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# Assessment of anti-innovative mergers in high technology markets

What kind of substantive test should be done  
to protect innovation?

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# Summary

Mergers and acquisitions in high technology markets have a significant impact on the economy. The value of one transaction can be as high as a country budget. Companies compete in innovation. Therefore, mergers between them may either foster innovation or be anticompetitive and harm innovation and consumer welfare in the long run. Current European system of merger control is not flexible and it does not evolve in time. Notification thresholds do not allow the EU Commission to review the deals with a high transaction value, if the merging companies do not have a large turnover. In high-tech markets, a company's products, technologies, customer base, data sets and its ability to innovate make it an attractive merging partner, not the turnover. Mergers involving this kind of companies are not undergoing a review, despite the fact that they may clearly affect competition. Innovation as a real antitrust standard is still not introduced in the current Merger Regulation. Such important aspects as dynamic competition, dynamic efficiencies and disruptive innovations do not play a prominent role in the assessment of mergers. EU Commissioner for Competition, Magrethe Vestager, has underlined the necessity of a merger control reform.<sup>1</sup> She stressed that enforcement authorities can be better in targeting the transactions that really matter. As it is now, the absence of clear, flexible and evolving framework results in a low rate of efficiency claims by the firms in innovation-intensive sectors.<sup>2</sup> Enforcement officers and legal advisors make their decisions in uncertainty and cannot provide a reliable advice on the results of the assessment *ex ante*. Potentially procompetitive deals are dying on the drawing board.<sup>3</sup> This thesis will, therefore, analyse advanced methods of effective protection of innovation in merger control in the USA and in the EU, will find synergies between the systems and will suggest the necessary improvements of the European system of merger control in high technology markets: introduction of innovation as a real antitrust standard, inclusion of dynamic efficiencies, disruptive innovations and non-price considerations in the analysis and creation of a new refined substantive test (RTP test - Reduction of Technological Progress) for the assessment of anti-innovative mergers<sup>4</sup> - the mergers, which have a potential to harm innovation. Comments on the EU Commission's latest policy brief 'EU merger control and innovation', which was published in April 2016, will be provided as well.

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<sup>1</sup> Magrethe Vestager, 'Refining the EU Merger control system', speech at Studienvereinigung Kartellrecht, Brussels, 10 March 2016. <[http://ec.europa.eu/commission/2014-2019/vestager/announcements/refining-eu-merger-control-system\\_en](http://ec.europa.eu/commission/2014-2019/vestager/announcements/refining-eu-merger-control-system_en)> assessed 7 April 2016.

<sup>2</sup> See the following mergers: Oracle/Sun Microsystems, IBM/Telelogic, Google/DoubleClick, Thomson/Reuters, Thales/Finmeccanica/AlcatelAlena/Telespazio, JCI/VB/FIAMM, Cargill/Degussa, Johnson&Johnson/Gundant, Siemens/VATech, Blackstone/Acetex.

<sup>3</sup> See the aborted deal of Google Inc.'s acquisition of Groupon Inc. in 2010.

<sup>4</sup> It is my own term that I use to describe the mergers, which can harm innovation.

# Sammanfattning

Företagsförvärv av högteknologiska bolag har ett starkt inflytande på ekonomin då transaktionsvärdet kan bli lika stort som ett lands statsbudget. Eftersom företag konkurrerar med innovation, kan företagskoncentrationer antingen bli gynnsamma eller konkurrensbegränsande, där de på lång sikt kan påverka innovationsklimat och konsumentvälfärd negativt. Det nuvarande europeiska kontrollsystemet kring företagskoncentrationer är inte flexibelt. Nu gällande tröskelvärden ger inte EU-kommissionen möjlighet att kontrollera förvärv med höga transaktionsvärden i de fall företagen inte uppnår vissa omsättningsgränser. Det är inte omsättningen, utan snarare företagets produkter, teknologier, kunddatabaser och förmåga att utveckla innovationer som gör det till en attraktiv transaktionspartner. Dessa typer av företagskoncentrationer prövas inte, trots att de kan skada konkurrensen. Innovation är ännu inte introducerad som en reell standard för prövning i den senaste koncentrationsförordningen. Väsentliga aspekter som dynamisk konkurrens, dynamisk effektivitet och omstörtande innovation spelar nämligen inte någon avgörande roll under prövningen. EU-kommissionären för konkurrens, Magrethe Vestager, har understrukit att det är nödvändigt att genomföra en reform av det europeiska systemet.<sup>5</sup> Hon har betonat att konkurrensmyndigheterna kan bli bättre på att upptäcka de transaktioner som är av stor betydelse. Ett klart, flexibelt och utvecklat ramverk lyser med sin frånvaro, vilket resulterar i att företagen från innovationsintensiva sektorer inte åberopar effektivitet.<sup>6</sup> Handläggare vid konkurrensmyndigheter och juridiska rådgivare är tvungna att fatta sina beslut i osäkerhet. De kan inte ge tillförlitliga råd *ex ante* och potentiellt konkurrensgynnande affärer läggs ner redan under förberedelsearbetet.<sup>7</sup> Den här uppsatsen ska därför undersöka de avancerade metoder av effektivt innovationsskydd under företagskoncentrationsprövningar som finns i USA och EU. Syftet är att finna synergier mellan dessa två system och föreslå nödvändiga förbättringar av det europeiska systemet genom att introducera innovation som en reell standard för prövning, inkludera dynamisk effektivitet, omstörtande innovation och icke-prisöverväganden i analysen samt skapa ett nytt och förbättrat materiellt test (RTP - reduktion av teknologisk progress) för prövning av sådana företagskoncentrationer som kan skada innovation. EU-kommissionens senaste policy beskrivning 'EU merger control and innovation', som publicerades i april 2016, kommer också att kommenteras.

