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Giovanni Bombelli

Università Cattolica del Sacro Cuore

Paolo Davide Farah

West Virginia University (WV, USA); gLAWcal - Global Law Initiatives for Sustainable Development (UK); University of Pittsburgh School of Law (PA, USA), paolofarah@yahoo.com

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The Interlinkages Science-Technology-Law. Information and Communication Society, Knowledge-Based Economy and the Rule of Law

Giovanni Bombelli* & Paolo Davide Farah**

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Abstract: This chapter focuses on the circular and complex relationship between science, technology, society, and law. The technology/society connection focuses on the democratic deficit issue. The democratic deficit would be a consequence of the lack of adaptability of western democracy to complex (information) societies, where technology (and the increasing access to data that it permits) is separating the connection between information and knowledge (as well as the classical legitimacy couple of democracy-truth) moving these societies towards a technocracy. On one hand, the technology-law circle deals with the progressive reduction of law to a normative technique (since the law is always late and uncomplete face to technology, there is a transition from hard law to soft law, from norms to rules, from government to governance) but, at the same time and on the other hand, the technology aims to be recognized as a legal framework based on new “net/web” relationships, applied to new spaces (cyberspace) and based on accountability instead of sovereignty. This new legal structure operates in the “net” society (interactive, dematerialized and based on database memory) where cognitive acquisition (hypertextualization of knowledge, cyberculture) conducts political deliberation to simple expressions of subjectivism and emotive decisions based on casual and contingent information. As a result, in highly technologized and mass societies there is a dislocation between information and knowledge, which no longer identifies each other.

Keywords: Science, Society, Law; Technology; Information-Based Society; Post-Truth Era

1. The Problem and a Short Scheme of Analysis

This contribution is an attempt to address some aspects of the circular and complex relationship between science-technology-society-law within the post-truth era, with particular regard to the idea and models of “society” and the “Rule of Law”¹.

In a very synthetic manner, this chapter focuses on some interrelated points. At an introductory level, attention is paid to some modern (and post-modern) relationship patterns of science,

* Giovanni Bombelli, Associate Professor, Università Cattolica del Sacro Cuore, Milan (Italy)

** Paolo Davide Farah, Full Professor, West Virginia University, Eberly College of Arts and Sciences, John D. Rockefeller IV School of Policy and Politics; Founder and Director of the West Virginia University, Energy Justice and Just Transition Lab; Founder and Coordinator of the Eberly College Interdisciplinary Research Collaborative on Global Challenges and Local Responses Initiatives; Visiting Professor of Law, University of Pittsburgh, School of Law; Founder, President, Director, Principal Investigator and Senior Research Fellow, at gLAWcal—Global Law Initiatives for Sustainable Development (United Kingdom). Dual PhD in International Law from Aix-Marseille University (France) and University of Milan (Italy), LLM in European Legal Studies from the College of Europe in Bruges (Belgium), Maitrise (J.D.) in International and European Law from Paris Ovest La Defense Nanterre University (France). Email Addresses: paolofarah@yahoo.com; paolo.farah@glawcal.org.uk

¹ TAMANAHA, B., ON THE RULE OF LAW: HISTORY, POLITICS, THEORY (Cambridge: Cambridge University Press 2004).

society and law. This focus is done in order to highlight the historical-conceptual landscape and the philosophical roots of the current interaction between science and law. Specifically, the former is to be considered in the light of its technological application, while the latter should be considered as it pertains to its “classical” regulative function and, more broadly, its role within society as a whole.

Following this explanatory introduction, some general remarks about the relations between technology and society are proposed. These remarks introduce the principal steps of the arguments of Robert Dahl, with particular regard to the legal sphere and to the political-institutional dimension. From this point of view, this contribution focuses on the crisis of democracy (the so-called democratic deficit²; furthermore, the classic³), that is to say the problems of functioning as well as legitimization underlying western society as a whole. This crisis should also be considered in light of the idea of “Information Society & Knowledge-Based Economy”, which is sometimes argued within the philosophical-legal debate and synthesized by the concept of “network society.”

Next, an observation concerning the circle of “technology-models of society-law” is offered. Moving from the increasing tensions between social models and patterns of law, these remarks highlight any aspects of transformation concerning the legal sphere resulting from the implementation of technology as well as the consequent diffusion of new models of society. In particular, here, the patterns of regulation, the concept of “norm” and, in the last analysis, the classical idea of “Rule of law” dating back to the origins of modernity are discussed.

Furthermore, this framework entails any relevant anthropological and cognitive reflexes. The ongoing relevance of technology, especially if considered as a particular articulation of scientific knowledge closely related to the post-truth age, modifies fundamental anthropological-cognitive dimensions (i.e., language, memory, corporeity) and therefore the ability to understand or conceptualize politics and law.

Finally, some conclusive remarks emphasize both the western conceptual-historical bases of the “science-technology-society (politics, law)” discourse and the future necessity of facing the sociological-cultural scenarios, which appear to differ strongly when compared to western societies.

2. Patterns of Relation in “Science-Technology-Society-Law”: An Overview

Through modernity and post-modernity, the relation in “science-technology-society” developed according to several different models, each of which involved different concepts of law. Starting from a philosophical-legal perspective, three fundamental patterns can be outlined: a) *the “hard” paradigm*, b) *the “pragmatic” model*, and c) *the “post-modern” framework*.

