

The main idea behind use of biomimicry techniques

[Science](#), [Biology](#)



Biomimicry, also called bionics, is a new branch of science that explores natural designs and processes so as to transplant these ideas to finding solutions to human problems.

The main idea behind use of biomimicry techniques is that "nature, imaginative by necessity, has already solved many of the problems we are grappling with", and the organisms that survived to this day are the secret to success, in contrast to those that are buried as fossils (Benyus, n. d.).

Scientists can discover the principles underlying natural phenomena to apply them later to design of human practices and products. The closer human society and production approaches nature, the closer is the goal of sustainable development.

Biomimicry can help solve a number of problems in the most diverse areas of science. One of those is the production of extra strong materials. In contrast to humans that use the "heat, beat, and treat" for this purpose, nature makes tough stuff like collagen and bone from natural materials within the body.

The spider's web is in fact much more enduring than regular steel and produced of inexpensive materials in an environmentally friendly way. Knowledge of how humanity can copycat the spider's work would help people make fiber in the same way would produce a revolution in the industry. The same is true of the proposal to introduce natural agricultural systems that would replace traditional annuals with plant cultures indigenous to the territory that would supply the land with natural fertilizers if allowed to overwinter.

Biomimicry can alter the way we categorize living species. As of today, most biologists follow the traditional classification grouping organisms in accordance with their origin. A cow and a dolphin are placed in the same class of mammals even though they have a completely different habitat and adaptation mechanisms.

From the bionic perspective, animals and other species that have similar adaptive mechanisms and employ similar processes can be grouped together so that their special features can be evaluated and studied by scholars. Under this perspective, dolphins can be grouped together with fish so that their methods of moving under water can be investigated effectively.

Biomimicry would mean that humans would get strengthened grip over their evolutionary development. No longer would humanity be in conflict with nature, trying to re-shape it in its own way. All things produced and lifestyle would become less artificial and more natural.

The greatest advancement would come from the application of biomimicry techniques in medicine where it is used in “ replacement or enhancement of organs or other body parts by mechanical versions” that differ from regular “ prostheses by mimicking the original function very closely, or even surpassing it” (Wikipedia, 2006).

Examples include the cochlear implant intended for people with hearing impairments, artificial hearts, respirocyte, a red cell designed with the help of nanotechnologies, and a silicon retina functioning like the human one (Wikipedia, 2006). Looking at these technologies, one can draw the conclusion that human species can now control its own evolution in the way

no other species had ever been able. Relying on scientific technologies to reproduce natural processes and designs, humans can correct “failures” of nature for disabled and sick individuals, helping them return to normal life.

The use of biomimicry has important implications for pharmaceutical companies. They can now produce new, improved medication mimicking the designs and techniques used by nature. Exploring sharks, anemones, and other animals, scientists have discovered that “marine creatures, which live surrounded by pathogens in the sea, are full of novel defenses” (Benyus, n. d.). Following nature in the composition of new drugs, pharmacologists can re-create this natural variety by creating medication that will mirror these natural products and help humans in the same way.

Natural substances are often the best solutions to human problems since they are applied in nature to heal and cure. As stated above, organisms that were inefficient in their design and failed to develop reliable ways to deal with diseases are long gone, after they had been shoved to the sidelines of the evolution. Those that survived can offer humanity reliable ways to fight with disease.

Many pharmaceutical companies have recognized the emergence of new opportunities to improve their offerings. The Danish pharmaceutical company Novosymes that leads in industrial enzymes and microorganisms is one of the pioneers in this area. Production of enzymes for many other industries contributes to the manufacturing of “laundry detergents, bread, olive oil, wine and even the turf on the local golf course” (Fried, 2004).

For example, in the detergent manufacturing it makes sense to use enzymes because they perform better than regular cleaning substances. Enzymes that are present in virtually every living organism are basically “ biodegradable proteins that speed up all vital biological processes” (Fried, 2004). Growing organisms such as bacteria and fungi, Novozymes tries to identify organisms that produce a high amount of enzymes. In fact, scholars even combine microorganisms relying on DNA sequences to produce new enzymes.

Thus, the use of biomimicry in pharmaceutical business and other corporate environments allows companies to better meet the needs of their customers and grant human beings greater control over their lives. This does not mean that companies using biomimicry techniques will be controlling human lives. However, by imitating nature, they will hopefully be able to make human society more sustainable and economic growth and technologies more balanced and environmentally friendly.

References

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