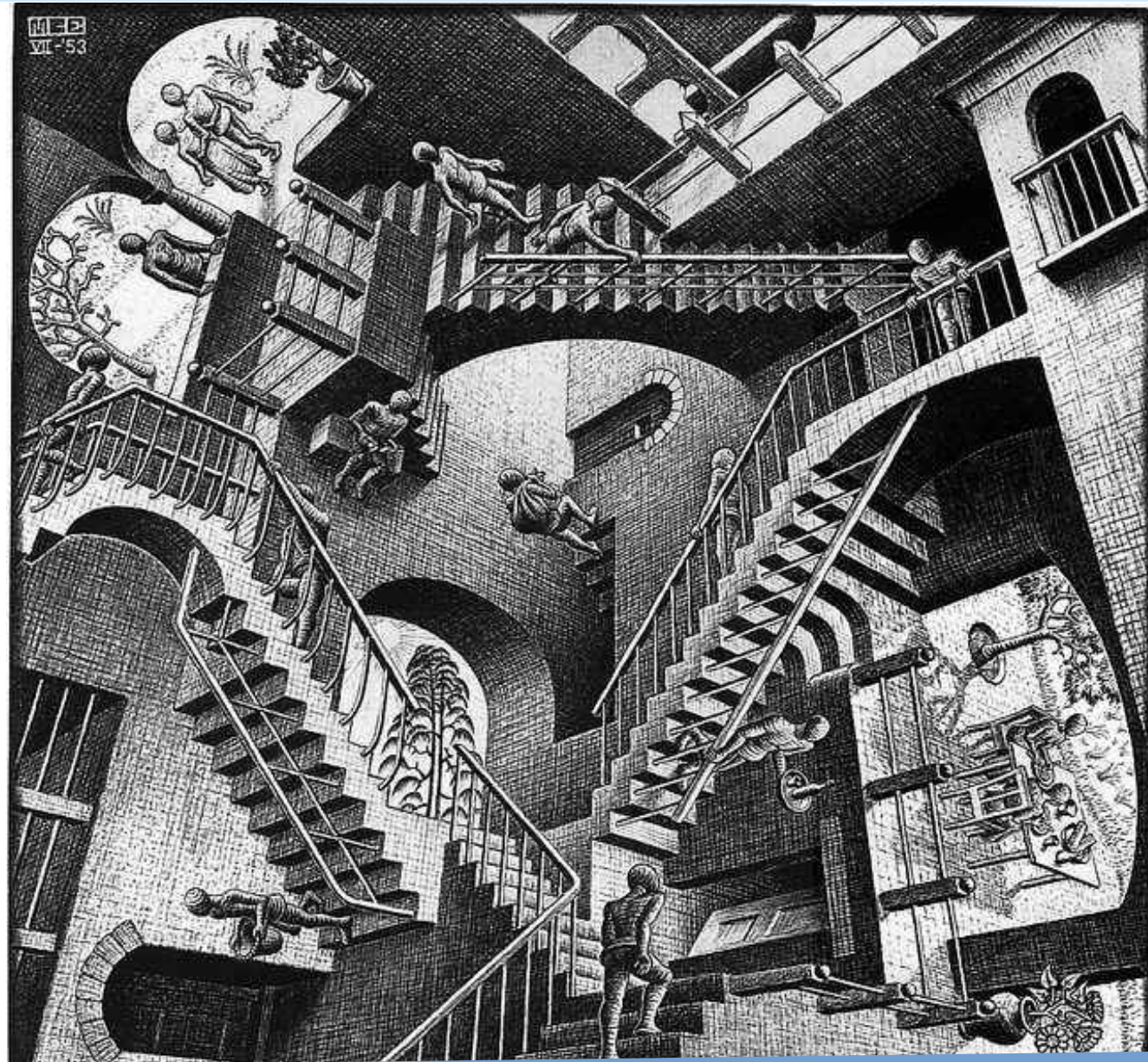


Sociologia dell' Organizzazione

2021-22 II Semestre

**L12 - Opzione 4 - IV Rivoluzione
industriale e processi
organizzativi: le implicazioni
politiche, socio-economiche
e ambientali della seconda
era delle macchine**

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Programma opzione 4

Opzione 4. PERCORSO TEMATICO: *IV Rivoluzione industriale e processi organizzativi: le implicazioni politiche, socio-economiche e ambientali della seconda era delle macchine*

