

Persidangan Perpustakaan SeMalaysia
12 Sept 2017, KL

Revolusi Industri Ke-4 - Dimana letaknya “hati” (qalbu)

Dzulkifli Abdul Razak

Pengerusi LPU, USIM

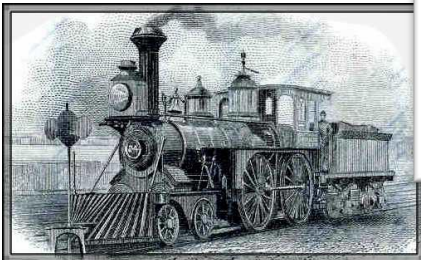


Events leading to 4IR

INDUSTRIAL REVOLUTION

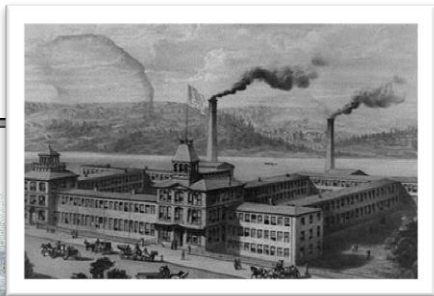


GDP



1st IR
Water & Steam –
 powered
 Mechanical
 Manufacturing
 Facilities, Textiles

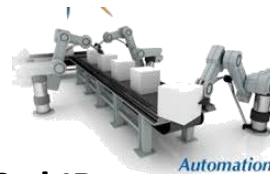
End of 18th century



2nd IR
 Assembly line
 manufacturing
 & infrastructure of
Electricity, Gas,
 Water, Telegraph,
 Radio/TV, Radios

Start of 20th century

Phases



3rd IR
 Electronics,
 Computers,
 Production
Automation, Lean
 Manufacturing
 Internet, Digital

SMACIT
 S = Social
 M = Mobile
 A = Analytics
 C = Cloud
 IT = IoT

Late 20th century

- Also called the Electronics or Internet Revolution.
- Electronic technology becomes widespread. From telephones, to television, to satellites, to computers—electronics are everywhere.
- Open network called the World Wide Web (a.k.a. the Internet).
- Numerical Controlled (NC) machines and Programmable Logic Controllers (PLC) are developed for automation. Personal computers (PCs) are adopted at the factory floor as part of automation.
- Commercial Computer-Aided Manufacturing (CAM) and Computer-Integrated Manufacturing (CIM) software.

1760 – 1820/1840	1860s – 1900s	Mid 70s – 2015
Machine Aided Production	Industrialization/ Technological Revolution	Internet Era

INDUSTRY **4.0**

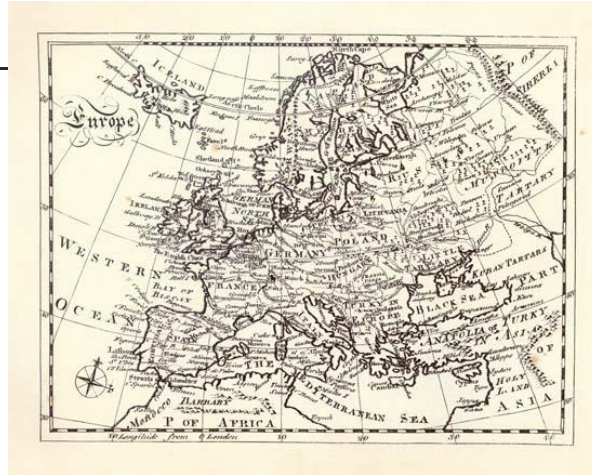
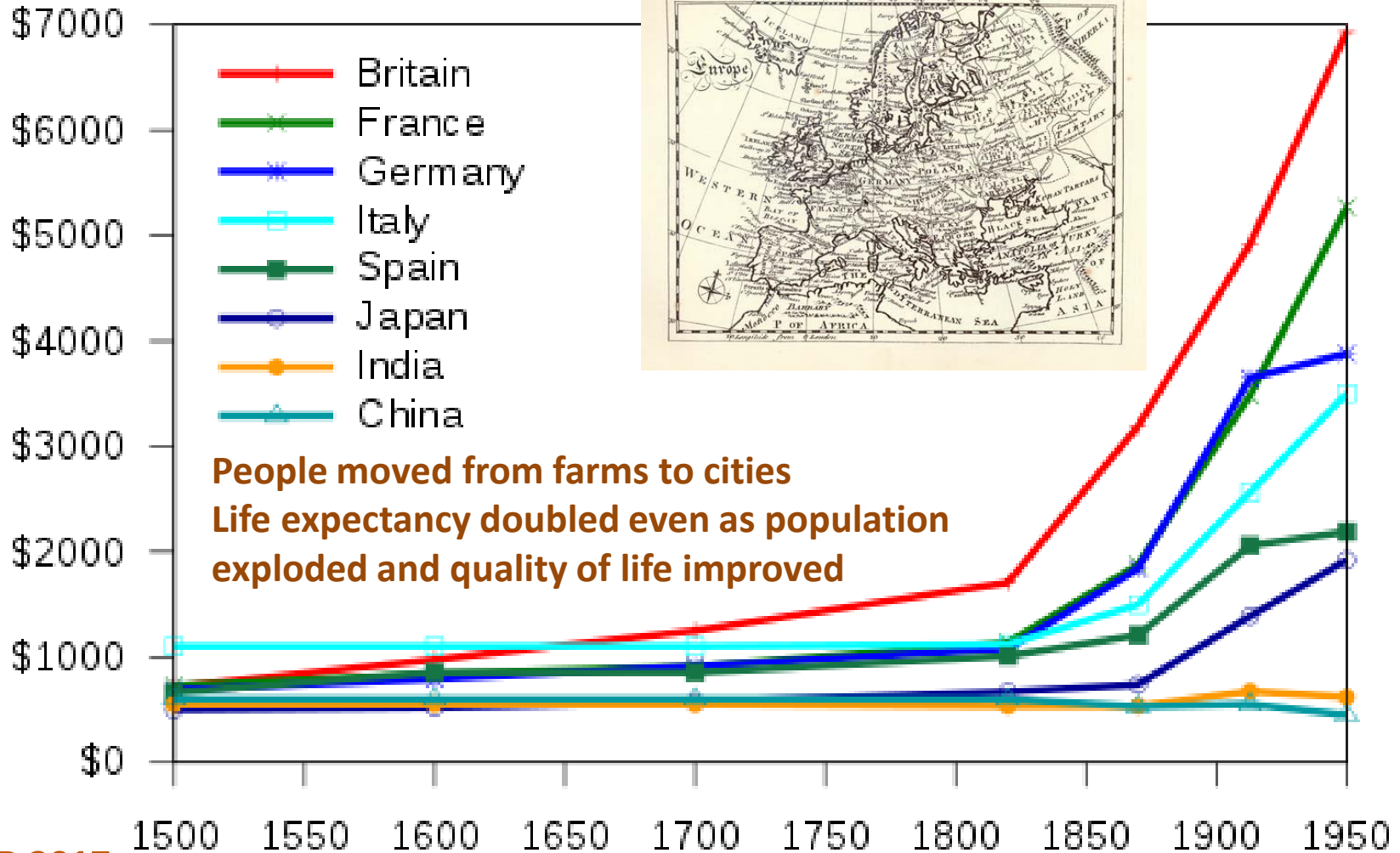
2020



INDUSTRIAL REVOLUTION



Impact (Economic)



