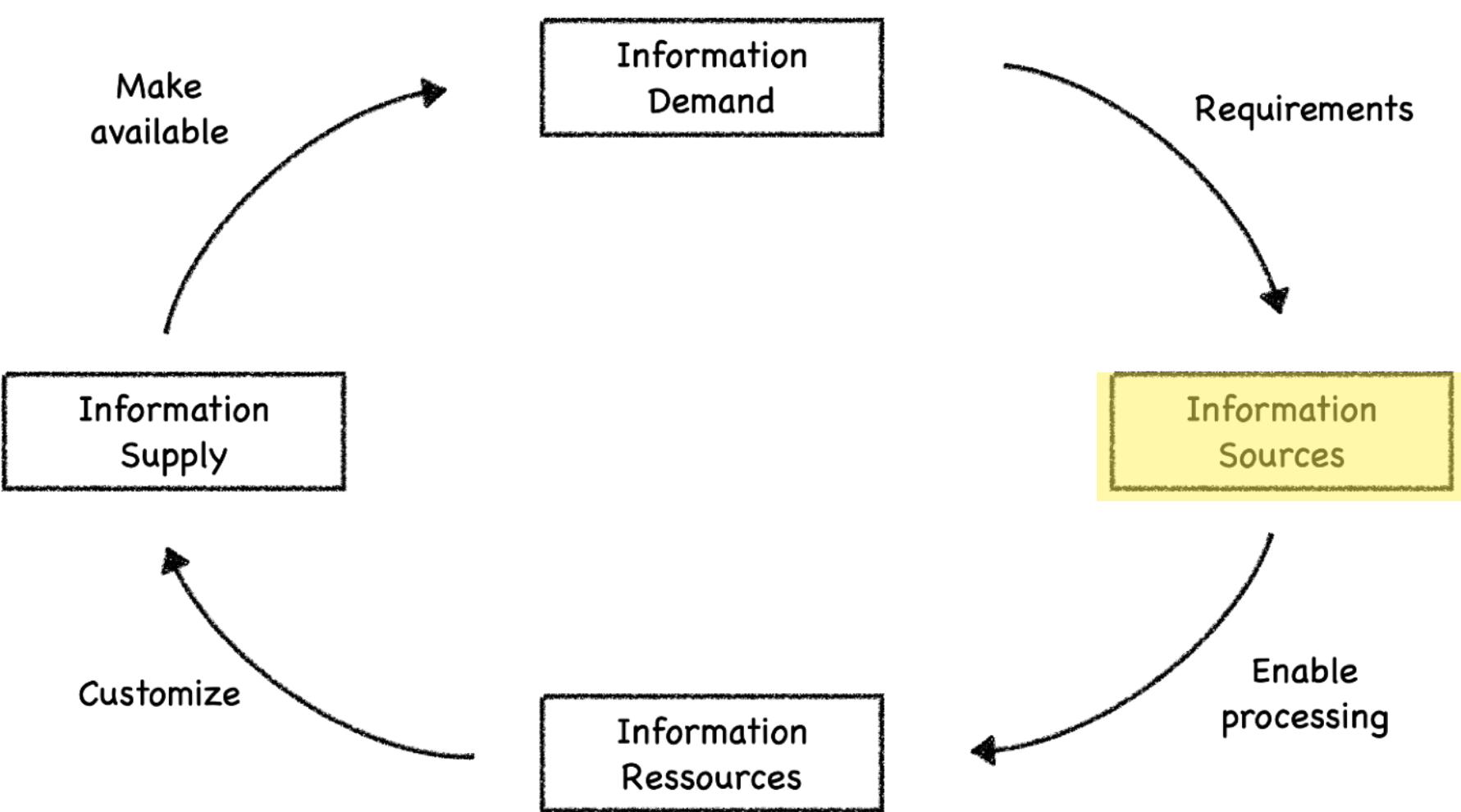
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Step 2: Managing Information Sources.



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Information can come from different sources

	Internal Information Source	External Information Source
Internal Information Demand	Enterprise Systems	Specialized information
External Information Demand	Publications, P.R., Investor relations, etc.	

- Providing external information to people outside of the own organization is not relevant for organizational information management (unless it is a core value proposition of the company, e.g., a newspaper company)
- Providing internal information to external stakeholders is a classical task of public relations, investor relations, etc.
- The focus of information management is on fulfilling the internal information demand, and here especially on matching internal information demand and supply using enterprise systems

Information Quality

Contextual Qualities

Currentness

Completeness

Appropriate Scope

Relevance

Presentational Qualities

Understandability

Clarity

Uniformity

Unambiguity

Intrinsic Qualities

Reliability

Correctness

Objectivity

Credibility

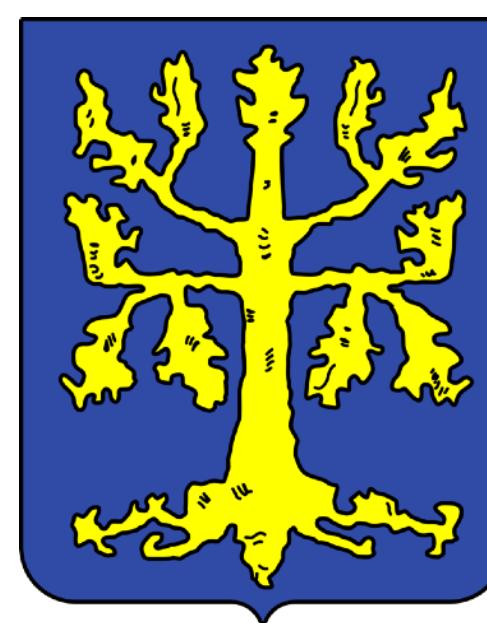
Access Qualities

Accessibility

Maintainability



Choose your fighter:



