Invention. Reinvented.

Presentation to the WIPO Standing Committee on the Law of Patents (SCP)

October 2024

Julian Nolan, CEO

Executive summary

- R&D undergoing same digital transformation as other business functions

- New digital tools being used to create inventions faster and more efficiently

- Innovation advantage shifting from the best minds to the best tools

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Data-Driven Invention

Iprova has developed a unique software platform, Invention Studio evo, which uses AI and other technologies to amplify – but not replace - the human ability to invent

"For me, the democratisation of invention - making it more inclusive, more diverse, more focused, more productive, more of a process, less haphazard and less expensive - is what Iprova is all about. It's a company that turbocharges effective innovation"

Joff Wild, journalist for The Financial Times and The Wall Street Journal, and leading IP publication IAM

"Invention Studio extends the state-of-the-art for machine-enhanced creativity tools into the area of technical invention creation and, for the first time, truly makes invention an activity which is accessible throughout an organization."
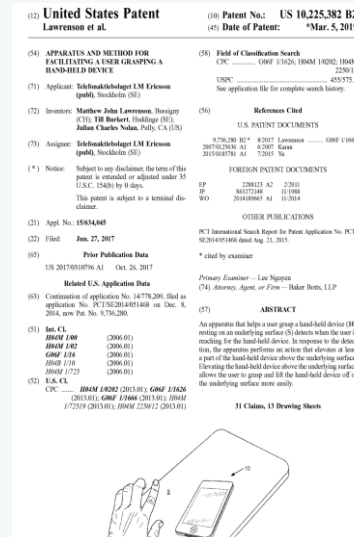
Mohamad Ali Mahfouz, Microsoft

Invention. What is it?

Facilitating a user grasping a hand-held device - makes a phone easier to pick up by levitating the phone into the hand of a user by reusing its wireless charging circuit.

Three elements

- Mobile phones are becoming thinner and therefore more difficult to pick up

- Wireless charging circuits in a phone feature a planar copper coil

- Mobile phones have a proximity sensor

Invention: proximity sensor detects hand, power is applied from the battery to the wireless charging coil, creating an electromagnetic field which repels against the electromagnetic field generated by the charging matt – levitating the phone into the hand of the user.

Invention = a novel, surprising and valuable idea

Iprova created invention for a leading communications company, resulting in multiple granted patents.
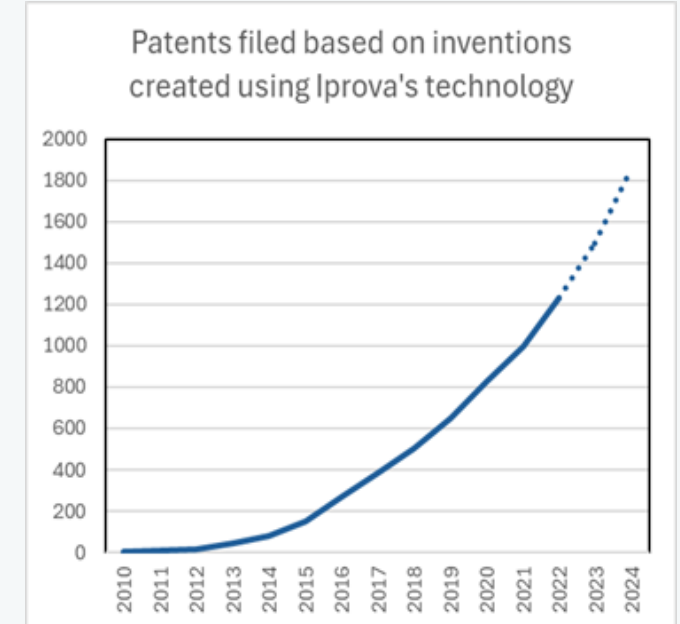
Customers and market

100+

application areas are covered by our inventions.

1.5K+

patents filed based on inventions created using our technology.