The most suitable way for deepening these patterns is to refer to a methodological grid. Such a grid relies on three conceptual lenses closely related to each other: *truth* (in regards to the epistemological profile, which includes the idea of science), *society* (the sociological analysis based on the idea of society), and *law* (concerning the legal approach and the concepts of “State” and “law” or “rule of law”). The combination of two levels, general patterns and the trinomial truth-law-society, allows for a better grasp of the articulation of “science-technology-society” in order to sketch any conceptual models.

² R. CELIKATES, R. KREIDE & T. WESCHE, TRANSFORMATIONS OF DEMOCRACY: CRISIS, PROTEST AND LEGITIMATION (London: Rowman & Littlefield International 2015).

³ M. CROZIER, S.P. HUNTINGTON & J. WATANUKI, THE CRISIS OF DEMOCRACY: ON THE GOVERNABILITY OF DEMOCRACIES (New York: New York University Press 1975).

a) The “*hard*” *paradigm* refers to a very strong epistemological premise: the idea of “truth.” It dates back to the origins of modernity, the fundamental historical passage between the eighteenth and the nineteenth centuries (i.e. the Enlightenment and Idealism movements⁴), which is rooted in a substantial idea of “reason (rationality)” as it pertains to the enforcement of the social role of technology.

The consequent equation between “reason” and “truth” entails the possibility of building up both a “scientific republic” (i.e., Francis Bacon’s idea of a scientific academy inspired to the concept of “new atlantis”⁵ and its recent rethinking elaborated by Michael Polanyi⁶ and Robert Merton⁷), and a rational-scientific model of society. The final goal is the creation of a “knowledge-based society,” which in turn relies on a rational anthropological model.

Legal and political projections then become clear. Within the modern framework of law as well as the political-institutional dimension, these projections are to be understood as the expression of a rationality-based truth. This is the philosophical core underlying the modern model of “State” and also the conceptual basis of “rule of law.”

b) The *pragmatic model* developed around the middle of the last century and was equipped with different premises regarding both its epistemological horizon and the social-legal corollaries.

Science is no longer a question of truth, but one of social impact. Thomas Kuhn’s well-known analysis marks this sequence as “normal science” - “post-normal science”; normal science moves from a theoretical-pragmatic and historically conditioned framework, which can be radically changed only by an epistemological revolution and by the consequent “post-normal” model of scientific knowledge⁸. In particular, the following decisive point is noted: the idea of “truth” stands, but its nature fundamentally changes. The scientific investigation does not aim at “rational” (hence “true”) knowledge, but at a “contextual” model of knowledge closely connected to its performative/persuasive force.

Furthermore, it should be noted that this process appears to have significant similarities and may be a parallel to the increasing development of pragmatism within the coeval philosophical debate (even though this is in a different perspective compared to Peirce’s pragmatism⁹) involving a different pattern of society. Society is no longer a “rational” ideal, but rather a mere “space of social transactions” in a pragmatic manner.

Accordingly, law and politics, or better, “regulation,” dimensions become more and more pragmatic. The idea of law as a “normative technique,” which also belongs to some classical legal philosophers (for instance the Kelsenian idea about law “as a specific social technique”¹⁰), evolves in “legal realism.” The polarity of the “law in books” and “law in action” established within the American version of realism paradigmatically marks the progressive passage to a different conceptualization of the regulation¹¹. In the last analysis, “State” and “Rule of law” are to be considered as the product of balancing different forces: as the categorial horizon which gives way to a merely pragmatic/factual approach.

⁴ I. KANT, *CRITIQUE OF PURE REASON* [1781] (Cambridge: Cambridge University Press 1999); F.G.W. HEGEL, *THE PHENOMENOLOGY OF SPIRIT* [1807] (Notre Dame: The University of Notre Dame Press 2019).

⁵ F. BACON, *THE NEW ATLANTIS AND THE GREAT INSTAURATION* (Malden-Oxford: Wiley Blackwell 2017).

⁶ M. Polanyi, *The Republic of Science: Its Political and Economic Theory*, 1 *MINERVA*. 54-74 (1962).

⁷ R. MERTON, *SOCIAL THEORY AND SOCIAL STRUCTURE* (New York: The Free Press 1968).

⁸ T. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (Chicago: University of Chicago Press 1962).

⁹ C.S. Peirce, *What Pragmatism Is*, 15(2) *THE MONIST*. 161-81 (1905).

¹⁰ H. Kelsen, *The Law as a Specific Social Technique*, 1(5) *UNIVERSITY OF CHICAGO LAW REVIEW* 9. 75-97 (1941).

¹¹ R. Pound, *Law in Books and Law in Action*, 44 *AMERICAN LAW REVIEW*. 12-36 (1910).

c) The *post-modern framework* implies a further transition, which once again can be grasped through the perspectives mentioned earlier.

At a philosophical level, post-modernism¹², which arrived in the second half of the last century, ratifies the slow and apparently unstoppable sunset of the idea of “truth” including the modern equation between “reason” and “truth.” In other words, the transition from a strong to a narrative model of truth. Post-modernism logically entails a post-truth position, which should be considered as its conceptual evolution.