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<sup>5</sup> Magrethe Vestager (n 1).

<sup>6</sup> Se följande företagskoncentrationer: Oracle/Sun Microsystems, IBM/Telelogic, Google/DoubleClick, Thomson/Reuters, Thales/Finmeccanica/AlcatelAlena/Telespazio, JCI/VB/FIAMM, Cargill/Degussa, Johnson&Johnson/Gundant, Siemens/VATech, Blackstone/Acetex.

<sup>7</sup> Se förhandlingarna mellan Google Inc.'s och Groupon Inc. från 2010 som lagts ned.

# Preface

This thesis marks the final line of my studies in European Business Law on Master of Laws Programme at Lund University. I appreciate the privilege of spending five years in the international environment and the possibility to get the cutting-edge knowledge from judges, lawyers and professors from Sweden, France, Great Britain, Belgium, Denmark, Germany and the USA. It was a unique and priceless experience. A special thank you to Xavier Groussot, Justin Pierce, Jorgen Hettne, Henrik Norinder, Ulf Maunsbach, Marcus Glader and Nicolas Petit. I am very grateful to my supervisor Julian Nowag for all the useful advices, patience and inspiration during this course and to professor Hans Henrik Lidgard for an interesting course about the interplay between IP rights and Competition Law. He advised me to take a broad perspective on my research and to compare the systems in the USA and in the EU. I followed his advice in this master thesis and found the information, which can be useful for enforcement authorities, if they will decide to reform European system of merger control. I wish also to acknowledge the support of my colleague Henrik Hedlund and thank him for introducing me to the exciting world of Swedish innovations and nanotechnology. My particular gratitude goes to my family and my friends for being there for me. Without you this journey would not have been accomplished.

I have a genuine interest in innovations and I am pleased to know that Lund University is playing an active role in fostering innovations by participating in the project incuBRIDGE within the frame of Horizon 2020. It is a project of cluster facilitation of industrial value chains based on nanotechnology in Sweden, Czech Republic, Lithuania, Poland and Ukraine. The project is based on strong competence clusters around nanotechnology and other R&D areas, bridging sectors for applications within the fields of Advanced Materials, Energy, Food & Health, Cleantech & ICT, that through smart specialization will contribute to a re-industrialised European landscape. It was natural for me to choose this topic during the course Advanced Competition Law: Competition and Innovation. I have analysed the latest framework for the assessment of innovation effects in merger control in the EU and came to the conclusion that competition in innovation was not efficiently protected, because many important aspects were traced to uncertainty. Therefore, I wanted to compare the systems of merger control in the USA and in the EU, analyse the relevant case-law, find a sound economic rationale of the law for the assessment of innovation in merger review and create a new refined substantive test.

Lund, May 2016  
Marina Trattner

# Abbreviations

CNIL	Commission Nationale de l'Informatique et des Libertés
DGCCRF	Direction générale de la concurrence, de la consommation et de la répression des fraudes
DG COMP	Directorate-General for Competition
DOJ	The United States Department of Justice
EU	European Union
EUMR	European Merger Regulation
FPGA	Field-Programmable Gate Array
FTC	Federal Trade Commission
GE	General Electric
GPN	Gross National Product
GSK	GlaxoSmithKline
HMG	Horizontal Merger Guidelines
IPR	Intellectual Property Rights
ICT	Information and communications technology
HNMG	Non-Horizontal Merger Guidelines
M&A	Mergers and acquisitions
NYSE	New York Stock Exchange
OECD	Organization for Economic Co-operation and Development
SIEC	Significant impediment of effective competition
R&D	Research and Development
RTP	Reduction of Technological Progress
TFEU	Treaty on the Functioning of the European Union
UK	United Kingdom
USA	United States of America

## 1 INTRODUCTION

It has been 12 years since the last EU merger control reform was conducted in 2004. Creation of the Innovation Union<sup>8</sup> became one of the strategies of Europe 2020, but the concept of innovation as a real antitrust standard is still not introduced in the current Merger Regulation (EUMR),<sup>9</sup> despite the fact that European Commission admitted that mergers 'may increase the firms ability and incentives to bring innovations to the market and, thereby, the competitive pressure on rivals to innovate'<sup>10</sup> and that 'merger review can foster innovation, as competition leads to better market outcomes'.<sup>11</sup> The EU Commission focuses on the creation or strengthening of a dominant position,<sup>12</sup> on product markets<sup>13</sup> and market structure. The strengthening of dominant position may lead to higher prices, but the loss of competition to innovate is as important in markets, 'where the essential competition often is not on price, but rather on product features'.<sup>14</sup> Disruptive innovations involve a significant technological jump,<sup>15</sup> create new markets<sup>16</sup> and make a half-century old Schumpeterian debate about what form of market structure favors innovation

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<sup>8</sup> Commission, Directorate-General for Research and Innovation, Innovation union. A pocket guide on a Europe 2020 initiative (2013). <<http://bookshop.europa.eu/en/innovation-union-pbKI3213062/>> accessed 5 April 2016.

