Fostering Innovation for Sustainable Development

Revisiting Intellectual Property Rights and Competition from the Lens of Optimal Regulation
Fostering Innovation for Sustainable Development

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Acknowledgement

This volume has been prepared under the auspices of project entitled, ‘CompIP’, with the support from Qualcomm and we acknowledge this support.

We gratefully acknowledge the hard work of all the paper authors included in the volume. We are also thankful to those in CUTS who reviewed the draft papers, especially Veena Vidhyadharan, Abhishek Kumar, Amol Kulkarni, Saket Sharma, Cornelius Dube, Rohit Singh, Ujjwal Kumar, Parveer Singh Ghuman, Siddharth Narayan and Sanjay Kumar Mangla.

We are indebted to Isabelle Durant, Deputy Secretary General, UNCTAD, for writing an encouraging Foreword and also hope for her and UNCTAD’s continued support.

We gratefully acknowledge the hard work and patience of all the paper authors for contributing extremely interesting individual chapters to this volume.

We greatly appreciate the diligence of Garima Shrivastava for editing and Mukesh Tyagi and Rajkumar Trivedi, for layout of this Compendium. Special thanks are due to Akshay Sharma and Nimra Khan for their excellent coordination with authors and reviewers of papers for this volume.

Last but not the least, this report would not have seen the light of the day without the skilful direction, and overall guidance of Pradeep S Mehta, Secretary General, CUTS International.

Udai S Mehta
Deputy Executive Director
CUTS International
Abbreviations

AAC  Competition Appeal Court
ADR  Alternate Dispute Resolution
AEs  Advanced Economies
AGEPU Average Global Economic Policy Uncertainty
API  Active Pharmaceutical Ingredient
ARV  Anti-retroviral Drug
ASCOLA Academic Society for Competition Law

BRICS  Brazil, Russia, India, China and South Africa

CCI  Competition Commission of India
CCSA  Competition Commission of South Africa
CIPC  Companies and Intellectual Property Commission
CIRC  CUTS Institute of Regulation & Competition
CCPT  Competition and Consumer Protection Tribunal
CREDAI Confederation of Real Estate Developers ‘Associations of India
CSOs  Civil Society Organisations

DPP  Director of Public Prosecutions
DTI  Department of Trade and Industry

EC  European Commission
EEs  Emerging Economies
EGAT Electricity Generation Authority of Thailand
EMDEs Emerging Market and Developing Economies
<table>
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<tr>
<th>Acronym</th>
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<tr>
<td>EPU</td>
<td>Economic Policy Uncertainty</td>
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<td>EU</td>
<td>European Union</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>FTC</td>
<td>Federal Trade Commission</td>
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<td>FDA</td>
<td>Food and Drug Administration</td>
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<td>FRAND</td>
<td>Fair, Reasonable and Non-discriminatory</td>
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<td>GEPU</td>
<td>Global Economic Policy Uncertainty</td>
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<td>GFSR</td>
<td>Global Financial Stability Report</td>
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<td>GM</td>
<td>Genetically Modified</td>
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<td>GRIPS</td>
<td>National Graduate Institute for Policy Studies</td>
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<td>IDC</td>
<td>Industrial Development Corporation</td>
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<td>IoT</td>
<td>Internet of Things</td>
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<td>IP</td>
<td>Intellectual Property</td>
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<td>IPRs</td>
<td>Intellectual Property Rights</td>
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<td>IPT</td>
<td>Industrial Property Tribunal</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>KIPI</td>
<td>Kenyan Intellectual Property Rights</td>
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<td>KPPU</td>
<td>Indonesian Anti-Monopoly Commission</td>
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<td>LAC</td>
<td>Labour Appeal Court</td>
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<td>LICs</td>
<td>Low Income Countries</td>
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<td>LMIs</td>
<td>Low Income Countries</td>
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<td>MoU</td>
<td>Memoranda of Understanding</td>
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<td>MSPs</td>
<td>Multi-sided Platforms</td>
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<td>NAFTA</td>
<td>North American Free-Trade Agreement</td>
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<td>NCCP</td>
<td>National Competition and Consumer Policy</td>
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<td>NGOs</td>
<td>Non-governmental Organisations</td>
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<td>NHS</td>
<td>National Health Service</td>
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<td>Acronym</td>
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<td>NITIE</td>
<td>National Institute of Industrial Engineering</td>
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<td>NPA</td>
<td>National Prosecutions Authority</td>
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<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
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<td>OSCE</td>
<td>Objective Structured Clinical Examination</td>
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<td>OTCC</td>
<td>Office of Trade Competition Commission</td>
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<td>OTT</td>
<td>Over-The-Top</td>
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<td>PAC</td>
<td>Policy Analysis and Coordination</td>
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<td>PNAA</td>
<td>Plea Negotiations and Agreements Act 2010</td>
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<td>PPP</td>
<td>Public-private Partnership</td>
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<td>PTT</td>
<td>Petroleum Authority of Thailand</td>
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<td>R&amp;D</td>
<td>Research &amp; Development</td>
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<td>REI</td>
<td>Research and Evaluation International</td>
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<td>RIA</td>
<td>Regulatory Impact Assessment</td>
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<td>SADC</td>
<td>Southern African Development Community</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SEECP</td>
<td>South-East European Cooperation Process</td>
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<td>SEPs</td>
<td>Standard Essential Patents</td>
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<td>SSOs</td>
<td>Standard Setting Organisations</td>
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<td>TEEC</td>
<td>Treaty Establishing the European Economic Community</td>
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<td>TFEU</td>
<td>Treaty on the Functioning of the European Union</td>
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<td>TPP</td>
<td>Trans-Pacific Partnership</td>
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<td>TRIPs</td>
<td>Agreement on Trade-Related Aspects of Intellectual Property Rights</td>
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<td>UMTS</td>
<td>Universal Mobile Telecommunications System</td>
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<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>Acronym</td>
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<td>WB</td>
<td>World Bank</td>
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<td>WEF</td>
<td>World Economic Forum</td>
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<td>WFDII</td>
<td>World Foreign Direct Investment Inflows</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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<td>WTO</td>
<td>World Trade Organisation</td>
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I had the opportunity to take part in the Fifth CUTS Institute of Regulation & Competition (CIRC) Biennial Competition, Regulation and Development Conference, held in Jaipur, India, in November 2017.

The conference brought together a unique group of stakeholders – from government officials to business leaders to competition lawyers – to debate the fundamental and sometimes contentious issue of striking the right balance between competition policies and intellectual property rights (IPRs).

Patents, copyrights and trademarks provide guarantees that people and companies will be rewarded for what they create. But too much protection can weigh down on competition and prevent certain segments of the population from accessing the new goods and services.

Our ability to innovate – in terms of scientific discoveries and technological advances, as well as better production and delivery processes – will in part determine whether we achieve the Sustainable Development Goals (SDGs), bringing an end to poverty, inequality and climate change by 2030.

But the common threads of universal access and inclusiveness that run through the 2030 Agenda for Sustainable Development – of which the 17 SDGs are the core – requires governments to design a regulatory framework that ensures the benefits reach everyone. Competition policy and law as a driver for innovation is an essential component of such a framework.

The pharmaceutical market often illustrates the importance of this balancing Act. Drug companies push for strong IPRs to justify the investments made in developing new medicines. But expanding access to poorer communities often requires the production of generics.
The task of reconciling IPRs with competition policies is becoming even more difficult in a fast-changing digital economy, where disruptive technologies and E-commerce platforms are giving rise to new concerns for competition, such as algorithm-induced price collusions, even though consumer choice is being enhanced. The challenges of the ‘Uber economy’ affect developing and developed countries alike.

United Nations Conference on Trade and Development (UNCTAD), as the focal point within the United Nations system for competition law and policy, stresses the importance of adopting a balanced approach to the development benefits of new technologies. The optimal regulation for the public good in each country will depend on its level of economic development.

Deliberations at the biennial conference, whose theme was “Revisiting Intellectual Property Rights and Competition from the Lens of Optimal Regulation”, rightly called for governments to intervene in new markets, but only after fully understanding the technology used and its effects on the economy.

This publication – a compendium of select papers from the conference – sheds light on some of the very technical and contentious policy issues that governments face as they try to craft a regulatory framework that fosters innovation and competition while improving consumer and environmental protection.

I would like to thank CUTS for the work undertaken in competition and consumer protection policies and reiterate that UNCTAD is committed to continue working closely with civil society organisations (CSOs), such as CUTS International.

Isabelle Durant
Deputy Secretary-General
UNCTAD
Preface

The CUTS-CIRC Biennial Competition Regulation and Development Conference series started a decade back in 2007. Since then such Conference has been organised every two years, except for 2009, which was dropped due to resource constraints. Every time, the themes of the Biennial had been carefully chosen by considering, among other things, its relevance to developing countries, its currency and its connection with development, competition and regulation.

The idea for this biennial series was conceived in the backdrop of developing countries concerns of frequent regulatory failures that undermine the capacity to achieve policies important to citizens and consumers. Such failures are due to persistent and common patterns of over-regulation, under-regulation, poorly designed regulation and implementation as well as weak institutional capacities.

The first Biennial in 2007 discussed about political economy and governance constraints that developing countries face in implementing their competition and regulatory regimes. Two volumes of papers were also published; one of them is available on CUTS website.¹

Similarly, during second Biennial in 2011, the chosen theme was “Reviewing the Global Experience with Economic Regulation”, where the idea was to showcase the heterogeneity of approaches in different countries vis-à-vis the rationale for economic regulation and methodology for its evaluation; regulatory frameworks; and approaches for achieving regulatory coherence, etc.

¹ At: http://www.cuts-international.org/pdf/Politics_Trumps_Economics.pdf
The third Biennial in 2013 deliberated upon “Competition Reforms: Emerging Challenges in a Globalising World”. CUTS strongly believes that competition reforms should be pursued to level the playing field and prevent interest groups and individuals from controlling the market.

The fourth Biennial in 2015, the one just before this, was held for the first time outside India (all the previous were held in Delhi). It was held in Nairobi, Kenya. Its theme, “Competition Reforms in Key Markets for Enhancing Social & Economic Welfare in Developing Countries”, was basically outcome of a project (CREW Project),² which we carried out in four countries: Ghana, India, The Philippines and Zambia across two common sectors: Staple Food and Passenger Transport.

The agenda in Nairobi, Kenya highlighted the relevance of competition and regulatory reforms in meeting crucial social and economic welfare objectives in the countries. A publication also came out from this Biennial, which is available on our website.³

The deliberations at Nairobi lead us into the Sustainable Development ecosystem – a baton that we are carrying into this Biennial. Thus, we chose the main theme for the fifth Biennial as: “Fostering Innovation for Sustainable Development – Revisiting Intellectual Property Rights and Competition from the Lens of Optimal Regulation”. While first part is the central theme, the two related sub-themes of Intellectual Property-Competition Interface’ and ‘Optimal Regulation’ are crucial for a good innovation ecosystem. In addition, the conference also touched upon contemporary topic of ‘Regulatory Uncertainty’ and “PPPs and Innovation for Sustainable Development”, which are useful in achieving the SDGs.

The theme this year is akin to Buddha’s philosophy of Middle Path i.e. “the strings of veena should neither be too taut nor too loose to be in tune and playable”. A balance has to be struck with the tension in the strings of veena for it to be musical. Similarly, a balance has to be struck between competition and exclusivity for innovation; a balance has to be struck between interests of incumbents and disrupters for optimal regulation; a balance has to be struck between growth and equity for development; and a balance has to be struck in consumption patterns for development to be sustainable.

² http://www.cuts-ccier.org/CREW/
³ http://www.cuts-ccier.org/4th_Biennial_Conference/pdf/ Pursuing_Competition_and_Regulatory_Reforms_for_achieving_SDGs.pdf
India has recently adopted a National IPRs Policy having a vision of “Creative India, Innovative India”. A robust intellectual property protection regime is necessary to build an innovation ecosystem. One of the objectives of the IPR Policy is “to have strong and effective IPR laws, which balance the interests of owners’ rights with larger public interest”. For the achievement of this balance, “IP interface with competition law and policy” has also been recognised as one of the important areas for study and research.

The balancing of competition and IP also takes us to the Uruguay Round of trade negotiations (1986-2003), where India played a crucial role in achieving certain flexibilities in Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement. These flexibilities are also tools to balance “the interests of rights owners with larger public interest”, particularly related with public health and agriculture. These are basically tools to balance exclusivity and competition, and hence, can surely be looked from the prism of competition policy.

Will it be a competition policy imperative to implement the TRIPs flexibilities? Certainly yes, it would certainly have a pro-competition effect. Today, when there are backlashes against globalisation in rich countries, “Revisiting Competition and IPRs” would be a good idea to achieve the ‘right’ balance. However, there is no one-size-fits-all formula and every country would have to perform this balancing act, based on their level of development.

In the same way, addressing the issues and concerns due to disruptive technologies and how to regulate them is in the category of ‘urgent’ and ‘important’. Before intervening, governments and regulators would need to understand the finer points, including how such new technologies work, and pin point the cause for the genesis of identified concerns. Else one may be doing more harm by disturbing the emerging ecosystem of start-ups in the developing world. Tools like regulatory impact assessment (RIA) can aid in balancing the interests of diverse stakeholder groups and arrive at optimal design for policies and regulations.

We are increasingly living in a world in which globalisation is facing a backlash and knee jerk policy actions are becoming a norm rather than exception. Businesses and investors are left to navigate choppy waters of policy and regulatory uncertainty. The need for evidence-based and well
thought out policies which can withstand such pressure has become much more important now than ever.

Be that as it may, this volume presents a set of 11 papers contributed from across the world that were carefully selected by a panel. This volume has been categorised into three parts corresponding to the chosen thematic area. We hope that readers will find this volume interesting. It might be particularly useful for policymakers and regulators.

Finally, I would like to extend my sincere gratitude to my colleagues for timely preparation of this publication. My sincere gratitude to Isabelle Durant, Deputy Secretary General, UNCTAD, for writing the Foreword. Further, on behalf of CUTS, I would like to extend our warm appreciation to all writers who responded to the ‘call for papers’. We also thank our development partners for their support and cooperation in making this volume possible.

Pradeep S Mehta
Secretary General
CUTS International
Introduction

CUTS International and the CUTS-CIRC organised the Fifth Biennial Conference on Competition, Regulation and Development in November, 2017. The Biennial Conference is one of the flagship initiatives of CUTS and CIRC and acts as a platform to deliberate and discuss key policy, economic and governance challenges related to competition and economic regulation, especially from the development perspective. Through the 5th edition, this international Conference entered its 10th year and sought to discuss contemporary issues on the thematic area of “Fostering Innovation for Sustainable Development: Revisiting IPRs and Competition from the lens of Optimal Regulation”.

The particular theme was chosen based on the common understanding that innovation is central to the long-run performance of an economy. It was further envisaged that building robust innovation ecosystems, especially in the developing world is crucial, bearing in mind the massive challenges that they face vis-à-vis attainment of sustainable development. Notably, harnessing the same through an appropriate policy and regulatory framework is an extremely complicated yet important exercise and has to be guided by evidence.

For instance, despite the fact that competition policy and IPRs play an inherently critical role in fostering innovation, their implementation might be disparate and can cause several policy and regulatory ambiguities, which might hinder the natural progress of innovation. Similarly, another important pillar, which impacts innovation is optimal regulation. With the emergence of disruptive technologies and prominence of constantly shifting business models, the challenge and imperative of regulating markets in an optimal manner cannot be overstated.
Hence, the Conference aimed to thoroughly explore the role of the aforementioned three foundational pillars which determine the creation of innovation ecosystems across economies i.e. competition policy, regulation and IPR protection. Bearing in mind the imperative for developed and developing nations to foster innovation for sustainable development, the underlying objective was to discuss seemingly contentious issues within the triangular pillar framework of competition, IPRs and regulation i.e. a) the interface between competition and IPR; and b) the role of competition and regulation vis-à-vis disruptive technologies.¹

One of the crucial features of the Conference was presentation of research papers highlighting important and contentious issues in these areas, thereby driving the discourse. The papers were selected through a rigorous process, which included a global call for papers, subsequent expert peer-review and finalisation.

The discussions at the Conference aided in updating the research papers and this compendium is a compilation of these research papers. The compendium is thus a direct output of the rich discussions and excellent research presented at the Biennial.

Through the compendium, we explore wide ranging issues including the tenuous inter-relationship between IPRs, competition policy and development cutting across sectors and covering diverse jurisdictional perspectives. Moreover, the research publications address challenging questions related to economic regulation, being constantly raised due to the increased global prominence of emerging disruptive technologies.

Furthermore, bearing in mind the need to address increasing policy uncertainty and regulatory challenges posed by disruptive technologies, the select discussions and paper submissions try to construct broader frameworks and mechanisms through which jurisdictions can optimally invest time and money to build internal organisational capacities. The discussions cover innovation in reference to public private partnerships (PPPs) that have responded to crucial development challenges in the areas of social, human and sustainable development.

¹ For detailed agenda, visit http://www.cuts-ccier.org/5th_Biennial_Conference/pdf/Biennial_Conference_programme.pdf
Furthermore, with increasing populism and rising protectionism across jurisdictions, the headwinds in favour of globalisation have slowed down. Concurrently, knee jerk policy actions and reactions are increasingly becoming rule rather than exception. This is taking a toll on policy predictability and adversely impacting global investment flows. Resultantly, issues related to the lack of policy and regulatory certainty, its impact on innovations and investments have also been discussed.

Lastly, as jurisdictions, entities and institutions have realised the importance of collaboration to achieve the SDGs, the Compendium also explores ‘innovation’ in the context of PPPs and discusses how PPP frameworks have been (and can be) designed to respond to crucial development challenges in the areas of social, human and sustainable development.

The compendium concludes with shining light upon the emerging way forward and identifies potential contours which could guide future research/advocacy in/on the underlying themes. A report summarising discussions during the Conference along with its Agenda is annexed to the report.
Part I
Intellectual Property Rights-Competition Balance
Abstract

Standardisation agreements enable different technologies to communicate with each other for proper functioning which is very crucial to high-tech industries. The pros of standardisation are not only limited to enabling interoperability and compatibility, widely recognised benefits are ranging from cost reductions through economies of scope and scale to increased incentives for innovation.

However, as in the famous saying every pro has its own con, standardisation is not free of any competitive cost or concern. The main competitive concern related to standardisation is that once a technology is adopted as a standard, such standardisation may drive the substitutes out of the market and might also prevent new entrants. This, naturally, grants Standard Essential Patents (SEP) holder market power and control over a standard.

This may also facilitate the SEP holders, who were facing competitive pressure of competing technologies *ex ante*, to become the sole provider of that technology after standardisation. Therefore, it would not be
speculative to conclude that the standardisation process grants the SEP holders a market power that did not exist before.

The exclusive rights granted to the patent holders might cause problems in terms of making such standards available to everyone, therefore, it is of the utmost importance to strike a balance between rewarding the SEP holders and making these technologies available to all for public use. Since the SEP holders might have incentive to misuse the additional market power that is gained through standardisation process, the Standard Setting Organisations (SSOs) require the SEP holders to commit to license the relevant SEP on fair, reasonable and non-discriminatory (FRAND) terms.

However, even in cases where the SEP holder committed to license its patents on FRAND terms, the possibility of the SEP holder to seek for an injunction as in Motorola (GPRS) and Samsung Universal Mobile Telecommunications System (UMTS) cases cannot be excluded altogether. Moreover, the right to seek an injunction could also be used as a tool by the SEP holders to impose unreasonable terms on licensees who want to suspend the injunction. The European Commission (EC) tends to consider such misuses as infringement of Article 102 of Treaty on the Functioning of European Union (TFEU).

Yet, it is a hotly debated issue whether it is legitimate for EC to intervene on exclusive patent rights of the SEP holders in terms of determining the scope of the FRAND terms, and if so, whether Article 102 of TFEU provides the essential tools for such intervention or it is a *sui generis* abuse that calls for specific treatment under competition law, requires more detailed scrutiny.

**Introduction**

**Standardisation Agreements from a Competition Policy Perspective**

Newer technologies have penetrated our lives at an incredible rate, which is well beyond what an average consumer can uptake, even for ‘must products’ of modern life, such as smartphones and tablets. An average smartphone has at least 250,000 technologies that are patented.

These different technologies need to communicate with each other for proper functioning, which is very crucial to high-tech industries. Such interoperability can be provided through determination of a standard which can be defined as a document setting out technical or quality requirements for a specific item, material, component, system or service, or describes in detail a particular method or a procedure.

The process of standard setting might encompass issues including standardisation of different grades or sizes of a specific product or technical
specifications in product or services markets where compatibility and interoperability with others is of the utmost importance.4

Standardisation is beneficial to both the patent holders and the standard implementers who are usually downstream market players using the standardised technologies in their products. Standardisation agreements ensure that downstream market players using the standard in their products will not have any hindrance in terms of penetrating their product to the market so long as they are willing to pay reasonable royalty to the patent holders.5

Intuitively, patent holders are required to commit to licence their patented technology on reasonable and non-discriminatory terms, so that their patented technology could be part of the standard. Such commitments increase the incentive of the market players to implement the standard into their products. Standardisation is also beneficial to patent holders since they will not only be rewarded for the development of the technology used in the standard, patent holders will also have more demand for their patents following the standardisation.6

Standardisation agreements, most of the time, produce significant efficiency gains by encouraging innovation and interoperability, increasing competition through facilitating new entry and lowering firms’ costs through economies of scope7. Such agreements further encourage the development of new and improved products and contribute to the enlargement of the market.8

Such agreements may even reduce the risk for consumers to purchase a product that may become out-dated for consumers in cases where a few technologies dominate the market in the absence of standardisation.9 Standardisation may also increase the competition in the downstream market through reduction in switching costs.10 Needless to say, from a competition policy perspective, these benefits are all highly substantial.

Standardisation is not free of any competitive cost or concern. The main competitive concern related to standardisation is that once a technology is adopted as a standard such standardisation might drive the substitutes out of the market and can also prevent new entrants. Once investments are made to implement the standard in the downstream markets, industry will be locked into a patented technology.11

This, naturally, grants the holder of a patent that is essential to a standard (SEP) market power and control over a standard. This might also facilitate the SEP holders, who were facing competitive pressure of competing technologies ex ante, to become the sole provider of that technology after standardisation. Therefore, it would not be speculative
to conclude that the standardisation process grants the SEP holders with market power that did not exist before.

SEP holders are able to: (1) prevent firms from producing products including the standard and (2) demand higher royalty rates than would otherwise have been agreed had the technology not been included in the standard. This is known as the ‘hold-up problem’. This problem occurs in cases where at least one of the parties need to make investment in a product (which may create lock-in effect) and other party behaves opportunistically. While emphasis is mostly made on the hold-up problem, there is also the risk of reverse hold-up. Given the uncertainty associated with the R&D investments of the SEP holders, SEP holders may be under-compensated by the opportunist standard implementers.

Standard implementers may have incentive to delay reaching an agreement and go to the court in order to get a better deal in cases where: (1) the duration of litigation is long and its cost is low and (2) SEP holders are cash constrained. Cash-constrained SEP holders may have incentive to settle for relatively low royalty rates to support the cash flow needed to maintain the R&D.

Another concern is royalty stacking where complementary patents are owned by multiple holders, the aggregated price set by multiple owners independently will be higher than the price that would be charged by a single owner of all the relevant patents.

The exclusive rights granted to the patent holders might cause problems in terms of making such standards available to everyone, thus it is of the utmost importance to strike a balance between rewarding the SEP holders and making these technologies available to all for public use. Once a patented technology is incorporated in the standard, the patent rights protecting the relevant technology might confer additional market power to the SEP holder.

Intuitively, following the standard setting, the market players will implement the standard into their products and the demand for the alternative technologies (i.e. the technologies that are not incorporated into the standard) will decrease which in turn eliminates the alternative technologies. Thus, once a downstream producer implements the standard in its products, it may have given up the opportunity to adopt alternative technologies and an opportunist SEP holder might abuse this bargaining power to charge excessive royalties.

Since such misuse of market power gained following the standardisation process has the potential to restrict and distort the competition in the downstream markets, SSOs tend to set licensing rules to govern the structure of the royalties by requiring from the SEP holder to license the
relevant SEP on FRAND terms. Such terms are designed to ensure that public benefit arising from standardisation agreements is not undermined by private profit-maximising of SEP-holders.

Yet, it is a hotly debated issue whether it is legitimate for the EC to intervene on exclusive patent rights of the SEP holders in terms of determining the scope of the FRAND terms, and if so, whether Article 102 of TFEU provides the essential tools for such intervention or it is a sui generis abuse that calls for specific treatment under competition law, requires more detailed scrutiny.

Even though potential competition law problems arising from the standardisation process is broad in scope, we will restrict the scope of this paper to whether FRAND commitments provides adequate functionality and room for flexibility to the parties or intervention of the Commission is required in terms of the determination of the exact scope of the FRAND terms. In this regard, we will also shed light on the problems associated with the interpreting FRAND commitment as an implicit waiver of the right to seek an injunction.

**Concept of ‘Frand’ Terms**

**The Suitability of Antitrust Intervention to FRAND terms**

The interpretation of FRAND, though plays a significant role, especially for the evaluation of the excessive pricing, discriminatory pricing or exclusionary conduct, is of little use in providing the concrete terms or range of terms that are deemed to be fair, reasonable and non-discriminatory. Rather, FRAND is a commitment to negotiate in good faith to prevent the SEP holder from refusing to license, extracting excessive royalty fees or applying dissimilar royalty conditions following the adoption of the standard.

While SSOs might require FRAND terms, they have generally been reluctant to give guidance on the interpretation of FRAND, and it has therefore largely been left to patent holders to assess whether the conditions they apply fulfill the FRAND commitment. This inherent ambiguity of FRAND terms has led questions of a gap in contractual relationship that could eventually lead SEP holders to engage in ex post contractual opportunism by attempting to renegotiate or deviate from the original FRAND commitment in order to obtain higher royalty rates. The so-called patent hold-up problem, which was derived from this gap forms the basis for antitrust intervention prospects.
Some argue that requiring IPR holders to commit to more precise licensing terms *ex ante* (before a technology is selected to become part of a standard) would further minimise the risk of hold-up. However, mainly due to considerable uncertainty concerning the ultimate value of the technology, if adopted, especially in dynamic and ever-changing markets, nowadays FRAND commitments being vague is considered to provide flexibility needed and to avoid a much costly effort to anticipate all contingencies.

Besides, by providing a general framework and enabling SEP holder’s voluntary participation and commitment to behave in good faith, FRAND terms have largely proven to be generally effective in constraining the market power obtained through standardisation. So even if FRAND terms are not precise, it is widely accepted that the existence of FRAND commitment helps to minimise the risk of patent hold-up.

The structure outlined above for FRAND commitments has led to questions whether competition laws are well-suited to govern disputes between private parties concerning IPRs. This concern is intensified as competition authorities are often warned to be more cautious for excessive pricing allegations, since an unjustified intervention has the potential not only to distort competition and investment incentives in such dynamic IP intensive markets (where investment is the well accepted driving force for progress, and therefore, for consumer welfare), but also to place the competition authority in the position of price regulator.

Therefore in general, it is argued that there is no basis to construe antitrust as a price-control or rate-regulation mechanism to fill any perceived gaps in the legal or contractual framework governing pricing disputes over licenses for SEPs.

Another consideration is related to whether FRAND commitments and disputes concerning FRAND terms constitute market failures brought about by lack of competition or firms’ conducts that seek to limit it. Therefore, the existence of such market failures that could justify antitrust intervention is called into question by many commentators. In this respect, whether patent hold-up constitutes a market failure that calls for antitrust intervention is hotly debated.

The opponents of antitrust intervention in FRAND disputes claim that even though *patent* hold-up is a generally well-understood economic phenomenon, there is not adequate empirical evidence to substantiate it so far, therefore, it is not a widespread systematic problem that necessitates antitrust intervention and thereby the law of contracts is sufficient to provide optimal deterrence.
Furthermore, it is argued that several market mechanisms like reputational costs, first-mover advantage and patent holders usually having broad cross-licensing agreements are available to mitigate possibility of hold-up problem\textsuperscript{32}.

In relation to above-mentioned concerns, the opponents also argue that an anticipated antitrust intervention could pave the way for reverse hold-up problem for which licensees would be motivated to delay reaching an agreement with the SEP holder. So, in short the proponents of this view take the disputes regarding FRAND terms as a pure contract law issue and underline the risk of imposing antitrust remedies that could eventually lead to harmful effects in terms of dampening investment incentives and to commercialise innovation by refraining patent holders from participating in SSOs.

The proponents of antitrust intervention, however, emphasise that in case of SEPs, for which it is not possible to manufacture a standard compliant product without infringing the IPR, the standardisation provides additional market power to SEP holder that did not exist\textit{ ex ante}. Furthermore, the implementers began to incur substantial sunk costs specific to that standard right after it has been chosen which effectively lock them in the standard.

This additional market power along with high switching costs due to lock-in effects is argued to result in patent hold-up\textsuperscript{33} where SEP holders may seek to take advantage of it, by such as seeking injunctive relief or an unjustifiably higher royalty rate.\textsuperscript{34} This concern intensifies and raises competition concerns when alternative technologies that could have been included in the standard were instead excluded from it.\textsuperscript{35}

The proponents of antitrust intervention argues that the abuse of the standardisation process by SEP holders via seeking to take advantage of patent hold-up, not only leads to direct consumer and SEP implementers’ welfare loss (through higher prices charged by implementers/manufacturers for consumers and being unable to pass on to consumers all non-FRAND royalties for SEP implementers),\textsuperscript{36} but also harm the competitive process in the industry through “deterring innovation by increasing costs and uncertainty for other industry participants, including other patent holders”; “inducing users to postpone or avoid incorporating standardised technology in their products”; and “slowing the adoption of new standards or reducing the royalties other SEP owners earn because the standard is not widely adopted as anticipated”\textsuperscript{37}. 
Different Interpretations of FRAND Terms

For the evaluation, from a competition policy perspective, of the disputes arising from the meaning of FRAND terms, different interpretations have been made. Yet, no consensus can be built for the meaning of FRAND. It is clear that a policy towards the FRAND terms should ensure that the patent holders are rewarded for their investments on their technology but at the same time, it must also ensure that the royalty rates charged for the technology bear some reasonable relationship to what patent holders contributed.\textsuperscript{38}

Given the vague concept of the FRAND terms, there have been different interpretations made on the meaning of the FRAND terms. Carlton and Shampine (2013) concluded that since standard setting has the potential to create an additional market power to the market power created solely by the patent, a reasonable royalty fee, within the standard setting context, could be the \textit{ex ante} royalty that would have been determined for the patented technology in the absence of the standard setting.\textsuperscript{39}

Carlton and Shampine (2013) further concluded that the maximum royalty in such situation is based on the incremental value that the SEP brings to the product.\textsuperscript{40} Chappatte (2009) concluded that each IPR holders’ individual entitlement for royalty \textit{ex post} should be reasonable in light of the proportional contribution of that IPR holder’s essential patents compared to the total contribution of all other IPR essential to the practice of a standard.\textsuperscript{41}

Lemley and Shapiro (2007) concludes that the royalty rates should prevent cumulative royalties on the product from exceeding a low percentage of the total sale price of such product.\textsuperscript{42} According to Padilla and O’Donoghue (2013), a royalty charged by a SEP holder may be considered as fair and reasonable if such royalty does not include a premium attributable to the market power gained following the standardisation.\textsuperscript{43}

Swanson and Baumol (2005) claims that the price that an IPR holder would be able to and willing to charge prior to the incorporation of the IPR into the standard is a fair price since such price reflects the value of the relevant IPR independently of the value of the standard.\textsuperscript{44} According to Shapley value approach, a fair and reasonable price would be the value representing the relevant IPR’s contribution in a cooperative game situation.\textsuperscript{45}

In an attempt to assess whether a price charged for an SEP is fair or reasonable, the relationship between the price and the economic value of the relevant SEP plays a significant role. However, cost-based methods are not appropriate due to the difficulty associated with the calculation of the cost of the relevant SEP.\textsuperscript{46} Therefore, a method including the
comparison of the price charged \textit{ex ante} and \textit{ex post} the industry has been locked into the standard, would be more appropriate.

In this regard, FRAND terms should be determined based on the counterfactual scenario where the additional market power does not exist since the standard setting process had not eliminated the competitive constraints that existed before the adoption of the standard. SEP’s individual contribution to the standard could also be taken into the consideration in cases where there are multiple SEPs included within the standard.

Right to Seek and Enforce Injunction

Introduction

The growing controversies concerning SEP licencing along with the increasing importance of SEPs for economies, raised the possibility of antitrust intervention. Antitrust intervention to the FRAND terms, however, should not be interpreted independently of the injunction or threat of injunction. Seeking and enforcing an injunction in the absence of any reasonable justification has the potential to lead certain anticompetitive concerns and thus is considered as an abuse as per Article 102 of TFEU.

Given the efficiency associated with the injunction for the purpose of increasing the incentive of the implementer to pay the fair share of the SEP holder, use of injunction should not be considered as \textit{per se} abuse. Yet, as explained above the competition law concerns associated with the standard setting has the potential to lead exploitation of buyers or exclusion of competitors. However, such abuses may not be effectively implemented in the absence of injunction or at least a threat of injunction.

Commission’s Stance

An IPR holder’s right to seek and enforce an injunction against the misuse of its IPR is protected under all legal systems. Yet, when it comes to the SEP, exercise of such right may not be that innocent and harmless. Thus, it might not be efficient to grant any patent holder with the right to seek and enforce injunction without any ground. The Commission had the chance to reveal its approach towards the SEP holders’ right to seek and enforce an injunction against the downstream market players implementing the SEP in their products through various precedents.

In the Google-Motorola Mobility merger decision, the Commission indicated its concern that injunctions could be used in an anticompetitive manner in an attempt to exclude competing products from the market or
to impose onerous licensing terms, regardless of whether licensees are willing to take a licence on FRAND terms.\textsuperscript{47}

In the \textit{Samsung/Apple} case, the issue was Samsung’s seeking of injunction against Apple before some European national courts, to block certain Apple products to be sold in the market. Apple was a willing licensee and Samsung committed to license its 3G SEPs on FRAND terms.\textsuperscript{48} The licensing framework consists of a mandatory negotiation period of up to 12 months, and in case the negotiation fails, third party determination of FRAND terms (either a court or arbitration).\textsuperscript{49}

In \textit{Motorola/Apple} case, (i) Motorola had declared the patent on which it sought the injunction, essential to the implementation of the 2G ETSI standard (ii) Motorola committed to license the SEP to third parties on FRAND terms and (iii) parties agreed that if a dispute arises, German courts would determine the FRAND rate that Apple will pay. Based on the foregoing, the Commission concluded that Motorola’s seeking and enforcement of injunctions against Apple (a willing licensee) on the basis of one of Motorola’s SEPs constitutes an abuse of dominant position.\textsuperscript{50}

In \textit{Huawei} case, the Court of Justice of European Union (EU) concluded that SEP holders that have committed to license its SEP on FRAND terms might be found in breach of Article 102 of TFEU by seeking an injunction against a potential licensee.\textsuperscript{51} This judgment is important as it sets specific guidelines as regards to the SEP patent licensing negotiations including the steps that an SEP holder needs to take in an attempt to prevent an application for an injunction being regarded as an abuse of dominance as per Article 102 of TFEU.\textsuperscript{52}

The EC tends to consider seeking and enforcing an injunction against an implementer as an infringement of Article 102 of TFEU if the standard implementer is willing to pay the FRAND royalty. However, the Commission does not intervene in the terms and conditions of licensing agreement among the SEP holder and standard implementer, but rather focusses on the behaviour and its potential effect on the market. This seems to be in line with its approach towards to the traditional infringements of Article 102 of TFEU.

\textbf{Conclusion}

As the above-mentioned case-law reveals, Commission’s intervention is limited to the cases where the SEP holder seek and enforce an injunction.
This should not be interpreted as if the Commission would not involve in a case where an injunction is not sought but rather should be interpreted as the Commission does not intend to interfere in the terms of agreements and leaves it to the parties to agree on the scope of the FRAND terms.

In cases where the SEP holder committed to license its SEP on FRAND terms, the SEP holder, indeed, still have the right and incentive to seek for an injunction as in Motorola (GPRS) and Samsung (UMTS) cases. There are certain arguments that could be put forward to claim that seeking injunction is an abuse of a dominant position including:

- Promise to licence on FRAND terms amounts to a relinquishment of the right to seek injunction and the SEP holder only entitled to monetary damage
- Injunctions for a small amount of patents could lead removal of numerous products from the market for a long time; and
- Injunctions only worsens the hold-up problem

Besides, there are also arguments that can be used against injunctions’ being abusive, such as:

- the right to seek an injunction is recognised by the law and
- removal of a right to enforce property rights before the courts in the absence of a legal base, would not be in line with the legal system.

Commission’s case-law makes it clear that each SEP can be considered as a separate market in itself as it is necessary to comply with a standard and no alternative is available for each such patent. Given the monopoly power granted through a SEP, SEP holder’s right to seek an injunction may be used as a tool by the SEP holder to impose unreasonable terms on licensees who want to suspend the injunction, so that licensees can freely market their products. Such threat may force potential licensees into agreeing higher royalty rates than would otherwise have been agreed with the SEP holder. The SEP holder may even use such threat to force the non-SEPs holder to cross-license its non-SEPs to the SEP holder.

To cope with this sort of misuse of right to seek an injunction, an alternative approach could be the refusal of the right to seek an injunction for a SEP once SEP holders committed to license in FRAND terms. Once a patent holder voluntary includes its patent as a SEP, so that the demand for its patent and its total revenue could increase, it could be assumed that such patent holder relinquishes its right to seek and enforce an injunction against the downstream players using its patent in their products.
This approach would mainly be based on that a request for injunctive relief would be inconsistent with the promise to license in FRAND terms since (1) the SEP holders have disproportionate power in a standardised environment where inter-technology competition is very limited and (2) since downstream market players do not have alternative, the threat of injunction would be inconsistent with the principle of equality of arms.  

However, such interpretation could increase the incentive of the downstream players to delay reaching an agreement with the SEP holder and go to the court, especially where the duration of litigation is long and not costly and SEP holders are cash constrained (reverse hold-up). Moreover, interpreting a FRAND commitment as an implicit waiver of the right to seek an injunction would not be in line with the established principle of law, according to which a waiver of right can never be assumed lightly and must always be made explicitly.  

Therefore, rather than the removal of such right, limiting the injunctive relief decisions on certain circumstances seem to be a better approach. Seeking and enforcing an injunction could be considered as an abuse of dominant position and thus such approach of the Commission will decrease the incentive of the SEP holder to seek and enforce injunction without any valid grounds.

Moreover, damaged party will be entitled to seek damages arising from the infringement of Article 102 of the TFEU, from the SEP holder.

Therefore, it could be argued that the licensee has sufficient tools to cope with the right of the SEP holders to seek and enforce an injunction. In this regard, certain parameters can be taken into consideration while evaluating a request for injunction. In cases where the product of the downstream market player contains multiple components, of which only one is the subject of the patent suit, courts could consider denying an injunction.  

Moreover, for the cases where the downstream market player developed the technology independently rather than directly copying it from the SEP holder, an injunction may not be granted.  

In conclusion, since FRAND is a voluntary contract between a SEP holder and the SSO, FRAND should be interpreted through traditional means of contractual law. Therefore, an intervention of the Commission in terms of the determination of the exact scope of the FRAND terms would not be an efficient mean to cope with this kind of abuses. Needless to say, this should not be interpreted as the Commission should not intervene at all.

The Commission should still use traditional means but rather do not involve the determination of what constitutes a FRAND term. The parties
may agree on the scope of the FRAND terms or agree on the independent third party to determine the FRAND terms. However, in any case, if the use of injunction before the courts is limited to only exceptional cases, Commission’s intervention may not be necessary at all.

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**Endnotes**

8. Jones, p. 3.
16 O'Donoghue and Padilla, p. 702.
17 Chappatte, p. 326; Jones, p. 5.
18 Yann Ménière ‘Fair, Reasonable and Non-Discriminatory (FRAND) Licensing Terms - Research Analysis of a Controversial Concept’ [2015], Editor: Thumm N., European Commission, Joint Research Centre, p. 3; Geradin, p. 938.
19 Chappatte, p. 325; O'Donoghue and Padilla, p. 689.
20 O'Donoghue and Padilla, p. 689.
21 O'Donoghue and Padilla, p. 689. Chappatte, p. 319; Effective access to the standard can be provided once the firms which want their IPR included in the standard, provide, in advance, a commitment to offer their IPR essential to the standard, to all third parties on fair, reasonable and non-discriminatory terms. Furthermore, the firms need to disclose their IPR that could potentially be essential for the implementation of the standard, thereby allowing industry to make an informed choice of technology. Horizontal Cooperation Guidelines, para. 285-286.
22 Jones, p. 29.
23 O'Donoghue and Padilla, p. 687. Unrestricted participation could be reached once the participation of all competitors on the objective and non-discriminatory procedure is guaranteed. Standard setting procedure would be transparent once the participants are informed on each stage of the standardization procedure. Horizontal Cooperation Guidelines, para. 281-282.
24 Horizontal Cooperation Guidelines, para. 287.
26 Horizontal Cooperation Guidelines, para. 288.
29 Chappette, p.319
33 Chappette, p.325.
34 Wong-Ervin, p.11.
36 Chapette, p.334-335.
37 Wong-Ervin K. W., p.11.
40 Carlton and Shampine, p. 3-4.
41 Chappatte, p. 340.
43 O’Donoghue and Padilla, p. 694.
46 Horizontal Cooperation Guidelines, para. 289.
51 Huawei Technologies Co. Ltd v ZTE Corp., ZTE Deutschland GmbH (Case C-170/13).
53 O’Donoghue and Padilla, p. 696.
54 O’Donoghue and Padilla, p. 697.
55 O’Donoghue and Padilla, p. 698-699. For further information, see O’Donoghue and Padilla, p. 698-701.
56 Case COMP/M.6381 – Google/Motorola Mobility, Commission decision of February 13, 2012, para. 61.
Tuba Yesil, “‘Frand’ Taahhüdü Çerçevesinde Lisanslanan Standarda Esas Patentlere Yılıþkin Mahkeme Emri Uygulamalarinin Rekabet Hukuku Açısından Deðerlendirilmesi” [2017] Rekabet Kurumu p. 14; Lemley and Shapiro show that the threat of permanent injunction increases the patent holder’s negotiating power. Such increase, inherently, leads to royalty rates above the natural benchmark range that is calculated based on the certain factors including the value of the patented technology and the strength of the patent. Lemley and Shapiro, ‘Patent Holdup and Royalty Stacking’, p. 1991.


Google/Motorola decision para 107; O’Donoghue and Padilla, p. 696.


Geradin, p. 921.
Abstract

A lot has been said and written about forum shopping of late. Some courts and scholars have even given recognition to and, to some extent, endorsed the practice of forum shopping. This phenomenon also appears to have surfaced in disputes relating to the protection of IPRs. In this regard, there seems to be a growing trend by litigants with disputes pertaining to patents to use forums and institutions that are not necessarily designed to resolve such disputes. This is notable in a recent decision by the Competition Commission of South Africa (CCSA) to prosecute two firms accused of abusing their dominance by enforcing IPRs beyond the period of protection.

While there may be benefits associated with the practice, pervasive forum shopping can also lead to the concentration of cases in one or very few forums that, in the eyes of litigants, are likely to make favourable determinations. Thus, forum shopping might encourage litigants to make an outcome-determinative choice when selecting an appropriate forum and this in turn can create inefficiencies.

The purpose of this article is to determine how best to approach the quandary of forum shopping in cases relating to the protection of IPRs. The article focusses on the interplay between IP law and competition
law, and determines whether the intervention by competition agencies in IP matters is necessary.

**Introduction**

In March 2004, the Organisation for Economic Cooperation and Development (OECD) invited competition delegates to contribute papers in preparation for its Roundtable on Competition Policy and Intellectual Property Policy. Delegates were called upon to make submissions on specific themes and, in particular, the OECD posed the following questions to them, among others:

- What is the proper role for competition agencies with respect to IP?
- Should competition agencies be allowed to challenge the validity of questionable patents?
- How can competition agencies, whose primary expertise is not in IP, effectively determine the scope and assess the validity of complex patents?
- Should competition agencies simply establish good communication with IP agencies and play only an indirect role in the formulation and implementation of patent policy?²

Despite the divergence of views among delegates, there are several key points that emerged from their submissions in response to the OECD’s call. The OECD summarised one of these key points as follows:

“Overzealous enforcement of competition laws against IP owners can damage the incentives to innovate that IP systems are designed to foster. However, when IP is excessively easy to obtain, it may lead to market power, to the detriment of competition and consumers. Therefore, in an ‘easy patentability’ environment, for example, competition agencies and courts tend to compensate by using competition laws to limit the negative effects of over-patenting. Because competition law is a relatively blunt instrument for that purpose, however, it would be preferable to fix the problems from within the patent system rather than from outside it”.³

There are no easy answers to the questions posed by the OECD above and, as such, it should not be surprising that the debate on the right balance between the enforcement of competition law and the protection of IPRs persists to this day. Some have described interventions by competition agencies in IP matters as overstretching,⁴ while litigants who rely on competition law to resolve IP related matters have, in some instances, been accused of engaging in the practice of forum shopping.
Concept of Forum Shopping

Forum shopping has been defined as an attempt by a party to have its case considered in a forum or court where it has the greatest prospects of success.\(^5\) This practice allows a litigant the option to choose a forum that is likely to yield favourable outcomes even when there is a specialised forum with more experience and competency to consider the dispute. When engaging in forum shopping, the litigant attempts to control the law to be applied to its case and its choice of forum is informed by the benefits that are likely to be derived from the application of such law, as opposed to referring the dispute to the most suitable forum.\(^6\)

Advantages and disadvantages of forum shopping

Some courts and scholars have given recognition to and, to some extent, endorsed the practice of forum shopping. For example, in *Goad v Celotex Corp*, the court expressed the view: “there is nothing inherently evil about forum-shopping”, especially if there is legislation that explicitly or implicitly permits litigants to choose from more than one platform.\(^7\) Forum shopping allows lawyers to assist their clients to locate the most favourable forum to hear their disputes.