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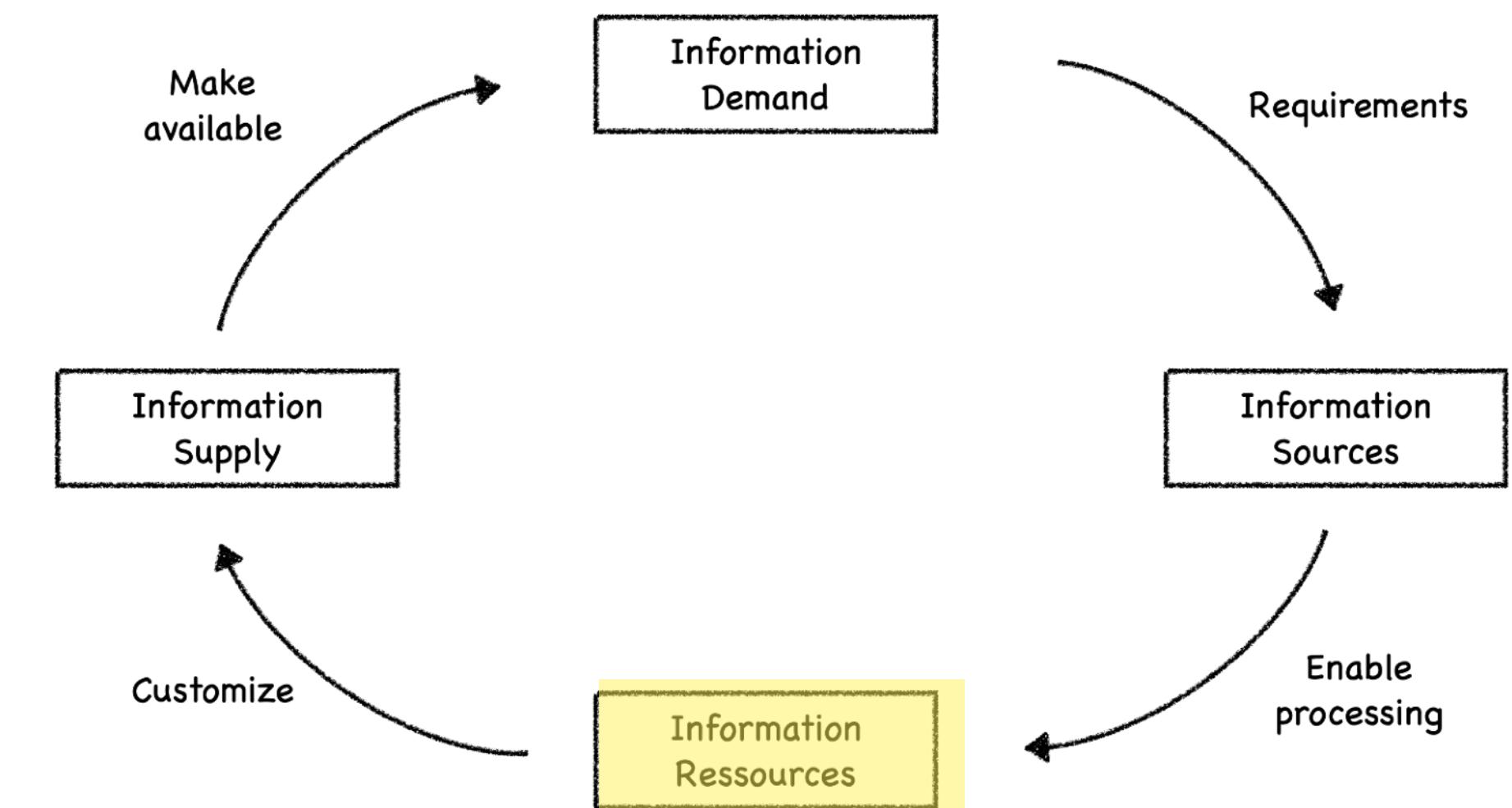
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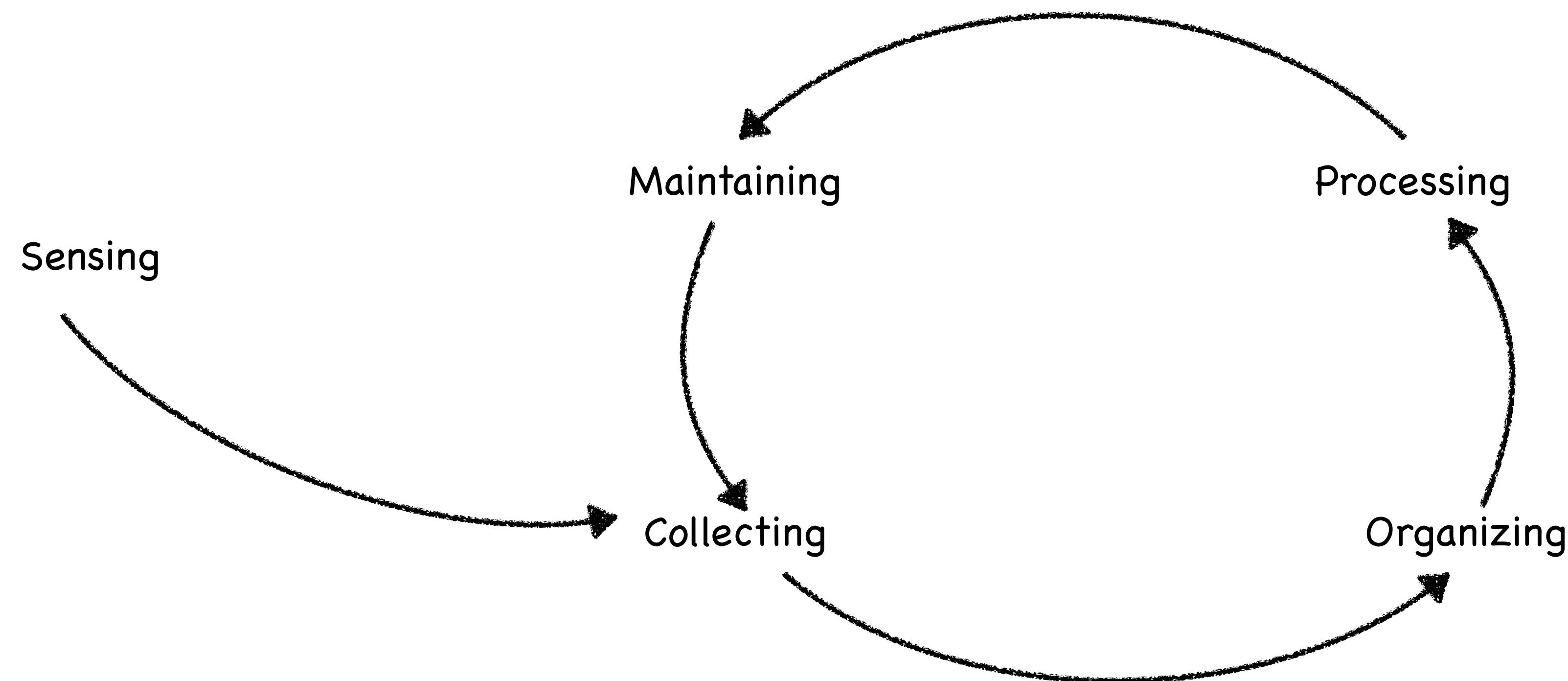
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Step 3: Managing Information Resources.