This theoretical framework legitimizes and, at the same time, intersects the epistemological debate, in particular regarding the following parts of scientific investigation: its nature, its methodological approach, and its contents. Science is a *narrative dimension*.

The crisis of the epistemological horizon splits the science-technology couple and then makes space for the performative force of technology. Accordingly, Bacon’s, as well as Polanyi’s and Merton’s model of scientific knowledge leaves space for different patterns of the science-society relation: it is not by chance that Tallacchini describes the new scenario through the idea of “co-production” between the scientific community and the legal/political apparatus¹³.

Law and politics suffer because of this conceptual passage. In addition, they also progressively lose their “technical nature,” their regulative role, and ultimately become merely narrative dimensions¹⁴. Within the post-modern and post-truth era, the wide concept of regulation, encompassing its classical-modern articulations (i.e., “State” and “Rule of law”), becomes only a performative or convincing “narration.”

The *reticular model* of the interlinkages Science-Technology-Law develops the theoretical sequence of the post-modernism/post-truth era and at the beginning of the 21st century characterizes the “liquid” societies¹⁵. Its definitive epistemological rejection of the idea of truth, with the contemporary accomplishment of the post-modern orientation, entails a fragmented social model. Far beyond the classical sociological functionalism¹⁶, under the pressure of the ongoing implementation of new technologies, society and law can be interpreted as a “net”¹⁷.

The web society (i.e., network society) is different from the modern pattern of law, which was based on a hierarchical legal order, and implies a reticular normative framework taking to extremes the functionalist orientation. By the transformation of subjects and norms, the notion of “governance” synthesizes and emphasizes an approach to the social processes based on a management dimension.

3. On the Technology-Society Connection

The conceptual framework drawn upon in the previous section has highlighted typologies of interaction among three levels: patterns of scientific knowledge, models of society, and concepts of law.

To sum up, the model of science (i.e., technology) is closely and, in a circular way, interwoven with a certain idea of society and, then, with a certain legal and political-institutional apparatus. In other words, on a closer view, a certain model of scientific knowledge implies a symmetric

¹² J.F. LYOTARD, *LA CONDITION POSTMODERNE. RAPPORT SUR LE SAVOIR* (Paris: Les Editions de Minuit 1979).

¹³ M. TALLACCHINI, *Scientific Evidence and Environmental Rule-Making: The Co-production of Science and Law, in SCIENTIFIC EVIDENCE IN EUROPEAN ENVIRONMENTAL RULE-MAKING 3-15* (A. Biondi, et al., The Hague: Kluwer Law International 2003).

¹⁴ J. DERRIDA, *DE LA GRAMMATOLOGIE* (Paris: Editions de la Minuit 1967).

¹⁵ Z. BAUMAN, *LIQUID MODERNITY* (Cambridge-Malden: Polity Press 2000).

¹⁶ N. LUHMANN, *SOZIALE SYSTEME. GRUNDRIß EINER ALLGEMEINEN THEORIE* (Frankfurt: Suhrkamp 1984).

¹⁷ F. OST & M. VAN DE KERCHOVE, *DE LA PYRAMIDE AU RÉSEAU? POUR UNE THEORIE DIALECTIQUE DU DROIT* (Bruxelles: Publications des Facultés universitaires Saint-Louis 2002).

model of technology. A post-truth pattern of science implies a correspondent model of technology.

The point here is that of the role played by the most relevant output of the scientific knowledge, technology. The increasing role played by technology within the contemporary sociological-legal order represents a well-known and accepted fact: that all of us have a daily experience of this process, which represents an unescapable and hegemonic process.

In particular, it is necessary to pay attention to Information and Communications Technology (ICT), which are usually identified with technology *tout court*. In light of their mutual connection, ICT can be considered the “heart” of the so-called information society: an ambiguous definition similar in its ambiguity with other expressions used in this context such as “communication-based society” and “knowledge-based society”.

This contribution does not deal with the detailed analysis of this sociological-legal process (or “technomedial process”). The point here is to deeply understand how, and to what extent, these dynamics have involved and modified what we traditionally have called “law.” Moving from methodologically hybrid conceptual lenses, which are sociological and philosophical-legal as well, some profiles of the relation between ICT and law will be considered.

First, as initially mentioned, attention will be paid to some legal-institutional “applications” of ICT, in particular regarding the “crisis of democracy” and the issues related to the functioning (or non-functioning) of the representative-democratic systems in regards to the deliberative processes and decision making.

Second, it is necessary to explore the ambiguities to the recourse to the technology which involve any theoretical corollaries concerning the conceptualization of law (including the idea of the “Rule of law”).

Finally, the close relationship between the social role of technology and the anthropological dimension is discussed. At the anthropological level, the ongoing interweaving in the ICT-sociological context entails radically different schemes both for understanding the subjective dimension and facing new global scenarios.

4. Democratic Deficit and the Ideal “Information and Communications Society & Knowledge-Based Economy”

There is no need to remark upon the dysfunctionalities and pathologies of the contemporary democratic systems. The so-called democratic deficit, which sometimes troubles the “post-modern” (or “post-industrial”) society, calls into question some crucial points and, in particular, the legitimation crisis and the insufficient (or poor) functionality of the representative mechanisms. After all, within the rich debate about democracy, it is not by chance that Crouch has proposed the dangerous but realistic formula of “post-democracy” for indicating the increasing concentration of the power in the hands of a professionalized political *élite*¹⁸.

