

7th German-Brazilian Dialogue on Science, Technology and Innovation

WORK ORGANIZATION AND SKILLS REQUIREMENT IN THE DIGITAL ERA

Afonso Fleury

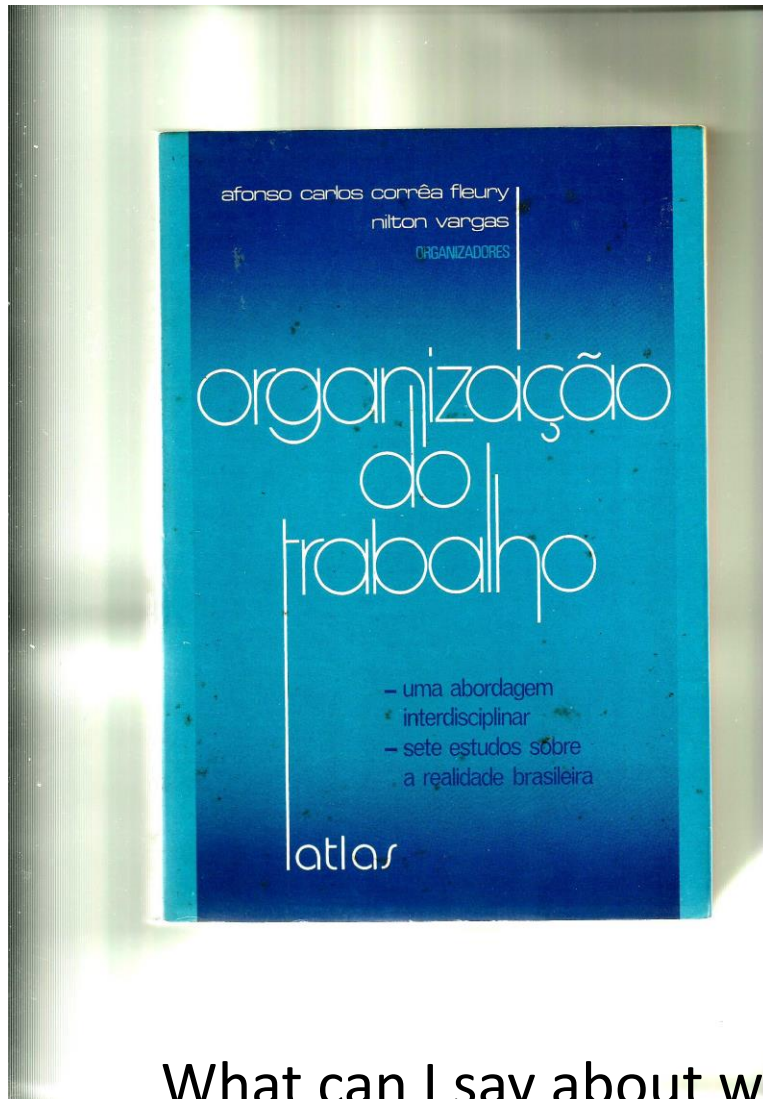
Polytechnic School (Poli) – University of São Paulo

IF AT&T DOES NOT MOVE FAST,
IBM WILL RULE THE WORLD.

STATEMENT HEARD IN SEMINAR LIKE THIS AT THE
UNIVERSITY OF SUSSEX, 1985

TIME OF THE MICROELECTRONICS
REVOLUTION

Sometime ago ...



Organização do trabalho:

- uma abordagem interdisciplinar
- sete estudos sobre a realidade brasileira

Work organization:

- an interdisciplinary approach
- seven studies about the Brazilian reality

Afonso Fleury e Nilton Vargas

Editores Atlas, 1983

What can I say about work organization in the digital era?