<sup>9</sup> Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation) OJ L 24, 29.1.2004, p. 1–22; The discussion about this concept introduced in Horizontal and Non-Horizontal Merger Guidelines will be developed later in this research.

<sup>10</sup> Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03). [2004] OJ C 31, p. 5–18, para 38.

<sup>11</sup> Commission, White Paper 'Towards more effective EU merger control' (Text with EEA relevance) COM/2014/0449 final, para 14; The reference was made to case Intel/McAfee, (COMP/M.5984) Commission Decision of 26/1/2011

<sup>12</sup> Ibid.

<sup>13</sup> Richard J. Gilbert and Steven C. Sunshine, 'Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets', 63 *Antitrust L.J.* 569, at 571–574 (1995).

<sup>14</sup> Maureen K. Ohlhausen, Commissioner, U.S. Federal Trade Commission, *Antitrust in the Technology Sector: Policy Perspectives and Insights from the Enforcers* Palo Alto, CA. January 26, 2016.

<[www.ftc.gov/system/files/documents/public\\_statements/910843/160126skaddenkeynote.pdf](http://www.ftc.gov/system/files/documents/public_statements/910843/160126skaddenkeynote.pdf)> accessed 24 April 2016.

<sup>15</sup> Alexandre de Stree and Pierre Larouche, 'Note on Disruptive Innovation and Competition Policy Enforcement'. OSCD, Directorate for Financial and Enterprise Affairs Competition Committee, Global Forum on Competition, DAF/COMP/GF(2015)7. Session III. 20-Oct-2015.

<[www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/GF\(2015\)7&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/GF(2015)7&docLanguage=En)> accessed 20 April 2016.

<sup>16</sup> J. Bower and C. Christensen, 'Disruptive Technologies: Catching the Wave', (1995) *Harvard Business Review*, 73: 43-53.

largely irrelevant.<sup>17</sup> These new markets are not included in the current analysis. By not introducing innovation as a legal standard in the Merger Regulation, by assessing the high-tech mergers with outdated tools and by dangerous trade offs between static and dynamic efficiency,<sup>18</sup> enforcement authorities are maintaining the risk of conducting two types of mistakes: allowing mergers, which are anticompetitive and anti-innovative or prohibiting procompetitive and proinnovative mergers. Reluctance to reform the system is harmful for innovation, consumer welfare and recovery of the European economy. The system of merger control in the USA has a 100-year history. Many challenges that the European system is facing now have been solved in the USA and this useful experience can be used to improve the assessment of mergers in high technology markets and to enable effective protection of innovation. European system of merger control must be reformed in line with other policies, which aim to protect, promote and reward innovation.<sup>19</sup>

### **1.1. Purpose**

The purpose of this thesis is to improve legal certainty in the field, to introduce innovation as a real antitrust standard, to find a unified theoretical framework for the assessment, to include disruptive innovations and non-price considerations in the analysis and to create a refined substantive test. I will compare the systems of merger control in the USA and in the EU, find synergies between them and make a suggestion on the creation of a dynamic, flexible legal framework with a sound economic rationale for the assessment of anti-innovative mergers. I will answer the question: what kind of substantive test should be done to protect innovation?

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<sup>17</sup> J. Gregory Sidak, and David J. Teece, 'Dynamic competition in Antitrust law'. (2009) *Journal of Competition Law & Economics*, 5(4), 586.

<sup>18</sup> J. Gregory Sidak, and David J. Teece, 'Rewriting the Horizontal Merger Guidelines in the Name of Dynamic Competition' (May 18, 2009). *George Mason Law Review*, Vol. 16, No. 4, pp. 885-894, 2009. <[www.criterioneconomics.com/docs/rewriting-horizontal-merger.pdf](http://www.criterioneconomics.com/docs/rewriting-horizontal-merger.pdf)> accessed April 24, 2016.

<sup>19</sup> Joaquín Almunia, 'Intellectual property and competition policy', 9 December 2013 IP Summit (Paris) 2013. <[http://europa.eu/rapid/press-release\\_SPEECH-13-1042\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-13-1042_en.htm)> accessed 23 April 2016.