- P. Rossi, *L'innovazione organizzativa. Forme, contesti e implicazioni sociali*, Roma, Carocci, 2018. Solo Cap V: "L'innovazione dei processi di lavoro"
- A. Foryciarz, D. Leufer, K. Szymielewicz, *Black-Boxed Politics: Opacity is a Choice in AI Systems*, Medium, 2019. <https://medium.com/@szymielewicz/black-boxed-politics-cebc0d5a54ad>
- P. Fleming, *Robots and Organization Studies: Why Robots Might Not Want to Steal Your Job*, *Organization Studies*, 2019, Vol. 40(1), pp. 23–37. <https://journals.sagepub.com/doi/10.1177/0170840618765568>
- S. Ivaldi, G. Scaratti, E. Fregnan, *Dwelling within the fourth industrial revolution: organizational learning for new competences, processes and work cultures*, *Journal of Workplace Learning*, Vol. 34 No. 1, 2022, pp. 1-26. <http://dx.doi.org/10.1108/JWL-07-2020-0127>
- J. Korhonen, A. Honkasalo, J. Seppälä, *Circular Economy: The Concept and its Limitations*, *Ecological Economics*, n.143 (2018), pp. 37–46, <http://dx.doi.org/10.1016/j.ecolecon.2017.06.041>
- S. Pollard, A. Turney, F. Charnley, K. Webster, *The circular economy – a reappraisal of the 'stuff' we love*, *Geography*, Vol 101, Part 1, Spring 2016, <https://doi.org/10.1080/00167487.2016.12093979>



A technological revolution?



A long time ago, in a galaxy
far, far away....



Ma questo è davvero tanto lontano?



Cosa è per voi industria 4.0 o seconda era delle macchine?

- Se e come influenza la vostra vita oggi?
- Se e come potrebbe / dovrebbe cambiare la vostra vita e il vostro lavoro nel futuro prossimo?
- 2 scenari possibili ...

- Se e cosa vi preoccupa?
- Se e cosa vorreste cambiare?
- Se e cosa potreste cambiare?



Just few years ago

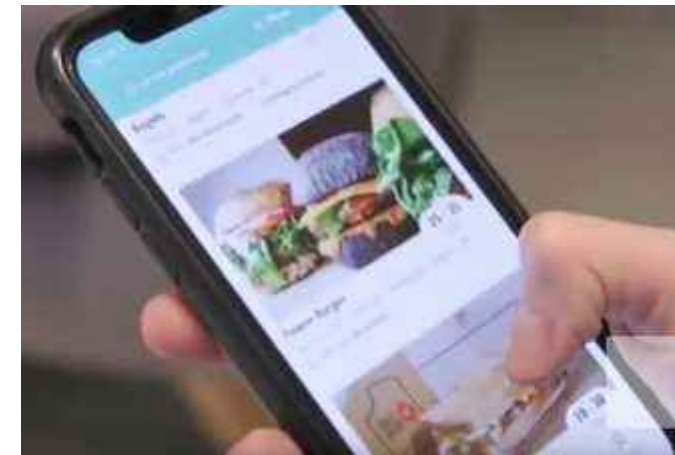
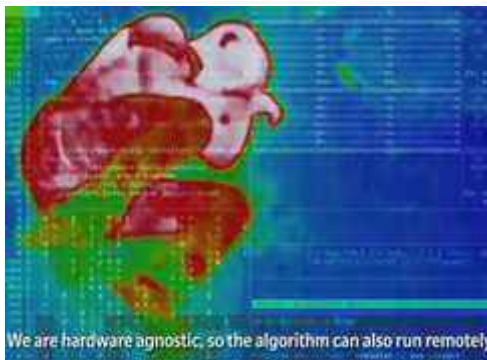
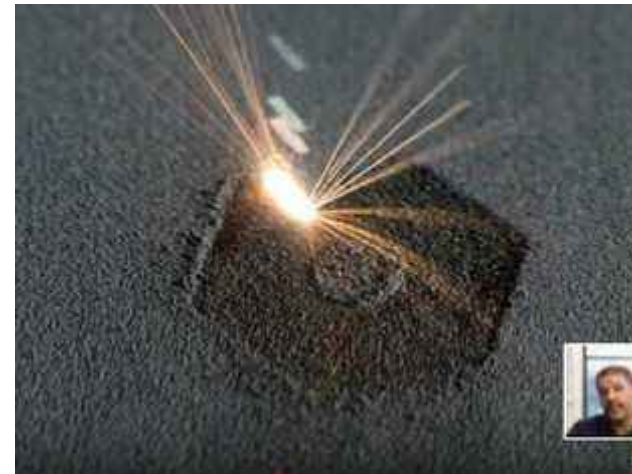
We were discussing the end of work and many other dreams / nightmares ...