Information Life Cycle



Different ways to manage information resources

- Information sources that are *used recurrently* are called *information resources*
- Managing these information resources based on:
 - Hierarchies, e.g. Taxonomy
 - Keywords, e.g. Thesaurus, Tags
 - Graphs, e.g. Semantic Web

Different ways to manage information resources

Taxonomies

Management		
Outline of business management · Index of management articles		
[hide]		
By type of organization	Academic · Association · Business (Restaurant) · Healthcare · Military · Public	
By focus (within an organization)	By scope	Strategic (top-level) Capability · Change · Communication · Financial · Innovation · Performance · Risk · Systems
		By component Facility · Product (Product lifecycle · Brand) · Program · Project (Construction)
	By activity or department managed	Line Marketing · Operations/production (Process · Quality) · Sales Staff Accounting · Office · Records
	By aspect or relationship	Customer relationship · Engineering · Logistics · Perception · Supply chain · Talent
	By problem	Conflict · Crisis · Stress
	By resource	Environmental resource · Field inventory · Human resources · Information · Information technology · Knowledge · Land · Materials · Skills · Technology · Time
Management positions	Interim · Middle · Senior	
Methods and approaches	Adhocracy · Collaborative method · Distributed · Earned value management · Evidence-based management · Full Range of Leadership Model · Management by objectives · Management style · Macromangement · Micromanagement · Scientific management · Social entrepreneurship · Team building · Virtual management	
Management skills and activities	Decision-making · Forecasting · Leadership	
Pioneers and scholars	Peter Drucker · Eliyahu M. Goldratt · Oliver E. Williamson	
Education	Association of Technology, Management, and Applied Engineering · Business school · Certified Business Manager · Chartered Management Institute · Critical management studies · Degrees (Bachelor of Business Administration · Master of Business Administration · PhD in management) · Organizational studies	
Other	Administration · Collaboration · Corporate governance · Executive compensation · Management consulting · Management control · Management cybernetics · Management development · Management fad · Management system · Managerial economics · Managerial psychology · Managerialism · Organization development · Organizational behavior management · Pointy-haired Boss · Williamson's model of managerial discretion	

Different ways to manage information ressources

Tagging

Information management

From Wikipedia, the free encyclopedia

For the library science degree, see [Master of Information Management](#).

Not to be confused with [Content management](#) or [Knowledge management](#).

Information management (IM) concerns a cycle of organizational activity: the acquisition of [information](#) from one or more sources, the custodianship and the distribution of that information to those who need it, and its ultimate disposal through [archiving](#) or deletion.

This cycle of information organisation involves a variety of [stakeholders](#), including those who are responsible for assuring the [quality](#), [accessibility](#) and [utility](#) of acquired information; those who are responsible for its safe [storage](#) and [disposal](#); and those who need it for [decision making](#). Stakeholders might have rights to originate, change, distribute or delete information according to organisational information management [policies](#).

Information management embraces all the generic concepts of management, including the [planning](#), [organizing](#), structuring, [processing](#), [controlling](#), [evaluation](#) and [reporting](#) of information activities, all of which is needed in order to meet the needs of those with organisational roles or functions that depend on information. These generic concepts allow the information to be presented to the audience or the correct group of people. After individuals are able to put that information to use, it then gains more value.

Information management is closely related to, and overlaps with, the management of [data](#), [systems](#), [technology](#), [processes](#) and – where the availability of information is critical to organisational success – [strategy](#). This broad view of the realm of information management contrasts with the earlier, more traditional view, that the [life cycle](#) of managing information is an operational matter that requires specific procedures, organisational capabilities and standards that deal with information as a [product](#) or a [service](#).

