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Robotic-Assisted Surgery Sector Group

European Economic and Social Committee

ROBOTICS UNLOCKING THE FUTURE OF HEALTHCARE

A POLICY ROUNDTABLE ON ROBOTIC-ASSISTED SURGERY (RAS)

7 September 2026

EVENT REPORT

OVERVIEW

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Event Summary

On 7 September 2026, MedTech Europe Robotic-Assisted Surgery (RAS) Sector Group convened policymakers, clinicians, researchers, health-system leaders, industry representatives and other experts from different member states, to examine how Europe can move from isolated adoption of robotic-assisted surgery towards the responsible and equitable integration of robotic-assisted surgery into routine care.

The discussion highlighted that robotic-assisted surgery can contribute to **greater clinical precision, shorter recovery times, stronger workforce resilience, and more efficient use of healthcare capacity**. However, these benefits are not automatic: they depend on the **clinical indication, care setting, implementation model, quality of training, and volume of procedures**. Robotic-assisted surgery should therefore be treated not simply as a technology investment, but as an organisational transformation requiring clinical leadership, trained multidisciplinary teams, appropriate infrastructure and funding as well as robust governance.

Participants consistently **identified a gap between innovation and routine patient access**. Current funding and reimbursement models often focus narrowly on acquisition costs or operating theatre budgets, even though the value of robotic-assisted surgery may emerge across the entire care pathway through fewer complications, faster recovery, workforce benefits, improved hospital capacity and lower longer-term system costs. A broader, pathway-based assessment of value is therefore needed.

Evidence generation must also become more responsive to the pace of technological development. Conditional coverage, registries, and high-quality real-world evidence could enable controlled adoption while the evidence base continues to mature. More consistent European approaches to data collection, regulatory science and evidence standards would help reduce uncertainty, while still allowing national health systems to select delivery models suited to their circumstances.

The central conclusion was that **Europe has a strong innovation base**, but a coordinated **framework for translating innovation into sustainable and equitable access**. Progress will require smarter procurement, better use of existing capacity, and strategic planning to address disparities within and between countries. Alignment among clinicians, hospitals, payers, regulators, policymakers and industry will be essential to ensure that adoption is guided by patient outcomes and system-wide value rather than by technology availability alone.

The challenge is no longer simply to demonstrate that robotic-assisted surgery has potential. It is to determine what policy, funding and implementation conditions translate that potential into responsible and equitable access.

Laura Hampunen Member RAS Sector Group & Senior Director, Europe Stryker

Cybersecurity is a key question: who keeps control of these robots, and what framework do we need for their use? Human judgment and professional responsibility must remain central.

Paul Rübig Member of the EESC, Rapporteur on the Opinion on Robotics, European Economic and Social Committee

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Robotics as a Pillar of Europe's Transformation

The keynote discussion positioned robotic-assisted surgery within Europe's broader digital and industrial transformation. Rather than treating robotics as a standalone technology, speakers presented it as part of an interconnected agenda encompassing health data, medical-device regulation, research investment, workforce capacity and equitable access to innovation. The three keynote speakers were invited to examine these questions from complementary perspectives: European policymaking and regulation, the socioeconomic and human dimensions of robotics, and clinical and technological innovation.

Although healthcare financing and reimbursement remain primarily national responsibilities, MEP Tomislav Sokol (EPP, Croatia; Rapporteur on the European Health Data Space) identified **several areas in which the EU can create a more supportive environment for RAS**. The **European Health Data Space** could facilitate the secure secondary use of health data for research and evidence generation by enabling researchers, healthcare providers and innovators to access and analyse larger, more representative datasets across Member States under common safeguards. On the other hand, the revision of the Medical Devices Regulation offers an opportunity to improve regulatory predictability and reduce unnecessary burdens without compromising patient safety by clarifying requirements, simplifying procedures where they are unnecessarily duplicative and ensuring that conformity assessments are completed within more reliable timelines. **EU research and cohesion funding** can also help translate innovation into clinical practice and address persistent regional disparities in access.

Building on this policy and regulatory perspective, Hervé Jeannin (Member of the EESC and Co-Rapporteur on its ongoing opinion on robotics) **broadened the discussion to the societal purpose of robotics and the conditions required for its responsible deployment**. He placed surgical robotics within the wider development of physical AI, also drawing attention to the application of the new Machinery Regulation as from January 2027. He identified **social physical AI** as one of the most important areas of interaction between healthcare professionals, patients and humanoid robots, suggesting that such robots could take on part of the communication and interaction with patients and older people currently carried out by doctors and nurses, and so support faster recovery. A clear human-centred principle emerged: **robotics should not seek to remove people from healthcare, but to strengthen their capabilities**. Its value lies in widening access to expertise, supporting an overstretched workforce, and improving the resilience, quality and traceability of care.

