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ROBOTIC AND ARTIFICIAL INTELLIGENCE TO SAVE LIVES

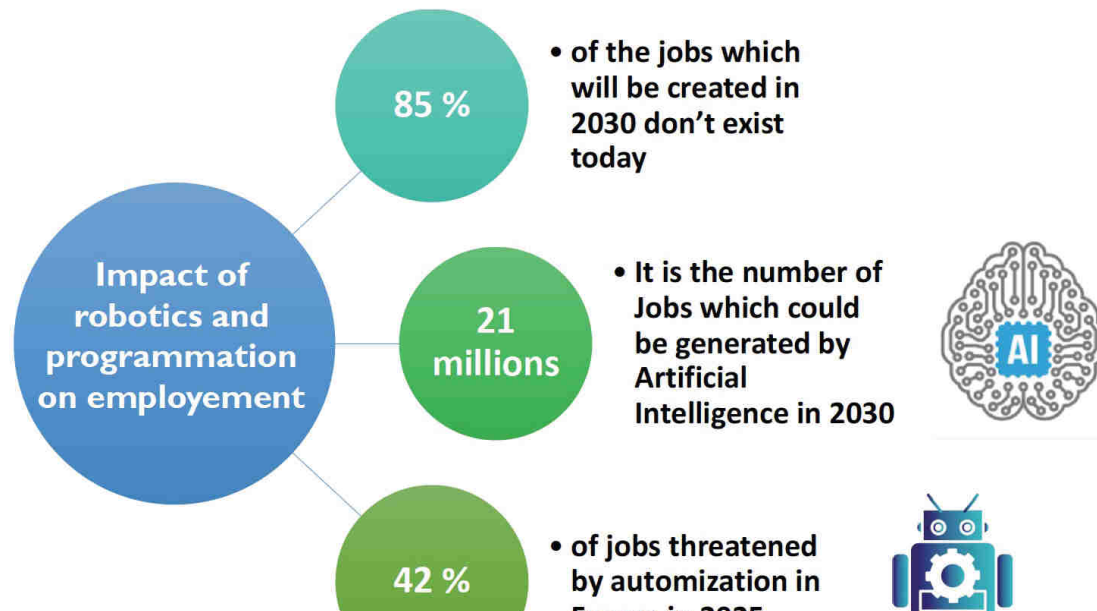
by Dr Line FARAH

Director of the innovation center for medical device – at Foch Hospital

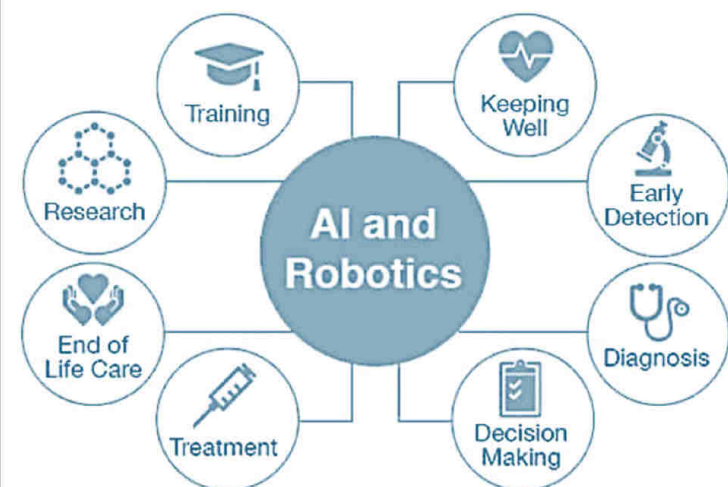
Pharmacist - artificial intelligence, health economist and market access specialist

Vice-president of HDBMUN

INTRODUCTION



CONTEXT



Perceived advantages of using advanced computers or robots with AI for healthcare



