Text / Photo / Bioinspired Forum Translator / Benjamin Ho

Turning Imagination into Power

BIOi One -- A Vehicle for Collaboration

想像力就是力量

BIOi One——個傳播媒介的成果

這個世界充滿了創意，各地的實驗室更累積了驚人的資訊海嘯。所有的創意與知識都有其存在的價值，但我們該如何妥善運用這些資訊？任何一個孤獨的天才，都很難完全理解這些龐大的資料並轉化為創新發明，更別說是有機會找到金援，將創意實踐並投入市場。

The world is full of ideas and the laboratories accumulate what can be described as a tsunami of data. All this creativity and knowledge is necessary, but how do we make something out of it? It is hardly possible anymore for any lone genius to process and transform all this into something that could become an innovation. Let alone find the funding that can carry the idea to a market.

近期，自然界的許多現象常被創新者與產業發展視為靈感來源，並以仿生學、仿生創意、生物工學等名字稱之

將自然界的定律轉化為對人類有益的發明相當合理，也已經行之多年，但近日因為大規模的研發，讓此領域的進程快速發展，而人們創新的潛力也愈見蓬發，已可與自然界同調互進，但關鍵性的問題依舊存在：我們如何將這些知識應用於人類文明中？

幾個世紀以來，我們已經將各種知識分類為多門學科，研究人員也在各自領域中有卓越且深入的表現，但現在我們必須強化不同區塊間的合作。不僅僅是在學術界，商業、設計、建築、決策者與政治家、資本家等，都要一起攜手前進。

有許多深具潛力的高密度知識創新發明，最初都是由公有與（或）私人基金會贊助發起，而他們最常遇到的共通困難，便是無法突破最初的起步階段，關鍵就在於不知如何向可能的合作夥伴推廣、示範或研發自己的設計理念。

Lately nature's behavior and performance are seen as a source for inspiration in terms of innovation and industrial development. This goes under many names; biomimetics, biomimicry, bioinspired, bionics, etc.

It is a reasonable claim that principle from what we call nature can be transformed into something useful in man's context. This has of course always been the case but now it is taking off due to extensive research and our inventions has a potential to be more in tune with natural processes. But the question remains: How do we apply this know-how in our societies?

For centuries we have divided knowledge into faculties and researchers have dug deep into their respective field of research. But now we need to stage collaboration between disciplines. Not only within academia but in an extended field that include people from business, design, architecture, policy makers, politicians, venture capitalists, etc.

There are many very promising knowledge intensive innovation projects out there initially funded by public and/or private foundations. One problem most of them share is how to go beyond that initial phase. Where and how can they present, demonstrate and develop their concept in collaboration with other potential stakeholders?

裝置藝術2011 — 地區海藻農場，於瑞典錫姆里斯港，by ecoLogicStudio

Installation 2011 - Regional Algae Farm by *ecoLogicStudio* in Simrishamn, Sweden

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Bioinspired Forum為了解決類似的問題並改變現況，於是開始了「BIOi One」計畫

其目標是在有商業潛力的基礎下，將建築設計與都市發展計畫有效整合。為了達到此一進程，我們將發展出一套容易上手的溝通管道，這是一個實現性的設備，一個介於研發機構、社會大眾與商業間的串連介面。

指導的主題有二。第一，將研究數據轉化為可見的結果（可能是一種體驗或是可被理解的元素），成為創新的溝通方式；第二，充滿創意的環境 — 無論是組織、想法或是結構，其重點將放在仿生材質或是行為。此階段在於建構環境以及與自然互動的媒介。

實行此計畫的挑戰十分艱鉅，必須建立一種新的合作文化，同時研發出更出色的科學數據應用方式，在資訊傳遞與創意交流的新路程中，更有組織地在複合結構中進行溝通，而所謂的「原創性」，便在於我們如何組織與管理訊息的方式。

為了激發創意，此計畫必須更有組織地依不同領域進行分類，成立「創意突擊部隊」，結合有形與無形的文化資源，完整支援合作計畫與經驗匯集。而第一步便是建立一個高科技的城市計畫模型，用以說明設計方案、材質與執行過程，並透過縮小的模型具體點出問題的核心。

Bioinspired Forum* has in order to address these questions and challenge the existing situation started the project “BIOi One”

The purpose is to integrate research, with a business potential, in society with architecture and city planning as main vehicle for collaboration. To support the process a hands-on communication model will be developed. It will be a kind of test facility and an interface between research, society and business.