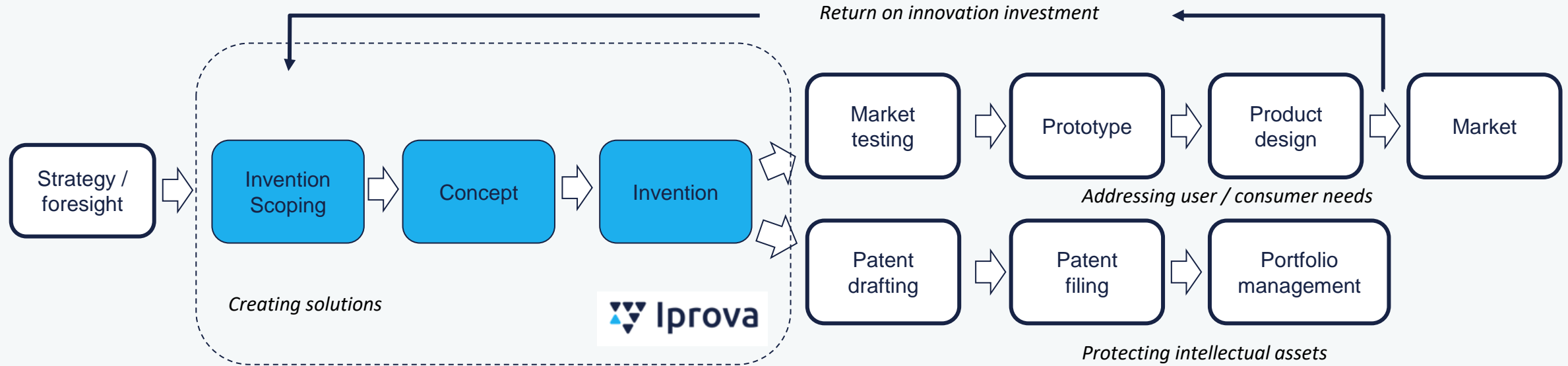**10**

out of the 10 of the world's largest tech companies including Amazon, Apple and Google cite granted patents based on Iprova inventions.

Patents filed based on inventions created using Iprova's technology

Iprova works with top 3 ranked businesses in over 20 market sectors including FMCG, telecoms, energy and commodity trading.

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Iprova and the innovation value-chain

Return on innovation investment

Strategy / foresight

Invention Scoping → **Concept** → **Invention**

Creating solutions

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Market testing → **Prototype** → **Product design** → **Market**

Addressing user / consumer needs

Patent drafting → **Patent filing** → **Portfolio management**

Protecting intellectual assets

"Fuzzy" front end of innovation
Traditionally:
- Work is experimental, Eureka moments, inefficient
- Outcome is unpredictable
- The race to invent is won based on human skills
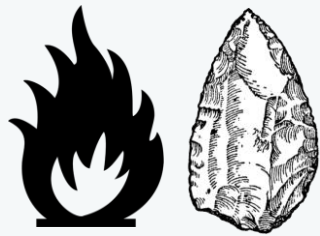- Invention is an artisanal activity of the few

Iprova transforms the fuzzy front end.

"Data-Driven" innovation
Iprova:
- Results are efficient, systematic and reliable
- Outcome has high degree of certainty
- The race to invent is won based on tools
- Measure of progress is milestone achievement

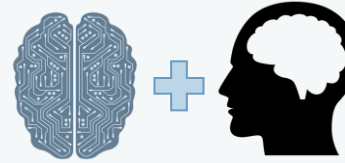**Iprova**

Invention timeline

Human-only invention with no assistance.

Humans create inventions based on chance discovery of information.