34%

Healthcare would be easier and quicker for more people to access



31%

Faster and more accurate diagnoses



27%

Will make better treatment recommendations

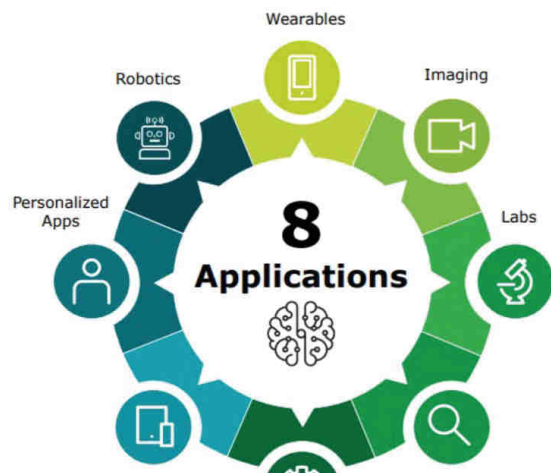


27%

Like having your own healthcare specialist, available any time and on any device

CONTEXT

AI can have a significant socio-economic impact on European health systems



400,000 lives saved yearly



That's the population of a medium-sized city, or **almost two thirds of Luxembourg**¹



200 billion Euros in annual savings
(including opportunity costs)



Which is approximately **12% of the total European healthcare expenditures** in 2018²



1.8 billion hours freed up every year



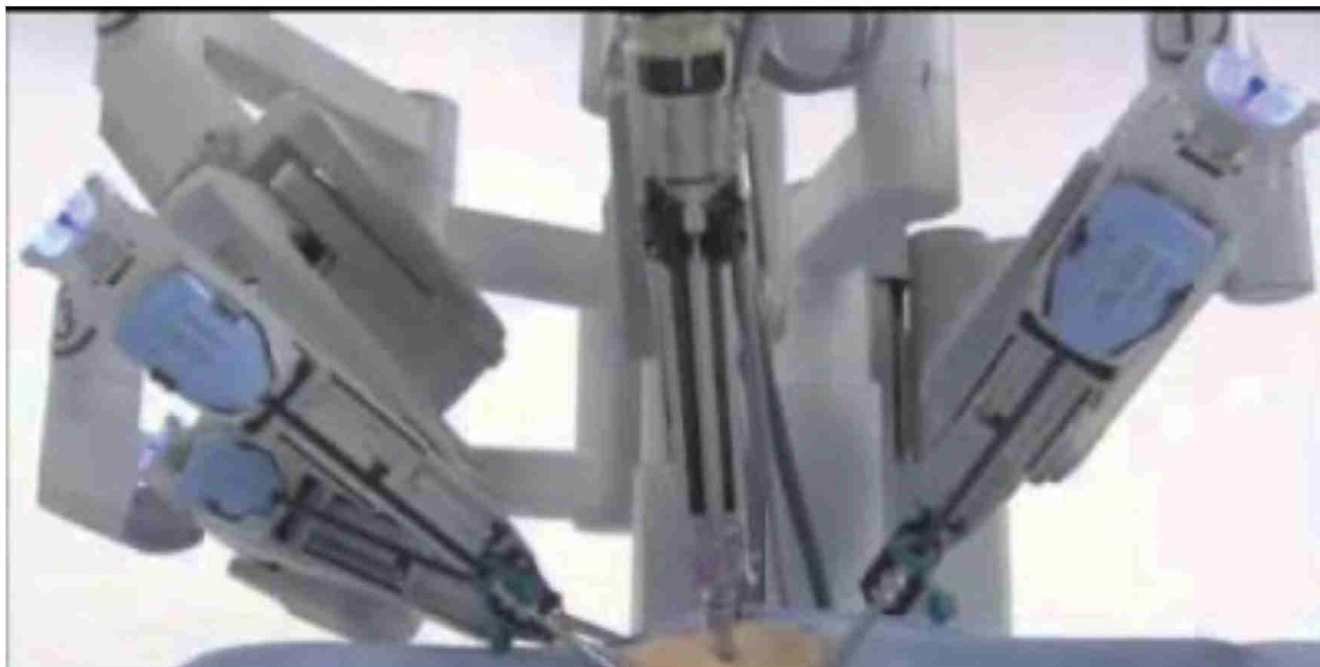
That's the equivalent of having **500.000 additional full time health care professionals**³



