

From Connected Machines to Collaborative Intelligence: Dutch Ecosystem Explores the Future of M2M Communication



Industry leaders, researchers and innovators gathered at the Novitech Campus in Nijmegen on 23 September to explore how connectivity, AI, semiconductors and advanced computing are shaping the next generation of intelligent machines.

Organised by Ecosystem Services - together with High Tech NL and OostNL - as part of the NL@MWC community programme, The Future of Machine-to-Machine Communication brought together different parts of the Dutch technology ecosystem to explore a fundamental shift: machines are evolving from connected devices into intelligent systems capable of sensing, communicating and making decisions together.

The event highlighted the importance of collaboration across technological disciplines and the opportunities for the Netherlands to strengthen its international position in next-generation connectivity.

Connecting Dutch innovation to international opportunities

Liane van der Veen (Oost NL) and Tom van der Dussen (High Tech NL) opened the event by highlighting the importance of regional innovation ecosystems and connecting Dutch technological expertise to national and international opportunities.

Anke Kuipers and Mark Beermann (Ecosystem Services) introduced the opportunities surrounding the Netherlands Pavilion at MWC Barcelona 2027, providing a collective platform for Dutch companies, research institutions and government organisations to showcase innovation, develop partnerships and expand internationally.

Joining remotely, Tom Bonello (GSMA) presented the six themes of MWC 2027: Networks Reinvented, Autonomous Enterprises, AI in Action Now, AI of Tomorrow, Trust at Scale and The Next Era. His presentation highlighted the industry's growing focus on practical applications, measurable outcomes and the responsible development of emerging technologies.

Building the technological foundations

Mark van Helvoort (POLARIS/Philips) explored how advanced RF technology connects applications ranging from medical imaging and radar to satellite communications and future networks. Through the POLARIS National Growth Fund programme, industry and research partners collaborate across the entire development chain, from materials and chip design to system integration, creating opportunities for cross-sector innovation and new businesses.

Marc Stienen (CSL) addressed the critical importance of resilient connectivity. As connected devices increasingly support essential services, network failures can have serious consequences. He introduced CSL's intelligent rSIM technology, which automatically switches between core networks during outages. The presentation raised an important question for future autonomous systems: how can we move from minutes of downtime towards seconds or even uninterrupted connectivity?

Marcel Geurts (NXP) introduced the Future Network Services programme and its ambition to strengthen the Netherlands' position in 6G. He highlighted developments in spectrum efficiency, integrated sensing and communication, AI-driven networks and resilient infrastructure. Through national testbeds and field labs, FNS aims to translate technological research into practical applications and commercial opportunities.

When machines become intelligent collaborators

Dr. Majid Nabi (Eindhoven University of Technology) presented the CAMoRo project, demonstrating that machine-to-machine communication is about much more than exchanging data. Collaborative autonomous robots must communicate, coordinate their movements and make decisions together in real time. These capabilities create opportunities for more flexible and intelligent applications in manufacturing, logistics and healthcare.

Tijs Koops (Digital Holland) introduced the Future of Compute initiative, with particular attention to neuromorphic computing. Inspired by the human brain, this technology offers opportunities for more energy-efficient computing and local AI processing. Such developments are increasingly relevant as autonomous machines require faster decision-making without relying continuously on centralised computing infrastructure.

Beyond technology, Nicole van Haelst introduced the NL@MWC Talent Collective, a joint initiative with Ecosystem Services. By developing shared, profile-based talent pools, the initiative aims to help companies collectively attract, develop and retain the specialised talent needed to support the Dutch technology ecosystem.

Innovation, responsibility and human oversight

The afternoon concluded with a panel discussion featuring Marcel Geurts, Majid Nabi and Tijs Koops, moderated by Anke Kuipers.

The discussion explored the convergence of connectivity, computing and autonomous intelligence, and the responsibilities that accompany increasingly capable AI systems.

As machines become more autonomous, how do we ensure that their decisions remain understandable, predictable and under human control? The panel highlighted the importance of balancing technological ambition with reliability, safety and responsible development.

Towards MWC Barcelona 2027

The event demonstrated that the future of machine-to-machine communication cannot be developed within a single technological discipline.

RF technology, semiconductors, intelligent networks, robotics and advanced computing are becoming increasingly interconnected. Translating these developments into practical applications requires collaboration between industry, research institutions, government and the talent driving innovation.

Through the NL@MWC community, these connections extend beyond individual events, creating opportunities for Dutch organisations to collaborate, develop new business and strengthen their international visibility.

The journey continues towards MWC Barcelona 2027, where the Netherlands Pavilion will once again provide a collective platform for Dutch innovation on the global stage.