From this point of view, the “classical” outlook discussed by Robert Dahl is still important. The American author is neither a computer scientist nor a philosopher of law, rather he is a political scientist. In this way his work appears paradigmatic, because it highlights any contemporary political issues in advance (and at the same time discusses their possible solutions). We next consider the fundamental steps of his argument with particular regard to his landmark work, *Democracy and Its Critics*¹⁹.

Thirty years ago, Dahl pinpointed four issues concerning the contemporary democratic systems: the questionable nature of the majority principle, the formal/substantial nature of the democratic process, the extension of the polyarchy (i.e., the enlargement of the decisional

¹⁸ C. CROUCH, POST DEMOCRACY (London: Polity Press 2004).

¹⁹ R. A. DAHL, DEMOCRACY AND ITS CRITICS (New Haven: Yale University Press 1989).

subjects), and, finally, the selection of the *élites* (drawing on the works of Gaetano Mosca and Vilfredo Pareto).

Moving from this perspective, Dahl concludes his wide analysis emphasizing the relevance of “polyarchy” (a form of power invested in multiple people²⁰), and calls into question the practicability of democracy within the complex societies or, by another formula, the space for the “guardians’ government.” Dahl underlines a crucial point, the gap between *élites* and common people, which can be closed by implementing “telecommunications” (through Dahl’s lexicon) with the goal of creating the figure of “minipopulus” (i.e. a selected microcosm of the public).

According to Dahl the pathologies of the contemporary democracies can be cured through new technologies. They play a decisive role in order to build up the context for a “deliberative democracy”²¹, similar to the concept of “direct democracy” of Rousseau.

Dahl’s analysis is very useful. Its two key-elements (insufficient legitimation of democracy and social implementation of the technological devices) are still the basis of contemporary analyses on the topic. In other words, the idea is that technology offers the concrete possibilities to close the gap between law and society. The interaction could be useful both for technology and law, wherein the former could earn social legitimation, while the latter could improve its standard of efficiency.

The expression “information-based society” summarizes the point just mentioned and entails a twofold meaning. On one hand, the expression identifies the above-mentioned necessity to revitalize the democratic institutions. On the other hand, it implies (and at the same time legitimates) the problematic equation “technology = society” in order to implement a “knowledge-based society” (addressed in Section 6 more in detail). The point is questionable. Regardless of the rhetorical emphasis conferred to the “law-technologies” couple, the evocation of a “knowledge-based society” elicits the following two levels: a) functional and b) theoretical.

a) Regarding the functional level, the wide recourse to technology seems more and more reasonable in light of widespread practices at the legal-institutional level: for instance, the diffusion of databases, the implementation of virtual civil trials, and so on.

These processes legitimize the wide claim for extending the law-technology nexus. The ambitious goal is to improve the degree of functionality of the democratic systems in at least two directions. First of all, one direction is to optimize the political-institutional apparatus. Both social networks and web communities promise to create space for a richer and more articulated circulation of the opinions and to elevate the political debate.

Secondly, this process should be understood as the premise for the modernization of the western democracies giving them functionality and political legitimation, which is inspired to the so-called “deliberative (participative) democracy”²². Moving from the relevance conferred to “virtual (electronic, technotronic) democracy”²³, to a closer view, the goal is the implementation of e-government models in order both to make the elective systems more functional, to guarantee the transparency of the decision-making processes, and to improve participation in democracy.

²⁰ See also R. A. DAHL, *POLYARCHY: PARTICIPATION AND OPPOSITION* (New Haven: Yale University Press 1971).

²¹ RAO N. (ED.), *REPRESENTATION AND COMMUNITY IN WESTERN DEMOCRACIES* 68-92 (Basingstoke: MacMillan 2000).

²² Z. CHAPPELL, *DELIBERATIVE DEMOCRACY: A CRITICAL INTRODUCTION* (Basingstoke, Palgrave Macmillan 2012); M. A. NEBLO, *DELIBERATIVE DEMOCRACY BETWEEN THEORY AND PRACTICE* (New York: Cambridge University Press 2015).

²³ D. BARNEY & A. FEENBERG, *COMMUNITY IN THE DIGITAL AGE: PHILOSOPHY AND PRACTICE* (Lanham: Rowman & Littlefield 2004). In particular, Part III; L. SCHEER, *LA DEMOCRATIE VIRTUELLE* (Paris: Flammarion 1994).

Once again, the point is very questionable. As is well known, many recent experiences of e-governments²⁴ are to be critically reviewed, especially in the light of a certain “technological utopianism” underlying the current and past debate²⁵.

b) Regarding the theoretical level, the dynamics just drawn aim at a more profound objective: the *transformation* of the entire society into an “information society.” Drawing on Section 2 of this contribution, we can appreciate the distance between the “information-based society” and the “knowledge-based society.” The crucial point is the current identification or superimposition sometimes established between the concepts of “information” and “knowledge.” There is no direct and proportional relationship between the mass of data carried by technologies and the level, or degree, of knowledge, with particular regard to the political decisions and the public debate on specific issues (i.e., bioethics, energy policies, etc.). In short, “information” is *not* equivalent to “knowledge.” The relationship is much more complex: “information” is neither the premise nor the condition of “knowledge.” It is a decisive point, because the current emphasis attributed to this connection implies an in-depth rethinking of the classical conceptual “democracy-truth” couple²⁶ and could be interpreted as the first step towards the construction of a technocracy.

