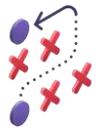


TECNOPOLO

KnowledgeX

eXpert Knowledge formalization for a human-centered manufacturing

The *tacit knowledge* problem



Skill e competenze costituite nel tempo con la pratica e l'osservazione, tipicamente indicate come «know-how» e **difficilmente trasferibili con modalità tradizionali** (manuali, lezioni, ecc..).



Elemento chiave che permette agli operatori di **incrementare l'efficienza dei processi** e **identificare problematiche o difetti di processo migliorando la qualità** dei prodotti.



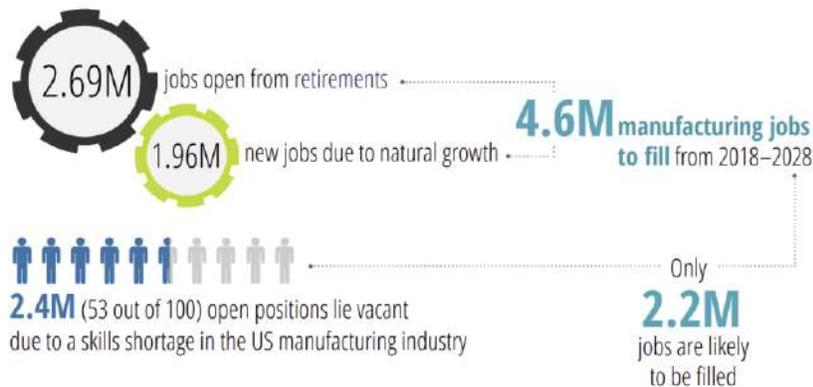
La conoscenza implicita porta con sé una serie di challenges quali la **ritenzione**, la **trasferibilità** e la **documentazione**.

Contesto e motivazioni

Which of the following factors are likely to pose a significant risk to your business over the next 12 months?

| | 2022 | 2021 | Change |
|-----------------------------------|------|------|--------|
| !! Reduction in demand (domestic) | 31% | 52% | -22% |
| !! Reduction in demand (foreign) | 20% | 40% | -20% |
| Shortage of skilled professionals | 64% | 33% | 31% |
| Increasing regulation | 37% | 22% | 14% |
| Shortage of capital | 11% | 13% | -3% |
| !! Geopolitical risks | 25% | 18% | 7% |
| Cyber Risk | 13% | 10% | 4% |
| Economic outlook/growth | 27% | 42% | -15% |
| Currency fluctuations | 17% | 19% | -3% |
| IBOR Reform | 1% | 0% | 1% |
| Other | 11% | 8% | 6% |

The skills gap may leave an estimated 2.4 million positions unfilled between 2018 and 2028

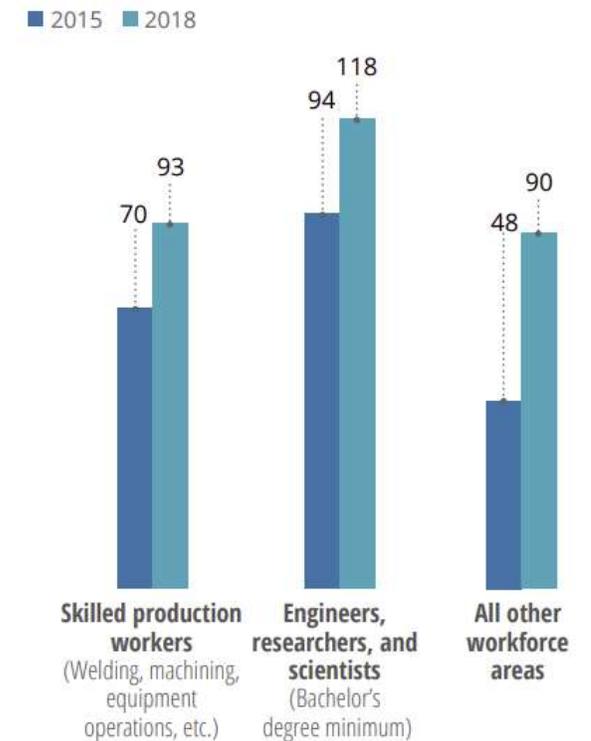


Tapping the resources of the retiring, experienced workforce

One of the core assets that most manufacturing companies today still possess are workforces that have extremely seasoned workers, many of whom hold intrinsic knowledge of best practices and the nuances of their workplace. Even though these workers are staying longer—most recent data shows the retirement age rising to an average of 66 years²⁴—the volume of retirements in the coming decade could be detrimental to the industry. Manufacturers should think carefully about the potential impact a wave of retirements could have on their organization and seize any opportunities to hold on to their proven, committed, and experienced workforce and leverage them as a competitive advantage. The 2018 *Global Human Capital Trends* study found that manufacturing companies in the United States are unprepared to leverage the aging workforce, with only 9.2 percent of manufacturing companies creating targeted roles for older workers.²⁵ However, some manufacturers are moving in the right direction and have launched specific programs to retain the value of their oldest employees.

