

Business Opportunities in Sustainable Development

What is the “new context”?

Where are the opportunities?

Main Questions:

- 1** • **What do we want from sustainable development?**
 - What is sustainable development?
- What are the lucrative sustainable development opportunities in Arab Countries?
- How can we implement?
- While we wait...



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 - A. What is Sustainable Development?
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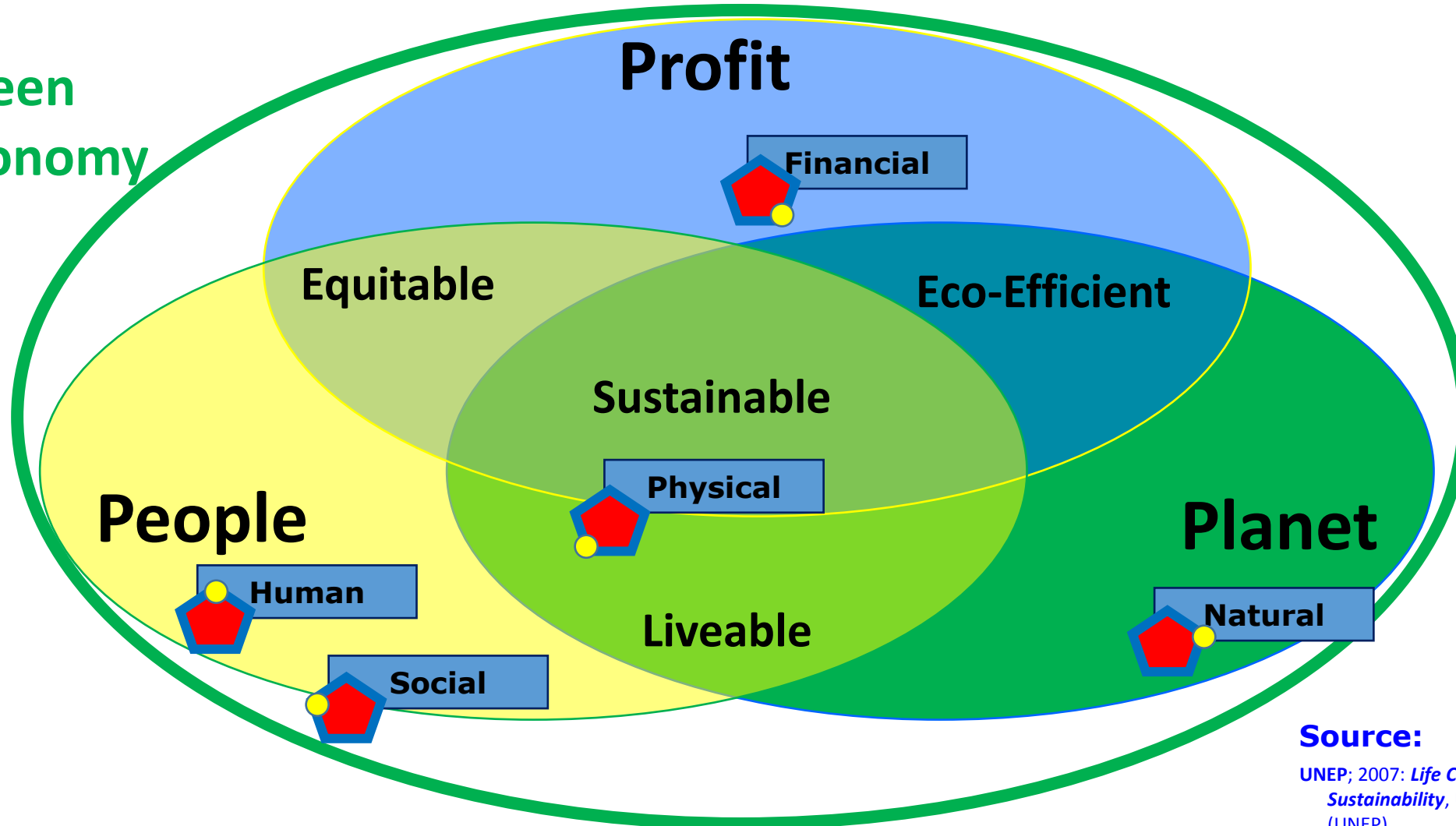
Note: Mitigation as a co-benefit of adaptation



Sustainability & Green Economy

1.A What is Sustainable Development?