5. Observatory: technology, law and models of society

At this level, we have to take a closer look at the technology-law circle, especially in light of the resulting conceptualization of the models of society. Regardless of the classical and important distinction between “information technology law” (cyberlaw) and “legal informatics”²⁷, the point of discussion is the analysis of any aspects of the ongoing transformation of law and patterns of society under the pressure of technology.

The basic idea is that this process compromises a certain and traditional idea of “law” and, more broadly, “legal normativity.” Going step by step, it is first necessary to consider the immediate experience and then the conceptual perspective.

We can start with a simple phrase: technology *anticipates* (preempts) law. It is a common experience that technology (including information technology) spreads out and settles within the market and broadly within society, *before* law. Medicine, bioethics, and the environment are the fields wherein the technological modifications raise questions, which only *later* request legal intervention. In other words, law plays only a *regulative* role in front of many social processes, which have *already* been technologically defined and produced.

Law is always on late and it only episodically guides or plans the technological transformations. This sociological-legal remark allows for highlighting a conceptual aspect: the fundamental change in our way to understand law and its social environment.

The shift is from a “classical” scheme, which attributed a directive function to the legal, to a very different pattern wherein law acts as a mere regulatory factor.

²⁴ For a comparative perspective see M.H. HATTINGH, ET AL., RESPONSIBLE DESIGN, IMPLEMENTATION AND USE OF INFORMATION AND COMMUNICATION TECHNOLOGY 3-60 (19th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3 E 2020 Skukuza, South Africa, April 6–8, 2020: Proceedings, Part II), (Cham: Springer 2020).

²⁵ H. P. SEGAL, IMAGINING TOMORROW: HISTORY, TECHNOLOGY AND THE AMERICAN FUTURE. “THE TECHNOLOGICAL UTOPIANS” (Cambridge: MIT Press 1986).

²⁶ J. NIDA-RÜMELIN, DEMOKRATIE UND WAHRHEIT (München: Beck 2006); J. L. NANCY, VERITE DE LA DEMOCRATIE (Paris: Galilée 2008).

²⁷ For a short review, see E. A. Salami, *A Brief Overview of Legal Informatics* (2017), available at SSRN: <<https://ssrn.com/abstract=2966201>> or <<http://dx.doi.org/10.2139/ssrn.2966201>>.

The *hard law-soft law* pair²⁸ synthesizes this historical (and ongoing) passage. As previously suggested, the modern horizon was based on a holistic-philosophical *hard* vision of law as a legal order. The basic ideas of “reason” and history (paradigmatically: the Hegelian idea of “ethical State”) played as the polar stars within the long season of the legal codes and the construction of the idea of the “legal system.”

This gives way to another completely different scenario. Law is no longer the expression of a worldview, but just a *soft* set of rules. Its goal is not the governing of the social processes, starting from a legitimation dynamic and through a complex framework of norms, but the mere regulation of heterogeneous transactions or phenomena (aside from technology, another example is offered by the European regulation of the “migration question”²⁹).

The conceptual difference between “government” and “regulation” generates an important corollary concerning the *typology* and the *nature* of legal norms.

The development of IT and legal informatics is characterized by an increasing number of “technical rules”³⁰, which are becoming the principal typology within western legal orders. These rules act as a sort of buffer: in this perspective privacy is a good example belonging to the traditional idea of “Rule of law,” which is to be distinguished from the idea of “Rule by law”³¹.

The legal models underlying the current privacy regulation are always in progress (for an example see the *General Data Protection Regulation*: a regulation of the European law adopted on 14 April 2016, which became enforceable on 25 May 2018). In particular, these legal models seem directly connected to the increasing new technological possibilities of violation in the personal sphere. This means that the decline of the conceptual horizon represented by a philosophical-legal understanding of social processes make these rules essentially punctual, self-referential, and operational. That is why we still lack a general discipline of privacy in a technological era.

It is important to note that a distinction between “norm” and “rule” has been established. It is the decisive point closely related to the evaluation of the legal value of the technological processes. The idea of “norm” has traditionally been elaborated upon in light of a global interpretative framework of the social processes and law. In this framework, the concept of “rule” pertains to a contingency logic in order to establish “limits.” A symptom of the slow, but inexorable transition from a legal order traditionally based on “norms” to a different pattern, which is dominated by “rules.” A “norm” is traditionally the expression of the “meaning” and the complexity of sociality, while the concept of “rule” appears to be a merely functional dimension.