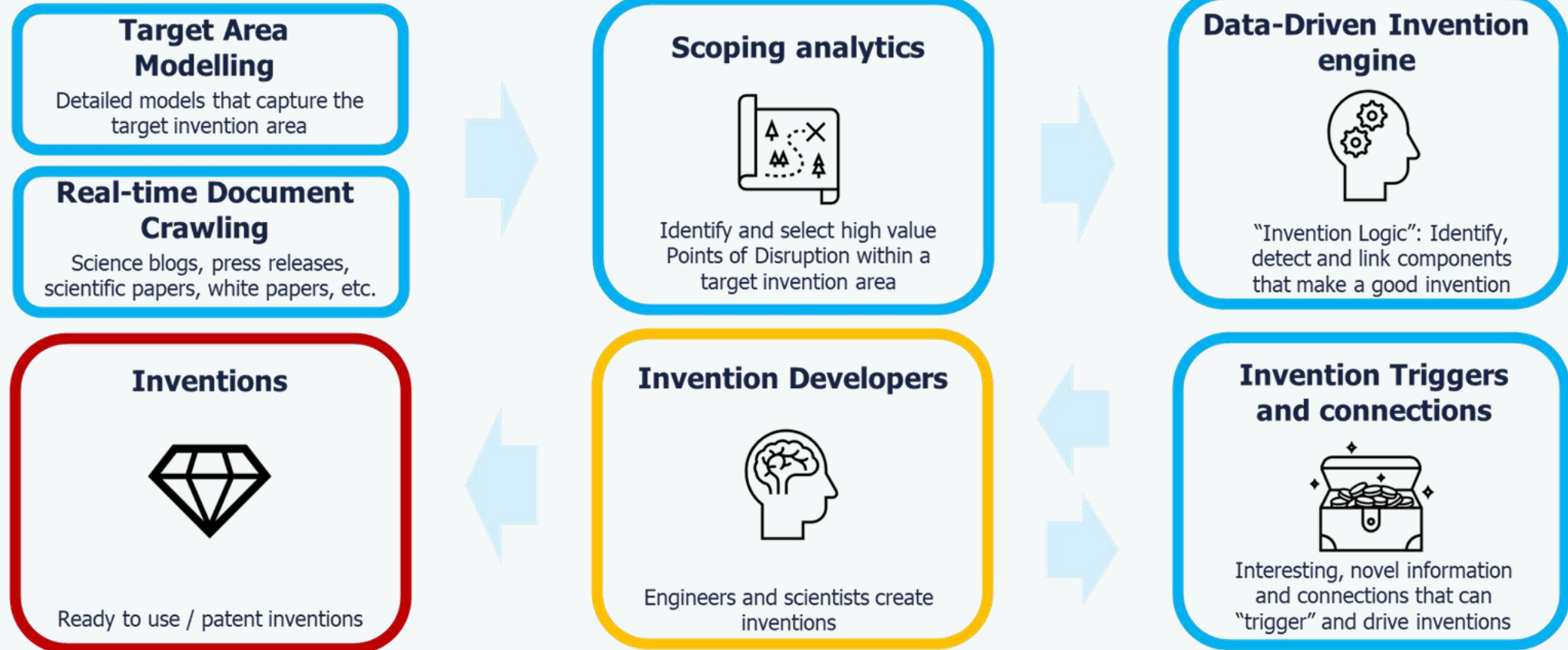Technology detects invention ingredients. Human puts them together.

Technology combines ingredients to create candidate concepts. Human refines these into inventions.

Technology creates inventions fully automatically.

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How Iprova's technology works

Target Area Modelling
Detailed models that capture the target invention area

Real-time Document Crawling
Science blogs, press releases, scientific papers, white papers, etc.

Scoping analytics
Identify and select high value Points of Disruption within a target invention area

Data-Driven Invention engine
"Invention Logic": Identify, detect and link components that make a good invention

Inventions
Ready to use / patent inventions

Invention Developers
Engineers and scientists create inventions

Invention Triggers and connections
Interesting, novel information and connections that can "trigger" and drive inventions

Example invention triggers

Technological advance

Shear-thickening fluids are materials that harden when force is applied. Their properties can be tuned using vibrations.

Scientific discovery

The light-sensitive protein melanopsin is found near the inside of the ear.

Problem

Mobile phones are becoming thinner and harder to pick up.
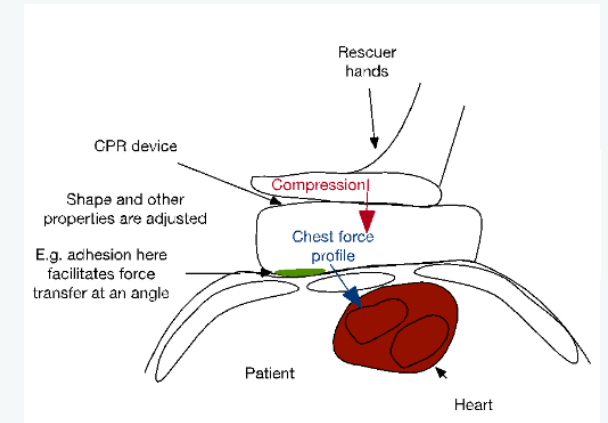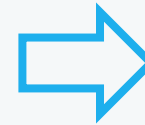

