

INFORMATION

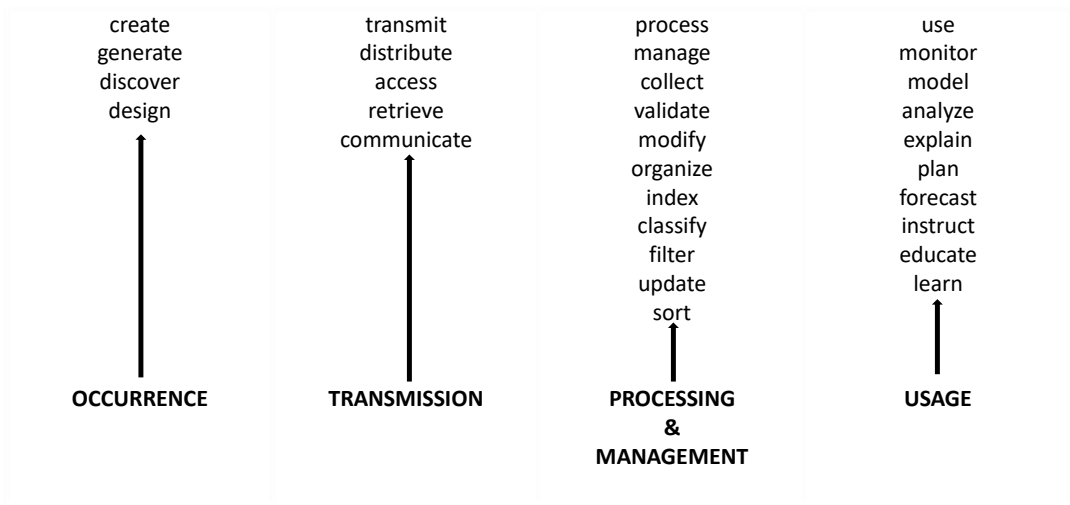
Deepak Kumar
Based (mostly) on Luciano Floridi's
Information: A Very Short Introduction, Oxford, 2010.

What is Information?

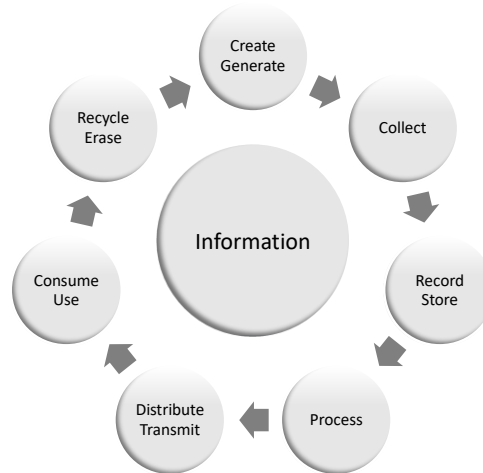
Information

create generate discover design	transmit distribute access retrieve communicate	process manage collect validate modify organize index classify filter update sort	use monitor model analyze explain plan forecast instruct educate learn
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Information



Information Life Cycle



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5

The Information Societies

- **Intangible assets and services:**
business, property, communications, finance, insurance, entertainment
- **Public Sectors:**
education, public administration, health care
- At least 70% of GDP depends on intangible goods.
- **Requires data:** More than anyone has seen in entire history!

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6

The Zettabyte Era: Data Deluge

- Humanity had accumulated an estimated ~12 exabytes of data prior to computers.
- In 2003 alone, print, film, magnetic, and optical storage media produced ~12 exabytes of data (over 92% stored on magnetic disks).
- In 2019 we are producing data at the rate of > 1000 exabytes/year [Exaflood].
- **Question: What is the planet's digital storage capacity?**

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7

Counting Bytes

- 1 megabyte = 10^6 bytes
- 1 gigabyte = 10^9 bytes
- 1 terabyte = 10^{12} bytes
- 1 petabyte = 10^{15} bytes
- 1 exabyte = 10^{18} bytes
- 1 zettabyte = 10^{21} bytes