TECHNOLOGY CHOICE



WORK
ORGANIZATION

INDUSTRIAL POLICIES; S&T POLICIES



TECHNOLOGY CHOICE



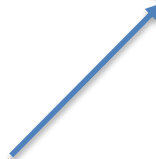
INDUSTRIAL POLICIES; S&T POLICIES



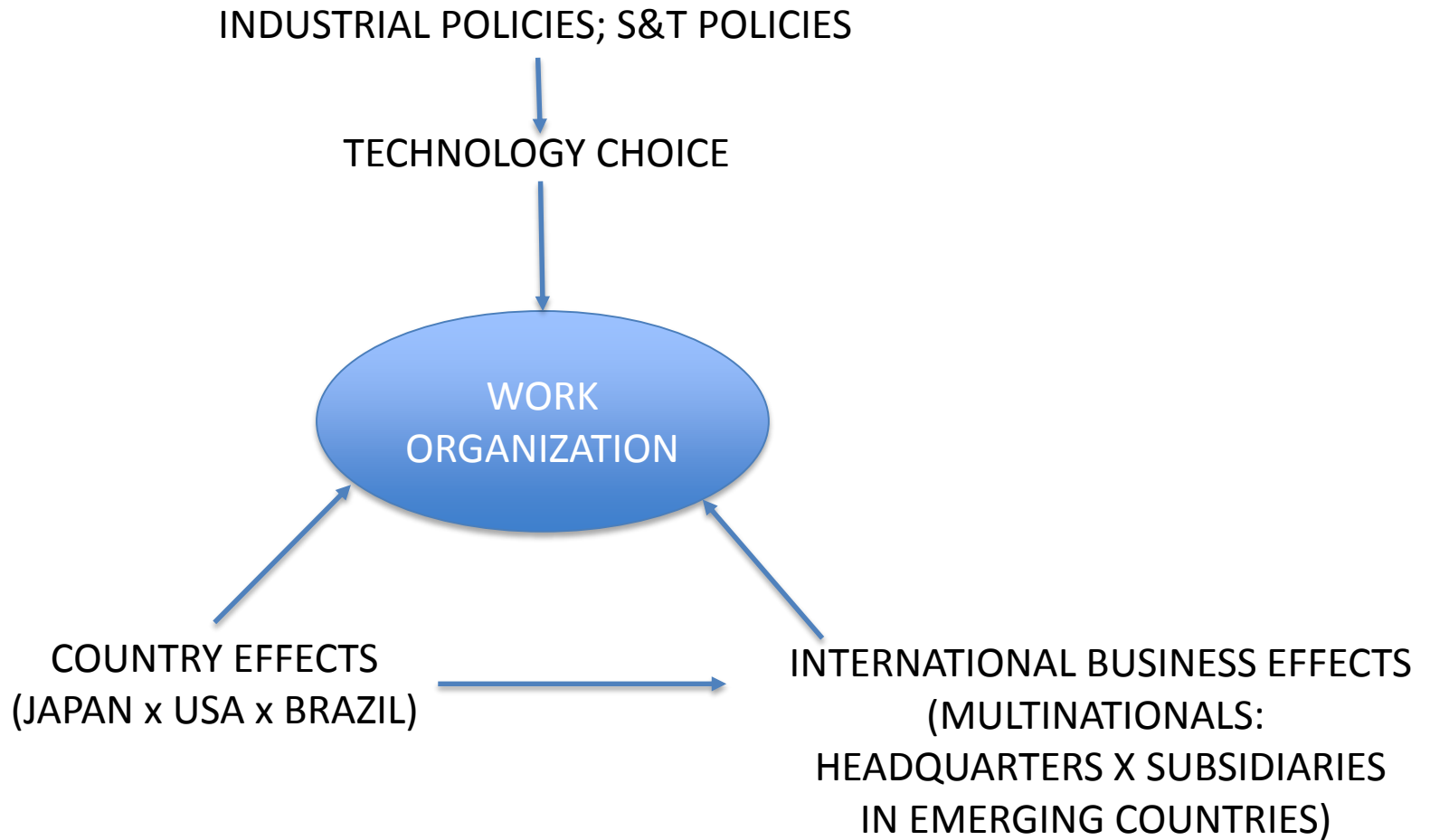
TECHNOLOGY CHOICE



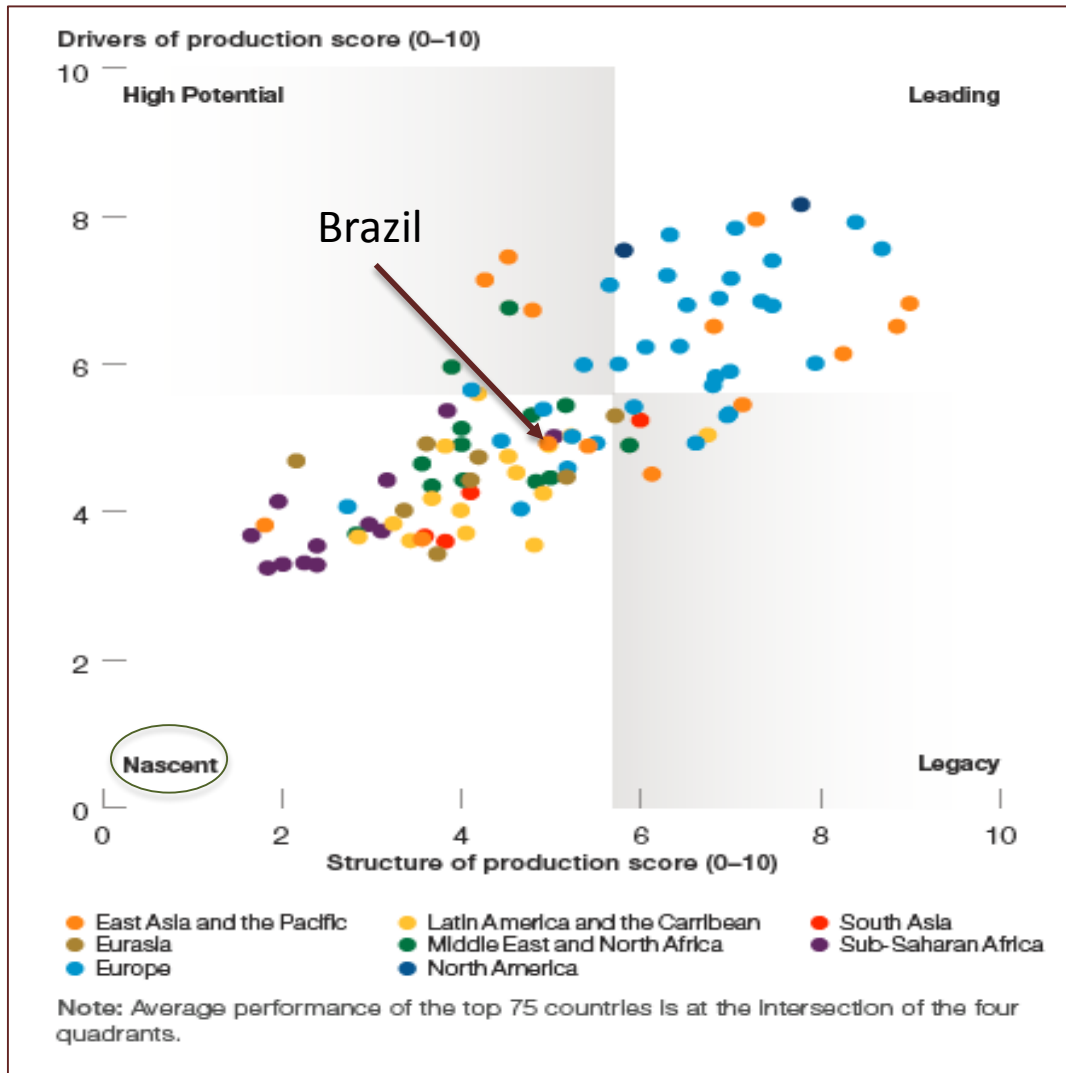
WORK
ORGANIZATION



COUNTRY EFFECTS
(JAPAN x USA x BRAZIL)