In such instances, this practice should not be seen as unethical as litigants merely explore legal options that are available based on jurisdictional rules. Moreover, in South Africa, Section 34 of the Constitution\(^8\) provides every person with the right to have their dispute resolved by the application of law before a court or any other independent and impartial tribunal or forum. Algero notes that an attorney can even be charged with unethical conduct should he fail to seek the most advantageous forum for the client’s case.\(^9\)

Where appropriate, forum shopping can reduce the overall administrative costs faced by litigants. For instance, the use of alternative dispute resolution mechanisms often has the net effect of reducing legal fees for both parties.\(^10\) Taylor contests that forum shopping may also have efficiency gains where litigants benefit from remedies that would ordinarily not exist absent the application of the chosen forum’s substantive law.\(^11\)

Just like in the United States,\(^12\) South African courts have on several occasions expressed discontent about the practice of forum shopping.\(^13\) This is because there are a number of disadvantages associated with the practice. For example, forum shopping can lead to an increase in the cost of litigation as the litigant is permitted to choose the forum most favourable to its case, rather than choosing the most relevant forum.\(^14\)
Furthermore, the agency or court that is required to administer forum shopping is also required to invest resources that would ordinarily be channelled towards resolving disputes that are more relevant and deserving. In some instances, especially when forum shopping is used as a delaying tactic, the forum preferred by litigants may not even have the necessary expertise to deal with technical issues raised in the matter.

The problem of forum shopping cuts across various fields of law. To this end, a body of jurisprudence has been developed in South Africa, notably in the field of labour law. In *Chirwa v Transnet Limited*, a case that seems to be the leading authority in South Africa, Langa CJ stated: “The concern of forum-shopping is a valid one. It is, as this Court has recently implied, undesirable for litigants to pick and choose where they institute actions in the hope of a better outcome”.

Forum shopping has also surfaced in disputes relating to the protection and enforcement of IPRs. The next section examines this phenomenon in the context of competition law as an enforcement tool in IP matters.

**The Enforcement of Competition Law in IP Matters: Is it Necessary for Competition Agencies to Intervene?**

Generally, there is an overlap between the objectives of competition law and IP law. These common objectives include the enhancement of consumer welfare and stimulation of innovation in different markets. However, there are also material differences between the two areas of law: IPRs create legitimate monopolies in markets so as to protect and reward innovators for their products.

During the period of protection, innovators face no competition and get the opportunity to recoup investments made while developing new products and the opportunity to earn reasonable margins for their innovations. In this regard, IPRs seek to prevent free riding by less innovative competitors, while benefitting consumers through the development and introduction of new products and services. The creation of monopolies in certain sectors through IPRs can, however, serve to create a conducive environment for abusive conduct.

On the other hand, competition law encourages rigorous and effective competition, and sees this as a means to achieve innovation. Competition law discourages monopolisation as this often leads to market concentration and abuse of monopoly power. Thus, when viewed from this perspective, the objective of competition law is not to protect competitors (i.e. innovators), but rather to protect the competitive process in the interest of consumers and the economy at large.
Traditionally, firms that hold monopolistic positions and enjoy exclusivity as a result of IPRs have held a view that competition law enforcement does not extend to practices that are protected in terms of IPRs. However, there is a growing trend by litigants with disputes pertaining to IPRs to use forums and institutions that are not necessarily designed to resolve such disputes or, at the least, forums that are likely to make favourable determinations.

A. Experiences in South Africa

There seems to be a number of legitimate factors that make litigants with IP disputes opt for other dispute resolution mechanisms outside the IP law system, such as competition law. The following paragraphs discuss and highlight some of these factors. In this regard, the section highlights some of the cases that raised IP related issues but were nevertheless brought before competition agencies for resolution.

i. Lack of substantive evaluation process and opposition proceedings in patent applications

The South African IP law system is described as a non-examination or depository system. This means that the Companies and Intellectual Property Commission (CIPC), a patent-granting body in South Africa, does not conduct a detailed examination of patent applications. Instead, the CIPC assesses whether applications for patents are accompanied by all forms and supporting documents prescribed by the Patents Act, and that the prescribe fee has been paid. Once all these administrative requirements have been complied with, the CIPC would grant the patent.

Given its inadequacies, numerous calls have been made by academics and civil society for the review of South Africa’s depository system. The norm internationally is to evaluate, among other things, if (1) an invention is patentable; (2) the invention is able to achieve the function for which it was designed; (3) the invention possesses novelty (i.e. it is a new invention); and (4) the invention includes an inventive step (i.e. non-obviousness).

A detailed examination of patent applications helps to ascertain whether basic formal requirements and legal rules have been met before a patent is granted. This process also helps to determine the scope of the protection claimed by the inventor and generally includes a search of previously issued patents in order to determine whether the invention is novel and not an extension or variation of what is already known.

The South African IP law system has also been criticised for not permitting pre and post grant opposition proceedings whereby third parties
would be afforded the opportunity to oppose a patent application, either before or after it has been granted, on specific grounds.26 A party that successfully invokes this procedure can benefit from a reduction in the scope of the patent or even cause the revocation of a patent that was granted unlawfully.27

OECD succinctly explains: “Competition by generic drugs against branded pharmaceuticals has the potential for substantial consumer savings. Such competition can arise most rapidly when a generic entrant challenges the patent held by the branded pharmaceutical manufacturer, either on the ground that the patent is not valid or that the generic does not infringe the patent. A successful challenge means that there will be nearly immediate competition between the branded drug and the generic equivalent. An unsuccessful challenge, however, means that meaningful competition may be delayed for many years, until the expiration of the patent”.28

There are adverse and unintended consequences attributable to South Africa’s choice of a non-examination IP law system and the fact that the system does not recognise opposition proceedings. For example, it appears that the non-examination and opposition system leads to patents being granted even in non-deserving cases. Consequently, there is a possibility of frivolous and illegal patents being registered at the CIPC.

This view is supported by data from the World Intellectual Property Organisation which shows that in 2012 South Africa approved 83 percent of patent applications received by the CIPC, while its counterparts, India and Brazil, approved only 9 and 10 percent of patent applications filed with their patent offices, respectively.29

In the pharmaceutical sector, the Treatment Action Campaign observes that South Africa grants 40 percent more patents than jurisdictions, such as the United States and the European Union (EU).30 These high figures may indeed be attributed to inefficiencies in the South African system.

The government has also been criticised for exacerbating the situation by delaying with effecting changes, despite its acknowledgement that South Africa needs a substantive approach to patent examination and that there is a need to introduce patent opposition proceedings.

In support of this criticism, it has been contested that plans to reform the South African IP law system were first announced in 2009 and the draft National Policy on Intellectual Property was published for comments four years later i.e. in 2013. This policy has still not been finalised and, instead, in July 2016 the government published what it terms the Intellectual Property Consultative Framework, a document that seeks to articulate further its approach on IP matters.31
These delays, coupled with other concerns discussed above, are likely to contribute to litigants resorting to other dispute resolution mechanisms outside the IP law system. As demonstrated in cases discussed below, alternative forums, such as competition agencies, appear to have an appetite to entertain and intervene in IP related matters brought before them. If this growing trend is not properly managed, it might lead to the concentration of IP cases in forums which, by design, were not created to hear such issues.

**ii. Failure to effect compulsory licensing**

Compulsory licensing, which entails authorisation by government to use a patented innovation without the permission of the title holder, is one of the effective means to force competition into a market that would generally not experience competition due to the existence of a patent. In this regard, empirical evidence suggests that there is a growing trend in jurisdictions, such as Thailand and Zambia to use compulsory licensing to address anticompetitive practices, especially in the pharmaceutical sectors. However, it has been cautioned that compulsory licensing has disadvantages that may adversely affect innovation. For example, permitting compulsory licensing might eliminate the IP owner’s control over its invention and this may in turn discourage innovative behaviour in the market.

Some academics have also cautioned against the involvement of competition agencies in IP matters relating to compulsory licensing. However, for competition agencies not to be involved in licensing practices there has to be a strong patent system in place. Despite the Patents Act making provision for compulsory licensing, South Africa has not issued a single licence under this Act, which is almost 40 years old. The Patents Act specifically provides the CIPC with powers to issue compulsory licenses in cases of abuse of patent rights, such as the charging of excessive prices and refusal of the patentee to grant a licence on reasonable terms.

Given the apparent failure by the CIPC to issue compulsory licenses in terms of the Patents Act, third parties with legitimate grounds to demand compulsory licensing now resort to competition agencies in South Africa for intervention. A good example of this occurrence is to be found in a complaint filed with the CCSA by Hazel Tau and other HIV/AIDS activists.

This complaint concerned the accessibility of antiretroviral drugs (ARVs) to individuals infected with Human Immunodeficiency Virus (HIV). At the time when the complaint was filed with the CCSA, GlaxoSmithKline South Africa (Pty) Ltd. (GSK) held patents in South
Africa on AZT (branded as Retrovir), Lamivudine (branded as 3TC) and AZT/ Lamivudine (branded as Combivir) whilst Boehringer Ingelheim (Pty) Ltd. (BI) held patents on Nevirapine (branded as Viramune).

GSK and BI were alleged to have charged excessive prices for these patented products and were also investigated by the CCSA for denying their competitors access to an essential facility in the production of the products. These complaints were based on allegations that GSK and BI failed to put in place systems which would ensure that their competitors had access on reasonable terms to the patented products.

While the issues raised in Hazel Tau related largely to the exercise of IPRs, the CCSA investigated the case and found contraventions of the Competition Act 89 of 1998 (Competition Act) by GSK and BI. The CCSA then announced its intentions to refer the matter to the Competition Tribunal to compel the two firms to grant voluntary licenses for generic production to their competitors in return for royalties. However, the case was not heard by the Competition Tribunal as GSK and BI resolved to settle with the CCSA.

In terms of the settlement agreements concluded, GSK and BI were required to enter into voluntary licensing agreements with generic manufacturers, which would allow the latter to exploit GSK and BI’s inventions in return for royalties. It can be contested that in this instance forum shopping worked in favour of litigants who brought the complaint before the CCSA. Had the complainants not shopped for an alternative forum, they would have been deprived of an opportunity to gain access to ARV treatment at much lower prices.

iii. Abuse of IPRs

It has also been contended that the inefficiencies created by the not so strong IP law system in South Africa lead to the abuse of IPRs. The holders of IPRs, so the contention goes, take advantage of the current IP law system and employ various strategies to delay or completely prevent entry of competing brands in the market.

The recent announcement by Commissioner Tembinkosi Bonakele that the CCSA will be undertaking three investigations in the pharmaceutical sector gives credence to this contention. According to Commissioner Bonakele, these investigations have been trigged by, among other things, concerns from civil society groups regarding abuses of South African patent laws by local and foreign firms.

The impact of these alleged abuses is that they enable manufacturers of cancer medicines, Aspen Pharmacare Holdings Ltd, Roche Holding
AG (Roche) and Pfizer Inc, to charge exorbitant prices in South Africa. In a statement issued by the CCSA, it is also alleged:

“Roche holds a composition patent for its Trastuzumab product, Herceptin, in South Africa which expires in 2020. Genentech, which provides exclusive marketing rights to Roche for the product, also holds a patent covering combinations of the drug and other chemotherapeutic agents which could block pre-clinical work on a biosimilar product until 2033”.

Information in possession of the Commission gives rise to a reasonable suspicion that the Respondent may be engaging in exclusionary conduct in order to prolong its hold on breast cancer drugs. In particular, the Respondent may be using the ‘ever greening’ strategy to delay and/or prevent entry of generic alternative breast cancer drugs.

The Respondent might also be engaging in exclusionary conduct by using the ‘patent thicket’ strategy to delay and/or prevent entry of generic alternative breast cancer drugs. This strategy prevents the development of alternate versions of the original product by restricting the processes whereby a drug is produced. It also limits the number of forms of the active ingredient that generic companies can make, thereby eliminating possible substitutable products.45

From the CCSA’s statement, it appears that the three investigations will also assess whether patent laws are open to abuse in South Africa and the extent to which such abuses distort competition in relevant markets.46

iv. The provisions of the Competition Act as an encouraging factor

Over the years, the South African competition agencies have been effective in the enforcement of competition law. In its 2013/14 Global Competitiveness Report, the World Economic Forum ranked South Africa eight out of 148 countries for the effectiveness of its anti-monopoly policy.47 It appears that the success of these agencies has resulted in, among other things, IPRs disputes being brought before these institutions for resolution. In fact, evidence shows that the number of IP related matters brought before competition agencies, in particular the CCSA, is increasing.

Section 3(1A)(a) of the Competition Act provides a jurisdictional basis for competition agencies to intervene in matters where there are sector regulators by establishing concurrent jurisdiction in respect of such matters. Such concurrent jurisdiction should be managed by way of negotiated agreements.48 Thus, the Competition Act provides a legal and jurisdictional basis for IP matters to be heard by competition agencies in South Africa.
Furthermore, some of the sections of the Competition Act, which proscribe anticompetitive practices, directly apply to firms that enjoy protection under IP law by virtue of holding IPRs. Relying on these sections, a number of aggrieved third parties have brought complaints relating to the exercise of IPRs to the CCSA for resolution.49 Some of the sections of the Competition Act that can be used to challenge IPRs are given below.

- **Access to an essential facility**
  Section 8(b) prohibits a dominant firm from refusing to give a competitor access to an essential facility when it is economically feasible to do so. An essential facility is defined as an infrastructure or a resource that cannot reasonably be duplicated, and without access to which competitors cannot reasonably provide goods or services to their customers.50
  
  The starting point when assessing whether there has been a contravention of Section 8(b), after defining the relevant market, is the determination that the firm alleged to have contravened the Competition Act is dominant. In cases where IPRs exist, this requirement is easy to satisfy as the holders of IPRs often enjoy monopolistic positions in markets where such rights apply.51
  
  It is suggested that reference to ‘essential facility’ in Section 8(b) also covers IPRs although this concept is generally used to refer to network and infrastructure industries. Thus, Section 8(b) can be used as a means to indirectly effect compulsory licensing where the holder of IPRs has refused to permit voluntary licensing.52

- **Excessive pricing**
  Section 8(a) prohibits a dominant firm from charging an excessive price to the detriment of consumers. A price of a good or service is deemed excessive if it bears no reasonable relation to the economic value of that good or service and is higher than that value.53 Based on the existing jurisprudence in South Africa, this is one of the most difficult contraventions to establish under the Competition Act.54 A typical case of excessive pricing requires economic and financial expertise, coupled with specialised legal skills, which come at a high cost.55

  One of the strategies that can be used by a patentee is to charge excessively high prices during the period when it enjoys a monopolistic position created by its patent. As indicated above, in terms of the Patents Act, an application for a compulsory licence can be brought
on the ground that the patentee abuses its patent by charging excessive prices. However, the applicant would presumably be required to establish that the prices charged are indeed excessive and would inevitably incur legal, economic and financial costs in establishing this. Thus, the fact that complainants incur no costs when pursuing their matters through the CCSA may be another important consideration in the determination of which forum to choose.56

• **Exclusionary practices**

On April 03, 2017, the CCSA announced that it had referred a Netherland based seed potato breeder and its South African distributor to the Competition Tribunal for prosecution. This referral followed an investigation by the CCSA, which found that HZPC Holland BV (HZPC), a firm that enjoyed exclusive plant breeder’s rights over the Mondial seed potatoes varietal in South Africa for a period of 20 years, appointed Wesgro Potatoes (Pty) Ltd. (Wesgro) on an exclusive basis and unlawfully refused access to other seed growers to the Mondial variety despite the expiry of the plant breeder’s right. The CCSA contends that ‘the continuation of the exclusivity between HZPC and Wesgro means that other South African potato seed growers are excluded from growing and selling the Mondial seed potato varietal to farmers’.57

The CCSA will be prosecuting this case under Sections 5(1) and 8(c) of the Competition Act. Section 5(1) prohibits an agreement between parties in a vertical relationship (i.e. a supplier and its customer) if it has the effect of substantially preventing or lessening competition in a market, unless a party to the agreement can prove that any technological, efficiency or other pro-competitive gain resulting from that agreement outweighs that effect.

Section 8(c) prohibits a dominant firm from engaging in conduct that impedes or prevents other firms from entering into, or expanding within a market if the anticompetitive effects of that conduct outweigh its technological, efficiency or other pro-competitive gains.

The potatoes case demonstrates that third parties can also rely on Sections 5(1) and 8(c) of the Competition Act to challenge firms that perpetrate abusive conduct in the exercise of IPRs. Although the CCSA has not prosecuted a case arising from the exercise of IPRs to date, its success in the potatoes case might encourage other third parties to refer similar IP related matters to it for resolution.
B. Experiences in other jurisdictions

The experiences of other jurisdictions also confirm that forum shopping can play role in the outcome of IP law disputes, especially patent litigation (though the context and trends are slightly different in comparison to South Africa). However, pervasive forum shopping can lead to the concentration of cases in one or very few forums that, in the eyes of litigants, are likely to make favourable determinations.

Thus, forum shopping can encourage litigants to make an outcome-determinative choice when selecting an appropriate forum and this in turn can create inefficiencies. For example, in an on-going case in which the Patent Venue Statute is being challenged before the Supreme Court of the United States, one of the amicus curiae makes the following observation regarding the impact of vexatious choice of venue:

“Extensive statistical evidence and academic research demonstrate that the Federal Circuit’s approach has resulted in rampant forum shopping. By 2001, 29 percent of all patent cases were filed in only five of the 94 districts, and 44 percent of all patent cases were filed in 10 districts. Since that time, forum shopping has drastically accelerated. Between 2007 and 2015, 52 percent of all patent cases were filed in only two district, the Eastern District of Texas and the District of Delaware, the district in which this case arose.

In 2015, a single judge in the District of Texas handled one-third of all patent cases nationwide. Recent studies have concluded that the most popular patent districts compete to adopt procedures that will – and do – attract plaintiffs to their districts.”

In relation to the interplay between competition law and intellectual property law, competition agencies in the US, in particular the Federal Trade Commission (FTC), have been playing an active role in preserving competition in markets where patents exist. For example, the FTC has been actively involved in litigation against patentees that abuse their patents by using ‘pay for delay’ or ‘reverse payment’ agreements to prevent the entry of competing products in markets where they hold IPRs.

In FTC vs Actavis, a decision that records one of the major victories of the FTC, the US Supreme Court reversed an earlier ruling of the Eleventh Circuit which had found that pay for delay arrangements are generally immune from antitrust scrutiny. In this case, Actavis, a pharmaceutical firm that had obtained approval to introduce a generic drug in the market, entered into a reverse payment settlement with Solvay Pharmaceuticals, a firm that held patent rights in relation to a drug called AndroGel. In terms of this settlement, Actavis agreed not to bring its
low-cost generic drugs into the market (to compete with AndroGel) for a specified number of years in exchange for payment.

The US Supreme Court found that the arrangement between Actavis and Solvay Pharmaceuticals was not immune from antitrust scrutiny and, consequently, the FTC should be given the opportunity to prove its antitrust claim. The essence of this ruling is that it provides third parties with the option of pursuing their claims arising from abuses of patents through antitrust laws, as opposed to pursuing such claims through pure patent litigation.

In the EU, the European Commission (EC) has investigated numerous cases involving firms that use various IP strategies to delay the entry of competing products in the market, especially in the pharmaceutical sector. In some of these investigations, the European Commission has identified abuse of dominance practices in violation of the TFEU. For example, in 2013 the European Commission imposed fines on a US firm, Johnson & Johnson (J&J), and Norvatis of Switzerland for concluding a pay-for-delay agreement that sought to delay the entry of a cheaper generic version of the pain-killer drug fentanyl in the Netherlands.

The agreement was found to have incentivised Norvatis to not proceed with its plans to launch a competing drug and that this enabled J&J to maintain artificially high prices in the sale of fentanyl. In the same year, the European Commission also imposed fines on a Danish firm, Lundbeck, and various producers of generic medicines for concluding agreements that led to the delay in the entry of generics drugs, which would compete with Lundbeck’s antidepressant medicine, Citalopram, whose patent protection had lapsed.

Despite the EU’s stance that patent settlement agreements are not immune from competition law scrutiny, it is acknowledged in this jurisdiction that these agreements can bring real benefits, such as the avoidance of litigation costs and the introduction of generic competition. Thus, competition agencies should not be quick to intervene in instances where third parties attempt to use them to nullify legitimate patent settlements on competition law grounds, thereby engaging in forum shopping.

In order to have control over the system and avoid abuse, the EC has opted to introduce a patent settlement monitoring mechanism whereby it monitors pay-for-delay patent settlements that might lead to a delay in entry of competing products. It appears that EC’s interest is largely on pay-for-delay agreements that are concluded in the pharmaceutical sector.
It is interesting to note that courts in the EU have gone to the extent of identifying antitrust violations even in cases where there was a misuse of the patent and regulatory systems, such as the communication of misleading representations to patent offices in order to secure patent protection.\(^{68}\)

Courts in the EU also note that the illegality of abusive conduct under Article 82 of the EC Treaty is unrelated to the firm’s compliance or non-compliance with other legal rules and “in the majority of cases, abuses of dominant positions consist of behaviour which is otherwise lawful under branches of law other than competition law”.\(^{69}\) Again, it should be cautioned that this approach, if not properly managed, is likely to encourage forum shopping in that parties with no remedies under other branches of law might be quick to turn to competition law for intervention.

### Limiting the Involvement of Competition Agencies in IP Matters

As indicated above, IP law plays a crucial role in the provision of incentives for dynamic competition and innovation. Competition agencies globally recognise the important role played by IP law and endeavour to intervene in IP related matters only in exceptional circumstances. In jurisdictions where it is easy to grant IPRs due to a weak IP law system, it is likely that there would be more scope for competition policy to limit the exploitation of IPRs.\(^{70}\)

The section that follows discusses some of the measures that are being adopted in South Africa to strengthen the IP law system. The section also highlights measures that have been adopted in other jurisdictions, which might be considered in South Africa and other jurisdictions that ought to improve their IP law systems. Overall, these measures should assist to limit the involvement of competition agencies in IP related matters.

#### A. The establishment of specialised adjudicative forums for IP matters

##### i. Developments in South Africa

South Africa has been criticised for its lack of effective specialised IP forums that can assist in the resolution of IP related disputes, some of which are now brought before competition agencies. In a note to the International Intellectual Property Institute, Justice Harms\(^{71}\) notes:

“The establishment of specialised IPR courts might be justified on the ground of the complex nature of IPR infringements, particularly patent infringements.
As a practitioner mentioned, ‘it is in the interest of South Africa as a potential investment destination that quality and consistent judgments in patent matters be obtainable’... There is no longer a body of judges in the general system that has any IPR background, nor is there a willingness amongst the powers that be to create any form of IPR expertise amongst the general body of judges... Specialist IPR courts are not always affordable or feasible. In a given country there may be a general lack of resources, a low IPR case, and little IPR expertise... What cannot be disputed is that IPR cases in the general court system ought to be diverted to judges with some specialist knowledge of the subject”.

The Department of Trade and Industry (DTI) has finally tabled the Copyright Amendment Bill (Copyright Bill) for consideration by the Parliament. In addition to amending the Copyright Act 98 of 1978 (Copyright Act), the Copyright Bill proposes, among other things, the establishment of the Intellectual Property Tribunal (the IP Tribunal) which would be conferred with powers to resolve disputes emanating from the application of IP laws. This body will have jurisdiction throughout South Africa and will also be independent and only subject to the Constitution and the law. The IP Tribunal will also be empowered to consult any person, organisation or institution with regard to any matter that falls within its jurisdiction.

It is apparent from Section 29A of the Copyright Bill that the primary purpose of the IP Tribunal will be the adjudication of disputes relating to IPRs. The Copyright Bill covers copyrights, patent rights as well as trademark rights and, if it passes muster, the Bill will result in the IP Tribunal replacing the Copyright Tribunal which was established under the Copyright Act.

In its current form, the Copyright Tribunal appears to have significant limitations and this might be one of the reasons for its replacement. One of these blaring limitations is that the Copyright Tribunal consists of just one member, being a judge of the High Court. This lack of staffing has led to delays in the resolution of disputes brought before the Copyright Tribunal thereby affecting its effectiveness. For example, the Copyright Tribunal once failed to sit for six months due to the illness of the designated member.

Furthermore, the jurisdiction of the Copyright Tribunal is limited to disputes relating to copyrights, in particular licensing schemes and disputes arising between licensing bodies and persons requiring licenses or organisations claiming to be representatives of such persons.
Section 8 of the Patents Act also makes provision for the designation of one or more judges of the High Court to act as a Commissioner or Commissioners of patents.

The Commissioner has powers to adjudicate on, among other things, patent disputes. Although this body has been in existence for more than 40 years, little is known about its work as very few patent disputes have been brought before it. Judges who are designated as Commissioners of patents lack practical experience of IP litigation and there is no judicial training programme on IP litigation. As observed above, the CIPC is not involved in proceedings that deal with disputes emanating from the exercise of IPRs.

Unlike the Copyright Tribunal, the IP Tribunal will have a staff complement of ten members, including its Chairperson, who may serve on a full time or part-time basis. It is worth noting that the Copyright Bill makes provision for the appointment of persons with qualifications and experience in economics as members of the IP Tribunal.

Furthermore, the proposed powers of the IP Tribunal are akin to those bestowed upon the Competition Tribunal by the Competition Act. For example, once established, the IP Tribunal will be empowered to impose an administrative penalty of up to 10 percent of the respondent’s relevant turnover for specific types of contraventions.

It remains to be seen if the establishment of the IP Tribunal will address problems brought about by forum shopping discussed above. While the DTI may be commended for its proposal to introduce the IP Tribunal, the following potential limitations that may affect its effectiveness merit a mention.

- **The ineffectiveness of the CIPC**

The success of the IP Tribunal is likely to depend on the existence of an effective complementary referral body, akin to the CCSA in the sphere of competition law enforcement. The existing IP body which will presumably be responsible for referring patent disputes to the IP Tribunal, the Companies and Intellectual Property Commission (CIPC), has been criticised for its ineffectiveness and lack of relevant skills. Furthermore, just like competition law litigation, patent litigation is complex and expensive, especially for small firms. Thus, it might be necessary to review the current structure and competencies of the CIPC.
• **Appeals and reviews of decisions of the IP Tribunal by general high courts**

Section 29L of the Copyright Bill seeks to empower parties that bring matters before the IP Tribunal to appeal or apply for the review of its decisions by the High Court. Given the complex and specialised nature of IP litigation, it might be appropriate to also establish a specialised appeal court to preside over appeals from the IP Tribunal. The role and value of specialised adjudicative bodies should not be underestimated. In *National Education Health and Allied Workers Union vs University of Western Cape and others*, the Constitutional Court made the following remarks regarding the Labour Appeal Court (LAC), which was created to consider matters from lower labour dispute resolution forums:

“The LAC is a specialised court, which functions in a specialised area of law. The LAC and the Labour Court were established by Parliament, specifically to administer the Labour Relations Act (LRA). They are charged with the responsibility for overseeing the ongoing interpretation and application of the LRA and development of labour relations policy and precedent. Through their skills and experience, Judges of the LAC and the Labour Court accumulate the expertise which enables them to resolve labour disputes speedily”.

The effectiveness of a court structure described by the Constitutional Court above is evident from the performance of the LAC (in the sphere of labour law) and the Competition Appeal Court (CAC) – in the sphere of competition law. For example, in its 18 years of existence, the CAC has considered 93 appeals and review applications in relation to both complaints and merger cases considered by the Competition Tribunal and has set consistent legal and economic principles through these cases.

**ii. Developments in other jurisdictions**

Internationally, the trend is to establish specialised court structures for IPR disputes. In this regard, valuable lessons can be learnt from jurisdictions, such as China, Kenya and Brazil. In China, the judicial system was recently reconfigured with the introduction of three specialised IP courts at the intermediate level. These courts consist of judges trained in IP law who are empowered to appoint technical investigators to assist in cases that are more technical. A bulk of IP cases that were previously referred to general (intermediate) courts are now heard by the specialised IP courts.
The Beijing IP Court, which is the most important of the three specialised IP courts in China, has the competence to also hear appeal cases relating to administrative decisions taken by State Council departments on matters, such as compulsory licensing, the grant, validity and scope of IPRs. The introduction of specialised IP courts has helped China to achieve consistency and uniformity in the application of IP law.91

Experiences in Kenya also affirm that the establishment of specialised adjudicative forums strengthens the enforcement of IP law. In this jurisdiction, there are four main specialised IPR Tribunals that were established to deal with disputes that arise in the regulation and administration of specific IPR matters. The Managing Director of the Kenyan Intellectual Property Institute (KIPI) has jurisdiction to conduct substantive examination of patents and to hear opposition proceedings where patent applications are challenged.92

The Industrial Property Tribunal (IPT) has exclusive jurisdiction to hear appeals from the KIPI in matters relating to, among other things, the registration of patents.93 Parties that are dissatisfied with the decisions of the IPT can approach the High Court. However, this approach has been criticised since this forum lacks technical expertise and, consequently, cases brought before it are often remitted to the IPT.94

Despite this setback, the specialised IP tribunals in Kenya have been praised for their effectiveness, especially in ensuring that IPR holders do not abuse their exclusive rights. Because of their specialised nature, these forums have been able to develop jurisprudence on various aspects of IP law in Kenya and this in turn has helped to hasten decision making while reducing litigation costs.95

The establishment of specialised adjudicative forums by some of the state courts in Brazil, especially at appeal level, has also led to some improvement in the quality of decisions in IP disputes.96

B. Incorporation of substantive examination and opposition proceedings into the IP law system

As demonstrated above, one of the weaknesses of the South African IP law system is that it does not include a substantive search and examination of patent applications. Further, the system does not permit pre and post-grant patent opposition proceedings. These two processes are essential components of an effective IP law system.

The South African government has recognised the need to introduce both the substantive examination process and patent opposition proceedings into the IP law system. However, it notes that there may be
challenges in the implementation of these processes. With regard to the substantive examination process, the government notes that there might be capacity constraints and cost implications. Currently, the staff of the CIPC lacks relevant technical expertise to conduct substantive examination of patent applications. The adoption of this process would also mean more time will be required to process applications.

The challenges that have been identified by government are not unique to South Africa and should not delay the refurbishing of the IP law system. In order to mitigate these challenges, various models should be considered, such as entering into outsourcing arrangements with some of the patent offices that are known to be efficient and limiting full substantive examination to specific sectors.

C. The adoption of guidelines on the enforcement of competition law in IP matters

Despite steps being taken to strengthen the IP law system in South Africa, it is likely that some of the litigants would still see competition agencies in South Africa as appropriate and relevant forums that can address IP related disputes. This might continue until the IP Tribunal establishes itself as a reliable dispute resolution forum for IP disputes.

In addition to measures discussed above, it might be prudent for competition agencies in South Africa, in collaboration with IP regulators, to develop and issue guidelines on the enforcement of competition in IP matters. Such guidelines would provide IPR holders and third parties with some degree of certainty regarding the agencies’ approach on the interplay between competition law and the protection of IPRs. For example, the guidelines might identify practices that are likely to attract the attention of competition agencies and priority industries that would be constantly monitored to detect any abuse of IPRs that may contravene competition law.

Canada is the latest jurisdiction to issue revised/new guidelines on the interplay between competition law and IP law. As a point of departure, the Competition Bureau notes that its intervention in IP matters will be limited to rare circumstances and when the practice in issue cannot be remedied by application of the relevant IP statute.

The guidelines set out, among other things, an analytical framework that the Bureau uses to determine the presence of anticompetitive effects arising from the exercise of IPRs. For example, in terms of the guidelines, the Bureau will first establish that mere refusal, such as refusal to licence, has substantially affected competition in the relevant market. If the answer
is in the affirmative, the Bureau will assess whether invoking a remedy against the IP right holder would not materially alter the incentives of the right holder or others to invest in research and development. Should it be necessary to invoke a remedy, the Bureau will take into account public interest considerations.102 Other jurisdictions that have adopted guidelines include China,103 the United States,104 Korea105 and the European Union.106

D. Collaboration between IP and competition agencies

Given the challenges brought about by forum shopping discussed above, competition and IP agencies cannot afford to ‘exist in separate worlds, interacting infrequently at best’.107 The CCSA appears to appreciate the importance of establishing collaborative relationships with its counterparts globally and other regulators locally. This is evident from a series of Memoranda of Understanding (MoUs) that the CCSA has concluded.

MoUs with regional and international competition agencies seek to foster cooperation between agencies in the field of competition law enforcement and to enable the agencies to share experiences. In 2016, the CCSA concluded bilateral MoUs with five competition agencies108 and two multilateral MoUs with Brazil, Russia, India, China and South Africa (BRICS)109 and SADC110 member states, respectively.

Locally, the CCSA has concluded MoUs with at least nine different sector regulators in line with Section 21(1)(h) of the Competition Act.111 The primary purpose of these MoUs is to manage areas of concurrent jurisdiction over prohibited practices,112 to enable participation in joint education programme;113 to provide comments and advice on complaints and applications before the regulators,114 and to establish joint working committees.115

No MoU has been concluded between the CCSA and IP agencies, in particular the CIPC. The implication of this is that there may be no proper channels of communication between these agencies. Thus, it is plausible that competition and IP agencies in South Africa ‘exist in separate worlds, interacting infrequently at best’. While it is not necessary to overemphasise the importance of collaboration between competition and IP agencies, the advice from the OECD on this issue is instructive:

“Competition agencies enjoy a comparative advantage in identifying and analysing the anticompetitive effects of overly broad or invalid patents. There is little doubt that competition agencies could improve the IPR/competition balance by advising patent offices about the possible anticompetitive effects of decisions affecting patent breadth and ambiguity. By the same token, patent offices could provide extremely valuable legal
and technical advice on IP to competition agencies who are investigating IP-related conduct”. 116

Conclusion

What is apparent from the discussion in this article is that competition policy and IP policy share the same goal, that is to enhance consumer welfare, and therefore, should be viewed as complimentary tools in the pursuit of this goal. There are legitimate grounds for competition agencies to intervene in IP matters, especially in instances where IPRs are abused. The need for this intervention increases in jurisdictions, such as South Africa where the IP law system is not strong. However, overzealous competition law enforcement in IP matters can lead to the phenomenon of forum shopping and frustrate the implementation of the IP policy.

The article sets forth various measures that can be put in place to minimise the involvement of competition agencies in IP matters. The first step for jurisdictions with weak IP law systems is to reform their systems. For example, in South Africa, the government needs to speed up the process of introducing substantive examination and opposition proceedings.

IP agencies should be capacitated and staffed with personnel with relevant technical skills. Competition agencies, in collaboration with IP agencies, should issue guidelines on the enforcement of competition law in IP matters. MoUs should be concluded between competition and IP agencies to foster a culture of collaboration. These measures will not yield results overnight. However, a progressive realisation of these measures requires active participation from all the relevant stakeholders.
Endnotes

1 This article is based on research conducted by the author for his LLD studies. The views expressed and any errors are those of the author. The author is indebted to Neo Molefe and Nompucuko Nontombana for their comments, and Annalee Van Reenen for her research assistance.


5 LoPucki & Whiteford, ‘Venue choice and forum shopping in the bankruptcy reorganization of large, publicly held companies’ 1991 Wisconsin Law Review 11 at 14. See also Algero, ‘In defense of forum shopping: A realistic look at selecting a venue’ 1999 Nebraska Law Review 78:79 at 79 (“Forum shopping’ typically refers to the act of seeking the most advantageous venue in which to try a case’); Norwood, ‘Shopping for a venue: the need for more limits on choice’ 1996 University of Miami Law Review 267 at 268 (“Forum-shopping ‘occurs when a party attempts to have his action tried in a particular court or jurisdiction where he feels he will receive the most favourable judgment or verdict’... The term also includes choosing a particular venue based upon favourable (unfavourable) procedural and substantive laws, judicial calendars, backlogs, and local rules”). In her definition of forum shopping, Norwood relies on the Black’s Law Dictionary 655 (6th ed. 1990).


7 Goad v Celotex Corp., 831 F.2d 508. 512 (4th Cir. 1987).


13 Chirwa v Transnet Limited and others 2008 (4) SA 367 (CC); Competition Commission of South Africa v Telkom 2010 (2) SA 433(SCA); Sidumo and another v Rustenburg Platinum Mines Ltd and others 2008 (2) SA 24 (CC); Gcaba v Minister for Safety and Security and others 2010 (1) SA 238 (CC).
14 Taylor, 2007 John Marshall Review of Intellectual Property Law 570 at 578. See also Baird, ‘Loss distribution, forum shopping, and bankruptcy: A reply to Warren’ 1987 University of Chicago Law Review 815 at 825 (‘An additional avenue of enforcement creates special costs and, accordingly, deserves close scrutiny – quite apart from the interests being served or the people being protected’).


16 Chirac v Transnet Limited and others 2008 (4) SA 367 (CC).

17 Ibid Para 117.


22 Busch, ‘Promoting access to affordable generics: Reforming South Africa’s patent law to prevent evergreening’ 2016 SAIPLJ 101 at 105. It bears mention that South Africa follows a depository system despite the fact that the Patents Act 57 of 1978 (Patents Act) makes provision for a system that permits substantive evaluation. Section 34 states: ‘The registrar shall examine in the prescribed manner every application for a patent and every complete specification accompanying such application or lodged at the patent office in pursuance of such application and if it complies with the requirements of this Act, he shall accept it.’ See also Fix Patent Laws Coalition, ‘Submission on Intellectual Property Consultative Framework’ at 13, available at http://www.cansa.org.za/files/2016/09/Submission-on-IP-Consultative-Framework-FINAL-2016-09-26.pdf, accessed on 10 July 2017.


26 Busch, 2016 SAIPLJ 101 at 106.


37 Ibid.
38 Sections 55 and 56 of the Patents Act, read with section 189 of the Companies Act 71 of 2008 (Companies Act), states that the CIPS may, upon application and on conditions determined by it, grant a compulsory licence. See also Intellectual Property Consultative Framework 2016 at 10.
40 Section 56(2) of the Patents Act.
41 Hazel Tau & Others v GlaxoSmithKline & Boehringer Ingelheim (Competition Commission) 2002 Sep226.
42 It is not clear from publicly available information how prices were determined to be excessive. However, following the CCSA’s intervention, ARV prices dropped significantly in South Africa, with some decreasing by up to 500 percent on average over time. See Mbele, ‘Collaborative efforts yield wins,’ Pretoria News, 19 July 2016.
43 Competition Commission SA,’15 years of competition enforcement – A people’s account’ at 13-15.
46 At the time of writing this article, the pharmaceutical investigations were still at the initial phase.

48 Sections 21(1)(h) and 82(1) and (2) of the Competition Act.


50 Section 1(viii) of the Competition Act.

51 It should be noted that IPRs do not always constitute separate markets. Thus, the holders of IPRs do not always enjoy monopolistic positions or market power.

52 Ibid.

53 Section 1(xi) of the Competition Act.

54 See for example Competition Commission v Sasol Chemical Industries Ltd 2015(5) SA 471.


56 The CCSA has been described as the legislature’s prosecutor of choice. It pursues matters brought before it in the interest of the public and shoulders costs associated with litigation of cases it refers to the Competition Tribunal. Thus, complainants who file complaints with the CCSA are not expected to pay for legal costs except in those cases where they choose to self-refer, in the event the CCSA decides not to prosecute.


58 In South Africa, the growing trend is to refer IP disputes to forums that are not necessarily designed to hear such disputes, such as competition agencies, whereas in jurisdictions such as the US, the trend appears to be more on choosing a court that is likely to make a favourable determination (out of a pool of courts that can hear the matter).

59 28 U.S.C. This statute allows choice of multiple forums within which to sue alleged infringers of patents.

60 See TC Heartland LLC, v Kraft Foods Group Brands LL No. 16-341, brief of the Amici Curiae 32 Internet Companies, Retailers, and Association in support of petition for writ of certiorari at 4. At the time of writing this article, the Supreme Court had not made a ruling on the matter. Furthermore, a recent study commissioned by the Federal Trade Commission (Patent Assertion Entity Activity 2016) shows that patent litigation has grown significantly over time in the United States. This has resulted in the emergence of patent assertion entities (PAEs), which are profit making businesses that acquire patents from third parties with the objective of generating revenue by suing alleged infringers of patent rights. The study found that, between 2009 and mid–September 2014, there were at least 327 PAEs that actively engaged in patent litigation. Litigation for the sake of profit making may incentivise PAEs to engage in forum shopping.
A Pay for delay agreement is a settlement arrangement between the patentee and the generic patent challenger in terms of which the former pays the latter in exchange for dropping a suit challenging the validity of the patent. The impact of such an agreement is that it deals the entry of generic products that would compete with the patentee’s product.

**FTC v Actavis Inc.** 133 S. Ct. 2223, 570 U.S. (2013).

The Supreme Court remanded the cases for further proceedings in line with its ruling.


Ibid para 677.


Justice Louis Harms is a South African former deputy president of the Supreme Court of Appeal. He served as Commissioner of Patents for about five years until appointed to the Supreme Court of Appeal.

International Intellectual Property Institute, ‘Study on specialised intellectual property courts’ 2012 at 70.

(B 13 – 2017).

Section 29(1)(a) of the Copyright Bill.

Section 29(1)(b) of the Copyright Bill.

Section 29 (3)(b) of the Copyright Bill.

Section 29 (1) of the Copyright Act states: ‘the judge or acting judge who is from time to time designated as Commissioner of Patents in terms of section 8 of the Patents Act, 1978, shall also be the Copyright Tribunal…for purposes of this Act.’


Sections 9A, 30, 31 and 32 of the Copyright Act.

Section 28 of the Patents Act. See also section 17 for general powers of the commissioner.

International Intellectual Property Institute, ‘Study on specialised intellectual property courts’ 2012 at 70.

Section 29(4) of the Copyright Bill.
83 See Part B of the Competition Act.
84 See section 29N(c) read with section 173 of the Companies Act.
86 National Education Health and Allied Workers Union v University of Western Cape and others 2003 (3) SA 1 (CC); 2003 (2) BCLR 154 (CC).
87 Para 30.
89 The first IP specialised court was established in Beijing in November 2014.
91 Ibid.
92 Section 11 of Kenyan Industrial Property Act 3 of 2001.
93 International Intellectual Property Institute, ‘Study on specialised intellectual property courts’ 2012 at 70.
94 Ibid. A detailed discussion regarding the activities of the other specialised IPR Tribunals can be found in this study.
95 Ibid at 77-78.
99 The identification of such sectors may be based on public interest grounds. It should be noted that competition agencies will always have a role to play in IP related matters. However, their involvement in these matters should be kept as minimal as possible. Thus, the degree of their involvement should be articulated in the guidelines.
100 The Canadian guidelines were issued on 31 March 2016.
102 Ibid at 17. The guidelines also list factors, such as market power, market concentration, easy of entry and business justifications as considerations that are taken into when assessing whether it is necessary for the Bureau to intervene.
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108 European Union, European Commission (23 June 2016); Russia, Federal Antimonopoly Service (06 October 2017); Kenya, Competition Authority of Kenya (06 October 2016); Mauritius, Competition Commission of Mauritius (13 October 2016); Brazil, Administration Council for Economic Defense of Federative Republic of Brazil (01 December 2016).

109 This MOU was concluded on 24 May 2016.

110 This MOU was concluded on 19 December 2016.

111 This section mandates the CCSA to ‘negotiate agreements with any regulator authority to co-ordinate and harmonize the exercise of jurisdiction over competition matters within the relevant industry or sector, and to ensure consistent application of the principles of this Act’.

112 See the MOU between CCSA and the Construction Industry Development Board, 01 June 2016.

113 See the MOU between CCSA and the International Trade Administration Commission of South Africa, 13 August 2015.

114 Ibid.

115 See the MOU between CCSA and the Ports Regulator of South Africa.

Abstract

A good deal of literature points to how competition law can be invoked to curtail the abuse of IPRs, especially when the alleged abuse involves patented medicines. Frequently cited examples have largely been the successful competition-based challenges, such as the 2002 South African Competition Commission case of Hazel Tau where a claim of excessive pricing of anti-retroviral drugs (ARVs) was brought by a number of CSOs and individuals against two multinational pharmaceutical companies\(^1\) and the 2006 Italian Competition Authority case of Dobfar, which granted relief to a generic manufacturer for a refusal to license an active ingredient of an antibiotic by a multinational company\(^2\). These examples are often cited to encourage challenges to owners of pharmaceutical patents in cases of suspected abuse of their exclusive rights.

In reality, though, it has been difficult to challenge instances of suspected abusive behaviour by pharmaceutical patent owners using competition law. Rather than re-visiting successful examples of challenges
based on competition law, this paper first reviews the international legal framework for addressing the relationship between competition and IPRs, and then proceeds to examine instances where competition law was unsuccessfully invoked to challenge the acts of pharmaceutical patent owners, citing developing country examples from Thailand and Indonesia.

The objective of the paper, which relies on a comparative analysis and examination of these two case studies for its methodology, makes an initial probe into how and why the regulatory or judicial authorities respectively rejected the specific competition-based challenges that were lodged with it. The paper seeks to clarify some of the weaknesses in competition cases based on claims of the abuse of IPRs, and attempts to identify some unique features of competition claims in the pharmaceutical sector.

The International Framework

Competition law is generally composed of laws, regulations, policies and administrative/judicial decisions that are crafted and applied at the national level. In large measure, this is due to the fact that compared to other trade-related issues, international treaty law provides only skeletal guidance for countries in the use of competition policies to check the abuse of IPRs.

Bilateral and plurilateral preferential trade and investment treaties that have clauses on competition policies are often limited to a recitation of norms already reflected in their domestic competition laws, and encouraging or facilitating cooperation among the treaty signatories in matters dealing with competition. A typical clause representative of the latter is:

“The Parties shall, in accordance with their respective laws and regulations, cooperate in the field of promoting fair and free competition by proscribing anticompetitive activities subject to the availability of their respective resources”.

On the side of provisions concerning IPRs, many treaties contain provisions related to intellectual property, but few address the specific relationship between IPRs and competition beyond a recitation of the standard in the TRIPs Agreement, discussed in further detail below.

At the multilateral level, the demise of the so-called Singapore issues at the 2003 World Trade Organisation (WTO) Ministerial meeting in Cancun, Mexico, which had up until then contemplated the conclusion of multilateral treaties on, respectively, investment, trade facilitation, procurement and competition, left only the General Assembly endorsed United Nations Set of Principles and Rules on Competition of 1980.
UN Set) as universal ‘soft law’ on which domestic competition laws could be designed.

