Digital Golems. Copyright and Lex Electronica
(French title: **Les Golems du numérique. Droit d'auteur et Lex Electronica**)

By Mélanie Dulong de Rosnay

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Distribution of works in today's digital environment has made both legal and technical regulation necessary. Restriction of access and sharing are the new business models applied through technical means that impede the native sharing possibilities of the Internet. In *Digital Golems*, Dulong de Rosnay seeks to provide a comprehensive and detailed analysis of a hybrid regulation paradigm. As the title suggests, the issue is demonstrated by the use of the golem metaphor.

The myth of the golem stems from Jewish folklore. It is a fictional anthropomorphic creature without free will or independent thinking created by man. The purpose of the golem is to serve its makers and when commanded to perform a task, it performs the instructions literally. According to the author, technical measures are the digital golems that could end up indiscriminately harming access to works online, whether legitimate or not. However, the golem metaphor goes even further in the book in order to include all types of digital features that are used in today's society. It is pointed out that there are risks involved in a literal encoding of regulation both for security and privacy. The author suggests that this "algorithmic regulation" could be better adapted to society's needs by a reciprocal integration of legal and technical regulation. In order to achieve that level of interaction between the two regulatory forms, the author proposes reconsidering the legal categorisation and using technology to better describe users' rights. The result would be what the author calls a "techno-legal" solution adapted to digital needs.

The work adopts a two-part structure covering issues related to the particular relationship between the law and technology. Each part is further divided into two titles, which are later divided into chapters, ten in total. Part I explains the perception of the law and technology as opposing forces. Part II proposes ways of integration of the law and technology towards a unified hybrid regulation.

Part I is comprised of five chapters, three at the first title and two at the second. The theme of first title deals with the competition between law and technology as dominant regulatory instruments. Chapter 1 focuses on the legal reaction to consecutive technological progress. It provides a brief insight into the evolution of copyright laws in both continental and common law systems and demonstrates how regulation delineated monopoly rights in order to prevent uncontrollable sharing. The consequence of the "reinforcement of exclusive rights" is the limitation of the applicability of exceptions to copyright as well as the appropriation of the commons. In this regard, the author makes an analogy with natural resources of environmental law and uses the term "digital resources" in order to point out the similarity between the

digital and natural commons that need to be preserved. Chapter 2 is a more technical chapter, elaborating on the process of creating standardised norms. It provides insight into a tentative coexistence between law and technology through technical norm-making processes. Multiple examples illustrate the political nature of technical standardisation (qualified as "technological democracy") as well as its drawbacks. The author concludes the chapter with the description of a newfound way of standardisation through peer production of norms, involving a diverse group of parties that would contribute to the effective advancement of the norm in question. Finally, chapter 3 summarises the confrontation between law and technology deriving from examples where technology is mainly used as an instrument of repression and control. These examples show that the "technological arsenal" such as filtering and graduated response measures do not "scale" to maintain the enforcement of existing legal rules online.

The second title of Part I consists of two chapters describing the competitive interaction between law and technology. In chapter 4, the author describes the technical protection measures (TPM) as a "missed opportunity" of effective collaboration between the law and technology. The use of technology as a means to protect the online commercial interests of the industry by an *a priori* control of access and use, bypasses the legislator. Regulation is thus centralised to major actors of the industry and it is privately enforced by unilateral contracts. Chapter 5 presents an in-depth legal analysis of these contracts, examining questions related to their legal validity as well as their compatibility with consumers' rights and exceptions to copyright. However, the important point that also concludes the first part of the book is the author's proposal to transcribe law into technology by effectively transcribing users' rights and obligations to code. A "pre-modelling" of the technical protection measures to include exceptions to copyright could transform them into technical measures of information (TMI). This change would constitute a step towards an effective collaboration between the law and technology without the one superposing on the other.