The guiding themes are: 1. From scientific data to vision (experience/ understanding) – innovative communication. 2. Creative environments – organization/flows/architectures. The focus is on bioinspired materials and processes. The stage is the build environment and interfaces to nature.

The challenge is immense. A new culture of collaboration and in how one shape scientific data has to be developed. Together with new pathways for information and ideas flow in an organizational body intertwined in a multitude of architectures. The originality lies in how we organize, shape information and govern flows.

Projects are set up as interdisciplinary ventures which are part of the organizational development necessary in order to produce innovations - Creative Task Forces. Prototyping is an integrated part of the culture, virtual or physical objects, for supporting collaboration and collecting experiences. The first step will be to set up a high tech city planning model as a conversational piece where system solutions, materials and processes can be applied in a small scale addressing concrete problems.

範例一：藻類（Algae）城市／區域開發與架構

在與瑞典南部錫姆里斯港市政中心的合作下，我們開始了以當地海藻為出發點的地區發展計畫，在不同學科領域的合作下，充分展現了生物多樣性的價值，也開啟了地區開發的未來新視野。

我們邀請了建築設計團隊ecoLogicStudio，將科學知識轉化為公共空間的視覺焦點，透過嗅覺與味覺的結合，讓觀者對於吸收知識與了解其中含意有了更多的興趣。不同背景的人們在過程中得到了協助，並了解如何為他們特定的能力與狀況增進價值。

Case one: Algae, urban / regional development and architecture

In collaboration with the Municipal Simrishamn in the South of Sweden we have activated a process for regional development with algae as a point of departure. Collaboration between many different disciplines unfold value in biodiversity and show a vision for the region’s future.

We engaged the architectural team ecoLogicStudio to transform scientific know-how into a visual experience in a public space. Together with taste and smell this gives the visitor a more dynamic tool for inhaling knowledge and recontextualisation. People with different background get support to process the information and formulate how they could add value out of their specific competence and situation – “Algae and Innovation, enzyme for regional development?”

濾化花園＋錫姆里斯港海藻生態巡禮地圖，by ecoLogicStudio
Illustration “Filtering Gardens” + Algae Land Touristic Map of Simrishamn by *ecoLogicStudio*

結論：凝聚創意並連結知識密集度高的網絡，對地區開發的反思，開啟了更多的可能性，同時結合了更多的外部資源，並提供了一個多部會合作的新平台。地區組織與政府官方已為未來發展強力背書，大眾對於該地區的觀感，也從過去落後的形象慢慢轉形，發現其蘊含的遠見。市區的土地價值提昇，讓未來的發展備受期待。

--喬爾馬格努松，藻類和氣味

Consequence: Influx of new ideas and access to knowledge intensive networks. Rethinking the region open up new potentials. New project proposals from external sources. Offer a new platform for intermunicipal cooperation. Regional and national authorities ready to back-up further development. The public perception of the area shift from backwards thinking to a visionary player. Municipal land value increases. An extended taste memory and new dishes on the table.