A technological revolution?



Work places ... with / without / with less / with different workers



A technological revolution?

Self-driving trains, cars, aeroplanes and amenities ...



Retirement homes



Health care, smart home and other issues



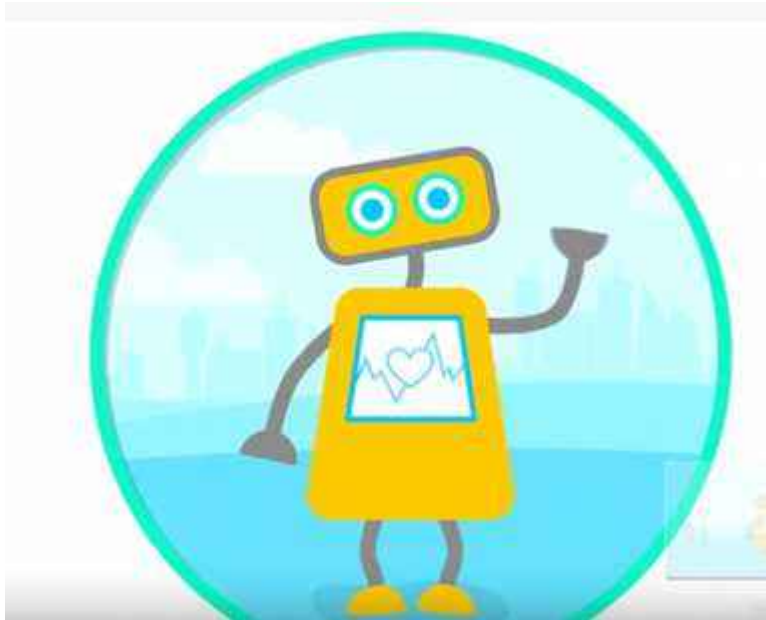
Legal, financial , computer services and management ...



And .. MOOC
“Massive, open online courses”



Virtual psychiatrist, psychologist and doctors?



A technological revolution?



Social and political issues ...

E-commerce, control and privacy, killer-robots, ...



So,
What kind of revolution is this????

And which social, economic, political
and environmental-ecological impact?



Non si ferma la carenza dei microchip (L'indipendente 02-05-2022)

Pat Gelsinger, CEO di Intel, ha discusso con CNBC la crisi della carenza dei chip, rivelando le sue previsioni aggiornate. L'uomo aveva in passato visto nel 2023 l'anno di uscita dalla crisi, tuttavia durante l'intervista ha rivisto la sua posizione facendola al 2024. A rallentare il tutto sarebbe un circolo vizioso del settore tech: i macchinari necessari a intensificare la produzione statunitense di semiconduttori faticano a essere prodotti perché mancano i semiconduttori che loro stessi dovrebbero produrre.

P. Rossi, *L'innovazione organizzativa. Forme, contesti e implicazioni sociali*, Roma, Carocci, 2018. Solo Cap V: "L'innovazione dei processi di lavoro"

Tema: innovazione organizzativa, lavoro e innovazione tecnologica

Il testo introduce questa opzione, collegandosi al nostro programma

- Innovazione di processo e di prodotto
- Le innovazioni proprie del taylorismo, fordismo e post-fordismo
- Automazione dei processi: smart e mass automation, flessibilità e efficienza, produzione e servizi
- Digitalizzazione dei processi di lavoro: industria 4.0, produzione e servizi

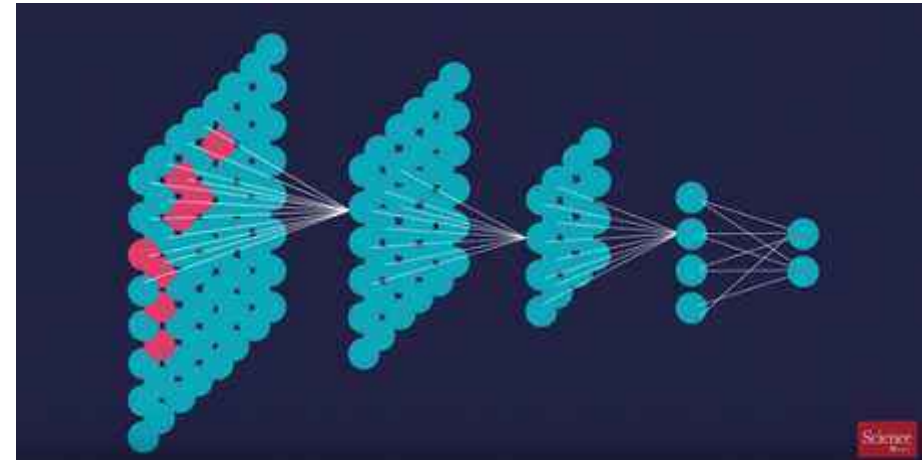


A. Foryciarz, D. Leufer, K. Szymielewicz, Black-Boxed Politics: Opacity is a Choice in AI Systems, Medium, 2019. <https://medium.com/@szymielewicz/black-boxed-politics-cebc0d5a54ad>

Tema: black-boxes nei sistemi di AI sono necessari/ineluttabili?