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Example 1: Reduced Risk CPR Device

Shear-thickening fluids can be tuned using vibrations (in real time) and are being incorporated into novel applications such as body armour

+

Flexible sensors enable a range of sensing capabilities on conformable surfaces

+

The optimal compression force profile over the chest area for specific hemodynamic responses varies significantly among patients

→

A conformable CPR device that measures CPR parameters to optimise compression depth and release, so reducing risk of injury to patient

Data and algorithms augment and enhance the human ability to invent

Iprova created invention for a leading healthcare company, resulting in multiple granted patens.

Innovation Challenges and Data-Driven Invention

Exponential growth of information

Limited information review for individuals

"Burden of knowledge"
vs
"Product convergence"

ROBUST & REAL TIME

- Over 1 Billion inventive elements
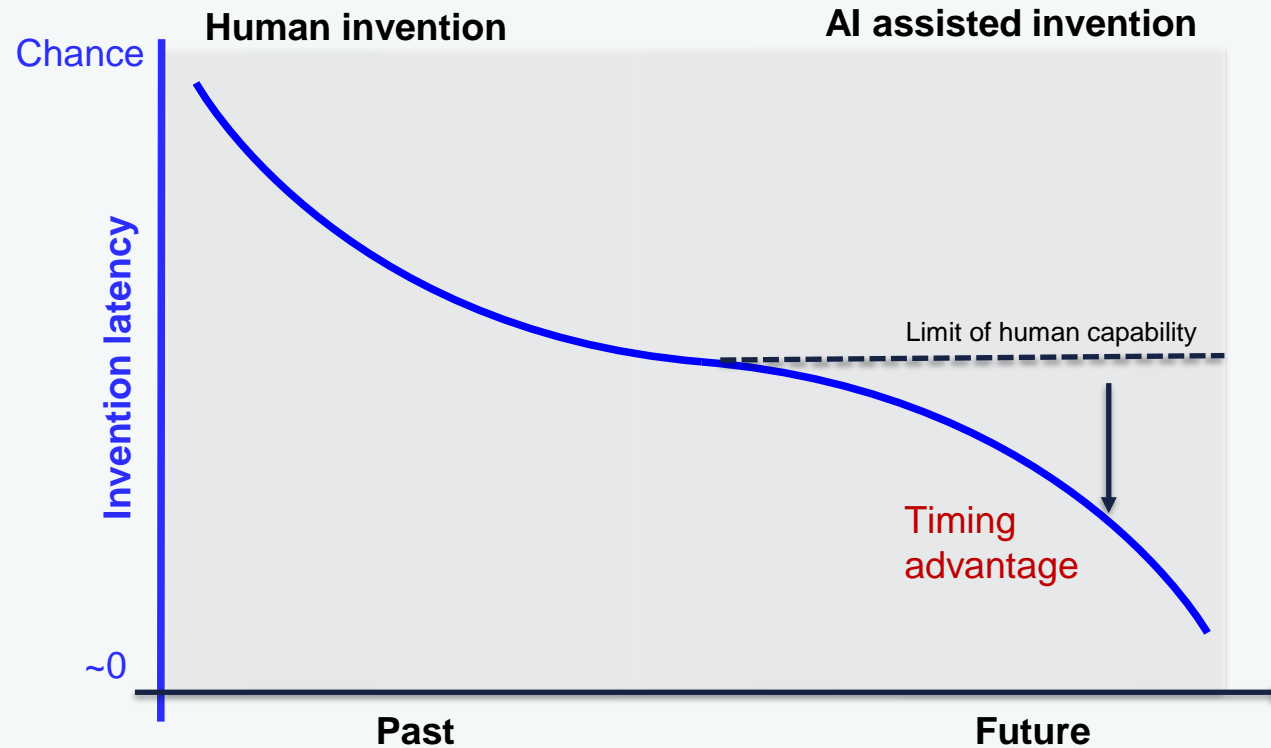- Senses and connects inventive signals in real time