Professor Emmanuel Vander Poorten (KU Leuven) grounded this policy discussion on the clinical and technological potential of medical robotics. Robotic systems can extend clinicians' precision, situational awareness, and ability to navigate complex anatomy, while haptics, teleoperation and advanced training tools may further enhance their capabilities. **The clinician must, however, remain the principal decisionmaker**. He also underlined that Europe's investment in AI should be matched by support for the hardware and engineering capabilities on which medical robotics depends.

Together, the interventions presented responsible adoption as a coordinated European project. **Europe will need to align data access, proportionate regulation, research and industrial capacity, clinical training and workforce needs around a clear objective: using robotics to strengthen healthcare professionals and improve access to high-quality care.**

"What we are doing now is making health data a public good, which can be used in clearly prescribed circumstances to develop new medical technologies, including robots.

MEP Tomislav Sokol (EPP, Croatia) Rapporteur, European Health Data Space

PANEL 1

Funding, Reimbursement & Value

Moderated by Nadine Jamous (Member RAS SG & Director EMEA Market Access Health Economics & Reimbursement, Zimmer Biomet). *The panel examined why conventional funding, reimbursement and health technology assessment models are often poorly suited to robotic-assisted surgery. The discussion showed that the central question is not simply whether healthcare systems can afford a robotic platform, but whether they can assess its full value and organise its adoption sustainably.*

Robotic-assisted surgery (RAS) requires substantially more than the initial purchase of a platform. **Maintenance, consumables, training and workflow redesign all contribute to the total cost of usage**, while the resulting benefits may materialise elsewhere in the care pathway and over a longer period. Dr Charles Chatzopoulos (CHIREC – Delta Hospital) illustrated this tension through the Belgian experience, where limited procedure-specific reimbursement has required hospitals and medical communities to absorb costs and prioritise selected indications. Consequently, **patient access may depend on the financial capacity and strategic decisions of individual institutions**, rather than being determined consistently by clinical need.

The panel therefore called for value to be assessed **across the complete patient pathway**. Dr Anastasia Chalkidou (Programme Director, HealthTech at NICE) explained that this assessment should consider **short- and long-term clinical outcomes, operating theatre efficiency, workforce ergonomics, learning curves and the wider uptake of minimally invasive surgery**. The perspective adopted also matters: while hospitals frequently bear the immediate cost, benefits such as shorter recovery, fewer complications and a faster return to work may accrue to patients, social insurance systems, employers and the wider economy.

Because robotic platforms evolve rapidly and can be used across multiple indications, waiting for an entirely mature evidence base before granting access may be neither realistic nor desirable. NICE's use of **conditional recommendations** for the soft-tissue and orthopaedic platforms it assessed demonstrated a possible alternative: enabling controlled adoption while further evidence is generated. This **lifecycle approach** provides a middle ground between unrestricted uptake and withholding access until every uncertainty has been resolved.

The discussion also emphasised that **assessment cannot be separated from implementation**. Iñaki Gutiérrez-Ibarluzea (Basque Foundation for Health Innovation and Research) highlighted the importance of considering **population needs, anticipated procedure volumes, existing clinical outcomes, professional support and opportunities for cooperation between providers**. A positive assessment will not create value if a platform is introduced without sufficient demand, trained teams or a credible utilisation plan.

"We should start to reimburse the value, and not the technology or the procedure.

Dr Charles Chatzopoulos Head of Urology Department & Director of Robotic Surgery, CHIREC Delta Hospital, Brussels

Looking further upstream, Benjamin Boutot (Relyens; formerly Medicen Paris Region) presented France 2030 and related public-investment mechanisms as examples of support spanning the entire innovation pathway—from research and development to industrialisation, clinical validation and adoption. This reinforced the importance of integrating **reimbursement and implementation planning from the early stages of technology development**, rather than addressing them only once an innovation is ready to enter the market. This anticipation can be complemented by a specific focus on improving patient safety, based on the risk management experience of specialised insurance companies.

