



## KEY INNOVATIONS

To pursue its objectives, EU-TRAINS project addresses the following key innovations:

### SMART EDGE AI-POWERED WEARABLE SENSORS



Integrated in textiles for complex movement detection, heart rate and respiration monitoring, supporting multi-sports trainings



### IN-WATER TRANSMISSION TECHNIQUES

For real-time exercise tracking as well as remote assistance with reliable and precise training intensity estimation

### SMART BIO-CHEMICAL SENSORS



For non-invasive detection of numerous body fluidic parameters from sweat



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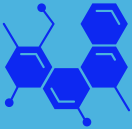
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# EU-TRAINS

## KEY INNOVATIONS



### DEVELOPMENT OF NOVEL MATERIALS

Imprinted polymers and ion-selective membranes for advanced biosensing from sweat

### ADVANCED DATA FUSION TECHNIQUES



Advanced sensors featuring on-board machine learning for seamless communication between the device and the cloud



### ADVANCED ENCRYPTION TECHNIQUES

Identity and access management based on a wide range of personal body parameters



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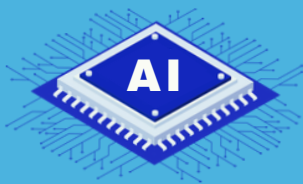
# EU-TRAINS

## PROTOTYPE FAMILIES

The following prototype families have been targeted as outcomes of the project:

### EDGE-AI PROCESSING

Improving data quality while reducing energy consumption and enabling seamless and resilient communication



### MULTI NODE & MULTI-SENSOR UNITS



Novel sensors integrated into specific sport garments, supporting heart rate / heart rate variability monitoring and analysis of sweat and movementnt



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# PROTOTYPE FAMILIES

## MULTI NODE & MULTI-SENSORIZED SWIMSUIT AND ACCESSORIES

Movement tracking, including power / stroke efficiency metering, supporting heart rate and heart rate variability monitoring, supported enabled by advanced in-water communication technologies



## SMART-PHONE AND SMART-WATCH APPLICATIONS

Pave the way for the forthcoming European health dataspace



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