Abstract for EuroCPR 2015
Innovation dynamics in the digital economy: the power of platforms

Introduction
As part of ongoing digitization, innovation processes have become more modular and networked: increasingly flexible modules, that can produced anywhere in the world. Means for production, financing, and distribution of innovations have become more easily accessible, enabling communities of users, developers, and small companies to play a crucial role in innovation processes. Platform-based strategies are increasingly successful in driving innovation in many economic and social sectors. Apple, Google, Facebook, Airbnb and Uber are a few examples of fast growing platform-based companies, that create new economic and social value, and transform traditional businesses and power relations. They demonstrate the emergence of a new innovation dynamic, characterised by complex and dynamic ecosystems of cooperating ánd competing actors, facing uncertainties over disintegrating digitalising value chains.

Research question
In this paper, we will explore the policy implications of this new innovation dynamic via the concept of 'platforms' as socio-technical coordination mechanisms (Kreijveld et al. 2014). Sub research questions are: what actors are involved and what are their roles? What are preconditions for successful innovation via platforms? What technical, economic and social issues arise? Are current policies adequate to address those issues? Based on four case studies we will analyse platform-based innovation strategies in areas such as App Stores, healthcare and big data (wearables and data platforms), 3D printing and smart energy meters. Based on the findings we discuss policy implications in term of preconditions necessary to keep platforms open and accessible to multiple actors.

Theory
From a technological perspective, platforms are standardized 'building blocks' on which other parties can base complementary products, services and technologies. In an economic sense, platforms are often marketplaces which facilitate transactions between sellers and buyers (Eisenmann, Parker & Van Alstyne 2011). Platforms bring together multiple actors from demand and supply side; they are multi-sided markets (Gawer 2014; Evans et al. 2011).

Platforms can bring about a marked acceleration of innovation processes (Gawer 2014). New business models are created, with an entirely new structure. Platforms allow various parties to share infrastructure or technology, knowledge and competences. In doing so, they use standards, licences and other agreements. Platforms are also responsible for a convergence of markets and a restructuring of value chains, as they create new power relationships (Downes & Nunes 2014). This generates opportunities for companies of all sizes, including social entrepreneurs, and for innovation in important domains such as healthcare, energy, 3D printing and DNA technology.

Findings: access, public goods and data protection
Platforms leverage network effects; the more functionalities and users it has, the more valuable the platform becomes. Supply and demand stimulate each other (Eisenmann et al. 2011; Choudray 2013). However, if platforms become too powerful, economic and societal interests may be at risk. Whether adverse impacts emerge, depends on the conditions that providers impose on who can use the platform and how. Closed platforms

exclude other companies, smaller businesses and civil initiatives, thereby severely restricting competition. Consumers will find it extremely difficult to switch to another provider whose products are not compatible – a 'lock-in' occurs. While integration of products and services within a single platform is convenient for users, it restricts consumer choice. In addition, platforms can achieve a degree of penetration and user take-up that makes them almost essential (for example WhatsApp or Google Maps). They take on a character of 'public' goods and services. Platforms also draw upon the knowledge, services and data of their users to feed the innovation process. Although users benefit from providing their data to the platform, being a data source often means they also lose control over their personal data. Such negative impacts implies obligations for governments to safeguard public interests: access to services must be guaranteed, just as the compatibility of systems to ensure free competition.

Regulating platforms in domains such as health care, energy or manufacturing can learn from past experiences in telecom policy (regulating internet access and net neutrality). However, effective regulation of platforms needs an updated policy approach. An integrated policy vision is required, overarching several policy domains and issues: intellectual property rights, (technical) standards, data protection, market regulation and competition. Competition policy needs to be amended: proposed mergers and acquisitions should be assessed in terms of their impact on new and existing markets. Where necessary, separation of the platform's bundled products and services needs to be enforced, ensuring access for other parties. In order to minimise switching barriers, current regulation needs to be updated to ensure consumer choice is adequate. Where platforms evolve into a 'public good', additional requirements by government may need to be imposed, related to conditions of use, stability of the infrastructure, and accessibility.

Literature

Choudray, S.P. (2013) *Platform power. Secrets of billion-dollar internet startups*. Online document www.platformed.info

Downes, L. and Nunes, P. (2014) *The big bang disruption: strategy in the age of devastating innovation*. New York: Pinguin

Eisenmann, T., Parker, G. and Van Alstyne, M. (2011) Platform envelopment. In: *Strategic Management Journal* 31(12), p. 1270-1285

Evans, D.S., Hagiu A. and Schmalensee, R. (2006) *Invisible engines: how software platforms drive innovation and transform industries*. Cambridge: MIT Press.

Evans, D.S.. Schmalensee, R., Noel, M., Chang, H. and Garcia-Swartz, D. (2011) Platform Economics: Essays on Multi-Sided Businesses. Platform economics: essays on multi-sided businesse. In: Evans, D.S. (ed) *Competition Policy International.* Available at SSRN: http://ssrn.com/abstract=1974020

Gawer, A. (2014); Bridging differing perspectives on technological platforms: towards an integrative framework. In: Research Policy 43(7), p. 1239–1249

Kreijveld, M., Deuten, J. and van Est, R. (Red) (2014) *De kracht van platformen. Nieuwe strategieën voor innoveren in een digitaliserende wereld*. Deventer: Vakmedianet