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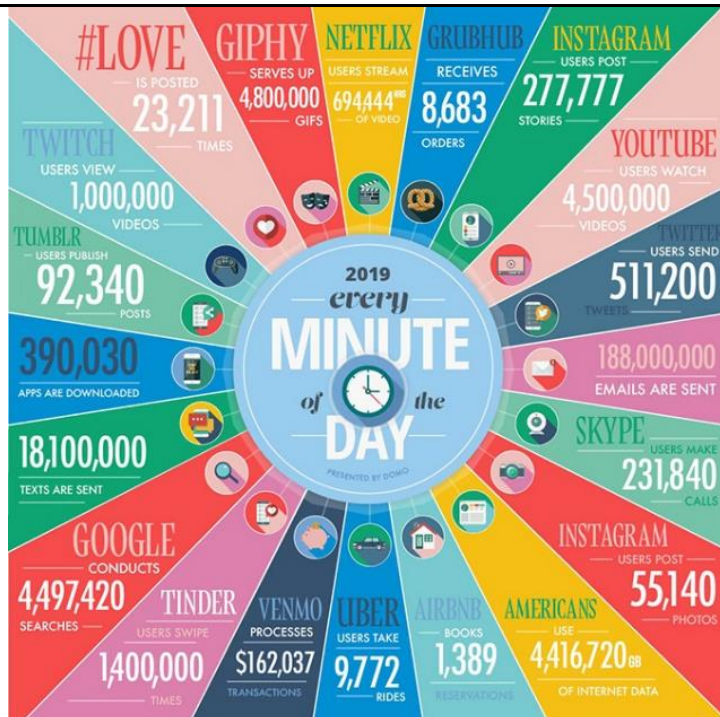
8

Counting Bytes

- 1 megabyte = 10^6 bytes
- 1 gigabyte = 10^9 bytes
- 1 terabyte = 10^{12} bytes (cost ~\$ 20)
- 1 petabyte = 10^{15} bytes (cost > \$ 40,000?)
- 1 exabyte = 10^{18} bytes (cost > \$40 million?)
- 1 zettabyte = 10^{21} bytes (cost > \$40 billion?)

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9



9/3/2019

From: <https://web-assets.domo.com/blog/wp-content/uploads/2019/07/data-never-sleeps-7-896kb.jpg> 9/2/2019

10

The Zettabyte Era: Data Deluge

- Humanity had accumulated an estimated ~12 exabytes of data prior to computers.
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11

Information & Communications Technologies (ICTs)

- Lots of advantages: education (MOOCs?), welfare, prosperity, economic, scientific advances, etc.
- Also: Significant risks, new dilemmas, profound questions, etc.
- What are the conceptual, cultural, and ethical roots of information societies?

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12

Gear up!

- “It is high time we start digging deeper, top-down, in order to expand and reinforce our conceptual understanding of our information age, of its nature, of its less visible implications, and of its impact on human and environmental welfare, and thus give ourselves a chance to anticipate difficulties, identify opportunities, and resolve problems.”
-: Floridi, p8.

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13

The Fourth Revolution

- Copernicus, 16th century
- Darwin, 19th century
- Freud, 19-20th century
- Turing, 20th century

Luciano Floridi Video: [The Fourth Technological Revolution, TEDxMaastricht, April 2011.](#)

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14

The Fourth Revolution

- Copernicus, 16th century
- Darwin, 19th century
- Freud, 19-20th century
- Turing, 20th century

Umm...

Why Turing???

Later we'll see who

Luciano Floridi Video: [The Fourth Technological Revolution, TEDxMaastricht, April 2011.](#)

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15

The Information Age

- **Infosphere**

A global environment made of information shared by biological as well as engineered artifacts.

- **Inforgs**

We are interconnected *informational organisms* in the infosphere...

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16

The Information Age

- Infosphere
- Inforgs



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17

Ontology

- Ontology is the philosophical study of *being*.
- What entities exist or may be said to exist and how such entities may be organized.
- The information age is *re-ontologizing* our world...from *materialist* existence to *informational* existence.

