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How an open approach to patents could help build a sustainable future

Dr Frank Tietze, Lecturer in Technology and Innovation Management at the Institute for Manufacturing (IfM), writes for *The Conversation* on an open approach to intellectual property (IP).

To sustain a population of 9.7 billion people by 2050 the world is going to need innovations that make careful use of the available resources, human and environmental. Key industry sectors such as energy, water, agriculture and transport are already under pressure to move to more sustainable methods of production and consumption. The transitions to more sustainable trajectories needs to be supported by careful chosen approaches to IP.

The 'classical' approach to IP is the protection of inventions by patents and often used to prolong the life cycle of existing technologies, and allow innovators to capture the profits from their creations. However, this is only one way and sometimes it can be very helpful to share IP openly. For instance, electric car manufacturer Tesla has been doing just that. Tesla CEO Elon Musk "shocked" the world in 2014 when he announced that his company was joining the open source movement and giving away its patents for free. In a paper published with colleagues from universities in Germany and India, we examined how different approaches to IP can support the development and diffusion of new and more sustainable technologies to be developed and adopted.

Tesla initially developed a patent portfolio to protect its technology. Just about when the electric car market stagnated at less than 1% of total vehicle sales, Tesla changed its strategy from trying to prevent others from building electric cars using their technology to

trying to encourage them into the market.

Part of the reasoning here is that if more electric cars are built, then more battery recharging stations will be built too. This would make electric cars become more visible, and a more conventional choice. One explanation for Tesla's strategy change is that an open intellectual property strategy can strengthen rather than diminish its position by building the size of the electric car market, and as a result, build its own share of the total automotive market.

This kind of careful management of intellectual property at company level, supported by policy-level awareness, can be a powerful way to support the same kinds of transitions to more sustainable technologies in other industries too.

Energy supply faces an array of difficulties: the depletion of natural resources; air pollution and greenhouse gas emissions; nuclear risks; and security of supply.

In order to navigate a path around these problems, new knowledge and the innovations that follow will be essential, but not only the development of this knowledge, but also its diffusion and adoption. In essence, in knowledge economies, intellectual property needs to be managed carefully by companies and policymakers so it can be an enabler rather than an inhibitor for sustainability transitions.

If the ownership of IP is fragmented in an industry, it can slow down technology innovation and uptake, such as in the electronics industry where multiple players

own complementary patents. However, firms can instead open up their innovation processes and move away from guarded, internal cultures, where intellectual property is used to protect and prolong lifecycles.

This approach to intellectual property, so-called 'open IP', is reasonably advanced and mature in the software industry and healthcare.

In certain situations it has advantages in popularising and establishing new and widespread sustainable technologies, but as progress in technology is often cumulative, it is likely that there are cases or phases where 'closed IP' strategies are necessary, such as for small companies to build up their portfolio. This can also be a strategy designed to make a social impact. Take Nuriset, which manufactures food for famine relief. It protects its invention, a peanut-based paste for the treatment of severe malnutrition, Plumpy'Nut, by patents, primarily to protect its business model.

The grand open IP gestures in the mould of Tesla can force through rapid structural advances; a small peanut paste supplier shows that patent protection can still help put the building blocks in place. Which IP models companies and governments employ under which conditions is part of a central research question at the IfM's Innovation and Intellectual Property Management group.



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