No, l'idea che i sistemi di intelligenza artificiale siano troppo complessi per esserne spiegata la logica interna è falsa.

- In primo luogo chiarire di cosa si sta parlando
- Esempi di opacità che sono ... scelte politiche
- Necessità e possibilità della spiegazione oltre il presunto limite della competenza delle persone
- Fare chiarezza su obiettivi, valori, metodi, risultati, monitoraggio e valutazione delle conseguenze
- Processi decisionali: tecnico è politico



Robots and Organization Studies: Why Robots Might Not Want to Steal Your Job



UNIVERSITÀ
DI PISA

P. Fleming, Robots and Organization Studies: Why Robots Might Not Want to Steal Your Job, Organization Studies, 2019, Vol. 40(1), pp. 23–37. <https://journals.sagepub.com/doi/10.1177/0170840618765568>

Topic: studies about Robotics and artificial intelligence and the loss of many jobs due to automation... with few new ones replacing them.

But, moving over the polarization optimistic/pessimistic:

- Despite waves of computerization (including advanced machine learning), jobs have not disappeared.... And probably won't in the near future.
- Insights from organization studies can make a contribution
- Concept of 'bounded automation' to show how organizational forces mould the application of technology in the employment sector
- Need to put attention on
 - Socio-cultural-political reasons and implication of IT and AI applications and lack of
 - socio-economic dynamics (capitalism, neoliberalism),
 - poorly paid jobs which will most certainly proliferate
 - wider social justice issues



Opzione 3 (ecologia) e Opzione 4 (innovazione tecnologica)



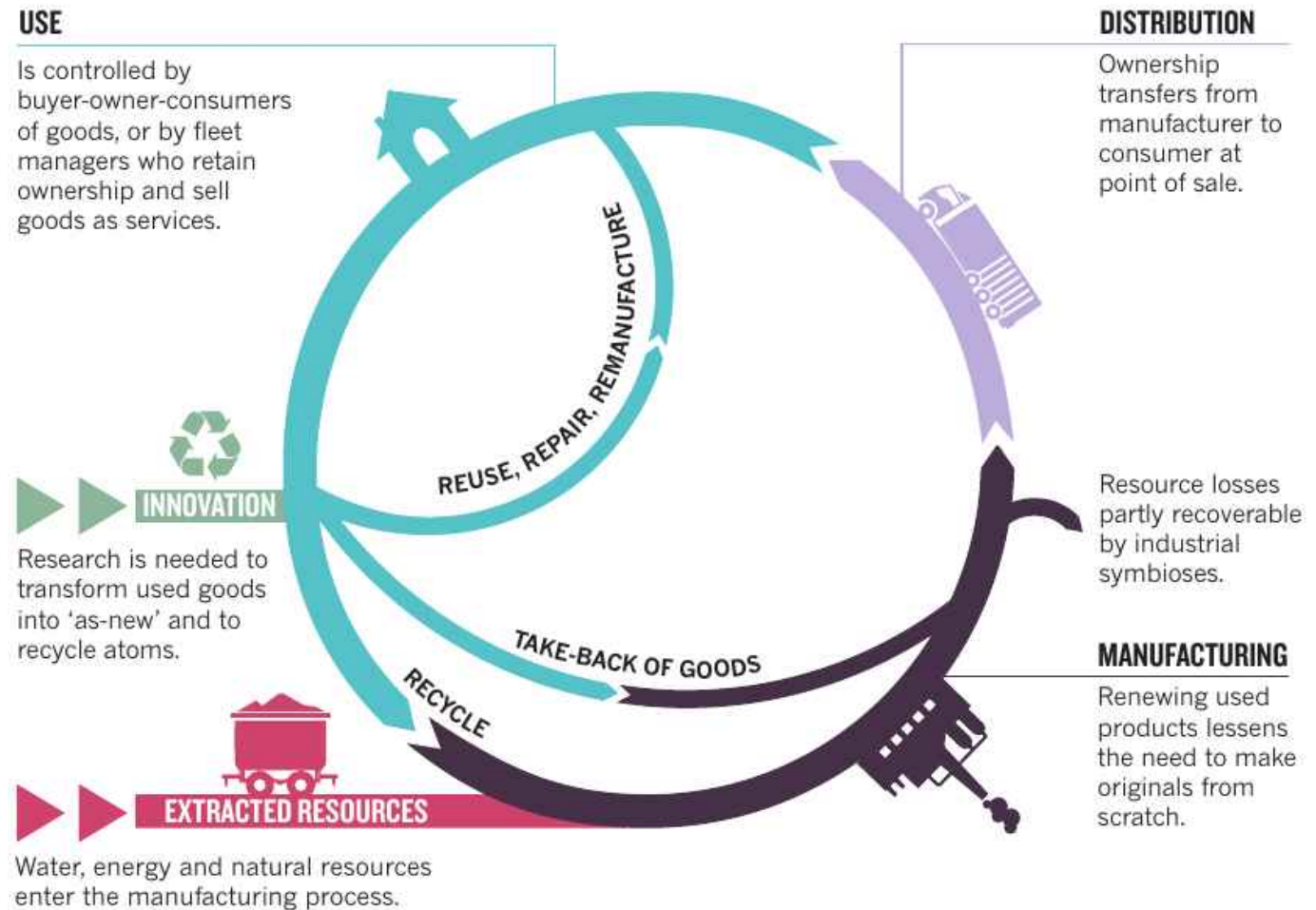
**Perché parlare di organizzazione,
ecologia e sostenibilità?**