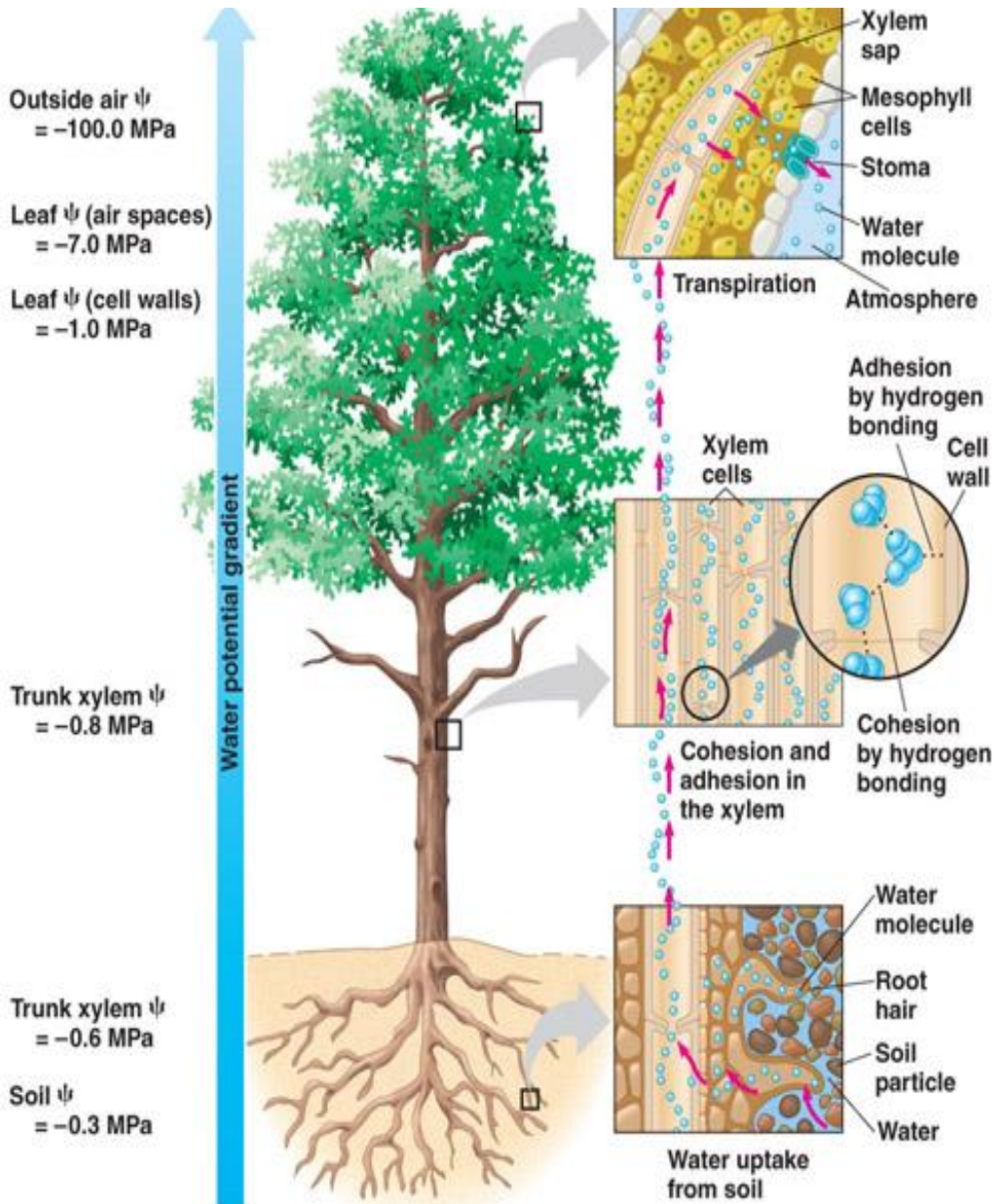
Green
Economy



Source:

UNEP; 2007: *Life Cycle Management: A Business Guide to Sustainability*, United Nations Environment Programme (UNEP).

Sustainability & Energy



1.B What are the main technologies?

Generation

- Available
- Reliable
- Flexible
- Renewable

Transmission

- Reliable
- Flexible
- Efficient

Storage

- Durable
- Portable
- Divisible
- Universal

Sustainability & Energy: Transportation

1.B What are the main technologies?

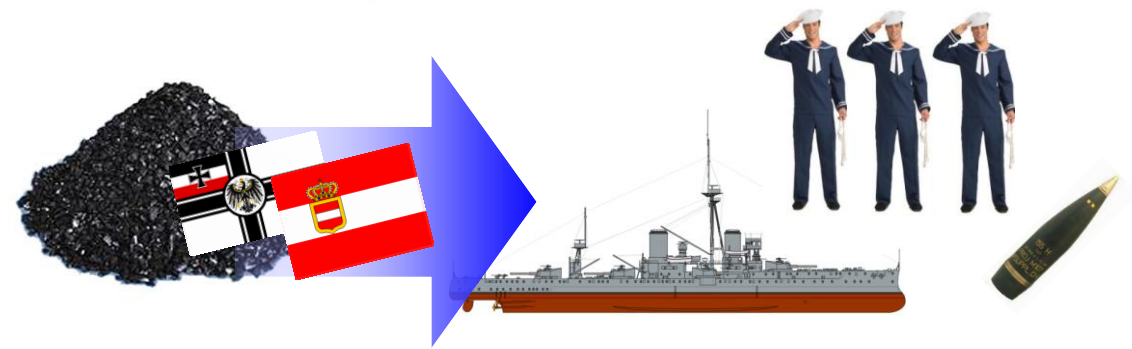
• Carbons:

- Dry Cow-dung / Camel-dung = 15
- Wood = 18

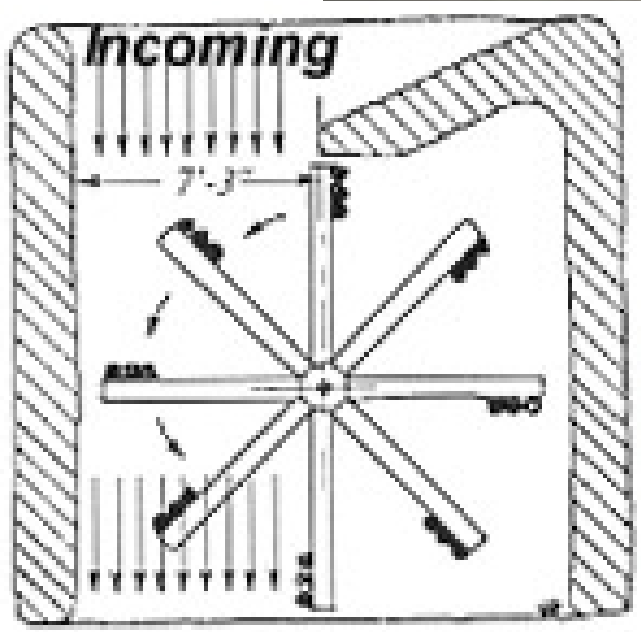
• Hydrogen = 142

• Hydrocarbons:

- Coal = 32 MJ/Mass
- Oil / Diesel = 47 MJ/Mass,l



Sustainability & Local Knowledge



Main Questions:

- What do we want from sustainable development?
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2

- **What are the lucrative sustainable development opportunities** in Arab Countries?
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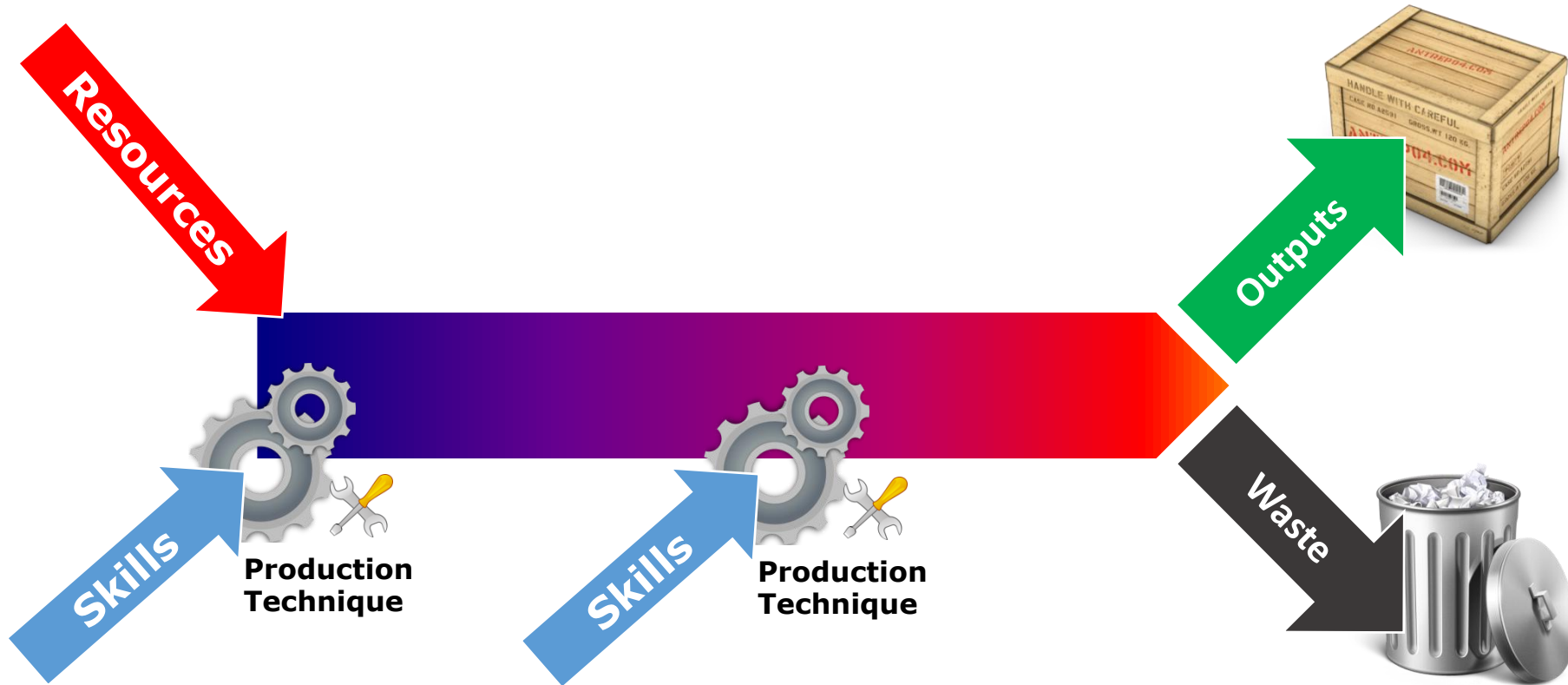