The UNCTAD developed a Model Law on Competition guided by the UN Set, and includes intellectual property as a subject within the scope of the Model Law’s application (Chapter 2). Paragraph 19 of the Commentary to the Model Law states, “[t]he reference to intellectual property is consistent with virtually all antitrust laws, which treat licenses of technology as ‘agreements’ and scrutinise them for restrictions or abuses like any other agreement, except that the legal exclusivity granted by the State to inventors might justify some restrictions that would not be acceptable in other contexts”.

The WTO’s (TRIPs) Agreement provides some guidance on the relationship between IP and competition law for its Members. Without mentioning competition law specifically by name, Article 8.2 envisages that measures may be taken to prevent the abuse of intellectual property rights by right holders and the resort to practices that unreasonably restrain trade. This provision is generally understood to be an enabling clause or a statement of general principle.

Article 40.2 of the TRIPs Agreement specifies further that Members might adopt appropriate measures that in particular cases could constitute an abuse of IPRs having an adverse effect on competition. Articles 40.3 and 40.4 of the TRIPs Agreement provide for consultation and cooperation procedures in the enforcement of antitrust measures.

While Article 40.3 of the TRIPs Agreement established a duty of cross-border assistance (i.e. provision of information to the enforcing Member) in antitrust law enforcement for the first time in public international law, it should be pointed out that this duty is limited to control over restrictive contractual licensing practices and conditions.

Finally, Article 31 of the TRIPs Agreement allows Members to use compulsory licenses, subject to certain procedural requirements. Article 31(k) authorises WTO Members to utilise compulsory licenses as a remedy for anticompetitive practices, and, *inter alia*, exempts them in such cases from the requirement of prior negotiations. It furthermore permits Members to take into account the anticompetitive practices involved when determining an appropriate royalty rate under a compulsory licence.

In the absence of more detailed prescriptive requirements under their international commitments, countries are generally able to design their competition laws in a manner that is most appropriate to their needs, and attempts to apply competition laws to challenge certain behaviour as abusive are adjudicated using the norms applicable to their jurisdictions. The following section examines cases where judicial or administrative
decision making bodies in two developing countries have unsuccessfully considered cases along this IPR-competition nexus, namely in Thailand and Indonesia.

The Case of Thailand

One pharmaceutical sector case where competition law arguments were invoked occurred in 2007, when a group of non-governmental organisations (NGOs) filed a complaint with Thailand’s Office of Trade Competition Commission (OTCC) against the decision by Abbott Laboratories Co., Ltd. (Abbott) to withdraw registration applications of drugs with the country’s Food and Drug Administration, and for which Abbott held the underlying patents. The company’s decision followed the Thai Ministry of Public Health’s decision to issue in early 2007 a government-use compulsory licence over a number of drugs including an ARV sold by Abbott as Kaletra®.

The argument made by the NGOs was that Abbott’s withdrawal from seeking the marketing authorisation of a number of essential drugs for which it held a global patent monopoly, including a new heat-stabilised version of Kaletra® that would have been appropriate for tropical climates, constituted retaliation against the legitimate use of a government-use licence by Thai health authorities, and violated Thailand’s Trade Competition Act.

On December 27, 2007, the OTCC issued a decision on the complaint, finding that the withdrawal of drug registration applications did not violate the Trade Competition Act. The decision was based on grounds that Abbott was not dominant in the market, as required under Section 25(3) of the Trade Competition Act, and that the criteria set out in Section 28 of the Trade Competition Act was not met. The latter provision prohibits the carrying out of “any act in order that a person who is in the Kingdom and intends to purchase goods or services for personal consumption will have restricted opportunities to purchase goods or services directly from business operators outside the Kingdom”.

The OTCC held that a dominant firm needed to have a turnover of at least 1,000 million baht in Thailand in the previous year (Abbott did not), and that as long as the respective product had not yet been marketed, a firm cannot hold a share in the relevant market. The decision emphasised that a market for a product needed to exist in Thailand before the Trade Competition Act could be invoked, which was not the case for pharmaceutical products that had not yet received marketing approval by the Thai Food and Drug Administration.
The OTCC further argued that because Thai consumers did not directly purchase drugs from business operators outside the Kingdom, but instead procured their medicaments through prescriptions issued by doctors, and because they did not view the withdrawal of applications for registration with the Food and Drug Administration as an intent to restrict opportunities to purchase goods or services in so far as registration of pharmaceuticals is a consumer safety requirement, there had been no violation by Abbott of Section 28 of the Trade Competition Act.

It is important to note that the OTCC did not enter into any analysis of whether Abbott was dominant globally or regionally by virtue of their patent rights in the pharmaceutical products for which it withdrew registration, or whether Abbott abused its position given their exclusive rights, since their view was that there was no market yet in Thailand for any of the pharmaceutical products for which the application for registration was being withdrawn. The OTCC thus applied a relatively strict reading of Article 25(3) of the Trade Competition Act. The OTCC was also reluctant to intervene in the process of Food and Drug Administration marketing approval applications for medicaments, as this was deemed to be first and foremost a health issue.

The Case of Indonesia

The Indonesian Anti-Monopoly Commission (KPPU), in its first pharmaceutical industry case since it was established in 1999, examined the licensing contracts between Pfizer Inc., a multinational R&D-based pharmaceutical firm and its affiliates (Pfizer), and the Indonesian firm PT Dexta Medica, one of the largest branded generic manufacturers in Southeast Asia. In an effort to address pricing issues on a generic medicament that had been distributed by Pfizer and Dexta Medica in Indonesia, KPPU concluded, in its Decision No. 17/KPPU-1/2010, that Pfizer and Dexta Medica colluded to fix the price of the hypertension drug, amlodipine.

It further found the parties guilty of forming a cartel for the marketing of the drug, abuse of a dominant position and, as far as Dexta Medica was concerned, having entered into an illegal agreement with foreign parties, all in violation of Law No. 5 of 1999 on the Prohibition of Monopolistic Practices and Unfair Business Competition. Based on its findings, KPPU assessed a penalty of ca. US$14mn. US$14mn against these companies and ordered price reductions on the two drugs marketed by the firms in the amlodipine therapeutic class (Norvask® and Tensivask®). Past research by UNCTAD in Indonesia showed that prices of such branded
generics in Indonesia could be well above the prices for non-branded generics (UNCTAD, 2011).\(^8\)

Pfizer and Dexa Medica appealed this decision to the local District Court. After extensive hearings, on September 07, 2011, the Central Jakarta District Court overturned the KPPU decision on grounds that the evidence did not support a conclusion of price fixing or a cartel, and determined that the prices of drugs marketed in the amlodipine therapeutic class had been reflective of the prevailing market.\(^9\) KPPU appealed the decision to the Supreme Court, who affirmed the District Court decision against it.\(^10\)

While generally understood to be a case where the courts declined to take into consideration indirect evidence of collusion to fix prices\(^{11}\), the court decisions also mention that dominance cannot be established when there are numerous other alternative medications to treat hypertension available in the market.

**Analysis**

When comparing these cases to the widely cited instances where competition law has successfully been invoked to challenge the abuse of IPRs by their owners, the most apparent difference is that the above two examples are not based on a refusal to licence or deal, as was the case in both the South Africa *Hazel Tau* or the Italian *Dobfar* cases. It is also worth noting that cases in developed countries, such as the *Magill* decision in the EU have also been based on clear refusals to licence.\(^{12}\)

The Thai OTCC case involved a withdrawal of an application for marketing authorisation of a medicine, while in Indonesia, the KPPU sought to establish price fixing and cartel behaviour from the underlying licensing agreement and the price differentials between branded and non-branded generic hypertension drugs.

In the Thai and Indonesian cases, the lack of a refusal to license a technology makes the IP element more tangential even though there are IP overtones in both the Thailand and Indonesia examples. This is probably because refusals to licence have been a long-recognised example where IPR can potentially be abused. Whilst *Hazel Tau* also relied to a great deal on showing the price differentials between a patented ARV and its generic equivalent, that alone is insufficient to establish a violation of competition law.

Though there is nothing that would prevent the consideration of instances of abusive behaviour that do not stem from a refusal to licence or deal, courts and administrative bodies may have a more difficult time
applying competition law in cases where the abusive behaviour is not linked as directly to the IPR.

In this regard, the conclusion by the Thai OTCC, that FDA marketing approval amounts to a request to the national drug regulatory authority for certification of safety, efficacy and quality of a drug, and, by extension, should not be construed as an exercise of an IPR, is noteworthy. It would still be quite a stretch to argue that the withdrawal of the FDA review constitutes a refusal to deal.

The underlying message is that, to the extent that owners of a technology are generally free to choose the markets where they sell their product, the decision to withdraw an application for drug marketing approval and to not market the product in a country is the technology owner’s to make, even if that decision was made in what appeared to be a reaction to the issuance of government-use compulsory licenses.

The Thai case also shows that a competition claim must meet the threshold questions of minimum capitalisation and market dominance stipulated in the domestic competition legislation in order to even proceed to an analysis of whether there was actionable abusive behaviour. Such threshold requirements are important as a test to see whether the firm in question has the necessary market power to invoke an application of competition law.

Moreover, the OTCC decision indicates that the reference against which the facts of each case are examined is whether there is a national market for the drug, and not the position of the firm in the international market. The conclusion in the Thai case was that even though it might have been true that Abbott had the exclusive international market for heat-stable Kaletra®, there could not have been a domestic market for the drug insofar as the drug had not received marketing approval.

The lessons from the KPPU case are also worth examining. As mentioned above, the case relied to a great deal on indirect evidence, which is inadmissible under the 1999 anti-monopoly law of Indonesia. While the author does not have access to the private contracts between these companies, the drafting of the underlying licence agreements between Pfizer and Dex Medica, were therefore, probably such that it would be difficult to establish cartel behaviour from the legal text alone.

Additionally, one consideration by the Indonesian courts was that if consumers felt that the price of amlodipine marketed by Dexa Medica and Pfizer was too high, other hypertension medications alternatives are easily available in the Indonesian market. By comparison, this was not the case in Hazel Tau, where the South African Competition Commission concluded that ARVs are not simply interchangeable replacements of
each other, but are instead prescribed as first line, second line and third line regimens, with the possibility of a failure in regimen triggering prescriptions of the latter regimens.

This was also not the case in the Italian competition case of Dohfar, where the refusal to license was for an active pharmaceutical ingredient (API) needed to manufacture various antibiotics and, was therefore, considered by the competition authority to be an ‘essential facility’. The patent on amlodipine, which is on the World Health Organisation’s (WHO’s) model list of essential medicines, had expired in 2007 in countries where there had been a patent for the drug in effect. Thus, if a competition authority wants to challenge pharmaceutical manufacturers on excessive prices, they will need to choose the medicines they use to challenge the manufacturer(s) carefully taking into consideration the question of alternative medications.

The other unique feature of the Indonesian case was that Article 50(b) of its 1999 anti-monopoly law had exempted from the scope of application “contracts related to intellectual property rights, such as licence, patent, trademark, copyright, industrial product design, integrated electronic series and trade secrets, and contracts related to franchise”. The courts in Indonesia interpreted this clause literally, despite the efforts of KPPU to open investigations into cases of potential abuse of IPRs.13

Conclusion

Only a few cases exist where competition law is used to challenge the abuse of IPRs in developing countries. The above decisions from Thailand and Indonesia are examples where complainants have tried unsuccessfully to establish the liability of technology owners for abusive behaviour using competition laws, and while much of the existing literature focusses on the particularly successful case in South Africa where the preliminary opinion issued by their Competition Commission pressured multinational pharmaceutical firms into voluntary licenses on favourable terms with local manufacturers for patented ARVs, much can be learned from looking at examples where the outcome went in favour of the technology owners instead.

There is little to suggest that the decisions made by the competition authority in Thailand would have been decided differently by developed country competition authorities. The mandate of the competition authorities is to apply domestic competition law, and if the threshold for its application is not met, then competition laws cannot provide relief in any event. In the Indonesian case, the ready availability of alternative
hypertension medications would probably also have doomed the KPPU argument against Pfizer and Deka Medica even if the anti-monopoly law had been worded differently. Clearly, not all situations are designed to be addressed by competition law.

In the case of Indonesia, however, better designed competition policies could have the effect of enabling successful challenges to abuse behaviour by technology owners in the future. Recognising this possibility, proposed amendments to Law No. 5 of 1999 have been put forth by an Indonesian parliamentary working committee which suggest, *inter alia*, that the exception for IPRs from the scope of the Indonesian anti-monopoly law in Article 50(b) be removed altogether.

The amendments would also allow Indonesia to apply competition law extraterritorially to foreign conduct with domestic anticompetitive effects. No changes appear to have been suggested with regard to the admission of indirect evidence, though, and the Parliament has not acted on the Bill as of the date of writing.

Lastly, the experience of those involved with the South African *Hazel Tau* case detail how political the case had become. While the case in Thailand was also no doubt quite political given that it occurred in the aftermath of the issuance of government-use compulsory licenses on ARVs, Flynn suggests at the end of his paper on competition and IPRs – “the likelihood of success will depend on contextual circumstances: who will make the decision, what leverage do movements have over the decision maker, how successfully are tactics executed to leverage ideological and political power toward a favourable result”. 14

Competition cases involving the abuse of IPRs in medicines will often have the potential to become political, insofar as access to medicines is frequently a life or death issue. While the technical legal issues discussed above are obviously important in reaching decisions that can be justified from the point of view of the law, political will also needs to be cultivated to deal with the behaviour of technology owners when they potentially fall afoul of civil norms.
Endnotes


4 Model Law on Competition: Draft commentaries to possible elements for articles of a model law or laws TD/RBP/CONF.5/7 (2000).


7 The minimum amount in terms of baht and turnover required for a firm to be considered as holding a dominant market position as stipulated under the Notification of Trade Competition Commission, 8 February 2007.


9 Decision No. 05/KPPU/2010/PN.Jkt.Pst of 7 September 2011.

10 Decision No. 294 K/Pdt.Sus/2012 of 28 June 2012.

11 See, for example, the press release of 15 September 2011 from Pfizer’s Indonesian legal counsel, Hadiputranto, Hadinoto & Partners.


13 See KPPU Regulation No. 2 of 2009 and the statement of Mr. M. Nawir Messi, then Chairman of the KPPU during an UNCTAD-KPPU- Directorate General of Intellectual Property Rights (DGIPR) workshop in April 2014, in which he opened the workshop by stating that ‘IP is not immune from competition policy enforcement’.

Abstract

As the human life has evolved, the diseases have managed to evolve along faster. It is essential that the pharmaceutical industry modifies and innovates at a much greater speed to provide for better drugs and healthcare. This industry is peculiar in more ways than one to say the least and requires a deep understanding of its dynamics. First and foremost that it has primarily three kinds of companies: (1) Bulk Drug Producer; (2) Pure Formulator; and (3) Integrated Firms.

It is observed that in the most product markets, the players try to reduce the prices of their products so as to maximise their profits and revenues however, this is not the case for the pharmaceutical market. A formulator’s drug is priced at an exorbitant rate and is justified due to dynamic efficiency and its indispensable nature.

Another aspect is supply and demand in the said industry. It tends to differ due crucial involvement of several intermediaries like a doctor, pharmacist and in some cases, even medical insurers and drug regulatory bodies. The involvement of medical advisers has also spurred a debate about pros and cons of hub and spoke model implemented by the National Health Service (NHS) (in UK) and other such authorities, especially in the last one year.
It is a well-known fact that once the generic version launches, the brand product is effectively dead. Therefore, all the patent holding companies aim to get the most out of that patent or try to extend the existing patent. Some companies resort to evergreening or product hopping while others might enter in to pay for delay agreements. Such agreements have trended over last few decades but it is only now that they have been dealt with a firm hand by the authorities.

India’s environment cannot be said to be conducive for such agreements and for the companies to make a conscious effort to evergreen its products since the patent authority has been instrumental in growth of generic manufacturers, but the big pharmaceutical companies have been left complaining. It is vital that India’s competition regime is able to deal with such unique issues as they arise.

The cases concerning pharmaceutical industry have brought to light several underlying issues that may/may not be unique to the industry including product hopping, hub and spoke (as seen in E-books decision) and pay for delay agreements encompassing issues of modes of payments and how the approach of the courts is different in each case.

This paper seeks to analyse three issues that face us regarding the said industry. Section I seeks to explore the current position in various jurisdictions regarding the abovementioned issues and whether harmonising would be feasible. Section II examines whether the competition regime is enough to deal with these issues and then Section III shall look into how India’s competition regime is qualified to deal with such issues and prospective problems.

**Introduction**

Reverse Payment Settlements or Pay for Delay Agreements are arrangements made between the branded pharmaceutical company (Patent Holder) and the generic drug manufacturers in order to restrict such bulk manufacturers from entering into the market and for that a share from the profits of the patent holders is given to them.

Product Hopping is a pharmaceutical practice of a patent holder switching the consumers (i.e. patients) from an older version of a particular drug of which patent expiration is forthcoming to a newer version of the same drug with some modifications so as to avoid competition from the generic drug manufacturers. This is also referred to as evergreening or line extension.

Such reformulation of product is capable of hampering the market competition, especially if the older version is withdrawn since the bulk manufacturers depend on automatic substitution. These activities though fairly common but have gone undetected until now. The antitrust authorities have started taking firm actions against such practices.
Dynamics of Pharmaceutical Industry

The global pharmaceutical market is worth around US$810bn and is expected to rise to US$1.2tn by 2022.\(^6\) This section explores what makes this industry so different than the rest.

Theoretically, the pharmaceutical industry has primarily three types of players: (1) Bulk Drug Producers or Generic Manufacturers; (2) Pure Formulators; and (3) Integrated Firms. However, practically, the pharmaceutical sector is two-tiered: (1) innovating companies holding most of the patents; and (2) bulk drug producers.

The firms that are involved in research and development (R&D) like Pfizer, Novartis, Servier, etc. hold most of the patents in this industry. The rest are the bulk manufacturers selling drugs at lower costs.\(^7\) The bulk drug manufacturers only come in play once patent has expired. These manufacturers produce those medicines for extremely low price and make it available to masses.

In the recent time, IMS Report suggests that after a long period of strong US market dominance, the UK, and Europe as a whole, are facing increasing competition from emerging economies, such as China, Brazil and India.\(^8\)

Traditionally, in a market, the players try to reduce their prices so as to maximise their profits. However, in the pharmaceutical market, a patent holder’s prices are extremely high and are justified because of dynamic efficiency and indispensable nature of the product.\(^9\) The consumption of pharmaceuticals tends to be price inelastic as they are indispensable.

Supply & Demand of Pharmaceuticals

The foundation of the pharmaceutical industry is R&D. Marketing of prescription drugs is unlike marketing any other product due to the consumer-agent relation. Today, the choice of drug is heavily influenced by marketing through medical journals or sales representatives. Advertisements aimed at end users like that of Revital, Calcium Sandoz, etc. often act as influencing factors.\(^10\)

In any sector, there are two participants i.e. producer and consumer, but in this sector, the demand for healthcare is also determined by the intermediaries (insurers, payers, etc.). The physician has to play role of a decision maker: as a provider of care as well as consumer’s agent. It might so happen that instead of physician, the intermediary makes a decision for treatment. Patients are more sensitive towards prices of medicines as they pay out of their pockets to a great extent.\(^11\)

In India, the concept of intermediaries is yet to flourish unlike developed nations where the concept of intermediaries is penetrated.\(^12\) Without a
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shadow of a doubt, it might be concluded that pharmaceutical industry is very vibrant. The pharmaceutical industry in developed and developing nations can be differentiated clearly and parallels may be drawn.

Global Approach to Reverse Payment Settlements and Product Hopping

A. Reverse Payment Settlement

It is a well-known fact that once the generic version launches, the brand product is effectively dead.\textsuperscript{13} Reverse Payment Settlements and Product Hopping have come under the scanner of competition authorities over the last decade and these authorities seem to have vowed to be firm against such activities, especially since the industry is vital for human subsistence. The Federal Trade Commission’s view on such activities has been very clear:

“If there are has been a payment from the Patent Holder to the generic manufacturer, there must be some offsetting considerations, its logical to conclude that the \textit{quid pro quo} for the payment was an agreement by the generic to defer entry beyond the date that represents an otherwise reasonable litigation compromise.”\textsuperscript{14}

United States of America (USA) has seen several cases of reverse payment settlements, however, \textit{FTC vs Actavis}\textsuperscript{15} became the first case to be admitted by the Federal Supreme Court. Justice Breyer along with four other judges of the Apex Court opined that reverse payment settlements can violate the antitrust laws:

“In sum, a reverse payment, where large and unjustified, can bring with it the risk of significant anticompetitive effects; one who makes such a payment may be unable to explain and to justify it; such a firm or individual may well possess market power derived from the patent; a court, by examining the size of the payment, may well be able to assess its likely anticompetitive effects along with its potential justifications without litigating the validity of the patent; and parties may well find ways to settle patent disputes without the use of reverse payments. In our view, these considerations, taken together, outweigh the single strong consideration — the desirability of settlements — that led the Eleventh Circuit to provide near-automatic antitrust immunity to reverse payment settlements”.\textsuperscript{16}

While the FTC argued vehemently for the application of quick look rule\textsuperscript{17}, however, the Supreme Court felt the need for a full-fledged rule of reason inquiry: “...The existence and degree of any anticompetitive consequence may also vary as among industries. These complexities lead
us to conclude that the FTC must prove its case as in other rule-of-reason cases. To say this is not to require the courts to insist, contrary to what we have said that the Commission need litigate the patent’s validity, empirically demonstrate the virtues or vices of the patent system, present every possible supporting fact or refute every possible pro-defense theory”.

Thus, reverse payment settlements are not categorically immune from the antitrust laws. Accordingly, a rule of reason analysis is warranted. “Pay for delay infringement settlements are neither presumptively lawful, nor presumptively unlawful. They are a function of competitive dynamics within the industry involved”.

Although, the Supreme Court, cleared the approach towards such agreements but there still remains confusion. The interpretation of “large and unjustified” payments remains a mystery and it did stir a debate. However, Professor Michael Carrier suggests that it would not be at all that difficult to interpret. He says: “…the Court makes clear that avoided litigation costs present “traditional settlement considerations” that do not create the “concern that a patentee is using its monopoly profits to avoid the risk of patent invalidation or a finding of non-infringement. For that reason, any payment less than, say, US$5mn or US$10mn is likely to be justified. And, continuing the analysis, any payment above that amount must be justified on other grounds, such as ‘fair value for services’ the generic provides to the brand. But by the time we rise above the US$5mn to US$10mn in litigation costs, we are, according to most common sense definitions, in the category of ‘large’ payments”. Next he ponders upon if such payments are justified, he writes: “...and the product provided by the generic often is not even one that the brand had sought before the settlement.... In other words, while notions of ‘large’ and ‘unjustified’ payments may sound intractable in theory, the facts of cases may be clearer on whether brands can offer a legitimate reason for payments to generics”. After Actavis, In re Lipitor Antitrust Litigation wherein District Court of New Jersey’s Judge Sheridan explained: “…nothing in Actavis strictly requires that the [reverse] payment be in the form of money, and so [the Court] declines to hold that the amendments [to the complaint] will be futile on that basis”. The decision, did not deal with the issue of Actavis’s application to the specific facts of the pending case to determine if the non-monetary payment was an antitrust violation.

In re Nexium (Esomeprazole) Antitrust Litigation, Judge Young of District Court of Massachusetts held: “Nowhere in Actavis did the Supreme Court explicitly require some sort of monetary transaction to take place for an agreement between a brand and generic manufacturer to constitute a reverse payment. Admittedly, the Supreme Court spoke only to the merits of cash payouts as a quid pro quo for promises of
delayed generic market entry...This Court does not see fit to read into the opinion a strict limitation of its principles to monetary-based arrangements alone. Adopting a broader interpretation of the word ‘payment’, however, serves the purpose of aligning the law with modern day realities”.

Thereafter, the District Court of New Jersey through Judge Walls decided In re Lamictal Direct Purchaser Litigation, has said that “no authorised generic” agreement between branded and generic drug makers does not qualify as a ‘payment’, and is therefore, not an antitrust violation. Such agreements arise in patent settlements when a branded drug maker agrees to not issue its own authorised-generic alternative when the generic company begins to compete.

In re Federal Trade Commission vs Actavis, Inc, the District Court refuses to grant renewed motion to dismiss based on Noerr-Pennington doctrine. Thus, the District Court concluded that the consent order before it, like the judgment in Nexium, was not immune from antitrust scrutiny on the basis of Noerr-Pennington. European Union suspected such agreements surfacing and thus, warranted a sectoral inquiry. Since then there has been a continuous follow until 2015 pertaining the patent settlements.

In European Union, the European Commission ended up imposing a total fine €52.2mn on several generic manufacturers and a fine of €93.8mn on Lundbeck because of the pay for delay agreement entered in to between these companies for Citalopram, a blockbuster anti-depressant. Further, this decision was upheld by the General Court in 2016.

In 2014, the EC decided another pay for delay matter against Servier and five other generic drug manufacturers fining them with €427.7mn (US$581.8mn). This is the first case wherein EC has upheld not only violation of Article 101 and, Article 102 of TFEU. This is due to Servier’s unilateral conduct in the market of Perindopril. This also furthers the argument of hub and spoke model in pharmaceutical industry wherein the Patent Holder becomes the hub and the generic manufacturers act as spokes, and act in concert with the hub.

B. Product Hopping

Evergreening, even though, is fairly common under patent law but under competition law, not many cases have been recorded. A company might replace the product completely with another product (hard switch) or introduce a newer version alongside the older one (soft switch). Furthermore, there can be three forms of product hopping: (1) switching the form of medicine; (2) changing molecule parts by adding or removing compounds; and (3) reformulation of two compounds that were previously marked separately.
In *Abbott Laboratories vs Teva Pharmaceuticals USA, Inc.* (TriCor)\(^3\), the Delaware District Court realising the realities of the industry and applied rule of reason in order to conclude that such an opportunity “has allegedly been prevented entirely by Defendants’ allegedly manipulative and unjustifiable formulation changes”, and “[s]uch a restriction on competition, if proven, is sufficient to support an antitrust claim”.\(^38\)

*In re Suboxone Antitrust Litigation*\(^39\) the Eastern District of Pennsylvania Court gave quite nuanced analysis as to the hard and soft switch. *Mylan Pharmaceuticals vs Warner Chilcott (Doryx)*\(^40\) went on appeal before the Third Circuit Court wherein a rule of reason analysis was done, but due to lack of direct evidence, the court relied on the rule of reason as set forth in *United States vs Microsoft*, which looks at anticompetitive nature of the conduct of the defendant and further, if defendant can show “nonpretextual precompetitive justifications for its conduct”.\(^41\) Ultimately, the Court came to a conclusion that there was no violation of Section 1 or 2 of the Sherman Act.

In *New York ex rel. Schneiderman vs Actavis PLC* (Namenda)\(^42\), the Second Circuit found that while Forest held a lawful monopoly over the Alzheimer drug, however, the product hop was an exclusionary conduct aimed at unlawful extension of monopoly and the hard switch, further, amounted to coercion. The Court held that the hard switch amounted to monopolisation and attempted monopolisation. Worldwide, a lot of companies have been found to be involved in such agreements and conducts. It is very likely that such cases exist in India as well.

**The Indian View**

**A. The Indian pharmaceutical market and the patent regime**

The Indian pharmaceutical industry has a majority of generic manufacturers but very few innovators. India is one of the fastest growing pharmaceutical markets in the world and has established itself as a global manufacturing and research hub.\(^43\) More than 95 percent of the nation’s medical needs are met domestically and the industry represents 2.4 percent of the world market in value terms and 10 percent of the global pharmaceutical industry in terms of volume. That is world’s third largest in terms of volume and number fourteen in terms of value.\(^44\) India stands as the fourth largest in the Asia Pacific Region.\(^45\)

This market is predicted to grow from US$18bn to US$45bn in 2020.\(^46\) India unveiled “ Pharma Vision 2020,” aimed at making it a global leader in end-to-end drug manufacturing the initiative features a reduced approval time for new facilities to boost investments.\(^47\) Put together, India is considered to be a very lucrative and upcoming market in pharmaceutical
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However, there are drawbacks, one of the most important being the ineffective IP protection, which might lack effective government legislation to protect foreign companies’ IP holdings and third-party manufacturers may not always be respectful of IP rights.

India introduced product patent in January 01, 2005 which attracted many pharmaceutical companies. In the past 12 years, it has been seen that there is a change in competitive dynamics as the grant of patents to these entities and the subsequent patent litigation has risen amongst these entities. Thus, the Competition Commission of India (CCI) is now on its way to launch a sectoral inquiry in the said sector as it is speculated that there might be strong incentives for these entities to enter into agreements which result in a pay-off or transfer of economic value from the patent-holder to the patent-challenger in return for delaying generic entry.

This argument is positioned on the logic that as the number of patents awarded increases and the Indian pharmaceutical market rapidly expands, potentially anticompetitive agreements to restrict market entry of cheaper versions of drugs might become irresistible. Pay for Delay Agreements have been entered into by the patent holders and Indian generic manufacturers in the foreign jurisdictions and it is only a matter of time that such agreements start happening in India as well.

In 2009-10, the CCI conducted a market study to identify the competition issues prevalent in the pharmaceuticals, in the course of the study issues related to horizontal and vertical points of view were examined. Although the report shed some light on the EU and the US approach towards ‘Pay-for-Delay’ deals, it failed to recommend or even identify its implications for the industry.

In 2012, more than 40 brand-name drugs valued US$35bn in annual sales lost their patent protection, meaning that generic companies were permitted to make their own lower-priced versions of well-known drugs like Plavix, Lexapro and Seroquel and share in the profits that had exclusively belonged to the brands.

After Novartis AG vs Union of India, the reaction pharmaceutical industry around the globe got speculative, however, thereafter, it has been seen that getting injunctions against generic manufacturers has been easier if the patent is strong and the Courts in India have been supportive.

B. The legal dichotomy

When we consider India, there are three laws where we can place our reliance on, namely, Contract Act, 1872, Patents Act, 1970 and Competition Act, 2002. Section 27 of the Contract Act, 1872 states:
“Every agreement by which anyone is restrained from exercising a lawful profession, trade or business of any kind, is to that extent void.

Exception 1: Saving of agreement not to carry on business of which good will is sold – one who sells the goodwill of a business may agree with the buyer to refrain from carrying on a similar business, within specified local limits, so long as the buyer, or any person deriving title to the goodwill from him, carries on a like business therein, provided that such limits appear to the court reasonable, regard being had to the nature of the business”.

The doctrine of restraint of trade, one of the cardinal principals guiding competition law is derived from the common law. The words “restrained from exercising a lawful profession, trade or business”, do not mean an absolute restriction, and are intended to apply to a partial restriction, a restriction limited to same particular place.58

The applicability of Section 27 becomes questionable since the issues are determined with respect to patents between the Patent Holder and generic manufacturer. Also, such provisions mostly are guarded with confidentiality and held in reserve for out of court settlements. Therefore, under such circumstances, the application of Indian Contract Act, 1872 cannot be invoked.

Looking into the current Patent regime, there is nothing that permits or restrains such agreements but it specifically bars evergreening.59 Hence, we place reliance on Competition Act, 2002.

C. Is the competition regime enough?

The companies entering into such agreement or unilateral conduct may be caught under Section 4 of the Competition Act, 2002 as seen in the Servier Decision above.60 If the Patent Holder for example is selling a blockbuster drug, he has monopoly rights until the term of patent ends. If during the term of the patent a pay for delay agreement is entered it means that the Patent Holder has abused its dominance in the relevant market for it being the only player. These anticompetitive conducts will also attract Section 3 of the Competition Act, 2002 (the Act). Section 3(5) of the Act protects the restrictions in place by the IP laws.

The first question that comes is what exactly are reasonable restrictions? According to the Oxford Dictionary, reasonable means “as much as is appropriate or fair; moderate”.61 The main objective of the Act has been to protect the welfare of the consumers, the Act only makes an exception to “reasonable restrictions”.

The socio-economic view suggests clearly that such an arrangement can lead grave violations to the consumers and the intention of the legislature also suggests that the reasonable restriction imposed only under the intellectual property laws must be exempted from the purview of this
Act. Reverse Payment Settlements lie beyond the four corners of the patents’ law and can be scrutinised under the Act.

Once it has been proven that these agreements are not within the purview of Section 3(5) of the Act, these agreements can be scrutinised under Section 3(1) of the Act. Section 3(2) declares such agreements void.

In the case of *Mr Ramakant Kani vs Dr L H Hiranandani Hospital* which was decided by the CCI on February 05, 2014, it was held: “One of the avowed objectives of the Act is to promote consumers’ welfare by preventing market distortions caused by such actions and agreements of the enterprises which militate against the competition and consumers’ interest. The competition law by its very nature envisages that there are situations where the Commission has a role and has to control behaviour of the enterprises in the market place in order to achieve consumer welfare.

Section 3(1) of the Act provides that the firms should not enter into an agreement in respect of ‘production…. provisions of services which cause or are likely to cause adverse effect on competition within India’. Section 3(2) provides that an agreement entered into in contravention of the provision contained in sub section (1) shall be void. Sections 3(3) & 3(4) give two categories of agreements. Section 3(3) categories are examples of agreements which are considered violative of Section 3(1) and the Commission, under law, has to presume that these agreements have an appreciable adverse effect on competition”.

While this case went on appeal before the Competition Appellate Tribunal (COMPAT) and the decision was overturned but the COMPAT never dealt with the Section 3(1) aspect. CCI and COMPAT (now, National Company Law Appellate Tribunal (NCLAT) to an extent realise that there shall be agreements beyond the purview of Section 3(3) and 3(4) which can be scrutinised and penalised under Section 3(1). Reverse Payment Agreements and Hub and Spoke Conspiracy matters shall lie under the ambit of Section 3(1) of the Act.

Cases decided under Section 3(1) are said to be decided under the rule of reason. This was asserted by the Apex Court in *Tata Engineering & Locomotive Co. Ltd vs Registrar of Restrictive Trade Agreements*: “The decision whether a trade practice is restrictive or not has to be arrived at by applying the rule of reason and not on doctrine that any restriction as to area or price will *per se* be a restrictive trade practice”.

However, for pay for delay agreements scrutiny under rule of reason can be unfruitful as the burden of proof shall lie with the Commission and such agreements are likely to be confidential and may not come on the radar. But if we resort to a rule which bears the presumption of illegality but might be rebutted by the alleged violators. The burden of proof shall
shift to the parties to prove their innocence. This rule might be equivalent to what is called the quick look rule.

Recently, CCI has directed for a detail investigation in *Biocon Ltd. & Other vs F. Hoffmann-La Roche AG & Others* after Biocon and Mylan approached the regulator alleging that Hoffman-La Roche was indulging in anticompetitive behaviour to protect its monopoly over Trastuzumab. Further, it had gone to the extent of blocking biosimilar drugs of the Informants by writing to the authorities and doctors raising concerns of safety. However, the Opponents approached the Delhi High Court, which has observed that CCI’s order was an ‘interference with justice’. However, the proceedings of this case are currently pending.

**Conclusion**

It can be concluded that if pay for delay agreements are to arise in India or even if they exist and brought before the CCI, the law has provisions to combat them and penalise them. An amendment is not proposed by the author as it may not be the most effective solution. The CCI can either resort to Section 4 scrutiny as done in Servier along with Section 3 inquiry or just Section 3 as done in most cases of pay for delay agreements. As for Product Hopping, it can be caught under Section 4 of the Act.
Endnotes

1 Is hub and spoke really the answer for pharmacy? http://www.pharmacymagazine.co.uk/is-hub-and-spoke-really-the-answer-for-pharmacy; Can pharmacy move to hub-and-spoke dispensing? http://www.chemistanddruggist.co.uk/feature/can-pharmacy-move-hub-and-spoke-dispensing [accessed on 18.05.2017]


8 Growth expected to accelerate from low in 2013 to 5-7% in 2017; Rising number of innovative new drugs expected to be approved over next five years


11 Ibid


133 S. Ct. 2223 (2013); 570 U.S. 756 (2013)

Ibid

California Dental, 526 U. S., at 775, n. 12 (“Quick-look analysis in effect” shifts to “a defendant the burden to show empirical evidence of pro competitive effects”);


12-cv-995 (WHW) (D.N.J. January 24, 2014) (Senior Judge Walls)


No. 1:09-CV-955-TWT) (N.D. GA April 21, 2014)

After being remanded from the Supreme Court

Noerr-Pennington Doctrine is a doctrine based on the First Amendment right of petition that exempts from antitrust liability the joint efforts of businesses to petition or influence government bodies provided that such activities are not sham.


31 European Commission, 'Pharmaceuticals Sector Inquiry And Follow-Up' (European Commission,2009)


35 Servier S.A.S., AT.39612, Commission Decision C(2014) 4955,09.07. 2014,


37 432 F. Supp. 2d 408 (D. Del. 2006)


39 64 F. Supp. 3d 665 (E.D. Pa. 2014)

40 838 F.3d 421 (3rd Cir. Sept. 28, 2016), rehearing denied No. 15-2236 Doc. No. 003112475369 (Nov. 30, 2016)

41 United States v. Microsoft Corp., 253 F.3d 34, 58-59 (D.C. Circ. 2001)

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44 Ibid


48 Ibid

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http://in.reuters.com/article/2014/03/12/india-bigpharma-patent-idINDEEA2809220140312 accessed 19th June 2017
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55 AIR 2013 SC 1311

56 Why was Novartis denied a patent for Glivec in India?: http://articles.economictimes.indiatimes.com/2013-04-02/news/38218279_1_glivec-patent-office-fresh-patent; Adverse Reaction: http://www.caravanmagazine.in/reportage/adverse-reaction [accessed on 19th June 2017]

57 India is game changer in patent law: Pratibha M. Singh: http://www.livemint.com/Politics/nWkDaAKWOEtXsG6rznSA8N/India-is-the-gamechanger-in-patent-law-Prathiba-M-Singh.html [accessed on 19th June 2017]

58 Mahbub Chander v. Raj Coomar; (1874) XIV Bengal Law Reports 76

59 Section 3 of the Patent Act, 1970

60 Abuse of dominant position.—

(1) No enterprise shall abuse its dominant position.

...which is below the cost, as may be determined by regulations, of production of the goods or provision of services, with a view to reduce competition or eliminate the competitors.

61 Reasonable: http://www.oxforddictionaries.com/definition/english/reasonable

62 (1) No enterprise or association of enterprises or person or association of persons shall enter into any agreement in respect of production, supply, distribution, storage, acquisition or control of goods or provision of services, which causes or is likely to cause an appreciable adverse effect on competition within India

63 Any agreement entered into in contravention of the provisions contained in subsection (1) shall be void.


65 Appeal No. 19/2014, Dr. L.H. Hiranandani Hospital v. Competition Commission of India and Shri Ramakant Kini before Competition Appellate Tribunal [COMPAT]

(1977)47 Comp Case 520

Case No. 68 of 2016, Order dated 21 April 2017
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Next hearing on 02 August 2017
Abstract

The protection guaranteed by an IPR to the author or inventor has numerous objectives, out of which the most important are to give incentives to innovate, to reward the effort invested in intellectual creation, to encourage innovation and give recognition to creativity. In more economic terms, a guarantee of exclusive rights directly encourages the creation of new products, and for that very specific reason, the competition law – through the mechanism of compulsory licensing – can override an IPR only if the interest to promote competition is not having negative effects on IPR holder’s incentives to innovate.

However, in its judgement Microsoft vs Commission, the Court of Justice of the European Union seems to have significantly limited those incentives, by obliging the IPR holder to ‘sufficiently establish’ that the disclosure of the interoperability information would have ‘a significant negative impact on its incentives to innovate’ (para. 697). Apart from the fact that IPR holder bores the burden of proof, what worries the most in the Court’s reasoning are the two adjectives that could give rise to
unforeseeable uncertainties regarding their interpretation and implementation. When it shall be considered that the alleged negative impact is established by an IPR holder to the degree that could be considered as ‘sufficient’? Which degree of this impact should be considered as ‘significant’?

In the current state of its development, neither the EU legislation nor the case law of its supreme jurisdiction has not answered to these questions in a sufficiently precise and universally applicable way. Even if it is often underlined that the competition law should only override IPRs in exceptional circumstances, the reasoning distilled from the recent EU case-law has shown that these circumstances are far from being exceptional.

This paper seeks to go behind and beyond legal questions of IPR protection, on the one hand, and the legislation on compulsory licensing, on the other, endeavouring to analyse the complex and still insufficiently explored relation between the safeguard of IPRs and the protection of competition within the EU’s single market. The purpose of this exercise is also to define what could be the contribution of the European legislation and jurisprudence for an international innovation-based eco-system.

Introduction

The overall objective of competition law is to ensure the economic efficiency by fighting the abuse of monopoly. On the other hand, the quintessence of an IPR is to guarantee a legal monopoly of one entity (natural or legal person) over a creative work, distinctive sign, invention, shape or appearance of a product. Even if the monopoly guaranteed by an IPR is limited in space and time, it can give rise to various anticompetitive actions.

Balancing the value of free, undistorted competition, on the one hand, and the not less important aspiration to protect and encourage innovation and creativity, on the other, is everything but an easy task. It is further complexified by parallel and, very often, not sufficiently inter-connected development of various branches of EU secondary legislation, often based on different categories of competence. Finally, the picture is getting even more complex by the simultaneous existence of well-developed and often inward-looking set of national institutions, rules and procedures. It is almost impossible to avoid overlapping and internal controversies.

The interest to promote competition and the need to incentivise human inventiveness are Titans, whose nervous system is an inextricable mixture of economic interests, ethical considerations and political statements,
while their body is made of vast blocs of legislative acts, court judgements and administrative decisions. The clash of those Titans is undecided and the potential battlefield vast. The main objective of this paper is to try and distil the main underlining legal issues of both competition and IPRs in the EU, in an attempt to contribute to the avoidance of the battle of Titans by spotlighting and reducing their battlefield.

First Titan: Interest to Promote Competition

The value of free, undistorted competition is one of the cornerstones of not only economic, but also political integration at the scale of the European continent. The Treaty establishing the European Economic Community (TEEC), signed sixty years ago, comprises exactly twenty mentions of the notion ‘competition,’ while the importance of guaranteeing ‘free competition’ for the founding fathers of the European Community/Union had come together with the undisputed needs to ensure steady expansion and balanced trade.

Moreover, the normative part of the TEEC dedicated to the various policies of the Community begins with the rules on competition (Art. 85-94), while the only objectives of the integration mentioned in the Treaty’s preamble before expansion, trade and competition are the overarching ideals of the ‘economic and social progress’ and ‘the constant improvement of the living and working conditions’. Finally, the teleological interpretation of point 3 of the TEEC’s preamble indicates that the steadiness of expansion, equilibrium of trade and freedom of competition are only possible through ‘the removal of existing obstacles,’ activity that ‘calls for concerted action’.

The quasi-totality of the legislative efforts taken by the European Community/Union during the last six decades could be summed up in not more than five words: concerted action to remove obstacles. The titanic proportion of those obstacles were (are still continue to be) related to the free competition within the EU’s internal market.

The amount of the EU’s competition-related legislation is often qualified as ‘vast,’ while, in recent years, ‘it has grown at a phenomenal rate (...) in response to the enormous changes in political thinking and economic behaviour that have taken place around the world’. However, in spite of its very dynamic development, it is primarily the secondary legislation that contributes to the extent of the regulatory framework, while the ‘rules of primary EU law on competition have in substance been left unaltered since the very beginning of EU law’.


The common thread of the EU’s secondary legislation in this field has always been the interest to promote competition. In order to distil the fundamental reasons laying behind this interest, the focus will be on the Council Regulation (EC) No 1/2003,7 as a piece of legislation implementing Art. 101 TFEU (ex-Art. 81 TEC), ‘one of the most prominent Treaty provisions on competition in view of the fact that it is quite frequently applied, and tends to result in high-profile decisions that often involve the imposition of significant fines’.8 Given the objective of this paper, the focus will be on the provisions of the Regulation 1/2003 from which could be distilled the overarching challenges of EU’s competition law. In further analysis (Chapter 4), those challenges shall be put in perspective of EU rules related to the safeguard of IPRs.

The outstanding – and, in many ways, specific – position of competition law in the Union’s legislation is indicated by quite an unusual reference to the ‘competition culture’.9 One can rarely find the Union policy that has achieved such an undisputed position and almost idolatrous treatment.

However, much more indicative are the indirect references to various challenges and requirements of the EU competition legislation. Primo, the unified competition rules require an effective supervision, a task that often tends to complexify administration. Consequently, the uniform application of EU competition rules – that would allow to the Commission to concentrate on ‘curbing the most serious infringements’10 – should balance the effectiveness of supervision and the simplicity of administration. Secundo, the competition authorities of the Member States are entitled to apply EU law, while the national courts should play the key role in applying the EU competition rules.

Therefore, there is a high risk of discrepancies in the application of these rules and, ‘in order to forestall future differences of interpretation, provisions or concepts taken from European Union law should be interpreted uniformly, irrespective of the circumstances in which they are to apply’.11 Tertio, the Commission has the power to impose any remedy which is necessary to bring the infringement effectively to an end, but only where there is an effect on trade between Member States. Accordingly, the existence of a unique, precise and applicable definition of such an effect is vital for the repartition of competences between EU and national authorities.
Second Titan: Regulatory Incentives to Innovate

Unlike for the case of competition, the TEEC did not comprise any mention whatsoever of intellectual property, innovation or creativity. Moreover, the first three decades of the development of Community’s secondary legislation have left practically untackled the issues of the protection of IPRs. In the EU, the IPR-related legislation – and, consequently, the importance given to the regulatory incentives to innovate – have gained significant proportions (in terms of the quantity of legislation) and importance (in terms of various EU policies and declaratory acts) over the last three decades, and especially with the advent of the digital revolution.

In the field of industrial property law, the first steps have been undertaken in the late eighties, by a progressive harmonisation of national legislations in the field of trademarks and designs, followed by the creation, in 1993, of a Community trademark, the first truly supranational trademark with unique effects in all Member States.