“The major problems in the world are
the result of the difference between
how nature works and the way people
think” (Gregory Bateson)

Quali implicazioni? In parte discusse ...

Esempio:

L'economia circolare è la soluzione?



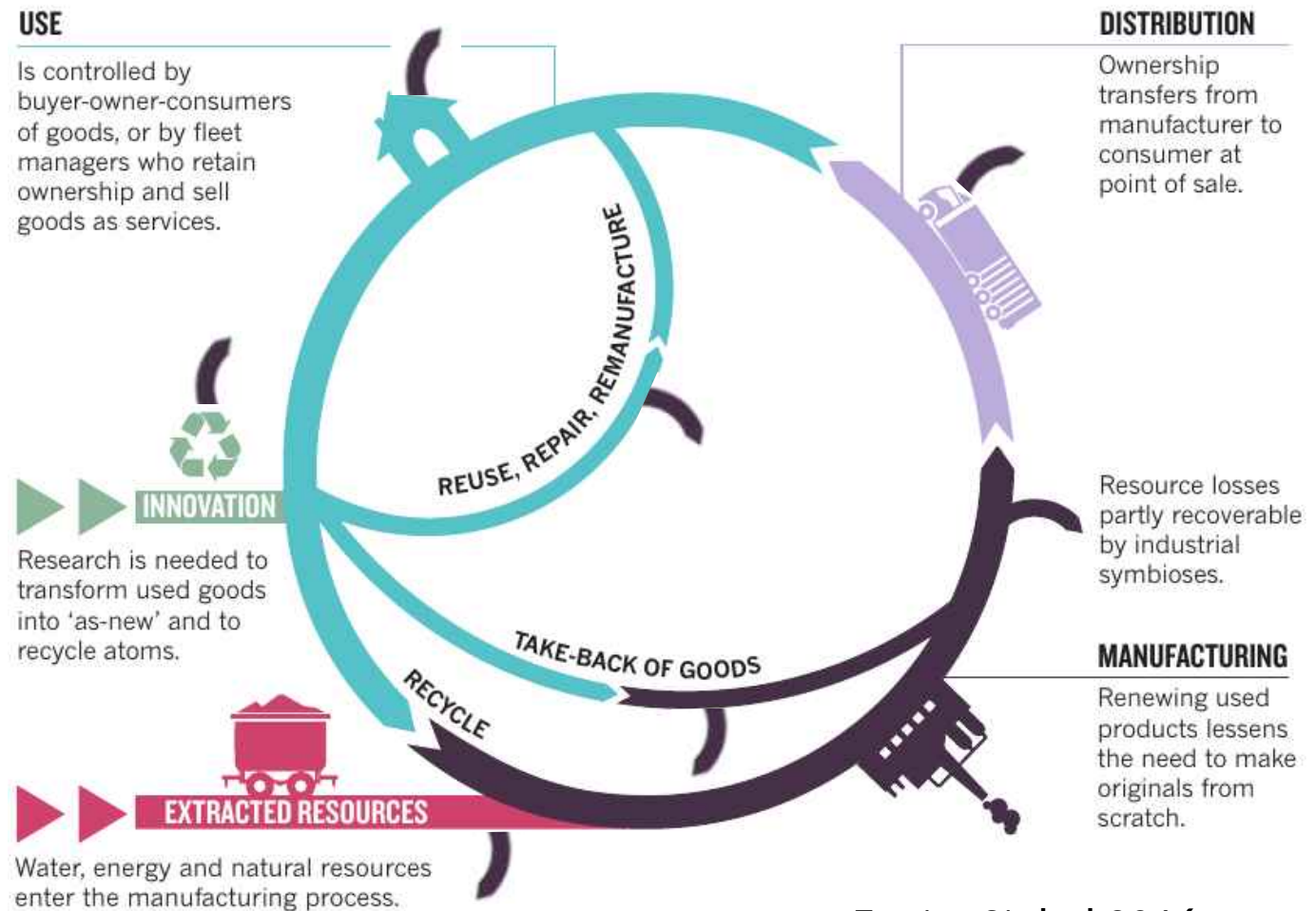
Fonte: Stahel 2016.