## 1.2. Method and Material

Traditional legal dogmatic method of analysing the sources of applicable law in the USA and in the EU legal order is applied in this thesis. Materials include international treaties, guidelines, relevant case-law, policy briefs, speeches, scholarly writing in books, articles and the general principles of EU law. A comparative approach is used to establish differences and find synergies in American and European systems of merger control. A forward looking discussion (*lex ferenda*) is conducted on how a refined European framework for assessment of mergers in high technology markets should be formed to enable more objective analysis. The thesis is more focused on European merger control, because it is written as a part of the course in European Business Law. For the purpose of this thesis under the term "innovation" I mean 'the search for, and the discovery, development, improvement, adoption and commercialization of new processes, new products and new organizational structures and procedures'.<sup>20</sup> "Competition law" and "antitrust" are used as synonyms. The term "enforcement authorities" will refer to European Commission, Federal Trade Commission (FTC) and Department of Justice (DOJ). The EU Commission's latest policy brief is analysed in relation to my research. The introduced RTP test (Reduction of Technological Progress) consists of the most important parameters that were either assessed in the cases dealing with innovation effects or described in theoretical articles, referred to in this thesis. The RTP test does not have an ambition to replace the SIEC test, which allows to assess some innovation effects, but comes rather as an addition to it and demonstrates, which parameters should be considered to enable more objective assessment of mergers in high technology markets. The latest non-price considerations that were made in the recent case-law in the USA are provided to mark the future development of antitrust in merger control.

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<sup>20</sup> T. M. Jorde and D.J. Teece, 'Innovation and Cooperation: Implications for Competition and Antitrust', (1990) 4(3) *J of Economic Perspectives* 75-96.

### **1.3. Delimitations**

This thesis will compare only two systems of mergers control in the USA and in the EU. Best practices of the assessment of innovation effects from other countries, which can be used for the improvement of European system, will be a subject for a future research. Protection of innovation is a rather new field of European Competition Law, therefore the analysis will mainly be focused on the latest case-law from 2000 up until the 11th of May 2016. The leading cases, which were decided earlier, will also be mentioned.

### **1.4. Previous works**

The debate about competition and innovation started in the middle of 1990s in the USA and proceeded to the EU. The field was actively explored by Lawrence B. Landman, John Temple Lang, Alan S. Gutterman, Richard Gilbert, Steven Sunshine, Gregory Sidak, David J. Teece, Jonatan Backer, Vikas Kathuria, Herbert Hovencamp, Hans Henrik Lidgard, Marcus Glader, Elena Cefis, Reinhilde Veugelers, Bruno Cassiman, Massimo G. Colombo, Paola Garrone, Matthew Jennejohn, Spencer Weber Waller, Matthew Sag, Alexandre de Steel, Pierre Larouche, Nicolas Petit, Bjorn Lundqvist, Julian Nowag, Halla Maria Svenbjornsdottir and others. My contribution consists of the update and analysis of the research, the latest case-law and policy debate in the USA and in the EU.

### **1.5. Disposition**

Chapter 2 is dedicated to the introduction of innovation as a real antitrust standard. It describes different types of innovation and efficiencies, which are important for a correct choice of assessment tools, the interplay between competition and innovation, economic theory and principles, which can be used as a unified framework for the assessment of mergers, relevant market for innovation, nature of high technology markets and competition for the markets, integration of disruptive innovation in antitrust analysis, effect of mergers on innovation and dynamic harms. Chapter 3 provides an outline on American and European approaches to the assessment of innovation effects in merger control, comments on the EU Commission's approach in the latest

policy brief, description of substantive tests in the USA and in the EU: SLC and SIEC, overview of the concept of innovation in the EU Horizontal and Non-Horizontal Merger Guidelines, relevant case-law, description of the ways US enforcement authorities make non-price considerations. Chapter 4 introduces the RTP test and Chapter 5 summarizes the conclusions.

## **2 INNOVATION AS A REAL ANTITRUST STANDARD**

In times of the new economy, integrating innovation as real antitrust standard for the assessment of mergers in high technology markets would demand judges and antitrust agencies to consider fully the nature of dynamic competition,<sup>21</sup> main characteristics of high-tech markets<sup>22</sup> and all innovative aspects of the case. The current strive after simplification can result in underestimation of the false positives<sup>23</sup> and harm the consumer welfare in the long run. Therefore, the effective protection of innovation should be set as goal for antitrust agencies on European and national levels, the concept of innovation should be introduced in the new Merger Regulation and all the factors discussed in this thesis should be taken into consideration during the creation of a refined substantive test for the assessment of mergers.

### **2.1. Types of innovation**

The EU Commission has in its latest policy brief about EU merger control and innovation<sup>24</sup> defined innovation as 'one parameter of competition alongside price and output and other factors'.<sup>25</sup> A more detailed definition cannot be found in the current binding EU legislation for merger control, which aims 'to protect and promote innovation'.<sup>26</sup> The uncertainty starts here. How is it

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<sup>21</sup> J. Gregory Sidak and David J. Teece. 'Dynamic competition in Antitrust law'. (2009) *Journal of Competition Law & Economics*, 5(4), 586.

<sup>22</sup> OECD, 'Application of Competition Policy to High Tech Markets', Policy Roundtables, Paris, 1996.

<sup>23</sup> FTC, 'Consumer Protection & Competition, Regulation in a High-Tech World: Discussing the Future of the Federal Trade Commission'. (December 2013).