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18

Re-ontologizing our world?



From: <http://bigbangtheory.wikia.com/wiki/Siri>

...migration of humanity from its ordinary habitat to the infosphere...

Re-ontologizing...



Materialist → Informational





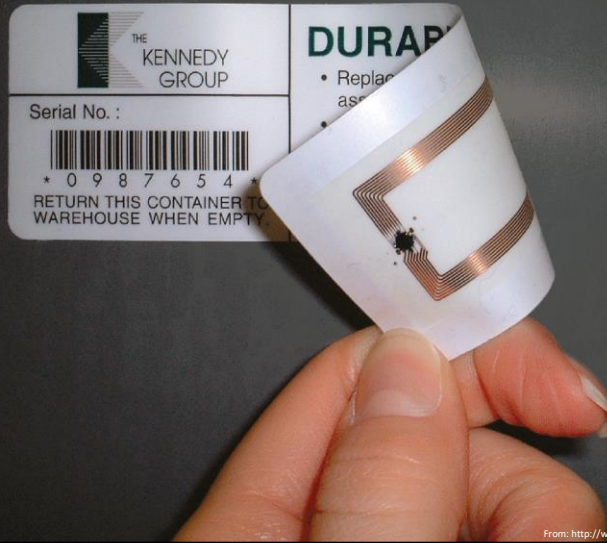
21



9/3

Mars Rover Curiosity. Photo Courtesy of NASA, www.nasa.gov (2012)

Creating ITentities with RFID tags.



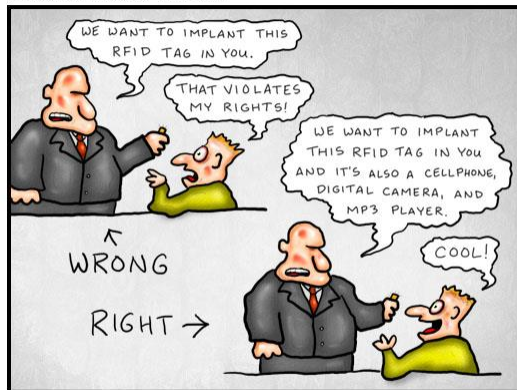
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From: <http://www.erpsoftwarebusiness.com/Software/RFID.html>

23

DOCTOR FUN

16 Jan 2006



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<http://biblio.org/Dave/dfun.html>
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24



Self-Driving Car



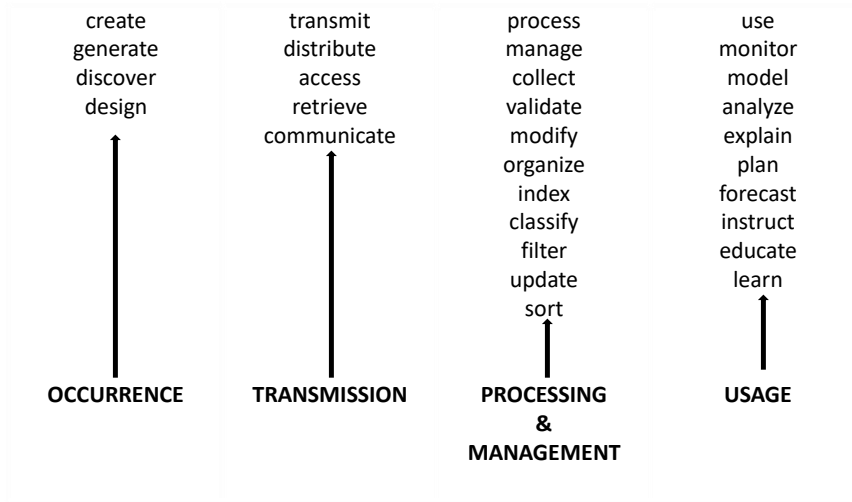
25

The (Information) Rich

The Digital Divide

The (Information) Poor

Information: Foundations & Applications



Next,
Defining Information