[Contents \[hide\]](#)

Information science

General aspects

Access · Architecture · Behavior · Management
· Retrieval · Seeking · Society ·
Knowledge organization · Ontology · Philosophy
· Science and technology studies · Taxonomy

Related fields and sub-fields

Bibliometrics · Categorization · Censorship ·
Classification · Computer data storage ·
Cultural studies · Data modeling · Informatics ·
Information technology · Intellectual freedom ·
Intellectual property ·
Library and information science · Memory ·
Preservation · Privacy ·
Quantum information science

V · T · E

Different ways to manage information ressources

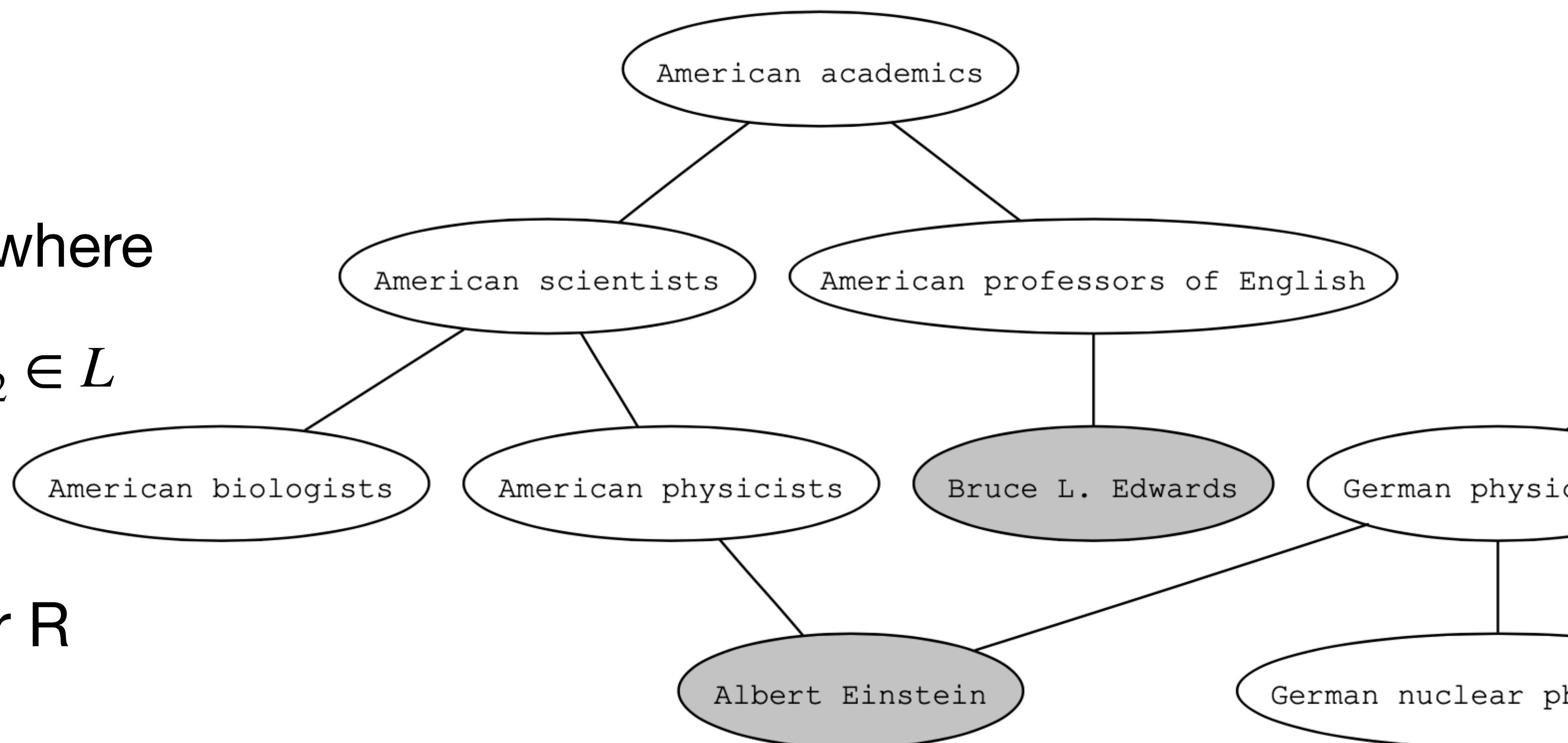
Taxonomies

Taxonomy T consists of:

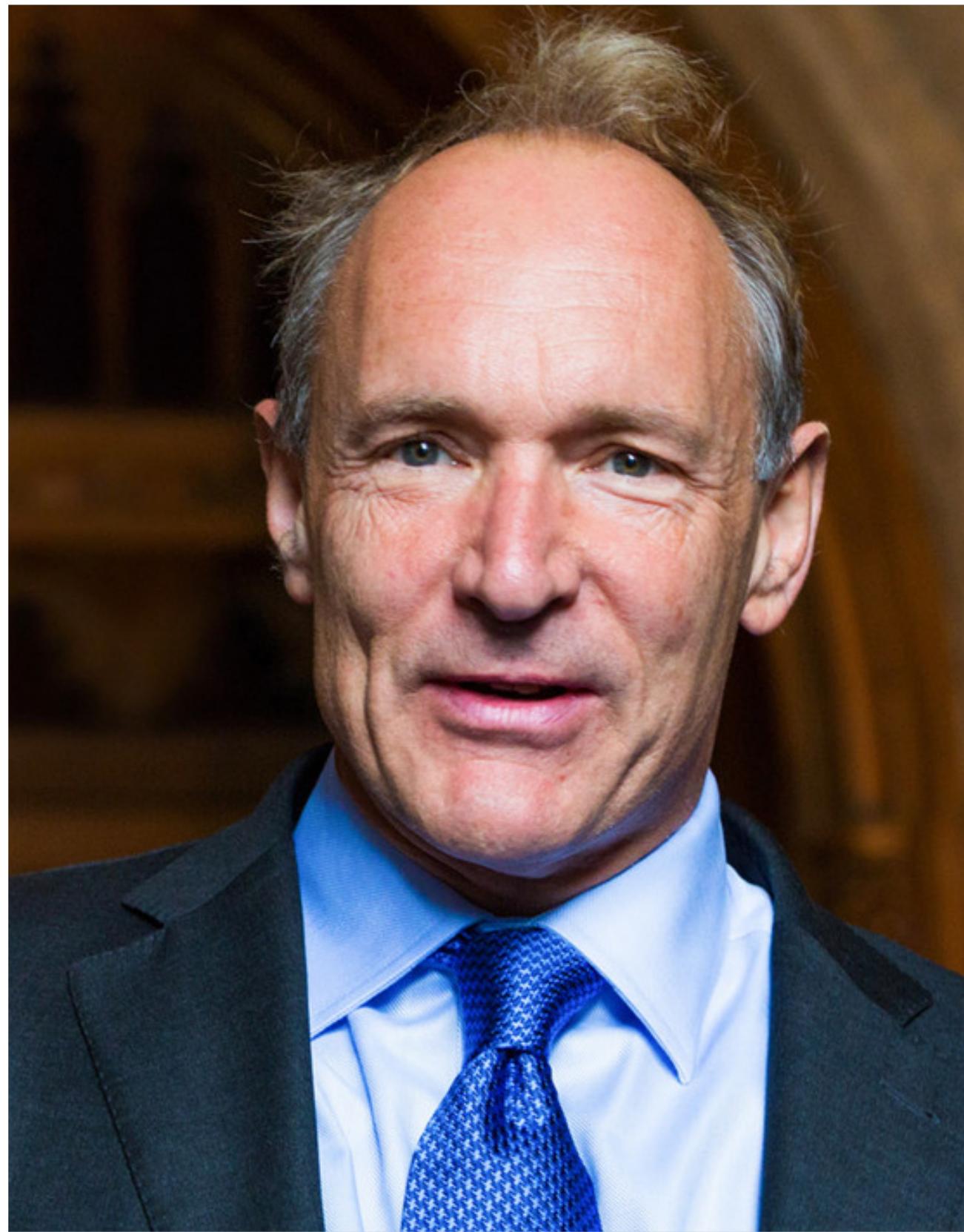
- a set of labels L
- a set R of relationships r, where

$$\forall r \in R \mid r = < l_1, l_2 > \text{ with } l_1, l_2 \in L$$

- Careful: Each label can be an *instance* or a *class* with varying semantics for R