Taken together, the panel concluded that **sustainable adoption requires a shift from assessing the price of an individual device or procedure to evaluating value across the entire care pathway and technology lifecycle**. The panel also concluded that funding models must account for recurrent expenditure, system-wide benefits and local implementation capacity, while **conditional reimbursement and continuous evidence generation can provide a responsible route from promising innovation to routine patient access.**

We needed to look at this through the lens of conditional recommendation, which means reimbursement whilst evidence is still being generated.

Anastasia Chalkidou Programme Director HealthTech, NICE

PANEL 2

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Evidence that Keeps Pace with Innovation

Moderated by Joachim Haes, (Chair RAS SG & Senior Director Government & Public Affairs Europe, Intuitive). *The panel examined the growing gap between the speed at which robotic technologies evolve, and the evidence systems used to evaluate them. The discussion brought together clinical, research, regulatory and implementation perspectives, including contributions from Professor Tobias Renkawitz, Dr Geert De Naeyer, Professor Alberto Breda and Francesco Florindi.*

A central concern raised during the discussions was that conventional evidence-generation models can struggle to keep pace with continuous software and hardware development. By the time a randomised controlled trial has been designed, approved, and completed, **the system being assessed may already have undergone significant changes**. Professor Tobias Renkawitz (Medical Director and Chair, Department of Orthopaedics, University of Regensburg) stressed that this does not diminish the need for rigorous comparative research. It does, however, make **reliance on a single evidence method increasingly impractical**.

The panel therefore supported a **combined and continuously evolving evidence model**. Well-designed clinical studies should focus on causality and comparative effectiveness. Registries can demonstrate what happens when technologies move beyond specialist centres and into routine practice, while real-world data can provide more continuous insight into performance, recovery and implementation. Evidence assessments and clinical recommendations should consequently be **reviewed throughout the technology lifecycle**, rather than treated as static decisions made at a single point in time.

Robotic systems themselves may support this transition by generating structured data during ordinary clinical use. Dr Geert De Naeyer (Robotic Urologist, AZORG/OLV Hospital Aalst and Orsi Academy) emphasised the opportunity to use procedure-level data alongside patient-reported and wearable-derived outcomes. Realising this potential will require **well-defined governance, interoperable systems and trusted data environments**, with professional societies playing an important role in establishing common standards and ensuring clinical relevance.

"Thanks to proficiency-based progression training programs, we can now train and certify robotic surgeons according to objective standards, and evidence shows that such training leads to better surgical performance and improved clinical outcomes.

Prof Alberto Breda President of ERUS, the Robotic Urology Section of the European Association of Urology

"Our traditional evidence-generation systems are currently falling behind the pace of technological change.

Prof Tobias Renkawitz Medical Director and Chair, Department of Orthopaedics, University of Regensburg

"Training never stops. You bring surgeons to a proficiency benchmark, and with proctoring and ongoing support they can prove they have reached the level to operate safely.

Dr Geert de Naeyer Robotic Urologist, AZORG/OLV Hospital Aalst and Orsi Academy

The discussion also exposed a more fundamental measurement problem: **health systems frequently record activity rather than outcomes**. A more complete framework would capture complications, conversion to open surgery, length of stay, readmissions, revisions, return to work, operating theatre productivity, workforce ergonomics and outcomes that matter directly to patients. The perspective must be agreed from the outset because **the institution bearing the cost may not be the principal beneficiary**: savings and wider benefits may accrue to patients, insurers, employers or society.

Evidence generation was also closely connected to professional competence. Professor Alberto Breda (Fundació Puigvert and the European Robotic Urology Section) argued for **standardised, proficiency-based progression**, rather than dependence on informal apprenticeship alone. Under this model, surgeons advance through measurable stages and demonstrate competence before undertaking increasingly complex procedures. Training should not end with initial certification but continue through procedural education, proctoring and reassessment as technologies and techniques evolve.

The implications extend to the entire operating theatre. Robotic-assisted surgery changes the work of **surgeons, nurses, anaesthetists, sterilisation teams, schedulers and hospital managers**. Safe and effective adoption therefore requires training for the full multidisciplinary team, earlier exposure during medical education and stronger links between specialist centres, professional societies and national training programmes. Simulation, tele-mentoring and telesurgery may help distribute expertise more widely, provided that appropriate infrastructure, cybersecurity, professional responsibility and quality standards are in place.

