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A Research Agenda for Patent Law

Introduction

This book examines key prospective areas of interest and significance pertaining to patent law. As is known, patents touch upon a wide variety of sectors and traditional and cutting-edge technologies, including information and communication technology (ICT) and the pharmaceutical and biotech industry – fields which are thoroughly covered in this volume.

The book seeks to identify and explore research areas within patent law that are likely to prove most topical in the next decade or so. The first section on ‘Patents in the New ICT Ecosystem’ deals with patent challenges for the ICT industry in the coming future. This is examined considering growingly advanced and complex ICT devices and systems that often embody hundreds, if not thousands of patents, which may constitute insurmountable barriers for new entrants into the market.

Specifically, in Chapter 1 *The Future of Standard Essential Patents*, Jorge Contreras looks at areas for future research, including the analysis of market adoption of standardised products subject to licensing terms which are Fair, Reasonable and Non-Discriminatory (FRAND) and available on a royalty-free basis; the assessment of several features of standard essential patents (SEPs) such as disclosure, validity, essentiality and transfer; the evolution of standard setting organisations and consortia patent policies; and SEPs dispute settlement procedures including arbitration. Then, in Chapter 2 *The Landscape of Patent Pools in the Telecommunication Sector*, Enrico Bonadio and Magali Contardi analyse the compatibility of patents pools with EU competition law and explore areas for future research and policy consideration for regulating these platforms. The chapter shows how the Internet of Things has brought with it new issues that will likely cause pools to further evolve in light of increasing interconnectivity and convergence. This section is concluded by Chapter 3, entitled *A Research Agenda for Patents Relating to Interfaces* and authored by Gwilym Roberts, which focuses on the features and importance of interfaces and recommends future research in relation to (amongst other areas) the definition of the term ‘interface’; the assessment of the economic impact of the control or ownership of an interface or the proprietary rights to the related technology; and an analysis of the fitness of the patent system for proportionate reward for interface innovation.

The second section of the book ‘Patenting in Artificial Intelligence, Pharma and Biotech’, as its title suggests, centres on some of the key policy as well as practical questions, which surround patent grants that are at the forefront in crucial industries.

This part is opened by Noam Shemtov with Chapter 4 entitled *Beyond Algorithms: Patenting Core AI Innovation*, which expands on a potential framework for patenting core AI inventions. The author here argues that AI as a distinct field of technology, with unique technical characteristics, could align patent law with the objective of fostering innovation in AI, ensuring robust protection for advancements with significant societal benefits. Then in Chapter 5 *Patenting Strategies by Pharmaceutical Companies: a Lawful Use of the Patent System or an Abusive Conduct?*, Olga Gurgula focuses on two patent-related practices which have raised serious competition concerns as they aim to prevent generic competition, i.e. strategic

accumulation of patents and product hopping. This chapter thus seeks to attract the attention of policy makers to these practices, likely to be considered abuses of dominant position, by clarifying their essence and anticompetitive features and effects. Duncan Matthews's Chapter 6 *Gene Editing Patents*, Duncan Matthews concludes this second part of the volume. The author first goes deeper into the basic science of genome editing, emphasising both its enormous promise and its drawbacks. He then assesses the most effective ways to strike a compromise between the patentability of genome editing innovations and the role voluntary licensing may play in oversight and governance.

Finally, the last section of the book 'Reconsidering the Role of Patents in the 21st Century' examines core issues that underpin the rationale at the basis of our patent systems in light of evolving perspectives as to the role of patent law in absorbing technological shocks such and promoting public welfare. This is warranted by recent developments, such as the pharma industry's response to the Covid pandemic, as well as greater public awareness of the role that exclusive rights play both in facilitating as well as hindering public access to life-changing technological developments.

This part is opened by Chapter 7 *Research Agenda on Artificial Intelligence*, written by Garry Gabison. The chapter makes the point that AI has become one of the most disruptive technologies as it touches many aspects of our lives, by making autonomous decisions which can also generate useful inventions. The author here expands on the idea behind the incentive theory as applied to this revolutionising technology and seeks to predict how lawmakers will tailor the patent system to the AI-generated shock. Then in Chapter 8 *Patents, Social Welfare, and Sustainability: Considerations on the Role of the Patent System in Incentivising the UN Sustainable Development Goals*, Francesca Mazzi investigates the impact of patents on promoting social well-being, using the UN Sustainability Development Goals (SDGs) as a benchmark. This chapter aims to to inform policy objectives, based on the assumption that SDGs-oriented inventions are perceived as a form of social welfare, and makes the point that the patent regime should encourage sustainable development. Finally, Matt Fisher in Chapter 9 *The Patent System after Covid-19* reflects upon the lessons learned from the global pandemic, what the coronavirus emergency may have taught us about the way the patent system operates, and how this will steer the future research agenda. In the author's own words "Covid-19, despite its enormous impact and devastating consequences, was just a training exercise", and society in general and patent law in particular must get ready for the next emergency.

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We hope the contributions within this volume can spur further research and debates around areas of patent law which are already attracting academic as well as media attention. Academics' task is indeed to both 'capture the moment' and anticipate future research paths and goals. With that aim in mind, we also hope our collective investigation can steer future patent policies and redirect them towards finding a more balanced equilibrium between the need to protect innovation and that of safeguarding overriding (and often conflicting) public interests.