Example: Semantic Web

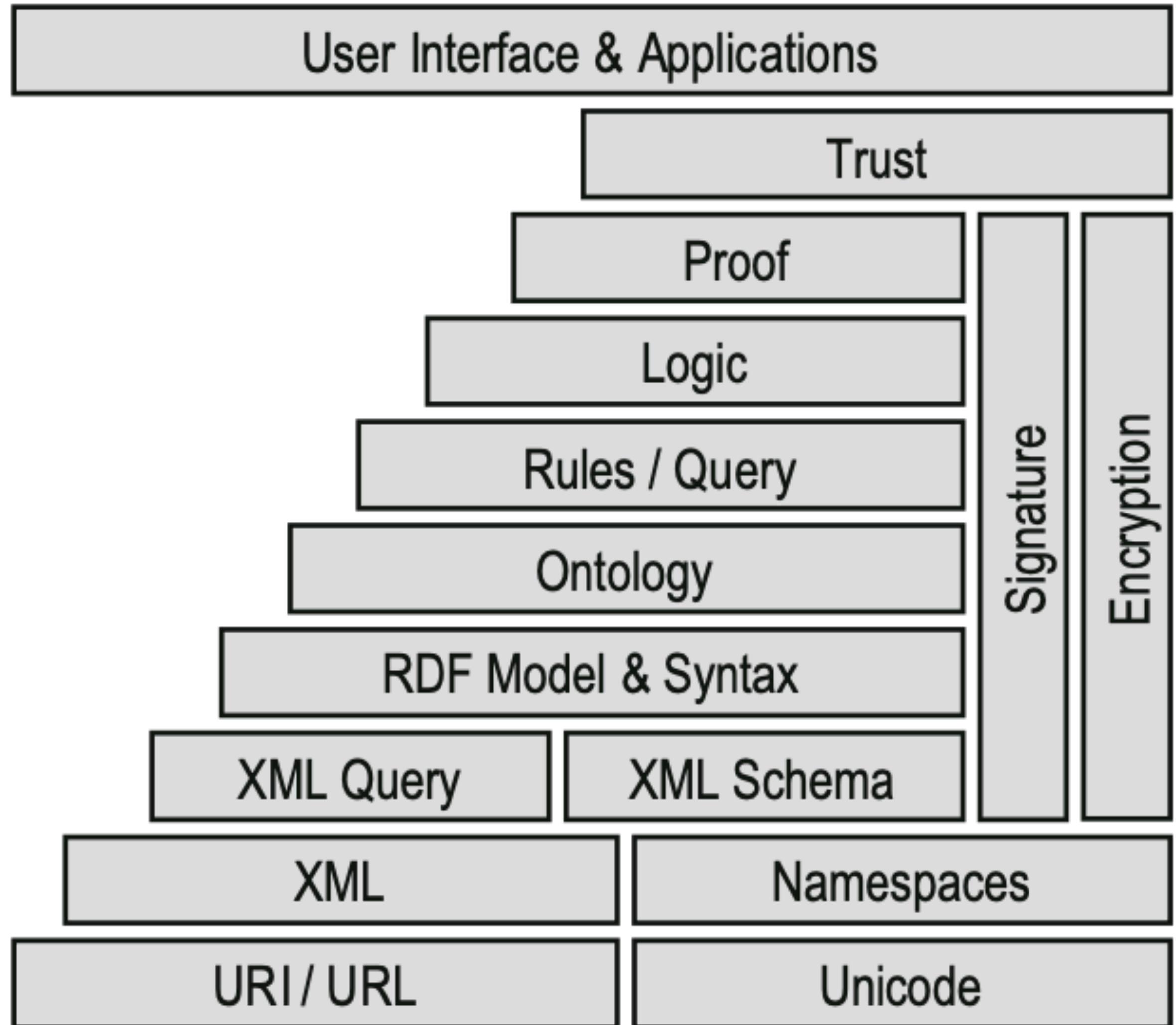


I have a dream for the Web [in which computers] become capable of analyzing all the data on the Web – the content, links, and transactions between people and computers. A "Semantic Web", which makes this possible, has yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines. The "intelligent agents" people have touted for ages will finally materialize.