Niklas Luhmann’s outlook is fundamental. It highlights the progressive emergence of a functional model of law: in other words, law should be understood as a bundle of functions. Further, he points out, at the turn of the nineteen seventies and eighties, that his model of society in a paradigmatic manner entails a functional representation of the legal sphere. Luhmann’s functional perspective³², which in some ways can be compared to Talcott Parsons’ model³³, has been expounded upon in the light of the emerging field of cybernetics (forerunner of the contemporary technological transformations). Moving from these technological innovations,

²⁸ L. SELDEN, *SOFT LAW IN EUROPEAN COMMUNITY LAW* (Oxford: Hart 2004); U. MÖRTH, *SOFT LAW IN GOVERNANCE AND REGULATION: AN INTERDISCIPLINARY ANALYSIS* (Cheltenham: Elgar 2004).

²⁹ G. Bombelli, *Migrations and Security. The Problematic Circularity ‘Philosophy, Law and Politics’*, 6(1) REVISTA DE ESTUDIOS EN SEGURIDAD INTERNACIONAL. 1-17 (2020).

³⁰ See J.E. COHEN, *CONFIGURING THE NETWORKED SELF: LAW, CODE, AND THE PLAY OF EVERYDAY PRACTICE* (New Haven: Yale University Press 2012).

³¹ M. Tushnet, *Rule of Law or Rule by Law?*, 22(2) ASIA PACIFIC LAW REVIEW.79-92 (2014).

³² N. LUHMANN, *SOZIALE SYSTEME. GRUNDRIß EINER ALLGEMEINEN THEORIE* (Frankfurt: Suhrkamp 1984).

³³ T. PARSONS, *THE STRUCTURE OF SOCIAL ACTION. A STUDY IN SOCIAL THEORY WITH SPECIAL REFERENCE TO A GROUP OF RECENT EUROPEAN WRITERS* (New York, London: McGraw-Hill Book Company 1937).

the entire society can be conceptualized as a “system” based on the equilibrium among many sub-systems (i.e., law, economics, religion, etc.) and the legal sphere becomes a sub-system composed by calculable rules³⁴.

The point here is the direct connection between the massive process of technologization and the modification of the concept (nature) of law. In this way law itself becomes a mere “normative technique” more and more subordinated to other dimensions (i.e., the hybrid techno-economics): the logical condition for technocracy is implemented and the transformation of law in instrumental rationality is complete. That is to say, law becomes a “set of technical rules” in the sense suggested above.

But nowadays we can observe a further complication of the technology-law couple. On one hand, technology appears more and more unlikely to be interpreted through the traditional legal categories (“legal order,” “norm,” and so on), on the other hand, information technologies gradually aim at interpreting themselves from a legal perspective and, in turn, they transform into a conceptual scheme.

We now analyze these two separate aspects in the following paragraphs. Regarding the first, we can consider the “Internet case.” Regardless of the many sociological reflexes of the “Web” (from its emancipatory potentialities to possible forms of technological totalitarianism), it is well known that the debate focuses on the *legal nature* of the Internet in regards to two fundamental positions.

According to the first position, the Internet evolves as an “anarchic” dimension. Due to its deconstructed architecture, it is a space without rules and cannot be compared to a legal order. On the contrary, the second orientation relies on the idea that cyberspace creates a sort of specific legal structure (maybe a new model of “sovereignty” even if outside the common understanding of “legal order”?). Furthermore, there is a third position which considers the Internet a social organization equipped with reticular basis radically different from a pyramidal structure.

These remarks allow us to grasp the second point: the conceptual relevance of the new technologies. The implementation of IT reduces law to a normative technique. Also, at a conceptual level, brings on the development of interpretative models based on the metaphor/category of “Net.”

The increasing sociological accreditation of the Internet implies the possibility to conceive the whole society like a “net”: hence the idea of “network (web) society.” In this way post-industrial societies should be understood as a great and disarticulated “net” of relations and transactions, which is made of “knots” (subjects, actions) within a legal scheme of soft rules. This is the most important point. The “network (web) framework” is grounded in a *soft* or *light* model of society and law, according to the mentioned sense, which is synthesized by the concept of *Governance*³⁵. The distance between the classical notion of “government” and the concept of “governance” highlights the loss of relevance of traditional philosophical-legal categories such as “State,” “sovereignty,” and, in the last analysis, “Rule of law”: in other words, a model based on accountability without sovereignty³⁶.

6. Post-Truth Age, Technology and Some Anthropological-Political Reflexes

³⁴ See also N. LUHMANN, *RECHTSSYSTEM UND RECHTSDOGMATIK* (Stuttgart: Verlag 1974).

³⁵ G. DE BÚRCA & J. SCOTT (EDS.), *LAW AND NEW GOVERNANCE IN THE EU AND IN THE US* (Portland: Hart 2006). Especially Part I concerning the relations among new governance, law, and constitutionalism as it pertains to the technological reflexes of this concept; SUZOR, *LAWLESS: THE SECRET RULES THAT GOVERN OUR DIGITAL LIVES* (Cambridge-New York: Cambridge University Press 2019). In particular, Part I and chapter 11; R. RADU, *NEGOTIATING INTERNET GOVERNANCE* (Oxford-New York: Oxford University Press 2019). Chapters 2-4.

³⁶ De Búrca & Scott, *Id.* at Epilogue.

Beyond the legal and political-institutional sphere, the implementation of IT involves many other levels and, in particular, the identitarian processes.