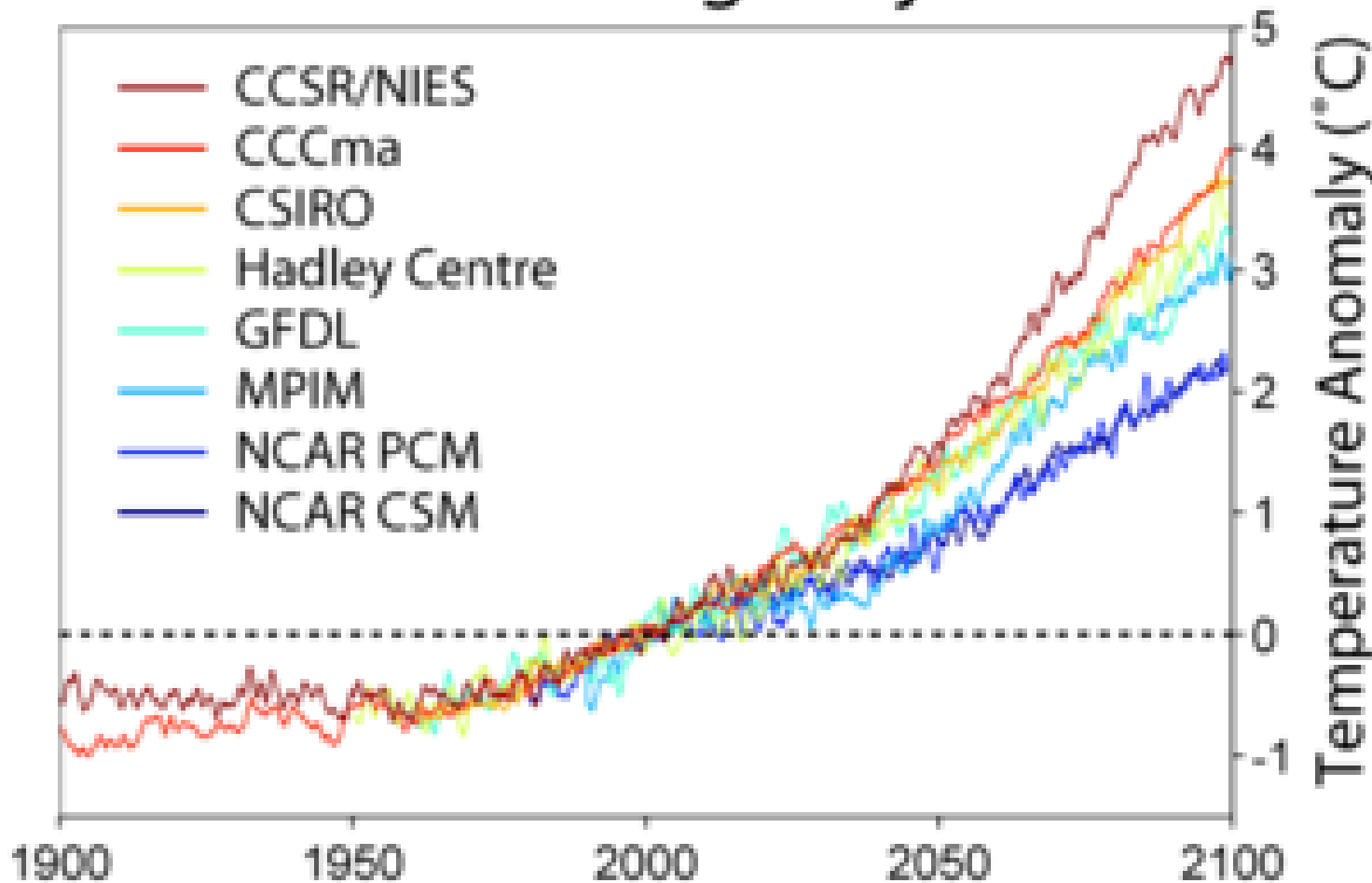


INDUSTRIAL REVOLUTION



Impact (Environment)

