

## Digital Single Market

# Personalised solutions for the treatment of traumatic brain injuries

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Traumatic brain injury (TBI) occurs when a sudden trauma causes damage to the brain – it is a major health problem and the most common cause of permanent disability in people under the age of 40 years. Yearly cost from TBI in Europe exceeds 100 billion euros. Recent statistics show a steep increase in the incidence of TBIs, with an increase of 21 % over the last five years – threefold greater than the rate of increase in population. Despite this TBI has been seriously underrepresented in medical R&D efforts compared to many other, less significant health problems. The TBIcare project aims to provide an objective and evidence-based solution for management of TBI by improving diagnostics and treatment decisions for an individual patient.

A Consortium of leading research institutions across Europe is taking the treatment of traumatic brain injuries in a more individualised direction in the EU funded project TBIcare, coordinated by VTT Technical Research Centre of Finland. A software solution that will be developed as part of the project will make it possible to match individual patient data with the injury's characteristics, and thus ensure that each brain injury patient receives the best possible treatment.

Every year, more than 20,000 Finns are injured and several thousand lose their ability to work as a result of traumatic brain injury. The problem is also considerable in terms of the Finnish economy. Traumatic brain injury results in more lost working years than cancers, cerebrovascular diseases and HIV/AIDS together. For example, on a global scale, the number of working years lost due to traumatic brain injury is four times that of diabetes-related loss.

Due to a high degree of variation in the injuries of individual patients, the methods currently in use in the treatment of brain injury patients lack strong scientific evidence. The TBIcare project aims to develop methods to allow each brain injury patient to receive individual treatment that is optimised for his or her needs.

The aim is to develop a tool that will make the day-to-day clinical work of doctors easier and also revolutionise the treatment of traumatic brain injury. The main objective of the project is to create a new type of software that will enable doctors to match the different variables describing the injury and the medical condition of the patient with each other. Using the extensive database and system simulation, the software will then form a detailed analysis of the nature of the patient's brain injury

and the necessary treatment.

The budget for the three-year project is EUR 4.2 million, of which EUR 3.2 million is contributed by the European Union. The Consortium includes VTT Technical Research Centre of Finland, GE Healthcare Ltd. (UK), Turku University Central Hospital (Finland), University of Cambridge (UK), Imperial College London (UK), Complexio S.a.r.L. (France), Kaunas University of Technology (Lithuania), and GE Healthcare Finland Oy. The project is part of the National Brain Injury Centre to be established in Turku, one of whose objectives is to be responsible for the future development of research and treatment practices in this field in Finland.

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