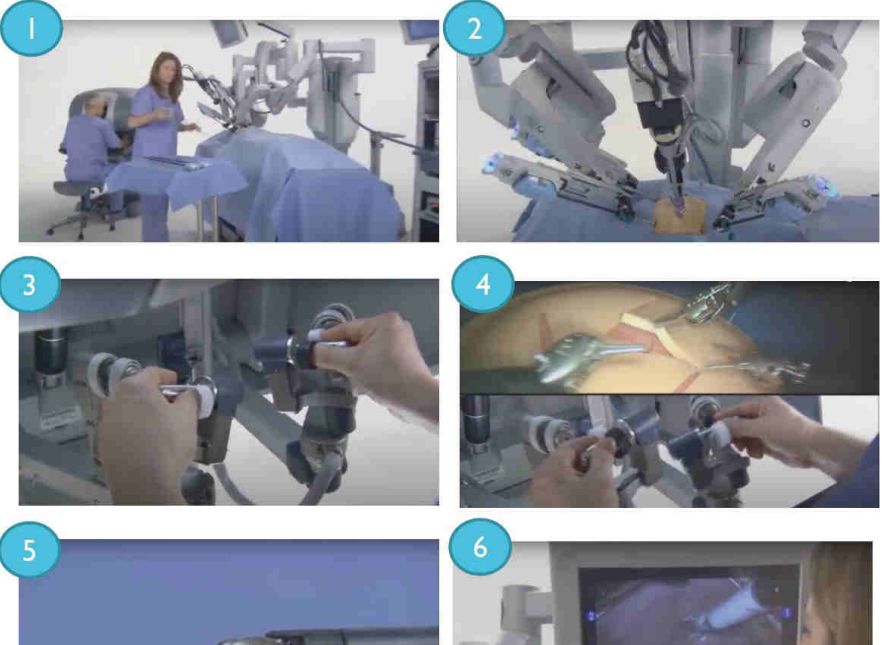
ROBOT IN MEDICINE: REVOLUTION IN SURGERY

EXAMPLE OF DA VINCI ROBOT

HOW DOES THE ROBOT HELP MEDICINE?



HOW DOES THE ROBOT HELP MEDICINE?

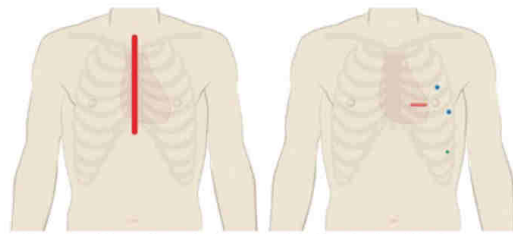


WHAT ARE THE ADVANTAGES?

**MINIMAL INVASIVE
SURGERY**



→ **LESS SCARES**

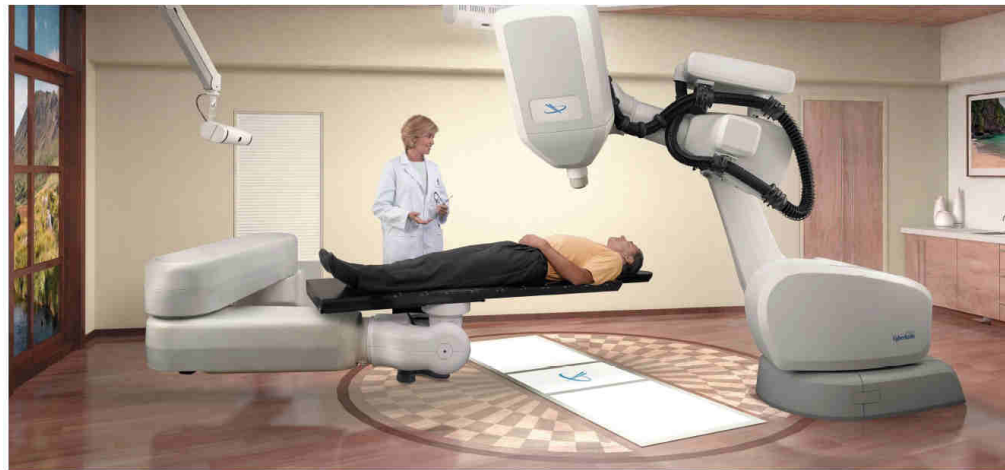
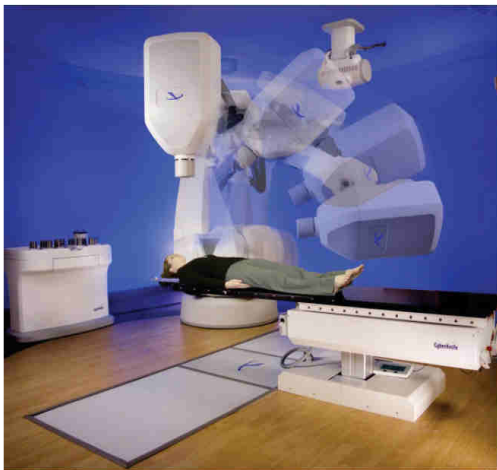