The future of connectivity is no longer just about connecting machines. It is about enabling them to work together intelligently, reliably and responsibly.

More information: www.nlmwc.com

From Connected Machines to Collaborative Intelligence: Dutch Ecosystem Explores the Future of M2M Communication

From advanced RF technology and resilient networks to collaborative robotics, neuromorphic computing and talent development, the Dutch technology ecosystem came together in Nijmegen to explore the future of machine-to-machine communication and the opportunities ahead of MWC Barcelona 2027.

On 23 September 2026, industry leaders, researchers, innovators and ecosystem partners gathered at Novitech Campus in Nijmegen for The Future of Machine-to-Machine Communication, an NL@MWC community event organised by Ecosystem Services, High Tech NL, Oost NL and powered by Digital Holland as part of the Week van de Digitalisering.

The central question of the day was how machines will communicate, collaborate and increasingly make autonomous decisions in an interconnected world.

As artificial intelligence moves beyond software applications and becomes embedded in physical systems, the requirements for connectivity are fundamentally changing. Networks must become more intelligent, communication more resilient, computing more energy-efficient, and machines capable of coordinating their actions in real time.

The Netherlands has significant expertise across these technological domains. Bringing these capabilities together creates opportunities to strengthen the country's position in the development of next-generation connected systems.

Throughout the afternoon, speakers demonstrated how developments in semiconductors, RF technology, 6G, robotics and computing are converging, and why collaboration across the ecosystem is essential to translate technological innovation into economic and societal impact.

Connecting regional innovation to international opportunities

The event opened with contributions from Liane van der Veen, Director of Innovation and member of the Executive Board at Oost NL, and Tom van der Dussen from High Tech NL.

Their contributions placed the programme within the broader context of regional innovation and the Dutch high-tech ecosystem.



The East Netherlands has a strong foundation in semiconductor technology, advanced manufacturing and applied research. Connecting these capabilities with national innovation programmes and international markets is essential to ensure that technological developments translate into new applications and business opportunities.

This is also where the NL@MWC community plays an important role. By bringing together companies, research institutions, government organisations and international partners, the initiative provides a platform for collaboration that extends beyond individual sectors and technological disciplines.

NL@MWC 2027: Bringing Dutch innovation to the global stage

Anke Kuipers and Mark Beermann from Ecosystem Services introduced the opportunities surrounding the Netherlands Pavilion at MWC Barcelona 2027.

The pavilion provides a collective international platform for Dutch companies, knowledge institutions and public organisations active in connectivity and related technologies.

Beyond exhibition space, NL@MWC facilitates international matchmaking, knowledge exchange, strategic partnerships

and opportunities to position Dutch innovation within global technology developments.

The Nijmegen event illustrated this approach in practice: connecting expertise from different parts of the Dutch ecosystem and identifying opportunities to collaborate on the technologies that will shape future industries.

GSMA: From technological ambition to real-world impact



Joining remotely, Tom Bonello, Sponsorship Director at GSMA, provided an overview of the six themes shaping MWC Barcelona 2027.

These are Networks Reinvented, Autonomous Enterprises, AI in Action Now, AI of Tomorrow, Trust at Scale and The Next Era.

Bonello explained how the themes reflect a broader evolution within the connectivity industry. While earlier editions of MWC focused heavily on emerging technologies such as 5G and AI, the conversation is increasingly shifting towards implementation, measurable outcomes and the impact of technology on businesses and society.

Networks are evolving into intelligent platforms powered by AI, cloud and edge computing. Enterprises are exploring how autonomous systems can improve operations, while developments in AI raise new questions about security, sustainability, governance and trust.

The themes also underline the importance of demonstrating practical applications rather than focusing exclusively on technological potential.

For Dutch companies, this creates opportunities to showcase real-world deployments, demonstrate measurable results and contribute to the international discussion about the future of connectivity.

Bonello also highlighted the GSMA's call for speakers, encouraging organisations with compelling use cases and innovative solutions to submit proposals for the MWC 2027 conference programme.

POLARIS: Building the foundations for future RF technology



Mark van Helvoort, representing the POLARIS National Growth Fund programme and Philips, took participants into the world of advanced radio-frequency technology.

RF technology is a fundamental building block for a wide range of applications, from medical imaging and radar systems to satellite communications and future telecommunications infrastructure.

Although these sectors may appear very different, they share underlying technological challenges in areas such as antenna design, signal processing, semiconductor development and system integration.

POLARIS brings together industrial partners, research organisations and universities to address these challenges collectively.

The programme covers the entire development chain, from materials and chip design to packaging and complete system integration. By combining expertise across different industries, innovations developed for one application can potentially create value in another.