Main Questions:

2. What are the lucrative sustainable development opportunities in Arab Countries
 - A. Those opportunities can be approach either on sector-by-sector basis (water tech, renewable energy, waste recycling, food, ...), or cross-sector.
 - B. How have they been successfully (and unsuccessfully) addressed so far?

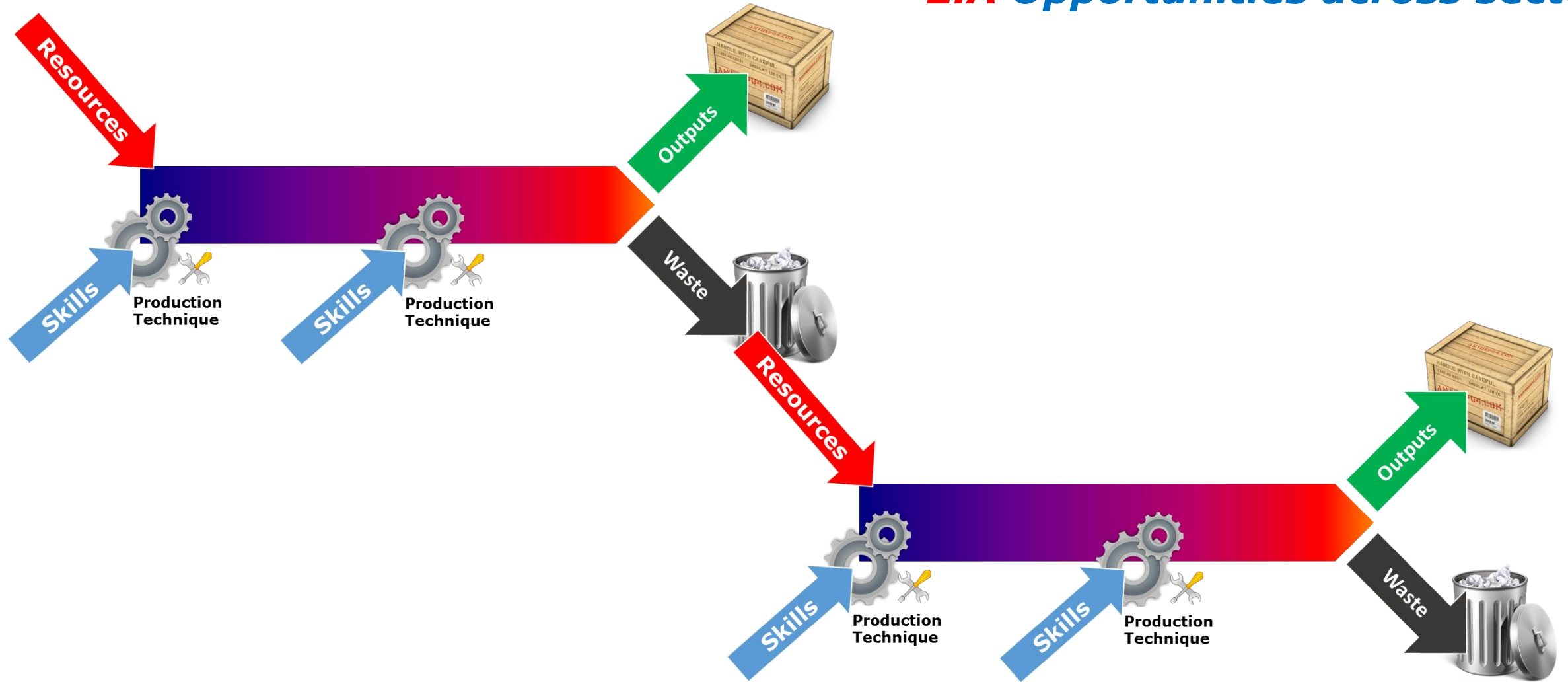
Sustainability & Production

2.A Opportunities in specific sectors



Sustainability & Production: Value Chain

2.A Opportunities across sectors



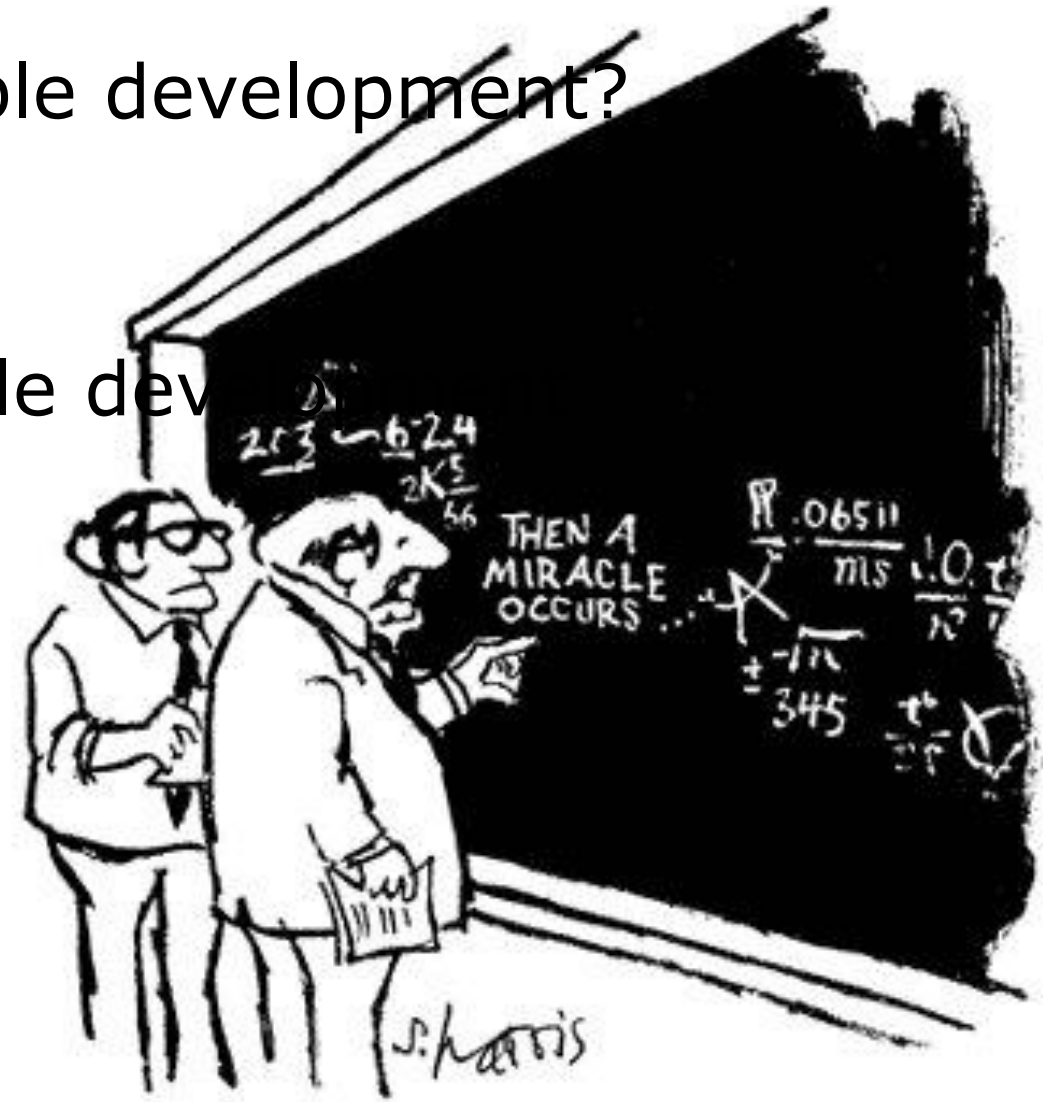
Knowledge Economy: “Inspiration Economy”

- “Democratization” of information
 - The “maker” movement
- Intellectual Property
 - Traditional Knowledge
 - Environmental Goods & Services
- The need for perspective:
 - Information is not knowledge.
 - The “cult of data”...



Main Questions:

- What do we want from sustainable development?
 - What is sustainable development?
- What are the lucrative sustainable development opportunities in Arab Countries
- 3** • **How can we implement?**
- While we wait...



"I think you should be more explicit here in step two."

Main Questions:

3. How can we implement the Addis Ababa Action Agenda (AAAA) highlighted a clear path for deploying science, technology and innovation towards achieving the Sustainable Development Goals (SDGs)?
 - A. How can Arab funds best be attracted and mobilized towards promoting entrepreneurship, partnerships with MNC, innovation funds, and business incubators? What are the unique characteristics of local regional structures that can offer a relative advantage?
 - B. Role of youth... *"si jeunesse savait, si veillesse pouvait"*
 - C. What are the regulatory changes that need to be made to facilitate such investments for innovation? And what are the structures currently in place that can best facilitate such investments?
 - D. What are the current channels for regional integration, both formal and informal. How do they support growth in technology implementation?
 - E. What is the role of startups in this context?