However, the legal basis of both harmonisation and unification in EU’s industrial property law was not an explicit disposition of the Treaty, mentioning expressis verbis the competence of the EU in this field, but either the general provision allowing the approximation of national legislative and administrative provisions ‘as have a direct incidence on the establishment or functioning’ of the internal market (for harmonisation) or the residual clause, introducing in the possibility of the Union’s legislative action in order to fill gaps in the Treaty if “action by the Union should prove necessary (...) to attain one of the objectives set out in the Treaties, and the Treaties have not provided the necessary powers (for unification)’.

The only exception is the new EU Trademark Regulation, entering into force on October 01, 2017, which refers to Art. 118 TFEU, the unique primary law provision that allows to ‘establish measures for the creation of European IPRs to provide uniform protection of IPRs throughout the Union and for the setting up of centralised Union-wide authorisation, coordination and supervision arrangements’.

Unlike it is the case with the legal protection of trademarks and designs, in the EU there is (still) no unitary patent protection. After the entry into force of the so called EU’s ‘patent package’, it is envisaged to ‘establish a European patent with unitary effect (...) and a new patent court’. Therefore, out of the three main components of the industrial property law (trademarks, patents and designs), in the EU only the patent law does not provide the possibility for a unitary, supranational protection throughout the territory of its member states.
Out of all IPR-related acts of EU secondary legislation – due to the fact that it sets certain overarching regulatory objectives potentially impacting the rules on competition – the one that merits a particular attention is the Directive 2004/48/EC on the enforcement of IPRs. As it was the case in our analysis of the Regulation 1/2003, the focus will be on the non-normative part of the act, given that it comprises the evocation of values from which could be distilled the EU’s key policy lines in the field of IPRs.

The clearest possible juxtaposition of two equally important, but conflicting, values can be found already in the first recital of the Directive 2004/48/EC, a provision that differentiates the need to eliminate ‘distortions of competition,’ on the one hand, ‘while creating an environment conducive to innovation and investment,’ on the other. By using the conjunction ‘while’ in the meaning of ‘at the same time that’ (but also ‘even though, although’) the EU legislator has shown its strong consciousness of the fact that the two goals can be conflictual in many aspects and that, consequently, a sustainable balance is to be found.

Moreover, apart from promoting innovation and creativity, another important policy aims that could benefit from the protection of IPRs are those related to the employment and competitiveness, by allowing ‘the inventor or creator to derive a legitimate profit from his/her invention or creation’. However, the realisation of this objective is additionally complexified by the need to ‘allow the widest possible dissemination of works, ideas and new knowhow’ on the one hand, but also by the requirements related to the ‘freedom of expression (and) the free movement of information’, on the other.

As this example clearly demonstrates, the regulatory incentives to innovate given by IPR-related legislation are stacked between the two blocs of not less important objectives: accessibility of human knowledge and freedom of speech. The third bloc of potentially conflicting values is the one related to the interest to promote competition and, as it will be demonstrated in Chapter 4, this bloc is comprised of a series of legal mechanisms that – unlike general and often proclamatory values mentioned by the Directive 2004/48/EC – require some unambiguous and painful choices to be made. Very often, either the interest to promote competition or the need to support innovation should lower its weapons and acknowledge the defeat. The simultaneous victory of both Titans is not always reachable.
Clash of Titans: The Case of Compulsory Licensing

Rewarding the creator or inventor with an exclusionary right is the quintessence of every IPR. This exclusionary right also includes the prerogative to deny to the others any access to a certain content (information, knowledge, creative work) which represents the object of an IPR and legitimately establishes a monopoly to the benefit of its holder. The key issue here – and the potential playground for the clash between the Titans of IP and antitrust legislation – is whether and under which circumstances certain actions of an IPR holder can be considered as the abuse of a monopolistic position in terms of EU antitrust legislation. The crucial controversy lies in the fact that what could be considered by illegal behaviour (abuse) by one set of provisions (completion law) is, in the same time, perfectly legal and legitimate action (use of exclusionary right) in the context of another set of provisions (IP law).

As R Pardolesi has pertinently remarked, it is a ‘schizophrenic stance,’ where the rules are ‘giving with the right hand, while taking back with the left (which is) an inconsistency that cannot be solved using rhetorical arguments’. Except for some EU legal acts that impose compulsory licensing, but do not belong to antitrust legislation, the Union’s secondary legislation does not provide answers regarding the balancing of the interest in protection of an IPR against the interest in protection of free competition; therefore, one is obliged to turn to the case-law.

The Court of Justice of the EU (previously the Court of Justice of the European Communities) have had numerous occasions to interpret the complex relations between the Union’s legislation on IPRs and competition. Its jurisprudence on this issue is multifaceted (because it concerns various IPRs or, in some cases, intellectual property in general), often inconsistent (because it can lead to different conclusions) and rarely sufficiently applicable by national instances (given that it often leaves room for divergent interpretations).

Further analysis will first focus on some crucial controversies concerning the compulsory licensing and then try to offer some answers in the cases where jurisprudence is silent or incomplete. With some necessary simplifications, the entire relation between IP law and competition law could be reduced to two overarching questions: 1) under which circumstances the pre-existing, legitimate IPR could be limited and 2) what justifies this limitation?

Concerning the first question, in one design-related case (*Volvo v Erik Veng*) the Court initially ‘took a strong stance for the enforcement of intellectual property rights in the form of refusal to grant a licence’.27
However, less than 7 years later (in 1995), the same Court, this time in one copyright-related case (Magill\textsuperscript{28}) importantly limited the right to withhold information, by invoking the fact that this can prevent the appearance of a new product.

As if it wanted to compile the existing controversies in a single judgement, the same jurisdictional instance, this time nine years later (2004) had underlined that, on the one hand, ‘refusal to grant a licence, even if it is the act of an undertaking holding a dominant position, cannot in itself constitute abuse of a dominant position’,\textsuperscript{29} but stated, on the other, that ‘exercise of an exclusive right by the owner might, in exceptional circumstances, involve abusive conduct’.\textsuperscript{30}

After setting the scene in an apparently clearer way, the Court of Justice of European Commission (CJEC) concluded that the interest in protection of free competition can prevail only where ‘the undertaking which requested the licence does not intend to limit itself essentially to duplicating the goods or services already offered on the secondary market (…), but intends to produce new goods or services’.\textsuperscript{31} In such a context, three classical conditions – defined by settled case-law – that constitutes the exceptional circumstances allowing treating the refusal of IPR holder as abusive are:

1) This refusal prevents a potentially successful emergence of a new product/service;
2) It is unjustified; and
3) It excludes ‘any competition on a secondary market’.\textsuperscript{32} The crucial controversy here remains over the definition of a new product or service, especially in the case of software and Internet-based services.

Without entering into almost esoteric and metaphysical questions related to the definition of ‘essential facility’ – yet another vague, jurisprudentially defined legal standard that has more potential to bring additional confusion than to contribute to the resolution of the conflict between IP law and competition law – it is important to underline that even a minor cross-combinations or functional modifications could represent a legitimate ground to define a software as new. Moreover, in cloud-computing ‘each operator tries to keep its users’,\textsuperscript{33} situation that can contribute to the ‘balkanisation of the Internet’.\textsuperscript{34}

Numerous possible unlawful limitations of an IPR could stem from the abusive use of the right the Court of Justice of European Union (CJEU) has given to undertakings claiming they intend to offer a new product or service. These dilemmas become even more complex if one wants to identify which elements of an Internet-based service covered by an IPR
are ‘indispensable to carrying on (...) business, inasmuch as there is no actual or potential substitute’, as requested by the CJEC’s case law. It seems that the only universally applicable solution here is to perform the balancing between the negative effects (for the entity which requested the licence) of the refusal of the IPR holder to grant license, on the one side, and of the prejudice the IPR holder might encounter if compulsory licensing is imposed, on the other.

If the prejudice for the IPR holder is bigger than the potential negative effects for the competitor requesting the access to an intellectual property, the refusal to grant licence should be considered as legitimate. This solution might seem as overly casuistic, but at least it would certainly not bring unjustified and excessive limitations of the IPR holder’s proprietary prerogatives; in the same time, for antitrust authorities it would significantly reduce the risks of improper exercise of regulatory powers.

Concerning a more axiological question related to the justification of the limitation that a compulsory licence imposes to an IPR holder, it seems there is yet another subtle equilibrium to be found between the interest to promote competition and the interest to encourage and protect innovation. Despite some well-intended, but somewhat naïve, observations that there is no tension between IP law and competition law, for an interesting overview of such arguments, see Herbert Hovenkamp the number of active antitrust litigations against IPR holders accused of abuse of their rights proves the contrary.

Well above the issue of conflicting interests, the clash between antitrust and IP protection can also be seen as a conflict of values, which could be summed up in the following question: is it legitimate to (more or less partially) limit the incentives for invention for the sake of value of free competition? In its judgement in case Microsoft vs Commission, the Court has provided some elements of a common European response regarding the balance between those two values, by obliging the IPR holder to ‘sufficiently establish’ that the disclosure of the interoperability information would have ‘a significant negative impact on its incentives to innovate’.

In only one paragraph of its judgement, the Court managed to introduce the two adjectives that could give rise to unforeseeable uncertainties. When it shall be considered that the alleged negative impact is established by an IPR holder to the degree that could be considered as ‘sufficient’? Which degree of this impact should be considered as ‘significant’? Once again – and far beyond from practically useless and for the legal certainty potentially detrimental standard of ‘sufficiently established significant negative impact’ of which the IPR holder should bore the burden of proof.
– the only overarching and universally applicable solution would be to perform the balancing (already mentioned above) between the negative effects for IPR holder and its competitor. In any case, a legitimate and legally guaranteed monopoly constituted by an IPR can be limited only when it is strictly necessary. Everything else would be ‘slaughtering of the bull for a pound of meat’, as one East-European saying puts it.

Conclusion

Most often, the protection of IPRs and the fight against anticompetitive behaviour do not enter in conflict. Moreover, those two goals can even be complementary, given that, in principle, innovative economic environment reinforces competitive battle. However, the interest to promote competition and the need to give incentives to innovate – two highly important goals that are, due to the amount of legislation intended to pursue them and the significance of values they embody, presented as Titans in this paper – can often enter in conflict. In such a context, obligatory licensing can be a battlefield where their collision is particularly violent. Given that both Titans cannot be winners in such a monumental clash, it is necessary to establish certain rules that are clear, just and suitable in the vast majority of cases.

On the basis of the critical examination of the EU’s legislation and jurisprudence, it was argued that the only universally applicable solution is to perform the balancing between the negative effects (for the entity which requested the licence) of the refusal of the IPR holder to grant license, on the one side, and of the prejudice the IPR holder might encounter if compulsory licensing is imposed, on the other. If the prejudice for the IPR holder is bigger than the potential negative effects for the competitor requesting the access to an intellectual property, the refusal to grant licence should be considered as legitimate. In both cases, one Titan would win, while the other would not be totally defeated. Their tense but fruitful coexistence may continue.
Bibliography

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5. Jiang T, China and EU Antitrust Review of Refusal to License IPR (Maklu 2015)


Endnotes

1 Out of which one can be found in the preamble, and other nineteen in the normative part of the Treaty; see Treaty establishing the European Community (Nice consolidated version), [2002] OJ C 325, 33

2 TEEC, point 2 of the preamble

3 TEEC, point 3 of the preamble


5 Richard Whish and David Bailey, *Competition Law* (Oxford University Press 2015) 1


9 Recital 1 of the Regulation (EC) No 1/2003

10 Recital 3 of the Regulation (EC) No 1/2003

11 Jules Stuyck, D"l³""l-"l-The Role of Preliminary References in the Uniform Application of EU Competition Law in Adriana Almäsan, Peter Whelan (eds), *The Consistent Application of EU Competition Law: Substantive and Procedural Challenges* (Springer 2017) 184

12 Here the focus will be on industrial property rights. The EU has also tried to respond to the challenge of copyright protection in the context of digital technologies, by adopting the Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society (OJ 2001, L167/10), and, more recently, the Communication from the Commission entitled ‘Promoting a fair, efficient and competitive European copyright-based economy in the Digital Single Market’ (COM(2016)592). However, in EU copyright law, there is a serious lack of legally binding documents.

13 Both Art. 100 TEEC and Art. 95 TEC (now Art. 114 TFEU) provided that the Council shall issue directives/adopt the measures for approximation of national provisions, with the only difference that the TEEC referred to the ‘common market’ and TEC/TFEU to the ‘internal market’.

14 Art. 235 TEEC and 308 TEC (now Art. 352 TFEU).

15 The European Union Intellectual Property Office is the EU’s administrative institution ‘responsible for managing the EU trade mark and the registered


However, from 7 October 1977, date of the entry into force of the European Patent Convention (EPC), the continent disposes of a complex and well developed mechanism of patent protection, which also includes various administrative and legal instruments for its implementation, out of which the most important is the European Patent Office, one of the two bodies of the European Patent Organisation (EPO). Moreover, the EPO is a classical intergovernmental organisation, while the EU is characterised by important supranational elements. On the other hand, within the complex rules set up by the EPC there is no such a legal instrument that would provide a unitary patent protection in all member states, given that the objectives of the Convention were ‘to strengthen co-operation between the States of Europe in respect of the protection of inventions’ and to ensure ‘that such protection may be obtained in those States by a single procedure for the grant of patents and by the establishment of certain standard rules governing patents so granted’. In June 2016 was published the 16th, revised edition of the EPC.


Recital 2 of the Directive 2004/48/EC. However, the realisation of this objective is additionally complexified by the need to ‘allow the widest possible dissemination of works, ideas and new knowhow’ on the one hand, but also by the requirements related to the ‘freedom of expression (and) the free movement of information’ on the other.

ibid

ibid


ibid

It is, for example, the case of Regulation (EC) No 816/2006 of the European Parliament and of the Council of 17 May 2006 on compulsory licensing of patents relating to the manufacture of pharmaceutical products for export to countries with public health problems, OJ 2006, L157/1.

26 Case C-238/87 AB Volvo v Erik Veng Ltd. [1988] ECR I-6212.

27 Tiancheng Jiang, China and EU Antitrust Review of Refusal to License IPR (Maklu 2015) 90.


29 Case C-418/01 IMS Health GmbH [2004] ECR I-5039, para 34.

30 ibid, para 35

31 ibid, para 49

32 ibid


34 ibid


37 Case T-201/04 Microsoft Corp. v Commission of the European Communities, [2007] ECR II-3619. The similar argumentation was, in certain elements, further elaborated in cases Astra Zeneca (C-457/10 P) and Post Danmark v Konkurrenseradet (C-209/10).

38 ibid, para 697
A Development Approach to the Patent-Antitrust Interface

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Abstract

This Article proposes a set of guiding principles for approaching the patent-antitrust interface in developing countries. Based on the notion that antitrust doctrines need to be adjusted to reflect the local economic circumstances, this Article argues that any credible approach to the patent-antitrust interface in developing countries must incorporate development considerations. It proposes a set of guiding principles that takes into account a wide range of factors, including the need to provide innovation incentives, the need to facilitate domestic imitation, the need to protect domestic consumer welfare, and the need to safeguard access to basic necessities.

With the support of a considerable body of theoretical and empirical economic literature, this Article challenges the widely held belief that patent protection is necessary for securing innovations. Rather, this Article argues that developing countries need to be skeptical about innovation-based justifications for restrictive patent exploitation practices, as many of them do not possess the capacity to take advantage of innovation incentives and can ill-afford to sacrifice consumer welfare. It concludes by highlighting the implicit challenge this Article poses to the drive for convergence that has dominated international antitrust in the last decade.

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Part II
Optimal Regulation *vis-à-vis*
Disruptive Technology
Competition and Other Regulatory Challenges Posed by the Increasingly Crowded and Dynamic Digital Marketplace

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Abstract

This paper discusses the competition, consumer protection, intellectual property, privacy, and other regulatory issues and challenges posed by the ‘wicked problem’ of the increasingly crowded, complex, unpredictable, dynamic and competitive digital economy and marketplace. The major argument of the paper is that the wicked issues and problems posed by the crowded digital marketplace will require responsive, reflexive, inclusive, collaborative, polycentric, innovative, and ‘wickedly good’ regulatory approaches and instruments.

This paper describes, interprets, and applies the many insights provided by the expanding literatures on: the positive and negative interactions between competition and IP policies and laws; behaviourally informed regulation; and the amelioration of wicked policy and regulatory problems. For more than a decade and a half, this author has been employing these behavioural and ‘wicked’ insights across many regulatory domains in his consulting assignments and academic research and presentations.
Executive Summary

The evidence in support of the argument raised in this paper is provided by the literature and case jurisprudence on: (1) the confusing and contested economic and competition law theory on dynamic efficiencies and the interactions between competition policy and law, IPRs, consumer protection and privacy law, and information technology, machine learning, artificial intelligence, biotechnology, nanotechnology and other advanced technologies; and (2) confusion, inconsistency, and contestation regarding the positive and negative competition law enforcement decisions and related policy matters that address and attempt to mediate and remedy these interactions and their ‘wicked’ characteristics.

A partial listing of current and emerging participants and competitors in the digital marketplace includes:

- The algorithmic consumer, when consumers and other buyers outsource their purchasing decisions to company designed and operated algorithms
- Robo-sellers which encompass the algorithms used by sellers and suppliers, automated pricing systems, and the resulting pricing and related corporate strategies that cannot be executed by human beings
- Government operated digital intermediaries/regulators as well as non-government digital intermediaries/regulators that are mandated, supported, and often out-sourced by governments
- Software, networks, databases, and ‘algorithmic power and educators’ that are now being applied to the digital governance of public and other forms of education and training
- Platform cooperatives which, similar to traditional cooperatives, would be owned by their members, and would compete with, challenge, discipline, and perhaps in some market contexts partially replace the ‘giant’ and other platform capitalists that now dominate digital markets and
- Data brokers, i.e. companies which play a major role in the ‘Big Data’ economy, through collecting the personal information of consumers from many different sources and then reselling or sharing this consumer information, with other companies and organisations

There are as well an expanding number of other digital intermediaries, Digital Economy firms, and more conventional companies and industries that are now using algorithms, robots, algorithmic intelligence, other forms of artificial intelligence (AI), and digital platforms to:
• increase efficiency and profits and reduce labour costs
• better serve their customers and develop, commercialise and market new and highly innovative products, such as the driverless autonomous vehicle
• comply with laws and regulations better and/or avoid detection of their anticompetitive and non-compliant conduct and
• avoid and escape more conventional laws, regulations and regulatory authorities in some cases

These firms encompass in the travel and tourism sectors Uber, Lyft, peer-to-peer car rentals, Airbnb, Expedia, Trivago and their imitators, followers and competitors; and, in the financial sector blockchain technology, bitcoin, Fintech, and other financial sector innovations, such as peer-to-peer lending, and the many payday loan and other less conventional high interest loan companies that are now going digital.

These and other ‘digital economy’ (DE) actors are now making the digital marketplace increasingly crowded, complex, dynamic and competitive; as well as attractive to an expanding number of consumers and other buyers who wish to ‘exit’ from the conventional regulated marketplace for a wide and expanding range of goods and services. The evolving digital economy and marketplace encompass an interesting and complex mix between: the outsource economy, the sharing economy, two-sided and multi-sided markets, advanced technology, algorithmic and other forms of AI, machine-learning applications, robotics and other innovative attributes.

These DE developments will pose challenging, complex, new, and totally unfamiliar and unprecedented ‘wicked problems’ for competition/antitrust, consumer protection, product safety, privacy, financial and other sectoral regulators, as well as securities, corporate governance. For example, insider trading that is harder to detect, intellectual property, and many other regulatory authorities. Five of the major challenges for regulators, consumers, businesses and others are:

• the proprietary and protected nature of many of these and other forms of AI, machine-learning and related innovations, which keep them hidden from public view and from regulatory authorities and civil society groups – through corporate, intellectual property, trade secrecy and other laws and regulations and through many governments classifying these technologies and innovations as essential to national security
• the attraction, allure, risks and dangers of ‘free goods and services’ to consumers and other users, which can further distort market
outcomes, especially when final consumers and others fail to consider the potentially high costs of “free goods” for privacy, personal and public security, and corporate concentration and political influence, and the apparent potential threats to political stability, democratic values and social cohesion

- growing concerns and evidence that many existing policies, laws, regulations, and authorities are not up to the task of identifying, addressing, and mitigating these digital and related advanced economy wicked problems
- the often negative consequences of algorithmic intelligence and the digital economy for more conventional retailers, producers, service providers and other businesses, which cannot enter and compete in the digital marketplace because of financial, human capital and other impediments and
- growing concerns and evidence that these AI, machine-learning and related applications and innovations are having unanticipated, unintended, unpredictable, and unforeseeable interactions and consequences across a wide range of market, financial, social and political domains

Based on the more conventional regulatory economics literature, “optimal evidence-based regulation” is intended to promote the competitive process, protect consumers and other market participants especially the more vulnerable – while preserving the incentives for creativity and innovation by businesses, entrepreneurs, inventors, and other creative people.

This form of regulation can represent a challenging and difficult to implement and achieve objective for governments and their many competition, consumer protection, privacy, and other regulatory authorities, when they are individually and collectively attempting to address and ameliorate the many wicked issues raised by advanced technology and algorithmic and other forms of AI and machine-learning in the crowded digital marketplace at various spatial scales.

Compliance with optimal evidence-based regulations in the digital marketplace could also be challenging, contentious, and contingent for many regulated entities – including those that typically comply with laws, regulations and social norms in more conventional markets. Complexity and dynamism in digital markets indicate that the ‘bright lines’, ‘safe harbours’ and other certainties preferred by regulated entities and their legal, economic, ethical and other advisors will not be obvious.
These challenges could be, especially formidable for relatively newer, less-experienced, and under-resourced competition, consumer protection, privacy, and other regulatory authorities in developing and emerging market economies.

**Introduction and Main Argument**

The purpose of this paper is to apply a behavioural and neuroscience lens to the management, governance and regulation of the “super wicked problem” of the digital marketplace, which is now receiving a great deal of attention in the policy, regulatory, institutional, foresight and related literatures as well as in the financial, business and general media.¹

Over the past 25 or so years, the author and his colleagues in government, consulting, academic and other research and studies, have addressed a large number of complicated and complex policy, legal and regulatory issues, puzzles and problems that are now being categorised by some scholars and practitioners as ‘super wicked’. A partial listing would include (with selected references in the bibliography):

- Voluntary standards and codes of conduct; co-regulation between government, industry, and other stakeholders (called polycentric shared responsibility approaches); and self-regulation by industry and the professions as either complements to or replacements for more conventional top-down command-and-control regulation by governments
- Global financial market and industry regulation especially after the global financial crisis of the late 2000s – with emphasis on protecting and promoting the competitive process and the rights and well-being of financial consumers
- Harmonisation, convergence and/or enhanced alignment of policies, laws, regulations, and regulatory functions across regulatory authorities, countries and jurisdictions
- Climate change mitigation and adaptation and related environmental ‘wicked problems’
- Regulation of advanced, transformative and disruptive technologies and their product, process and organisational innovations and other applications, with emphasis on the role of more inclusive and polycentric forms of policy formulation and regulation to enhance market, user and consumer understanding and acceptance and
- The complex interactions between competition, consumer protection, privacy, intellectual property, innovation, industrial, trade and other policies, laws and regulatory regimes
Based on the studies and research and the expanding literature on the management, governance and regulation of super wicked policy, regulatory and other problems, the major argument of this paper is that the wicked issues and problems posed by the crowded digital marketplace will require responsive, reflexive, inclusive, collaborative, polycentric, innovative, and ‘wickedly good’ regulatory approaches and instruments.

The evidence in support of this argument is provided by the literature and case jurisprudence on: (1) the confusing and contested economic and competition law theory on dynamic efficiencies and the interactions between competition policy and law, intellectual property rights, consumer protection and privacy law, and information technology, machine learning, artificial intelligence, biotechnology, nanotechnology, and other advanced technologies; and (2) confusion, inconsistency, and contestation regarding the positive and negative competition law enforcement decisions and related policy matters that address and attempt to mediate and remedy these interactions and their ‘wicked’ characteristics.

Additional evidence in support of the argument and related issues was provided by the Fifth Biennial CUTS/CIRC International Conference on competition, regulation and development held in Jaipur India on November 9-11, 2017. This Conference illustrated yet again that, despite some progress in recent years, many of the questions on the interactions and conflicts between competition, intellectual property rights, innovation, privacy and related matters continue to be debated and unresolved after more than three decades of government effort working with their partners in the business, academic and civil society communities.

This working paper briefly describes the many participants in the expanding, dynamic and increasingly complex and crowded Digital Economy and marketplace where information is the major driver of competition. It discusses the many wicked challenges that the digital marketplace poses for competition, intellectual property, consumer protection and other policy, legal and regulatory regimes and authorities. Besides, it discusses the author’s views and preferences on the possible policy, legal and regulatory responses to the Digital Economy and marketplace.

The paper briefly discusses the implications for emerging market and developing economies; and the final section provides concluding comments and areas for future research. Many of the perspectives, findings and insights for the digital marketplace from the wicked problem, competition, regulatory, behavioural, and other literatures are explored in greater detail in the three appendices.
The Many Participants in the Crowded and Dynamic Digital Marketplace

Some of the major features of the digital economy and digital markets include ‘winner-take-all’ competition for the market, network effects, two-sided markets, rapid-paced innovation and high rates of investment (OECD 2013 and 2015). The digital marketplace is becoming increasingly crowded, complex and even chaotic, which can both promote competition and result in substantial uncertainty and information and cognitive burden for final consumers and other purchasers. This is the consequence of recent “disruptive and transformative” technological and innovative advances, applications and algorithms in the Digital Economy and Digital Marketplace in areas, such as:

- The algorithmic consumer, when consumers and other buyers outsource their purchasing decisions to company designed and operated algorithms (Gal and Elkin-Koren 2017)
- Robo-sellers, the algorithms used by sellers and suppliers, automated pricing systems, and the resulting pricing and other corporate strategies that cannot be executed by human beings, and their implications for competition and consumer welfare (Mehra 2016 and Lynch 2017) and
- Government and non-government digital intermediaries/regulators – which include the ‘digital regulators’ now being used by major corporations and industries as a form of self-regulation and private enforcement in order to support arguments for deregulation and minimal oversight and enforcement by government, and/or avoid detection of their anticompetitive and other non-compliant business practices by regulators, civil society, and individual consumers (Van Loo 2017, Cohen 2016a and 2016b, and Coglianese and Lehr 2017 on ‘regulating by robot’)

Software, networks, databases and “algorithmic power and educators” in the digital governance of public and other forms of education and training (Williamson 2015a and b and 2016).
- The platform cooperatives of Scholz (2016) in his article on the dark side of the sharing economy and the digital marketplace and the potential importance of and benefits from “platform cooperativism”
- Data brokers, i.e. companies which play a major role in the “Big Data economy, through collecting the personal information of consumers from many different sources and then reselling or sharing this consumer information with other companies and organisations
The Digital Economy also encompasses other digital intermediaries and firms and more conventional companies and industries, which are now using computer software, algorithms, robotics, 3D Printing, ‘Big Data’, data fusion, the ‘Internet of Things’, algorithmic intelligence, other forms of artificial intelligence, and digital platforms in order to:

- increase efficiency, revenues, profits, market share, and competitive advantage and reduce labour and other costs
- better serve their customers and develop and market new highly innovative and transformative products like the driverless autonomous vehicle
- better comply with and/or avoid detection under existing policy, legal and regulatory regimes and
- in some cases, increase market power and dominance, and avoid and escape more conventional laws, regulations and regulatory authorities.

Much of this literature is now addressing the competition, consumer protection, privacy and other issues associated with ‘Big Data’. OECD (2016:5) notes that Big Data “usually refer to (1) the large dimension of datasets; and (2) the need to use large scale computing power and non-standard software and methods to extract value from the data in a reasonable amount of time”.

OECD notes as well that ‘Big Data’ can be distinguished from data in general by four attributes: “the volume of data; the velocity at which data is collected, used and disseminated; the variety of information aggregated; [and] Stucke and Grunes [2016] add a fourth V: the value of the data. As the OECD authors point out for personal data, each ‘V’ has increased enormously in magnitude over the past decade, and indeed continues to expand”.

An important aspect of ‘Big Data’ is data fusion. Data fusion takes place when data from various sources are brought into contact in a manner that allows new and often unexpected findings, facts, and insights to emerge. “Through data fusion, companies can identify and improve their profiles of individuals – better track their activities, preferences, and vulnerabilities; and better target them with behavioural advertising.

Even for publicly available data, velocity can be critical – namely getting and analysing the data in real-time or nearly real-time to outmaneuver rivals. Consequently, companies will strive to acquire a ‘data advantage’ over rivals (Stucke and Grunes 2015:2, and OECD 2016:6 and 11). See as well Stucke and Grunes (2016), Stucke and Ezrachi (2016), Cohen (2016a and 2016b), and Krajnović et al (2016) on digital marketing and behavioural economics.
In her article on the regulatory state and the information age, Cohen (2016b:369) expands on the regulatory challenges of the information age to encompass more traditional companies and industries. “The Volkswagen scandal neatly encapsulates the tensions and contradictions in the shift to informationalism described above. From one perspective, the automobile industry is a paradigmatic industrial-era formation. In fact, computer software resides at the core of the modern automobile and regulates nearly everything about its performance”.

Challenges for Competition, Intellectual Property, Consumer Protection and Other Regulatory Authorities

Appendices A, B and C provide more detailed analysis of the challenges posed to regulators by the wicked characteristics of the increasingly dynamic, crowded and chaotic digital marketplace. This section will simply highlight the major dangers and risks.

The competition, consumer protection, IP and other regulatory problems and risks: are often complex, ambiguous, and dynamic; have multiple causes and complex cause-and-effect relationships; generate major disagreements and conflicts between stakeholder groups and even within the same stakeholder group, and require coordinated responses and solutions across regulatory authorities and regimes within the same and different jurisdictions. The emotional and cognitive responses to the resulting ambiguity and complexity can influence, cloud and distort the judgment and decision making of regulators, more ethical and compliant regulated entities, and other regulatory actors.

These actors include regulated entities and their legal, economic and ethical advisors, which often will not be provided with the bright lines, safe harbours and other certainties needed to design and implement their compliance and social responsibility programmes. Under these circumstances, such concepts as optimal regulation and maximum aggregate efficiency from regulatory interventions might result in unachievable objectives and raising false hopes and expectations of success.

Regulators, governments and stakeholders may have to be satisfied with remedies that are implementable and ‘remediable’, represent ‘small wins’, and help to make some progress on ameliorating some of the more wicked aspects of the digital marketplace wicked problem.

The DE in recent years has experienced substantial increases in market concentration and market power for the ‘corporate giants’ in many digital markets.6 Their market power is further enhanced by the attraction, allure,
risks and dangers of “free goods and services” to consumers and other users, which can further distort market outcomes, especially when final consumers fail to consider the potentially high costs of “free goods.”\footnote{\textsuperscript{7}} Moreover, price, fee and product attribute complexity, confusion, deception and shrouding, information, product choice, and decision overload, and other decision making complexities and sources of deception, can hide the true costs from the boundedly rational consumer.

The undisclosed biases and self-interests of digital intermediaries, algorithmic consumers, and other online companies are embedded, hidden and protected within algorithms and computer code, and therefore, can easily favour larger suppliers, higher priced products, and their own products and companies, over other suppliers and products that may be favoured by many consumers. Competition and consumer welfare are further constrained by the information, intellectual property, and other barriers that prevent digital regulators and other intermediaries, algorithmic consumers, platform cooperatives and potential entrants, from having access to the data they need for:

\begin{itemize}
  \item designing and operating effective algorithms that are truly helpful to consumers
  \item facilitating their entry into digital markets and
  \item allowing them to compete with the digital corporate giants in markets on a more level playing field in terms of product market competition, competition for key data and other information, and political influence
\end{itemize}

A related danger discussed in the DE literature is the intentional or unintentional unethical and non-compliant conduct and consumer, competition, privacy and other regulatory harms as a consequence of poorly designed and operated algorithms, digital platforms and related software programmes of algorithmic consumers, suppliers and intermediaries/regulators.

Perhaps most importantly, there is growing evidence that existing competition, consumer protection, intellectual property, sectoral and other policies, laws, regulations and authorities are not “up to the task” of ameliorating the wicked problems generated by the complex and crowded digital marketplace.
Possible Policy, Legal and Regulatory Responses to the Digital Economy and Marketplace

These and other aspects of the complex roles of governments add to the arguments for designing and implementing more inclusive, polycentric and shared accountability regulatory regimes for the DE and digital markets. These regimes would encompass enhanced roles for:

- knowledgeable and well-resourced civil society groups
- demanding, well-informed and proactive consumer leaders and other more active and better informed final consumers, business and government customers, and other users
- identification and encouragement of and financial and non-financial rewards for the competition, consumer welfare, privacy and compliance corporate leaders within the DE and various digital markets
- protection for whistle-blowers within corporations, governments, and other organisations that are using Big Data and other forms of algorithmic intelligence in non-compliant, unethical and illegal ways
- heightened non-price competition based on product quality, respect for consumer privacy, autonomy and informed choice, and ethical norms and conduct within digital markets and
- regulatory authorities and other government ministries and agencies that are appropriately inclusive, collaborative, responsive, resilient, reflexive/thoughtful, modest and humble when facing the complexities, ambiguities and wicked characteristics of the DE and marketplace and its many and diverse actors

Regulatory authorities with the appropriate responsiveness, thoughtfulness, modesty and humility could be, especially relevant to smaller and less experienced competition and other regulatory authorities, particularly in the developing and emerging market economies. For these regulators, Type I errors (like failing to approve an efficiency enhancing merger, innovative product or production process); and Type II errors (failing to prohibit an anticompetitive and potentially harmful merger, other business practice or product) could be more frequent and highly consequential and harmful.

Under these circumstances, the caution and negativity bias of more careful and conservative individuals, political parties and governments might on balance make a positive contribution to the policy, legal and regulatory approaches of government – especially for minimising the risk
of Type I errors that are more difficult to identify and resolve (see example Dodd et al 2012 and Hibbing et al 2014).

More inclusive, polycentric and shared accountability regulatory regimes for the digital economy and digital markets would help to mediate and mitigate many of the challenges discussed in the previous section, the three appendices, and in the expanding policy and regulatory literature on the Digital Economy.

The digital economy and marketplace bring to the forefront the clash of regulatory cultures between: (1) regulatory authorities and their officials, which are risk averse, constrained by national and sub-national borders and their regulatory silos, and strongly wedded to incremental change; and (2) the firms, supply chains and other regulated entities in the digital marketplace which embrace risk and transformative and disruptive change, are platform-based, and transcend and ignore national borders and sovereignty and the mandates of different regulatory authorities and regimes (Cohen 2016a and 2016b).\(^8\)

For the reasons noted earlier, there is the very real danger that boundedly rational governments and their policymakers and regulatory officials which have little or no information on, understanding of and experience with the Digital Economy but are under pressure to ‘do something’ – will design and administer new laws, regulations, rules, regulatory functions, and ‘digital regulators’ that will do more harm than good.

The consequences can encompass either: Type I errors that prohibit efficiency enhancing and innovative algorithms and related technologies, platforms and business arrangements; or Type II errors which approve, ignore or fail to identify and sanction algorithms and related technologies, platforms and business arrangements that are anticompetitive and/or cause substantial consumer, privacy, personal security, social, political, healthcare, environmental and other regulatory harms.

Because of these and other concerns, the recent studies on algorithmic consumers and suppliers, robo-sellers, platform cooperatives, and digital intermediaries and regulators suggest the need for a careful, step-by-step, evidence-based to the extent possible, and “rule of reason type” approaches for governments and their regulators. These approaches can include greater use of: collaborative standard setting processes,\(^9\) voluntary codes of conduct, and other forms of joint regulation by government and industry, and more principles and outcomes-based, poly-centric, inclusive and shared responsibility regulatory regimes. These regulatory models and approaches would allow regulators, regulatees, consumers, civil society groups and other regulatory actors to interact and learn together about the benefits, costs, and risks of the rapidly expanding and evolving DE.
These benefits can include what these ‘human’ regulatory actors are individually and collectively learning from the machine learning of their algorithmic consumers, suppliers, regulators and related artificial intelligence applications and innovations as a consequence of their competitive, cooperative and other algorithmic interactions in the digital marketplace (see the discussion of reinforcement learning by algorithms and robots in Appendix C).

This “human ad algorithmic” learning can then provide the foundation for more comprehensive laws and new and innovative regulatory approaches that are tailored to the specific benefits from and challenges posed by robo-sellers/algorithmic suppliers, algorithmic consumers, algorithmic regulators, other forms of algorithmic intelligence, digital marketplaces, and other digital intermediaries and regulators. ¹⁰

The following paragraphs illustrate some of the key insights from the expanding literature on regulating in the digital marketplace which are reviewed in more detail in Appendix C.

On account of the challenges posed by robo-sellers to conventional antitrust/competition law, Mehra (2016:1371) contends: “the better route to avoiding competitive harm may be to undertake proactive shaping of industry behaviour through dialogue with stakeholders, targeted regulation, and/or norm generation”. This excellent argument can be readily extended to the competition and other regulatory challenges posed by algorithmic consumers and digital intermediaries.

Webb (2012) and Moratis (2016) explore collaborative governance, institutional pluralism and complexity, standard setting processes, and ISO 26000 on corporate social responsibility (CSR). Their findings suggest both the opportunity and the challenge of extending and applying ISO 26000 to the increasingly complex, crowded, competitive, fragmented and globalised digital marketplace. The challenge would include whether applying ISO 26000 would help to remedy and make progress on the wicked problems of the complex and crowded digital marketplace in light of the institutional pluralism, conflicting institutional logics, and many other complexities and ‘wicked characteristics’ of corporate social responsibility, standard setting processes, and ISO 26000.

Three complicating issues in this regard are: (1) ISO 26000 is only a guidance standard, and is not explicitly intended and designed for certification; (2) therefore, it is not an ‘uncertifiable’ standard, and therefore, does not encompass a certification process and the threat of a non-compliant organisation being uncertified; (3) despite this ISO intention, some national standards institutions in some countries are:
developing and marketing certifiable variants of ISO 26000 which might add to institutional pluralism and complexity and the ‘wicked characteristics’ of digital markets; and (4) additional new and hybrid solutions to the uncertifiable nature of ISO 26000 can exacerbate its institutional pluralism, fragmentation and complexity, undermine CSR harmonisation and convergence, and erode the authority of ISO 26000 (Moratis 2016). For these and other reasons, employing an ISO standard with its own wicked characteristics to help to remedy another wicked problem requires greater theoretical, conceptual, empirical and behavioural research (see as well Tsilikas 2016a and 2016b discussed elsewhere in this document).

There is an expanding literature on the competition, consumer, privacy and other regulatory problems and harms associated with conventional third-party intermediaries (see example, Oded 2010); and with more conventional nudging, default options and choice architecture. These problems might be even more serious for digital intermediaries, digital nudges, and algorithmic consumers and suppliers.

This is because the algorithms add another layer of complexity, uncertainty, ambiguity, non-transparency, and information asymmetry which can further confuse and deceive boundedly rational consumers and other purchasers, users and intended beneficiaries including regulators; can result in misplaced confidence and trust in the algorithm, the digital economy operator, and digital market outcomes; and could be easily manipulated and exploited by dishonest and unethical designers and operators of these digital platforms.

This preliminary and partial listing and discussion of potential concerns illustrate that algorithmic consumers and intermediaries, robo-sellers, other forms of algorithmic intelligence and learning algorithms, ‘Big Data’ and related applications have many if not most of the characteristics of wicked problems as discussed in the wicked problem literature, and which differentiate wicked problems from tame problems. These characteristics are described in detail in Appendix A. Some of the most important for the digital marketplace include:

- Challenges with problem definition and substantial risk, uncertainty, ambiguity, complexity, novelty, uniqueness, unfamiliarity, and related “one-of-a-kind” attributes.
- Complex interrelationships and interactions with many other wicked problems which can be either positive or negative
- Proposed solutions and remedies which are not obvious, are not optimal and objectively ‘right or wrong’, are difficult to pilot test, often address symptoms rather than underlying causes, can generate
unforeseen, unforeseeable, and unintended effects and consequences, and often will be overly simple and even ‘simple-minded’

• The moral, ethical and normative dimensions of the wicked characteristics of algorithmic intelligence, ‘Big Data’ and related applications – which can generate emotional responses from consumers, civil society, regulatory officials and other actors.

• Large and diverse regulated entity and ‘interested party’ populations, which can range from giant online global corporations to small start-ups, individual creators, innovators, and software engineers, and for some applications and markets can encompass both privately owned and government owned entities as well as final consumers and other users as co-creators and co-innovators (Ireland 2013)

• The complex power relationships and substantial power inequalities between the many business, regulatory, economic, social and other actors involved in, contributing to, and/or attempting to remedy the wicked characteristics of algorithmic intelligence, Big Data and related technologies and applications

• Complex policy, legal and regulatory problems, challenges and potential, alleged and actual harms that cut across different spatial, temporal and functional scales, stakeholder groups and policy and legal and regulatory regimes and authorities

• Complex, poorly understood and under-analysed interactions between super wicked problems and networks of various kinds – which are major drivers and enablers in many digital markets

These and other wicked characteristics will bring into play a large number of the emotions, behavioural biases, intuitions, instincts, “fast, frugal, and often flawed” heuristics in system 1 of the human brain, and the attention span, cognitive and related limitations, deficiencies and scarcities in system 2 – which will influence, cloud and distort the preferences, judgement, conduct, decisions, and learning of many of the participants in digital markets (see Appendix B).
Implications and Challenges for Competition and Other Regulatory Authorities in Emerging Market and Other Developing Economies

The DE and its platforms, markets, and diverse algorithmic and other competitors present major opportunities as well as challenges for emerging market and other developing economies and their governments, regulatory authorities, consumers, farmers, businesses and other market participants.

Furthermore, the global nature of digital markets, platforms, and market participants indicates that developing and emerging market economies and their governments, consumers, farmers, businesses and other participants have access to markets, information, innovations and their applications, and other digital benefits in the borderless digital world that in many ways are potentially comparable to the more advanced OECD economies.

This would suggest that governments and their regulators in these economies should be more permissive than elsewhere in order to ensure that these benefits are accessible and realised; and Type I regulatory errors do not impede access to global digital markets, platforms, applications, and products for their consumers, businesses, others, users and in particular their more innovative and entrepreneurial start-up companies – including by lower income consumers, farmers, and smaller businesses including micro-enterprises.

However, the less experienced, knowledgeable and resourced governments, regulators, consumers, farmers, businesses and other participants in these economies are much more vulnerable to the regulatory misconduct and harms that are generated within digital markets. This situation would tend to argue for more aggressive enforcement of competition, consumer protection, privacy and other laws and regulations to minimise the risk of Type II errors which would, especially harm more vulnerable and disadvantaged final consumers, small and micro-enterprises, small farmers and others who lack the experience, knowledge and resources to protect themselves from the many harms associated with the digital marketplace.

On balance, this author is persuaded that, because of the limited resources and experience of most regulatory authorities in the developing world and the limited enforcement experience of virtually all regulatory authorities throughout the global economy with Big Data, the Internet of Things, and the digital marketplace, emerging market and other developing economies might wish to consider more flexible, responsive and permissive enforcement and compliance promotion approaches. These approaches
are needed to minimise the risk of Type I errors, which, when compared with Type II errors, are harder to detect, remedy and correct, and therefore, can be more consequential for competition, consumer welfare, innovation and economic growth over the longer term.

Depending on the country, jurisdiction and authority, these more flexible and permissive regulatory approaches can include the following:

- Review from the perspective of your own legal and regulatory mandate and national characteristics and interests previous major enforcement cases and related policy matters conducted typically in the US, the EU and other more experienced OECD jurisdictions to identify the major insights and lessons for your regulatory regime, economy and society
- Closely monitor the current/ongoing enforcement cases and the more important policy matters of other jurisdictions, and develop strong contacts with these authorities in order to learn more about digital marketplace conduct and detriment that can, especially harm your economy, businesses, consumers, farmers, and other stakeholders; and discuss with these other jurisdictions the regulatory harms and possible remedies that may be relevant to your jurisdiction, markets and citizens
- Limit your own investigation, enforcement and other resource intensive activities to digital marketplace misconduct that, based on early evidence from well-substantiated complaints and other sources, is clearly causing substantial harm to competition, consumers, privacy, business costs and competitiveness, etc. in your jurisdiction that would likely not be remedied by the enforcement actions of other authorities and jurisdictions, with particular attention to the harms experienced by more vulnerable and disadvantaged market participants
- Work closely with intellectual property officials and experts at the national, regional multi-state, and global scales to determine whether competition, consumer welfare, privacy and other risks and detriment could be better addressed and remedied through the design and administration of patent, copyright, and other IP policies and laws. Special emphasis could be placed on patents and other IP rights in the digital marketplace that are impeding business entry and expansion, competition and consumer welfare because of for example overly broad patents and related problems resulting from IP scope, cross-licenses, and patent thickets, patent pools and ‘trolls’
- Avoid competition law design, enforcement and decisions that (intentionally or unintentionally) could unduly strengthen IPRs, would therefore become a significant entry barrier to small innovative start-ups, and could chill both competition and innovation in developing and emerging market economies, and
• For DE and marketplace issues that might be causing competition, consumer and other harms in your jurisdiction, place initial emphasis on alternative and less intrusive and resource intensive instruments that could reduce misconduct and harm given as following:
  o removal of policy and regulatory constraints of the government that are impeding entry and competition in the relevant digital market or markets under investigation (see CUTS International 2017 on digital payments in India)
  o collaborative standardisation and related cooperative, collaborative, and polycentric processes – for example whether and how ISO 26000 on corporate social responsibility can be extended to the digital marketplace in your jurisdiction
  o corporate or industry-wide voluntary codes of conduct and other forms of co-regulation and self-regulation
  o voluntary compliance programmes implemented by the relevant regulated entities and/or industry, such as through an industry, trade or professional association
  o cooperative information and nudge-type programmes administered by government, the relevant regulated entities, and/or the industry association, which would be designed to modify the behaviour of regulated entities, consumers, businesses customers, and other relevant parties in a pro-competitive, pro-consumer, and pro-compliance direction and
  o supporting the entry and/or expansion of highly efficient, aggressive and rapidly expanding maverick companies into a digital market in order to disrupt collusion or other anticompetitive and non-compliant and unethical conduct by the incumbent firms. In some countries with a strong cooperative tradition, these ‘mavericks’ could include digital platform cooperatives\textsuperscript{13}

• Evaluate whether the removal of competition, regulatory, investment, entry and other barriers and constraints in conventional markets would make more conventional goods and services more acceptable and attractive substitutes for their digital market counterparts. The removal of these barriers would for example: (1) expand the relevant product and geographic market to include both the digital and conventional players; (2) increase price and product quality competition, consumer, customer and user choice, variety, access, and welfare in the expanded market; and (3) expand pressures on the digital market businesses to comply with competition, consumer protection, privacy and other laws, regulations and social norms and
• Proactively utilise membership and participation in OECD competition, consumer, regulatory and other committees; UNTAD; the International Competition Network; bilateral, multilateral and regional trade and commercial agreements; and other bilateral, multilateral, and international fora and instruments; in order to develop shared information, learning, expertise, experience and mental models on how to address and mitigate competition and other regulatory challenges, misconduct and harms generated by digital markets and competitors (see for example, Ireland and Kofler 2012 and Moratis 2016)\textsuperscript{14}

A final important dimension and opportunity for emerging market and other developing economies is to recognise that these are early days for Big Data, the Internet of Things, and various other forms of algorithmic intelligence. The governments and citizens of these economies should promote the development and implementation of more cooperative, collaborative and polycentric approaches to guide the future creation of these technologies and their applications – in order to ensure that their voices are heard, listened to, and taken fully into account as these technologies and innovations are created and commercialised, and evolve and mature after commercialisation.\textsuperscript{15}

Conclusion and Way Forward for Future Research

Important subject areas for future behavioural, regulatory, law and economics research comprise:
• whether and the extent to which optimal regulation, which is evidence-driven and based on the total efficiency, consumer welfare and related standards and criteria from conventional welfare economics, is appropriate, adequate and desirable and
• when competition, consumer protection, privacy, intellectual property, and other policymaking and regulatory authorities are addressing the wicked characteristics of the digital marketplace, Big Data, the Internet of Things, other forms of algorithmic intelligence, and related wicked problems described in this paper

When addressing the wicked problems of the digital marketplace, optimal regulation may provide a good starting point and analytical framework,\textsuperscript{16} but ultimately less ambitious and more nuanced regulatory approaches and standards for success mighty also be required and could
be more appropriate to minimise the risk of false expectations and difficult to achieve regulatory objectives and targets.