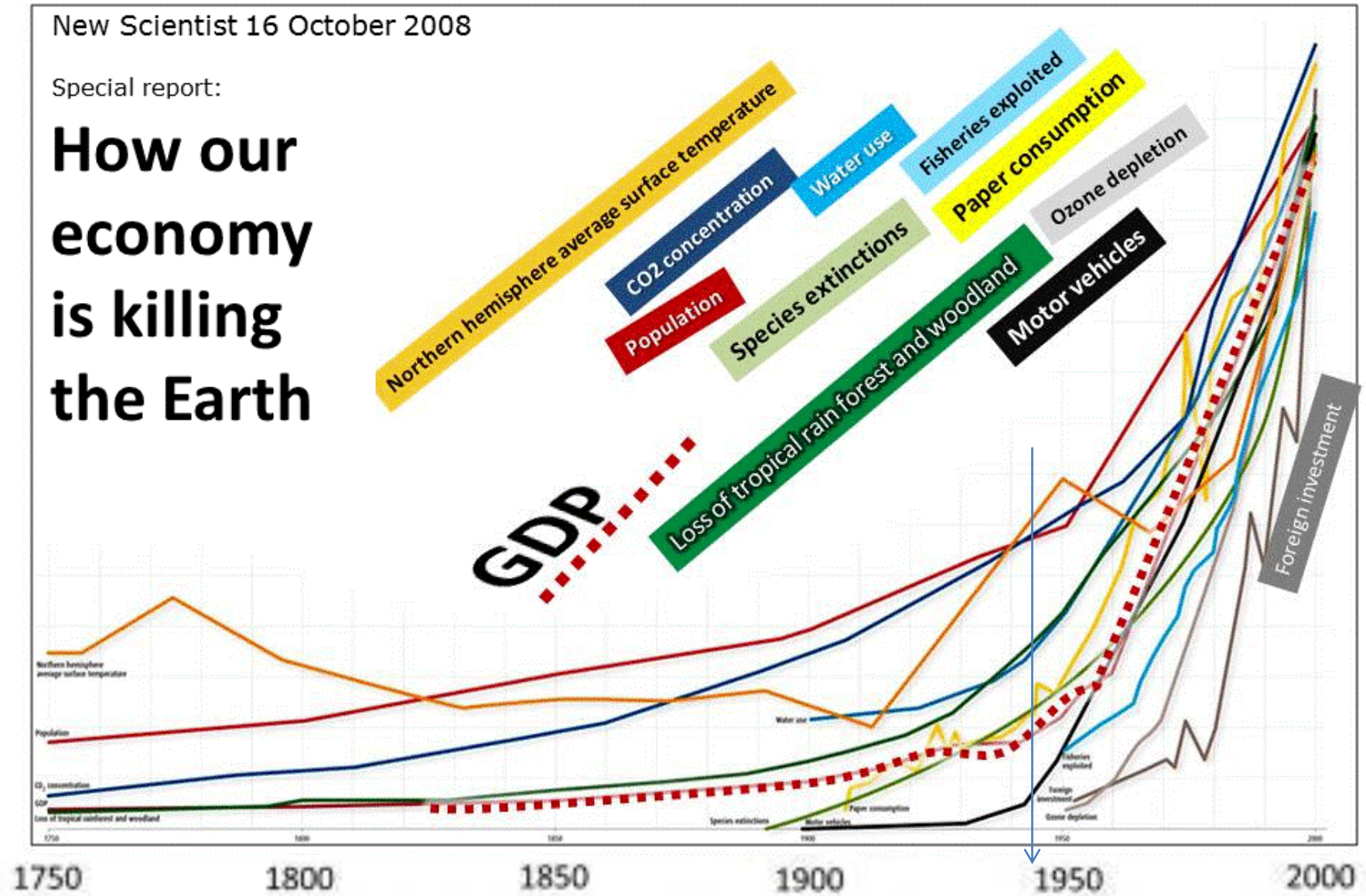
Global Warming Projections



New Scientist 16 October 2008

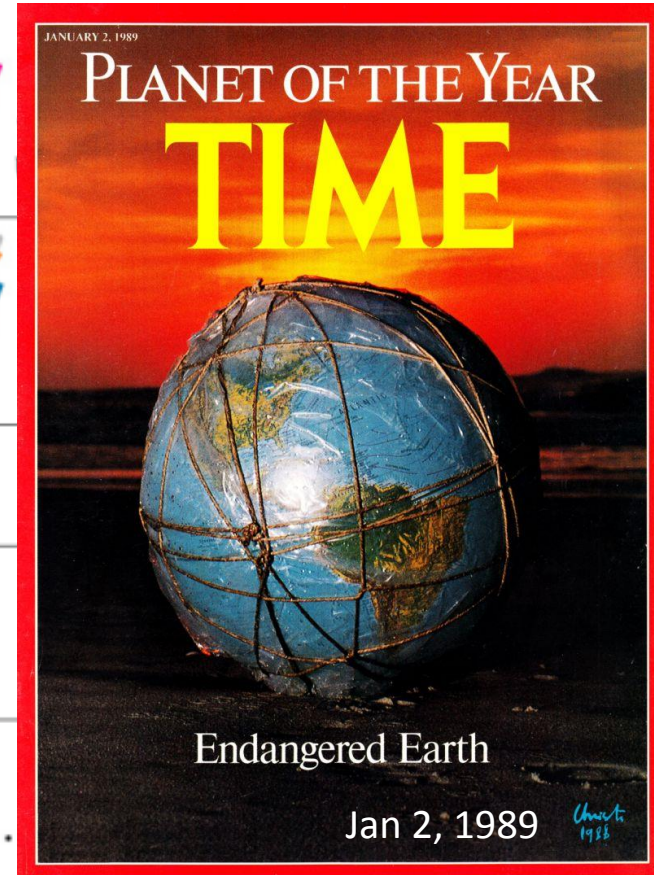
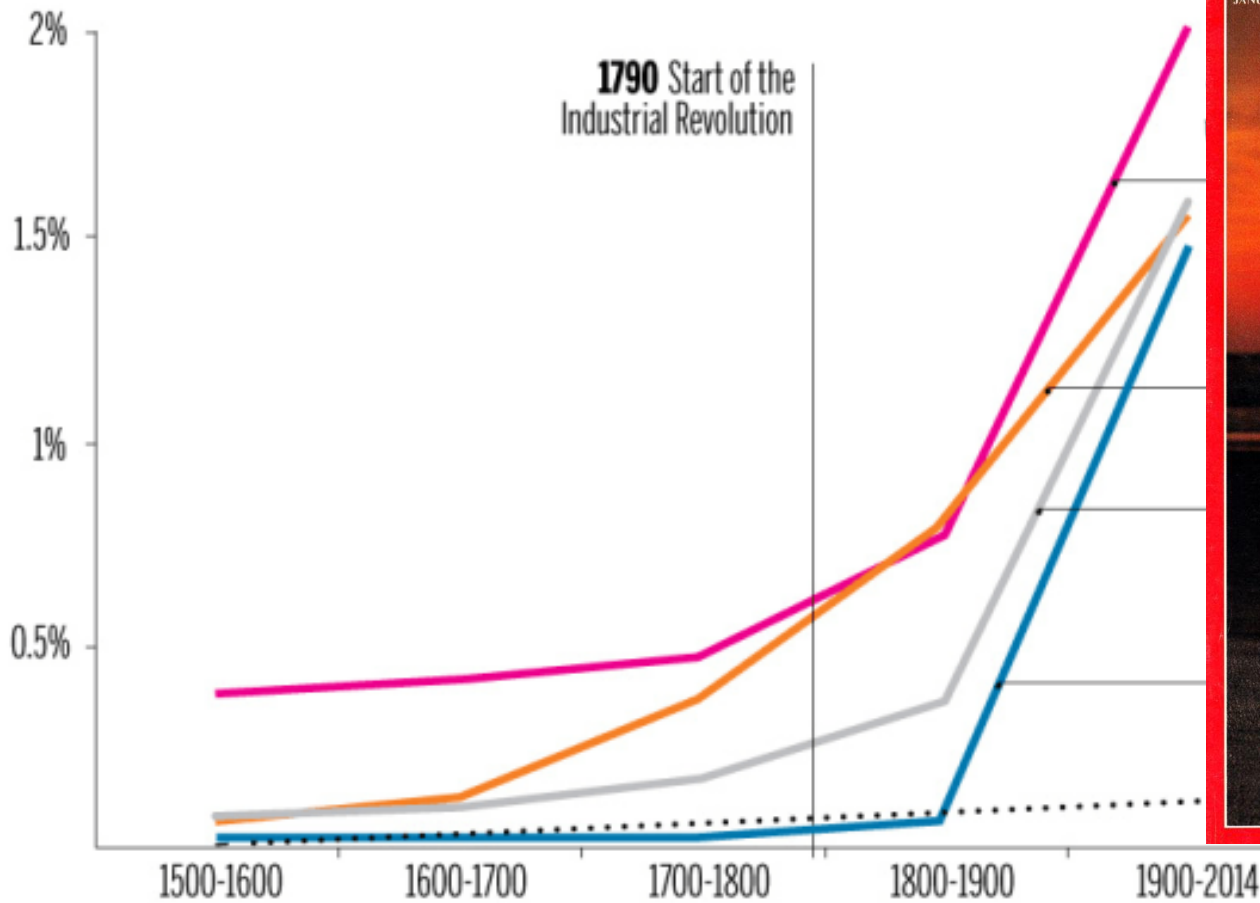
Special report:

How our economy is killing the Earth



VERTEBRATE SPECIES EXTINCTION RATES

Cumulative, recorded as "extinct" or "extinct in the wild"



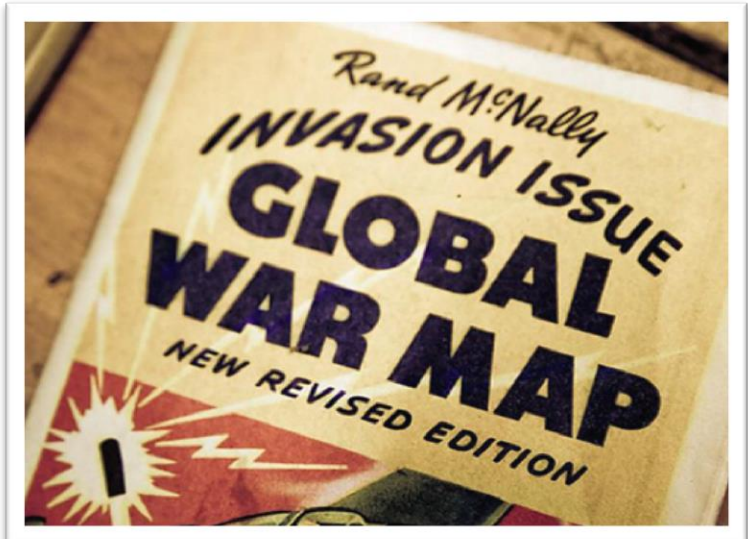
SOURCE: Ceballos et al. Sci. Adv. 2015;1:e1400253 | GRAPHIC: Amanda Shendruk

MACLEAN'S

wavewatching.net



...a global **imbalance**?...