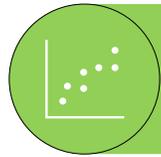
The average time to fill an open job position is on the rise

Number of days to fill a job position, by categories, 2015 and 2018



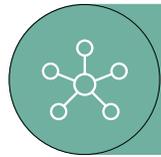
Source: 2018 Deloitte and Manufacturing Institute skills gap study.

Obiettivi



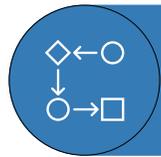
PREVENZIONE KNOWLEDGE LOSS

Prevenzione del *knowledge loss* mediante l'estrazione, la gestione ed il trasferimento della conoscenza dagli operatori esperti verso opportuni utilizzatori.



RUOLO CENTRALE DELLA PERSONA

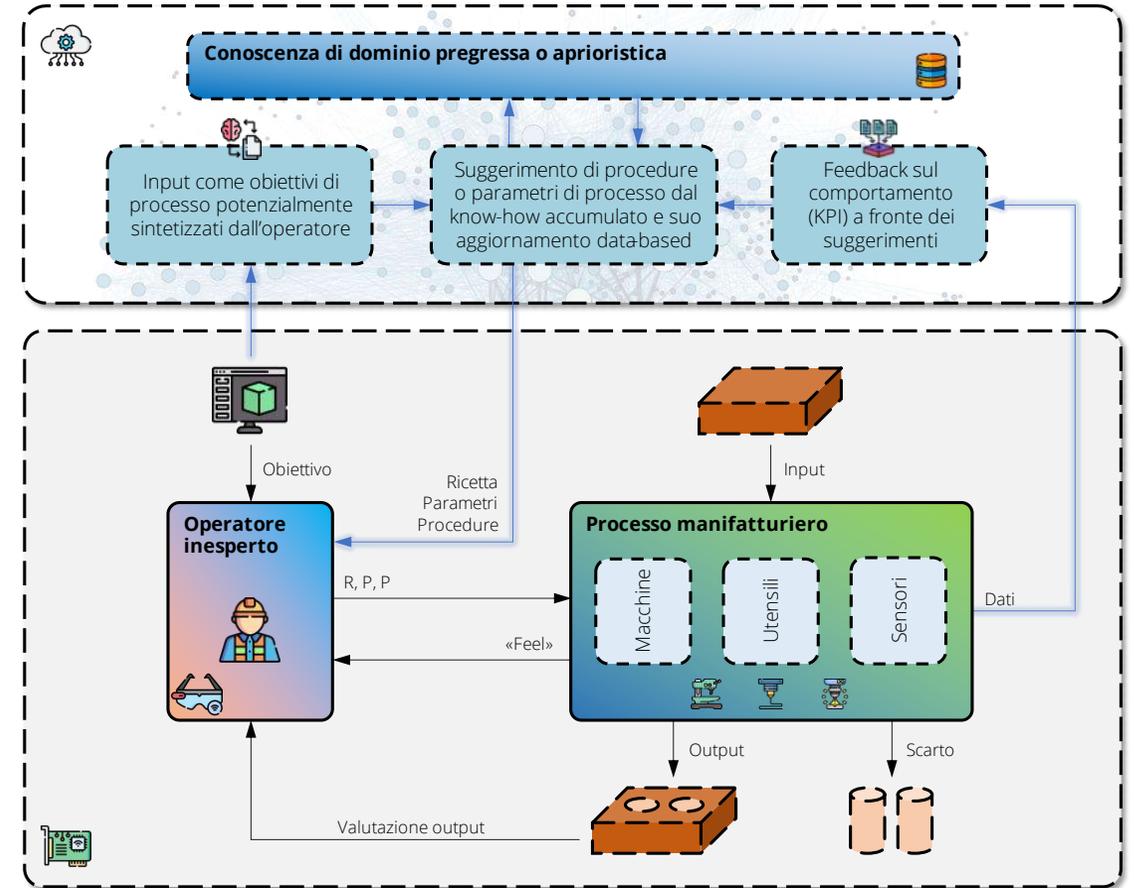
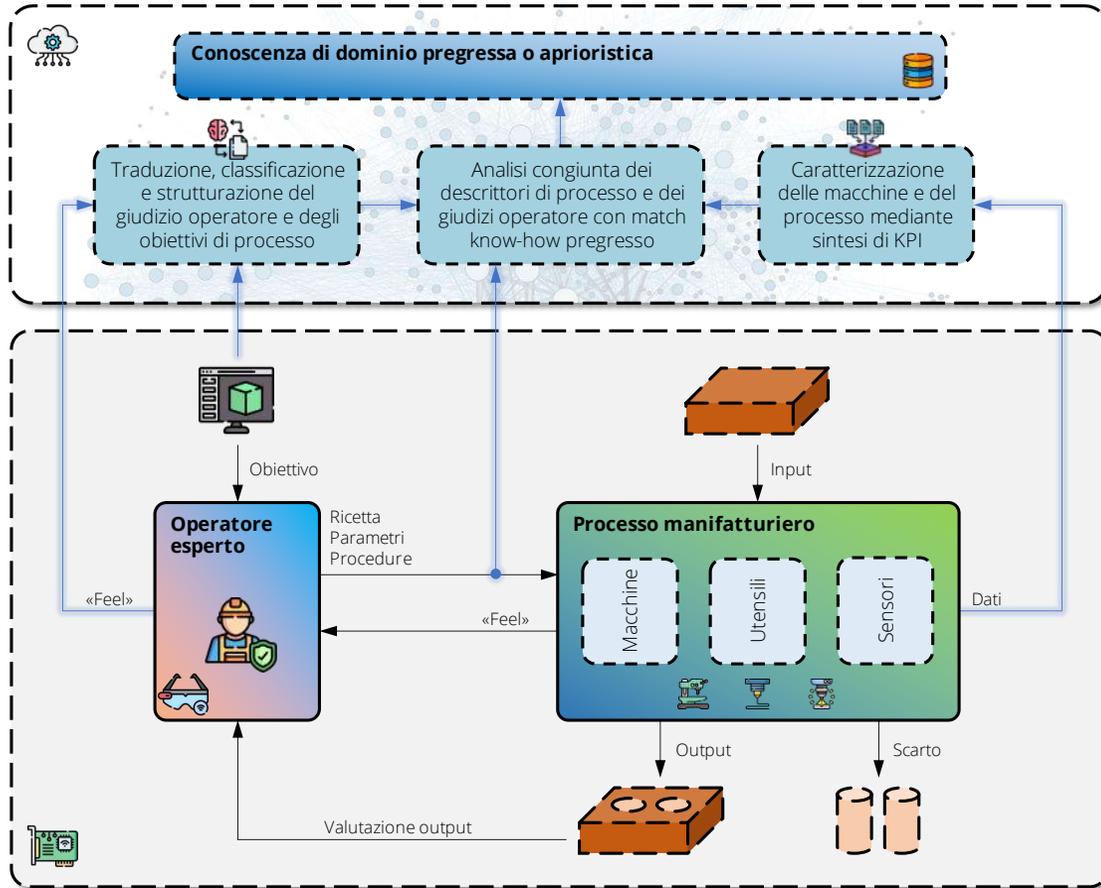
Attenzione al ruolo centrale della persona con la riduzione della complessità percepita dei sistemi di produzione attraverso approcci innovativi di interazione uomo-sistema, metodologie per il supporto agli operatori inesperti e per la loro formazione contestuale all'utilizzo dei sistemi.