Another area requiring further research from a behavioural, wicked problem and developing economy perspective is that the complex interactions between competition, intellectual property rights, and innovation will likely be even more complex and “wicked” for the digital economy. Based on the research and studies of Aghion et al (2002, 2004 and 2005) and Chen (2017), strong competition and low barriers to entry during the pre-innovation phase could be, especially important to driving the innovation process of firms operating in digital and other innovation markets.

Moreover, in order to make good returns on their innovation and IP investments, the same firms would prefer less competition and entry in the post-innovation market through successfully protecting their innovations by means of patents, copyright, trademarks, trade secrets, favourable trade, industrial and innovation policies, and other forms of government support and protection.17

Digital markets and their wicked characteristics provide new challenges to the economic, social benefit-cost, econometric, simulation modelling, algorithmic, legal, foresight/scenario building and other analytical techniques, methods and frameworks that are applied to competition, intellectual property, innovation, the Digital Economy, and related matters. Particular attention should be given to improvements given as following:

• better tailor these analytical methods to the needs of developing and emerging market economies18
• address and hopefully help to reduce the conflicts between various policy and legal regimes, different professional disciplines (like lawyers versus economists), and divergent interests (for example, finding a better balance between consumers, firms and innovators/creators) and
• the economic, social, innovation and other costs of competition law and other regulatory errors for developing as well as developed economies, with emphasis on comparisons between Type I errors (like prohibiting an efficiency enhancing merger, innovation, or algorithmic application) and versus Type II errors (failing to investigate and prohibit a transaction, business practice, product, process or application causing substantial competition, consumer, privacy or other regulatory harms).
In conducting research on and applying analytical methods to the digital economy, major attention should be given to the important advances made in recent years regarding:

- merger guidelines and assessment including dynamic efficiencies and innovation, which are also relevant to other competition policy and case matters as well as to other regulatory regimes
- innovation economics, foresight, and the economics of IPRs
- treatment of risk, uncertainty, and ambiguity and their implications for decision making – including the important insights from the neuroscience and neuro-economics literatures
- behavioural economics including behavioural industrial organisation, regulatory economics, and benefit-cost analysis
- competition, consumer and regulatory impact assessment and toolkits of the OECD and other organisations
- econometric, simulation and other forms of modelling including algorithmic applications and
- participatory and other research methods that better engage and empower stakeholders and potential beneficiaries including smaller communities and lower income and more vulnerable consumers, households and farmers.

New and improved analytical methods indicate the related requirement for greater research and understanding on what the increasingly crowded, complex and dynamic digital marketplace implies for improvements in government, private sector, civil society, consumer/voter and related capabilities across a wide range of policy, legal and regulatory domains. This research on ‘human’ capabilities is, especially needed for developing and emerging market economies where digital products, applications and markets are appearing and becoming very important at a much earlier stage of development compared with the advanced technologies of the past.

Beyond these four subject areas, virtually all of the wicked characteristics of the digital marketplace that are described in the main text and the three Appendices require behaviourally informed regulatory, law and economics research from the perspective of emerging market and developing economies. The subject areas to be given priority will vary depending on the country and jurisdiction and their experience with the digital economy.

The one over-arching theme important to most of these countries is to identify and establish the ‘right balance’ between the actual and potential benefits to final consumers, business customers and other users; and
mitigating the competition, consumer protection, privacy and other regulatory harms that result directly and indirectly, and intentionally and unintentionally from the complex interactions between algorithmic and conventional regulatory actors within the expanding, complex and dynamic global digital marketplace.
Appendix A: Characteristics of Wicked Problems and their Relevance and Implications for the Digital Marketplace

<table>
<thead>
<tr>
<th>Wicked Problem Characteristic</th>
<th>Relevance/Implications for the Digital Marketplace, with Emphasis on Emerging Market and Developing Economies</th>
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<tr>
<td>1. Difficult to describe, define, and formulate – often can only be fully understood after solutions have been fully identified</td>
<td>Exacerbated by rapid, continuous, transformative and disruptive technological change in digital markets and constantly changing and “mutating” information and cause and effect relationships (see below) – forcing regulators and other decision makers to constantly search for new remedies and modify existing solutions which is very costly, challenging and even impossible for less experienced and under-resourced regulators in the developing world.</td>
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<td>2. Complexity, diversity, uncertainty, ambiguity, unpredictability, dynamism, and knowable, unknowable, highly consequential and potentially catastrophic risks – and the overlaps and complex interactions between these characteristics</td>
<td>The next nine characteristics are especially relevant to national and global digital markets and their algorithmic and related technologies and applications. Characteristics 2-5 will interact together to: (1) activate the emotions, behavioural biases, and fast, frugal and flawed heuristics of decision makers; (2) place major burdens on actors’ scarce attention span and cognitive resources leading to information, choice, decision and cognitive overload; and, (iii) in many digital markets can result in anger, fear, frustration and other negative emotional responses.</td>
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<tr>
<td>3. Finite, uncertain, contested, poorly structured and constantly changing, ‘mutating’ and</td>
<td>These responses can influence, cloud and distort the judgment and decision making of regulators and other regulatory actors, including regulated entities and their legal and economic advisors, which often will not have the bright lines, safe harbours and other certainties needed to design and</td>
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<td>wicked/revolutionary information and knowledge</td>
<td>implement their compliance and social responsibility programmes. These emotional, behavioural, and cognitive responses to these and other more general wicked characteristics of digital markets, digital competitors and other digital market participants can especially influence the judgment and decision making of less experienced and under resourced regulators and other decision makers in developing economies.</td>
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<td>4. Major disagreements and conflicts across stakeholders and within stakeholder groups, making consensus and even compromise and finding some common ground highly unlikely and at times virtually impossible</td>
<td>The risk of decision error is particularly substantial when digital markets: (i) are generating major emotionally charged disagreements and conflicts between and within stakeholder groups that policymakers and regulators are expected to somehow take into account, reconcile, and help to mitigate; (ii) are raising moral, ethical, normative, political and social complexity ‘wicked issues’ that are not familiar and comfortable to the relevant regulators and have generally been ignored in the past; (iii) have complex interrelationships with other super wicked problems that are difficult to identify, understand, evaluate and address.</td>
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<tr>
<td>5. Novelty, uniqueness, unfamiliarity, and other “one-of-a-kind” attributes</td>
<td>Regarding characteristics 6-8, the moral, normative and social complexity dimensions of wicked problems indicate that, compared with other digital market participants, final consumers, other individual users, and citizens/voters will bring substantially greater ethical, moral and social concerns and intensity to these applications because of perceived and actual losses in privacy, personal security, anonymity, autonomy, independence, informed choice, self-determination and control (see Coglianese and Lehr 2017).</td>
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<tr>
<td>6. The moral, ethical, normative, and political dimensions of wicked problems – which are often ignored by</td>
<td>This implication can lead to emotionally charged and visceral responses from these participants and the media when “something goes wrong” and their trust in the “code and algorithm has been violated” because of unintended and unforeseen negative consequences, which can be virtually</td>
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<td>governments and their regulators and other decision makers when the problem is presumed to be ‘tame’, which can lead to the more negative wicked solution characteristics and issues discussed below</td>
<td>inevitable for many of the these highly complex and novel applications.</td>
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<tr>
<td>7. Multiple causes and complex, dynamic, subtle, unstable, and constantly changing and “mutating” cause and effect relationships and interdependencies</td>
<td>In sharp contrast, the behavioural, technical and promotional literatures on algorithmic intelligence and related applications suggest that many of the creators, company developers, users, and sellers, as well as government and media supporters of algorithmic intelligence, ‘Big Data’, and related applications suffer from ethical blind spots and blindness – because of their enthusiasm for the technology and strong focus on the potential benefits for themselves, other digital market participants, and the overall economy.</td>
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<td>8. Social complexity and social fragmentation which often are more consequential than technical complexity</td>
<td>One final challenge for these and other regulators and decision makers is that the complexity, dynamism, mutating, novelty and other ‘one-of-a-kind’ attributes of wicked problems provides limited opportunity to transfer experience, learning and ‘best practices’ from one wicked problem to another and from one country/jurisdiction to another. These characteristics especially impede information, knowledge and experience transfers on digital markets from OECD to developing world regulators and other decision makers.</td>
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<td>9. Complex interrelationships with other super wicked problems when for example</td>
<td>Interactions with other wicked problems can be, especially important to the digital marketplace. Related wicked problems can encompass: • the many wicked problems that are associated with information, biotechnology</td>
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one wicked problem is either a symptom or a major cause of a second wicked problem

nanotechnology, and other advanced technologies and innovations – including peer-to-peer platforms in the sharing economy

- the complex interactions and conflicts between competition, innovation, and intellectual property rights which have been debated without resolution for decades and could be especially wicked and difficult to resolve in digital markets and developing economies

- the widening digital divide at local, sub-national, national and global scales and

- more concentrated national and global markets and the emergence of giant online global corporations

- financial sector renewal, reform and modernization; failure to reform the financial sector means that for example bank and other commercial financing for digital economy start-ups are either not available or only available at uncompetitive terms – resulting in even less competitive and more concentrated digital markets

- the regulatory compliance paradox, globalisation of regulatory non-compliance and harms, and expansions in unethical, illegal, non-compliant and corrupt conduct in many national and global markets (see for example, Ireland 2014b)

- healthcare, public and personal security, and many other government services and functions at the urban, other sub-national, national and global scales and

- the ‘crisis of capitalism’ which arguably can be exacerbated by the inappropriate and unethical use of Big Data, algorithmic intelligence and related applications by corporations, governments, civil society groups, the academic community and other stakeholders

These complex interactions which require joint and coordinated solutions to related wicked problems and can result in lock-in and path
## Wicked Problem Characteristic

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<td>dependent effects, and feedback effects and loops, make this and its related and interacting wicked problems even more entrenched, intractable and wicked.</td>
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### Challenges with Finding, Implementing, and Achieving Consensus on ‘Remediable’ Solutions

<p>| 10. Remedies and solutions which are not obvious to many interested parties because of incomplete, contradictory, changeable, and changing requirements, information and evidence and the frames and strategic framing of different stakeholders. | The wicked characteristics that represent challenges to identifying, successfully implementing and achieving consensus on wicked problems are especially relevant to the wicked characteristics of the DE and marketplace. These challenges will, particularly complicate problem and enforcement case identification, investigations, compliance promotion, enforcement response, deterrence and other functions and strategies of less experienced and under resourced competition, consumer protection, privacy and other regulatory authorities in emerging market and developing economy countries and jurisdictions. |
| 11. Solutions which are not optimal and not ‘objectively’ right or wrong, but only better or worse and hopefully satisfactory and “remediable” (better than the alternatives) and represent some progress and “small wins” towards ameliorating the wicked problem | On the one hand, Type II errors can result from the “hidden and unintentional” price coordination, collusion, and other anticompetitive and non-compliant conduct and harms that can result from poorly designed and “self-learning” algorithms. These behaviours and harms are typically not covered in the anti-cartel and other provisions of competition laws and arguably in other laws and regulations for which “regulatee intention to not comply” is an important marker of non-compliant conduct and harm (see example Mehra 2016, Lynch 2017, and Stucke 2012c on whether intent is relevant). |</p>
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| 12. Solutions that address symptoms rather than underlying causes, and require fundamental changes in attitudes, behaviours and beliefs that are not likely to be achieved by partial and incomplete solutions focused on symptoms | Moreover, there is a major danger of Type I errors by these and other governments and their regulatory authorities. Because of political, public and stakeholder pressures to “do something” to address, mitigate and ‘solve’ actual, perceived and anticipated regulatory risks, threats, misconduct and harms associated with the digital economy, these authorities could:  
(i) wrongly presume that the problem is ‘tame’ and apply optimal regulation and other more conventional efficiency and consumer welfare-based approaches and standards that are suitable to static and ‘tame’ regulatory contexts but not to complex, dynamic, constantly changing and ‘wicked’ regulatory contexts  
(ii) propose and announce overly ambitious targets and objectives that will lead to political and public expectations that cannot be achieved  
(iii) be reluctant to conduct the required pilot testing and other forms of experimentation and small policy changes and/or  
(iv) propose and implement partial and ‘deceptive’ solutions because the wicked problem is poorly defined and understood; overly simple, simple-minded, and “one-shot” solutions; and other counter-productive remedies to the wicked problems of the digital marketplace, Big Data, and algorithmic intelligence |
| 13. Solutions that are difficult to pilot test and measure for their effectiveness, because they have unforeseen, unforeseeable, and unintended effects and consequences that only become evident (if ever) | These ‘solutions’ would too often increase the risk of Type I errors that can harm technology development, innovation and consumer welfare in the future; can have unintended, delayed and hidden consequences which will make the wicked problem of the digital economy, and related wicked problems associated with advanced technologies, even more consequential, complex, confusing and intractable; and, may be appropriate to tame problems but are morally and ethically inappropriate and inadequate for wicked |

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<td>after a long period of time because of long-term ripple, feedback and lock-in effects.</td>
<td>problems.</td>
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<td>14. Related to 13, limited public, media and political tolerance for, and strong public frustration, anxiety and anger with, failed experiments, pilot tests, small policy changes and related efforts and attempts to achieve small improvements and wins</td>
<td>Overly simple, partial, incomplete, and inadequate solutions to wicked problems are associated with a wide range of emotional responses, behavioural biases, fast, frugal and flawed heuristics, and cognitive attributes and weaknesses, that are evaluated in detail in the behavioural and neuroscience literatures. In particular, when functioning within the complex, confusing, and ambiguous contexts associated with the DE and markets and related advanced technologies, individuals and organisations prefer simplicity and therefore apply simple solutions. These can include across-the-board ‘bright-lines’, ‘safe havens’, and other simple rules, to complex wicked and other regulatory, governance, and policy problems, such as presuming that on their own market incentives, more suppliers, competition, privatization, an international agreement, or a new law and its regulations will totally solve a complex and wicked regulatory problem to the satisfaction of all interested parties.</td>
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<td>15. Solutions which at times involve a “one-shot operation” wherein: the results cannot be easily undone if the chosen solution was the wrong option</td>
<td>A related danger arises when (i) frames, framing, and strategic and opportunistic framing by stakeholders and the resulting diverse narratives of regulatory actors are: (ii) combined with consequences, outcomes and feedback effects from implemented remedies that are hidden and/or delayed and often occur in the indeterminate, uncertain, conjectural, contingent and contested future. Under these circumstances, the outcomes and consequences are delayed and are more likely to be contested; and the necessary learning by regulatory, economic and other actors and interested parties is also delayed or never takes place.</td>
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<td>16. Deceptive solutions to pseudo problems – when the problem has not been fully identified and formulated but solutions are being proposed, advocated, marketed and implemented, or the solution addresses only a minor and relatively unimportant fragment of the overall super wicked problem</td>
<td>These circumstances and consequence can in turn lead to situations where, for example, two people can interpret, frame, and learn totally different things from the same regulatory events, misconduct, harm and other outcomes that are associated with and generated by the wicked characteristics of the digital marketplace and related wicked problems.</td>
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<td>17. Because of public outcries and pressures from politicians and other stakeholders to “do something”, identifying and implementing simpler and less costly and intrusive “solutions” that may be appropriate for “tame problems” but are morally questionable and inappropriate and inadequate for ‘wicked problems’</td>
<td>The consequences from frames, framing, and delayed and contested feedback could be especially relevant to emerging market and developing economies and their regulatory authorities – which are perceived (rightly or wrongly) as less experienced, resourced, and credible by international corporations and civil society groups, and the much larger and more experienced competition and other authorities in the OECD economies.</td>
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<td>18. Concept of ‘irreversible consequentiality’</td>
<td>These consequences could, especially emerge when the developing economy regulators identify and analyse for possible regulatory action strong</td>
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<td>whereby many implemented solutions to super wicked problems are highly consequential, have substantial unintended consequences, and can trigger ripple effects throughout the entire market, socio-ecological or other system that cannot be reversed and cannot be stopped</td>
<td>positive or negative evidence on the impacts of digital markets and algorithmic intelligence on their economies, which run counter to the collective conventional wisdom and ‘groupthink’ among regulators, regulatees, and civil society groups in the OECD economies.</td>
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19. Frames, framing, the risk of unintentional and intentional strategic and opportunistic framing, and the resulting diverse narratives of various actors on super wicked problems, which intentionally or unintentionally can result in contested and conflicting frames, interpretations, narratives and discourses on wicked problems

20. Chronic policy and regulatory failures for some wicked
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<td>problems despite numerous attempts at solutions</td>
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<td>21. Tendency to establish overly ambitious objectives and targets to remedy and eliminate a wicked problem</td>
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<tr>
<td>22. Consequences, outcomes and feedback effects that are hidden and/or delayed and often will occur in the indeterminate, uncertain, conjectural, contingent and contested future</td>
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Diverse Interests, Beliefs, Worldviews, Political Orientations, and Interested and Affected Parties

23. Numerous affected and interested parties at various spatial, sectoral, industrial, and functional scales that are impacted by and/or contributing to the super wicked problem

For the digital marketplace and related advanced economy wicked problems, the following characteristics can carry a great deal of emotional and cognitive weight:

(i) where an individual and his or her organisation are located within various geographic, sectoral, industrial, professional, political, regulatory, and other functional “spaces”;  
(ii) whether the individual and organisation perceive themselves as proponents or opponents of regulatory and other governmental action to mitigate the wicked problem;  

Contd...
24. Compared with tame regulatory problems, a large, diverse and less unified regulated entity and “interested party” populations

25. Major differences in attitudes, perspectives and beliefs between proponents and opponents in the business, government, civil society, academic and other communities

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<td>(iii) whether the individual and organisation have a more conservative or liberal political orientation (see Dodd et al 2012 and Hibbing et al 2014) ; and,</td>
<td>These diverse and often conflicting parties – and their different interests, attitudes, values and beliefs – need to be brought into some degree of alignment and convergence in order to identify, develop and start to implement feasible, realistic, implementable and ‘remediable’ improvements, small wins, and possible solutions to the wicked characteristics of the digital marketplace.</td>
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<td>(iv) whether the regulated entity perceives itself as a beneficiary or victim of the wicked problem; When politicians, governments and their agencies and officials, regulated entities and other non-government stakeholders, and members of the general public evaluate their options and make their decisions on whether to contribute to the ‘public good’ of ameliorating the digital marketplace and related wicked problems.</td>
<td>However, this is easier said than done especially when disputes, contestation, and conflicts regarding the characteristics and potential and actual harms of the super wicked problem can take place over many years and even decades with no resolution – leading to hardening of positions and limited space for compromise across many stakeholders, interest groups, and spatial and other scales.</td>
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<td>These diverse and often conflicting parties – and their different interests, attitudes, values and beliefs – need to be brought into some degree of alignment and convergence in order to identify, develop and start to implement feasible, realistic, implementable and ‘remediable’ improvements, small wins, and possible solutions to the wicked characteristics of the digital marketplace.</td>
<td>Finding the space for compromise and resolution becomes even more challenging for more advanced technologies and the DE where the actual and perceived differences in benefits, risks, costs and adjustment between the winners versus the losers are much greater compared with more conventional and familiar technologies and contexts. As a result, the Digital Economy is more...</td>
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<td>likely to bring into play fairness and related ethical norms and values and their emotional and other ‘wicked’ characteristics.</td>
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*Other Characteristics that Represent Major Behavioural, Cognitive, Regulatory and Governance Challenges*

| 26. Risk, uncertainty, ambiguity, complexity, contingency, context dependence, and cognitive and other ‘noise’ which bring into play a wide range of emotional, behavioural and cognitive attributes and the interactions between them | These characteristics and their behavioural, cognitive, regulatory and governance implications and challenges will be fundamental to finding and successfully implementing improvements, small wins, and possible solutions to the wicked attributes of the DE and marketplace. They are also important to ensuring that these solutions take account of and enhance the economic, social and political well-being of emerging market and developing economies and their consumers and citizens. Some of the more important insights on these and related characteristics from the wicked problem and behavioural literatures include the following. |
| 27. Growing importance of ‘ordinary people’ and the ‘wisdom of the crowd’ to addressing and ameliorating super wicked problems – and the declining importance of expertise and experts | These and other characteristics relevant to digital markets suggest that some individual cross-border, transnational and international enforcement cases and related matters – in the areas of competition policy and law (like cross-border mergers, abuse of dominance, and cartels), consumer deception and fraud, product and occupational safety, privacy and personal information, financial services, the environment, and other policy and regulatory domains – will also have many of the attributes and challenges of wicked problems. |
| 28. Need for cooperative, collaborative, multi-dimensional, multi-stakeholder, multi-scale, multi-authority, and other | For example, the solution of one jurisdiction to a comparatively small and straightforward transnational enforcement case involving a digital market could substantially exacerbate, modify and transform the enforcement wicked problem for another jurisdiction – forcing the second jurisdiction to search for totally different solution |

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| kinds of horizontal solutions – in a world that is still dominated by policy, legal, regulatory, stakeholder and many other vertical stovepipes | Addressing and ameliorating the wicked issues from digital markets and algorithmic intelligence requires both the wisdom of the crowd, and technical, economic, social, policy, regulatory, and other forms of professional expertise. In a very real sense, a wicked problem like algorithmic intelligence levels the playing field between ordinary people and experts. This is due to the following reasons:  
• hard technical and science-based decisions are difficult to make and to accept by the general public when data and other information are soft, incomplete, uncertain, contingent, contested, and controversial  
• the ‘experts’ in these contexts have many of the same biases and cognitive flaws as everybody else  
• in many ‘wicked’ contexts, experts with subject matter expertise and more information and experience are no better than other people at forecasting complex political, economic, financial and other events that “play out over years and decades” and  
• social, political and other “non-scientific and boundedly rational” dimensions and forces have greater influence on judgment and decision making for wicked problems and ‘fraught choices’ compared with tame problems – and this is true for all regulatory actors and interested parties regardless of their education, knowledge and expertise. |

29. Context specific and context dependent nature of many wicked problems |

options.
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<tr>
<td>30. Potential for and situations where complex problems, issues and contexts can “beget” wicked (i.e. wickedly evil) people and organisations</td>
<td>As a consequence, the wicked issues posed by the digital marketplace requires: (i) governance and regulatory systems and capabilities that are inclusive, cooperative, collaborative, polycentric, reflexive, resilient, responsive and capable of renewal, reform and revitalisation; and (ii) new forms and styles of leadership across all regulatory actors and digital market participants that are: less top-down, hierarchical and command-and-control oriented; are more normative, collaborative, adaptive, responsive, thoughtful, reflexive and tolerant of ambiguity; embody shared values and ask the right questions; have the ability to consider multiple perspectives and scales; and, recognise their behavioural and cognitive limitations.</td>
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<td>31. Complex and often unsuccessful negotiations and difficult and at times unsuccessful implementation of negotiated agreements between parties at the same and/or different geographic scales – which often are the consequence of problem complexity and ambiguity rather than bad-faith by one or more negotiating parties</td>
<td>Another regulatory and governance issue from the wicked problem literature is the context specific and context dependent nature of many wicked problems and the potential for a problem to be wicked in one national or other context and to be tame in another context. For example, gun control, tax reform and healthcare are apparently wicked problems in the United States that have been tamed to varying degrees in many other jurisdictions.</td>
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<td>32. Require governance and regulatory systems and capabilities that are inclusive,</td>
<td>In contrast, the ubiquitous, borderless, and global nature of digital platforms, markets, conduct, and potential and actual opportunities, benefits, risks and harms suggest that the digital marketplace represents a wicked problem for virtually all</td>
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### Wicked Problem Characteristic

- cooperative, collaborative, polycentric, reflexive, resilient, and responsive, are capable of renewal, reform and revitalisation, and allow for considerable flexibility, redundancy, improvisation, experimentation, and organisational innovation

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<td>countries and jurisdictions, and their citizens/consumers, businesses, governments, regulatory authorities, and other digital market participants.</td>
<td>However, how these actual and anticipated opportunities, benefits risks and harms are perceived and interpreted will likely vary greatly between nation states, policy, legal and regulatory regimes and contexts, and market, social, political, and other contexts – in a manner which is both highly relevant to emerging market and developing economies and is under-analysed. Perceptions and interpretations will also vary between individual consumers and other individual actors depending like on risk aversion, their preferences or aversions for uncertainty, ambiguity, novelty and the unfamiliar, other behavioural characteristics, their social contexts, and ability, interest, willingness and time availability to collect and assess information and to seek redress in complex digital markets.</td>
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<tr>
<td>33. Complex, poorly understood and under-analysed interactions between super wicked problems and networks</td>
<td>A final issue requiring more research from a behaviourally informed regulatory perspective is that enforcement matters that involve technology and innovation often require more frequent and effective interactions, cooperation and information sharing between different policy, legal and regulatory regimes at the same spatial scale</td>
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<td>34. Three different kinds of uncertainty associated with wicked problems: substantive, strategic and institutional – and</td>
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<td>the complex interactions between them</td>
<td>(federal, local government etc., and at different spatial scales from the global through the national to the local.</td>
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| 35. Complex power relationships and substantial inequalities between the many regulatory, economic, social and other actors that are involved in, contributing to, and/or attempting to remedy the super wicked problem | These interactions and forms of cooperation might be complex and challenging for more mature, conventional and familiar technologies but they typically remain relatively tame and remediable for participating regulatory authorities. However, when these matters involve more advanced technology including algorithmic consumers, suppliers and regulators, cooperative efforts across regulators are more likely to develop “wicked characteristics”.
| 36. And finally and perhaps most importantly the relentless nature of super wicked problems – which in many and perhaps most cases will never have a final resolution, will never totally disappear, and will never have a finish line, regardless of the best intentions, resources and efforts of regulatory and other actors that are directed at the wicked problem | The complex and wicked problems in digital markets can also encourage inappropriate forms of “forum shopping” across different regulatory agencies and jurisdictions in the same and different countries. In short, the more advanced and “wicked” the technology, the more wicked the cooperative effort across regulators. The already complex interactions between for example competition and trade policies, competition policy and law and intellectual property rights, competition and privacy policy, and competition policy, corporate governance, corporate concentration, and political influence, can be exacerbated and become wicked (or even more wicked) in the digital marketplace. |

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### Concluding Comment

The literature on super wicked problems often compares wicked problems with tame problems, with special attention to the danger of applying ‘tame’ solutions to wicked problems. Tame problems can also be challenging, complicated, and controversial, but compared to wicked problems they have:

- problem and goal statements that are simpler, more straightforward, stable and well-defined, and easier to understand;
- characteristics that are similar to other tame problems that have been addressed and ‘tamed’ in the past in various jurisdictions;
- moral, ethical, normative and political attributes that are more limited, less consequential, and less likely to generate the emotional responses that impede resolution;
- differences in interests, perspectives and attitudes between and especially within stakeholder groups that are smaller, less morally and politically-driven and emotionally charged, and comparatively easier to reconcile when seeking common ground and consensus;
- limited interdependencies with other tame problems and by extension with wicked problems;
- simpler, less numerous, and more linear cause and effect relationships;
- fewer solution options which can be objectively evaluated and compared as “good or bad”;
- simpler and more implementable and remediable solutions that are more likely to have broad-based support, are similar to solutions for other problems that have already been remedied, and can be relevant and sustained for an extended period and
- potential for some kind of finish line and end point when the tame problem is totally solved and victory can be declared.

The digital marketplace, Big Data and algorithmic intelligence have none of these tame characteristics and therefore are clearly wicked problems that cannot be ameliorated and ‘tamed’ with more conventional tame remedies and solutions.
Appendix B: Complex, Unpredictable, and Under-Analysed Interactions between the Emotional, Behavioural and Cognitive Attributes Associated with Wicked Problems, Issues, Contexts and Spaces

Building on the discussion in the main text and Ireland (2017a) on the negative counterfactual for climate change, it is anticipated that negotiations, other interactions, and the preference formation, judgments, decision making and learning of all actors under the digital marketplace and other wicked problems and contexts, would be influenced, distorted, and often undermined by the complex emotional, behavioural, and cognitive ‘brew’ that would result from:

1) The complex, uncertain, ambiguous, contentious, controversial, ‘strategically framed’, and often discouraging, depressing, and negative information, cues and stimuli generated by wicked problems, issues, contexts and spaces, and by the actors that are operating in and attempting to capitalise on wicked contexts and spaces

2) Strong, expanding and increasingly ‘emotionally charged’ aversions to losses, risk, uncertainty, ambiguity, complexity, betrayal of trust, making decisions in ambiguous and aversive contexts, and anticipated and actual regret from making the wrong decision and trusting the wrong people and organisations

3) The bias blind spot, finite pool of worry, single action bias, attribute substitution and related heuristics, cognitive deficiencies regarding foresight, probabilities and dealing with more than one problem at a time, and resulting information and cognitive burden and strain

4) The many and accumulated frustrations from operating in wicked environments and trying to solve wicked problems with limited or no success over an extended period of time – leading to anxiety, stress, fear and anger from unrealised expectations regarding our own conduct, decisions and outcomes (experienced utility is well below decision utility for most decisions) and from unrealised expectations and many disappointments regarding the conduct and decisions of others\(^{22}\)
5) Expanding and increasingly entrenched feelings of rational apathy and ignorance, undue pessimism, fatalism, learned helplessness and hopelessness and other negative feelings and ‘affect’ as individual, related and collective wicked problems become increasingly contentious, controversial, intractable, and apparently impossible to resolve, especially when so-called remedies make the problem even more wicked, controversial, ideological and intractable.

6) Growing and increasingly consequential efforts of opportunistic and unethical political parties, governments, businesses, other elites, “knowledge sellers/experts” of Wexler (2009), and “wickedly evil people and organisations” to capitalise on and benefit from the expanding concerns, worries, fears, negativity and pessimism among the general public including:

- government and other leaders who (honestly or dishonestly, and knowingly or unknowingly) advocate simple and simple-minded solutions to complex wicked problems (consistent with the attribute substitution heuristic and the single action bias)
- and the opportunistic and unethical “knowledge sellers/experts” and their overconfidence, too much optimism and false assurances that they and only they know how to tame the wicked problem – leading to even more policy failures and negativity in the future and
- the corrupt and wicked people, businesses and other organisations that are attracted to and ‘generated by’ wicked contexts and the opportunities provided by wicked problems to manipulate, exploit and benefit from the emotional responses, biases, and cognitive deficiencies of other people and organisations, which are less able to cope with the complexity, ambiguity and wickedness of these contexts.

These and related characteristics described in Appendix A can operate individually and collectively through their interactive, cumulative, feedback, lock-in, context-dependent, path-dependent, network, and negative externality effects – in a manner that adds greatly to the negative emotional and other system responses and cognitive burden and strain associated with and generated by preference formation, decision-making and personal, reinforcement, error-driven, social and other forms of learning within wicked environments.

These and other attributes and their interactions will make super wicked problems, issues, contexts and spaces even more complex,
uncertain, ambiguous, contentious, controversial, ‘strategically framed’,
discouraging, depressing, negative and ‘wicked’ in the future (Exhibit I at
the end of this Appendix).

Future research on wicked problems, issues and contexts should
especially address how the pessimistic and other negative feelings, lessons,
information, knowledge and learning: (i) from attempts and failed efforts
at managing, coping with, and making progress and achieving ‘small wins’
on wicked problems and (ii) from interacting constantly with other actors
who are equally discouraged and pessimistic and can negatively influence
and distort:

- impressions, intuition, instincts, perspectives, attitudes, beliefs, and
  related behavioural attributes
- intolerance and aversion rather than tolerance and attraction towards
  ambiguity, and the implications for future leaders and managers and
  other actors and their ability to cope with change and wicked problems,
  issues, environments and spaces (see McLain et al 2015, McLain 2009,
  Herman et al 2010, Owen and Sweeney 2002, Sherrill 2001, and Judge
  et al 1999)
- ethical and moral norms and values and moral intensity
- extrinsic and intrinsic incentives and motivation to contribute to the
  public good of making progress on the wicked problem and
- valuation, preference formation, decision making, and learning over
  the longer term

On account of the failed efforts and negative lessons and learning
continue to accumulate and further influence conduct, outcomes, and
learning – including what we learn from each other. As argued in the
main text and Appendix A, the expectation of the author is that more
inclusive, polycentric, shared responsibility and sustainable policy,
regulatory and governance regimes are in the best position to address and
ameliorate the challenges summarised in Exhibit I, and to reverse the
downward trajectories that can emerge and have taken place in many of
the wicked problems discussed in the literature and addressed in this
author’s previous research, studies and conference presentations.
However, this argument also needs to be subjected to much greater and
more behaviourally informed regulatory wicked problem research in the
future.
### Exhibit I: Wicked Behavioural Interactions within Wicked Problems, Issues, Contexts and Spaces

<table>
<thead>
<tr>
<th>Complex, uncertain, ambiguous, contentious, controversial, ‘strategically framed’, and often discouraging, depressing, and negative information, cues and stimuli generated by wicked problems, issues, contexts and spaces</th>
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<tr>
<td>Strong, expanding and increasingly ‘emotionally charged’ aversions to losses, risk, uncertainty, ambiguity, complexity, betrayal of trust, making decisions in ambiguous and aversive contexts, and anticipated and actual regret from making the wrong decision and trusting the wrong people and organisations</td>
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<tr>
<td>Bias blind spot, finite pool of worry, single action bias, attribute substitution and related heuristics, cognitive deficiencies regarding foresight, probabilities and dealing with more than one problem at a time, and resulting information and cognitive burden, strain and ‘bad mood’</td>
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<tr>
<td>Many, accumulating and compounding frustrations from operating in wicked environments and trying to solve wicked problems – leading to anxiety, stress, fear and anger from unrealised expectations regarding our own conduct, decisions and outcomes and disappointments regarding the conduct and decisions of others</td>
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<tr>
<td>Expanding and increasingly entrenched feelings of rational apathy and ignorance, undue pessimism, fatalism, learned helplessness and hopelessness and other negative feelings and ‘affect’ as single, related and collective wicked problems become increasingly contentious, controversial, intractable, and apparently impossible to resolve</td>
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<tr>
<td>Growing and increasingly self-serving, consequential and profitable efforts of opportunistic and unethical political parties, governments, businesses, other elites, “knowledge sellers/experts” and “wickedly evil people and organisations” to capitalise on the expanding concerns, worries, fears, negativity, pessimism and related biases among the general public</td>
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Which individually and collectively through their interactive, cumulative, feedback, lock-in, context-dependent, path-dependent, and negative externality effects, will add greatly to the negative emotional and other System 1 responses and cognitive burden, strain and ‘bad mood’ associated with and generated by preference formation, judgment, decision-making and personal, reinforcement, error-driven, social and other forms of learning within wicked environments. Moreover, will make wicked problems, issues, contexts and spaces even more complex, uncertain, ambiguous, contentious, controversial, ‘strategically framed’, discouraging, depressing, negative and ‘wicked’ in the future.
Appendix C: More Detailed Analysis of Challenges for Competition, Intellectual Property, Consumer Protection and Other Regulators

The many ‘Digital Economy’ actors discussed in the main text are now making the digital economy and marketplace increasingly complex, cluttered, dynamic and competitive; as well as attractive to an expanding number of final consumers and other users who wish to ‘exit’ from the conventional regulated marketplace for a wide and expanding range of goods and services. The evolving DE and marketplace encompass an interesting and complex mix between: the outsource economy, the sharing economy, advanced technology, robotics, algorithmic and other forms of artificial intelligence, machine-learning, and other innovative attributes.

Challenges Faced by Existing Regulators

These digital economy developments will pose challenging, complex, new, and totally unfamiliar and unprecedented wicked problems for competition/antitrust, consumer protection, product safety, privacy, financial sector, securities regulation, corporate governance (example insider trading that is harder to detect), and many other regulatory authorities. How the competitive and regulatory game will be played by:

- robo-sellers/algorithmic suppliers; algorithmic consumers; platform cooperatives; and algorithmic educators
- algorithmic intelligence, algorithmic competitors, and “learning algorithms” that learn from their data manipulation, data fusion and related functions and arguably from competing with each other
- government digital regulators and non-government digital regulators that are often mandated, supported and ‘out-sourced’ by governments
- and of course by the regulated entities and regulators and their officials and digital and computer software experts and technologists that prepare, operate, market, control and profit from these applications and algorithmic intelligence
- including the expanding number of companies that are striving to achieve a data advantage over their rivals through data-driven strategies and the substantial organic corporate growth made possible by the scale, network and “algorithmic and other learning” effects associated with “Big Data and Analytics” and
- through data-driven mergers, cartels, other horizontal, vertical and ‘exclusionary’ arrangements, dominant positions, misleading advertising and other deceptive business practices, and other
potentially questionable arrangements and conduct for competition, consumer protection, privacy, and many other regulatory authorities has to date received comparatively limited attention from governments, legal practitioners, standards bodies, and the academic community including neuro-economics and behavioural law and economics scholars.

The important exceptions encompass the recent research and excellent studies of Van Loo (2017), Mehra (2016), Gal and Elkin-Koren (2017:23-24), Stucke and Grunes (2015 and 2016), Stucke and Ezrachi (2016), Coglianese and Lehr (2017), and the OECD (2016) on: the digital economy, “Big Data and Analytics, regulating by robot, machine-learning, and algorithmic intelligence and learning; interactions, competition, “inter-algorithmic rivalry”, conflicts, dynamics and ‘wars’ within the increasingly crowded, dynamic, and competitive digital marketplaces and regulatory spaces. In particular, little attention has been given to the interactions between algorithmic consumers, suppliers, and intermediaries/regulators and how potentially they may be influenced by and are learning from their interactions.

Preliminary evidence and insights from the studies noted above and other sources suggest a number of potential concerns associated with digital intermediaries, algorithmic consumers, robo-sellers, algorithmic intelligence, algorithmic educators, Big Data, the ‘Internet of Things’, and other digital economy participants and issues. These concerns for competition, IP, consumer protection, and other regulators would encompass the following major issues and important studies.

Many of the challenges faced by competition, consumer protection and other regulators are associated with the various network effects of digital markets which can be pro-competitive, anticompetitive, or a wicked combination of both. Stucke and Grunes (2015:6) note that data-driven online industries and companies are subject to and can benefit from various network effects including: the traditional network effects from for example social networks, such as Facebook; network effects that arise from the scale of the data and the scope of the data; and network effects “where the scale and scope of data on one side of the market affect the other side of the market, such as advertising” – as identified by research over the past 15 years on two-sided and multi-sided markets.

One possible implication is that online and other companies that are expanding ‘organically’, and benefitting from and achieving dominance as a consequence of the scale, network and “algorithmic and other learning” effects of Big Data are well positioned to use the superior competitive
In the business literature, organic growth is defined as the process of business expansion by increased output, customer base expansion, or new product development, as opposed to mergers and acquisitions which is considered to be inorganic growth. Compared to mergers and acquisitions, achieving market dominance through organic growth is less obvious, more difficult to identify by regulators, the business and financial media, and other stakeholders, and is more controversial when addressed by competition authorities and sectoral regulators, especially when the competition matter involves highly innovative companies that are generating applications and products that are highly valued by final consumers and other purchasers and market participants.

The DE in recent years has experienced substantial increases in market concentration and market power for the “corporate giants” in many digital intermediary markets, and in the potential opportunities for privately run digital intermediaries to collude on price.

Market power can be augmented by the protectionist laws and regulations of local and other governments that constrain entry and competition by potentially more efficient and innovative maverick and other firms in digital intermediary markets (Van Loo 2017:30-32 and 37-39). More generally, data-driven business models and strategies in some digital market contexts can favour market concentration and dominance, “the winner takes all” outcomes, and therefore, competition for rather than within the market (Stucke and Grunes 2015:6-7).

Free Goods and Related Puzzles

The attraction, allure, risks and dangers of free goods and services to consumers and other purchasers and users can distort market outcomes. These distortions and failures can especially emerge if they fail to consider:

- potentially high costs of ‘free goods’ in terms of: company access to their personal information and their scarce time, energy, attention span and cognitive resources – money is not the only thing that is in short supply
- potential losses in privacy, anonymity, personal security, autonomy, self-determination and control
- potential losses in product choice and variety and reduced autonomy and control in the future because some online suppliers are forced out of the market
possibility of higher prices and lower quality in the future because of the enhanced market power of the “online corporate giants” and
possibility that the market, social, political and other decisions of individuals are being distorted in a manner that can be contrary to their preferences and longer-term interests.24

The attractiveness of free goods are increasing for many middle class and other consumers and families that are experiencing higher consumer debt burdens and little or no increases in their wages, salaries and disposable incomes. While the costs of “free goods” can be made even greater through time by means of the inappropriate use of the term “free” and the vague and overly long, technical and legal privacy policies of digital economy companies.

Many researchers and studies have explored the competition policy and law issues of so-called ‘free goods’, such as the “free goods defense” (see for example, OECD 2016:18-19 and 25-26, Stucke and Grunes 2015:9, Friedman 2008, Chirita 2016, Newman 2015a and 2015b, and Gal and Rubinfeld 2014). Newman (2015a and 2015b) also contend that analysts should more often employ the insights from behavioural economics research on the “zero price effect”. This effect could bring into play consumer protection law, privacy laws, advertising laws, regulations and standards, environmental laws because of waste and inefficient use of scarce natural resources (think of free newspapers scattered on sidewalks and the floors of buses) and sectoral regulations on telecommunications, transportation and energy.

Friedman (2008) applies the insights from behavioural economics and contends that “describing a product as ‘free’ is deceptive and may affect the consumer’s rational decision-making process, making them pay more for the product than they would if they were fully informed” (OECD 2016:25).

Hoofnagle and Whittington (2014) “propose a transaction cost economics (TCE) approach to account for the actual costs involved in the transaction of online products, such as the track of users’ data, the cost of monitoring changes in privacy policy, switching and cancellation costs that lead to lock-in, and the lack of information security. Based on the TCE analysis, they discuss alternative policies to improve the efficiency of transactions, such as the legal recognition that the transfer of personal information is a non-free exchange of value; and forcing companies to notify subscribers that the service is provided in exchange for personal data and to detail the purpose for the data collected” (OECD 2016:26).
Price, fee and product attribute complexity, confusion, deception and shrouding, information, product choice, decision overload, and other decision making complexities, with sources of deception can hide the true costs of digital economy applications and other products from the boundedly rational consumer. The result at times can be higher prices, less product quality, variety and choice, and other harms to consumers compared with more conventional transactions (see Mehra 2016, and Van Loo 2017:21 and 39-41 on the challenges with extending current consumer protection laws and regulations to the digital intermediary marketplace).

The undisclosed biases and self-interests of digital intermediaries, algorithmic consumers and suppliers, and other online companies are embedded, hidden and protected within algorithms and computer code in a manner that for example can discriminate between different consumer groups and favour larger suppliers and higher priced products over other suppliers and products.

Competition and consumer welfare are further constrained by the information barriers and asymmetries that prevent digital intermediaries, algorithmic consumers, platform cooperatives and potential entrants, from having access to the data they need for designing and operating effective algorithms that are truly helpful to consumers, regulators and the competitive process; and are needed to facilitate entry into digital markets. The proprietary and protected nature of many of these and other AI innovations keep them hidden from public view and from regulatory authorities and civil society groups, by means of corporate, intellectual property, trade secrecy and other laws and regulations and because they are classified by governments as essential to national security.25

There is the danger that similar to conventional nudges, digital nudges, associated with changes to choice architecture and their computer algorithms, will be poorly designed and implemented and will harm the consumer and other users – arguably in ways that are less obvious and harder to remedy, compared with conventional nudges.