The different roles

- **Science:**

- Understand
- Speculate(?)

- **Engineering:**

- Apply
- Cost-Effectiveness

- **Industry:**

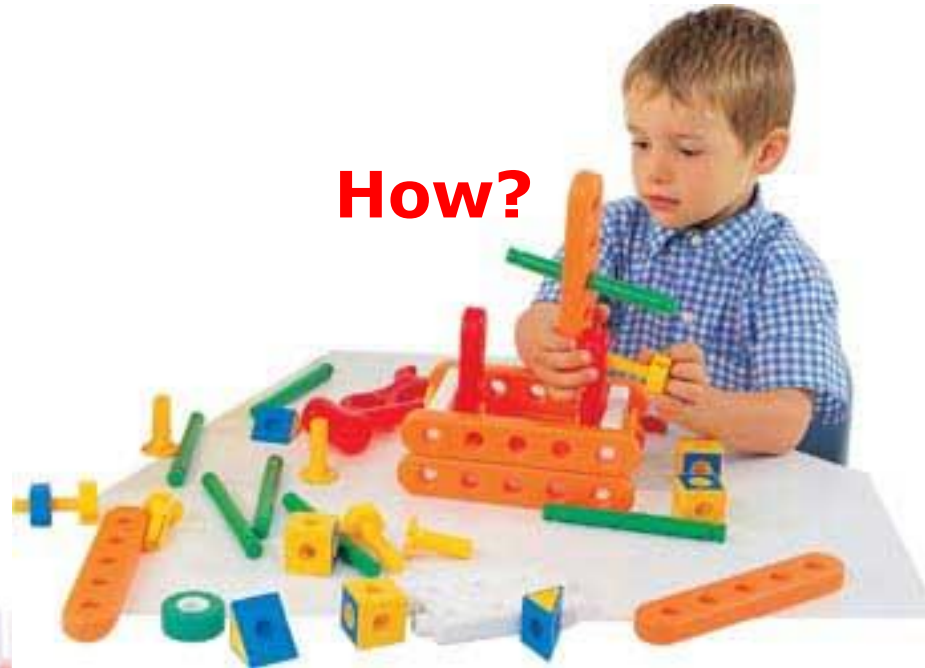
- Barriers to Entry
- Barriers to Exit

What?

Why?



How?



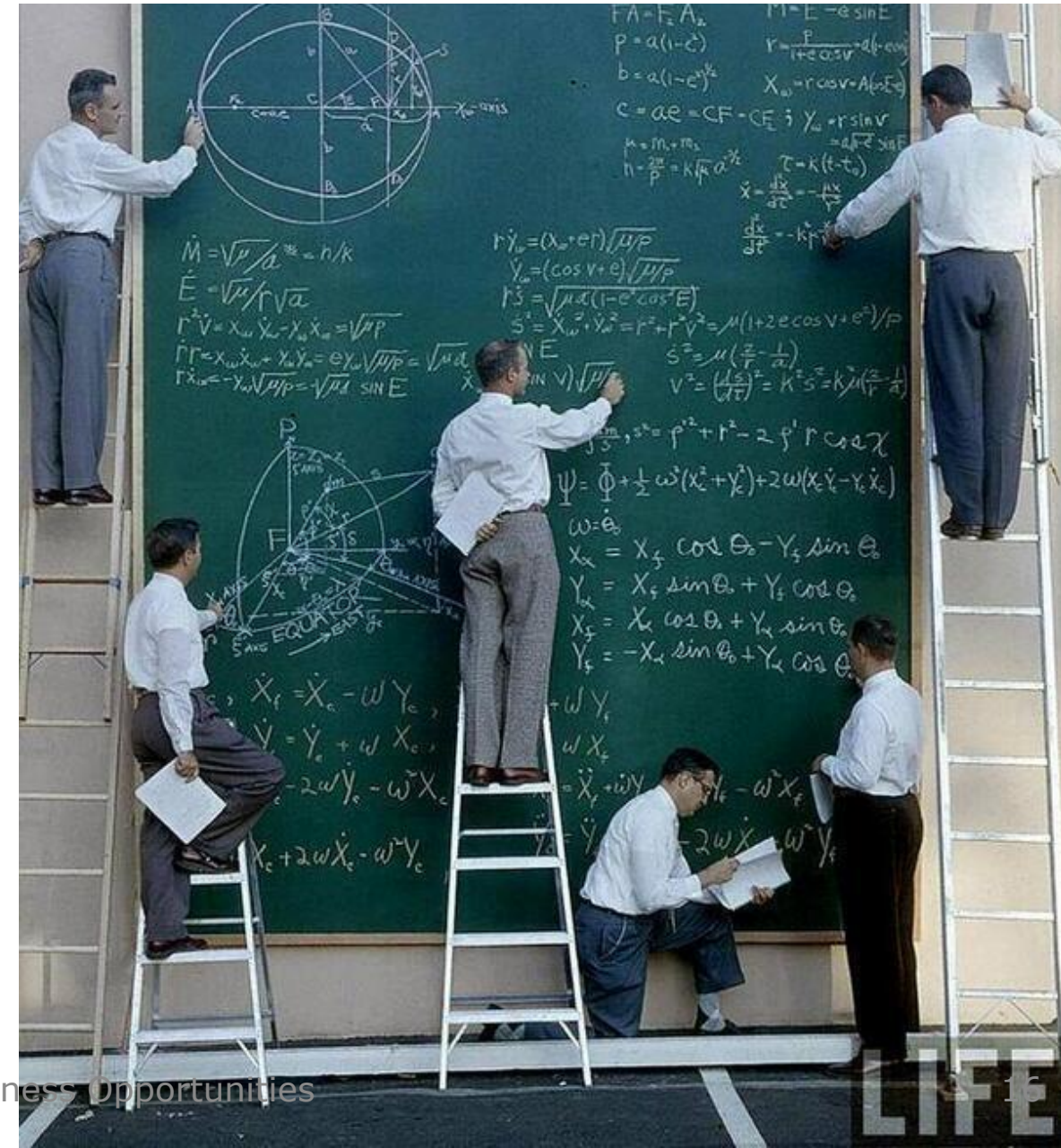
How Much?