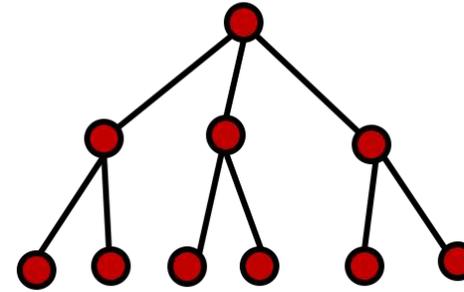
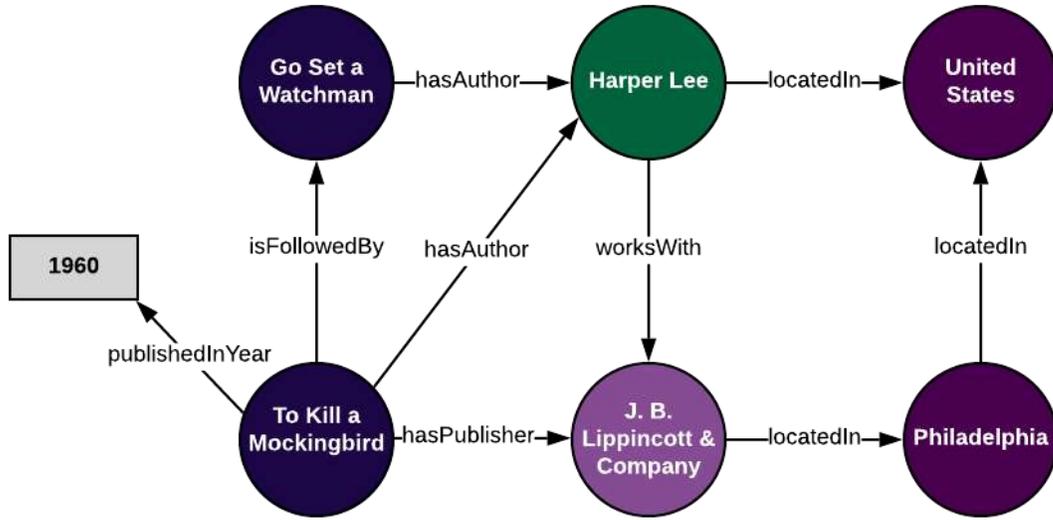
ROBUSTEZZA E RESILIENZA

Incremento della robustezza e della resilienza dei sistemi di produzione mediante la velocizzazione dell'inserimento di nuove figure e della loro formazione.

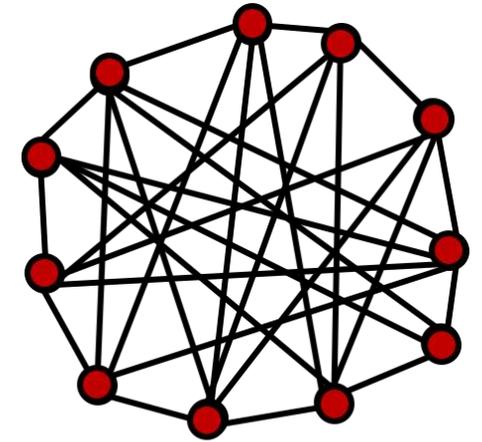
La piattaforma e i risultati attesi



Metodologia «white box»



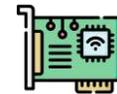
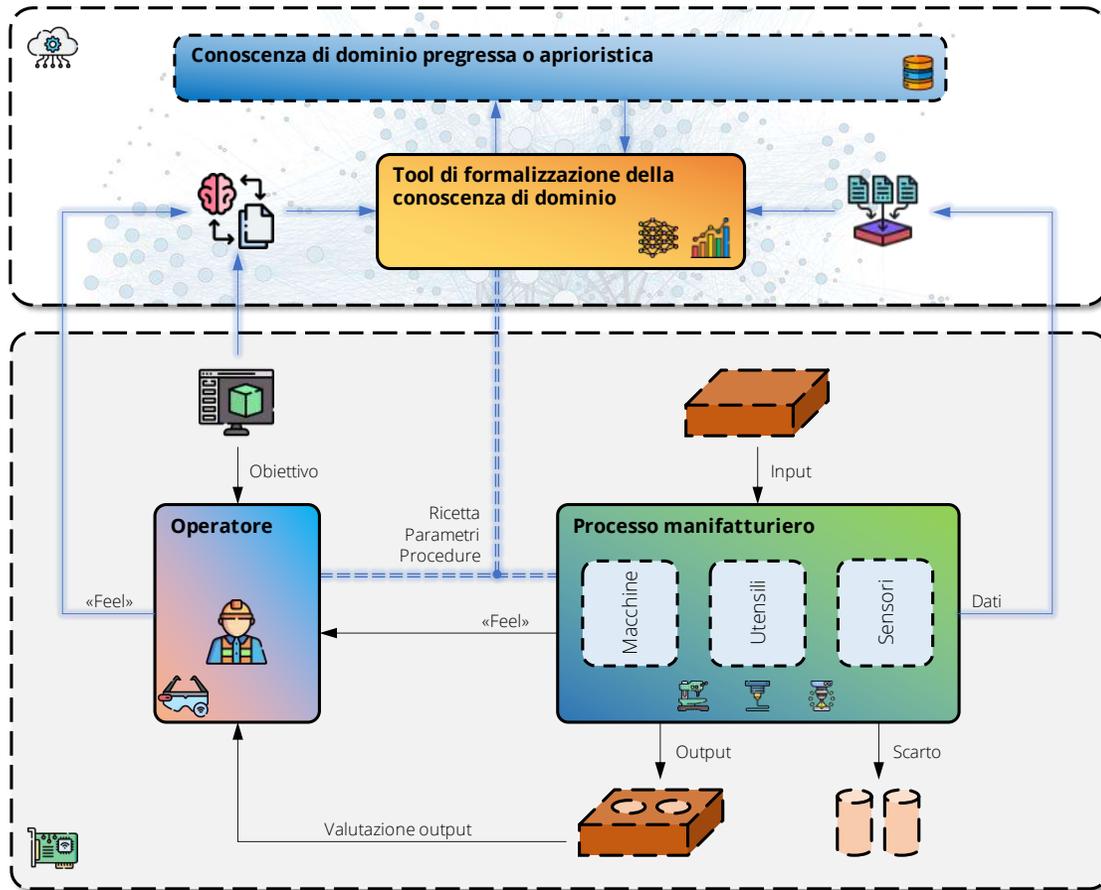
“Top-down”