<[http://docs.techfreedom.org/FTC\\_Tech\\_Reform\\_Report.pdf](http://docs.techfreedom.org/FTC_Tech_Reform_Report.pdf)> accessed 28 April 2016

<sup>24</sup> Commission, 'EU merger control and innovation', Competition Policy Brief, 2016-01/ April 2016. p. 1. <[http://ec.europa.eu/competition/publications/cpb/2016/2016\\_001\\_en.pdf](http://ec.europa.eu/competition/publications/cpb/2016/2016_001_en.pdf)> accessed 16 April 2016.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

possible to protect something, which is not even defined? A correct identification of innovation type is crucial for the correct choice of the assessment tools.

The necessary definitions can be found in economic and business literature. *Product innovation* is defined as 'the development of new products, changes in design of established products, or use of new materials or components in the manufacture of established products'.<sup>27</sup> *Process innovation* is 'the implementation of a new or significantly improved production or delivery method (including significant changes in techniques, equipment and/or software)'.<sup>28</sup> It is about technological processes. *Incremental innovation* adds a technological improvement to existing products, like additional or new functions. *Leapfrogging*<sup>29</sup> is a small and incremental innovation, which allows a dominant company to be leading.<sup>30</sup> *Breakthrough innovation* means a significant technological jump,<sup>31</sup> 'akin to a change of technological paradigm'.<sup>32</sup> *Incremental* and *breakthrough* innovations 'refer to technological process and qualify the innovation with respect to the prior state of the art'.<sup>33</sup>

Understanding of the relationship between an innovation and the value network around it is important for definitions of sustaining innovation and disruptive innovation. *Sustaining innovation* takes place within the established value network and gives a better product to the consumers than they have at the moment. *Disruptive innovation* as a new technology, product or service, comes from outside of the value networks and overturns the existing dominant technology.<sup>34</sup> Typical examples of disruptive innovations are gasoline automobiles, digital imaging, Internet telephony and streaming of films. The

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<sup>27</sup> Policy Studies Institute, University of Westminster. 'Small Firms' Innovation'. <[www.psi.org.uk/publications/archivepdfs/Small firms/SF1.pdf](http://www.psi.org.uk/publications/archivepdfs/Small%20firms/SF1.pdf)> accessed April 17, 2016.

<sup>28</sup> OECD, Guidelines for Collecting and Interpreting Innovation Data, Oslo manual, 3rd Edition, 2005, page 49.

<sup>29</sup> See case Phillips/Marconi Medical Systems (COMP/M. 2537) Commission Decision [2001] OJ C 321, 16/11/2001 and Microsoft/Yahoo (COMP/M. 5727) Commission Decision of 18/2/2010.

<sup>30</sup> Drew Fudenberg et al, 'Preemption, Leapfrogging, and Competition in Patent Races.' (1983). European Economic Review. p. 22: 3–31.

<sup>31</sup> Ibid. See also J. Bower and C. Christensen (n 16).

<sup>32</sup> Alexandre de Streel and Pierre Larouche (n 15).

<sup>33</sup> Ibid.

<sup>34</sup> J. Bower, C. Christensen (n 16).

subject of inclusion of disruptive innovation into antitrust analysis will be examined in detail in chapter 2.7.

## **2.2. Static efficiency, incremental dynamic efficiency and leapfrog dynamic efficiency**

Efficiency is 'a measure of how much wealth is created in proportion to the inputs used: the more efficient a process, the more output it can create'.<sup>35</sup> There are many types of efficiencies: allocative-, productive-, transactional-, and static efficiency, incremental dynamic efficiency and leapfrog dynamic efficiency. *Allocative efficiency* is achieved when resources are allocated to their most efficient use - the marginal cost of producing each unit just equals the value of that unit to consumer.<sup>36</sup> *Productive efficiency* is reached when the company has cut its production costs not to lose the customers to other competitors. *Transactional efficiency* is achieved when company can carry transactions to least expensive means.

*Static efficiency* is about minimization of the deadweight loss. It is reached when the products can be produced for the lowest price. The price is a distinctive indicator for this kind of assessment.<sup>37</sup> *Dynamic efficiency* enhances the ability or incentive to innovate. It is concerned with the optimal rate of innovation and investment to improve production processes, which help to reduce the long run average cost curves. Dynamic efficiency can be in the form of an investment in new machines and technology, which may enable an increase in labour productivity and in implementing better working practices. It may involve higher costs in the short run, but it will mean an improvement over long time. This kind of efficiency is reached when investment and innovation are stimulated through the invention, development and diffusion of new products and production processes that increase social welfare.<sup>38</sup> It results

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<sup>35</sup> Thomas O. Barnett. 'Maximizing welfare through technological innovation'. Presentation to the George Mason University Law Review 11th Annual Symposium on Antitrust Washington, DC, October 31, 2007.

<sup>36</sup> Vikas Kathuria, 'A conceptual framework to identify dynamic efficiency', (2015) European Competition Journal, p.3.

<sup>37</sup> Inge Graef et al, 'How Google and others upset competition analysis: disruptive innovation and European competition law', (2014). 25th European Regional Conference of the International Telecommunications Society (ITS), Brussels, Belgium, 22-25 June 2014.