Taken together, the panel concluded that **faster innovation does not justify weaker evidence; it requires a more adaptive evidence system**. Combining comparative trials with registries, real-world data, outcome-based measurement and continuous professional training would allow Europe to evaluate robotic-assisted surgery rigorously while ensuring that assessment remains relevant as technologies evolve.

*In practice, joint assessments under the EU HTA Regulation are unlikely to be conducted for robotic-assisted surgery.

PANEL 2

Training & the Path to Adoption

The panel then moved from evidence generation to the practical conditions required to make robotic-assisted surgery **a safe, sustainable and more equitable part of routine care**. The discussion showed that adoption depends not only on the availability of technology, but on **professional competence, multidisciplinary preparedness, clinical leadership, and institutional capacity**.

Training emerged as a central condition for responsible scaling. Professor Alberto Breda (Chair of the EAU Robotic Urology Section) advocated **standardised, proficiency-based progression** in place of reliance on informal apprenticeship alone. This approach establishes measurable stages of development and requires surgeons to demonstrate competence before advancing to more complex procedures.

Training must also continue beyond initial certification. Dr Geert De Naeyer (AZORG/OLV Hospital Aalst and Orsi Academy) emphasised the importance of **procedure-specific education, proctoring and the continued recognition of proficiency** as robotic platforms and surgical techniques evolve. Initial technical competence should therefore be understood as the beginning of a continuous learning process rather than its conclusion.

The implications extend well beyond the individual surgeon. Robotic-assisted surgery changes the work of **operating theatre teams, anaesthetists, nurses, sterilisation services, schedulers and hospital managers**. Successful programmes consequently require preparation of the full multidisciplinary team and integration of robotics into wider clinical and organisational pathways. The panel also supported **earlier exposure during medical education** and closer cooperation between specialist training centres, professional societies and national residency programmes.

Evidence, training and institutional readiness must, however, be supported by an enabling policy environment. Francesco Florindi (Policy Officer, Health Innovations and Ecosystems, European Commission Directorate-General for Research and Innovation) identified **regulatory science and EU research funding** as important tools for supporting the responsible development and adoption of medical robotics. The EU Health Technology Assessment Regulation also provides a framework for greater coordination of assessment across Member States. While it does not harmonise national reimbursement decisions, it can help reduce duplication and support a more consistent evidence base for evaluating innovative technologies.

The discussion ultimately demonstrated that evidence and adoption are inseparable. Evidence that keeps pace with innovation is valuable only if healthcare systems can translate it into practice, and this requires trained professionals, prepared multidisciplinary teams, effective clinical leadership and institutions capable of managing organisational change. **Better evidence can establish the case for robotic-assisted surgery; trained teams and capable institutions are what turn that case into better care.**

"Europe does not have an innovation problem in surgical robotics. We have an evidence-translation problem — and evidence translation is a regulatory science question we can answer in the future

Francesco Florindi Policy Officer, RTD D2 for Health Innovations and Ecosystems, European Commission

BEST PRACTICE

Belgium, Denmark & England

The best-practice discussion, moderated by **Lutz Dommel (CEO RPP Group, Partner Paritee)**, translated the earlier policy debates into practical experience from three healthcare systems, selected to showcase good practices in translating investment in robotic-assisted surgery into effective, evidence-based clinical care. Despite differences in financing, organisation and clinical practice, the examples from **Denmark, Belgium and England** demonstrated that acquiring a robotic platform is only the starting point. **Data, reimbursement, capacity planning, multidisciplinary training, and clinical leadership ultimately determine whether the technology delivers value.**

In Denmark, Professor Nadia A. Henriksen (Vice-President of the Danish Hernia Database, Consultant Surgeon at Bispebjerg Hospital and Associate Professor at the University of Copenhagen) showed how **nationwide registry data supported the expansion of robotic-assisted hernia surgery**. The evidence presented indicated fewer complications, shorter hospital stays and increased same-day discharge, with lower procedural costs associated with avoiding complications and readmissions. The Danish experience also exposed an important distinction: **ownership does not necessarily translate into access**. Hospitals may possess robotic platforms but lack the operating time, scheduling flexibility or organisational capacity to use them effectively.

The Belgian experience highlighted the importance of treating implementation as a **structured, multidisciplinary process**. Dr Didier Postlethwaite (Orthopaedic Surgeon specialising in hip surgery at Cliniques de l'Europe) described robotic-assisted hip surgery as a means of improving consistency and reducing outlier outcomes. Achieving this requires preparation across the entire team—from surgical planning and operating theatre workflows to nursing, anaesthesia and follow-up care. At the same time, **restricted reimbursement can limit procedure volumes and leave available capacity underused**, particularly in hospitals unable to absorb the additional costs.