“Bottom-up”

Ontologie + dati = knowledge graphs

La piattaforma e i risultati attesi



Soluzione edge per l'interfacciamento con operatori e macchinari di produzione e l'estrazione sinergica di informazioni sui processi



Soluzione cloud modulare ed espandibile che integri componenti dedicate all'estrazione e rappresentazione della conoscenza, alla sua gestione e aggiornamento, alla sua fruizione da parte degli utenti della piattaforma e all'interazione con il layer edge per chiudere il canale con gli operatori di processo



Soluzione, integrata con il layer cloud, per l'interazione con le persone basata su tecnologia AR/VR che riporti all'utente informazioni utili al processo da eseguire

Case studies



Il team



Prof. Paolo Albertelli

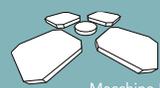


Prof. Aldo Gangemi



Dir. Marco Bianconi





I rischi di un approccio black-box: anche le AI hanno le allucinazioni

Exploring the Boundaries of Reality: Investigating the Phenomenon of Artificial Intelligence Hallucination in Scientific Writing Through ChatGPT References

Sai Anirudh Athaluri¹, Sandeep Varma Manthana¹, V S R Krishna Manoj Kesapragada¹, Vineel Yarlagadda¹, Tirth Dave², Rama Tulasi Siri Duddumpudi¹

Artificial hallucination: GPT on LSD?

Gernot Beutel^{1*}, Eline Geerits¹ and Jan T. Kielstein²

Hallucination (artificial intelligence)

Article [Talk](#)

From Wikipedia, the free encyclopedia

In the field of [artificial intelligence](#) (AI), a **hallucination** or **artificial hallucination** (also called **confabulation**^[1] or **delusion**^[2]) is a response generated by an AI which contains false or [misleading information](#) presented as [fact](#).^{[3][4][5]}

For example, a hallucinating [chatbot](#) might, when asked to generate a [financial report](#) for a company, falsely state that the company's revenue was \$13.6 billion (or some other number apparently "plucked from thin air").^[6] Such phenomena are termed "hallucinations", in loose analogy with the phenomenon of [hallucination in human psychology](#). However, one key difference is that human hallucination is usually associated with false [percepts](#), but an AI hallucination is associated with the category of unjustified responses or beliefs.^[5] Some researchers believe the specific term "AI hallucination" unreasonably anthropomorphizes computers.^[1]

AI hallucination gained prominence around 2022 alongside the rollout of certain [large language models](#) (LLMs) such as [ChatGPT](#).^[7] Users complained that such chatbots often seemed to pointlessly embed plausible-sounding random falsehoods within their generated content.^[8] By 2023, analysts considered frequent hallucination to be a major problem in LLM technology, with some estimating chatbots hallucinate as much as 27% of the time.^{[9][10]}

I rischi di un approccio black-box: anche le AI hanno le allucinazioni



Here's What Happens When Your Lawyer Uses ChatGPT

A lawyer representing a man who sued an airline relied on artificial intelligence to help prepare a court filing. It did not go well.



In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge.

Ikujiro Nonaka

Professor Emeritus at the Hitotsubashi University, best known for his study of knowledge management.





Grazie per l'attenzione

musp.it



Mattia Torta