Esempio:

L'economia circolare
è la soluzione?

Innanzitutto non è
così semplice →

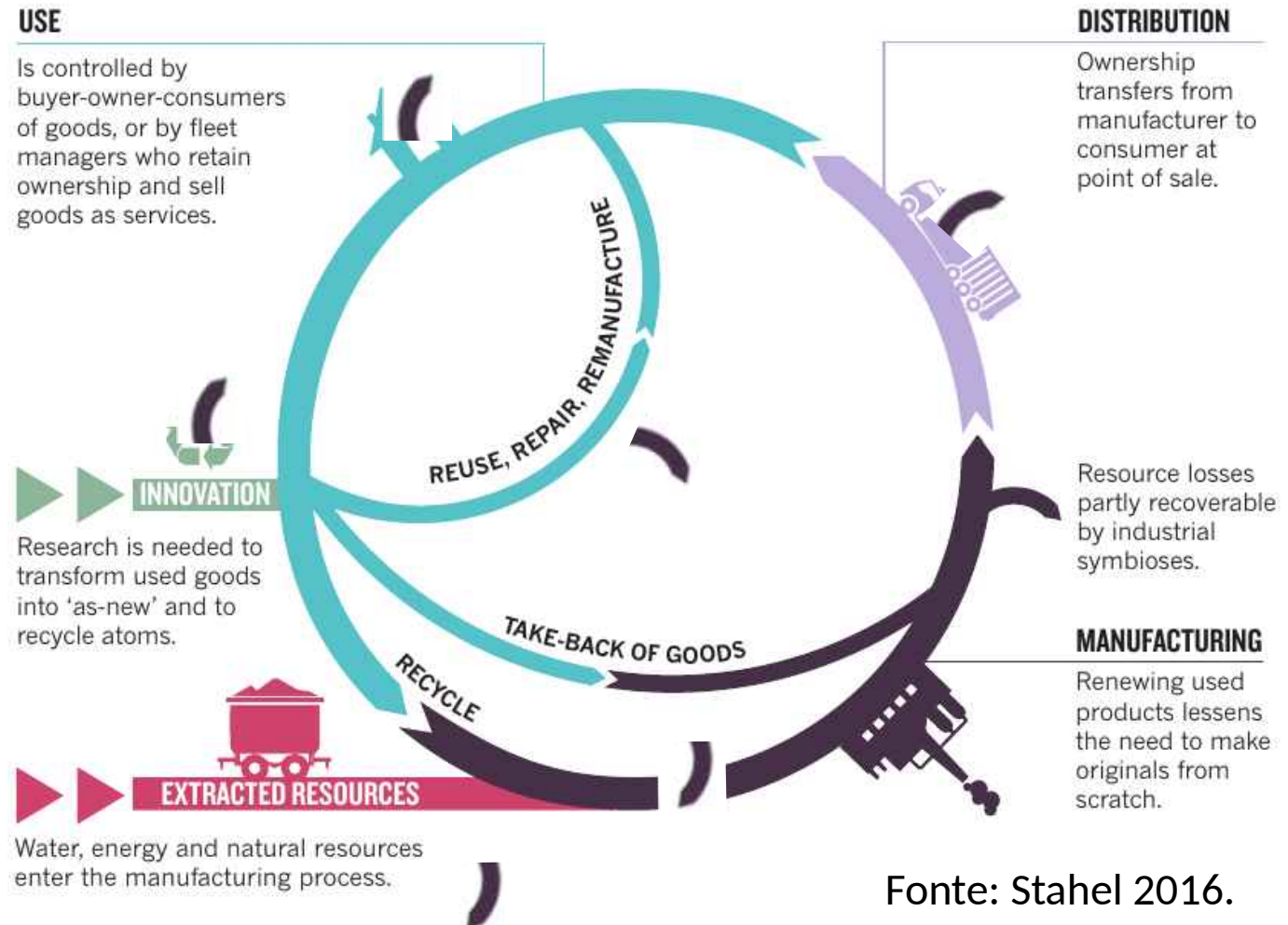


Fonte: Stahel 2016.

Esempio:

L'economia circolare è la soluzione?

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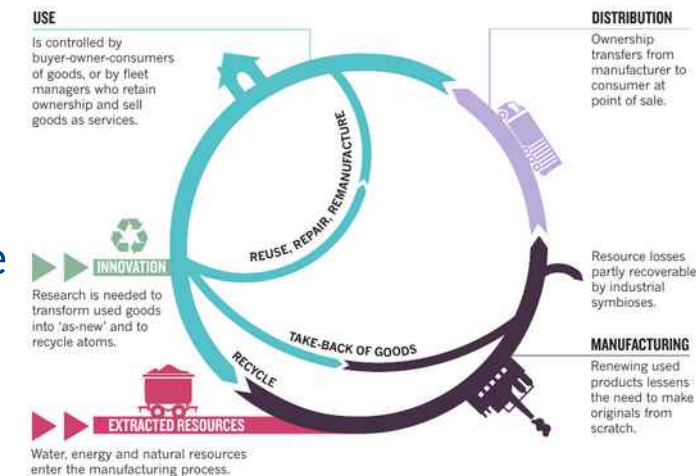
Soprattutto non è la soluzione ...



Topic: the potential role of Circular Economy (CE) in the transition towards a really strongly reduced carbon- and material-footprint?

The principle (Korhonen *et al.* 2018): a kind of functional and **adaptive reciprocity** between economic and natural cycles:

- **CE should utilize nature's cycles** for preserving materials, energy and nutrients for economic use
- **The material flows** released from economy to nature should be in a form in which nature can utilize them in its own functions.
- **CE should not be a process peculiar to some productive sectors** but should take the form of a kind of inter-organizational and network environmental and sustainability management, involving a cultural change in the way corporations act, are organized and interact with the organizational environment, as well as in the way consumption occurs, in an attempt “to reduce the nature-society-nature linear throughput flow of materials and energy”.

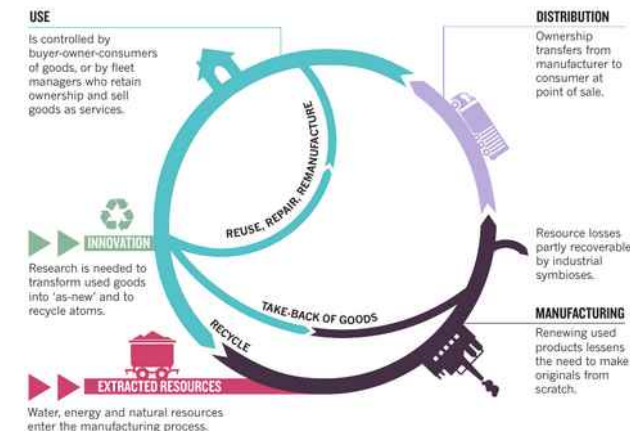


How circular may be the circular economy?



6 main limits to the application of CE principles in production-consumption processes:

- 1. Principles of thermodynamics (second law):** complete recycling, reuse, remanufacturing and refurbishment is impossible due to unsustainable levels of resource depletion, energy in particular
- 2. Spatial and temporal dimensions** of any recycling, reuse, remanufacturing and refurbishment processes, considering the global-complex production, trade, waste chains powered by fossil fuels.
- 3. Limits posed by physical economic growth.** Eg.: Rebound Effect (greater productive efficiency easily leads to increase in productivity > physical growth of economy); E.g. better environmental laws risk displacing impactful production in poorer countries. A problem: economy measured in abstract exchange value does not account for its physical size (difficult decoupling)
- 4. Path dependency and technological lock-in:** in many cases to survive are not necessarily the fittest but the first (Granovetter 2017).
- 5. Relationships between intra- and inter-organizational dimensions,** involve skills, competencies and cultures of workers, managers and technicians (HR), and networks.
- 6. Categories** (recycling, reuse, remanufacturing, refurbishment, waste, side-product) not necessarily found/used in administrative systems globally and differently interpreted based on cultures, societies, communities, histories, types of economies (e.g. waste, Eriksen 2016).