Van Helvoort emphasised that such complex technological developments increasingly require an open innovation ecosystem.

The programme therefore focuses not only on research and technology development, but also on knowledge exchange, human capital and the creation of new business opportunities.

He highlighted the emergence of new companies from the programme, illustrating how long-term research investments can contribute to commercial activity and economic growth.

POLARIS also offers opportunities for additional companies to become involved through associate partnerships, providing access to expertise, collaboration opportunities and the wider RF ecosystem.

CSL: Why reliable connectivity is becoming mission-critical



As machines become increasingly connected and autonomous, connectivity can no longer be treated as a secondary component.

Marc Stienen from CSL explored this challenge in his presentation, *The Invisible Layer Behind the Machine Economy*.

Drawing on CSL's experience in critical IoT connectivity, Stienen demonstrated the consequences of network failures across applications such as healthcare, security systems, EV charging infrastructure and industrial equipment.

When a connected device loses communication, the consequences can extend far beyond a temporary interruption in data transmission. Services may become unavailable, business operations can be disrupted and, in safety-critical applications, people may be placed at risk.

Stienen introduced CSL's rSIM technology, an intelligent SIM solution designed to improve connectivity resilience by monitoring network availability and switching between core networks when a connection fails.

Using a real-world network outage as an example, he illustrated how downtime lasting several hours could be reduced to approximately two minutes through automatic failover.

The discussion also exposed an important challenge for the future of machine-to-machine communication.

While reducing downtime from hours to minutes represents a substantial improvement, certain autonomous and mission-critical applications may require recovery within seconds or even uninterrupted connectivity.

Further progress will require innovation not only at the device level, but also within mobile network infrastructure and the cooperation between connectivity providers.

The presentation demonstrated why resilient connectivity must increasingly be considered an integral part of product and system design rather than an optional service.

Future Network Services and NXP: Developing the building blocks for 6G



Marcel Geurts from NXP introduced the Future Network Services (FNS) programme and its ambition to strengthen the Netherlands' position in the development of 6G.

The programme brings together industry, research institutions and other partners to develop technologies that will form the foundation of future mobile networks.

Geurts highlighted several key challenges, including the efficient use of increasingly scarce spectrum, the integration of sensing capabilities into communication networks, the application of AI within network management and the development of reliable and resilient mobile infrastructure.

One particularly important development is the convergence of communication and sensing.

Future networks will not only exchange information between connected devices, but may also be able to detect and interpret their physical surroundings through radio signals.

This creates opportunities for applications in autonomous mobility, industrial automation and intelligent infrastructure.

NXP contributes semiconductor expertise and technologies such as low-power radio solutions and software-defined radio to support these developments.

Geurts also emphasised the importance of translating research into commercial applications.

Through its national testbed and field labs, FNS provides opportunities to validate new technologies, develop practical use cases and bring innovations closer to market readiness.

The programme illustrates how collaboration between research and industry can help build both technological capabilities and sustainable economic value.

CAMoRo: When machines start collaborating



Dr. Majid Nabi from Eindhoven University of Technology introduced CAMoRo, a research project exploring collaborative autonomous mobile robots.

His presentation demonstrated why the future of machine-to-machine communication involves much more than exchanging information between connected devices.

In increasingly autonomous environments, machines must be able to coordinate their activities, share information about their surroundings and make decisions together.

Consider a fleet of robots operating in a factory or logistics environment. Each robot may have its own tasks, sensors and decision-making capabilities, but effective collaboration requires them to understand and respond to the actions of other machines.

Communication therefore becomes an essential component of collective intelligence.

Nabi explored the challenges of developing dependable, real-time communication and coordination between autonomous systems.

These include maintaining reliable information exchange, coordinating movements and enabling robots to adapt when their environment or operating conditions change.

The CAMoRo project provides insights into how distributed intelligence and communication can work together to support more flexible and autonomous operations.

The potential applications extend beyond industrial robotics to areas such as logistics, healthcare and other environments where multiple autonomous systems need to operate together.

The presentation also raised an important question: as machines become increasingly capable of making decisions collectively, how do we ensure that their behaviour remains predictable, reliable and understandable?

Digital Holland: Neuromorphic computing and the future of intelligence



Tijs Koops from Digital Holland introduced the Future of Compute initiative, highlighting the growing need for alternative computing architectures.

The rapid development of AI is placing increasing demands on computing infrastructure, energy consumption and data processing capabilities.

Traditional computing architectures face limitations when it comes to supporting the next generation of intelligent applications at scale.

Future of Compute brings together developments in advanced semiconductors, quantum computing, integrated photonics and neuromorphic computing to explore how these limitations can be addressed.

