

use smart contracts to automate payments, could help such communities to monetize the value of their knowledge more reliably and to keep track of its use.

As these examples demonstrate, Blockchain can make it easier to control and track the distribution of registered and unregistered intellectual property, simplify the licensing and assignments of rights, help to manage rights, accelerate and optimize payments of fees, and ensure the fair compensation of rights-holders; and it enables these actions on a global scale.

### ***(iii) Towards “global IP chains”?***

We live in a globalized economy, but there is no such thing as a global patent, trademark or copyright: IP rights remain territorial. In this context, managing IP rights can be a particularly complex endeavour. The combined use of Blockchain and smart contracts could, in this respect, open new opportunities. Smart contracts could facilitate the management of IP rights on a global scale, thereby contributing to the emergence of “global IP chains”.

In the area of copyright, for example, the complexity of licensing copyright in a trans-border environment, in which copyright laws are largely national, led to the development of open-source<sup>61</sup> and creative commons<sup>62</sup> projects. Contracting a qualified legal counsel in order to take into account the diversity of existing laws for cross-border licensing agreements is often too costly for the average rights-holder. Open-source and creative commons projects have found a way around this problem by making work freely available online and allowing anyone to use or improve upon it without the obligation to pay any financial compensation, provided that the creator of the work is acknowledged. Under this approach, works do have a global reach, but their creators do not get paid.

The use of smart contracts in conjunction with a blockchain could resolve the dilemma of open-source/creative commons licenses by making it possible to overcome the territorial nature of copyright while, at the same time, allowing fair and automatic payment of licensing fees to the creator(s) of the work (Savelyev, 2017). Similar approaches could be envisaged for other types of IP rights.

A number of people have also speculated that Blockchain could give rise to global registries of IP rights, which would enhance the visibility and transparency of “IP chains” on a global scale. Information on IP rights remains scattered. The current patent system consists of some 200 independent national and regional offices. The same is true for trademarks and copyright. Various attempts have been made to create global registries in the area of copyright, but they have all failed. In 2008, the European Union attempted to create a Global Repertoire Database, but the project