Readiness for the future of production



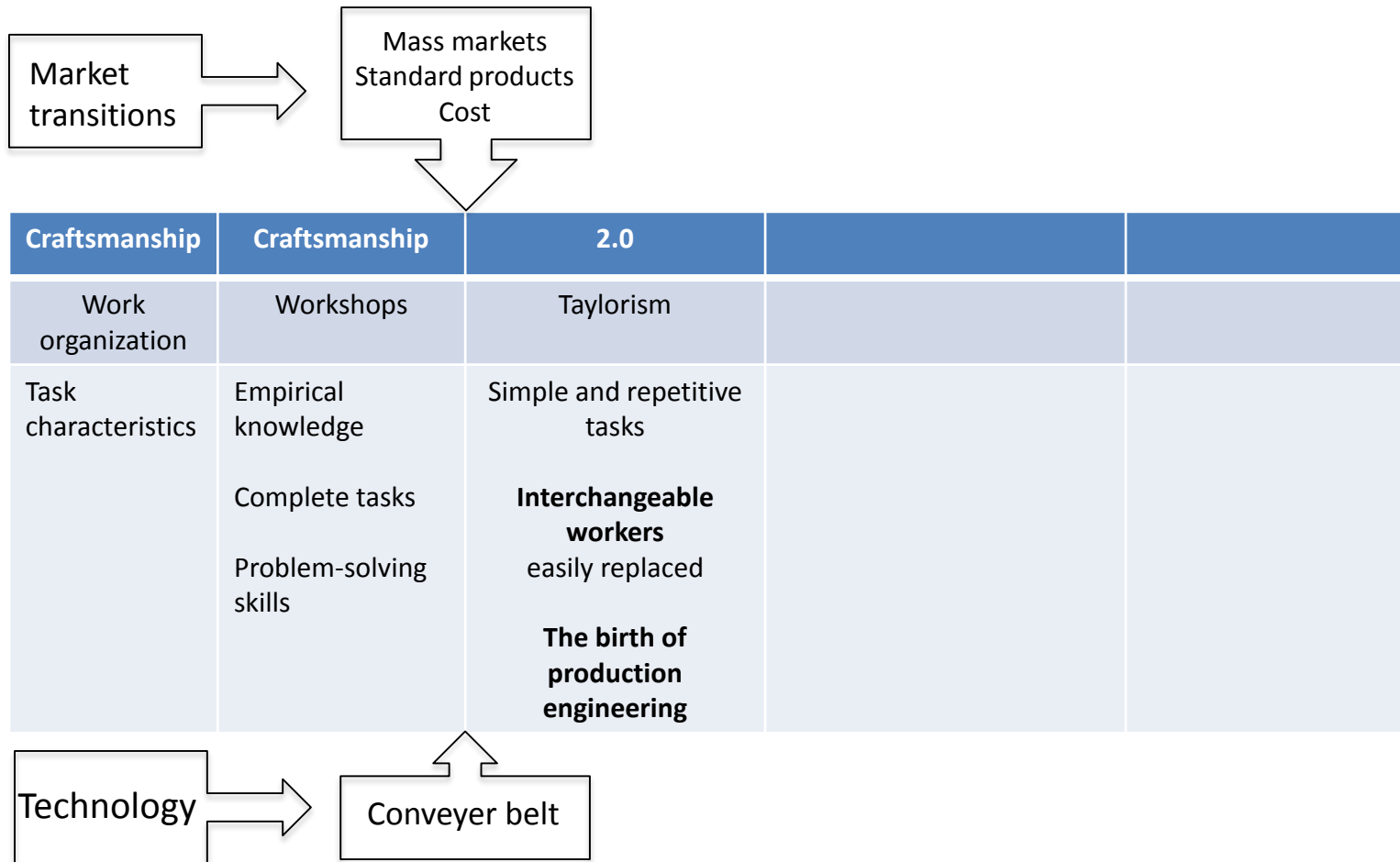
- Sustainable resources (19/100)
- Demand environment (21/100)
- Technology & innovation (45/100)
- Global trade & investment (54/100)
- Institutional framework (72/100)
- Human capital (74/100)
 - 1 -
 - 8 - Digital skills among population
 - 17 -

Source – Readiness for the Future of Production (WEF, 2018)