Age of Reason

15th C

Anthropocentricity

Rational Mind

Voyages of Discovery

Colonialisation

Deism-Humanism-Utilitarianism

Machine

Events resulting from IRs



Age of Reason

3rd IR

Anthropocentricity

Human Capital

Voyages of Discovery

Internationalisation

Deism-Humanism-Utilitarianism

Technology

Events resulting from IRs



Theory-of-today

HUMAN CAPITAL theory

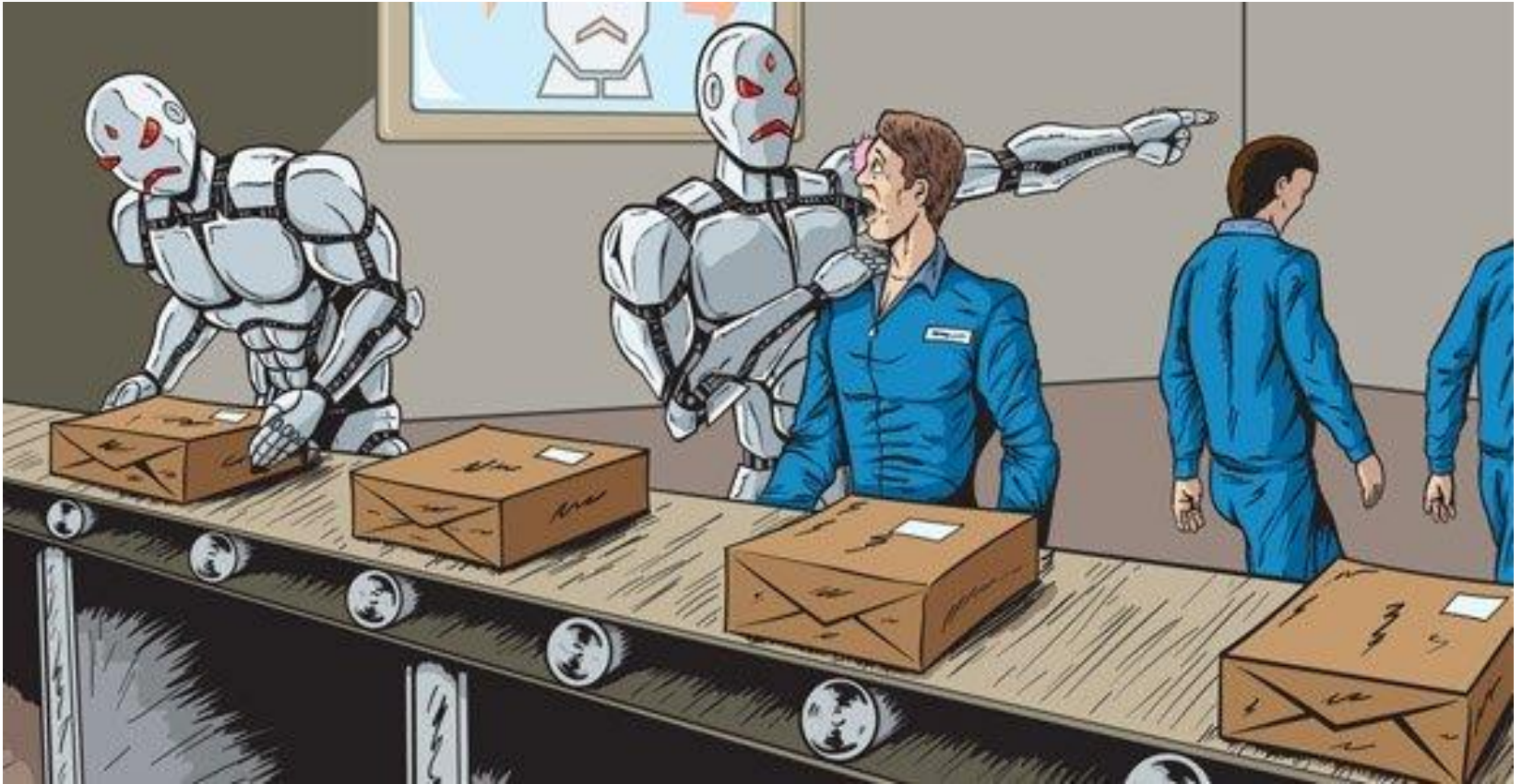


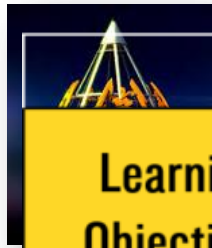


...the (souless) human factory ecosystem...



<http://risingpowers.foreignpolicyblogs.com/>





First Industrial Revolution

Learning Objectives

Mastery of basic skills and knowledge (e.g., reading, math)



Role of Educator

Expert



Learner Experience

'Factory model' - Passive, structured, directed, en masse



Target Age

K-12



Expertise

"Teacher knows best"



