

A Competitive Market for the Sustainable Evolution of Medical Technologies

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Copyright law provides owners of creative works with two levers: the right to restrict distribution and the right to prevent the creation of derivative works. Conventionally, these two aspects of copyright are conjoined. Open source licenses ensure the community has the right to make derivative works, yet these licenses effectively deny creators direct revenue for their efforts. Conversely, proprietary licenses enable creators to have a revenue stream, but these licenses deny the community an ability to create derivative works. We propose a way to license copyrighted works so that creators can obtain revenue while permitting the community to create, sell, and distribute derivative works.

How could a collaborative information technology marketplace operate? We observe that intellectual products are compositional in time (via a series of modifications) and space (via inclusion of other components). Therefore, we need a market design so that pricing is also compositional. When a work is licensed, its sale must necessarily pay for all of the components of which it is comprised, recursively including predecessors and dependencies. Once a work is offered for sale in the marketplace, community members could then build and distribute derivative works, the licensing of these derivatives necessarily including payment for its components. To discourage rent-seeking and to build a commons, each creator would announce in advance the total licensing revenue that they are asking for each work they contribute. When this community amount is reached, their contribution becomes public domain. Notably, consumers are protected from confusion by trademarks, as competing works use different product names. In this model, customers have a vibrant market for improvements to the products they have invested; developers have a sustainable revenue model, provided they are innovative and responsive to customer needs.

This market design is achievable. Moreover, it is compatible with our existing legal and business environment. Our market design is modeled on the copyright collective licensing societies that act as brokers between musicians and their users. These societies, such as the American Society of Composers, Authors and Publishers (ASCAP), are organized cooperatively with membership made up of copyright holders. Creators offer their works through a licensing society, freeing them of the need to negotiate licenses and payments, while customers have a single place to purchase aggregated licenses. These cooperatives administer licensing decisions democratically on behalf of creators, reducing communication overhead through standardized industry contracts. In our case, we would need to treat technical products as composites with multiple owners. Each component would have a per-unit fee, with these fees aggregated to obtain a product's per-unit price. The interpretation of how many units are required for a given licensee is determined equitably by the cooperative, providing a single party for license negotiations.

This market design could be more efficient than what we have today. By requiring creators to publicly state a limit to their return—before their work becomes a de facto standard—we can have a marketplace where product costs reflect intrinsic value, while the community benefits from the value provided by the network effects of adoption. Improvements to successful products will be developed if there is sufficient market demand. Since product source code is available, there can be a competitive market for data conversions and domain specific enhancements. When customers are no longer locked into proprietary technologies, vendors will find they must compete on customer service, innovation, and quality. Well-known brands will emerge as trusted curators, ensuring high quality works. Developers could collaborate publicly and be compensated for their creative efforts. Products will be more secure. Standardization of broadly adopted products need not be thwarted by proprietary control over derivative works.

By voting through their purchases in a marketplace of change, this approach puts users in control of the evolution of the products they have adopted and become dependent upon. For development organizations that would otherwise release their software under an open source license, this market design provides a way to recuperate costs and fund additional development. The societal impact of this market design is a continually expanding public domain of production quality works – trunks of an open technology forest, with new growth directed by a free market economy.

Our presentation will outline the guiding principles of this market design and discuss next steps, including how we will test drive this cooperative licensing society with applications to medical research software.

1. Evans CC, Working Website & Papers for a Creators' Cooperative 2019 (<https://creators.coop>)
2. Evans CC, A Vision for a Free Market of Liberated Software, JuliaCon 2019 (<https://buylibre.org/talks/juliacon-poster-20190723.pdf>)