Technology Transfer Priorities

1. Capacity Building
 - Young v/s Old: Innovate v/s Conserve OR New Tech v/s Perspective:
2. Governance & Intellectual Property
 - "open source"?
 - IP Policy:
 - Country-Level (National Needs) v/s Institution-Level (Business Needs)
3. Finance
 - Leverage "Private Finance"
4. Link: Private-Public
5. R&D
 - Educational Institutions, Industry, SME's...Individual

...culture?

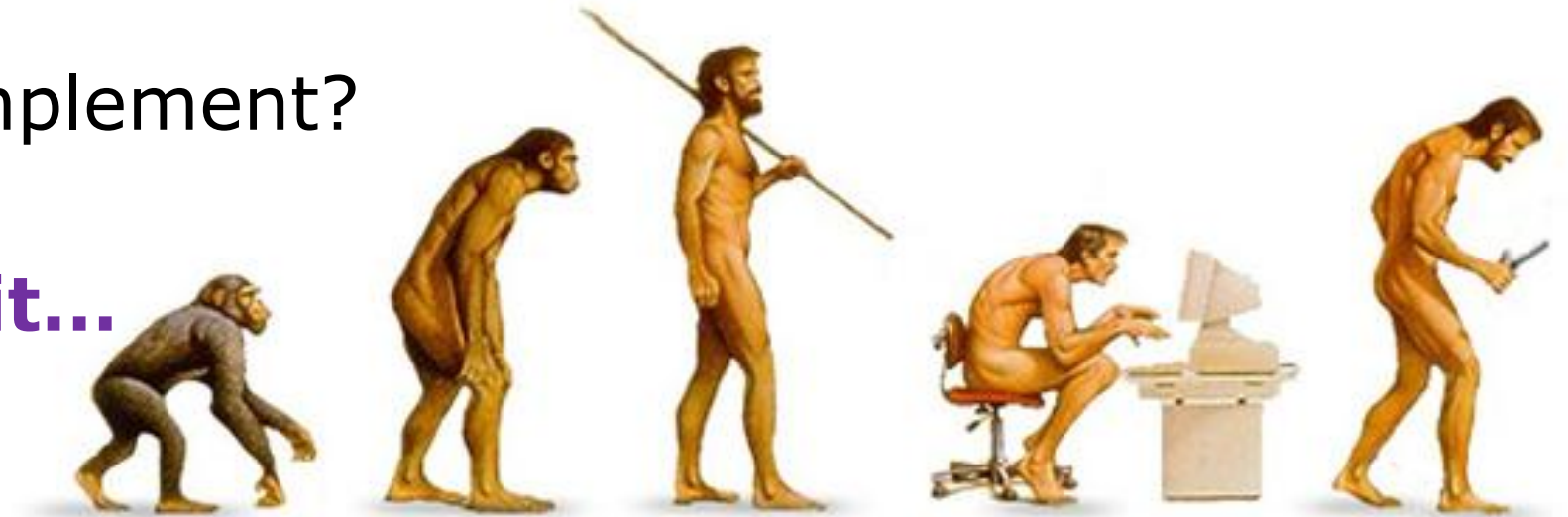


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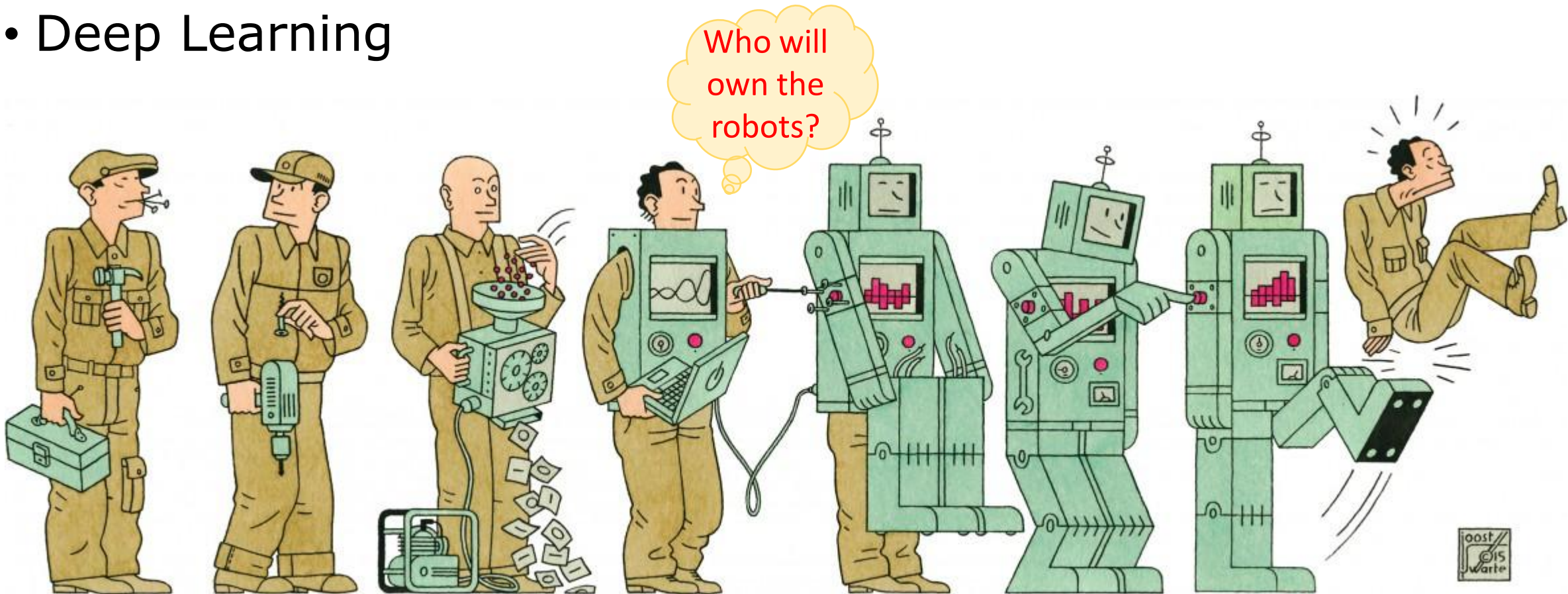
4

• **While we wait...**



Capital Substitutes for... Human Minds?

- Genetic Algorithms
- Deep Learning



Capital Substitutes for... Human Minds?

“We just have to understand that everything that we know how to do, machines will eventually do better than us”