A related danger discussed in the DE literature is the intentional or unintentional unethical and non-compliant conduct and consumer, competition, privacy and other regulatory harms, as a consequence of poorly designed and operated algorithms, digital platforms and related software programmes of algorithmic consumers, suppliers and intermediaries. The result can be anticompetitive, consumer welfare, privacy, and other regulatory harms even when there are no obvious and intentional anticompetitive, non-compliant and unethical business practices.
These situations can potentially lead to what can be called “the algorithm is to blame and is the only culprit” defence by online and other companies that are using and benefitting from “algorithmic intelligence”. These possibilities appear to be consistent with recent events, allegations and rationalisations from operators surrounding the most recent American presidential election, whereby voter decisions in political markets were arguably distorted by poorly designed and operated algorithms with “unintentional consequences”.

Mehra (2016) discusses the need to expand cartel and collusion laws in order to encompass “unintentional” price coordination and collusion because of ‘anticompetitive’ robo-seller algorithms and algorithmic/machine-learning from their interactions with other algorithms in digital markets. Accordingly, OECD (2016) and Stucke and Grunes (2016) discuss the “deep learning” of computers and algorithms, which arguably could lead to ‘unintentional’ anticompetitive, consumer protection, privacy and other risks and harms that typically cannot be addressed by existing laws and regulations because of the “blame the algorithm” defence.

Algorithms of all kinds are developed and operated by self-interested and boundedly rational human beings, who either intentionally or unintentionally can design, code and operate algorithms in a non-transparent and hidden manner that can soften competition, increase privacy and related risks, and reduce consumer choice, variety and welfare. For these and other reasons, tacit and other forms of collusion as well as follow-the leader pricing and other forms of joint and collective abuse of dominance can become even more difficult to identify and remedy. In particular, Big Data and related digital applications provide opportunities and incentives for companies to find new ways to collude, especially when these ‘new and improved’ anticompetitive practices are difficult to detect and to prosecute before a competition court, tribunal or commission (OECD 2016:23-24 and Stucke and Ezrachi 2016).

Competition and consumer concerns can also arise as a consequence of the incentives and motivation that are driving private and government run digital intermediaries as well as other algorithm operators, such as maximising the number of subscribers, users, enrollees, transactions, and of course revenues and profits for private operators. These incentives can be very different from those of consumers and other users, leading to potential conflicts of interest and consumer and other regulatory detriment (Van Loo 2017:27-29). Better alignment of incentives in digital markets is a subject area requiring much greater research from a behavioural, institutional and regulatory perspective.
As noted above, producers, suppliers, retailers, service providers, and other sellers have both the incentives and the ability to hide behind these algorithms and pass on the blame to the designers and operators of algorithms for: ‘surge pricing’ and other forms of “dynamic pricing”, sudden and dramatic shifts in securities and other financial markets, and other unpredictable, questionable and detrimental market outcomes, distortions and failures. ‘The devil algorithm is the culprit and made me do it’ (Mehra 2016:1323-1327 and 1338-1339).

There is the potential as well for some private digital intermediaries and marketplaces to not understand, ignore and/or abuse their regulatory roles and responsibilities and their related public functions; and for governments to use private digital regulators as an inappropriate rationale and excuse for deregulation and reducing government regulatory scope, enforcement, budgets and other capabilities (Van Loo 2017:42-45 and Cohen 2016a and 2016b).

One very real risk is that: government-run digital intermediaries/gatekeepers will not be provided with the financial, human capital, technical, and other resources and the legal, regulatory, and procedural authorities, mandates and obligations, which they need to be effective, provide good and complete advice, and reach a large number of households/users/beneficiaries.

The related risks are that an expensive new public intermediary will be closed down soon after start-up because of a change in government; and the over-reactions of politicians, the media and the general public to any start-up problems. An additional risk is that privately operated digital intermediaries that are mandated, sponsored and supported by governments can represent a new and unfamiliar form of regulatory capture and rent seeking by industry.28

Finding the appropriate balance between the potential benefits, costs and risks of algorithmic applications, ‘Big Data’ and digital markets for final consumers, business and government customers, and other purchasers and users, will be challenging for regulators and other participants in digital markets. On the positive side, digital markets and algorithmic intelligence can provide:

- easier, faster, better and less emotional and biased consumer decisions – including the potential for online consumer learning, skill enhancement and empowerment that result in better informed consumer decisions that are better aligned with their social, sustainability, environmental, and related “other regarding” preferences (see. e.g. Gazzola et al 2017)
• reduced information, switching and other transactions costs for consumers, business and government customers, and other users
• potential for lower product prices from more efficient, competitive, and fairer digital/algorithmic markets
• a more level playing field in markets driven by information and
• and perhaps better managed and more efficient, customer oriented and socially responsible national and global supply chains (see Biswas and Sen 2017, Mani et al 2017, Wang et al 2016, Fosso Wamba et al 2015 and KPMG and MGSM 2007)

Furthermore, the expanding literature on Big Data, the Internet of Things and related digital applications predict major benefits for consumers, citizens and voters from:
• smarter cities, intelligent transportation systems, and smarter and higher quality infrastructure investments and services
• higher quality services and improved consumer and public access across a wide range of other government services, functions and objectives including: healthcare and education; social assistance and services as well as enhanced social cohesion; and, public and personal security including improved emergency and disaster response systems and services and
• improved design and implementation of government policies, regulations and programmes through applying the findings and insights from data fusion and other Big Data capabilities – in a manner that enhances policy and regulatory effectiveness and lowers the costs of regulators, regulated entities, civil society groups, and individual consumers and citizens.

Arguably and hopefully, these and other government related applications of Big Data and the Internet of Things can also generate improvements, remedies and potential solutions for a large number of other wicked problems described in the wicked problem literature. It is essential, however, that the government deployment of these technologies is driven by a desire to improve customer service and the effectiveness of policies and regulations, rather than cost savings, employment reductions, and reducing government deficits and debt (see example Lenihan and Pitfield 2017 and Bessis and Dobre 2014). 29

Nonetheless, these consumer and citizen benefits can be offset and arguably could even be swamped by:
• Reductions in consumer, citizen, and voter autonomy, control, self-determination, sovereignty and choice
• The potential for reduced access to and less effective complaints handling and consumer redress mechanisms because of the complexity of many digital markets (leading to questions on who to blame and who should receive the complaint) and the ability of designers, operators and users to blame the algorithm (see for example Consumers International 2017)

• The ‘credence good’ aspects of these algorithms for consumers, suppliers and other customers and users when they are considering their options and deciding on which algorithmic consumer, algorithmic supplier/robo-seller, digital intermediary, or platform cooperative to trust and employ

• Decision errors and lapses in judgment resulting from the bounded rationality, incorrect assumptions and other mistakes that are embedded in the code by the designer

• Control, manipulation and exploitation of consumer and citizen choices by the designer and/or owner of the algorithm and

• Failure of consumers and other users to recognise the potential and actual costs, risks and harms that they are accepting and imposing on themselves:
  o When they are “purchasing a free good”, exiting conventional regulated markets and ‘fleeing’ the regulatory system, and transferring their purchases and loyalty to under-regulated and unregulated digital marketplaces and to robo-sellers, algorithmic suppliers and private digital intermediaries – which represents a form of consumer-led deregulation through consumer exit discussed earlier in Schultz (1995).
  o Transformation of the information problem from information scarcity and cost of the past to the ‘infoglut’ of today and tomorrow i.e. the unmanageably voluminous and mediated flows of information that can result in information, choice and decision overload for virtually every consumer and user – including the well-informed and proactive consumer leaders and the most experienced and knowledgeable regulatory authorities, regulated entities and civil society groups
  o More limited opportunities for consumers, retailers, service providers and other users, businesses and supply chain participants to learn from their personal transactions and other interactions with each other and to learn from situations where markets are not in equilibrium. The research of Hayek, Schumpeter and many other economic thinkers indicates that market disequilibria are, especially important sources of information, cues, stimuli, signals,
incentives, and learning for market participants, particularly for more proactive consumer leaders, risk-seeking entrepreneurs (including the ‘intrapreneurs’ within large corporations) and policy entrepreneurs in government.

As noted above, abuses of dominance and market power, barriers to entry and access to data, and related competition, consumer and supplier risks and harms by algorithm owners which for example, use their algorithms to aggregate consumers into buying groups and apply anticompetitive price discrimination and related practices to increase their prices, revenues and profits (Gal and Elkin-Koren 2017:11-29)

There is the danger that similar to conventional intermediaries, consumers, business customers and other users, including regulatory authorities, will extend too much faith, confidence and trust to algorithmic consumers, digital intermediaries, and other forms of algorithmic intelligence, including those used by platform cooperatives.

A related danger is that consumers, customers and users will not recognise that human beings can design and apply the code and algorithm in a manner that can manipulate and exploit individual biases, heuristics, and cognitive limitations, and perhaps even design the algorithm to self-learn how best to deceive and manipulate consumers and other users and purchasers. A third and broader danger is that “trust in the code” and algorithm would replace and undermine cooperation, trust and reciprocity of trust between individuals and organizations through personal interactions and relationships.31

**Limited Practical Regulatory Experience**

There is virtually no practical experience with and behavioural regulatory and law and economics research on: (i) whether conventional and digital regulators are able to mitigate the consumer, competition, privacy and other risks and harms associated with algorithmic consumers, robo-sellers/algorithmic suppliers, digital intermediaries/regulators, Big Data, and the Internet of Things; and (ii) the potential conflicts and competitive, consumer and other regulatory harms that can emerge when for example, algorithmic consumers, digital intermediaries, robo-sellers, digital marketers and other artificial intelligence applications are “operating, interacting and learning together” on the same ‘mega-platform’ that is owned and operated by a giant digital corporation.32
In her recent article on the regulatory state in the information age and the challenges facing conventional regulatory authorities, Cohen (2016b) and other scholars argue persuasively that the problems which are posed by the information economy, ‘informational capitalism’, and the digital marketplace given as following:

- platform and information power which are more complex and less obvious than market power
- infoglut and information overload instead of information scarcity
- and systemic threats and harms instead of the more discrete and well-defined regulatory harms of conventional markets
- where systemic threats encompass nascent, uncertain, contingent and probabilistically defined harms that would emerge at some point in the future bring conventional regulators into a very challenging and unfamiliar ‘borderless world’.

In this borderless world, (i) geographic, industrial and other functional borders; (ii) the borders between economic, social, environmental and other issues; and (iii) the boundaries between regulatory authorities, mandates, and jurisdictions become irrelevant to digital regulated entities and murky, confusing, problematic. Also constraining for governments, their regulatory authorities, and other regulatory actors starting with the final consumer and their associations (Cohen 2016b:397-402).

The information age regulatory models that are starting to emerge: tend to be procedurally informal, are mediated by networks of professional and technical expertise that define the relevant regulatory standards, are opaque to consumers and other external players, and are prone to regulatory capture (Cohen 2016b: 369).

In his article on the compliance issues and considerations relevant to data privacy and Big Data, Yu (2014) provides a review of the existing privacy principles and more formal rules and regulations. This review is conducted from the perspective of the major privacy challenges that are posed by the recent introduction of cost-effective technologies and solutions for the longer-term storage of huge amounts of transaction and related data. These technologies are allowing an expanding number of companies to make profitable investments “in keeping more and more data for longer and longer periods of time” (Yu 2014:1).

The overall message from the Yu (2014) review is that the existing privacy principles, rules and regulations provide a great deal of scope and opportunity for Big Data companies to profit from:

- doing the bare minimum and complying with the letter, but not the spirit of the principles, rules and regulations, and in particular not
complying with the social norms that capture the ‘spirit’ and ethical intent and purpose of privacy principles, rules and regulations and,

• conducting various forms of “bending the rules” and “strategic and creative compliance”, and of partial, incomplete, intermediate, disguised, and less obvious non-compliance, which would be highly profitable and very easy to rationalise in the ‘Big Data’ era.

This is partially because the typical big data system is built for batch processing, rather than for accountability and interactivity – which would better facilitate the retrieval, complete removal, and correction of the personal data of consumers and others. As noted earlier, in these situations, blaming the big data system and the algorithm provides the rationale and excuse for non-compliance and morally questionable conduct (Yu 2014:4).

Mehra (2016:1328) contends that the Sherman Act in the United States – and by inference and extension likely the anti-cartel laws in many other and perhaps most competition law jurisdictions – contain gaps in their coverage: “under which oligopolists that can achieve price coordination interdependently, without communication or facilitating practices, generally escape antitrust enforcement, even when their actions yield supra-competitive pricing that harms consumers”.

Robo-sellers and their algorithms significantly expand the challenges faced by competition authorities and sectoral regulators when dealing with tacit collusion, joint and collective dominance by oligopoly sellers, and other less obvious forms of horizontal price coordination and interdependent pricing and questionable conduct between competitors. Based especially on the Cournot oligopoly model, these forms of interdependent pricing, are both more stable and more difficult to detect than cartels. “The rise of the robo-seller exacerbates antitrust law’s longstanding weakness at addressing social harm from oligopoly (Mehra 2016:1346 and 1351)”.

Accordingly, robo-sellers and their algorithms can make cartels, tacit collusion, and other collusive and anticompetitive practices more sustainable and durable through for example:

• making cooperation easier and more automatic and profitable
• reducing the risk of ‘emotional and irrational defection and defection errors by cartel members – because of the more accurate and up-to-date price and quantity information held by the robo-seller, and automated data collection and analysis and related decision making processes that remove the ‘boundedly rational’ human factor
• reducing the profits and other benefits from defection and cheating and
- lowering the fear, distrust and related extrinsic incentives to defect and become a whistleblower

Furthermore, the robo-seller cartel is more difficult to detect by regulators and other groups compared with conventional cartels where price and quantity information is distributed among cartel members based typically on a formal written agreement.\textsuperscript{33} However, robo-sellers and algorithmic suppliers can provide important efficiencies that can enhance competitive intelligence, improve human decision making, generate substantial labour, transaction, and other cost savings, and reduce marginal costs. In some and perhaps many market and regulatory contexts, the corporate and market benefits from these and other information technology (IT) applications can help to offset the risk and harm of intentional and/or unintentional price coordination and other anticompetitive and regulatory conduct and harms that are built into the algorithm’s code and into the algorithm’s self-learning capabilities.\textsuperscript{34}

Notwithstanding the possible efficiency, consumer and producer benefits and net increases in social welfare, the core issue is whether robo-sellers can be effectively regulated in a manner that maximises the benefits and minimises the risks and costs to final consumers and other purchasers. These issues and challenges make the robo-seller and related forms of algorithmic intelligence a super wicked regulatory problem (Mehra 2016:1373-1374).

These situations require careful, complex and contingent application of the “rule of reason” approach and the substantial lessening and prevention of competition test by competition authorities (Mehra 2016:1328-1334, 1340-1351 and 1362, and Lynch 2017). It is probable that regulatory authorities in other domains will be facing similar challenges:
- with applying the substantiality, efficiency, competition, consumer welfare, distributional, and related tests and standards to “algorithmic enforcement matters” regarding for example;
- coordinated non-compliant and unethical conduct across competitors and other actors on: product quality and safety, consumer deception, privacy, environmental matters, insider trading, as well as other forms of non-compliance and regulatory harm.

These challenges will be especially daunting for smaller and/or less experienced and resourced competition, sectoral and other authorities,
particularly those in developing and emerging economies (see Ireland and Kofler 2012).

As discussed in the main text, these issues and challenges point out both the benefits and limitations from applying the optimal regulation model to algorithmic consumers, suppliers and regulators. It is argued that optimal regulation models and conventional cost-benefit and regulatory impact analysis should be modified and extended to take account of: behavioural biases, emotional responses, and the related behavioural and cognitive limitations and attributes of “REA organisations and people”; imperfect information and information asymmetries; reputation effects; and other behavioural considerations that typically are ignored and assumed away in the more conventional literatures.35

Regardless, the possibilities for price, quantity, quality, service and many other forms of horizontal coordination made possible by robo-sellers and their algorithms require much greater research from a behavioural industrial organisation perspective; and from the behavioural and psychological perspective on how robo-sellers and algorithmic suppliers reduce the extrinsic, image-based and intrinsic incentives to comply of businesses through for example:

(i) transforming personal moral dilemmas into impersonal or non-personal moral dilemmas (see Mehra 2016:1374 on the famous “trolley problem” in moral philosophy)
(ii) delegating non-compliance to a machine and blaming the robo-seller/algorithmic supplier or the algorithmic consumer for the non-compliant and unethical conduct and harm that are detected by regulators, the media, civil society, and other groups and
(iii) making justifications and rationalisations for non-compliant and unethical conduct even easier and more frequent because the non-compliance was ‘unintentional’.36

It should be remembered that the designers, operators and users of algorithmic and machine-learning applications are highly entrepreneurial and innovative. We should not be surprised if some of these highly innovative companies and their senior officers apply their creativity to designing, operating and using these applications in order to ignore and avoid laws, regulations and social norms – and to developing ‘creative and innovative’ rationalisations for their misconduct and resulting harm (see Ireland 2014b on the importance of rationalisation to regulatory misconduct and the regulatory compliance paradox).
Regulating by robot

As noted in the main text, Coglianese and Lehr (2017) bring a more favourable perspective to the contributions that machine-learning, artificial intelligence, and regulating by robot can make to administrative decision making and regulatory effectiveness and efficiency in the United States. In their article, they presume that adjudicating would be by algorithm, and rulemaking would be by robot. The two authors recognise some of the concerns, dangers and risks associated with regulating through artificial intelligence and machine-learning.

“These worries about AI’s impact on human liberty have surfaced over the use of machine learning by private-sector institutions, such as banks and media companies, but presumably the prospect of governmental reliance on autonomous, self-learning robots only magnifies any perceived risks of digital oppression. Machine learning uses by defence, homeland security, and criminal law enforcement authorities have understandably begun to trigger alarm and prompt serious ethical consideration. Waging war through robots. For example, presents obviously novel concerns. The use of algorithms to analyse telephone records and other personal information has also sparked extensive public controversy over privacy issues. Similar controversies surround law enforcement agencies’ use of machine learning to detect, respond to and perhaps even predict crime (Coglianese and Lehr 2017:1151)”.

Nonetheless, the two authors conclude that the possible legal constraints posed by regulating by AI, machine-learning and robots are quite limited and can be minimised while the benefits for regulatory efficiency, effectiveness, and achievement of objectives could be quite substantial. Their key conclusion from the perspective of the American legal system and case law is:

“At first glance, the idea of algorithmic regulation might appear to offend one or more traditional doctrines, such as the non-delegation doctrine, procedural due process, equal protection, or principles of reason-giving and transparency. We conclude, however, that when machine-learning technology is properly understood, its use by government agencies can comfortably fit within these conventional legal parameters. We recognise, of course, that the legality of regulation by robot is only one criterion by which its use should be assessed. Agencies should not apply algorithms cavalierly, even if doing so might not run afoul of the law; in some cases, safeguards might be needed for machine-learning to satisfy broader, good-governance aspirations.
Yet, in contrast with the emerging alarmism, we resist any categorical dismissal of a future administrative state in which algorithmic automation guides, and even at times makes, key decisions. Instead, we urge that governmental reliance on machine-learning should be approached with measured optimism about the potential benefits such technology can offer society by making government smarter and its decisions more efficient and just (Coglianese and Lehr 2017: Abstract pages 1147-1148; see as well page 1154)

Other insights from Coglianese and Lehr (2017) that are relevant to this research and paper are as follows. The role of these applications is to optimise some objective function/goal which would be determined by officials (human beings) based on their assessment of the content and intent of relevant laws, regulations and rules. To the extent that these goals include efficiency, effectiveness and related criteria, regulating by robot would be broadly consistent with optimal regulation and conventional neoclassical economics and benefit-cost analysis.

As long as the machine-learning algorithm is designed in good faith and in an appropriate manner with no obvious and intentional biases in favour of one group or another, AI and machine-learning based regulatory applications are less likely to be biased and to discriminate against and disadvantage certain ethnic, minority and other groups – in comparison with human regulatory agents.

Relative to more conventional econometric and other statistical techniques, machine-learning based applications are more of a ‘black box’ whereby the cause and effect explanations for the results are less obvious to analysts, decision makers and the general public. “Machine-learning algorithms transform a series of inputs to a series of outputs by optimizing a performance criterion, but that is where the analyst’s easy ability to interpret the algorithms’ workings comes to an end (Coglianese and Lehr 2017:1159)”.

There are three major properties of machine-learning algorithms that set them apart from other analytical techniques. These comprise:
• their self-learning properties which allow them to look for patterns on their own with no human guidance and control;
• machine-learning’s “black-box” attributes discussed above and
• fast and automatic nature of machine-learning which potentially allows human deliberation and decision making to be bypassed when needed (Coglianese and Lehr 2017:1167).

Aversions to risk, ambiguity, novelty and the unfamiliar might mean that judges, commissioners, senior bureaucrats, politicians and other
decision makers may not be comfortable with and may be reluctant to accept the validity of machine generated evidence from a ‘black box’. And the responses of defendants to such evidence will likely be highly negative and emotionally charged.

However, the authors conclude that the ‘black box’ aspect is not problematic unless pernicious and discriminatory outcomes are explicitly built into the ‘black box’ by designers at the request of government regulatory and other clients (Coglianese and Lehr 2017:1199).

With the private sector relying more and more on algorithms to make faster and better decisions, “the increased speed and complexity of economic activity in the machine-learning era surely demands that government agencies keep pace and make use of the same analytic tools in order to regulate the private sector more effectively” (Coglianese and Lehr 2017:1153). In short, as regulatory problems become increasingly complex, ambiguous and ‘wicked’, machine-learning algorithms are needed to help regulators and other government ministries to mitigate the wicked characteristics of these regulatory problems.

As noted earlier in this document, rulemaking by robot and adjudicating by algorithm require more open, inclusive, responsive and polycentric regulatory approaches. “Third, we should consider what happens to human contact in a world of robotic regulators and algorithmic adjudicators... Administrative officials that use algorithms should seek to listen to interested members of the public as they design systems for rulemaking by robot or adjudicating by algorithm. These officials should also encourage participation through interactive methods that treat beneficiaries, targets of regulation, and all other affected parties with respect and dignity (Coglianese and Lehr 2017:1219)”.

Machine-learning should not be driven by cost savings and job reduction in order to reduce government spending, deficits and debt. Instead, cost savings should be redirected towards improving regulatory effectiveness and further efficiencies; better protecting the large volumes of private information that are needed to run these algorithms in order to minimize privacy intrusions (Coglianese and Lehr 2017:1220); and the design and operation of more inclusive, responsive and polycentric regulatory regimes.

This article and its conclusions may be less relevant to other OECD countries and developing and emerging economies. The overall impression of this author is that the American legal issues and constraints may be less consequential and constraining in many other countries with very different legal systems and histories; but this presumption requires much greater research.
Furthermore, Coglianese and Lehr (2017) focus mostly on governments that are regulating through machine-learning, AI and robot; and give less attention to how machine-learning regulators operated by government will interact with and learn from other AI based innovations and ‘learning machines’ operated by non-government intermediaries, regulated entities, and other DE actors that are discussed in this appendix and throughout this paper. These interactions and joint and collective learning by machines could have a major but difficult to discern and understand influence on the effectiveness of the government’s machine-learning regulators and on how the competitive and regulatory game is played by digital marketplace actors.

**Algorithms’ Interactions and Reinforcement Learning in the Crowded Digital Marketplace**

Once regulatory actors make their decisions and find out whether the expected, predicted and hoped-for benefits and other outcomes have been achieved, they then learn from experience and their interactions with other actors in regulated, economic, market, social and other contexts. The behavioural, neuro-economics and neuroscience literatures are exploring, and increasing our understanding of, a number of learning systems in a manner that is clearly relevant to regulatory decision making and actors operating in digital market contexts.

Particular attention has been given to reinforcement learning and value learning through reinforcement, which involve a trial-and-error and “learning-by-doing, making errors and correcting errors” form of learning. Reinforcement learning takes place through interacting with a dynamic environment in a manner that is intended to obtain and maximize rewards and avoid punishment, losses and other aversive outcomes.

Lee et al (2012) explores the neural basis of reinforcement learning and its links with decision making: “Reinforcement learning is an adaptive process in which an animal utilises its previous experience to improve the outcomes of future choices. Computational theories of reinforcement learning play a central role in the newly emerging areas of neuro-economics and decision neuroscience.

In this framework, actions are chosen according to their value functions, which describe how much future reward is expected from each action. Value functions can be adjusted not only through reward and penalty, but also by the animal's knowledge of its current environment. Studies have revealed that a large proportion of the brain is involved in representing and updating value functions and using them to choose an
action. However, how the nature of a behavioural task affects the neural mechanisms of reinforcement learning remains incompletely understood. Future studies should uncover the principles by which different computational elements of reinforcement learning are dynamically coordinated across the entire brain (Lee et al 2012:1).”

The concept of reinforcement learning is also being applied to the world of artificial intelligence, algorithms, machine-learning and digital markets, especially regarding securities, foreign exchange and other financial markets. Coglianese and Lehr (2017:1173) place this literature within a regulatory context.

“Agent-based modeling refers to the use of an algorithm consisting of a mathematically-defined environment that includes agents that observe the overall environment and take actions designed to reach a specified goal. Multi-agent systems are similar to agent-based models but with multiple autonomous agents interacting with each other. With either of these agent-based techniques, the agents which in the rulemaking context, would include the regulator and the regulated entities must have some defined decision-making processes that allow them to translate observations of the environment into actions.

These decision-making processes can be specified a priori by the researcher or regulatory official, but such a priori knowledge often does not exist or is not sophisticated enough to mimic how real-world agents make their decisions. Therefore, machine learning – often called reinforcement learning in these applications (or what we will, for ease of reference, call ‘embedded machine learning’) – is incorporated into agent-based models’ decision-making processes of individual agents. The mathematical agents within these systems, in other words, learn how to make decisions” (see as well Busoniu et al 2008 on multi-agent reinforcement learning; Szepesvari 2009 on algorithms for reinforcement learning; and Kaelbling 1996 on reinforcement learning from a computer-science perspective).

As noted above, reinforcement learning by algorithms and robots has been, especially assessed for securities, foreign exchange and other financial markets (see e.g. Lu 2017, Kaur 2017, Hwang et al 2017, Cumming 2015, and Moody and Saffell 1999). These and other studies have indicated that algorithmic traders can be designed to learn from their trading environments, and can often out-perform human traders by means of “value learning through reinforcement”. These traders that learn from experience can also out-perform non-learning algorithmic traders that are programmed to follow a well-defined set of instructions for making a trade.
Kaur (2017:1) explored the possibility of using reinforcement learning to build an AI [artificial intelligence] agent that performs automated trading. Essentially, the problem can be summarised as: “Train an AI agent to learn an optimal trading strategy based on historical data and maximise the generated profit with minimum human intervention”. The training strategy is considered optimal if the average profits generated by using the strategy are significantly greater as compared to various other algorithmic strategies commonly in use these days”. The Kaur (2017) study results were generally favourable compared with human traders and with algorithmic traders that do not employ reinforcement learning.

In his article on agent inspired trading using recurrent reinforcement learning, Lu (2017) found: “Like a human, our agents learn for themselves to achieve successful strategies that lead to the greatest long-term rewards. This paradigm of learning by trial-and-error, solely from rewards or punishments, is known as reinforcement learning (RL). Also like a human, our agents construct and learn their own knowledge directly from raw inputs, such as computer vision, without any hand or manual engineered features or domain heuristics. This is achieved by deep learning of neural networks.”

These studies tend to focus on a single algorithmic trader and how the trader interacts with and learns from a more generalised dynamic trading environment – rather than focusing on how one algorithmic trader interacts with a second, third, fourth and numerous other algorithmic traders as well as government and non-government algorithmic regulators and other intermediaries that are operating in the same trading space.

The work of Coglianese and Lehr (2017) on multi-agent systems where multiple autonomous agents are interacting with each other; and the study of Busoniu et al (2008) on multi-agent reinforcement learning come closer to what this author believes is the real world situation in the increasingly crowded, complex, dynamic, and unpredictable digital marketplace – where different algorithmic agents with different interests and objective functions are interacting and competing with each other.

For example, Busoniu et al (2008:1) investigate multi-agent reinforcement learning within a multi-agent system where agents have different goals including: “stability of the agents’ learning dynamics, and adaptation to the changing behaviour of the other agents”. Multi-agent reinforcement learning brings together the results and insights from single-agent reinforcement learning and game theory; and focusses on multi-agent systems that involve a complex brew of fully cooperative, fully competitive, and mixed competitive/cooperative activities, which would
likely be found in many digital markets and regulatory spaces where ‘competition’ is prominent.

**Need for New Regulatory Approaches**

New, innovative and totally unfamiliar approaches to regulatory threats and harms are needed to address regulatory misconduct and harm in the Digital Economy. These approaches require the reorientation of regulatory authorities and regimes:

- from the comparatively discrete and well-defined harms and linear relationships between misconduct and harm of the industrial mode of development
- which normally can be evaluated through conventional risk and cost-benefit analysis
- to the systemic, nascent, uncertain, ambiguous, contingent, and probabilistically-defined threats and harms of the information age
- which might or might not emerge at some point in the indeterminate future and
- and arguably require precautionary principle type policy and regulatory approaches that are both highly controversial and carry their own challenges and risks including for entrepreneurship, innovation and consumer well-being (Cohen 2016b:289-295 and Kahneman 2011:342-343)

The related danger is that digital intermediaries, digital regulators, and related algorithms will be employed either intentionally or unintentionally to promote new, unfamiliar and hidden forms of deregulation, minimal oversight, and regulated entity non-compliance and misconduct (Van Loo 2017 and Cohen 2016a and 2016b).

For example, many of the larger Internet companies are now relying on automated detection and filtering systems in order to avoid liability for copyright infringement, while the recent Volkswagen scandal illustrates how the automation of compliance functions can facilitate evasion of regulatory oversight, investigation, and penalties. Under these circumstances, governments and their regulatory authorities may place too much faith and confidence in their own algorithmic regulators as well as those of digital intermediaries and their regulated entities.

“The new regulatory modalities therefore have at least the potential to address information-economy regulatory problems more effectively than older, command-and-control modalities. In practice, however, those issues rarely are confronted head-on because more basic transparency
concerns intervene” (Cohen 2016b:403-405: see as well Bamberger 2010 on the technologies of compliance and risk and regulation in the digital age).

As noted earlier, unintentional deregulation leading to greater regulatory misconduct and harm could also be promoted by governments and their regulatory authorities that extend too much confidence and misplaced trust to digital intermediaries and other forms of algorithmic intelligence.

Policy, legal, regulatory and other matters including enforcement cases, which raise issues for two or more legal and regulatory regimes at different functional, jurisdictional or spatial scales, will be especially challenging; and will require information, idea and methodology sharing and other forms of cooperation across different regulatory regimes at different scales between and within countries in order to minimise the risk of Type I and Type II errors. As noted in Appendix A, cross-border and cross-jurisdictional enforcement, policy and other matters that are complex but manageable for conventional markets could often become wicked and intractable for digital markets.

For example, when reviewing mergers, other horizontal and vertical arrangements, and possible abuses of dominant position involving firms within digital markets, competition authorities acting on their own may focus largely on the short-term price effects; and might largely ignore the implications of the transaction, arrangement or business practice for:

- consumer deception, manipulation and exploitation
- consumer privacy and personal identity security and theft
- the monopolisation of data and abuse of dominance in information markets
- increase in lobbying influence and political power that are associated with expanded market power in product, geographic and information markets
- long-term innovation impacts
- generation of new more innovative products and process, organizational and other innovations in the future that can either enhance or prevent competition and consumer satisfaction in the years ahead and
- other non-price considerations that can affect competition and consumer welfare when competition and antitrust authorities are largely employing the price model or the linear structure/conduct/performance model (OECD 2016:14-24 and Ireland and Kofler 2012)
OECD (2016:17-18) contends: “When competition authorities focus solely on the price effects of a transaction, some anticompetitive mergers may end up being cleared unconditionally, with potentially a significant future cost for consumers. However, if the risk of monopolisation of data or the privacy costs imposed on consumers are taken into consideration, the decisions may dramatically change to account for other important dimensions of competition policy”.

On the one hand, a Type II error by a competition authority which results in approval of an anticompetitive merger through focusing solely on short-term price effects and ignoring privacy and other forms of non-price competition could generate ‘wicked’ problems for privacy, consumer protection, product safety, corporate governance and concentration, intellectual property, telecommunications, and other regulatory authorities in the same and different jurisdictions.

On the other hand, making a Type I error and rejecting a pro-competitive and potentially highly innovative merger transaction for similar reasons could impede the efforts of governments and their Ministries, agencies and private sector partners from achieving their innovation, competitiveness, privacy, consumer welfare, inclusive growth, and related socio-economic objectives.

It appears possible and even probable that, when compared with more conventional products and markets, a competition policy, enforcement or other matter involving firms and other actors in a digital marketplace will on average involve and require contributions from a larger number of regulatory entities including: IPR offices, science, technology and innovation Ministries; consumer protection authorities; sectoral regulators perhaps especially in telecommunications, transport and financial services; and standard setting organisations within and outside government.

The Digital Economy and marketplace is characterised by complex, ambiguous, confusing, and potentially conflicting roles, responsibilities, and functions of governments and their policymaking, legal, regulatory, programming, and other ministries and agencies. These responsibilities comprise:

- More conventional legal and regulatory oversight of the conduct and outcomes of non-government actors and of more commercially oriented government actors including state owned enterprises in digital market.
- Expanding their own often highly limited knowledge, learning, expertise and experience, with Big Data, the Internet of Things, algorithmic intelligence and competition, “self-learning algorithms”, and other complexities of the digital marketplace.
• Providing financial, technical and other forms of support, perhaps including public-private partnerships, in order to expand the size, profitability, and competitiveness of existing domestic firms/national champions in the Digital Economy, and to promote the entry and expansion of innovative start-ups – including the mavericks and competitive fringe that can heighten non-price and pro-consumer competition in key digital markets where anticompetitive and unethical practices are emerging.

• Effectively and ethically utilising the information, findings and other insights from Big Data, data fusion, algorithmic intelligence, the ‘Internet of Things’, and related applications to promote evidence-based policy making and optimal regulation, and improve police, personal security, healthcare, education, social, emergency and other government services and

• Manipulating and exploiting the findings and insights from Big Data, data fusion, algorithmic intelligence, and other applications to influence, manipulate, harass and control citizens and ensure that the current government and its political party win the next election

Issues of ‘Big Brother’, the overly aggressive and intrusive regulatory state, potential violations of political and human rights through unethical use of Big Data, and who is watching the government watchdog, are not limited to the more autocratic governments and nation states such as China, Russia and Turkey. Depending on democratically elected governments as the sole protector of the public interest on Big Data, the Internet of Things, and related algorithmic applications would be highly problematic (see example ohen 2016a and 2016b on the regulatory state in the information age).

A less obvious concern is the perhaps subtle, unintentional and unanticipated implications and influence over the longer-term – on educators, students, and future consumers and other market participants – of the expanding use of software, networks, databases and “algorithmic power and educators” in the digital governance of public education as well as other forms of education and training, which can often involve private sector and other non-governmental creators, sellers, intermediaries and ‘algorithmic educators’.
Finally, Williamson (2015a and 2015b and 2016) explores the recent emergence of digital governance in public education in England, with emphasis on: “some specific approaches to digital governance facilitated by network-based communications and database-driven information processing software that are being discursively promoted in education by cross-sectoral intermediary organisations. Through their promotion of network-based pedagogies and database-driven analytics software, these organisations are seeking to delegate educational decision-making to socio-algorithmic forms of power that have the capacity to predict, govern and activate learners’ capacities and subjectivities (Williamson 2015b:83-87)”.

Williamson and his colleagues point out that the potential benefits, challenges, risks and threats posed by the increasingly crowded, chaotic and competitive digital marketplace have become virtually a “cradle to grave” phenomenon for individuals, governments and society.
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Endnotes


As discussed in the Appendices, wicked problems are not “evil” but rather are more complex, ambiguous, dynamic and difficult to resolve compared with the simpler and more familiar tame problems. Wicked problems can however attract “wickedly evil” people and organizations who wish to profit from the complexity, ambiguity and confusion.

2 In the very recent and well-researched article on “Regulating by Robot: Administrative Decision Making in the Machine-Learning Era”, Coglianese and Lehr (2017) assess the legal and related constraints related to regulating by AI, machine-learning and robots in the United States. Their key conclusion from an American perspective is that: “At first glance, the idea of algorithmic regulation might appear to offend one or more traditional doctrines, such as the nondelegation doctrine, procedural due process, equal protection, or principles of reason-giving and transparency. We conclude, however, that when machine-learning technology is properly understood, its use by government agencies can comfortably fit within these conventional legal parameters” (Coglianese and Lehr 2017: Abstract pages 1147-1148). This important article is further discussed in Appendix C.

3 Scholz (2016) contends that, similar to traditional cooperatives, platform cooperatives would be owned by their members, and would compete with, challenge and hopefully partially replace the “giant” and other platform capitalists that now dominate digital markets through for example: (i) promoting solidarity, worker and human rights, democratic values, higher wages, income security, and related workplace and ethical standards; (ii) facilitating greater transparency and data portability by e.g. sharing pieces of code and other information on the “platform cooperativism commons”; (iii) providing better working conditions, social security, health insurance, employment insurance, and trust-based relationships in their operations and algorithms; and, (iv) complying with other laws, regulations and social norms and providing a protective legal framework to defend cooperatives from adverse legal actions.

4 See FTC (2014) on data brokers, which notes that data brokers generate both consumer benefits and risks but require greater transparency and accountability because consumers are mostly not aware that data brokers are collecting, using, distributing and profiting from their information.

5 For example, even payday loan and other less conventional high-interest lenders are going digital – arguably in part to escape the more aggressive and restrictive payday loan and related regulations and regulators that set interest-rate caps and enforce outright prohibitions in some countries and provinces, states and other sub-national entities in other countries.

6 As illustrated by the many antitrust and competition law cases involving Microsoft, Google, Intel and other digital economy giants over the past two plus decades. See e.g. Ireland (2008 and 2013) and European Commission (2017) “Antitrust: Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service” Brussels, 27 June

7 See for example Jemima Kiss “Does technology pose a threat to our private life” The Guardian August 21 2010 at: https://www.theguardian.com/technology/2010/aug/21/facebook-places-google


“Third, disruptive innovation by its intrinsic nature is risk-taking, unlike governments, which are typically risk-averse. This clash of risk cultures exacerbates the gap between changing technology and policy making, with both needing to move more to risk-management models and behaviours. Fourth, disruptive innovations know few borders, unlike governments, whose borders define their sovereignty and within which they are typically loath to share. The global financial crisis amply demonstrated the gap between “new” financial products traded globally and a patchwork quilt of national regulations and regulators with little cross-border co-operation. Fifth, many of today’s transformative technologies are platform-based, with non-linear scalability and near-zero marginal costs, compared with policy changes in government, which have a bias toward incrementality because it is easier to garner political and public support for tweaking the status quo than embarking on bold new policies.”

9 Applying collaborative standard setting processes to digital products and markets requires greater research and understanding on whether “standard-essential patents” that are deemed to be essential to the success of the voluntary standard would pose larger or smaller competitive and other regulatory risks in digital markets compared with more conventional products and markets. Lerner and Tirole (2015) note that a patent, which is relatively unimportant prior to the standard, can have anticompetitive, inefficiency and other negative effects such as excessive litigation once the standard is established. Moreover, these negative effects will not necessarily be mitigated and eliminated in the marketplace. There may be a tendency for these negative attributes to be exacerbated in digital markets (see Appendix A).

10 See for example Mehra (2016:1361-1374) on “robo-sellers: boon or bane” and the extent to which current antitrust/competition laws and competition authorities can address their anticompetitive conduct and other forms of non-compliance; Van Loo 2017:36-51 on effective and accountable digital regulators and the potential for a holistic law covering digital intermediaries; Gal and Elkin-Koren 2017:33-36 on the implications of algorithmic consumers for regulation; OECD (2016) and Stucke and Grunes (2015 and 2016) on the challenges and limitations of current competition policy, law and authorities for addressing Big Data and related applications; Tsilikas (2016a and 2016b) on collaborative standardization, disruptive innovation, transformative technologies and the case of wireless telecommunications standards; andCoglianese and Lehr (2017 on regulating by robot and possible legal constraints in the United States.
Problems with solutions and remedies are associated with a wide range of behavioural biases and insights such as the attribute substitution heuristic, the bias blind spot, the finite pool of worry and the single action bias, myopia and present-biased preferences, our problems with foresight and complex cause-and-effect relationships, and related biases and cognitive failings.


These initiatives could include the creation and operation of digital platforms in order to share practical and specific information and experience on investigative, enforcement response, compliance promotion, regulatory policy and related matters (see e.g. Ireland 2015 on SDAC ‘s web-based competition case resource database and digital platform).


For example, Coglianese and Lehr note that algorithmic regulators based on artificial intelligence, machine-learning and huge datasets are driven by the requirement to maximize a well-specified, quantifiable, and measurable objective function (or goal) that is set by the regulator and its officials. Objective functions typically involve efficiency, effectiveness and related targets derived from the law and regulation that would be consistent with optimal regulation and neoclassical economics.

A more inclusive, polycentric and shared accountability regulatory model would more likely generate objective functions for the algorithmic regulator that have broad-based understanding and support — leading to greater stakeholder, public and political support for the algorithmic regulator and for regulatory regimes that use algorithms and machine-learning to administer and enforce a regulation.

See as well Denton (2011) who notes that, in the digital economy, copyright protection raises many of the more important IPR policy issues, while patents and some aspects of trademark protection can also raise challenges for policymakers.

For example, the importance of and analytical weight to be given to intellectual property rights, especially patents, likely depend on the size of the domestic economy and market and its stage of economic, social and institutional development. For example, patents and other IPRs are likely more important to larger developing economies at a higher stage of development. For smaller and less developed economies, stronger IPRs would impede the imitation and small innovation changes that are so important to these economies.

See Train (1991) on optimal regulation who notes that optimal regulation addresses the central issue of regulatory economics – how to regulate firms in a manner that induces them to produce and price in an optimal manner from a welfare economics perspective. In his article on platforms, systems competition, innovation, and reassessing the foundations of communications policies, Bauer (2014) describes the limitations of optimal regulation and other more conventional regulatory theories, practices and approaches when sectoral, competition/antitrust, and other regulatory authorities are dealing with platform markets/two-sided and multi-sided markets, dynamic and systems competition, continuous change, adaptive learning, continuous and asynchronous innovation, substantial network, spill-over and feedback effects, and multiple equilibria in more dynamic, volatile, complex and interconnected advanced communications and related socio-technical systems.
Espinosa-Vega et al (2011) discuss systemic risk and connectedness and an optimal regulatory architecture in the financial sector. These authors construct a political economy model that explicitly takes into account systemic connectedness and the incentives of regulatory authorities, in order to that “under an expanded mandate to explicitly oversee systemic risk, regulators would be more forbearing towards systemically important institutions”. These and other authors on optimal regulation indicate that the optimal regulation approach needs to be modified and nuanced when a regulatory context, issue and problem encompass: heterogeneity, complexity, and interdependencies; dynamic and systems competition; systemic risk and connectedness; technology, innovation, positive and negative externalities, and network effects; reputational effects, trust, reciprocity of trust, and learning; and other wicked characteristics (see as well Ireland 2017a which reviews the literature on behavioural benefit-cost analysis and develops a behaviourally informed negative climate change counterfactual for the Caribbean and other small island nation states).

20 See e.g. Pang (2010:7-11), Tetlock (2005), and Ravetz (2002); Thaler and Sunstein (2008) on fraught choices; Lerner et al (2014) on the emotions, judgment and decision making; and Ireland (2013a) on innovation, firms, the consumer as co-creator and co-innovator, and the “wisdom of the crowd”.


22 For example, the excellent CUTS International Conference on Revisiting Intellectual Property Rights and Competition from the Lens of Optimal Regulation “indicated that limited progress has been made over the past three decades in finding common ground and developing shared visions and mental models between the competition, innovation and intellectual property rights lawyers, economists, government regulators, and other specialists and advocates.


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www.iposgoode.ca/2017/03/intellectual-property-strategy-for-artificial-intelligence/

Eran Kahana Intellectual Property Infringement by Artificial Intelligence
Applications Research Fellow, Stanford Center for Legal Informatics at: https://web.stanford.edu/dept/law/ipsc/PDF/Kahana,%20Eran%20-%20Abstract.pdf


Current evidence suggests that trade secrecy law to protect confidential/proprietary commercial information is used most often by digital economy firms, followed by copyright which can protect both the authored works and other “creations” that result from Big Data as well as the computer software, with patents and trademark law being use less often.

26 Also relevant to “unintentional” non-compliance are Sezer et al (2015) on the ethical blind spot and unintentional unethical behaviour that fall outside conscious awareness, and the studies of Pronin (2007) and her colleagues on the bias blind spot whereby most individuals strongly believe that they are less biased and more socially responsible than other people – which can further explain the “unintentional unethical conduct” of individuals and organizations functioning in the digital marketplace.

27 Van Loo (2017), Gal and Elkin-Koren (2017), Mehra (2016), OECD (2016), and the insights on the ethical blind spot, ethical blindness and unintentional misconduct from the behavioral economics literature.


29 The track record of the Canadian federal governments and likely other governments when applying information technology and related advanced technology “solutions” is to put it mildly mixed. See for example Danny Bradbury Phoenix payroll system: Timeline of the government’s problems” IT World Canada September 11th 2017 at: https://www.itworldcanada.com/article/phoenix-payroll-system-timeline-of-the-governments-problems/396407 and


30 Cohen (2016a:389) argues that “regulatory constructs originating in the era of information scarcity are no longer adequate to preserve equal economic opportunity and prevent predatory and destructive market behaviors. If existing antidiscrimination, consumer protection, and investor protection policies are to be preserved in the era of infoglut, regulators will need to engage more directly with methods of data processing that undermine those policies”.

31 See for example Scholz (2016: 3 and 23-24) on misplaced faith and trust in the Internet and the Internet-based sharing economy; “trust in the code” and resulting algorithms; “blockchain technology” as an algorithmic regulator; and bitcoin, smart contracts, FinTech and related issues in the digital financial economy and marketplace.

Idelberger et al (2016) on logic-based smart contracts for blockchain systems; Capgemini Consulting (2016) on smart contracts in financial services, and getting from hype to reality; Glatz (undated) on smart contracts and choices made by algorithms; and Smart Contracts Alliance (2016) on smart contracts and 12 use cases for business and beyond.