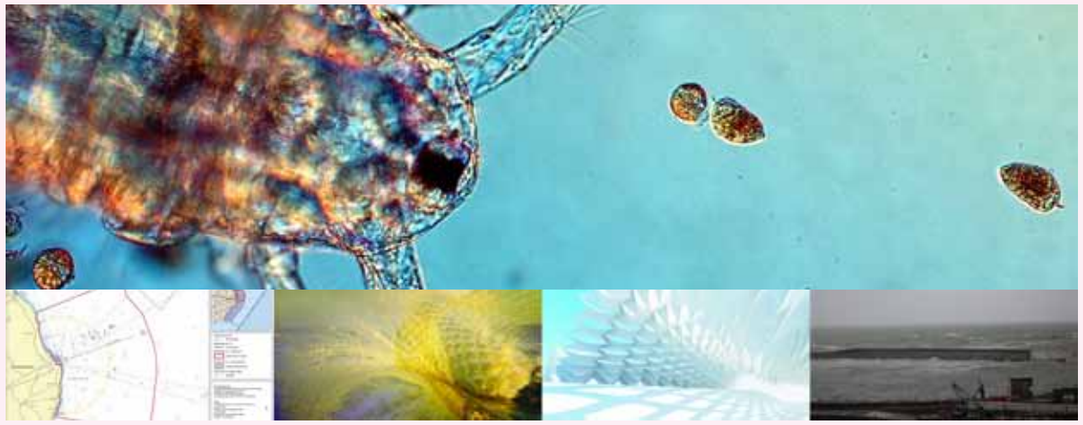
--Joel Magnusson, Algae and Taste

範例二：一棟做為生物傳感媒介的建築物

用以轉譯海中動、植物對外界的感知，成為一座創新體驗中心。同時它也是一座示範用的工作室與實驗室，能針對新發明進行展示與研發。

Case two: A building as biological sensor

Translating plants and animals perception of reality with a focus on the sea, thus becoming an innovative experience center.
It will at the same time function as a studio and test facility with demonstrations, presentations and development of innovations.



影像作者：Marin Miljöanalys, Claudia White與Haen Suk Y

Illustrations: Marin Miljöanalys, Claudia White and Haen Suk Yi

此計畫的終極目標，是要以仿生原則做為建築設計的核心，並衍生許多有趣的主題

在商業潛力為考量的前提下，生物傳感機制將會是建築的起點。舉例而言，我們有可能應用手持式的動、植物感知裝置，此外我們也讓人們有機會去探索自然，並透過人類與自然界的化學性溝通形式，擴展我們的觀點。

跨學科的小組將會制定出設計概念，並將原型套用在一組高科技都市計畫的模型中，在縮小的規模中實現此創新概念。我們會將焦點放在以下幾個例題：我們該如何透過光生物反應器（Photobioreactors）與藻類農作結合，將其應用於我們的設計環境，並建構出多功能的建築？將建築與藻類培養融合為一，不僅能產生能源，也能製造出具有高工業價值的物質。有許多其他類似案例，都值得我們去反思建築設計能帶給我們的其他意義。

--Erik Selander
解讀藻類的化學語言

The ambition is that the building in itself will be built on biomimetic principles

The site will be the playground for many themes. Biological sensors will be the starting point since there is a great business potential in this. Most likely we will, for example, in our hand held devices incorporate various sensors inspired by plants and animals. We also give people an opportunity to explore nature, expanding our perception via our fellow life forms with their mode of chemical communication.

Interdisciplinary teams will formulate a concept and construct the first prototype for a high tech city planning model in which innovative projects will be applied on a small scale. We will investigate questions like: How can we incorporate algae farming – photobioreactors – in our build environment and construct multifunctional buildings? Algae cultivation intertwined in architecture could produce energy as well as substances of high value to industry. (The article in this magazine about the architect Anna Teglund gives you a deeper introduction to this.) There are many other similar projects that have a great potential to rethink what a building can do for us – Turning Imagination into Power.