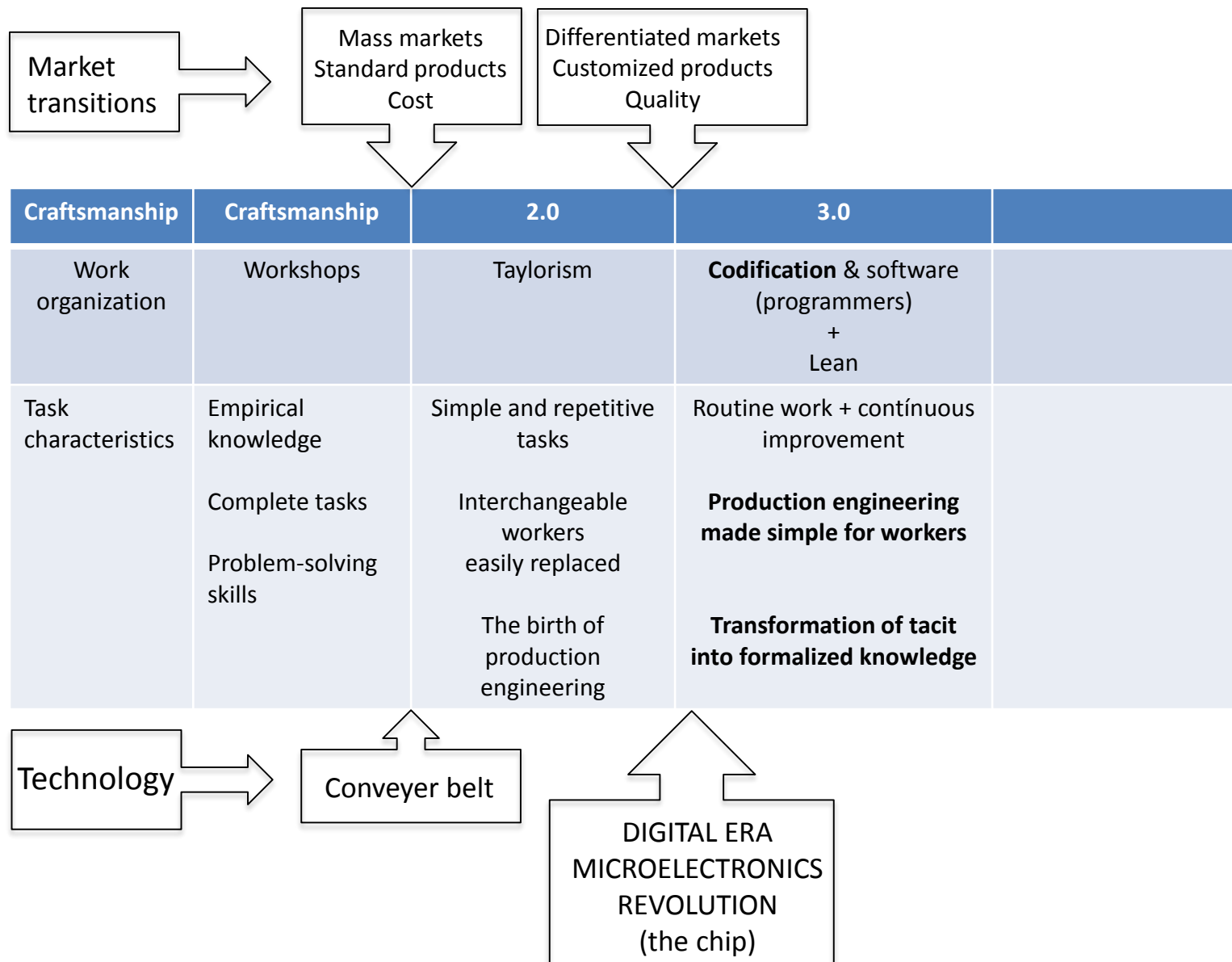
AGENDA

1. The evolution of work organization and skill requirements
2. The evolution of work organization and skill requirements in Brazil: drivers and anchors
3. Challenges
4. Concluding remarks

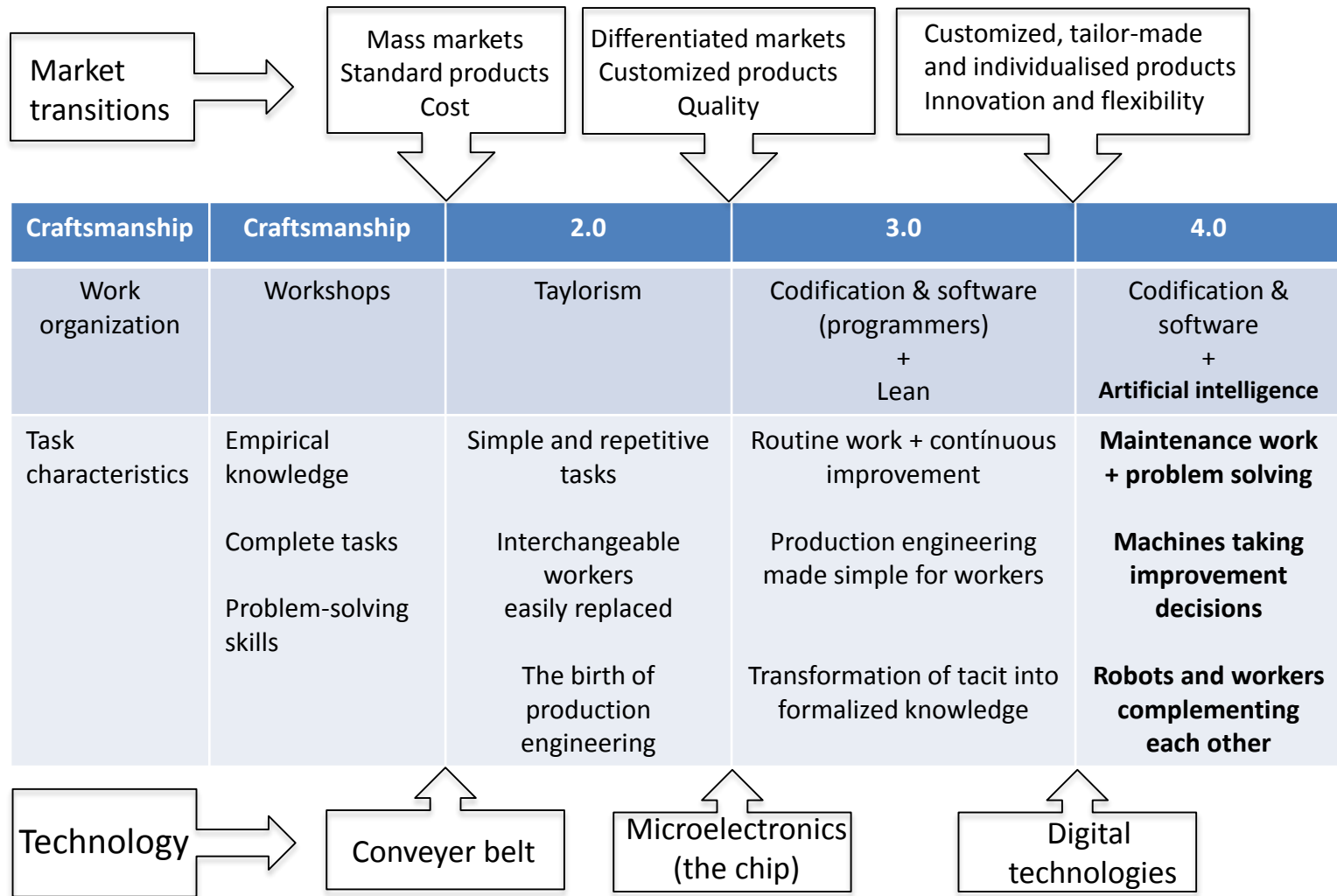
1. The evolution of work organization and skill requirements