The concerns and opportunities from extending the technology behind bitcoin to other domains are summarised as follows. “Some of bitcoin’s critics have always seen it as the latest techy attempt to spread a “Californian ideology” which promises salvation through technology-induced decentralisation while ignoring and obfuscating the realities of power – and happily concentrating vast wealth in the hands of an elite. The idea of making trust a matter of coding, rather than of democratic politics, legitimacy and accountability, is not necessarily an appealing or empowering one. At the same time, a world with record-keeping mathematically immune to manipulation would have many benefits.”

FinTech or financial technology is an industry comprised of companies that use new technology and innovation with available resources in order to compete in the marketplace of traditional financial institutions and intermediaries in the delivery of financial services.

32 See for example Gal and Elkin-Koren (2017:30-33); Van Loo (2017); Stucke and Grunes (2015 and 2016) on Big Data and competition policy; Mehra (2016), Cohen (2016a and 2016b) on regulation and governance in the information age; and Yu (2014)

33 See for example Mehra (2016:1346-1353) on how robo-sellers minimize the prisoners’ dilemma for cartel members; and Mehra (2016:1356-1359 on how the efforts of competition authorities to sow distrust and fear among cartel members in order to increase defection and the effectiveness of their leniency and whistle-blower programmes are reduced by the hidden automated decision making of robo-sellers and their algorithms.

34 An early illustration of how IT applications can provide a win/win situation for businesses and consumers is provided by Jeffrey Brown in his 2002 article on “Does the Internet Make Markets More Competitive? Evidence from the Life Insurance Industry.”

Ireland (2017a) who reviews and applies the small but expanding literature on behavioural cost-benefit analysis to the super wicked problem of the impacts of climate change on the Caribbean and other small island states; Ireland (2017b) on regulation, governance, behavioural economics and the human brain; and, the expanding literature on behavioural industrial organisation and competition policy and law, which is reviewed from a developing economy perspective in Ireland and Kofler (2012).

As argued by Mehra (2016:1358-1359 and 1361) regarding cartel conduct: “In the absence of a willingness to make the difficult leap of inferring criminal intent from a robo-seller’s actions and imputing that intent to its human deployers, obviously neither reputation-harming stigma nor fear of prison are likely to alter a robo-seller’s behaviour... The robo-seller’s lack of identifiable intent, fear, or a subjective mind that can “meet” pose significant challenges to black-letter antitrust law. The question, as the next section discusses, is how antitrust enforcers can adapt to this challenge.”

This observation can be easily extended to other forms of “unintentional and hidden” forms of non-compliance, misconduct and harm by robo-sellers, which would be addressed under other regulatory regimes (see as well Cohen 2016a and 2016b).

See for example David Butt “Should Artificial Intelligence Play a Role in Justice?” The Globe and Mail June 1 2017 at: https://www.pressreader.com/canada/the-globe-and-mail-bc-edition/20170601/281736974412593

Which arguably is another challenge and problem with wicked characteristics.

See OECD (2016) and Stucke and Ezrachi (2016) discussed above, as well as the extensive literature on the problems that governments have with picking innovation winners and losers in virtually all markets but in particular in complex and unfamiliar digital market and related market contexts that involve science, technology and innovation.


See for example Lenihan and Pitfield (2017) on Big Data, government policymaking and what the authors call Civil Analytics.

See as well as Costello (2015) who puts forward more positive and nuanced arguments on how, why and under what circumstances big data and e-governance supported by “multiple account” benefit-cost analysis, and the behavioural analysis, choice architecture and “nudges” of Thaler and Sunstein (2008), can reconcile (i) neoliberal ideologies, which favours regulatory minimization, economic incentives, and individual and market freedom, (ii) with the need for more efficient, flexible, and responsive governance by the regulatory state. The behavioural analysis discussed in Costello (2015) includes the work of the White House Office
of Information and Regulatory Affairs (OIRA) in the United States which was established in 2009; and the Behavioural Insights Team/"Nudge Unit" in the United Kingdom.

Costello (2015) also describes: the e-governance progress that was being made in Washington DC and other smaller sub-national governments in particularly under the Obama administration; the major e-governance challenges faced by the American federal governments and the national governments of other more advanced OECD economies – including privacy, consent, storage, and appropriate use of big data; the even greater challenges faced by less experienced and under-resourced governments and their bureaucracies in developing and emerging market economies; and the E-governance progress taking place in one Indian state Andhra Pradesh.

42 See as well Natasha Singer “How Google Took Over the Classroom: The tech giant is transforming public education with low-cost laptops and free apps. But schools may be giving Google more than they are getting [from Google]” The New York Times May 13 2017 at: https://www.nytimes.com/2017/05/13/technology/google-education-chromebooks-schools.html?_r=0
Regulation, Competition and Disruptive Innovation
Cases on Thai Energy and Transport Sectors

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Abstract

Regulation and competition are important factors in various sectors. "Regulation for competition" creates market structure which expedites innovation and competition. "Regulation on competition", as a light hand approach provides flexible room for competition to be developed by itself. However, the move from regulation for competition toward regulation on competition is a difficult task for governments. Governments tend to be inertial to transform regulation for competition which is obsolete and creates a barrier to competition and innovation. The paper aims to explore how regulations may create a barrier to competition and innovation. The paper focuses on the cases of Thailand where government is inactive to adapt regulation that harmonizes with competition and disruptive innovation.

The paper will be divided into three parts. The first part discusses on the general ideas of regulation for competition and regulation of competition with regard to innovation. The part presents that regulation can be a facilitator and obstacle of market competition and innovation. The second part of the paper explores the case study in Thailand where government tends to maintain regulations that obstruct competition and
disruptive innovation. The cases examples are on energy and transport sectors where the government still maintain regulation that hinder creation of market competition and innovation. The third part of the paper provides conclusion of the paper with proposals to reconcile regulation with competition and disruptive innovation.

**Regulation, Competition and Innovation**

**Overview on Public Theory and Capture Theory of regulations**

The regulation which facilitates competition and innovation has been a major consideration of economist, jurist, and policy analyst. Posner, in his work on ‘Theories of Economic Regulation’, provides an interesting discussion on regulation within the context of ‘public theory’ and ‘capture theory’.

The public theory considers that the regulation is a form of government mechanism, adopted for enhancing public interest. By the public theory, regulation helps correct economic inefficiency and helps stimulate innovative competition for wider public benefits. The capture theory, in contrast, considers regulation as a tool to protect benefits of interest group. The capture theory on regulation is consonant with Stigler point of view on regulation that regulation is the tool for interest groups.

The interest groups with political connection aim to adopt and to use regulations for establishing economic barrier in order to secure their market position. The regulation by interest group would be a hindrance to competition and innovation. Bo presents similar ideas on regulation under lens of capture theory that it is possible that regulation is under capture because firms have private information that is hard for citizens or their political representatives to obtain. This is also according to Noble Laureate North, who stated in his research that ‘the formal rules are created to serve the interests of those with the bargaining power to create new rules’.

However, some researches point out that regulation is not a result under capture theory but the regulation is an outcome of political bargaining following pressure from various interest groups. Peltzman opines that the capture theory of regulation is the situation of political bargaining power among various interest groups. By the Pelzman’s opinion the regulation is not purely a result from capture by one interest group but bargaining outcomes from various interest groups. By this the regulation is considered as negotiated rules among interest groups. It depends whether which interest group has more bargaining power than the other.
Apart from ideas about captured or public interests on regulation, Shearing observes regulation as a creator of market competition because the regulation can create economic changes which open more room for competition with innovation. Vickers and Yarrow also point out that the regulatory rules on privatised and liberalised infrastructure sector is a mechanism to protect competition and consumer interest.

This is similar to Armstrong et al. and Bishop et al., showing that regulation has to be placed as a significant instrument supporting competition in privatised and commercialised infrastructure sectors. Regulation becomes important mechanism to create competition which then leads to more innovation in market economy. However, it is noted from above literatures that regulation can also be a hindrance for competition and innovation in the sense that the regulation is captured by interest group.

“Regulation for competition” and “Regulation of competition”

As discussed, that regulation can be creators of market competition. There is development of observant view on regulation under the period of deregulation and privatisation during 1980-1990s. The regulation has its roles as market creator and as rules for structural changes. Nevertheless, after competition and innovation have been established, regulation should have limited roles toward market facilitator not the market intervener. Thus, regulation can be seen in types of “Regulation for competition” and “Regulation of competition.”

Regulation for competition

According to Levi-Faur “regulation-for-competition” is regulatory mechanism for establishing market competition. The regulation for competition is that the regulation aiming to support structural changes and open opportunities for competition and innovation to flourish in market economy. Jordana and Levi-Faur also explains that regulation for competition is a technique to obligate regulatory agency to stimulate new technology and freer markets with a unified regulatory regimes.

The regulation for competition is also considered as ex ante rules which change monopoly market to market competition and innovation. The example situation is that regulation for competition has helped reshapes telecommunication sector by reforming and restructuring telecommunication sector.

By “regulation for competition”, telecommunication sector has been changed to a competitive market with a fast pace of innovative
advancement on telecommunication technologies.\textsuperscript{18} The regulation for competition moved forward the telecommunication technologies from home-landline phone, mobile and internet connection. Therefore, the regulation for competition is a rule-based mechanism that creates market competition and innovation in monopoly or concentrated market.

\textit{Regulation of competition}

Regulation can be a support and hindrance to competition and innovation. While the regulation for competition is a main supporter to create competition and innovation in market, the regulation for competition can become a barrier to competition when the goals of market competition has been reached. When the market competition and innovation have been mature, the continuity of regulation might contribute to a difficulty to maintain competitive and innovative process of market.

This is due to the fact that the regulation, without being flexible to a change of competition and innovation, will become interference to competition and innovation. Thus, the regulation for competition has to be flexible and to be able reframe itself from interventionist role to be a ‘regulation of market competition’.\textsuperscript{19}

The difference between regulation for and regulation of market competition, according to Jordana and Lavuier is: “Regulation-of-competition and regulation-for-competition differ in the degree of intervention by state authorities and in the capacities of the state to monitor and enforce competition.

While both require the establishment and the strengthening of governance capacities, regulation-for-competition requires far more intrusive capacities. This is best indicated by the contrast between economy-wide responsibilities of national competition authorities in the case of regulation-of-competition, and sector-specific responsibilities of regulatory authorities in the case of regulation-for-competition”.\textsuperscript{20}

The regulation for competition, once market level playing field has been established, has to changes its roles to a regulation of competition that plays a role as a market referee for the competitive field.\textsuperscript{21} In another word, the regulation of competition is a light-hand approach regulation focussing on only to prevent the anticompetitive conducts in market.\textsuperscript{22} The lighted-handed regulation should be utilised when there is the mature market competition.\textsuperscript{23}

The regulation of market or the light-handed regulation can be considered appropriate when the competition and innovation process is developed. It is because lighted-handed regulation will create efficient competition and innovation while regulation for competition may be
considered as intervention hand deterring market competitive and innovative system.\textsuperscript{24} The example is from UK regulation for energy sector that has been transformed toward the regulation of market competition or the light-handed approach regulation.\textsuperscript{25}

The regulation of competition in UK energy sector is based on little child’s ideas pointing out that regulation is a temporary mechanism holding the fort until the market competition and innovation arrives.\textsuperscript{26} The regulation is for a protection against monopoly but it is not for replacing the competitive and innovative market process.\textsuperscript{27} By this, the regulation of any economic sector has to be agile for retreating its roles to be merely market facilitator when competition and innovation has been mature.\textsuperscript{28}

Nevertheless, the regulation whether to be for or of competition is significant to market competition and innovation. The regulation can be a rudimental tool to liberalised market from monopoly toward competition and innovation. The flow chart below presents the process of regulation for and of market with regards to a creation of competition and innovation.

From the brief review on competition, it is seen that regulation can be considered based on public and capture theory. The regulation also can be an important tool for building market competition and innovation. Nevertheless, it is important to make sure that the regulation use for building competition and innovation should be transform to regulation of competition when competitive and innovative process in market are established.

\textbf{Figure 1: Regulation for and Regulation of Competition and Innovation}

- One or few entities permitted to operate businesses
- Government has a tight control on market

- Liberalisation on monopoly market
- Sector Restructuring toward competition and innovation

- Competitive and innovative process has been established
- Regulation is a market facilitator not the controller
Regulation and Disruptive Innovation: Cases on Energy and Taxi Sectors in Thailand

In this part of the paper, the paper discusses on how the regulations in Thailand react toward a significant business changes from competition and disruptive innovation in energy and taxi sectors.

Regulation and disruptive innovation in energy sector

The initial liberalisation programme to open energy market was adopted during 1990-1994. The liberalisation was based on an adoption of regulation to create market reform toward more competition and to attract private investments. However, the liberalisation went fail with the result that the energy sectors are uncompetitive under a control of state enterprises.\(^2\) In electricity sector, The Electricity Generation Authority of Thailand (EGAT) maintains its monopoly position in electricity generation, distribution and transmission.

The EGAT monopoly position is due to Electricity Generating Authority of Thailand. Act, B.E. 2511. The Act stipulates that EGAT is a monopoly electricity generator and all other electricity generators must sell the electricity supply to EGAT under regulation of single buyer.\(^3\) The single buyer scheme is an electricity supply structure under vertically integrated

![Figure 2: Structure of Electric Power Sector](http://www-pub.iaea.org/MTCD/Publications/PDF/CNPP2013_CD/countryprofiles/Thailand/Thailand.htm)
utility with the EGAT. The EGAT, as a single buyer, sells electricity supply to Metropolitan Electricity Authority of Thailand (MEA) and Provincial Electricity Authority of Thailand (PEA). The MEA and PEA are monopoly of electricity retail in metropolitan and provincial areas respectively.

The issue in Thai electricity sector is that the regulation is only for maintenance of monopoly position of state enterprises with no room to create competition and innovation. The greater concern is that the regulation for monopoly would obstruct the disruptive energy innovation. The example is on photovoltaic or solar energy. While Thai government shows that it aims to increase an instalment of household and industrial photovoltaic, the electricity regulation prohibited any liberalised trade of electricity supply from photovoltaic. 31

The regulation requires all household and industrial photovoltaic generators to sell electricity to EGAT. Thus, the regulation is considered as an obstruction to a use of new or disruptive solar technology. In addition, EGAT, by having various non-renewable power plans, plan to build more coal power plants which is contradict with government environment conservation policy.

The existence of EGAT’s currents and future power plants would prolong the liberalisation of photovoltaic electricity. 32 This is because the regulation maintains monopoly position of EGAT’s significant sunk cost for electricity generator. The regulation relies only on EGAT to build and operate large-scale power plants. The sunk costs would then require Thai government not to changes regulation as to liberalise market for new competition and new innovation on electricity, especially the photovoltaic electricity generation.

Even though, there is a vital invention of thin-film solar cells for ‘zero-energy’, 33 the regulation will be a significant stoppage of use and development on the innovation. The recent information from media is that the government, while publishing that it support solar-panel energy, the government plan to issue regulation to tax solar cell electricity of households and industries. The tax regulation tends to contradict to an aim to support solar cell innovation. 34 The regulation will also become a hindrance to any form of new electricity innovation.

Furthermore, the oil and gas sectors in Thailand are under tight regulatory control by government. While the oil and gas sectors have been partially liberalised basing on privatisation of Petroleum Authority of Thailand (PTT). 35 The PTT, as a partial state enterprise still maintain monopoly position on gas supply and dominate oil supply. The monopoly and dominant position, couple with government support will contribute
to a difficulty to new disruptive innovation on energy usages. It is because any move toward new technology, for instance electricity car, will run in conflict with PTT’s sunk costs on oil and gas.

Therefore, in Thai energy sector, regulation seems not consistent with competition and innovation. There is only regulation for monopoly without regulation for competition and innovation.

**Regulation and disruptive innovation in taxi sector**

Taxi services in Thailand are under governance of *Land Transport Act, B.E. 2522 (1979)* and *Vehicle Act, B.E. 2522 (1979)*. Section 23 of Land Transport Act prescribes that any taxi transport by a small vehicle or private transport must obtain registered license from Department of Land Transport. The Land Transport Act authorises officers to govern and control Taxi services as to make sure that the Taxi services maintain their set standard of services.

Moreover, Section 21 of Vehicle Act prohibits any use of car that is not accordance with registered plates. Section 22 of the Vehicle Act also prohibits personal car to be used as a Taxi car servicing to passengers, except having permission from officials at Department of Land Transport.

The regulation by the Land Transport Act and the Vehicle Act create a prohibition to Uber, Grab, and Lyfts applications which is considered a disruptive innovation for better transport services to taxi passengers. According to Cramer and Krueger, Uber and Lyft are a significant innovation of Internet-based mobile technology to match passengers and drivers with disruptive competition in the taxi sectors. The Uber, Lyfts and Grab as an innovative way of transport are an innovation that increases taxi choices and efficient taxi service to consumers.

In Thailand, Uber, Lyfts and Grab services have already entered market and compete directly to conventional taxi service. The conventional taxi then reacts by lobbying government to enforce regulation set out in the Land Transport Act and Vehicle Act. Taxis in Thailand collectively protest to government to ban the taxi business relating to Uber, Lyfts and Grab.

Interestingly, Thai government agrees with lobby from conventional taxi and rigidly enforce the regulation to ban drivers of Uber, Lyfts and Grab. The transport authorities of Thailand commenced a crackdown on drivers for ride-hailing services of Uber and Grab. The transport authorities even requested the military government to issue a legal ban on the Uber and Grab services.

In addition, the chief of Department of Land Transport, Sanit Phromwong stated in news report that the department cannot allow
the adoption of technology to use a personal car as a taxi service because it violates the Vehicle Act. The arrested Uber and Grab drivers had to pass a criminal record check and their profiles had to be recorded in the department’s databases.

What can be seen from the case of Taxi services in Thailand is that regulation does not work well with innovation that rapidly changes the taxi service sector. The regulation is inflexible for new disrupt innovation. The government, in facing pressure from conventional taxi, decides to use regulation against innovation and competition. The regulation is use as a tool to maintain benefit to conventional taxi and neglect benefits of consumers.

The regulation in this situation can be considered as regulation for only interest group. The regulation will thus be a major hindrance to development of competition and innovation in the taxi service. By the use of regulation, the loss will fall to consumers. The regulation in this situation, thus, can be considered as regulatory captured by groups of conventional taxi services.

From the cases on energy and taxi sectors, regulations in Thailand are underdeveloped in order to support competition and innovation. Regulations are used to react to competition and innovation in the way of prohibition. The regulation becomes main barrier to competition and innovation. Considering to the brief literature review on regulations in the first part of the paper, regulations in Thailand are under “capture theory”.

The regulations, while purporting to create public benefits, are captured by interest groups that use political influence as to secure their economic benefits. The Thai energy regulations are captured by state enterprises which control electricity and gas sectors. The captured regulation secures dominant position of state enterprises and hinders development on energy competition and innovation. By the captured regulation, any innovation for efficient energy would be deterred and might not lead to energy development.

In addition, the regulation on taxi services in Thailand can be considered as captured regulation. The regulation still maintains the conventional taxi services which are not accordance with consumers’ needs. The regulation, purported to provide public benefit, is enforced to secure benefits of conventional taxi services. Any innovation on transport services would then face with difficulty from regulatory barrier which maintain for conventional transport services.

With regards to regulation and competitive innovation, regulation in Thailand cannot be classified as any regulation for competition and
regulation of competition. The regulation in Thailand is for secure dominant or monopoly position of groups. The regulation does not support competition creation and does not adapt to any innovative changes of business contexts. It is imperative government which neglects any innovative and competitive change business. The government by maintaining regulation to conserve any business without recognition to innovation and competition, is a vital factor, hindering economic development.

Conclusion

The paper provides overview of relationship among regulation, competition, and innovation. The regulation can be a vital mechanism supporting competition and innovative changes of business. Regulation, with a purpose for public interest, aims to create market competition and innovation for increase of economic efficiency. Regulation with a purpose under capture interest aims to maintain barrier to market competition and innovation. The regulation also has to be flexible for competitive and innovative changes of market contexts.

However, as presented in the paper, the regulation in Thailand inclines to be a captured regulation which discards public interest. Regulation in Thai energy and taxi sectors maintains conventional ways of businesses and prohibits any innovative changes. Therefore, the regulation in Thailand is a major difficulty to competition and innovation.

By the issue of regulation in Thai energy and taxi sectors, the paper proposes that there should be for regulatory developments in Thailand based on “RIA and the Establishment of Regulation Support Competition and Innovation”.

Reforms based on Regulatory Impact Analysis

There is a need to make regulatory reforms for energy and taxi sectors in Thailand. The reform on the regulation should be based on ideas of RIA that is a systemic approach critically assessing advantage and disadvantage of regulation. The concepts of RIA have been utilised for better regulation in various countries and international organisation. The RIA would lead to an understanding of regulatory impacts to all stakeholders and to a development of regulation as to maximise economic and social efficiency.

The RIA under appropriate systematic framework can evaluate capacity of governments to ensure that regulations are efficient and effective in rapid changes of innovation in economies. Therefore, in the case of
energy and taxi regulation in Thailand, it should be an adoption of RIA to the regulations. The RIA should lead to an understanding on issues of current regulation and to possible reforms on the regulation. The aim of the reform then should be centered at making regulation that support competition and innovation in Thai energy and taxi sectors.

**Establishment of regulation support competition and innovation**

It is important that regulation should be established as to be facilitators to competition and innovation. According to OECD report, the regulation that supports competition and innovation should be regulation which understands technology, removes duplicate administration, and promotes competition among business. The regulation should be flexible enough to allow new forms of competition from innovation. The regulation should also allow pro-competitive reforms across markets.

Hence, when considering to regulation on Thai energy and Taxi, it should be an establishment of regulation that supports the uses and development of innovation with an aim to promote competition for market efficiency. It is proposed that there is a need to remove regulatory barriers for innovation in Thai energy and taxi sectors, and that establish regulation that enhance competition and innovation in the said two sectors.

In the conclusion, the cases from Thailand show that regulation should be reformed as to promote competition and innovation. The harmonisation among regulation, competition and innovation is needed. If governments do not initiate regulatory reform, disruptive innovation and market competition will make the regulation obsolete. The obsolete regulation will lack public compliance in very near future. By knowing regulatory issue in Thailand, it is highly hoped that other countries would not follow Thai government which enforce regulation to hinder competition and innovation.
Endnotes

2 Ibid.
3 Ibid.
5 Ibid.
10 Clifford Shearing, ‘A Constitutive Conception of Regulation’ in Peter Grabosky and John Braithwaite (eds), Business Regulation and Australia’s Future (Australian Institute of Criminology, 1998).
18 Ibid.

20 Ibid.

21 Ibid.


28 Ibid.


38 Ibid


40 Ibid


Abstract

The Internet companies, often referred to as Over-The-Top (OTT) firms have powered “sharing economies” around the world (Weber, 2014). Two Sided Markets (2SM) and associated Platforms (P) form the basis of operation of these firms. These Internet-based 2SMPs connects suppliers/providers on one end with customers/ buyers, on the other side in areas like E-commerce, hospitality, transportation, and health. Often, one side of users cannot exist without another and a platform is possibly the only way for them to efficiently get to know each other and transact commercially. This becomes very important, especially in unorganised sectors where it is of prime importance for the platform provider to reduce information asymmetry, minimise intermediation, improve efficiency, and build trusted relationships, thus facilitating commerce between the two sets of users.

India as an emerging economy is unique in this aspect, compared to many other countries since a large number of unorganised firms exists especially in direct consumer related verticals, such as travel, hospitality, consumer goods, healthcare, to name a few. At the same time, due to factors, such as ubiquitous smartphone penetration, large scale availability of mobile broadband connectivity, the Information Technology ecosystem in cities such as Bangalore, Delhi and Mumbai and scale economies present
in a large country such as India, that a large number of 2SMP start-ups have been incubated.

As in other countries, the extant regulations are inadequate to address issues, such as regulatory arbitrage, liability, accountability, safety, security, and data protection that arise due to the innovative technologies and new business models of these platforms. This paper intends to provide suggestive regulatory framework for these platform businesses.

**Introduction**

The importance of sharing is underlined by *WiFi Master Key*, the app that enables one to connect to shared Wi-Fi hotspots by crowdsourcing login credentials, that topped the top 10 downloads in iOS and Google Play combined with presence in about 223 countries! Though estimations vary wildly, it is expected that sharing economy will be as big as US$335bn by 2025 as per the recent McKinsey article. We analyse in this article the future of sharing economy and the regulatory evolution that is needed.

First, the positives of sharing economy that encompasses the following aspects:

- efficient utilisation of finite resources of labour, capital and land as exhibited by Ola – cab drivers, Stayzilla – accommodation, and Faircent – capital – both for owners of assets as well as users who use ‘resources on demand’
- reducing search cost using technology to find and make use of unused and underused resources in the economy, such as ShareDesk that provides on-demand workspace for mobile professionals
- disintermediation through a platform approach thus bringing resource owners and users on board to do direct transaction
- decreasing information asymmetry between users and providers through reviews, ratings and quality control and
- creating spill-over effects (viz. home stay creating demands for home repairs in timesaverz.com; ride sharing creating new markets for insurance industry)

The second unique aspects of these sharing economy firms lie in network effects. Most of these platforms build up the numbers of users free at first and at minimal charges later, so that exponential growth of adoption follows. As the user base increases, the value for users increase much more than the Commission fee the platform charges.

Third, is the collaboration that they bring in between their users who can get what they need from each other, thus sharing mutual benefits?
This blurs the difference between professional and personal services. One need not be a professional hotelier to rent rooms through Stayzilla; and one need not be a professional cab driver to be part of Uber pool. These are highlighted in depth in Sundararajan (2016).

Two Sided Markets (2SM) and associated Platforms (P) form the basis of operation of these sharing economy firms. In a typical 2SMP, there are two sets of users who complement each other’s usage thereby increasing the network effect for enhanced value for both (Rochet & Tirole, 2003). These 2SMPs exhibit same side and cross side network effects. Typical examples include an E-commerce portal that connects users on one side, with suppliers of goods, on the other side – a travel portal that intermediates between travellers on one side and the travel firms on another; and so on. Often, one side of users cannot exist without another and a platform is possibly the only way for them to efficiently get to know each other and transact commercially.

This becomes very important, especially in unorganised sectors where it is of prime importance for the platform provider to bring a semblance of organisation, thus facilitating commerce between the two sets of users. India is unique in this aspect, compared to many other countries since a large number of unorganised set of firms exists and that too especially in direct consumer related verticals, such as travel, consumer goods, healthcare, apparel, fashion, etc.

Case of Indian Start-ups

The growth of 2SMPs, though not new, is fuelled by the proliferation of Information and Communications Technologies (ICTs). ICT parameters for India are given below in Table 1.

Though the Network Readiness Index has not progressed much and the country is still ranked in the 91st position out of the 139 countries in World Economic Forum (WEF) 2016, there are some distinguishing characteristics. The mobile subscriber base in India is the second largest in the world and the mobile networks cover more than 90 percent of the country’s population.

Though Internet and broadband penetration is still low, more and more of users access Internet only through their mobile devices. The start-up eco system in the ICTs is very vibrant in the country, as exhibited by the venture capital availability. Bangalore, India is rated consistently in the top 20 global start-up ranking, along the leagues of Silicon Valley in the US. Though the impact of ICTs on new products and services is
still evolving, it is still consistently ranked above 4 (scale 1-7) indicating its potential.

India is also witnessing for the first time a deluge of ideas and 2SMP based start-ups coupled with an ensemble of angel investors, incubators and accelerator. Part of this enthusiasm is due to improved adoption of computers, mobiles, and smartphones and the increasing penetration of mobile Internet broadband across the length and breadth of the country. Part of it is also due to the inherent inefficiencies of the current unorganised sector and a possible solution in an organised 2SMPs. This is augmented by the ‘Digital India’ initiative of the government of India which aims to improve digital adoption for various services including government services and electronic money transfer.

However, in India as in other developing countries, there are considerable challenges to interconnect the two sets of users and that is where the value of platforms becomes important. On the other hand, due to relatively low entry barriers, it is easy to set up the platform business, and hence, the reason for hundreds of start-ups in this space. The regulation in India, as in many and even in developed countries lags behind the innovation and technologies of 2SMPs. Though the regulators are trying to address the issues due to rapid deployment of 2SMP based businesses, comprehensive regulatory process and methodologies are still absent.

<table>
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<th>Table 1: ICT Data of India</th>
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<tr>
<td>Network Readiness Index (WEF, 2015)</td>
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<td>Mobile subscriber base (in Million)/ Mobile density per 100 population</td>
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<td>Number of Internet Subscribers (in Million): Wireline/Wireless</td>
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<td>Impact of ICTs on new products and services (WEF, 2015)</td>
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Taxonomy of 2SMPs in India

A broad taxonomy of 2SMP is necessary to understand the scope, responsibility and liability of platform providers (Sridhar & Srikanth, 2015).

First are e-marketplace platforms that connect buyers with sellers that normally have associated brand. These may be niche or horizontal in nature covering large number of products and associated sellers. The platforms do some due diligence in selecting the sellers. Quality of products/services is taken seriously and the platform providers do provide enough information to the buyers including ratings and facilities offered so that buyers make informed decisions.

However, the payment for products and services are handled by the platform provider and the platform acts as a one-point contact for the customer. Moreover, these platform firms build brands through advertising and other means to attract both buyers and sellers and gain their trust. Due to the above role, these platforms normally bear limited liability and responsibility for any errors in the completion of any transaction that passes through their platforms. For example, these platform providers normally have customer grievance cell and toll free numbers for the same. They also clearly state cancellation and refund policies for the transactions done through the platform. Examples of Indian start-ups in this category include Flipkart, PayTM and Amazon.

Second, are aggregator platforms who sell goods and services under their e-brand, who do not have physical counter parts, who act as one-point contact for the customer, and who source their products and services both from recognised sellers/brands as well as from individuals and aggregators who may not have any brand or even physical presence.

However, these platforms are the ones who promise to bring sanity and economic prosperity to the unorganised and informal sector workforce, especially in countries like India. These platforms enable products and services to be made available which otherwise would not have been noticeable, and provide business opportunities for micro-entrepreneurs. Examples of Indian start-ups in this category include Ola Cabs, Uber India, Swiggy, etc.

Third, there are essentially directory services that enable customers to get information about the products or services. These firms enable buyers and sellers to meet and complete the transactions. Though these platform providers do some due diligence to select whom to list and also provide rating services, the onus on successful partnership between buyers and sellers is normally not that of the platform provider. Given the low
barriers to entry in such a service, there is often stiff competition in these types of platforms. Examples of Indian start-ups in this category include JustDial, Zomato.

Regulation and Policy Landscape in India

The responsibilities and liabilities of these platforms are still evolving. Hence there is a regulatory arbitrage that the 2SMP firms try to leverage at times (Rogers, 2015). Sundararajan (2016) also points out the evolution of regulatory practices and advocates future models including peer regulation, self-regulatory organisations and delegated regulation. Most of the transport aggregator firms describe themselves as “technology platform companies” and try to place themselves outside the ambit of regulation. Figure 3 illustrates how various competition and regulatory factors affect different types of 2SMP firms (Sridhar, 2015).

Figure 3: Effect of Market and Regulatory Factors on Various Categories of 2SMP Firms

Search costs

By playing a technology based intermediation role, the 2SMP firms decrease search cost for the users on either side of their platform. In unorganised market, search costs are often very high. Even in a relatively organised market such as in the US, the taxi sectors suffers from high search costs and Uber through its platform based approach, minimises the search costs for both cab seekers and drivers to find each other, as pointed out by Rogers (2015). The platform firms can potentially solve high search cost and the resultant lower supply through effective intermediation.

However, the moot question is, during this process, if they bypass extant regulation, what should the policy response be? Should the extant regulation be applicable, which in effect might increase search cost and
reduce associated benefits? As given in Figure 3, directory services reduce search costs more than the other forms of 2SMPs.

Disintermediation

The 2SMPs provide a way for either side users to connect with each other directly, thus reducing intermediation. In emerging countries, it is well known that intermediaries appropriate huge rents on each transaction between the two sets of users and thus reduce public benefits. Disintermediation also reduces search costs and improves the economic welfare of the two sets of users. The disintermediation is higher for directory services as they provide an easy way for the two sets of users to meet and complete their transactions.

Market power

Platforms tend to get commoditised and the winner-take-all nature of 2SMPs might lead to monopolisation or cartels in the market place. Excessive market power can threaten consumer welfare. Hence regulatory oversight and Significant Market Power assessment is needed to avoid predatory pricing, cartelisation, and abuse of dominant power. In general, the competition watchdog should frame rules that are appropriate for the 2SMPs, that is welfare enhance and does not reduce the public benefits of such market forms.

When firms in 2SMP aspire to become monopolies, they might engage in discriminate in either set of users due to economic, political and personal reasons. There are cases in the US against Uber for exhibiting such discriminatory behaviour (Rogers, 2015). What should be done against such possible discrimination?

Regulatory arbitrage

Since the technologies and business models of these technology platforms and firms are often evolving and not completely understood, regulations have always lagged behind. Hence there is a regulatory arbitrage that these firms often enjoy. Should there be level playing field or technology firm be allowed to leverage the regulatory arbitrage for social benefits? As shown in Figure 3, the E-market places have higher regulatory arbitrage compared to directory services due to nature and involvement in associated business activities.
Secondary use of data and aggregation

For all types of 2SMPs, data is an asset. Due to massive digitisation, the 2SMPs innocuously collect huge amount of user data – be it web site navigation, geo locations, and personally identifiable information. The data is then mined and analysed for providing personalised services. Examples abound that include: Google’s sponsored advertisements based on search patterns, personalised recommendations based on past buying patterns, to name a few.

However, the data so collected give enormous power to the data collector to use it for purposes other than what it is intended for. These uses normally referred to as “secondary use of information” sometimes can have serious privacy concerns. Due to most of the 2SMPs use ‘opt-out’ policy, the users are by default share their information to the service providers. If not regulated properly, this secondary use can cause serious privacy violations.

Apart from secondary use of collected data, the service providers can also aggregate various types of data, to create the digital profile of the individuals. Piece of information here or there is not very telling. But when combined together, bits and pieces of data begin to form a portrait of a person (Solovo, 2006). For example, by aggregating identity information with geo locations and web navigation, it is possible for the data collector to profile the individuals on various demographic variables. This has serious data protection and privacy concerns.

Liability

Though firms in this space use the caveat of technology providers to reduce their liability, there are a set of minimum liability and responsibility clauses that the firms need to adhere to. For example, if one gets a spoilt food delivered by a platform provider, who should be liable? – The one who delivered it (i.e. platform) or the one who produced it (i.e. the seller). Today, most 2SMP companies provide reasonable options for returns and refunds in the case of deficient products or poor delivery service, but there are situations where the liability could and should extend beyond just a refund.

This is somewhat similar to the many cases where infringement of copyrighted material makes not only infringer culpable but even the platform that facilitated the infringement to be culpable. The answer to this question is not very obvious. However, use of the tort law to delineate between (1) intentional wrong doing and (2) careless and negligence in
causing loss financially or otherwise to the victims is essential in propounding strict or limited liability to the platform providers.

There is limited literature on the risks and associated remedies of electronic market places. Weber (2014) discusses the moral hazard problems faced by the intermediaries, especially those that provide shared accommodation and shows how all stakeholders benefit from intermediated sharing of goods. As shown in Figure 3, the liability is more with the e-market places. The aggregators also have some limited liability.

Social welfare

Technology firms in different areas seem to have generated consumer surplus, mitigated day-to-day problems of common citizens, reduced the information asymmetry problems and provided better job opportunities for the supplier side, mostly blue collar workers and those at the bottom of the pyramid. Since social benefits tend to be higher, regulation of such technology platforms and associated firms have to be tread with caution. We provide some insights in to the policy prescriptions taking in to account all the above factors. The hypothesis is that due to the above forces that shape the economic value of platforms, it can be potentially high for aggregator services compared to other two types of 2SMPs.

Conclusion and Research Roadmap

While the traditional regulation attempts to minimise market failure (due to information asymmetry or inequitable outcomes), significant market power or the existence of negative externalities if any, and whether the same can be applicable to sharing economy or not daunts the regulators and policymakers.

For example, if the platform firm gets greedy and morphs into network monopolies over time, they may exhibit their market power much like the incumbents, thus wiping out the true benefits to the real stakeholders of the sharing economy. What if the sharing economy firms use regulatory arbitrage to win over the incumbents, however, not conforming to certain minimum safety, security, environmental, and privacy requirements? They can also engage in anticompetitive behaviour, which could be harmful to their users.

The regulators and policy makers around the world are still struggling to cope up with the realities of the sharing economy and associated 2SMPs. While platform companies are innovating with disruptive solutions, which challenge existing operations and business models, they
may not fall neatly into existing business structures and hence regulatory frameworks. Regulators, in many cases, seem to react by extending or modifying existing regulations to cover these gaps, which sometimes conflict with key business propositions of these companies.

Though the recommendations vary from self-regulation to enforcing extant regulations, the magic answers still eludes many governments and policymakers, as is being currently witnessed in cab aggregator licensing guidelines being formulated by different states.

For example, in the cab sharing service, there can be mandatory compliance rules with respect to safety and security of users; in peer lending, it can be full transparency and disclosures; in education, it can be authenticating proficiency and experience of tutors and teachers; and in skill sharing, it can be certification of the professionals; in E-commerce, it can be protection of user information from secondary use and aggregation. The other option that is being advocated in Sundararajan (2016) is Self-Regulatory Organisations in the likes of Confederation of Real Estate Developers’ Associations of India (CREDAI) for real estate that govern the behaviour of various stakeholders of the sharing economy including users, and platform providers, with an oversight by an omnibus regulator.

Another important aspect to be considered is that by their very nature, the 2SMPs cover more than one sector. For example, activities of cab aggregators spread across information technology, transport, law and safety; that of healthcare aggregators cover areas of health, family welfare and information technology and so on.

Hence, the question of whether the industry sectors regulator or a cross-sector regulator such as Competition Commission of India to lay down principles of regulation. This needs a detailed investigation of the specific type of 2SMPs; the ones that are common across 2SMPs, such as data protection and privacy, significant market power assessment shall be laid down by the cross-industry regulators while adhering to certain transport guidelines and medical standards should be specified by the sector regulator.

India, being a large country with diverse set of talents and resources, is also dark with high information asymmetry, associated high search costs and hence the slew of intermediaries that appropriate huge rents. The sharing economy has huge potential in improving social welfare of her citizens and the platforms have an important role to play. It is time for all of us to take an active role of this economy and the governments to provide supportive regulatory structure for the same.
References


Part III
Policies and Regulatory Uncertainty
10

Identifying Micro-economic Linkages between Uncertainty and Investments

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Abstract

The global economic and policy uncertainty has increased over time. Most recent events like the fractured mandate in British general elections have done little to address the concerns. In parallel, the global investment flows have failed to regain the levels witnessed before global financial crisis.

As a result, research into the relationship between uncertainty and investments has attracted scholars around the world. This paper reviews available literature on the subject and finds that most research appears to be broadly limited to advanced economies and seem to be macro-economic in nature. Unsurprisingly, suggestions to reduce uncertainty and improve investments have remained generic and are not customised to specific needs of emerging economies.

Emerging economies deal with unique challenges such lack of transparency in policymaking, financial constraints, and capacity and implementation bottlenecks to adopt economy-wide suggestions hereto made. In addition, these countries are witnessing disruption in key economic sectors like finance, mobility and retail, which is challenging the existing regulatory architecture.
To tackle such disruptions, this Paper emphasises the need for jurisdictions to conduct Regulatory Impact Assessment in order to encourage innovation and competition. Consequently, this paper argues for a sector specific approach to understand linkages between economic and policy uncertainty in emerging economies and provide specific suggestions to improve uncertainty and attract investments. The paper concludes with certain issues for discussion to take forward research in the area.

Current Trends in Economic Policy Uncertainty and Investment

Increasing global economic policy uncertainty

The global economic policy uncertainty (GEPU) index, designed by Baker, Bloom and Davies, breached the psychological barrier for the first time in November 2016 (see Figure 4). It uses data for 17 key economies that account for two-thirds of the global gross domestic production to measure the economic policy uncertainty (EPU) since 1997. The recent all-time high was observed in the backdrop of global events, such as election results in the United States of America, politics in Brazil, China, France, South Korea and the United Kingdom.¹

A closer look at the index reveals that the GEPU has witnessed a gradual increase in the last decade, increasing from the lows of mid 50s to its highest position currently. While the GEPU has reduced in few years in between, it has increased on account of global financial crisis, United States (US) fiscal cliff, the leadership transition in China, European immigration crisis and Brexit.²

![Figure 4: Global EPU Index, January 1997 to November 2016](image-url)
Declining Global Investment Flows

During the last decade, the global world foreign direct investment inflows (WFDII) have declined from a peak of US$1.91bn in 2007 (highest ever), to a low of US$1.75bn in 2016 \(^4\) (see Figure 10.2). Inflows to developing economies fell by 20 percent (to an estimated US$600bn) and cross-border merger and acquisition activity across developing sub-regions fell by 44 percent in terms of value.\(^5\)

The World Bank (WB) recently noted that investment growth in Emerging Market and Developing Economies (EMDEs) has slowed sharply since 2010, declining from 10 percent, on average, in 2010, to 3.4 percent in 2015. It has likely decelerated by more than half a percentage point in 2016. Investment growth is now not only well below its pre-crisis average, but also below its long-term average.\(^6\)

![Figure 5: World FDI Inflows (in US$mn)](http://unctad.org/en/Pages/DIAE/World\%20Investment\%20Report/Annex-Tables.aspx)

Inter-linkages between Uncertainty and Investment

A trend of growing GEPU and declining investment flows during the last decade indicates to a broadly inverse relationship between these variables. However, the relationship appears to be much more complex and nuanced. For instance, impact of global uncertainty on investments in advance economies (AEs) and emerging economies (EEs) is disparate. During 2012-14 period, while global uncertainty was on a decline, foreign investments in emerging economies increased, while those in advanced economies declined (see Figure 5) for details, which compared investment trends with average global economic policy uncertainty (AGEPU).
Literature suggests that uncertainty in advanced economies might adversely impact firms’ behaviour to invest in emerging economies. For instance, it has been reported that the Federal Reserve in US might begin tapering in monetary policy which could significantly disrupt the composition of capital flows across the world, especially for developing economies.

In addition, substantial uncertainty about the shape of economic policies in the near-future, especially in developed economies, might dampen Foreign Direct Investment (FDI) prospects to emerging economies. Political developments such as UK’s decision to exit the European Union (Brexit), announcements by the US administration to renegotiate key trade agreements, such as the North American Free-Trade Agreement (NAFTA)
and to leave the Trans-Pacific Partnership, as well as recent and upcoming elections in Europe have all heightened these uncertainties.  

The IMF also projects that uncertainty due to events like Brexit can take toll on confidence and investment, including through its repercussions on financial conditions and market sentiments. Advanced economies like US and Japan have been principal sources of foreign investments in India, and any uncertainty in these countries could adversely impact investment growth in India.

However, a closer look is required to study the relation between uncertainty and investments in emerging economies. Figure 7 highlights investment trend in India for the 2007-16 period, while comparing economic and policy uncertainty in India and the US, given that US is a principal investor in India.

As indicated, there are periods of investment growth despite high EPU in US but low EPU in India (2014-16) and vice versa (2007-08). Several factors could be responsible for such trend for which a nuanced understanding of factors affecting investments and uncertainty and their correlation needs to be studied.

Over the years, low income countries (LICs) have become increasingly integrated into global trade flows. While trade has supported growth in these economies, it has also exposed them to external shocks. The WB suggests that several fragile LICs have regressed on the policy perception index in recent years because of policy uncertainty. It further suggests that sub-par growth and growth prospects in advanced economies, trading partners and source countries for Foreign Direct Investment (FDI) into EMDEs have slowed EMDE output growth.

For every 1 percentage point lower output growth in the United States or Euro Area, EMDE output growth fell 0.8-1.3 percentage points in a year. UNCTAD also suggests that for emerging and developing economies, a protracted period of developed-country investor uncertainty could serve to undermine the upswing in investment flows to their countries.

Further, given the increasing trade and investment inter-se emerging economies, a slowdown in a trading partner and home country of emerging market investor has adverse effect on investment recipient country. It has been estimated that a 1 percentage point decline in China’s output growth is associated with a decline in output growth within a year of 0.5 percentage point (in commodity importers) to 1.0 percentage point (in commodity exporters).
In addition to the overall output growth slowdown in China, it has been reported that a rebalancing of growth away from trade-intensive investment towards less trade-intensive sources of growth has generated adverse spill overs to other EMDEs, especially for commodity exporters. China has been one of the principal investment sources for countries in the south Asian region like Bangladesh.\textsuperscript{12}

Specifically, it has been suggested that in commodity exporting countries, a sharp deterioration in their terms of trade (for energy exporters), slowing growth in China, and mounting private debt burdens accounted for much of the slowdown in investment growth.

![Figure 8: China and India EPU (2007-2017)](source: www.policyuncertainty.com)

Further, reports indicate that investment weakness affected all types of investment (machinery and equipment as well as construction) and all sources of investment (public and private).\textsuperscript{13} Consequently, as indicated in Figure 8, increasing EPU in China from 2014 onwards while relatively stable EPU in India in this period could have different impacts on \textit{inter se} investments in these countries.

Domestic and inward foreign investments in emerging economies also face risk of domestic uncertainty. It has been reported that several countries have started to use more than one type of foreign investment control mechanism for national security and related reasons.

Such review mechanism, which is applicable across sectors, and is more often than not defined loosely, gives governments more discretion in the investment screening process, resulting in investor uncertainty. Further, Inconsistency in tribunal decisions creates uncertainty for host states and foreign investors alike.\textsuperscript{14}
In several EMDEs, political and policy uncertainty has been a key factor associated with investment contractions or slowdowns. Mounting protectionist tendencies, slower potential growth, and elevated vulnerabilities in some EMDEs have also created uncertainties. Further, emerging economies often face legacy issues in form of ineffective policies and non-adoption of effective policies, resulting in uncertainty. Countries like India and Bangladesh have witnessed significant domestic uncertainties in recent past for reasons such as complex regulatory environment, political and security risks.