Conventional "open" bypass incision

Robotic-assisted small incision points



LESS INFECTIONS



ARTIFICIAL INTELLIGENCE TO TREAT CANCER

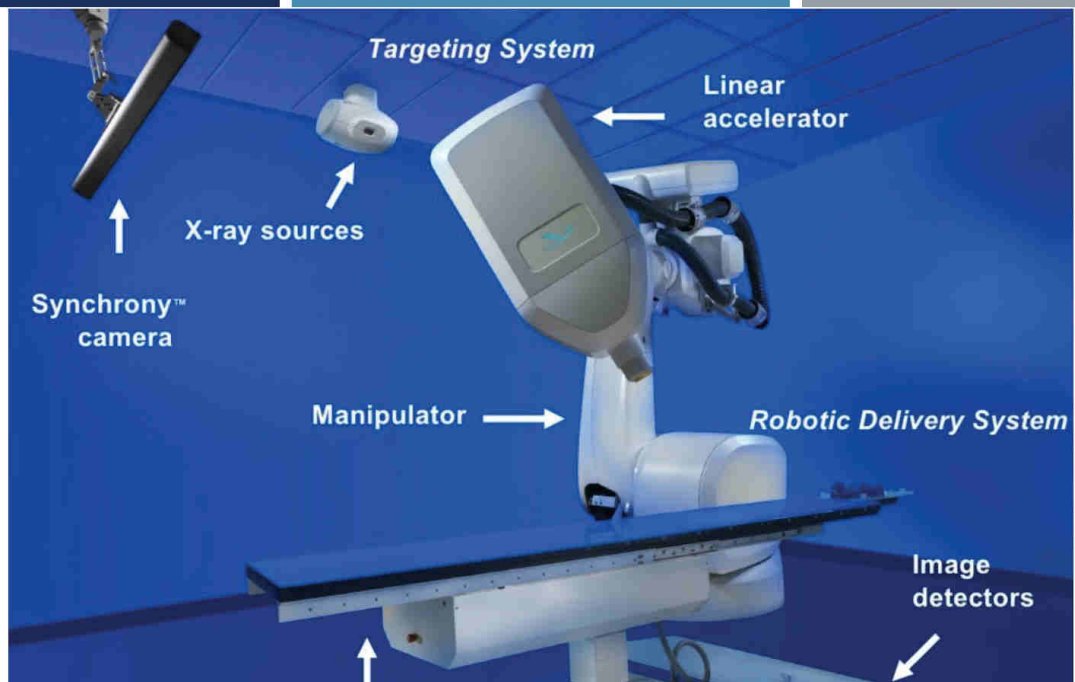
EXAMPLE OF CYBERKNIFE® RADIOTHERAPY IN ONCOLOGY

HOW DOES PROGRAMMING AND ARTIFICIAL INTELLIGENCE HELP MEDICINE?





HOW DOES PROGRAMMING AND ARTIFICIAL INTELLIGENCE HELP MEDICINE?





Comparison

Da Vinci® Robot in surgery



1 Minimal invasive surgery

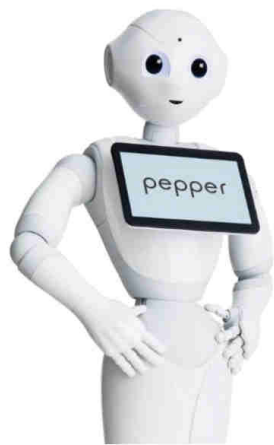
2 Less scars and infection for patients and less fatigue for surgeon