Access

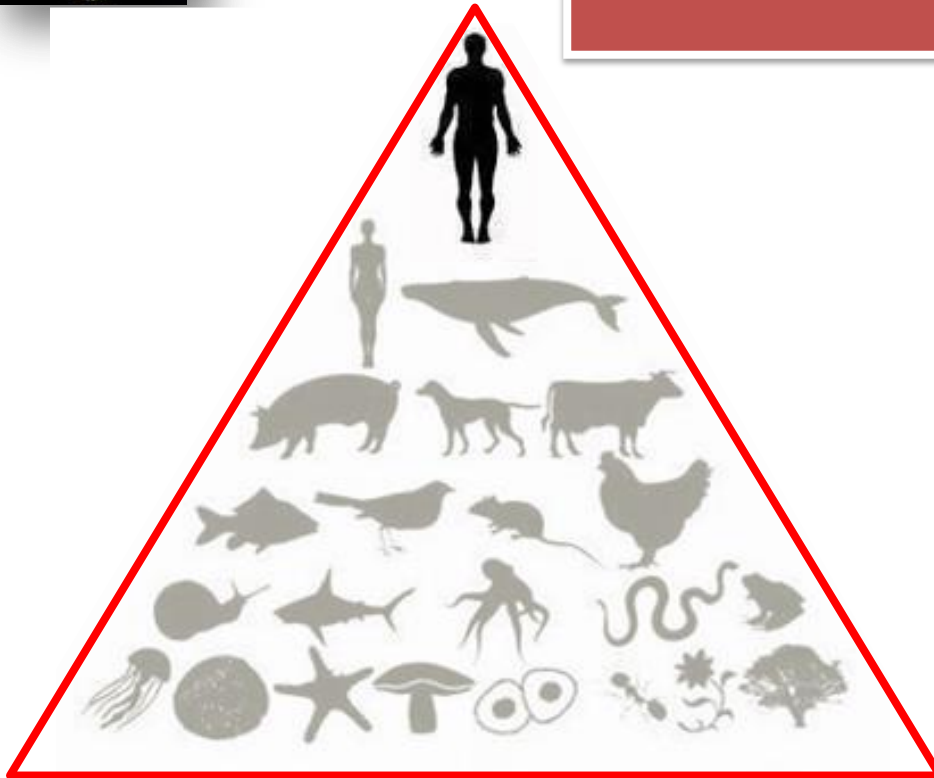
Physical classroom





Egoistical Model

Ecological Model



Imbalanced

Balanced

Hierarchical, Rigid, Me,
Competition, **Unsustainable**,

Networked, Flexible, Us,
Collaboration, **Sustainable**,

© DAR 2017 Red Ocean, Dead

Blue Ocean, Living

Imbalanced

➤ **Disrupting Balanced Relationship**



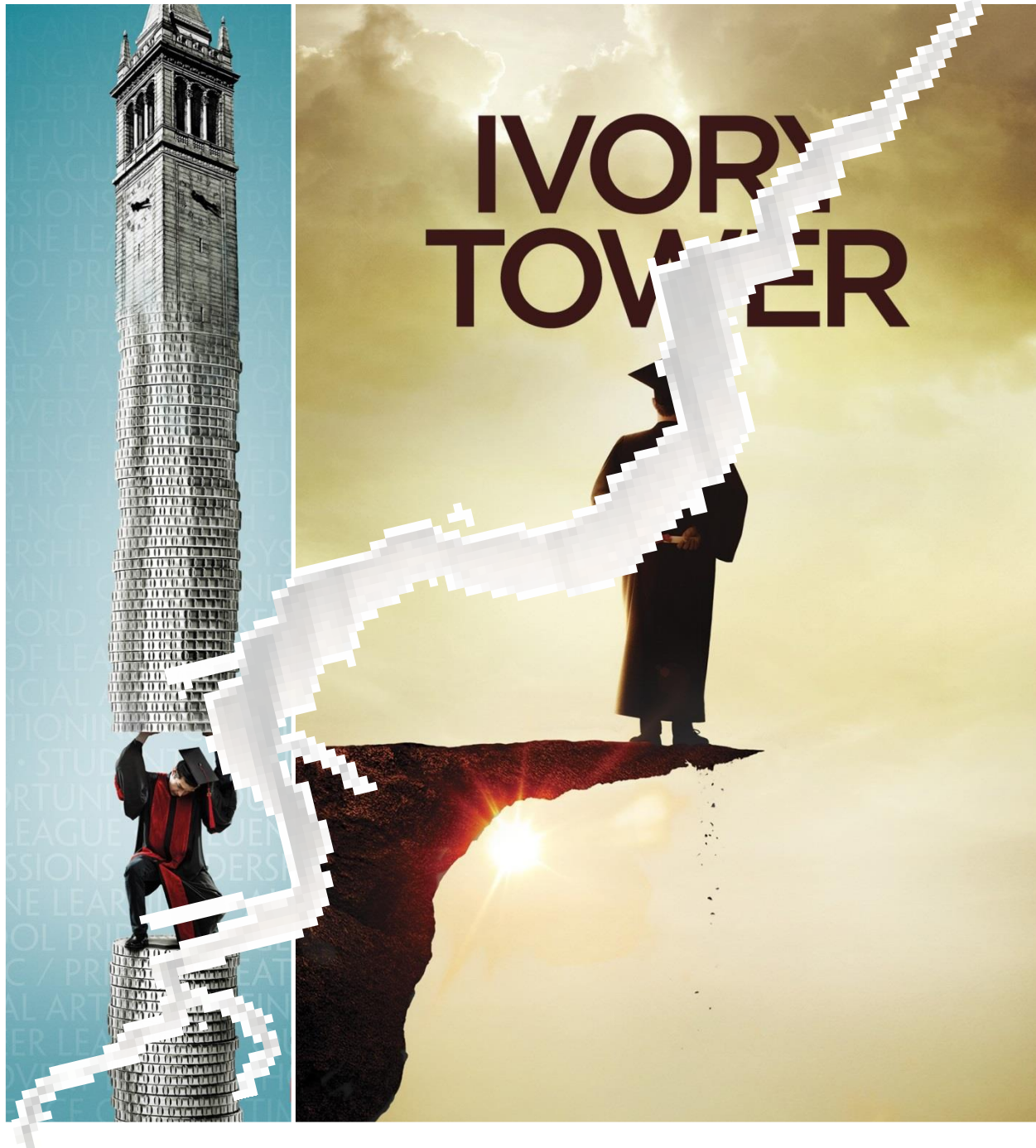
ECOLOGICAL FOOTPRINT



Are we losing our
balance?



Yes!
We are sinking?





Human Capital Theory and Education

Patrick Fitzsimons

James Cook University, Townsville City, QLD,
Australia

Throughout Western countries, education has recently been retheorized under Human Capital Theory as primarily an economic device. Human

behavior is based on the economic self-interest of individuals operating within freely competitive markets. Other forms of behavior are excluded or treated as distortions of the model.

A prominent explanation for that move is provided by a recent reformulation of Human Capital Theory which has stressed the significance of education and training as the key to participation in the new global economy. In one of its recent reports the OECD (1997a, p. 7), for example, claims that the radical changes to the public and

Throughout Western countries, **education has recently been retheorized under Human Capital Theory as primarily an economic device.** Human Capital Theory is the **most influential economic theory of Western education**, setting the framework of government policies since the early 1960s. It is seen increasingly as a **key determinant of economic performance.**



Setiap murid akan mempunyai



... sejajar dengan Falsafah Pendidikan Kebangsaan



FALSAFAH PENDIDIKAN KEBANGSAAN

INTELEK

IASMANI



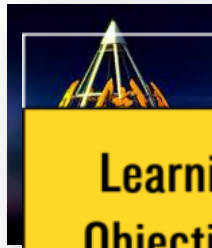
**KESEJAHTERAAN
DIRI**



**MENYUMBANG
MASYARAKAT**

ROHANI

EMOSI



First Industrial Revolution

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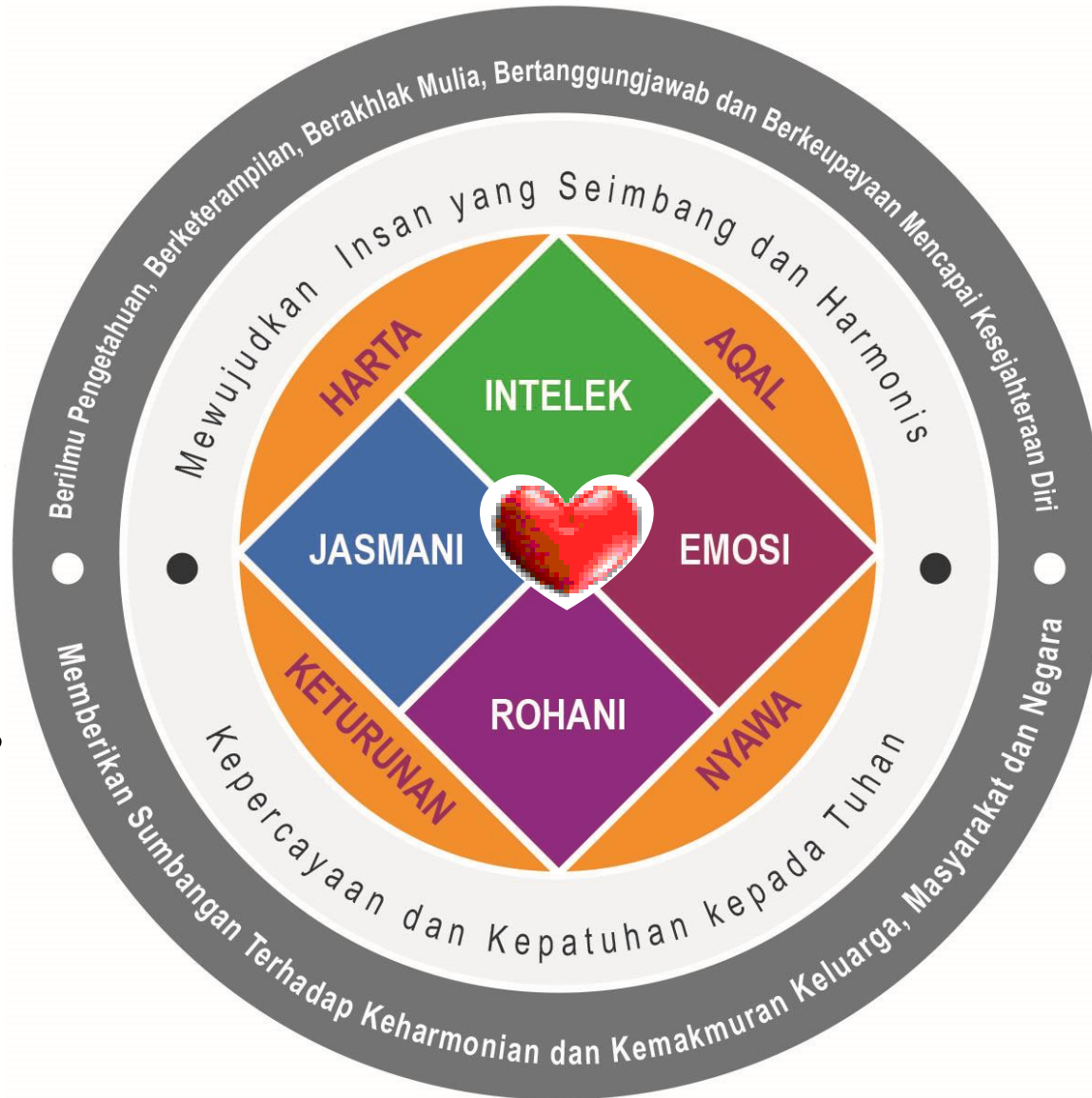
Physical classroom