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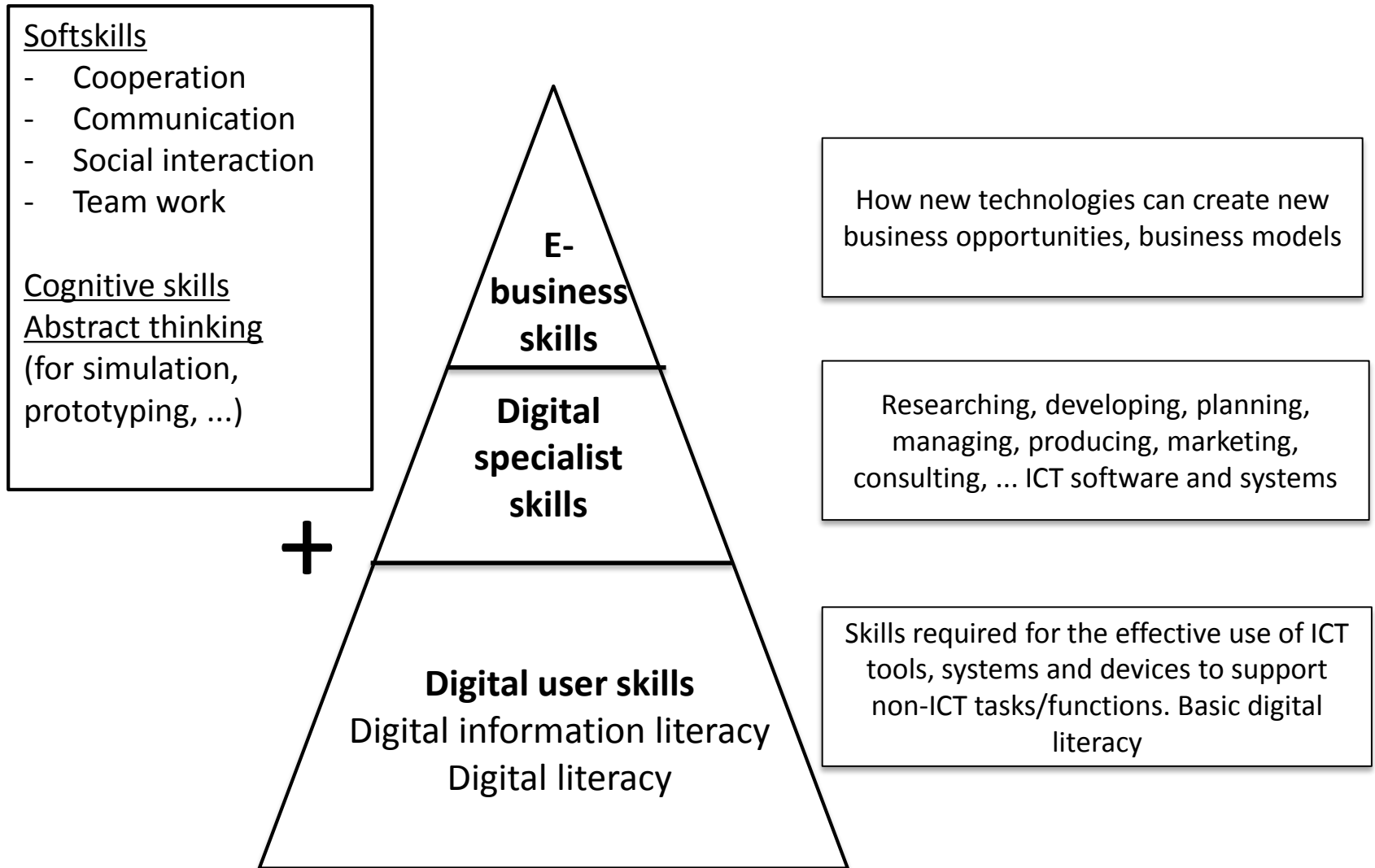
1. The evolution of work organization and skill requirements