Koops focused particularly on neuromorphic computing, an approach inspired by the way the human brain processes information.

By bringing computation and memory closer together and exploring alternative processing architectures, neuromorphic technologies offer opportunities for more energy-efficient and responsive computing.

This is particularly relevant for AI applications at the edge, where information needs to be processed locally rather than continuously transmitted to centralised data centres.

For autonomous machines, this could support faster responses, lower energy consumption and reduced dependence on external computing infrastructure.

Koops also introduced Neuromorphic Computing NL, an initiative bringing together companies, research institutions and public organisations to accelerate the development and application of these technologies.

A central challenge is moving beyond research and ensuring that emerging computing technologies find their way into industrial roadmaps and commercial applications.

The presentation reinforced the importance of considering connectivity, computing and intelligence as interconnected elements of future technological systems.

NL@MWC Talent Collective: Technology needs people

While technological innovation formed the foundation of the programme, Nicole van Haelst brought attention to another essential component of a successful innovation ecosystem: talent.

Introducing the NL@MWC Talent Collective, a joint initiative with Ecosystem Services, she explored how companies can work together to attract, develop and retain the people needed to support future technological growth.

The Dutch technology ecosystem faces growing competition for specialised skills, particularly in areas such as semiconductors, AI, connectivity and advanced engineering.

For smaller and lesser-known companies, attracting these

profiles can be especially challenging when competing with internationally recognised technology brands.



The Talent Collective aims to address this challenge through shared, profile-based talent pools.

Rather than each organisation approaching the labour market independently, companies can combine their efforts to build and nurture relevant talent communities and create more effective connections between candidates and employers.

The initiative is designed to support both individual companies and the broader ecosystem, making talent acquisition more accessible while strengthening long-term relationships with potential candidates.

Van Haelst emphasised the importance of looking beyond immediate vacancies and investing in sustainable talent development.

As the day's presentations demonstrated, technological progress depends not only on research funding and infrastructure, but also on the availability of people capable of developing, implementing and scaling new solutions.

Closing discussion: How do we remain in control of increasingly intelligent systems?



The event concluded with a panel discussion featuring Marcel Geurts, Majid Nabi and Tijs Koops, moderated by Anke Kuipers.

Bringing together perspectives from semiconductor technology, autonomous robotics and future computing, the discussion explored what happens when these technological developments converge.

As machines become more autonomous, the boundaries between communication, computing and decision-making are changing.

Future systems may be capable of sensing their surroundings, exchanging information, coordinating activities and making decisions with increasingly limited human intervention.

This creates opportunities for productivity, efficiency and innovation, but also introduces new questions about reliability, transparency and human oversight.

One of the central questions raised during the discussion was how to maintain control over increasingly complex systems when their decision-making processes become difficult for humans to understand.

The panel explored the importance of designing systems that remain dependable and understandable, particularly in environments where autonomous decisions can have significant consequences.

The discussion also touched on the wider responsibilities associated with accelerating AI development.

Rather than viewing technological progress exclusively in terms of performance and capability, participants considered the importance of responsible development, appropriate safeguards and the ability to understand and manage the behaviour of intelligent systems.

The conversation highlighted that future machine intelligence will require more than technological breakthroughs alone. Trust, safety and responsible implementation must evolve alongside the capabilities of the technology itself.

From individual technologies to a connected ecosystem

The Nijmegen event demonstrated that the future of machine-to-machine communication cannot be developed within a single technological discipline.

Advanced RF technology provides the physical foundations for communication. Future networks enable machines to exchange information and sense their surroundings. Resilient connectivity ensures that critical systems remain operational.

Collaborative robotics shows how connected machines can coordinate their actions, while new computing architectures provide opportunities to process intelligence more efficiently and closer to where it is needed.

And behind every technological breakthrough are the people, organisations and partnerships required to turn innovation into practical applications.

Together, these developments represent an important opportunity for the Dutch technology ecosystem.

By connecting expertise across semiconductors, telecommunications, AI, robotics and computing, the Netherlands can contribute to the development of the next generation of intelligent and connected systems.

The journey continues towards MWC Barcelona 2027, where the NL@MWC community will bring Dutch innovation, expertise and collaboration to an international audience.

The future of connectivity is no longer just about connecting machines. It is about enabling them to work together intelligently, reliably and responsibly.

About NL@MWC

NL@MWC is the Dutch collective initiative connecting companies, knowledge institutions, government organisations and ecosystem partners around Mobile World Congress Barcelona. Through the Netherlands Pavilion, international missions, knowledge events and matchmaking activities, the initiative supports international collaboration and business development within the Dutch digital and connectivity ecosystem.

More information: www.nlmwc.com