JUSTICE KEADILAN

**MERINGANKAN
BEBAN HIDUP**
*Reducing the
Burden of Life*



**MENJAUHI
PRASANGKA**
*Avoiding
Prejudices*



Age of Self Awareness

Anthropocentricity

Primal Instinct

Sejahtera

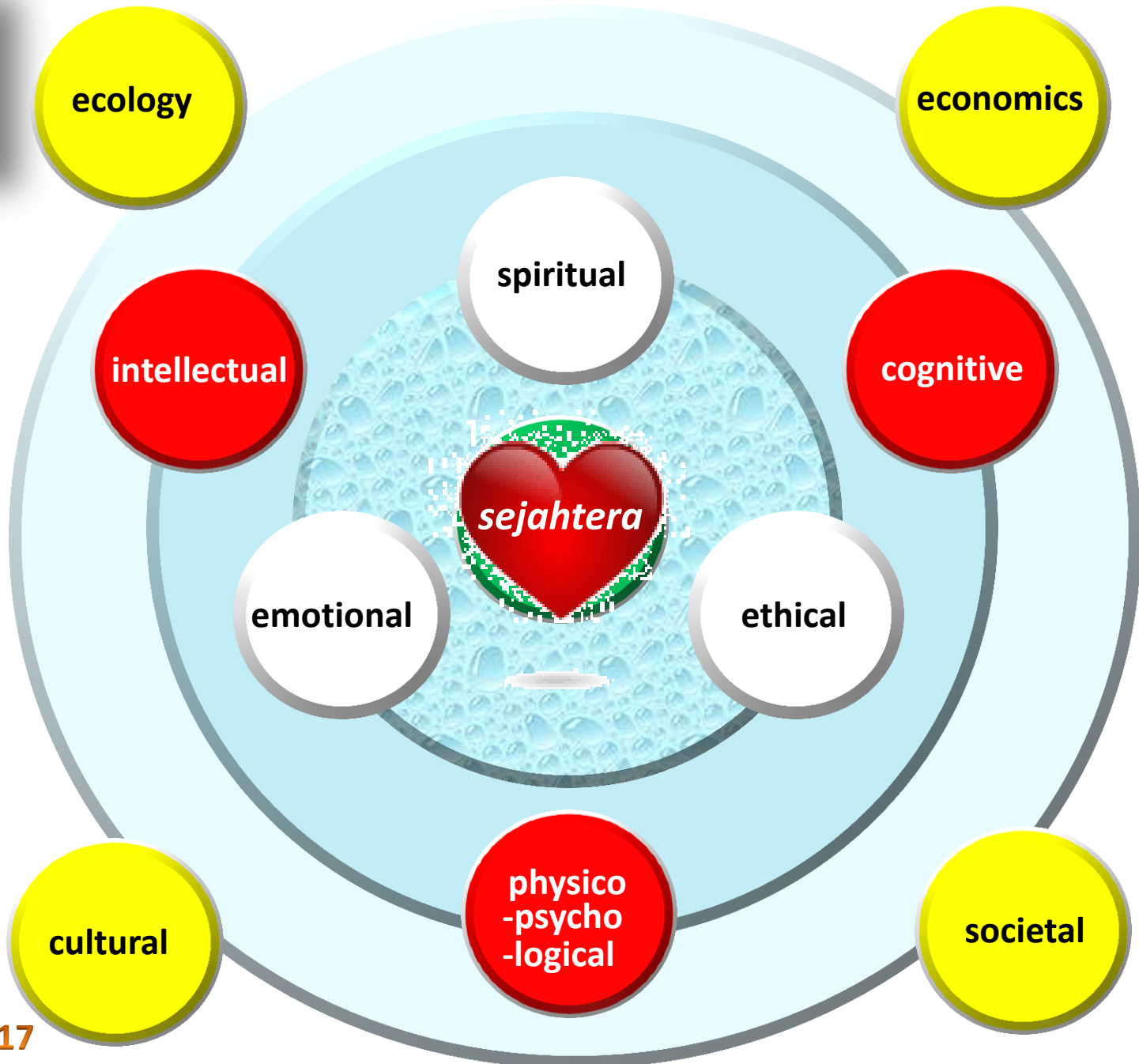
Voyage of "Self-discovery"

Cosmic Consciousness

Transcending the "Self"

Oneness of "Heart-Mind"