1. The change in tasks and skills

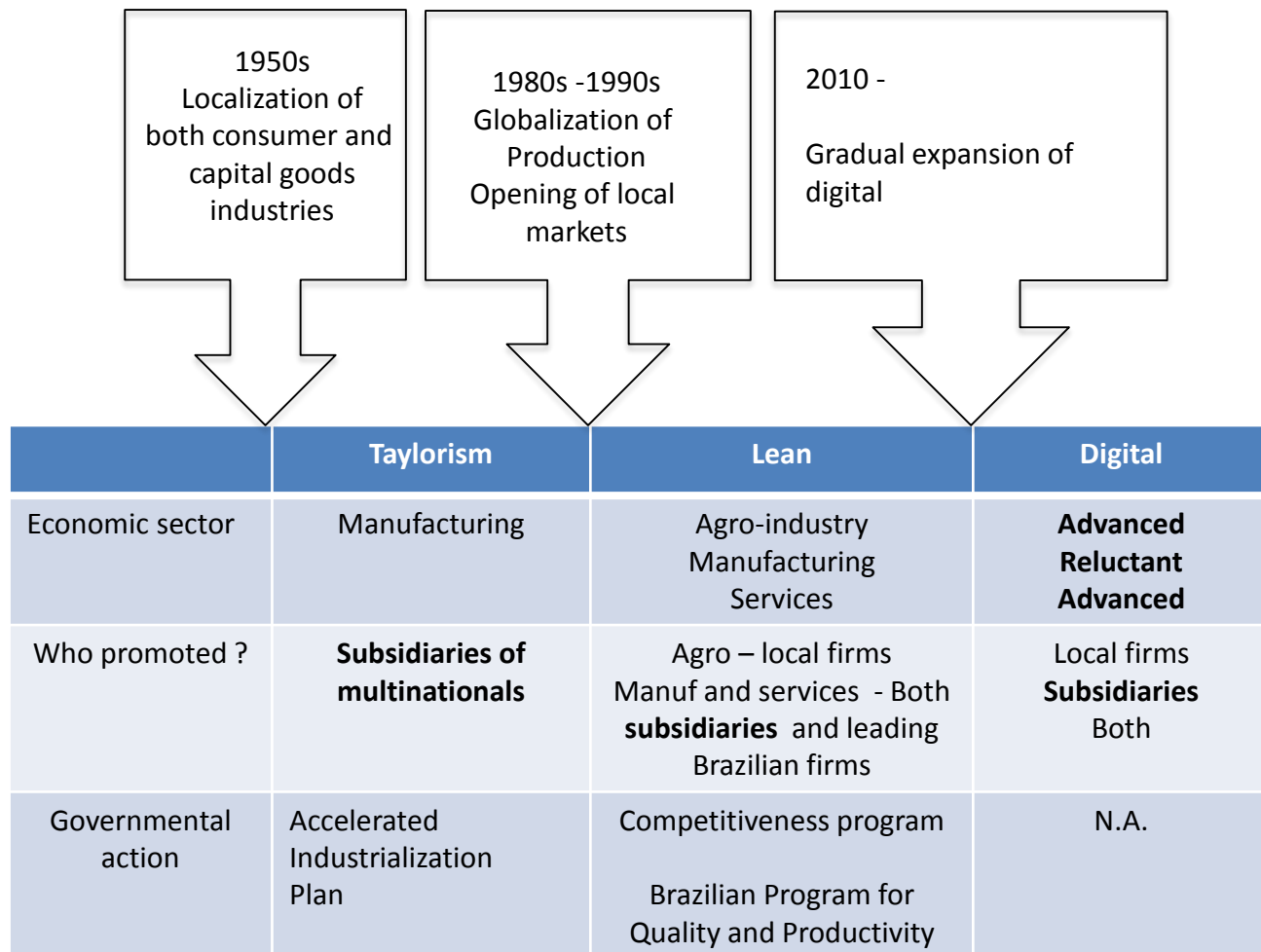
Cognitive	3.0 Lean	4.0 Digital
Manual	2.0 Taylorism	3.0 Lean
	Routine	Non-routine