--Erik Selander
Deciphering the Chemical Language of Algae

合作邀請

所有努力都需要全球性的合作，因此我們希望邀請你一同加入，一起面對挑戰，透過積極的擘畫，讓你自己、你的公司、城市或地區更具競爭力。你將身處於創新思維的洪流中，進一步去改變生活，重新定義「產品」的意含，並了解我們與自然界的互動。一同加入這個創新知識的智庫，與最頂尖的團隊一起探索仿生科技與素材研究的精奧。
http://www.bioinspiredforum.com/

Invitiation for collaboration

This endeavor is a global undertaking and we would like to invite you to take on the challenge and thus give yourself, your company, city or region a comparative advantage by being part of an active practical storytelling. You will position yourself in an idea flow that will change society and redefine what we mean by a product and how we relate to nature. Join a creative knowledge infrastructure together with leading organizations within the field of biomimetics and material research.
http://www.bioinspiredforum.com/

BIOi One將應用最先進的現代科技，構建出宛如真實的虛擬實境與身歷其境的空間感

此類跨領域的計畫，需要全新的設計，以便發展完整的資訊傳輸空間，因此需要資金流動與理念發想互為輔佐後盾。

結論：著手進行都市發展計畫、環境策略等議題，將研究與商業價值緊密結合，解析市場狀況，從勇於嘗新的消費者中發現創新元素。公眾將會對大自然的法則有更深層的認識，同時讓人們更直覺地改變行為習慣。誘發年輕人從企業的角度出發，激起對動、植物研究的好奇心，以及對自然科學的興趣，同時讓計畫本身與既得利益者交流更具效益，並讓建築師、設計師與企業界等不同人士，在各自的專職領域中相互合作，成為發現與開發新素材的有效工具。

--Mats Brodén
Bioinspired Forum創辦人

BIOi One will tap into the contemporary cutting edge technology that supports the construction augmented reality environments and immersive spaces

Interdisciplinary projects demand the development of rooms or spaces with completely new qualities that support knowledge transfer. These spaces or situations needs to be backed up with models where capital flow support idea flows and vice versa.

Consequence: Integration of research, with a business potential, in hands-on development of society such as city planning, environmental strategy, etc. Preparing a market and thus creating a pull for innovation from venturesome consumers. The public will get a deeper understanding of the workings of nature and are given a chance to intuitively alter behavior. Trigger curiosity among the young for the study of plants and animals from an entrepreneurial perspective and natural science in general. Give way for an effective match between projects and stakeholders. Offer architects, designers and entrepreneurs a tool for finding and developing materials and processes, in collaboration with laboratories, to be applied in their respective field of work.

--Mats Brodén
Founder Bioinspired Forum

...e map is a 'Regional Algae Farm' action plan, developed by ecoLogicStudio for the ...rishamn Municipality, and illustrates potentials for algae related urban activities and architectural prototypes in the Österlen region.

