

## Patent Practitioners: Inventions and the Ecosystem of Ideas

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There are some striking parallels between inventions and living organisms, and between technology in a consumer marketplace and an ecosystem. Insights gained through the comparisons may be beneficial to inventors, companies, consumers and the patent community. What are the connections? To review, living organisms exist in an ecosystem, and flourish or perish according to the laws of nature, with survival of the fittest. Variations among the organisms occur from generation to generation, and are positively or negatively selected over the passage of time and generations, as organisms evolve. This begets new species, which occupy environmental niches in the ecosystem, and also begets extinction in which species die off. Ideas, invention and technology exist in a sort of man-made ecosystem, with the consumer marketplace performing a selection process, the whole experiencing a type of guided evolution.

Human beings have ideas. We brainstorm them, communicate them to each other, and come up with more ideas. Humans invent, bringing some of these ideas to fruition. In turn, humans bring some of these ideas to actual products, which are then put up for sale and use in the consumer marketplace. This is a sort of test in the ecosystem, as to which products will survive. Consumers then make choices, purchasing the products they like, for various reasons. Products that are not purchased and used influence manufacturers to stop making those products. Products that are purchased and used influence manufacturers to continue making those products, and to develop next-generation variations of those products. New features are added to next-generation products, and some of these new features are popular, and some are not. The process of selection as to popularity, and sales volume, of products, is made by the consumers.

Next-generation variations of products are rather like offspring with mutations, in the comparison to living organisms in an ecosystem. A brand-new, never before seen product is rather like a new species that has suddenly emerged. Entire product types that become obsolete are rather like the dinosaurs that went extinct long ago. Even the term “dinosaur”, in colloquial usage, is synonymous with outdated technology (and is also sometimes applied to people who still prefer to use such outdated technology).

Ideas, invention, products and technology thus emerge, develop, thrive or perish, beget variations, and evolve over time in the consumer marketplace. The ever-present interest by, and purchasing power of, consumers drives the selection process that guides the evolution of products and technology. The ever-present ingenuity of inventors, and desire for companies to succeed in the marketplace, drives the production and mutation (variation) processes that guide the evolution of

products and technology. The history of technology thus parallels the history of living organisms.

We patent practitioners are privileged to be chroniclers of inventions. A study through the body of published patent applications and issued patents illuminates the more recent history of invention and key aspects of technology. A study of the United States Patent Classification System, as developed and used by the United States Patent and Trademark Office, is rather like studying the taxonomy of living organisms.

How might we apply these insights? Consider a new product without a marketplace. Is such a product likely to survive? Perhaps a new marketplace will emerge for the new product, which could then dominate. How will other products compete with this new product? How will consumers decide whether to select and use, or deselect the new product? Consider competition against a product that is well-established in a marketplace. What new feature or new product could compel consumers to favor it? If some branch of technology is headed for obsolescence, why is this? If some new branch of technology is emerging, how might it fare, and why? And, for the patent practitioners in the audience, how might we best capture the innovative aspects and the inventions in our drawings, descriptions and claims on behalf of the inventors? This is all part of the art of patenting.

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National Law Review, Volume IV, Number 224

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