— Tim Berners-Lee

Example: Semantic Web

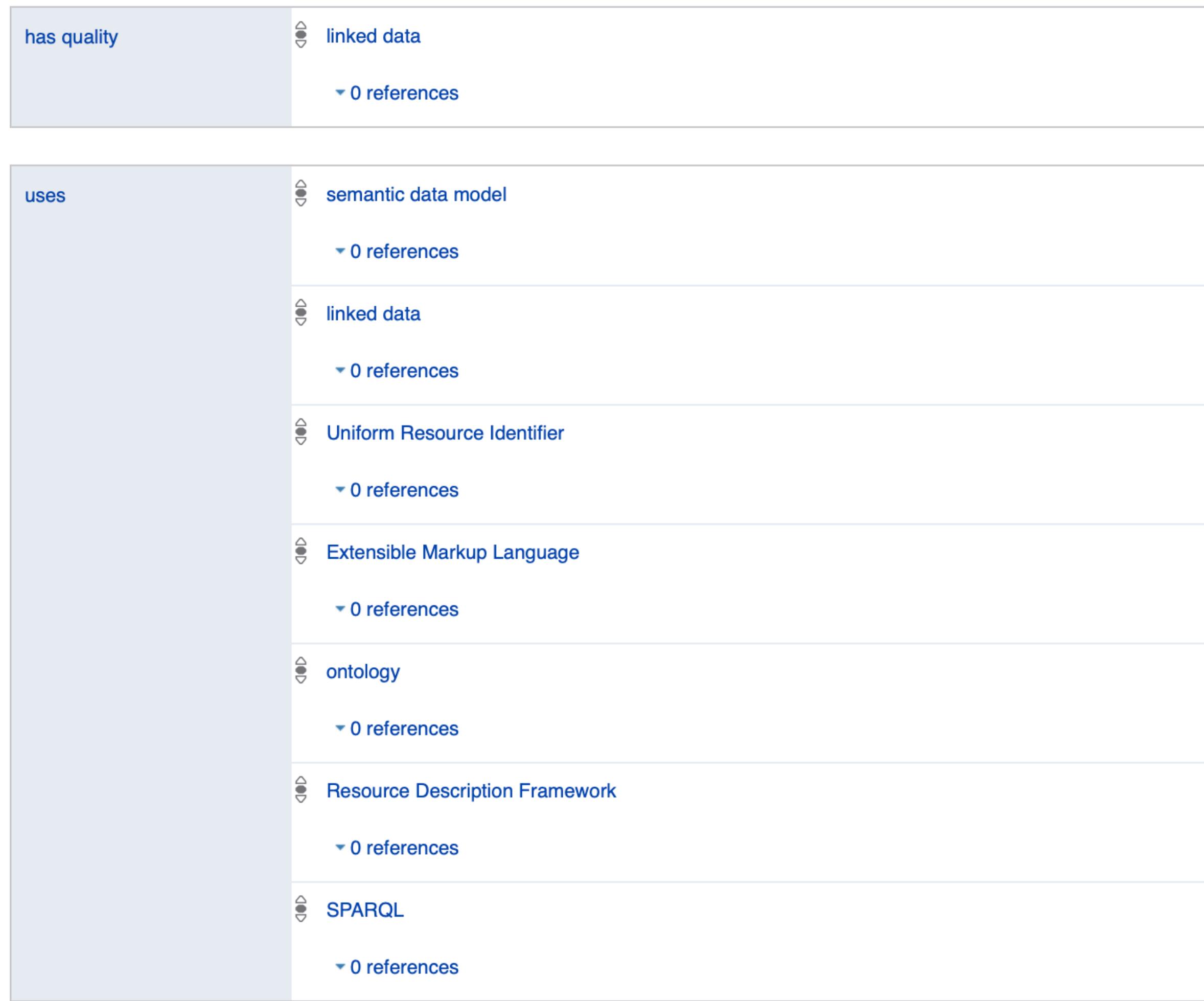
The Semantic Web Stack



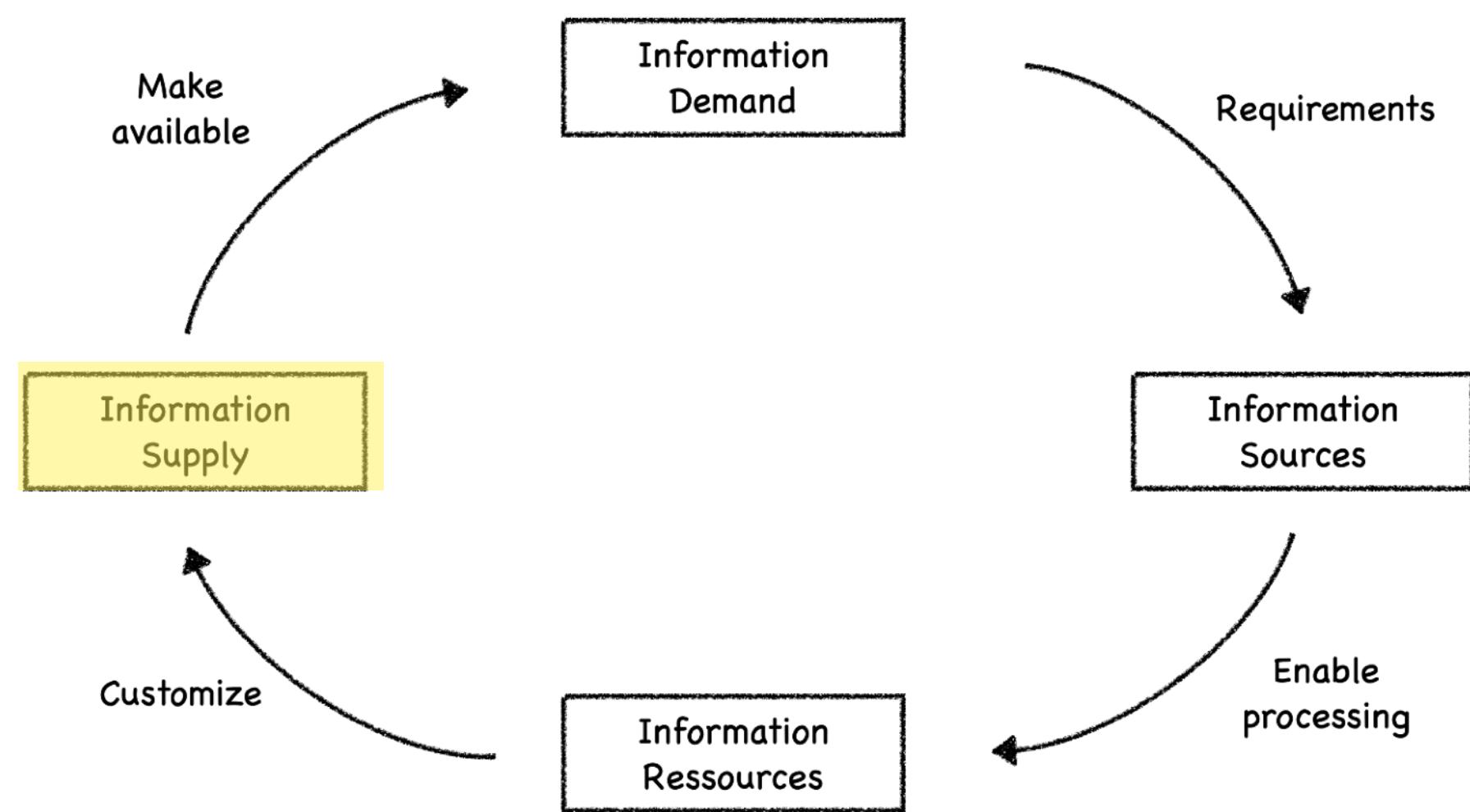
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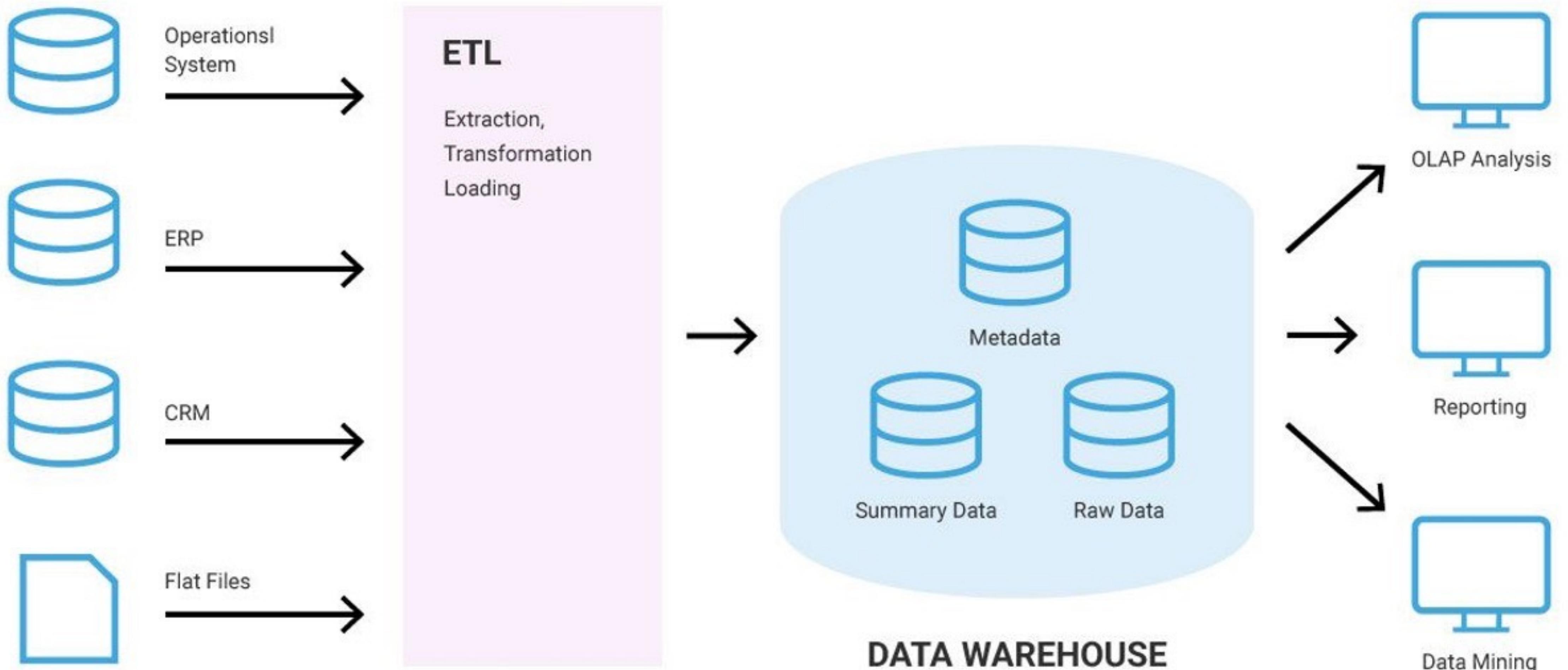
(It's already there)