<sup>38</sup> R.J. Van den Bergh and P.D. Camesasca, *European and Competition Law and Economics: A Comparative Perspective* (2nd edition, Sweet & Maxwell, 2006), 30.

in elimination of duplicative R&D, achievement of economies of scale and scope in R&D, joint exploitation of IPR, better R&D risk spreading, better IP enforcement and increased financial resources for financing R&D.<sup>39</sup> In dynamic competition other proxies than price play a prominent role, because undertakings compete in innovations and want to create products of the highest quality.<sup>40</sup>

*Incremental dynamic efficiency* is related to reduction of the production cost using existing technology, but *leapfrog dynamic efficiency* is dealing with large gains in consumer welfare that arise from successful implementation of entirely new products, new ways of producing products or services<sup>41</sup> and new ways of doing business.<sup>42</sup> Nobel Prize winner economist Robert Solow argued that seven-eighths of U.S. growth in GNP between 1909 and 1949 were due to “technical change”, i.e., dynamic efficiency.<sup>43</sup> It resulted in 55% of economy growth in Japan, 73% in the United Kingdom, 76% in France, and 78% in West Germany. If enforcement authorities aim to protect and promote innovation they should by all means protect and promote dynamic efficiency, which has been defined as a the primary engine of productivity growth.<sup>44</sup> They should also clearly understand the differences between static and dynamic efficiencies, between static and dynamic competition, between static and dynamic harms (as frustration or foreclosure of new products or processes) to be able to identify and prevent these harms. Foreclosure of essential/new technology would be one of the proxies, which could be more appropriate for the assessment of mergers in dynamic high technology markets, not just the price concerns. Dynamic competition should be protected in the first place and then, when the new products are introduced to the market and different companies have a possibility to produce them, static efficiency can be relevant

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<sup>39</sup> Vikas Kathuria (n 36).

<sup>40</sup> Ibid.

<sup>41</sup> Thomas O. Barnett (n 35).

<sup>42</sup> Fiona Scott-Morton, *Antitrust Enforcement in High-Technology Industries: Protecting Innovation and Competition*. Department of Justice, 2012 NYSBA Annual Antitrust Forum Antitrust in High-Tech Markets – Intervention or Restraint, New York, December 7, 2012. <<https://www.justice.gov/atr/file/518956/download>> accessed April 17, 2016.

<sup>43</sup> Robert M. Solow, *A Contribution to the Theory of Economic Growth*, 70 Q.J. Econ. 65 (1956).

<sup>44</sup> Michael J. Boskin & Lawrence J. Lau, 'Capital, Technology, and Economics Growth', in *Technology and the wealth of nations* 17 (Nathan Rosenberg et al. eds., 1992).

for the assessment. These improvements are necessary for effective protection of innovation, economic growth and increased consumer welfare in the long run.

Allocative and productive efficiencies are *static efficiencies* dealing with reduction of costs. It is easier for the EU Commission to verify them. *Dynamic efficiency* is far more complicated, but it leads to the rise in living standards. Robert Solow and many others support the claim that dynamic efficiency brings more social welfare than static efficiency. Broadley and Porter<sup>45</sup> believe that the aim of competition policy should be to promote dynamic efficiency as a way to achieve maximum social wealth. By preferring static efficiency for the assessment, enforcement officials can artificially induce competition, which may result in allocative efficiency, but these actions can have an adverse effect on investment and innovation.<sup>46</sup> If the ultimate purpose of competition policy is not just to protect the competition as such, but to ensure customer welfare as well, then the focus should be on the effective protection and promotion of dynamic efficiencies. Disregarding efficiencies can be harmful for companies, because they have to be efficient to stay competitive globally.<sup>47</sup>

Merging companies in innovation-intensive sectors normally have business strategies with a detailed description of different types of innovations (including disruptive innovations), which lay in the heart of their business development. This information could help enforcement authorities to make more clear-cut *ex ante* predictions about possible effects of the merger on competition and innovation. Provision of this information, as well as reporting about efficiencies,<sup>48</sup> could be made mandatory to enable more objective assessment of mergers.

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<sup>45</sup> M.E. Porter, 'Competition and Antitrust: Toward a Productivity-Based Approach to Evaluating Mergers and Joint Ventures' (2001) 46 Antitrust Bull 919-958.

<sup>46</sup> International Telecommunication Union, 'Birth of Broadband', (2003). <[www.itu.int/osg/spu/publications/sales/birthofbroadband/index.html](http://www.itu.int/osg/spu/publications/sales/birthofbroadband/index.html)> accessed 9 April 2016.

<sup>47</sup> Fabienne Ilzkovitz and Roderick Meiklejohn, *European Merger Control Do We Need an Efficiency Defence?* Edward Elgar Publishing Ltd. (2006).

<sup>48</sup> Reinhilde Veugelers, 'Innovation in EU Merger control: walking the talk', Bruegel Policy contribution, Issue 2012/04, February 2012. <<http://bruegel.org/2012/02/innovation-in-eu-merger-control-walking-the-talk/>> accessed April 24, 2016.