Aside from the “traditional” technologies, the new technological applications (in particular information technology) are not neutral. The epistemological horizon underlying the social implementation of technology, which is based on a post-modern or post-truth model of knowledge, entails relevant anthropological modifications and makes the concept of “information society” much more problematic.

From this point of view, social networks and web communities are a good example. In fact, they allow focusing on some *cognitive processes* implied by the new technologies and for better understanding of the modification of knowledge modelling as well as the concept of “information (knowledge)-based society.” It is necessary to now look at three fundamental anthropological dimensions: language, memory, and the idea of “corporeity.”

Within the language dimension, the transition from “communication” to “interaction” is decisive. The wide diffusion of virtual environments (chatrooms, forums, blogs) has produced the passage from a traditional linguistic model, which was based on direct relation and dialogue, to another one. This other model is dominated by the creation of a diaphragm among interlocutors: taking the form of a mere interaction, the technological devices put aside the usual ways to communicate.

A similar transformation occurs in the second dimension: memory. We can grasp this point by highlighting two models of memory. First, the traditional model of memory: the “experience-based memory” or “semantic memory.” The traditional model relies on experiential contests the direct experience is the premise to elaborate on memories and to transmit them to future generations. Second, new technologies imply a new structure of the mnemonic functions: from semantic memory to “data base-memory.” Memory is no longer a fabric of experiences, but it merely becomes a storage of information.

Finally, the virtual revolution involves the idea of “corporeity.” Internet users are not requested to have a direct (physical) involvement in the world. Virtual environments make space for different identities (nicknames) and memberships, that is to say the possibility to change the community in determining two conflicting orientations: virtualization and referentiality.

Virtualization implies a progressive process of dematerialization, within which the technological interaction of the physical traits of relationships (face, body posture, voice, etc.) becomes irrelevant. At the same time, the virtual interaction is frequently unsatisfactory and elicits a real and personal relationship. In other words, the passage from the “virtual community” to the “real community.”

As discussed earlier, the anthropological mutations produced by new technologies (language, memory, corporeity) call into question cognitive modifications: the modification of the ways that thinking and speaking involve different ways to conceive things and persons. Accordingly, we have to focus on the mental mechanisms underlying the mentioned dynamics, in regards to both the construction of knowledge models and the concept of “information (knowledge)-based society.”

Regardless of superficial phenomenologies which concern the circulation of data, the conceptual point can be explained by comparing the model of knowledge going back to the illuministic origins of modernity and the post-modern model.

The scientific community clearly exemplifies the first model. Although it is basically an “open” model, the scientific investigation develops within a structured framework. The sharing of a universal methodology, as well as the realization of a complete model of knowledge (i.e., the ideal of “encyclopedia”), make the scientific community a strongly structured dimension: a “scientific republic.”

A very different model of knowledge seems to emerge, which is based on a fluid, dynamic, and non-hierarchical structure. Wikipedia is a good illustration of this model. Separate from the

framework expressed by the modern “scientific republic,” the pattern of knowledge (or maybe information?) encapsulated within Wikipedia has two fundamental traits.

Firstly, Wikipedia offers a totally fragmented set of “data (information),” grounded in non-linear hypertextual browsing, the concept of “hypertext” synthesizes a disarticulated model of knowledge. Secondly, in light of this particular structure, knowledge is always in progress. Wikipedia is “open” in a double meaning. The framework of data is always in progress; there is no definitive level, because the limit of the acquired information is to be understood in an asymptotic manner. Moreover, Wikipedia represents the output of a “democratic cooperation” without hierarchical order. As knowledge is a common enterprise, it is never definite and complete.

In other words, a reticular model of knowledge develops as a parallel process to the implementation of a reticular social model. At an epistemological-cognitive level, knowledge is no longer a comprehensive and structured system, but only a “net” of information; what Lévy has called “cyberculture”³⁷.

It is also important to pay attention to this notion in order to clarify the point of an “information (knowledge)-based society.” According to Levy, “cyberculture” encompasses practices and mental aptitudes elaborated within the “cyberspace.” In this way, the French author establishes a close relationship between “virtual” and “cyberculture.” In fact, these two concepts embody the technological articulation of the modern-philosophical model and rely on a “universal semantic system.” Specifically, this means a paradigm without a logical center or pivot. More precisely, the reticular system of knowledge underlying the cyberculture entails a new-Cartesian tree of knowledge, which evolves as a process of *hypertextualization of knowledge*. The anthropological-cognitive aspect of these dynamics (synthesized through Levy’s analysis³⁸) is closely intertwined with the collective decision-making processes and, then, with the conceptualization of the “information-based (knowledge-based) society.”

The case of “political deliberation” is paradigmatic. The ongoing implementation of reticular and fragmented patterns of knowledge determines the symmetric diffusion of analogous models of “decision”, the cognitive level feeds back to the decisional dimension. Fundamental moments of the political deliberation (i.e., reflection, assessment, choice) progressively become the expression of a subjectivist and emotive decision, on the basis of casual and contingent information (*not* knowledge) and in the absence of global philosophical perspectives.

