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3D Corporate Tourism in the Marine Sciences: Application–oriented Problem Solving in Marine Ecosystems

Gebeshuber I.C.[1,2], T.R. Matin[1] and B. Y. Majlis[1]

[1] Institute of Microengineering and Nanoelectronics, Universiti Kebangsaan Malaysia, 43600 UKM, Bangi, Selangor, Malaysia
[2] Institute of Applied Physics, Vienna University of Technology, Wiedner Hauptstrasse 8-10/134, 1040 Wien, Austria

* Corresponding author: gebeshuber@iap.tuwien.ac.at

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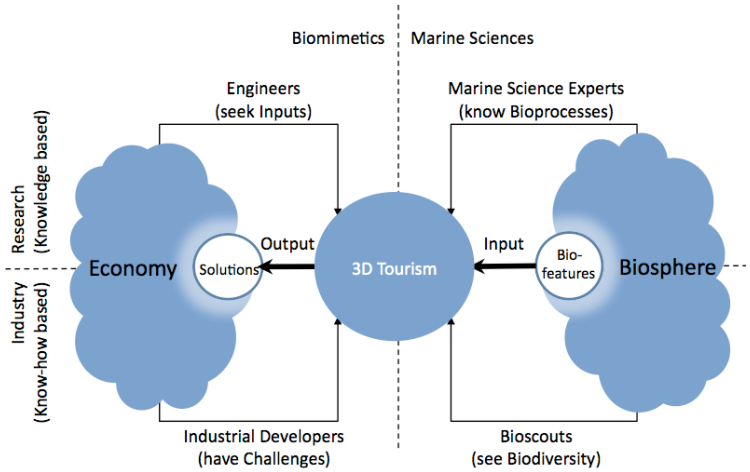
3D Corporate Tourism is a solution–based approach to innovation in science, engineering and design [1][2]. The three main pillars of this integrated concept are discover, *develop* and **design**. In 3D Corporate Tourism in the Marine Sciences, marine scientists, engineers and designers jointly work in a marine environment with high inspirational potential and construct initial prototypes and designs directly on site. This joint approach yields new links, networks and collaborations between communities of thinkers in different countries in order to stimulate and enhance creative and application–oriented problem solving for society.

Nature's materials are complex, multi–functional, hierarchical and responsive, and in most cases far better than man made materials. Biomimicry and biomimetics deal with knowledge transfer from nature to technology and design. Increasingly, collaborations across fields prove successful [3][4] and are highly useful for innovation [5]. 3D Tourism aims at mapping new frontiers in emerging and developing engineering and design areas. It provides a novel way to foster and promote innovative thinking in the sciences, and considers the need for synergy and collaboration between biology, engineering and materials science rather than segmentation and isolation: Supported by specially trained marine scientists, engineers as well as designers apply the Biomimicry Innovation Method (© Biomimicry Guild, Helena, MT, USA 2008) in a marine environment and discover, *develop* and **design** complex materials and designs inspired by nature. Directly at the site of this research, first prototypes and designs are constructed, and first detailed investigations take place. The 3D concept has been inspired by the 'Biomimicry and Design Workshops' (offered for one week per year, location: rainforest in Peru or in Costa Rica) by the US based Biomimicry Guild. Companies such as Boeing, Colgate–Palmolive, General Electric, Levi's, NASA, Nike and Procter and Gamble have already used their services.

With 3D Corporate Tourism implemented in the Marine Sciences, the successful concept of the 'Biomimicry and Design Workshops' is developed further into a complete niche tourism concept. The outcome of such a joint effort are – besides the research results, developments and designs – new links, networks and collaborations between communities of thinkers in different countries in order to stimulate and enhance creative and application–oriented problem solving for society.



3D Corporate Tourism Implementation in the Marine Sciences

The high species variety in marine ecosystems such as coastal seas, lagoons, estuaries, mangroves, coral reefs and deep oceanic waters, with nature's 'best practices' everywhere aids to relate structure with function in natural materials, structures and processes and helps to increase awareness about the natural resources surrounding us. With the concept of 3D Corporate Tourism the potential of Malaysian marine ecosystems is used in a sustainable way and the management of marine resources for human and environmental wellbeing is fostered, without exploiting the natural resources or removing anything else from the ecosystem apart from ideas. In this way, the value of marine ecosystems is increasing in the minds of policy makers and threshold countries have the opportunity to contribute highly valued inputs to the international research and development elite, as well as train their local experts in very important future technologies. The possibility to perform first investigations directly on–site (e.g. at the UKM Marine Ecosystem Research Centre EKOMAR and Malaysian marine parks), and subsequent deeper and more detailed investigations at the home institution fosters collaborations and results in synergistic effects across borders.

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