Existing literature and Further Opportunities

Existing research primarily limited to advanced economies

Investigation into relationship between uncertainty and investments has been an area of interest of scholars for decades. Bernanke (1983) pointed out that high uncertainty gives firms an incentive to delay investment and hiring when investment projects are expensive to cancel or workers are costly to hire and fire. Uncertainty raises the transaction and adjustment costs associated with investments.

Dixit (1989) showed that uncertainty about future prices creates an option value of waiting so firms will delay investments in entry or exit until they receive more information. Dixit and Pindyck (1994) also found that in the presence of uncertainty and given the irreversibility of investment decisions, investors may choose to forego or delay investment to avoid bearing the cost of investing in the wrong activity.

Stock and Watson (2011) used the EPU index to investigate factors behind the 2007-2009 recession and slow recovery, and come to the conclusion that policy uncertainty is a strong candidate for explaining the poor economic performance, but identifying causality is hard. Handley and Limao (2012) established that when market entry costs are sunk, uncertainty can create a real option value of waiting to enter foreign markets until conditions improve or uncertainty is resolved.

The dampening effect of policy uncertainty on capital expenditures is stronger for firms that have a higher degree of investment irreversibility. They provided evidence that policy uncertainty can significantly affect firm level investment and entry decisions in the context of international trade. Gulen and Ion (2013) discovered that policy-related uncertainty is negatively related to firm and industry level investment, and the economic magnitude of the effect is substantial.
Their estimates indicated that approximately two thirds of the 32 percent drop in corporate investments observed during the 2007-2009 crisis period can be attributed to policy-related uncertainty. Based on their analysis of EPU, Baker Bloom and Davies (2016) suggest that elevated policy uncertainty in the US and Europe in recent years might have harmed macroeconomic performance. They also point to sizable effects of policy uncertainty on the cross-sectional structure of stock-price volatilities, investment rates and employment growth. In his recent paper on the subject, Davis (2017) highlights that regulation and government policy matters account for a growing share of business risks.

Increasing and complex regulations are barriers to knowledge and comprehension of the law, sound planning, and avoidance of legal jeopardy. Expansion of regulatory state has resulted in regulators getting powers to interpret statutes, transform broad and vague legislative mandates into specific regulations and exercise discretion in crafting and enforcing regulations. Further increase in complexity has resulted in uncertain interpretation and enforcement, thereby increasing the scope of capricious conduct by regulator.

He further points out that regulatory complexity tends to favour large incumbents and disadvantage new, younger and smaller firms. Further, regulatory and tax complexity discourages existing firms, even large ones, from expanding into new markets and products. For this reason, greater tax and regulatory complexity tend to soften competitive pressures and repress creative destruction more broadly.

Through a firm level study in select sectors in the US, Davis also argues that increases in policy uncertainty brings reduced investment and employment growth rates for firms in policy-sensitive and regulation-intensive sectors like defence, healthcare, financial services and infrastructure regulation.

A review of literature on this subject reveals that research on inter-relationship between uncertainty and investment has been primarily limited to advanced economies. This is understandable also because of availability of necessary data to draw correlations and deduce causations.

**Macro-economic Nature of Research in Emerging Economies**

It is not that research on relationship between uncertainty and investment in emerging economies has not been undertaken. Bayraktar and Fofack (2007) found that uncertainty in the form of macroeconomic volatility is a significant determinant of private investment in Africa.
Investment decisions are also affected by risk and uncertainty arising, for example, from political instability, macroeconomic volatility and policy reversals. Anand and Tulin (2014), while investigating causes of low gross fixed capital formation during 2012-13 in India, established that heightened uncertainty and deteriorating business confidence have played a key role in the recent investment slowdown.

Primarily, existing research in emerging economies appears to be macroeconomic in nature and does not venture into firm level or even sector specific data to understand relationship between investment and uncertainty in key sectors.

**Linkages between Uncertainty and Investment in Emerging Economies**

The need to better understand impact of global and domestic uncertainty on investments in emerging economies has never been more pronounced. This is as a result of increasing regulatory and policy uncertainty at a global level. The recently released Global Financial Stability Report (GFSR 2017) highlights that the threats to financial stability are emerging from elevated political and policy uncertainty around the globe. It acknowledges that overall financial stability risks remain elevated because political and policy uncertainty in advanced economies opens channels for negative spill overs in emerging economies.

A sudden repricing of risk or a rise in protectionism could trigger capital outflows from emerging economies and hurt demand. This would exacerbate existing vulnerabilities in corporate sectors and raise risks in the weakest banking systems, situated in emerging economies.23

The recent IMF Regional Economic Outlook for Western Hemisphere (2017) also notes that at the global level, policy uncertainty has risen appreciably –including from the potentially far-reaching changes in the direction of US policies, which are not yet known. In Europe, the terms of Britain’s exit from the EU and the single market remain unsettled.

Pervasive sources of policy uncertainty can trigger heightened risk aversion in markets and a reversal of recent market trends. Other key risks include building vulnerabilities in China’s financial system as policy stimulus is extended and continued, and balance sheet weaknesses and currency mismatches in other emerging market economies that could amplify tightening financial conditions.24 Recent research which is focussed on emerging economies also highlights their vulnerability to global uncertainty.25
Digital and Technological Disruption and the Regulatory Challenge

Exponentially fast-changing markets led by technological disruption are challenging existing regulatory frameworks and simultaneously affecting competition between incumbents and new players, especially in traditionally regulated sectors. As society moves towards increasingly digital and data-driven markets, policymakers will have to revisit established policy frameworks and regulatory designs.

Failure to do so might further add to the prevalence of policy uncertainty and also impact firm’s competitiveness. In order to optimally manage disruption and to maximise the potential of technological innovations, regulators and policymakers will not only have to thoroughly understand the intricacies and dynamics of markets but will also capacitate themselves to predict how markets might take shape in the future.

Notably, it is important for jurisdictions to realise that long-term growth and development will be led by innovation and will increasingly depend on their ability to frame regulatory frameworks which address industry players’ (incumbents as well as new entrants) concerns, including PRU.

Way Forward

Any research which investigates relationship between uncertainty and investment in emerging economies should not limit itself to macroeconomic investigation. An in-depth sector specific analysis needs to be carried out to collect evidence and understand the linkages between these indicators. A diagnostic analysis is required to understand the internal and external causes of uncertainty.

However, such analysis must not be limited to finding theoretical linkages between uncertainty and investments, but should also provide practical advice on measures needed to reduce uncertainty and improve investments, taking into account financial, capacity and implementation constraints in emerging economies.

Consequently, any comprehensive research on relation between economic and policy uncertainty should take into account following questions:

- With technological disruption becoming the norm, how can transition from traditional industries to new ones be facilitated (transition can be financially and psychologically tasking for industry players)?
- What are the sector specific issues vis-a-vis uncertainty and investment?
- What is the policy architecture of these sectors?
- What specific measures could be designed to reduce uncertainty and improve investments in specific sectors?
Moving forward, researchers, policymakers, industry players and consumer representatives will have to collaborate and share knowledge so as to devise regulatory ecosystems wherein innovation and investment can thrive in. Furthermore, considering the lack of information and data in public domain, transparency and accountability will have to be factored within the policymaking process and the same will aid in framing well-informed, optimal regulations.

Additionally and more importantly, the factors troubling current industries will have to be analysed and addressed and the regulators will have to frame overarching mechanisms which take into consideration technology led disruption, Ease of Doing Business, new dynamics of competition and the need to support openness and establish a level-playing competitive field.

Needless to say, capacity building activities and collaboration between stakeholders including private players, public authorities and civil society will play a crucial role in building the foundations for an innovation and investment-friendly ecosystem.
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6. IMF Regional Economic Outlook for Western Hemisphere: Tale of Two Adjustments, April 2017


Endnotes

1 “The GEPU Index is a GDP-weighted average of national EPU indices for 18 countries: Australia, Brazil, Canada, Chile, China, France, Germany, India, Ireland, Italy, Japan, the Netherlands, Russia, South Korea, Spain, Sweden, the United Kingdom, and the United States. Each national EPU index reflects the relative frequency of own-country newspaper articles that contain a trio of terms pertaining to the economy (E), policy (P) and uncertainty (U). In other words, each monthly national EPU index value is proportional to the share of own-country newspaper articles that discuss economic policy uncertainty in that month.” For details, see, http://www.policyuncertainty.com/global_monthly.html

2 In context of US, Baker, Bloom and Davies find that “current levels of economic policy uncertainty are at extremely elevated levels compared to recent history. Since 2008, economic policy uncertainty has averaged about twice the level of the previous 23 years.” For details, see http://www.policyuncertainty.com/methodology.html

3 The index is available at: http://www.policyuncertainty.com/media/GEPU_Oct2016.pdf

4 According to the UNCTAD World Investment Report (WIR) 2017, the global flows expected to increase to almost USD 1.8 trillion in 2017, continuing to USD 1.85 trillion, still below their 2007 peak, See. The WIR 2017 further notes that “policy uncertainty and geopolitical risks could hamper the recovery…”


6 World Bank, Global Economic Prospects: Weak Investment in Uncertain Times, January 2017


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India has been marred with instances of retroactive application of taxation laws and similar complexities which has highlighted uncertainty in the country. Further, in the OECD FDI restrictiveness index (2016), India is placed in bottom 10 countries, with a FDI restrictiveness score of 0.212, much below the OECD average of 0.067. For details, see https://data.oecd.org/fdi/fdi-restrictiveness.htm

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Organisational Capacities for Tackling Policy and Regulatory Uncertainty

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Abstract

The successful pillars of policy implementation include clarity, simplicity, promulgation, organisation’s implementing capacity, monitoring and evaluation capacity and responsiveness of the relevant higher authority.

In this paper, the focus is on organisation capacity to policy implementation, and how the lack of such affects the effectiveness of the organisation in tackling policy and regulatory uncertainties. This is discussed with competition policy as the base, and how the implementing institutions can assist to deal with the uncertainties. Primarily, the National Competition and Consumer Policy (NCCP, 2009) of Zambia is used as a guide, together with the implementing institutions viz., the Competition and Consumer Protection Commission, CCPC (investigations and adjudication) and the Competition and Consumer Protection Tribunal, CCPT (appeals)1.

Introduction

Governments the world over establish by decree (executive orders) or statute, institutions that are aimed at implementing specific policy objectives. The policy objectives like those related to competition might be written or unwritten – be encompassed in one (unitary policy) document
or might be fragmented in several pieces of documents. Problems associated with a fragmented policy are obviously ownership, coordination and accountability challenges. It also becomes more costly and time-consuming to monitor and evaluate such policies, let alone to measure their contribution to overarching national goals. With fragmentation, the organisational capacity is inevitably affected and might eventually lead to policy failure.

While there are advantages of having a unitary policy document, it still does not in itself guarantee policy and regulatory certainty. Botswana and Zambia, for instance, have a unitary competition policy, which informed the drafting and enactment of their respective competition and consumer legislations. However, the policy itself does not have sufficient political ownership. Policy consistency is thus, in either fragmented or unitary policy frameworks, affected by, among others, lack of consistent political champions, a consistently applied accountability mechanism for policy objectives, disruptive economic cycle at a particular time and the period of such cycle, and frequency in change of enabling statutes.

Further, we can also look at both internal and external factors that affect lack of organisational capacity for tackling policy and regulatory uncertainty. The internal factors may include a lack of consensus within the organisation framework on the interpretation and extent of implementation of a policy, as well as lack of sufficiently defined roles and responsibilities within the organisation on how the policy and regulatory issues must interface, or there may simply be internal indifference to a policy.

As regards external influences, these might include lack of political awareness, apathy and support for the policy and regulatory framework. This in turn leads to less funding to the implementing institutions, direct or indirect political interference in the regulatory sphere, etc. What should be done about this? This paper attempts to address this very question, ultimately.

**Background**

Zambia has undergone three significant stages that have substantively altered the policy landscape in the country. After independence in 1964, Zambia inherited an elitist white-minority market economy from the British colonial administration. Noting the self-evident inequalities perpetrated by the structure of the economy, a first stage in a series of reforms from 1968 when the Government sought ways to quickly narrow the gap through accelerated wealth distribution.
The post-independence government declared its intention to acquire a minimum of 51 percent in a number of key foreign owned commercial enterprises. The declaration was contained in the Mulungushi Reforms of 1968, following which a State-owned Enterprise (SOE), Industrial Development Corporation (INDECO), was created to actualise the declaration.

To catapult the new economic policy, a One-Party State was ushered in 1973. The second level of key reform was in 1991 return to the market economy as well as multiparty political system. The third level of reforms came with the Patriotic Front Government of 2011, where it pronounced a mixed-market policy system, but with an evident strong position in economic development through the resuscitation of the previously liquidated State owned parastatal, INDECO returning in new clothes as Industrial Development Corporation (IDC). However, unlike INDECO, IDC is expected to focus on Greenfield investments without any monopoly protection as such. However, it has been given control over remaining SOEs including those in energy, railways, telecommunications where it competes with the private sector.

Why does policy matter, at all? Policy matters because it sets the tone and direction of a particular theme, a path, a point of reference for the implementer. It is widely acknowledged that policy formulation requires widespread consultation and agreement with stakeholders, including beneficiary government institutions involved in economic management, such as finance, planning and natural resources. It also involves donors and international finance institutions, especially the International Monetary Fund, which generally regards effective and fair revenue policy as a condition of its support.

The National Competition & Consumer Policy of Zambia

The NCCP recognises the international political and economic changes under which Zambia undertook economic reforms to transform the state planned and controlled economy. The policy framework in the 1990s was designed to encompass the structural adjustment programmes that were broadly aimed at enhancing economic growth and contributing to poverty reduction in Zambia. This shift necessitated the establishment and strengthening of sector specific regulators in the area of energy, water, telecommunications, pharmaceuticals, standards, weights and measures, competition and consumer protection and financial services, among others.
The liberalisation of the economy in the early 90s made the private sector become the driver of economic growth in order to ensure efficiency and innovation. However, to ensure that the fruits of liberalisation did not just accrue to firms but passed to the consumers, and also that there was fair play among the players in the economy – the government enacted the Competition and Fair Trading Act in 1994.

This legislation set down the legal principles and institutions that govern the behaviour of firms in competitive markets including anticompetitive trade practices, merger regulation and provisions to deal with cartels as well as consumer welfare. This was based on the principle that, competition law is a developmental tool which should be used to address issues of national interests, such as poverty reduction.4

The guideline principles for the NCCP5, include promotion of economic growth, poverty reduction, promotion of micro, small and medium enterprises and reduction of barriers to business entry.

Organisational Capacity and Incapacity in Ensuring Policy Certainty

Organisation capacity is an indispensable catalyst to policy implementation. As regards competition policy, the implementing agencies engaged in enforcement and adjudication ought not to be just contented to implement the law, but must understand the underlying principles and objectives for implementation of the policy.

While a policy may be clear, when there is change of government, the weight given to certain polices may be different. With changed priorities, a policy such as competition may be relegated to secondary level and only referred to when there is a crisis. This affects policy and regulatory certainty, and the challenges are discussed further below.

Change of government

The change of government inevitably affects policy implementation and thus the organisation’s capacity to implement. Where there is a change of political regime or priorities, it goes without saying that the regulatory institution must take note of the tone, content and spirit of the overall political philosophy of the new political order. Generally, the new political order is promoted by a ‘manifesto’ of the winning political party, which sets out the policy priorities and expected outcomes.

Where there is no change in leadership in the implementing agencies, it is obvious that the implementation has to align itself to the new order. In some instances, a change of government may entail new heads of key
agencies to ensure policy and regulatory certainty is achieved. On the whole, good policies will be sustainable and self-promoting even where there is a change of government. Therefore, the key would be to have a clear and widely supported policy formulation and promulgation system in government that involves the opposition and key stakeholders.

**Organisation’s own ineptitude**

Generally, where an organisation does not show its relevance to the public, it is likely that the policy under which it was set out to implement will not receive as much attention a high performing organisation should receive. Inevitably, the organisation’s ineptitudeness affects policy visibility.

**Policy visibility**

Sometimes, a policy may be transparent as in the case with the Competition Policy in both Botswana and Zambia, but does not receive the required stakeholders’ activism just after its promulgation. Lack of policy visibility will naturally affect policy clarity.

**Policy clarity**

Policy clarity is an important part of reducing uncertainty and ensuring that the organisation is clear on what exactly it ought to implement or what outcomes it should ensure it realizes as it plays its part. Policy clarity can only come from the top brass of government in their engagement with the political party in control of the government.

**Lack of political will and support**

There is a positive correlation between the organisation’s capacity and the political support rendered to or likely to be rendered to it when it does take certain decisions. The issue in the Zambia sugar sector perhaps provides a better example of how lack of political support can hamper the implementation of a policy. Despite the NCCP clearly calling for removal of barriers to market entry and investment, import of sugar have for a period exceeding 20 years been blocked from entering Zambia.

Ellis and Singh (2010) noted that despite Zambia’s success in creating a growing, private sector-led industry, it still has very high domestic sugar prices when compared to other countries – well above the price that Zambian sugar sells in international markets. It seems likely that this is partly due to the monopolistic market structure of the sugar industry in Zambia, where one firm yields significant market power and is protected
from external competition by barriers to imports. While the CCPC – and its predecessor, the Zambia Competition Commission, has investigated this before, none has been able to tackle the problem effectively so far, perhaps because the government might have vested interests in the profitability of Zambia Sugar.

Resources

The CCPC in Zambia is mandated to implement the ‘competition and consumer protection provisions in the Act. The NCCP posits on this aspect that the principal responsibility of the central government in the implementation of the policy will be to mobilise both internal and external sources of finances and provide the relevant agency, with necessary financial resources to ensure that the competition and consumer authority successfully implements the proposed government strategies and activities. A direct appropriation from Parliament would be an ideal process. Garnett and Reilly (1996:4) noted that the most common reason why a (policy) decision was not implemented was a lack of financial resources to do so (typically the Ministry of Finance was not consulted in the preparation of the proposal).

Effective prioritisation

Depending on the government in power or the socio-economic fundamentals at a particular time, the few resources that might be available require effective prioritisation. The purpose for this is that a government at a particular time might desire to focus on certain projects, and therefore, implementing institutions that fall outside the prioritised projects would more or less be ignored, and in some cases, fused into other institutions or abolished in the worst case scenario.

Leadership

Leadership is very important in driving a policy and/or breathing life into a policy. Leadership must articulate, defend and promulgate the policy and pronounce how they are implementing and/or provide possible solutions to the challenges of policy and regulatory certainty. It is leadership at organisation level that should feed into the administrative and or political divide and show the dangers that might come from an uncertain policy and regulatory framework and offer alternatives.

Such leadership must be able to create a support base and forge synergies to harness the furtherance of policy and regulatory certainty. Outside the
legalities, good leadership must be able to provide the moral base by
demonstrating their personal commitment to the policy they propagate.
For instance, where corruption and good governance are at the fore of a
policy, leadership must be seen to be leading in this regard even at personal
level.

Leadership in this regard thus ought to provide the necessary moral
tone to policy adherence and advocate for creating a plausible atmosphere
for policy certainty by being consistent in their own conduct and attention
to policy. In relation to competition and consumer policy, such advocacy
would inherently be focussed on business growth and consumer welfare
across the political divide. To this effect, the policy has been ascertained
into law, by giving sufficient enforcement and advocacy powers to the
CCPC under Section 5 of the CCPC Act. Further, an impartial and
representative Tribunal has been set up above the CCPC.

Accountability

Policy and regulation certainty must be accountable to a higher authority
which should be able to assist the implementing institutions to implement
policy. Where there is no such accountability, then the institution will
not develop systems to account for any policy outcomes. Garnett and
Reilly (1996:4) noted that following change of government, in 1996, both
the President and his Cabinet realised that as accountability is one of the
cornerstones of democratic governance, there ought to have clear and
significant collective interest in making sure their responses to the needs
of the electorate are effectively implemented.

Visibility and respectability

The visibility of the institution might affect the attention that both
Parliament and the Executive pay to it. Its visibility would also affect how
its decisions are perceived in the public fora. Visibility goes naturally
with respectability of the institution, the absence of which makes the
institution not capable of effectively influencing policy and fostering its
certainty. An implementing institution’s visibility is manifestly promoted
through effective advocacy programs, and in our time, effective use of
contemporary communication channels on social media. Where the
institution has enforcement powers, targeted enforcement which has
appreciable effect in mainstream communities will aid this greatly.
Enforcement

Where an institution has enforcement powers, such as the CCPC and the tribunal, its enforcement must resonate with the policy it is supposed to implement and where there is discrepancy, undertake to deal with it either by proposing amendments to the law, or the policy. In turn, enforcement has to also further other overarching goals in a national development plan, vision and other complementary and supplementary policies like those in trade, intellectual property, investment, etc.

Lack of legal capacity

The organisation might lack the support of the law on how to deal with policy and regulatory uncertainty but this in itself would require leadership skills (outlined above), on how to deal with any legal incapacity.

Policy fragmentation

Often, policies may be fragmented that cause capacity problems for a single organisation to ensure compliance and certainty thereto. Where there is in fact a lack of, or presence of an ineffective centralised way of coordinating fragmentation of policies, there is likely to be capacity problems for a single organisation to deal with implementation problems. Zambia has a Policy Analysis and Coordination (PAC) Division at Cabinet Office, which is established to coordinate both policy formulation and implementation.

However, it is not clear what role, if any, they played in the formulation of the NCCP, and how they monitor its implementation. Traditionally, the policy monitoring and review has been centralised at Cabinet Office. Experts have previously proposed that PAC will have to ensure the following:

- effective implementation and monitoring plans are prepared at the policy formulation stage
- implementation responsibilities are clearly ‘conveyed’ to the Ministries once the Cabinet has taken a decision
- the Ministries do indeed monitor the implementation of the policies for which they are responsible
- Ministries report problems to PAC
- PAC helps the Ministries to work together to solve any implementation problems and
- problems that cannot be resolved are reported to the Cabinet (or its Committees) that would either act to solve the problem or revise its decision
Mulungushi (2007: 83,337), a decade later, made similar recommendations aimed at making the policy formulation and monitoring systems more participatory. The National Vision 2030 (2006: paragraph 3.1.1) notes also the significance of efficiency and effectiveness in the local and central administration system to assist in the enhancement of the delivery of services and creating an appropriate institutional environment for attaining and sustaining socio-economic development.

Creating Policy Certainty or Uncertainty in Competition and Consumer Protection in Zambia

Enforcement policy of a competition and consumer protection authority must be anchored in the underlying policy objectives. Prior to 2010, Zambia had been implementing a competition law without an elaborate underlying policy, and hence, the competition authority was substantially an alienated part of the executive branch.

With the 2009 policy, a new Competition and Consumer Protection Act was enacted in 2010 and demonstrated Government’s commitment to the ideals of competition and consumer protection. At paragraph 2.4 of the NCCP 2009, it provides a guiding principal to the enforcement direction as follows:

*In regulatory regimes, resolution of disputes is a necessity and therefore, the establishment of legal and administrative systems that are fair, timely and cost-effective and accessible is important to provide redress.*

In the implementation of the policy, the Government set up the CCPC (as the investigating wing) and the Competition and Consumer Protection Tribunal, CCPT as the adjudication/appeals sector. However, in all their deliberations, both the CCPC and the CCPT have not had a self-evident or deliberate reference to the foundational principles laid down in the NCCP in their decisions.

The CCPC has in some case adhered to fair, timely and cost effective enforcement. This is, particularly so in relation to mergers. The reason for this is expressly because the policy objectives have been enshrined in the CCP Act itself in relation to timelines in which a merger assessment must be approved after its notification to the CCPC. These are contained in Section 32 of the CCP Act, as follows:

(1) The Commission shall complete its assessment of a proposed merger and issue its determination within a period of ninety days from the date of the application for authorisation of the proposed merger, unless a party to the proposed merger fails to provide the Commission, during
the period of assessment, information that is required for the completion of the assessment.

(2) Where the Commission does not issue its determination regarding a proposed merger, within the period specified in subsection (1) the proposed merger shall be deemed to be approved.

While the inclusion of timelines is a general international best practice in merger review, even a best practice adoption is a policy decision, which in this case has found its way in the law. This therefore does not allow for discretion on the part of the Authority to extend the period and even where such is allowed, that there be a cap on the extension.

Furthermore, there are no timelines indicated for the investigation of anticompetitive breaches in the CCP Act, unlike in the Competition Act 2010 of Botswana, where, in tandem with the policy objectives of efficiencies as an outcome of the implementation, timelines for investigations are included as follows:

(3) Within one year after an investigation is opened by the Authority, the Executive Secretary shall:
   (a) subject to subsection (3), refer the matter to the Commission if the Authority determines that a prohibited practice has been established; or
   (b) in any other case, issue a notice of non-referral to the complainant, in the prescribed form.

(4) In a particular case
   (a) the Authority and the complainant may agree to extend the period under subsection (2) or
   (b) on application by the Authority made before the end of the period referred to under subsection (2), the Commission may extend that period.

(5) Where the Authority has not referred a complaint to the Commission, or issued a notice of non-referral within the stipulated time, or the extended period referred to under subsection (4), the Authority shall be considered to have issued a notice of non-referral.

While questions of limiting the time for investigation of anticompetitive practices in a statute can be debated, the bottom line is that it provides a transparent timeline for business.
While timelines for investigations of general anticompetitive practices is peculiar to Botswana, there is a practice in some competition authorities where they publish a sequence of timelines for investigations either publicly or as an internal administrative guide to the investigating team. This is so for instance in Mauritius, where the timeline for the investigation is published on the website.

Section 70(3) of the CCP Act provides that *A party to a hearing of the Tribunal might be represented by a legal practitioner or, if the party so elects, by any other person or in person.* The underlying policy behind this provision was to make appearances before the Tribunal to be less expensive to the appellants, more so the small business and consumers – the access principle under paragraph 2.4 of the NCCP has been defeated by the CCPT, who have ruled that any party appearing before them must be represented by a legal practitioner or in person.

Further, the CCPT has demanded that consumers who make complaints to the CCPC should be cited as respondents when the accused enterprise appeals to the CCPT. The implication of this is that the consumer becomes a respondent subject to costs when the appellant wins a case. Even where the case prolongs to the Supreme Court, a cited consumer will bear unnecessary cost in the process, the cost of which should be borne by the CCPC in a similar manner that the Director of Public Prosecutions bears the cost on prosecutions for ‘the people’. In light of the CCPT ruling, the policy principle enshrined in paragraph 5.3 of the NCCP is thus defeated. The objective of the paragraph is *to ensure that consumers have recourse to formal or informal procedures that are expeditious, fair and inexpensive.*

Paragraph 6.1.1 of the NCCP is clear: a specialised tribunal should be established as a faster mechanism to deal with disputed claims from and by the enforcement agency before matters are escalated into the common court system. Appearance before a tribunal shall be as less strenuous as possible in terms of process cost and professional legal services.

The citation of consumers as respondents and the demand that they be represented by legal counsel before the Tribunal when they make complaints to the CCPC defeats this key policy objective. Unfortunately, there is no one in the policy chain to redress this after inaction by the CCPC to appeal to the High Court.

How do these all come about? These arise because of discrepancies between the policy and the framework of implementation on the ground.
Discrepancies between Policy and its Implementation

It is not always an issue of organisation capacity that policies are not effectively implemented. An obvious result of lack of effective policy implementation includes the following:

- That the appointing authority itself is oblivious to the existence or significance of the policy that it has previously endorsed. This is more common where there is a change of government of a champion of the policy is transferred or removed from the position. Where there is no strong centralised policy monitoring and review system, there is neither a monitoring nor follow-up of the policy implementation and its relation to the overarching national policy.
- The implementing authority itself lacking the fortitude to connect their operational role to the overarching policy. This results in enforcement decisions on, for instance, competition not necessarily fostering or furthering the policy objectives.
- The absence of policy performance audit/review or contracting that spell out performance measures related to the policy objectives. While there have been attempts to have such through Ministerial briefings to Parliament and/or during the President’s State of the Nation Address annually, these substantially end up on the debating floor of Parliament.
- There is general fervour in support of policy formulation and less on policy implementation.
- Policy objectives are left to be implemented at the pleasure or discretion of the implementing institution if such objectives are not somehow enshrined in the law.
- Where there are conflicting views by top leadership on what a policy is or is not and whether it exists or not and
- Slow pace at which the implementing institutions put in ‘place systems for compliance. Such may be guidelines, regulations or other statutory instruments to ensure that the policy objectives are clothed with tendons to take root on the grounds.

Ensuring Regulatory Policy Certainty

Firstly, there must be sufficient organisation capacity in terms of knowledge of the policy or policies that require the attention of the organisation. Generally, an organisation will be inclined to keep in touch with numerous policies that affect it or that it ought to give effect to. Policies that affect the organisation might relate to employment, gender, retirement, etc. while those that it ought to give effect to are employment, retirement funds, anti-corruption, public procurement, small and medium
enterprise development, etc. Paragraph 6.1 of the NCCP states: The institutions that will be important in the implementation of this policy include the Zambia Competition Commission or its successor, sector regulators and the Judiciary, in collaboration with other stakeholders, such as consumers and the business community.

To foster certainty in competition policy, the CCPC has engaged in MoU with other sector regulators, including those in central banking, energy and ICT, aimed at cooperation and information sharing to forestall regulatory fragmentation. This is in line with the policy guideline at 6.1.3 of the NCCP, which recognises that sector regulators shall play a key role in competition and consumer protection enforcement through institutional linkages and coordination with the relevant authority. It proceeds to provide that where the legal mechanism is silent, the sector regulators and the Competition authority shall enter into memoranda of understanding to ensure coordinated implementation and enforcement of the legal framework.

The NCCP further provides that the various law enforcement agencies shall coordinate and cooperate with the competition and consumer authority, and sector regulators in the implementation and enforcement of the competition and consumer legislation. Among others, these include the Anti-Corruption Commission; the Drug Enforcement Agency and the Zambia Police Service.

Secondly, there must be a monitoring and evaluation process administered by a clearly interested and involved policy champion. Identifying and supporting champions in the non-governmental arena can assist in this context. Mafuleka (2005:3) recognises that effective control and direction of policies means to have the requisite human resources, the physical infrastructure, the financial muscle and the national political determination to motivate and inspire the whole process from the stage of conceptualisation, adoption, implementation, and monitoring evaluation of policies. Where it involves one institution in interaction with others, capacity will be judged not only by the ability of the single institution to identify errors in other institutions’ policy inputs, but also by the ability to suggest plausible policy.

Garnett and Reilly (1996:4) noted that in a previous government in Zambia there was no monitoring of the impacts of decisions; indeed, there was no requirement to make reference to the likely political, social and economic impacts in a proposed policy before 1996 and that it did not appear to the members of Cabinet that they had any responsibility to make sure that their decisions were actually implemented; they felt that their responsibilities, as members of the Cabinet, ended when they made
a decision and that decision was ‘conveyed’ to the Ministry responsible for implementation.

A compliance check-list to a policy by all identified institutions in their annual performance reports to Parliament or other relevant organ. This process should bring out intervening measures to deal with policy uncertainty. For instance, under of the NCCP\textsuperscript{10}, it provides for:

- Establishment of a mechanism for periodic review of exemptions and
- Provision of advisory opinions to Government and stakeholders based on findings

The Policy goes further to call for a comprehensive and complementary legal framework that should facilitate the ease of enforcement of competition and consumer provisions of the law. It notes that the Zambian legal framework is comprehensive but fragmented on consumer provisions making implementation and enforcement difficult.\textsuperscript{11} While recognising other laws, which had components of consumer protection (like in ICT, standards, financial services, weights and measures, energy, etc.) there was a clarion call for a central or focal point through which would be implemented a coordinated approach to realising higher benefits for the consumer from all these laws.

This central coordination system is the Ministry of Commerce, Trade and Industry. The NCCP provides that the Ministry shall provide political support and facilitate the monitoring of the implementation process and be responsible for evaluating policy benchmarks herein. The Ministry shall conduct periodic monitoring exercises to assess adherence to the provisions of the policy and to determine whether intervention activities are contributing towards the policy vision and its outlined objectives\textsuperscript{12}.

The role of the responsible Ministry to measure the attainment of and/or compliance to the objectives of a policy cannot be underscored for policy consistency. While the CCPC faithfully produces an annual report of its activities, there is no formal feedback from the Ministry or Parliament, on how it has affected the objectives of the NCCP. In short, it is difficult to conclude whether there has been compliance to the NCCP or not, more so at Tribunal level.

Thirdly, there must be consistency by the implementing agencies and to actualise such consistency, and these agencies make effect changes in their applicable legislations to ensure that there are no conflicting provisions. They also enter into MoUs and other informal cooperating arrangements to ensure that they do coordinate to achieve the desired policy objectives.
Fourthly, there is a need for a legion of implementing agencies that are active and conscious and give effect to the realisation of the ideals of the policy in their decision making processes and outcomes. This means having an attention to the detail of the policy and making conscious reference to it.

Lastly, there must be provisions in a law that furthers the policy objectives. For instance, paragraph 5.1.5 (v) of the NCCP on dealing with cartels states: “The Government will establish a mechanism to encourage informers and provide for their protection. In actualising this objective, the CCPC developed a Leniency Policy Under Section 79 of the CCP Act, a leniency programme ensures that where an enterprise: (i) discloses the existence of an agreement that is prohibited under the Act; and (ii) cooperates with the CCPC in the investigation of the practice, the enterprise may not be subject to all or part of a fine that could otherwise be imposed under the Act”.

Whistle blower protection, is therefore, important to ensure that Directors or Managers or other employees in an enterprise can report cartel agreements without fear of imprisonment of themselves or their colleagues as an outcome.

As such, the CCPC has entered into a MoU with the National Prosecutions Authority (NPA) on the determination of leniency applications for individual managers and directors in an enterprise who face possible jail terms. The Plea Negotiations and Agreements Act of 2010 is expected to bolster plea agreements that the Director of Public Prosecutions (DPP) can sanction regarding the leniency applications that fall under the purview of the MoU between the CCPC and the NPA.

Under of the Public Interest Disclosure (Protection of Whistleblowers) Act\textsuperscript{13}, there is protection to a member of the public who discloses, \textit{inter alia}, any communication or release of information regarding any disclosable conduct of any person, public officer or employer made by an employee or any person who has reason to believe that the information shows or tends to show one or more of the following: that a criminal offence has been committed, is being committed or is likely to be committed.

Under Section 3 of the Plea Negotiations and Agreements Act 2010 (PNAA), in terms of application, \textit{the Act applies to any disclosure made after the date Application on which it comes into operation, irrespective of whether or not the impropriety occurred before or after that date and for the avoidance of doubt, this Act applies to any government agency, any private or public company, institution, organisation, body or organ registered, established/incorporated under any law. This then would cover all possible offences before the enactment of the PNAA that are within the statute.}
Conclusion

Equipping organisations to implement the policies they are set out to implement is not just a good thing to do, but it is the right thing to do, especially for countries that have huge developmental strides to make. Ensuring that all policies and laws speak to each other and promote the national developmental goals in tandem should be recognised. This is a milestone that should be taken seriously by putting in measures to facilitate capacity in key institutions to monitor, review and take action in relation to observed discrepancies and uncertainties. It has been established in this paper that there is need for proactive leadership as well as monitoring and review processes to ensure that implementing institutions are realising the objectives of the policies they are expected to achieve.

Participatory monitoring and review of a policy, such as the NCCP will assist to have a more common national consensus around the policy than ‘dump’ its fate into the hands of the primary implementing agency, the CCPC alone. In this way, there will be greater policy certainty and realisation of the most of the objectives of the policy.

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Endnotes

1 Established under the Competition and Consumer Protection Act number 24 of 2010 of the Laws of Zambia (CCP Act).
2 www.britannica.com/topic/Mulungushi-Reforms
3 http://www.adamsmithinternational.com/our-services/revenue-reform/policy-formulation
4 Paragraph 2.2.2 of the National Competition and Consumer Policy 2009
5 Paragraph 4.0
6 Paragraph 6.4.0
7 Garnett and Reilly (1996: 13)
8 Paragraph 6.1.4
9 Capacity for Public Policy Making: The Role of the Legislature in Zambia
10 Paragraph 5.1.7
11 Paragraph 6.2.0
12 Paragraph 7
13 Section 2(1) of Act No. 4 of 2010 of the Laws of Zambia
Epilogue

Strategic Action Plan

Every conference presents some take away agenda that needs to be further worked upon for a logical conclusion. While outputs are important, outcomes are more important. In order to traverse a path from outputs to outcomes, the take away agenda should be converted into actionable items and a strategy needs to be designed for achieving the desired outcomes. The presentation of papers and discussions on the same at the CUTS 5th Biennial Competition, Regulation and Development Conference also threw certain pressing action points to be taken to logical conclusion and translate them into outcomes. This chapter attempts to highlight the research and advocacy agenda that could be taken up as way forward.

1. IP-Competition Balance
   A. General (cross-cutting)

   Moving with the theme of the Conference: “Fostering Innovation for Sustainable Development – Revisiting Intellectual Property Rights and Competition from the Lens of Optimal Regulation”, the first important point that vividly came up during the Conference was to achieve a right balance between IP-lead exclusivity and competition, for which there is no one-size-fits-all formula. Every country needs to device its own balance depending upon its level of development that is most suitable to improve lives of its people. Whereas IP protection is important for building an innovation ecosystem, market competition is a major driver of innovation. In addition, technology transfer and diffusion is also necessary to traverse the path of development.

   Since, the TRIPs Agreement is flexible enough in accommodating competition concerns, developing countries might first like to optimally use the flexibilities to achieve the desired balance between IP and competition. There might be different strategies for different sectors.
However, in efforts to achieve the right balance, government and regulatory agencies need to be careful and should not tend to adopt populist measures that distort the market. The approach should be protecting competition, and not competitors. A transparent evidence-based approach which takes into account concerns of different stakeholder groups could aid in achieving the desired balance.

From the discourses at the Biennial, it came out that a competition policy approach towards IP protection would become clearer and effective if the terms like ‘patent misuse’ and ‘patent abuse’ are well defined. In addition, drawing a clearer map of points of interactions between IP, competition and market failure is also needed. Building capacity of competition authorities on these issues will also be crucial.

Thus future research and advocacy works on the following, among others, would be timely and important:

• Advocacy for implementation of TRIPs flexibilities, including by training competition authorities who could pursue this under their competition advocacy agenda
• Consultative approach to define ‘patent misuse’ and ‘patent abuse’ and develop a global consensus on the same
• Clearly mapping the points of interactions between IP, competition and market failure
• Mechanisms to assess benefits to society and consumer welfare while analysing competition distortion cases related to IP
• Identification of best practices of coordination between competition and IP agencies, and documenting them
• Evidence-based awareness generation programmes to warn agencies and government against use of market distorting populist measures and
• Capacity building of competition authorities in developing world on IP issues

B. ICT sector (SEPs and their licensing)

The Biennial discussed various issues related with the SEPs and their licensing on FRAND terms in the ICT sector. It was argued that there is little evidence or no quantifiable evidence which proves SEP licensing has restrained innovation and competition in the market. It was opined that regulators should not presume that SEP licensing per se harms competition. It was also felt that ‘non-discriminatory’ in FRAND does not necessarily mean treating patent licensees equally.

It also came out that there might, however, be a need to further supplement the effectiveness of the existing system, with the help of
ancillary mechanisms, such as specific guidelines on regulatory intervention and alternate dispute mechanisms for conflict resolution. Most importantly, one of the consensus that emerged during discussions was that collaborative standardisation brings several efficiencies in the market and promotes consumer welfare. There were also proponents of open standards.

Therefore, as the way forward, the following activities will be important:

• Studying the best suited mode of standard setting from the perspective of consumer welfare. If it is found that the collaborative model is best suited and presents an optimum between innovation and consumer welfare, the same can be advocated at various levels

• Whither (and what forms of) guidelines can help maintain and enhance the effectiveness of SEP and its licensing system and

• Research/advocacy on/for alternative dispute resolution related with SEP licensing disputes

C. Socially sensitive sectors (pharmaceuticals and agriculture)

It was vividly highlighted that patents alone are not the driver of innovation, competition too drives innovation. The deliberations during the Biennial brought certain newer tactics adopted by patent holders in the field of biologics which create new barriers to competition. For instance, there have been incidences where originator firms have refused to sell samples to generic (bio-similar) companies.

Similarly, there have been incidences whereby the originator companies in India target those generic companies, which have ordered import of biologic samples (for drug development under Bolar exception rule), by moving to courts and obtaining *ex parte* injunction.

It was also observed that the IP and access to drugs is no more a North-South issue but between consumers and drug firms, and hence, need to be seen from this humanitarian perspective. It was also flagged that there is a role for competition policy and law to play with respect to competition concerns like pay for delay, ever-greening, patent thickets, etc. Leaving everything on patent regime alone might not suffice. In addition, the patent regimes can also be revisited from competition policy perspective and gaps can be fixed by incorporating TRIPs flexibilities. This applies for both developing as well as developed countries.

As far as IP on seeds are concerned, India, which has used TRIPs flexibility to the fullest, is the only country in the world that has full-fledged farmers’ rights (other jurisdiction utmost have certain privileges as mere exception to the breeders’ rights). As far as applying FRAND
concept in the case of Genetically Modified (GM) seed, the same was argued against.

The current dispute in the India between Monsanto and domestic seed company is more a tension between competition and investment. It also came out that the present wave of global mergers in the seed sector is expected to engender more funds into Research and Development. However, the market concentration needs to be monitored on continuous basis, so that consumer welfare and farmers’ interests are not compromised.

Hence, as the way forward, the following activities would be important:

• Sensitise competition authorities of developing world about the importance of TRIPs flexibilities as an *ex ante* tool to avoid anticompetitive situations, particularly in the socially sensitive sectors like health (pharmaceuticals) and agriculture (seeds), so that they can use their advocacy functions meaningfully

• Study the newer tactics adopted by biologic originator companies to defeat generic (bio-similar) competition and suggest ways to tackle the same

• Advocate for establishing a monitoring system to keep an eye on agriculture-input market post-mega mergers, which can raise alarm when consumer welfare and farmers’ interests are compromised

2. Optimal Regulation *vis-à-vis* Disruptive Technology

A. General

The Biennial deliberated upon how regulation needs to deal with disruptive technology so that it addresses adverse effects on competition without ending up regulating the competitors. Few things that came out from the deliberation, which could be future research and advocacy agenda, are as following:

• Need to review use of algorithm in business decision making, which may enable price collusion

• Capacity building of policymakers in devising optimal regulation

• Need to address liability issues and also issues like data privacy and data protection, rising concentration, predatory pricing, capital dumping, homing, information asymmetry, etc. in multi-sided market (various digital platforms) What form, if at all, of price control regime should be adopted

• Conducting regulatory impact assessment while drafting regulations,

• How to craft a regulation, which is more participative and promotes interaction of stakeholders in decision making
B. Digital payment sector

Consumer trust is central in any financial system, which makes it a challenge for regulators when innovations happen in the sector. It was argued that digital modes have helped commercial banks in reaching out last mile consumers, hence, promoting inclusive growth. However, information asymmetry among consumers and absence of optimal grievance redress are concerns to be addressed. There was need to enhance literacy and awareness among consumers. Capacity of regulators to implement regulations was also questioned. It was concluded that regulators need to achieve balance among the interests of incumbents and disruptors.

The following could be progressive agenda for research and advocacy:

- Promote regulatory impact assessment (and regulatory sand box) to achieve balanced regulatory framework
- Evidence-based approach in advocacy and capacity building of policymakers and regulators
- Advocate for more data in public domain to evaluate impact of efforts in terms of regulatory and business models and
- Highlight use-cases for digital payments and concerns of consumers and merchants

C. Multi-sided platforms (transport and E-commerce)

The deliberations made to assess the need for and approach to regulate multi-sided platforms. It was felt that regulation should be such that the competition should prevail in the market and consumer interests are not compromised. For competition, entry barriers in the market should be as low as possible and data portability should be enabled. Further, consumer awareness can also help in this regard. Furthermore, multiple regulatory agencies involved also muddles consumers apart from posing regulatory conflict threats. Consumer grievance mechanism need to be more streamlined. The way forward comprises:

- An empirical study to understand various facets of the working of these platforms and properly mapping areas of concerns, and suggesting ways to deal with them and
- How to use data accumulated by these platforms to deal with competition and consumer concerns

3. Policy and Regulatory Uncertainty

“Building organisation capacity for tackling policy and regulatory uncertainties” was also a sub-theme on which experts deliberated during
the Biennial. It was flagged that decline in global investment flows might be because of policy and regulatory uncertainty. It came out that there was a need for more transparency in policy formulation and improved mechanism to redesign the existing regulations. It was also felt that there should be more interactions between researchers and policy makers in the radically changing environment.

A need was felt to make policy formulation more transparent, inclusive and effective through following an evidence-based approach. In order for policies to be effective in the long-run and to ensure their relevance, a bottom-up approach ought to be followed. For this to happen, lawmakers, regulators and civil society need to work in cohesion and collaboration.

**PPPs and Innovation for Sustainable Development**

It was felt that in countries like India mostly the failures of PPP are highlighted and success stories do not find much place in public discourse. Recognising the need for PPPs in achieving SDGs, it was felt that there is a need to design PPPs with people first concept.

It came out during the deliberation that often a single PPP project is under jurisdiction of many government authorities, which need to be dealt with by developing appropriate framework. Also public reluctance to pay user fees to a service provided remains a major concern for any PPP project.

As PPPs can play a crucial role in taking forward the development agenda, there is a need to find efficient and innovative ways of collaborating for effective implementation of PPP initiatives. This includes reimagining ways of financing, effective collaboration with rural communities and framing effective strategies to tackle failures related to implementation. There is also a need to explore an integrated model which ensures optimally design project models and policies.

**Conclusion**

During the concluding session the following points emerged as the way forward:

- Work towards adoption of process reforms wherein voice of all stakeholders, particularly citizens is heard (and responded to) in governance and policymaking
- Work towards adoption of systems approach wherein different parts of the system such as, government departments and industry listen to each other and collaborate for economic reforms
• Compile a database of cases and examples that showcase IPRs as deterrents and/or catalysts of innovation. At multiple occasions, there have been strong opinions highlighting both scenarios and this database will help in analysing the big picture and
• Compile a database of examples to showcase interaction between innovation/disruption and regulatory reforms and consequent impact thereof, to better understand how can innovation and systems collaborate and work in tandem.