AUGMENT HUMAN CAPABILITIES

- >20 x more efficient than conventional teams
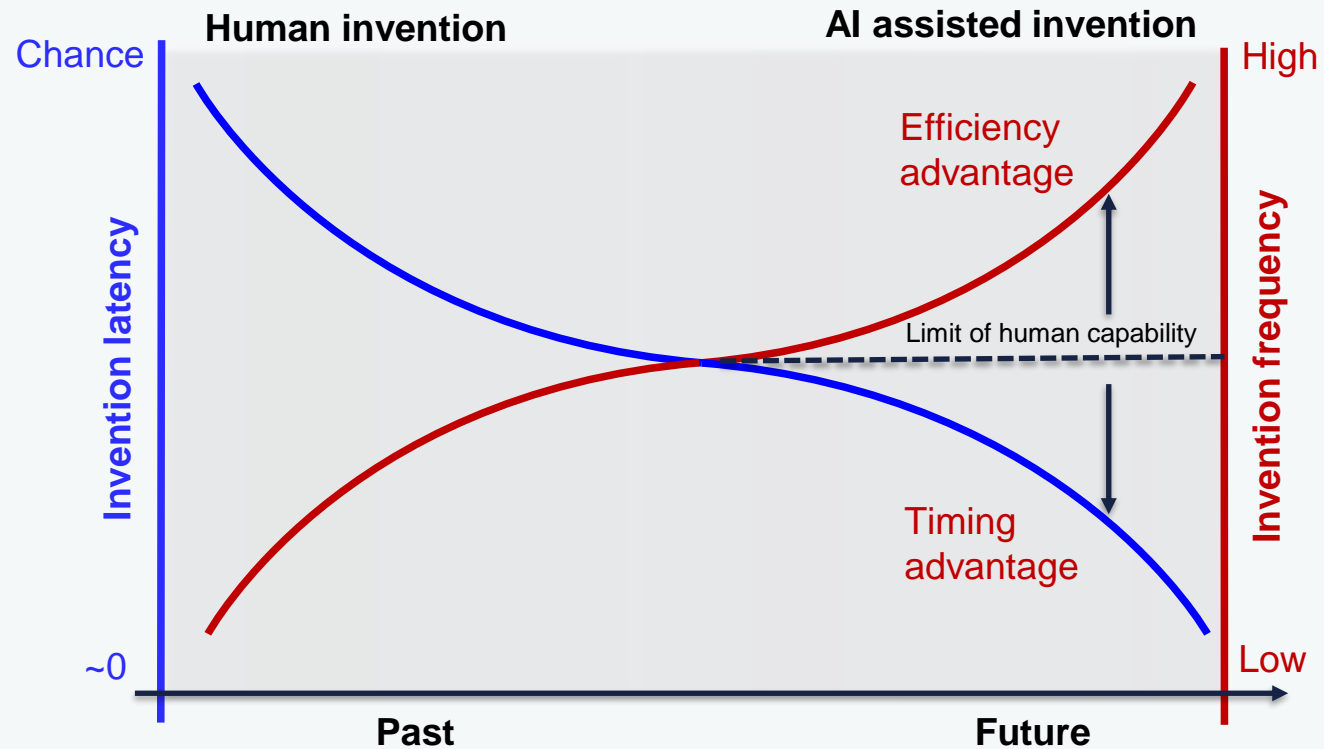- Data & algorithms make innovation systematic

IMPACT*

- > 3 x forward looking commercialization prospects
- > 2 x more patentable subject matter
- Best invention

*A customer in the Bay Area commissioned a third-party review comparing the output of an Iprova project to inventions generated from two different internal R&D teams. Inventions were normalised for presentation and appearance and reviewed by an independent panel of patent attorneys.

Past, present and future – cross domain

Past, present and future – cross domain

Data vs Serendipity

- Chance information discovery and connection being replaced by tools

- Innovation advantage shifting from the best people to the best tools

- Iprova prediction (made in 2019) : by end 2025 over 50% of all inventions will be created with the help of tools.

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