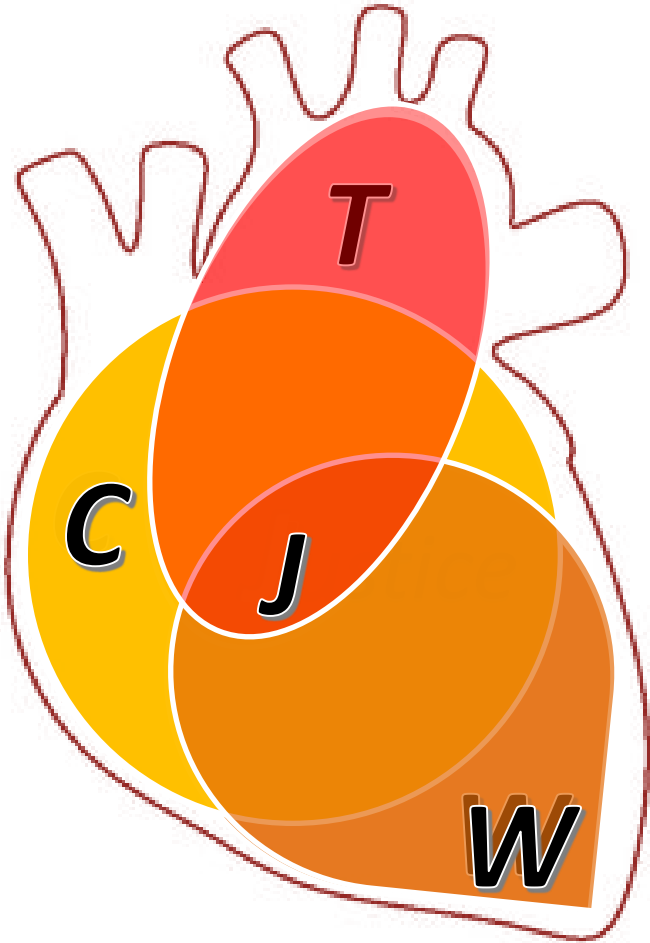






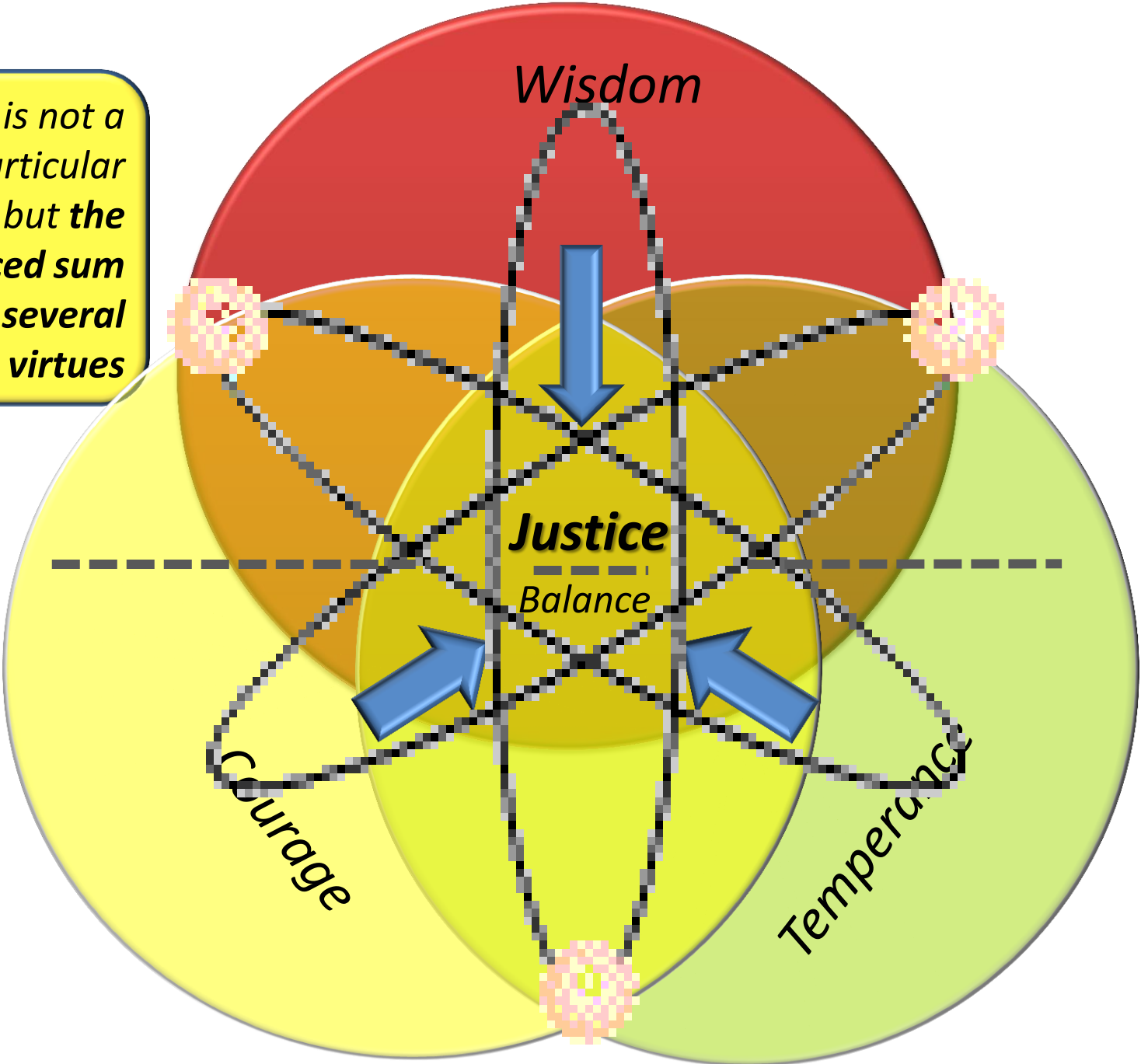
Qalb

- *Spiritual receptacle*
God-conscious





Justice is not a particular virtue, but the balanced sum of several virtues





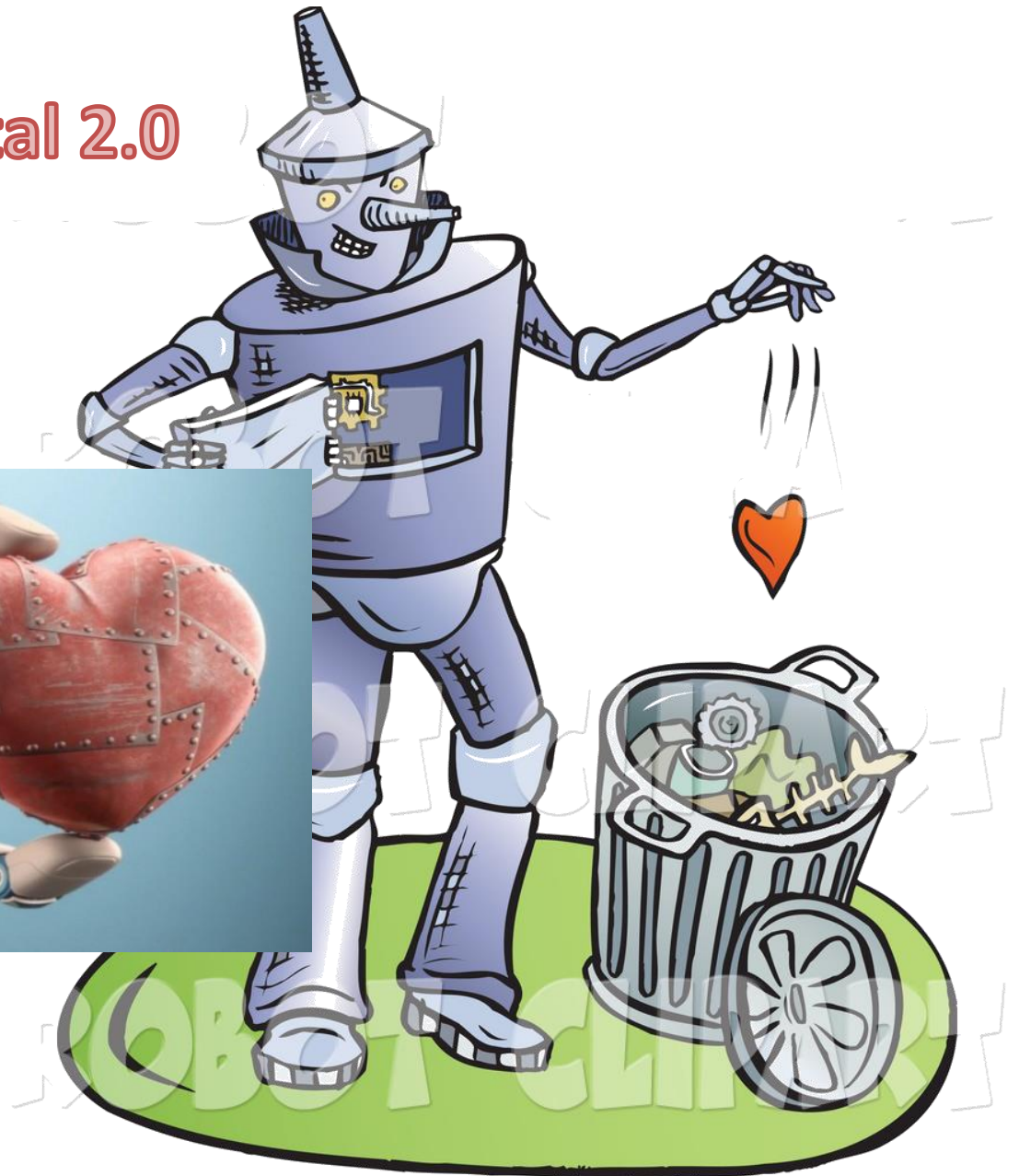
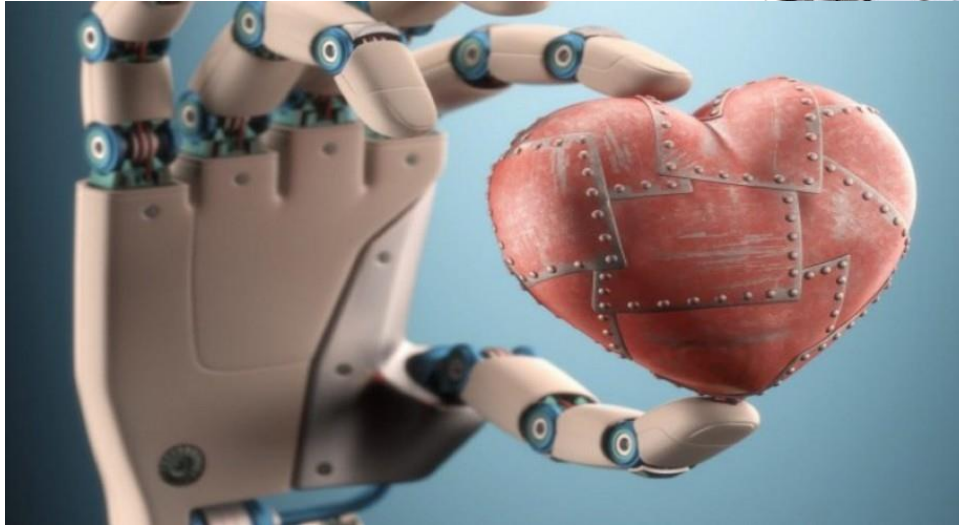
- So the concept of justice in Islam **does not** only refer to relational situations of harmony and equilibrium existing between one person and another, or between the society and state, or between the ruler and the ruled, or between the king and his subjects, **but far more profoundly and fundamentally so it refers in a primary way to the harmonious and rightly-balanced relationship existing between the man and his self**, and in a secondary way only to such as exists between him and another or others, between him and his fellow men and ruler and king and state and society.

*Syed Muhammad Naquib Al-Attas
Justice and Its Relationship to Knowledge*





Human Capital 2.0



Three Eras of Automation

If this wave of automation seems scarier than previous ones, it's for good reason. As machines encroach on decision making, it's hard to see the higher ground to which humans might move.