Cyberknife™ robot with artificial intelligence in lung cancer



1 Non invasive: no incision, no general anesthesia

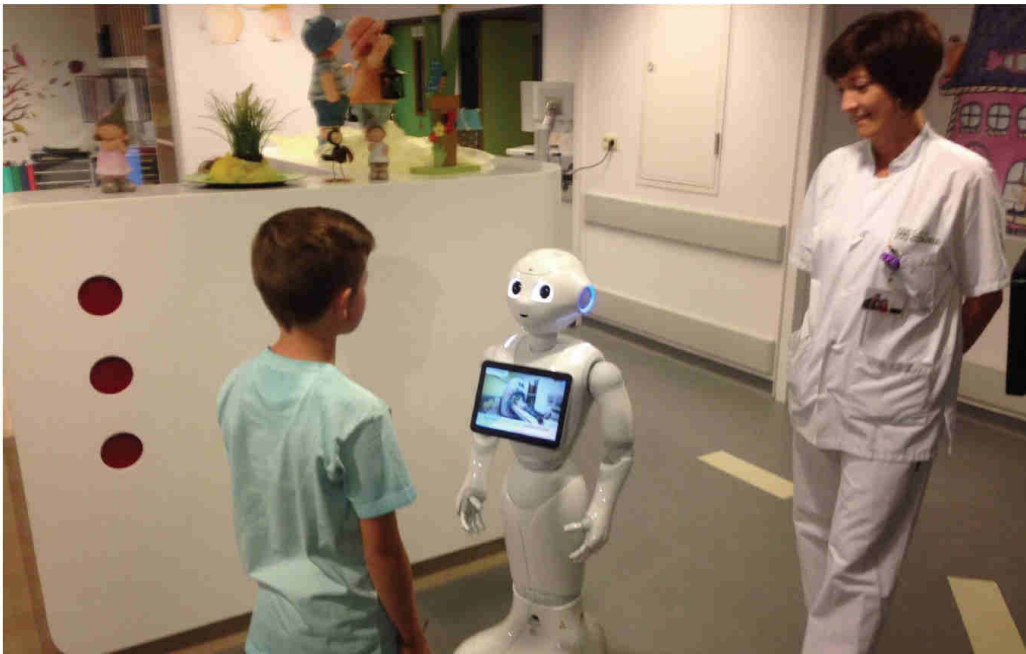
2 Adaptation to the movement of the lung in real time thanks to artificial intelligence



ROBOT TO HELP CHILDREN IN HOSPITALS

EXAMPLE OF PEPPER HUMANOID ROBOT

HOW DOES ROBOTIC HELP PATIENTS AT HOSPITAL?



The system is designed and developed for rehabilitation of children in a clinical setting and includes a social humanoid robot (Pepper), an interactive interface, tests, sensory setup and a machine/deep learning based emotion recognition module.

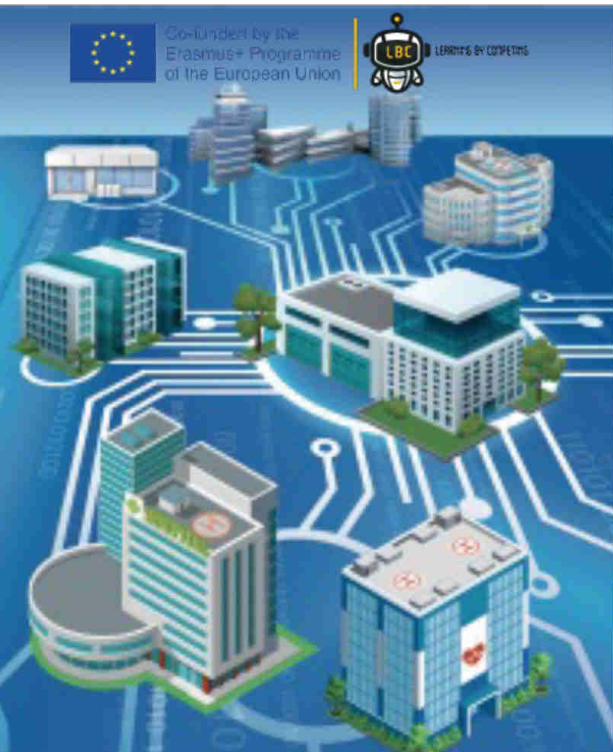




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