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### Robotics in Medicine and Healthcare

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The European Commission has recently funded an investigation into the potential of robotics entitled “Roadmap for the application of robotics in medicine and healthcare.”

Although still an emerging field, the use of robotics is expected to grow in importance with current demographic changes. This is likely to put pressure on the healthcare system with shortages of healthcare personnel, the need to improve the quality of life for the elderly and to produce a higher quality of care such as high precision surgery.

The objectives of the study were to research policy recommendations and to raise awareness of this new technology. To do so, research road maps of promising applications in robotics and healthcare were created with a timeframe ending in 2025.

The study focuses on three main issues; the quality, safety and efficiency of care, the move to preventive and personalised care and supporting the availability of long term care for people in need.

Research road maps were created for 6 new innovation areas

- Ó Smart medical capsules
- Ó Intelligent prosthetics
- Ó Robotised patient monitoring systems
- Ó Robotised surgery
- Ó Robotised motor coordination analysis and therapy
- Ó Robot assisted mental, cognitive and social therapy

The study has shown that robotics is still in its early stages, and although a promising new market, there are still many problems to overcome. From a scientific point of view, progress is dependent on separate developments in science and technology and can therefore easily be delayed. Broad diffusion is also a difficulty due to doubts concerning cost-effectiveness.

Moreover robotics is not just a technological issue, its progress is also dependent on social acceptance; there are many safety and reliability issues. From a legal perspective there are also problems concerning liability and patient claims; in case of error who is responsible – man or machine?

So far, there have been both successes and failures and at the present moment the use of robotics remains very expensive. Although doctors, patients and health authorities are interested, they are in no rush to switch to these new applications. The study has shown that robotics is an exciting new development in the healthcare sector with great potential but that final conclusions concerning its future trajectory cannot be made at present.

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