How circular may be the circular economy?

S. Pollard, A. Turney, F. Charnley, K. Webster, The circular economy – a reappraisal of the 'stuff' we love, Geography, Vol 101, Part 1, Spring 2016, <https://doi.org/10.1080/00167487.2016.12093979>

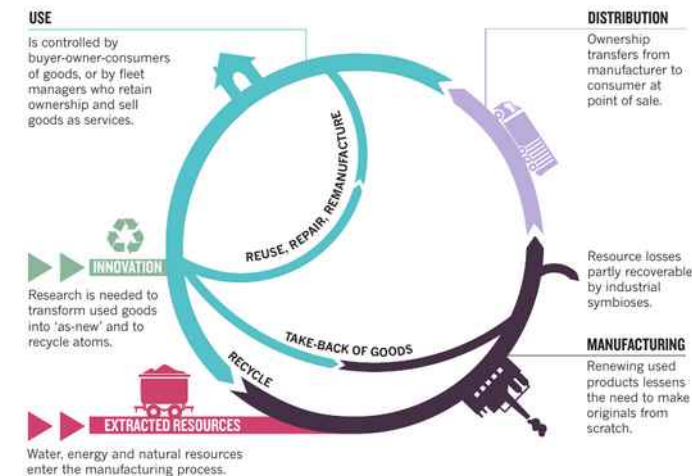
Topic: does the 4th industrial revolution may help the transition towards a strongly reduced carbon- and material foot-print?

The essay sounds a **cautious note** about the many challenges ahead of making economy circular

“**What is missing**”: ability to include CE processes in the geographies and operating principles of the system-earth and social systems: concepts of feedback, synergy, complexity and system metabolism

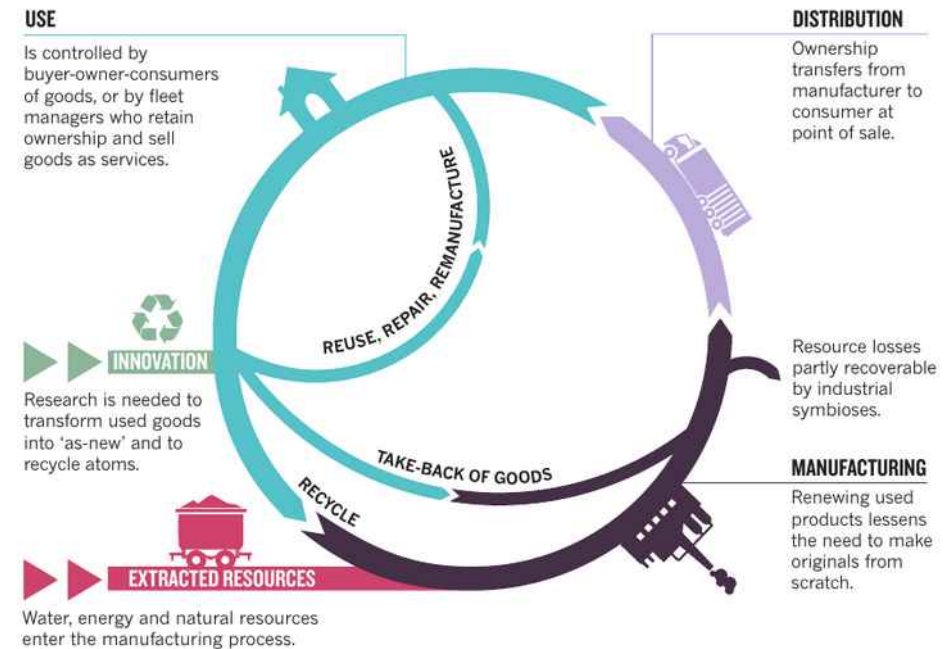
These are indispensable for analyzing “the interconnectedness of what is being termed the energy-water-food nexus”, the manufacturing systems, beyond mechanistic reductive models.

Following this systemic approach, fragility of these global-local chains can be better understood and differently organized on the basis of the combined principles of **scarcity, security and efficiency**, instead of pursuing the latter as the only guiding criterion



Quindi?

quale transizione verso un'economia circolare
crescita o post-crescita e il decoupling
pil: lavoro o produttività?



Fonte: Stahel 2016.



Utopie e/o realtà, ma quali?



Comunque vada... non sarà la tecnologia a deciderlo...

