



Internet of Nano-Things (IoNT) and Nano-Smart-Device to Promote Nano-Control in High Complexity Nano-Surgeries

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We are experiencing a real revolution regarding advances in nanotechnology in health. The solution to many health problems until today unattainable, found in nanotechnology, which is the engineering of molecularly precise structures that typically do not exceed 0.1 mm. This allows us to build nano-machines applicable to nano-medicine. The exponential advances in computer science, internet, telecommunications and smart-devices increase the possibilities of using them to promote nano-control in many fields of nano-medicine. We are particularly interested in their interaction in the field of high complexity nano-surgery.

To allow interaction between several devices is fundamental the communication between macro and nano-elements that are matched by three components (physical, virtual and biological elements) and configured through nano-sensors and nano-particles. The friendly architecture, with which this conglomerate of nano-elements is designed, is the key to the success or failure of the nano-device. The interconnection of nanoscale devices with existing communication networks and, ultimately, with the Internet defines a new paradigm of networks known as "Internet of Nano-Things" (IoNT). The adoption of the "Internet of Nano-Things" (IoNT) greatly facilitates intercommunication through the traditional macro Internet called "Internet of Things" (IoT). For the correct interrelation of the IoNT/IoT, in one area, such as high complexity nano-surgery, it is necessary to have different types of Nano-Smart-Devices: Nano-Nodes (machines responsible for calculations and data transmission). Nano-routers (increase the information, being more potent than the previous ones and have control commands). Interface devices (accumulate data and transmit it to a microscale and vice versa). Gateway (enables remote control of the IoNT/IoT network). For a successful communication between the different elements involved (IoNT /IoT/Nano-Smart-Devices/Nano-Devices), it is conceived, either through communication to a molecular band or communication to the nano-electromagnetic band. The first is the transmission and reception of information encoded in molecules, called molecular transceivers, while the second is the nano-electromagnetic communication that works through the transmission and reception of electromagnetic radiation (EM). These elements are the fundamental support for the diagnosis and subsequent nano-control of a highly complex nano-surgery, as accurate as possible.

Biography

Tomas Gabriel BAS has completed his PhD from University of Quebec at Montreal (Canada) and postdoctoral studies from the same University. He is the director of MBA at Universidad Catolica del Norte (Coquimbo) Chile. He was the founder director of the Institute of Innovation based on Science and Director of Masters in Technology Management University of Talca (Chile). Manager founder and editor of the scientific journal (SciELO) "Journal of Technology Management & Innovation" (www.jotmi.org).. He has published 50 papers in reputed journals and 50 conferences.

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