### **2.3. Competition and innovation. Economic theory and principles. In search of a unified framework**

The next step on the way of improving legal certainty in this field would be to choose a unified theoretical framework for a refined assessment of mergers. Enforcement authorities would need to find a correct answer on the main question: what is inducing innovation? Two major competing schools of economic theory provide the opposite answers on this question. The scholars, who follow the footsteps of Joseph Schumpeter with his theory of continuous innovation and creative destruction,<sup>49</sup> believe that innovation is the critical dimension of economic change<sup>50</sup> and that large companies have more incentives and better ability to innovate than small companies. Supporters of Kenneth Arrow's views on the opposite side argue that more product market competition spurs innovation.<sup>51</sup> Schumpeter believed that less competition in dynamic high technology markets would lead to more innovation.<sup>52</sup> These conditions create more incentives for innovators to invest in R&D and come up with new products or services, because they will have better chances to get a higher level of reward for their inventions. Current market leaders will innovate relentlessly to be able to keep the leading supplier's role and compete for new markets. Arrow argued that less competition in the market would reduce the incentives to innovate. According to his views, undertakings under competitive pressure strive to improve the quality of the products, to reduce the price and to gain the sales from competitors.

In its latest competition policy brief about EU mergers and innovation Directorate-General for Competition (DG COMP) has agreed with Johannes Laitenberger's suggestion to accept Carl Shapiro's findings as a unified theoretical framework.<sup>53</sup> Shapiro suggested that both Schumpeter's and

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<sup>49</sup> J.A. Schumpeter, *Capitalism, Socialism and Democracy*, New York: Harper & Row, (1942).

<sup>50</sup> E. Pol, P. Carroll, *An Introduction to Economics with Emphasis on Innovation*, South Melbourne: Thomson, 2006.

<sup>51</sup> K.J. Arrow, 'Economic Welfare and the Allocation of Resources for Invention, in *The Rate and Direction of Inventive Activity: Economic and Social Factors*', Princeton University Press (1962). p. 609-625.

<sup>52</sup> Commission, Competition policy brief (n 24).

<sup>53</sup> This suggestion was made during his speech *Competition and Innovation* at CRA Annual Brussels Conference, 9 December 2015.

<[http://ec.europa.eu/competition/speeches/text/sp2015\\_04\\_en.pdf](http://ec.europa.eu/competition/speeches/text/sp2015_04_en.pdf)> accessed April 20, 2016.



Arrows' views converge on three economic principles:<sup>54</sup> contestability, appropriability and synergies (contestability of the markets fostering innovation; appropriability - a company's possibility to capture the return from its innovations and to protect the competitive advantage associated with it; synergies arising from complementary assets necessary for enhanced ability to innovate). Shapiro found that Arrowians focus on *ex ante* perspective of fostering innovation and Schumpeterians - on *ex post*. 'As long as competition policy promotes contestability (i.e. by keeping markets competitive) and does not unduly negatively affect appropriability, it will be compatible with both Arrow and Schumpeter and therefore will encourage innovation'.<sup>55</sup> Recent empirical studies conducted by Nickell, Blundell, Griffith and Van Reenen, Dutz and Hayri, Aghion et al, Aghion, Braun and Fedderke demonstrated, however, that 'the average level of innovation per firm in an industry exhibits an inverted-U relationship with competition – that is, a positive relationship when competition is relatively low, and a negative relationship when competition is high'.<sup>56</sup>

#### **2.4. Market structure analysis**

The EU Commission analyses whether a merger will create or strengthen a dominant position on the market. To understand undertakings' behavior on the market better, enforcement authorities conduct a market structure analysis. Harvard School developed the *structure - conduct - performance* paradigm and had a great influence on definitions of barriers to entry. 'The conclusion that market structure dictated performance caused a belief that competition law should be concerned with structural remedies rather than behavioral remedies'.<sup>57</sup> The Chicago School argued that 'people are rational and that markets work and are self-correcting'.<sup>58</sup> The fundamental view was that 'the pursuit of efficiency, by which is meant allocative efficiency as defined by the

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<sup>54</sup> Carl Shapiro, 'Competition and Innovation. Did Arrow Hit the Bull's Eye?' (2012), in Josh Lerner and Scott Stern: *The Rate and Direction of Inventive Activity Revisited*, p. 361-410.

<sup>55</sup> EU Commission, Competition policy brief (n 24).

<sup>56</sup> Pedro Bento, 'Competition as a Discovery Procedure: Schumpeter Meets Hayek in a Model of Innovation', (2013), West Virginia University, p.1.

<sup>57</sup> Alison Jones & Brenda Sufron, *EU competition law: text, cases, and materials*, 5. ed., Oxford University Press, Oxford, 2014, p. 21.

<sup>58</sup> Alison Jones & Brenda Sufron (n 57) p. 22.

market, should be the sole goal of competition law'.<sup>59</sup> Neither of these approaches would be suitable for effective protection of innovation. 'The Harvard school's structuralist vision of antitrust cannot be conciliated with the consideration of disruptive innovations, which create new markets and are, therefore, mostly irrelevant to market structure and barriers to entry'.<sup>60</sup> The pursuit of allocative efficiency cannot be the only goal of enforcement authorities, which have the aim to protect and promote innovation. Therefore, it would be natural to ask the following questions: is a market structure analysis an appropriate tool for the objective assessment of mergers in high technology markets? Is there a theory, which could enable creation of more advanced tools and match better for this task?