In England, Professor Fares Haddad (Professor of Orthopaedic and Sports Surgery at UCL and Consultant Hip and Knee Reconstructive Surgeon at UCLH) contrasted the established evidence supporting several soft-tissue applications with the still-developing evidence base in orthopaedics. He cautioned that **short cost-effectiveness horizons can overlook longer-term benefits**, including improved implant positioning and potentially avoided revision procedures.

The English experience also reinforced the decisive role of clinical leadership. Successful adoption occurs when clinical leaders define the purpose of the technology, select appropriate patients, prepare the multidisciplinary team and integrate the platform into existing care pathways. **Installing a system without a utilisation strategy, pathway redesign or professional ownership risks creating expensive and underused capacity.**

Across all three countries, the same conditions identified during the earlier panels re-emerged. **Registry and real-world evidence** enabled Denmark to expand robotic hernia surgery with greater confidence; **reimbursement constraints** limited the utilisation of available capacity in Belgium; and **clinical leadership and team preparedness** determined whether technology became a functioning service in England. The organisational models may differ, but the overall lesson is consistent: **responsible scaling depends less on the availability of robotic technology than on the evidence, funding, skills, infrastructure and leadership built around it.**

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DENMARK

"I treat quality of life: fewer complications, faster recovery and lower cost as the natural result."

Prof Nadia A. Henriksen

Vice-President of the Danish Hernia Database, Consultant Surgeon at Bisperbjerg Hospital,
Associate professor, University of Copenhagen

BELGIUM

"Robotic-assisted surgery is not simply a new technology used by the surgeon. It is an institutional process."

Dr Didier Postlethwaite

Orthopaedic Surgeonspecialising in Hip Surgery, Cliniquesde l'Europe

ENGLAND

"It is clinical leadership and the clinician's desire to improve care. It is a tool that makes you a better surgeon."

Prof Fares Haddad

Professor of Orthopaedic and Sports Surgery,UCL; Consultant Hip and Knee Reconstructive Surgeon,
UCLH

CONCLUSIONS

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Key Takeaways and Next Steps

Assess value across the entire care pathway. Evaluate robotic-assisted surgery based on **patient outcomes, workforce benefits, hospital efficiency and its longer-term impact on health systems**, rather than acquisition costs or short-term expenditure alone.

Build capacity alongside technology. Innovation cannot deliver value without **trained multidisciplinary teams, appropriate infrastructure, effective governance and viable implementation models**. Investment decisions should account for these requirements from the outset.

Strengthen clinical leadership. Successful adoption depends on clinical leaders who define the purpose of the technology, select appropriate cases and guide the entire team through organisational change. **Installing a platform without pathway redesign or a utilisation strategy risks creating expensive, underused capacity.**

Fund outcomes rather than activity alone. Funding and reimbursement remain major barriers to access. Models should recognise **outcomes and system-wide value**, while mechanisms such as conditional reimbursement and risk-sharing can support responsible adoption as evidence develops.

Make proficiency-based training the standard. Safe scaling requires **measurable proficiency-based progression, train-the-trainer programmes, procedural training, proctoring and continuing recognition of competence**. Training should cover the complete operating theatre team, not only individual surgeons.

Combine complementary forms of evidence. Clinical studies, registries and real-world evidence should be used together. Research models must remain rigorous while becoming **faster and more adaptive to continuous software and hardware development**.

Embed data collection into routine care. The European Health Data Space, clinical registries and federated data initiatives can help close evidence gaps over time. Data governance, interoperability and agreed outcome measures should be incorporated into implementation from the beginning.

Improve European coordination. Europe should strengthen alignment on **evidence requirements, outcome measurement and assessment methodologies**, including through the EU Health Technology Assessment Regulation. EU research, cohesion and competitiveness funding can also support innovation and help reduce geographical inequalities in access.

Pursue consistency without imposing uniformity. No single financing or organisational model will suit every healthcare system. The objective should be **shared principles and clearer conditions for responsible adoption**, combined with the systematic exchange and scaling of successful national and regional approaches.

Robotic Assisted Surgery: A solution to European healthcare challenges
Read MedTech Europe RAS Sector Group's full position on scaling robotic-assisted surgery responsibly and equitably across Europe.

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