Semantics
Linguistic · Logical
Subfields
Computational · Lexical (lexis, lexicology) · Statistical · Structural
Topics
Analysis
Compositionality
Context (language use)
Prototype theory · Force dynamics
Unsolved linguistics problems
Theory of descriptions
Computing
Types
Action · Algebraic · Axiomatic · Categorical · Concurrency · Denotational · Game · Operational · Predicate transformational
Theory
Abstract interpretation
Abstract semantic graph
Semantic matching
Analysis
Latent · Machine-learning
Applications
Semantic file system
Semantic Web · Semantic wiki
Language · Linguistics
V · T · E



Step 4: Managing Information Supply.



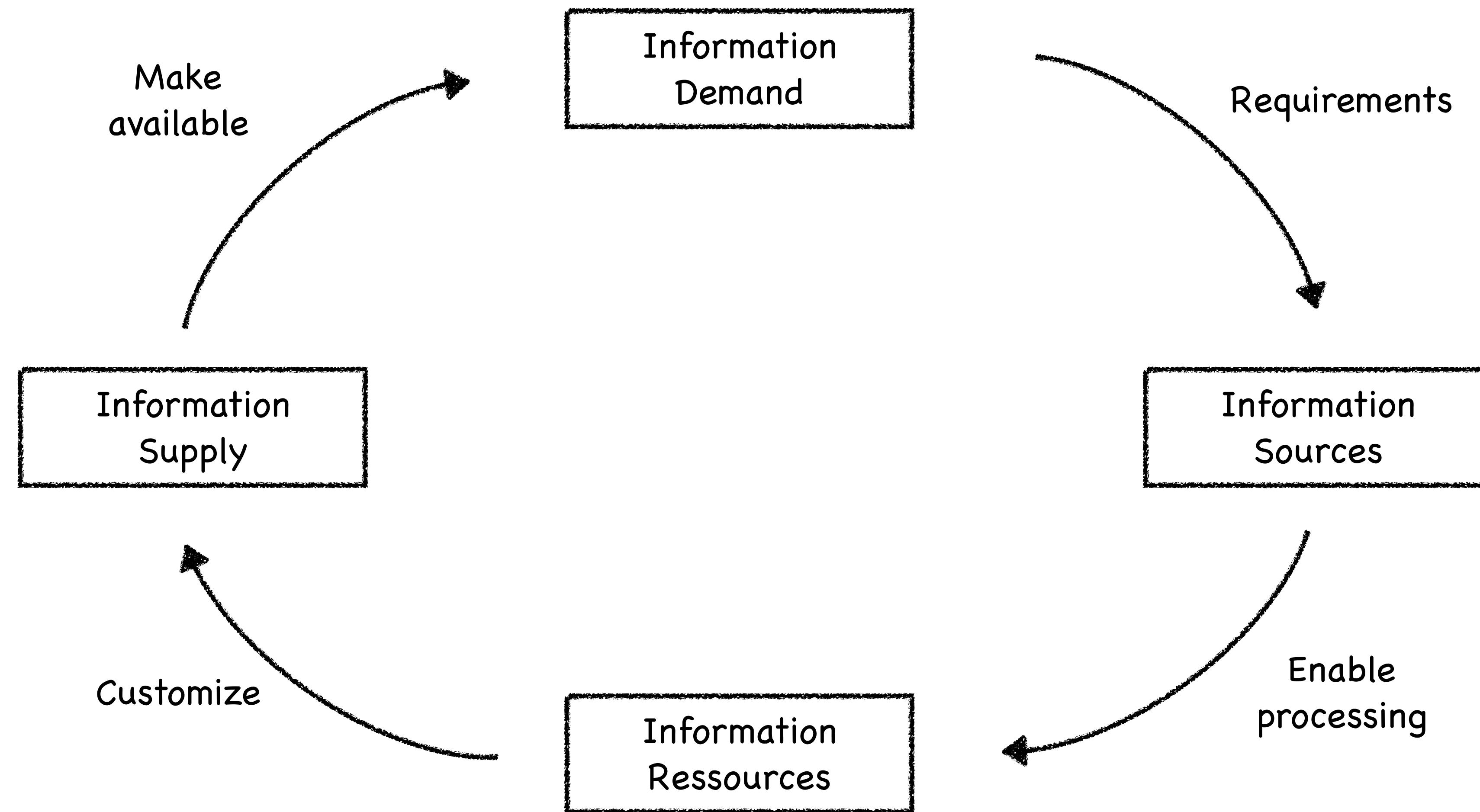


Source: SQLDbm (2018)



**Which data warehouse /
analytics tools can you find?**

**Pick one and learn how to
use it!**



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