1. Skills for digital transformation

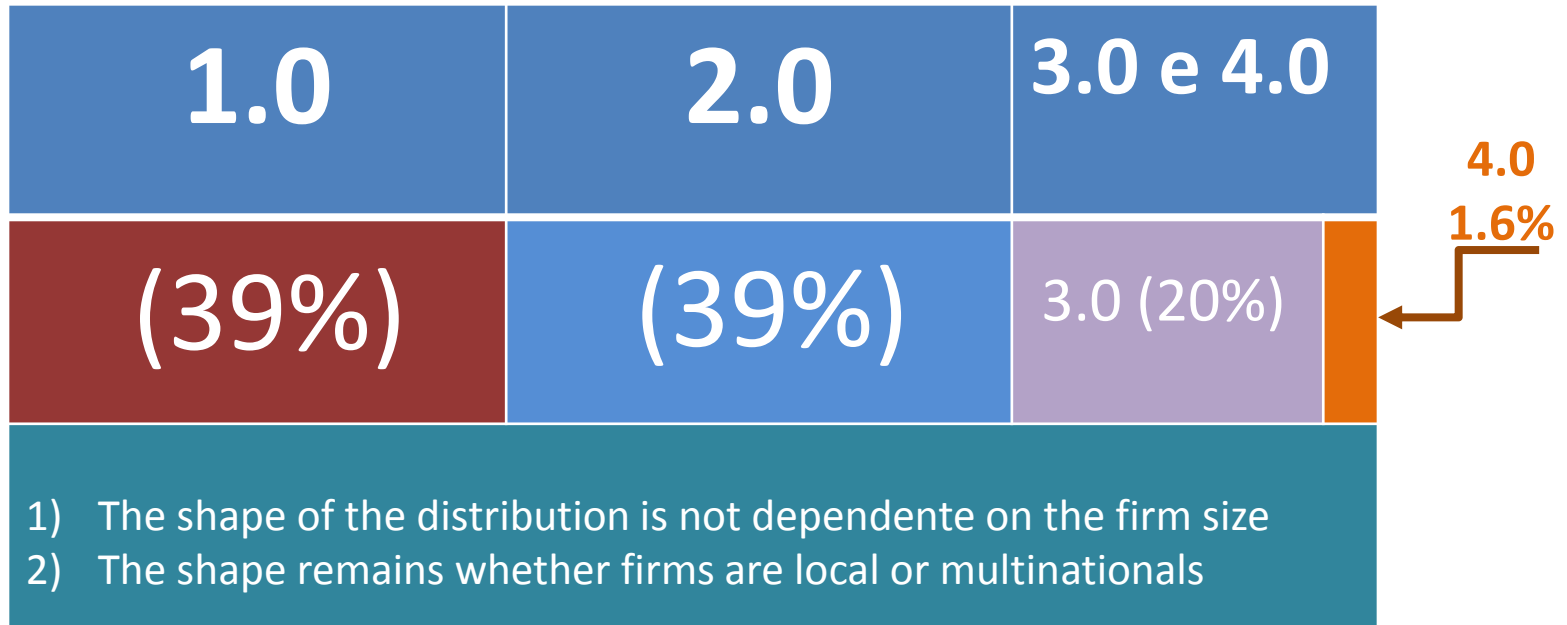


Source: European Commission, 2014

2. Work organization and skills requirement in Brazil



Current stage of development of firms in the Brazilian industry



Fonte: CNI – Confederação Nacional da Indústria 2017

3. Challenges

Deindustrialization

A) When foreign capital takes control of Brazilian-owned firms

Cases: Embraco, Embraer, Braskem, ...

B) When any firm closes its local operations (fully or partially)

are multinationals closing their local subsidiaries operations due to the possibilities created by the use of digital Technologies?

Agro-industry

Services (several business áreas are doing well with digital)

3. Challenges

The enhancement of digital literacy and digital capabilities will depend on:

- new forms of education, professionalization and requalification
- new forms for contractual agreements

4. Concluding remarks

To accelerate the modernization of Brazilian manufacturing:

- the formulation of a national program for digital dissemination
(digital is a key element for **country competitiveness** in the global economy)
- the expansion of local capabilities in digital technologies
 - creating and enforcing existing **digital innovation ecosystems**
 - enforcing international partnerships
- expansion of multinationals by counteracting trends to reshore or backshore that are stimulated by digital technologies

THANKS FOR YOUR ATTENTION!

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