The Social Impact of P2P Systems

Andrea Glorioso, Ugo Pagallo, and Giancarlo Ruffo

Abstract The chapter deals with the social impact of P2P systems in light of a bidirectional connection by which technological developments influence, in a complex and often unpredictable way, the social environment whereas the dynamic evolution of the latter does affect technological progress. From this perspective, the aim is to deepen legal issues, sociological trends, economical aspects, and political dimensions of P2P technology, along with some of its next possible outputs, in order to assess one of the most compelling alternatives to the traditional frame of highly centralized human interaction.

1 Introduction

Although known to computer scientists and networking professionals for decades, peer-to-peer (P2P) systems only became widely popular in the late 1990s with the Napster case and, then, with the U.S. Court’s decision in MGM v. Grokster in 2005. These developments, of course, affected legal scholars, who have paid increasing attention to P2P systems in recent years. However, their impact goes beyond the law and also raises issues of relevance for economics, sociology, and political science. This is particularly true if we understand P2P systems not only as simple “sharing...
networks”, but also, at a more abstract level, as massively distributed platforms for information storage and retrieval.

Therefore, the aim of the chapter is to highlight, in a necessarily non-exhaustive manner, the main research developments in the above-mentioned fields. We suggest that there is a clear bidirectional connection between the technological features of P2P systems and their various social effects. Technological developments influence, in a complex and often unpredictable way, the social environment (i.e., economics, sociology, politics, and law) whereas a dynamic situation in a given social environment also shapes the way in which technological evolution proceeds, favoring certain architectural choices over others. In short, each affects or gives feedback to the other in a continuous cycle. For example, a strongly decentralized and encrypted P2P architecture providing plausible anonymity for its participants will have different social ramifications and effects than those flowing from a weakly decentralized system in which the origin and destination of information can be traced with relative ease. At the same time, the technological developments that make one system rather than another possible will also be affected by the social environment, that is legal frameworks, economic decisions (including public funding), political orientations, and the sociological and cultural perceptions found in the society where the technological research is taking place and its results are diffused.

These inter-related developments are examined in five sections, each of which focuses on a specific field, namely legal issues (Section 2), sociological trends (Section 3), economic analyses (Section 4), political dimensions (Section 5), and, last but not least, some new horizons and perspectives that our society will be forced to cope with in the future (Section 6).

Of course, this overview does not purport to exhaustively discuss all the possible influences of P2P systems over the fields of human action, nor all the ways in which the complex composition of such different elements as law, economics, politics, sociology, and culture, tends to encourage, steer or limit the rate of development of certain P2P architectures over others (or, if one is pessimistic, the development of P2P architectures altogether, as opposed to centralized, one-way communication systems [67]).

Rather, our attempt should be taken for what it is: a humble, but hopefully stimulating, contribution to a better understanding of P2P systems as technological products that cannot actually exist in a vacuum, but in a complex environment with its own set of rules, constraints and possibilities.

2 Legal Issues

Among the most traumatic impacts of P2P systems on the legal field since the late 1990s, copyright issues have undoubtedly taken the forefront for a while. Technology has in fact changed societal behaviors of copying, distributing and, in general, handling information and information-based goods and services, according to a transformation that has deeply influenced legislative initiatives and scholarly