G. Kasparov

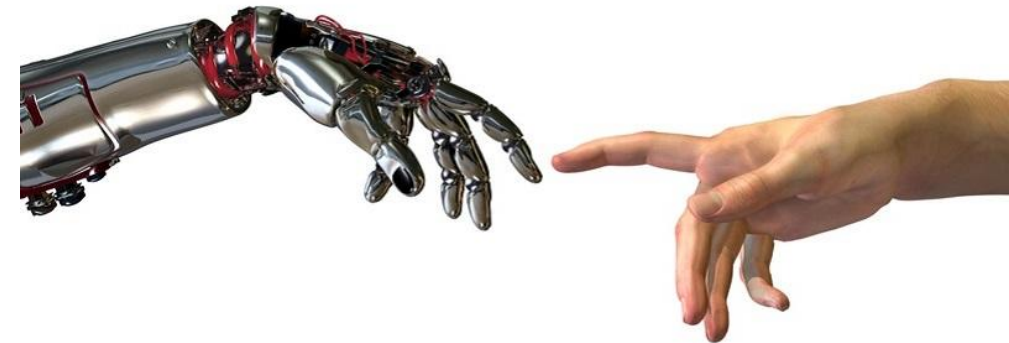


- School infrastructure:
 - One-way street, Little interactive exchange.
 - Teach “How”, not just “What”: Train to “Ask” (no “sacred cows”)



• Human+Computer

- Prune variations, so orient computer;
- See where different programs disagree, and evaluate variations;
- Time management: focus software on any given simulation;
- The human knows the “terrain”



At the Margin: Capital Substitutes for... Resources?

- 3D Printing / Additive manufacturing
 - Nano-technologies?
- Bio-Engineering / Gene Editing
 - Gene Drives risks
- ...Nano-Manufacturing?
- New Techs:
 - Low Barriers to Entry



Thank You

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