The legitimation and functionality crises of democracy are the natural corollaries of this process and they reveal the ambiguity of the formula “information-based (knowledge-based) society.” Between “information” and “knowledge,” there is no superimposition and identification. That is why Levy’s outlook is not convincing. Information (and “information-based society”) is rooted in a reticular and non-hierarchical scheme or series of data, whereas knowledge (and “knowledge-based society”) belongs to historical models as well as to epistemological premises very different from our highly technologized and mass societies³⁹.

7. Concluding Remarks

³⁷ P. LÉVY, *L’INTELLIGENCE COLLECTIVE. POUR UNE ANTHROPOLOGIE DU CYBERSPACE* (Paris: La Découverte 1994); A development in D. DE KERCKHOVE, *CONNECTED INTELLIGENCE: THE ARRIVAL OF THE WEB SOCIETY* (Toronto: Somerville House Publ 1997).

³⁸ See also P. LEVY, *QU’ES-CE QUE LE VIRTUEL* (Paris: La Découverte 1995).

³⁹ More information about this point can be found at ALTBACH, PHILIP G., *Globalization and Forces for Change in Higher Education*, in *THE INTERNATIONAL IMPERATIVE IN HIGHER EDUCATION 7–10* (Philip G. Altbach (ed.), *Global Perspectives on Higher Education*. Rotterdam: SensePublishers 2013) <https://doi.org/10.1007/978-94-6209-338-6_2>.

To avoid misunderstandings it is necessary to reiterate the following important point. The previous analysis has not questioned the technological development itself, especially if considered as a consequence of a model of scientific knowledge. In this respect, the running opposition “condemnation” - “glorification” of the science-technology relationship really appears meaningless.

Technology plays an unavoidable role, meaning that understanding the evolution of new scenarios becomes the crucial point. More precisely, the present (and future) relation technology (science)-law should be deepened in the light of the different conceptual horizons. The evolving global scenario involves both technology and law. Accordingly, a close consideration of the scientific-technological impact on the legal-institutional level and its deliberative dimension will be elicited.

To sum up, there are three short points to be underlined. These points concern the *political-institutional* level, the *cognitive* dimension, and the *western nature* of these processes.

The political-institutional level refers to the radically new interaction between technologies-political processes. Once again, this passage should be put in light of its effects on the political legitimization and the consent mechanisms; the keys to the “Rule of law.” Due to the crisis of the subjects belonging to the traditional political mediation (i.e., the role of parties), the progressive individualization of the deliberative processes encompasses an anthropological mutation (what has been defined as a crisis of “network” and “citizen”) as well as a different conceptualization of law and politics.

With regard to the cognitive profile, beyond the previous considerations the massive recourse and implementation of technologies is to be emphasized. It could imply two fatal processes closely related to each other: *the sociological homologation* and the *demagogic politics*.

The sociological homologation is determined by the ongoing confusion between information (information-based society) and knowledge (knowledge-based society). The technological circulation of a great mass of information, with regards only to the diffusive availability of data, does not necessarily imply the development of a correspondent level of knowledge. On the contrary, the diffusion of the *same* data through the *same* technological devices and channels produces the flattening of the cultural horizons, in terms of different opinions, and reduces the range of decisional criteria.

Political demagoguery relies on this substratum⁴⁰. The implementation of new technologies could represent a great vehicle to increase the negative symbiosis information-knowledge and its populist corollaries in direct relation between governors/rulers and governed/citizens⁴¹. At the same time, it gives way to a present (and especially future) disturbing scenario, which is dominated by the tension between the necessity to adopt complex decisions and the temptation to streamline the decision-making processes. Are we really in a “post-democracy” age or, according to some authors, in a “Neo-democracy”⁴²?

Finally, the *western* historical-cultural context of these processes should be recalled. In the last analysis, the implementation of a certain pattern of science (and technology) dates back to the philosophical roots of our cultural model. The “science-technology” pair properly belongs to the cultural origins of the western model, that is to say to the complex circle philosophy-politics-law established in Ancient Greece.

We can really appreciate the recent issues concerning democratic models only in light of the role played by technology (including its scientific-epistemological bases) within this western

⁴⁰ P. ROBERTS-MILLER, DEMAGOGUERY AND DEMOCRACY (New York: The Experiment 2017).

⁴¹ C. R., KALTWASSER, ET AL., THE HANDBOOK OF POPULISM (Oxford: Oxford University Press 2017); C. MUDDE & C.R. KALTWASSER, POPULISM. A VERY SHORT INTRODUCTION 1-6 (New York: Oxford University Press 2017); B. MOFFITT, THE GLOBAL RISE OF POPULISM: PERFORMANCE, POLITICAL STYLE AND REPRESENTATION (Stanford: Stanford University Press 2016).

⁴² K. VON BEYME, FROM POST-DEMOCRACY TO NEO-DEMOCRACY (Cham: Springer 2018).

framework, especially if compared to different cultural models now widely embedded in our countries.

In conclusion, as it pertains to encompassing law and the political-institutional dimension, the classical category of “Rule of law” is under fire for many reasons, and not only by internal (i.e., western) factors such as epistemological transitions, modifications of the social models (the “ideas” of society), and the progressive implementation of different paradigms of law. The “Rule of law” is also called into question by the unavoidable comparison with very different cultural and normative models, which developed without a concept of “science” or a model of technology influencing the social, as well as the legal, model.