As the book advances to the second part, the theme shifts to explore ways of how the two means of regulation could fuse together in order to create a form of legal information that is not directly discernible as a piece of legal or technical regulation. Part II is also comprised of five chapters, three at the first title and two at the second. The first title explores legal "metadata" as a means of modelling an effective management of rights. The author's proposal regarding technical means of description of rights is inspired by the semantic web principles. The interdisciplinary approach towards constructing technical measures of information is apparent in the three chapters that comprise the title. The categorisation of intellectual property rights is the first step towards the author's proposal. Chapter 6 explains the process of creating an ontology of those rights. Using a categorisation method similar to the Porphyrian tree[1], the author

[1] Porhyre was a Greek philosopher who built on Aristotle's work, "Categories." He suggested a binary representation of categories that would take the shape of a tree, later called the "Porhyrian tree." According to his proposal, the categorisation would form a hierarchy based on the differences (*differentia*) between categories (*genus*).

operates a distinction of rights. The distinction is founded upon the nature of property to the rights, which translates into the existence or not of exclusivity. Later in the title, chapter 7 analyses examples of already existent standardised legal metadata such as ODRL and Creative Commons. The author divides legal metadata in two categories: the identification systems and the rights expression languages. The features of each category differ according to the goal pursued. Different models are thus created for documentation purposes, for remix culture, and for commercial transactions. Finally, chapter 8 focuses on modelling legal metadata for the purposes of sharing. Building on the first two chapters of the title, the author adopts a teleological approach to building the resource. To demonstrate her argument, she takes the example of the structure of the Creative Commons licences. The proposed categorisation developed to support the proposed legal metadata would take into consideration the actions related to protected works in various situations. For example, access, modification and redistribution are three layers of situations that constitute different actions. The modelling proposed would thus take into consideration not only legal norms but also technological needs and current practices.

The final title of the book is comprised of two chapters discussing how the relationship between law and technology can be reshaped. Chapter 9 of the book contains several proposals amounting to the author's main arguments to reconsider the current definition and categorisation of rights. The changes proposed would effectively transform intellectual property rights to a more generic "right of information" that would qualify as a personal right rather than a property one. That way, different ways of collective creations can be included in the categorisation, such as common works/*oeuvres communes* (the author prefers that term than the similar one, free works/*oeuvres libres*). The transformation of categorisation of rights according to their goal would also facilitate non-commercial sharing as well as broaden the scope of existing exceptions. The book concludes with an analysis of the consequences of the suggestions already made. Chapter 10 suggests that the use of legal metadata could create standardised legal categories that would be flexible to evolve according to current practices. However, the interoperability issue between different categories remains still largely unresolved. Deriving from her former experience as legal lead of the French chapter of Creative Commons, Dulong de Rosnay uses examples related to open licensing practices to illustrate the level of harmonisation that could be established by an appropriate standardisation level. Finally, she proposes a more flexible legal regulation that would use technological regulation to accompany works through legal metadata on their online distribution without an *a priori* overregulation. An optimal version of this "postmodern" regulation system would elude the overreach of exclusivity in management of rights. Consequently, it would facilitate the preservation of cultural heritage evading risks of centralisation of control of works and nourishing a spirit of collaboration between collecting societies and the commons.

The book's concluding remarks are an implicit reference to its title and central theme: the overreach of both legal and technological regulation impedes the development of a sharing culture. The adaptation of the law to online behaviours does not mean the

creation of new legal norms. The interaction of the two forms of regulation can give way for a renewed conceptualisation of regulatory legal norms that would take into account the public interest. The application of a hybrid techno-legal regulation would achieve *lex electronica*, satisfying all interested parties that would be integrated for both peer and market production.

Overall, Dulong de Rosnay's book is clearly written and well structured. Each chapter, title and part guides the reader towards the point being constructed by the author. Also, the summaries at the conclusion of each chapter are reference points that help move Dulong de Rosnay's argument forward. This book constitutes an exemplary work of interdisciplinary research, combining technological and legal questions with a clear methodological approach. Furthermore, although not going into a detailed analysis of the diverse legal issues evoked that are related to Internet regulation, the author successfully demonstrates the inadequacy of the current system. The author adopts a thought-provoking approach, founded not only on existing theory but also on her experience working on the technical and legal issues of regulation. These features make the book a valuable source of information both for Internet law experts and readers with more technical interests. It builds upon the work of previous scholars[2] and makes a valuable and innovative contribution that moves theory and practice towards the construction of an effective regulation model. To sum up, Dulong de Rosnay's book is a useful resource irrespective of discipline or applicable legal system.

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[2] L Lessig, *Code and Other Laws of Cyberspace*, (New York: Basic Books, 1999); J Reidenberg, "Lex Informatica: The Formulation of Information Policy Rules through Technology" (1998) 76 *Texas Law Review* 553-593; J Zittrain, *The Future of the Internet – And How to Stop It* (New Haven: Yale University Press, 2008).