ERA ONE 19TH CENTURY

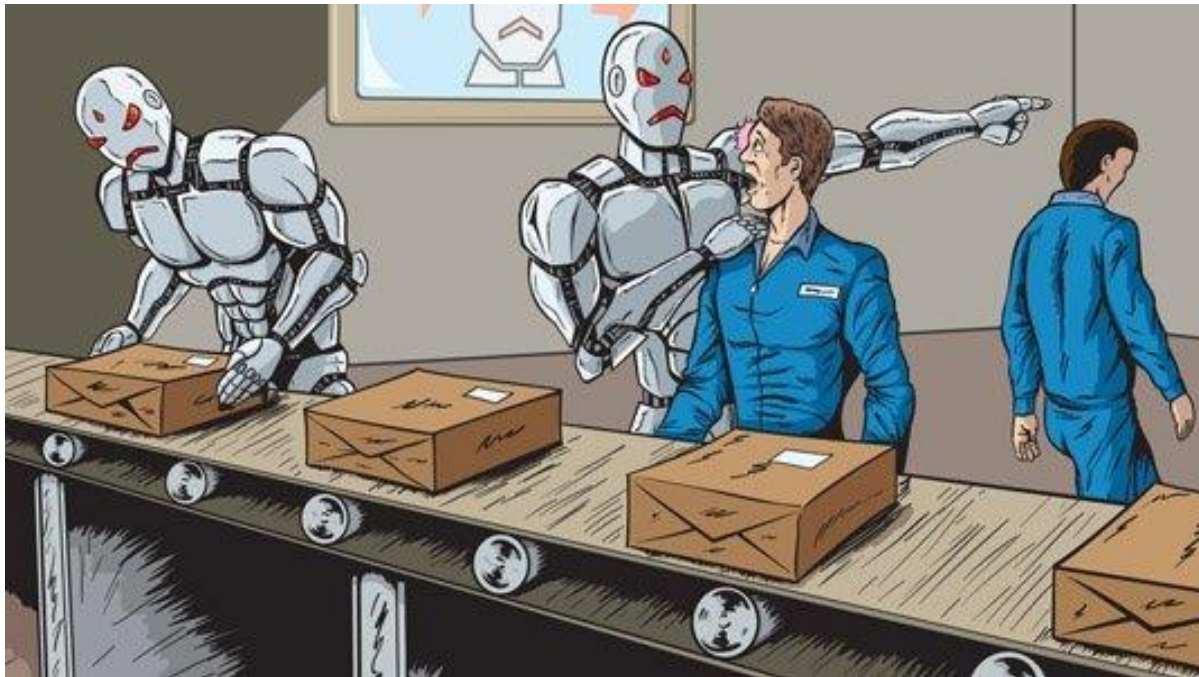
Machines take away the **dirty and dangerous**—industrial equipment, from looms to the cotton gin, relieves humans of onerous manual labor.

ERA TWO 20TH CENTURY

Machines take away the **dull**—automated interfaces, from airline kiosks to call centers, relieve humans of routine service transactions and clerical chores.

SOURCE THOMAS H. DAVENPORT AND JULIA KIRBY
FROM "BEYOND AUTOMATION," JUNE 2015

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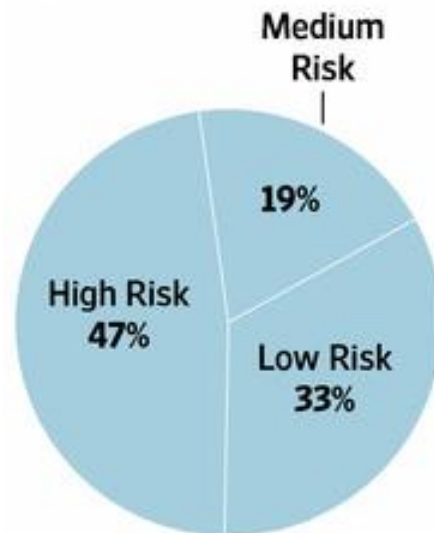


- Humans still have a number of advantages over their automated counterparts, including **creativity, curiosity, empathy, self-motivation, and the ability to provide fast, multi-dimensional feedback.**
- By nurturing these “advantages” humans can enhance their position even against the (souless) advanced robotics technology.



On the Job

A study by two University of Oxford researchers found computerization will pose a significant threat to the jobs of nearly half of the American workforce at some point.



Note: Numbers don't add to 100 due to rounding

Dirty, Dangerous, Dull

Difficult Decisions

The 10 occupations most and least susceptible to computerization

MOST SUSCEPTIBLE

- 1 Telemarketers
- 2 Title examiners, abstractors and searchers
- 3 Sewers, by hand
- 4 Mathematical technicians
- 5 Insurance underwriters
- 6 Watch repairers
- 7 Cargo and freight agents
- 8 Tax preparers
- 9 Photographic process workers and processing machine operators
- 10 New-accounts clerks

Source: "The Future of Employment: How Susceptible Are Jobs to Computerisation?" by Carl Benedikt Frey and Michael A. Osborne, published Sept. 17, 2013

THE WALL STREET JOURNAL



Ethics & Values

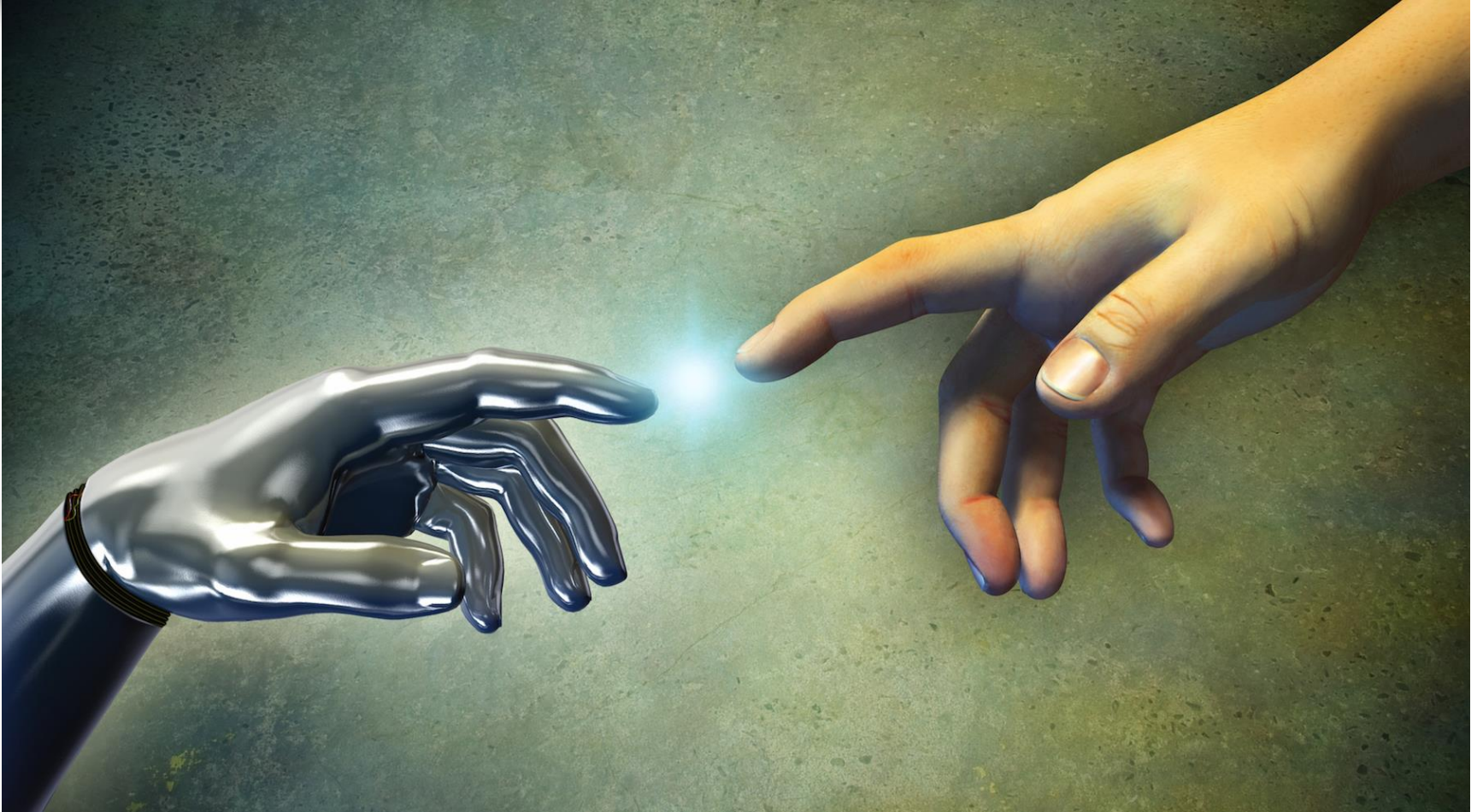




Al-Ghazali



Declare your jihad on **twelve** enemies you cannot see - Egoism, Arrogance, Conceit, Selfishness, Greed, Lust, Intolerance, Anger, Lying, Cheating, Gossiping and Slandering. If you can master and destroy them, then will be ready to fight the enemy you can see.





*Thank you
from the heart!*





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