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...ographic Regions

Topografiska Regioner

SJÖSIDAN

DJUPHAV

ÅKERJORD

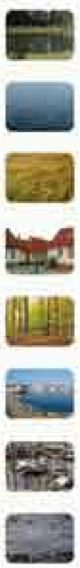
BYAR

SKOGSMARK

HAMNAR

FLODBÄDD

GRUNDA HAVSVATTEN



...the Skane Region

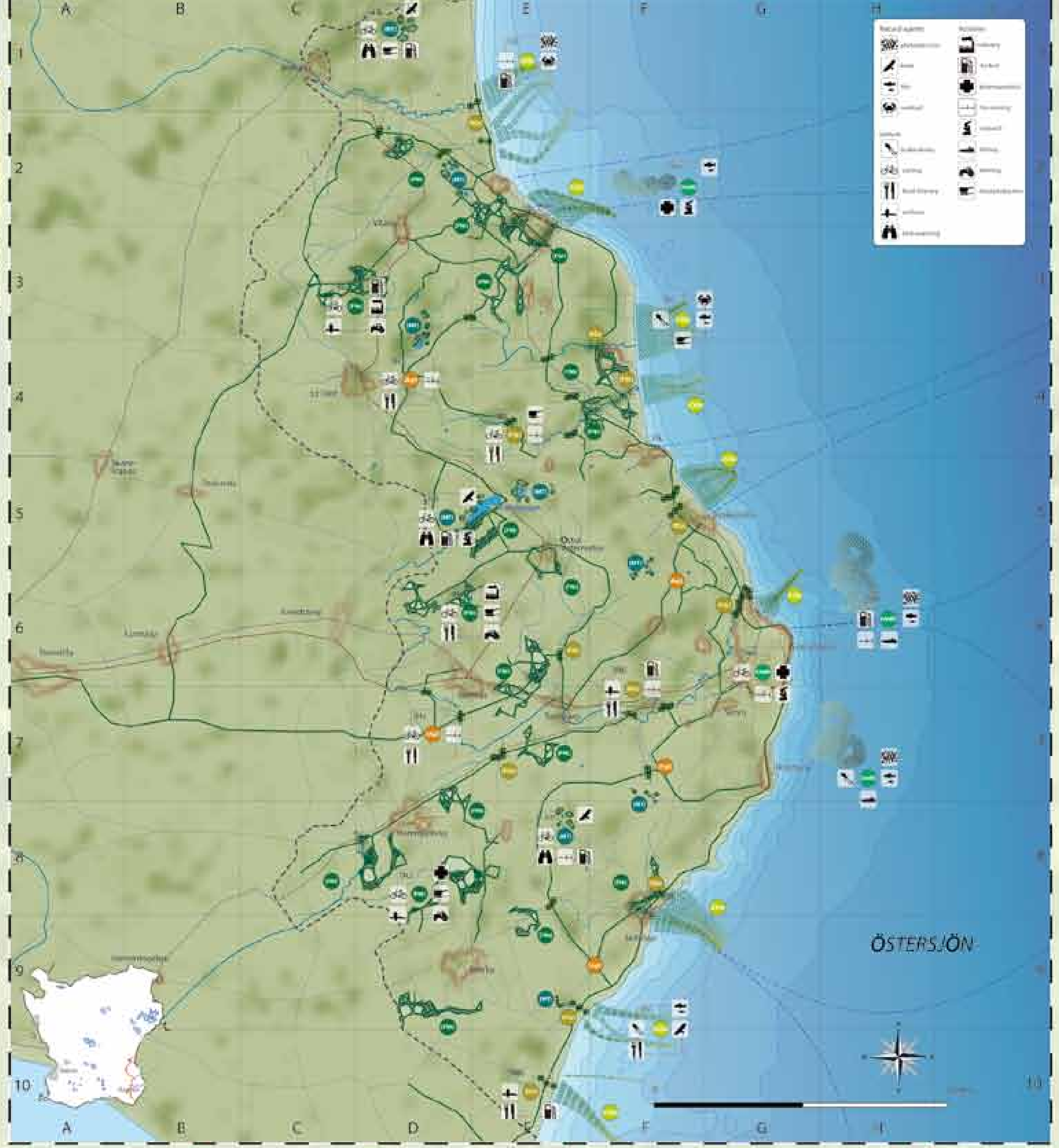
Actors and Agents in the Skane Region

Aktörer och agenter i Skåneregionen

Research / Forskning — Related Algal Species

Industry / Industri

Tourism / Turism



Migro Tower
Migro Tower

Underwater Museum
Undervattensmuseum

Filtering Garden
Filtreringsträdgård

Farming Network
Odlingsnätverk

Crane Greenhouse
Kranar för Växthus

Algae Itinerary
Algvägar

F2

F4

Vegan Restaurant

G6

Biospheres
by Tomas Saraceno

G6

G6

STEMcloudv2.0
by ecoLogicStudio

F4

E10

Marine Ecology and
Evolution Biology
School of Natural Sciences
Linnæus University

Spirulina
Nature's perfect energy food

D8

Wellness Centre
traditional and massage therapy

F4

Research
is our passion
Algae
is our mission

F9

We are
working for a
GREEN
Future