The contribution to antitrust law made by one of the most influential economists of the twentieth century,<sup>61</sup> the Nobel Prize winner British-Austrian Friedrich von Hayek should be reconsidered in this regard and used for creation of a refined test. He was one of the fathers of complex systems,<sup>62</sup> who demonstrated that 'only a dynamic competition process could ensure the best result'.<sup>63</sup> Hayek believed in promotion of dynamic efficiencies and refutation of perfect competition, which 'wrongly assumes that all competitors possess, or should possess the same information'.<sup>64</sup> He defined competition as a 'discovery procedure'<sup>65</sup> and market as a 'spontaneous order',<sup>66</sup> 'which is not designed by anyone but evolved slowly as the result of human actions'.<sup>67</sup> Hayek believed in 'untrammelled free market and the ability of potential competition to prevent the long-term exploitation of monopoly power'.<sup>68</sup> This matches well with dynamic competition in high technology markets between

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<sup>59</sup> Alison Jones, & Brenda Sufron (n 57) p. 24.

<sup>60</sup> Thibault Schrepel, 'Friedrich Hayek's Contribution to Antitrust Law and Its Modern Application', (2015). ICC Global Antitrust Review, 2014, p. 201.

<sup>61</sup> Alison Jones & Brenda Sufron (n 57) p.32.

<sup>62</sup> Friedrich Hayek, 'The Theory of Complex Phenomena', in *The Critical Approach to Science and Philosophy* (Collier McMillan 1964).

<sup>63</sup> Thibault Schrepel (n 60) p. 205.

<sup>64</sup> Ibid.

<sup>65</sup> Friedrich A. von Hayek, 'Competition as a Discovery Procedure,' *The Quarterly Journal of Austrian Economics*, 5(3), 9-23. Translated from Hayek (1968) by Marcellus S. Snow, 2002.

<sup>66</sup> The concise encyclopedia of economics, Friedrich August Hayek.

<[www.econlib.org/library/Enc/bios/Hayek.html](http://www.econlib.org/library/Enc/bios/Hayek.html)> accessed April 27, 2016.

<sup>67</sup> Ibid.

<sup>68</sup> Alison Jones & Brenda Sufron (n 57) p.32.

large companies, working with sustaining innovations, and small start-ups, overturning the existing dominant technology by new disruptive innovations. He argued that all structural analyses lead to focus on the wrong elements. According to his views, 'market shares move faster, barriers to entry the market tend to be much lower, and natural monopolies leave as fast as they come'.<sup>69</sup> Hayek claimed that enforcement authorities, by not considering all the aspects of innovation (like disruptive innovation) indirectly promote the model of perfect competition.<sup>70</sup>

## **2.5. Relevant market for innovation**

The concept of innovation market<sup>71</sup> was introduced in Antitrust Guidelines for the Licensing of Intellectual Property issued by the Department of Justice (DOJ) and the Federal Trade Commission (FTC) jointly in the USA in 1995: 'An innovation market consists of the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development'.<sup>72</sup> The guidelines described the approach to evaluation of technology and innovation markets and were used in the situations, when the licensing arrangements could affect the development of goods that do not yet exist, and in cases, when a licensing arrangement could 'have competitive effects on innovation that cannot be adequately addressed through the analysis of goods or technology markets'.<sup>73</sup> Gilbert and Sunshine<sup>74</sup> have analysed the concept of innovation markets and adverse effects of mergers on innovation in 1995. Their suggestions were met by criticism from many scholars.

European Technology Transfer Guidelines from 2004<sup>75</sup> provided the division of markets on product, technology and innovation market. The concept of competition in innovation was presented in EU Guidelines on Horizontal

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<sup>69</sup> Thibault Schrepel (n 60) p. 200.

<sup>70</sup> Ibid.

<sup>71</sup> Marcus Glader, 'Innovation Markets and Competition Analysis - EU Competition law and US antitrust law' (LL.D. thesis, Faculty of Law, Lund University 2004), p. 93.

<sup>72</sup> U.S. Department of Justice and Fed. Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property, (April 1995). See § 3.2.3.

<sup>73</sup> Ibid.

<sup>74</sup> Richard J. Gilbert and Steven C. Sunshine, (n 13).

<sup>75</sup> Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements. [2004] OJ C 101/02.

Cooperation Agreements<sup>76</sup> together with the guidance on the application of competition rules to R&D agreements. The EU Commission defined product markets and technology markets as "existing markets". R&D competition was not referred to "future markets",<sup>77</sup> but described as "competition in innovation" and "R&D efforts".<sup>78</sup> The guidelines provided several examples of situations when the joint R&D could have an impact on innovation market/new product market by reduction of product variety. The Commission explained that the analysis should be made of the pools of research destined towards that future market and in case if the agreement would lead the parties to agree on output levels, quality or other competitively important parameters it would limit competition. If the parties would charge high transfer price it could increase the input costs and lead to higher downstream prices.

The Commission tried to make dynamic considerations regarding the affect on future markets<sup>79</sup> and assess the concerns regarding the potential reduction in competition in the market for new or improved products.<sup>80</sup> It has established in cases *Astra Zeneca/Novartis*<sup>81</sup> and *Glaxo Wellcome/SmithKline Beecham*<sup>82</sup> the line of assessment of market development over a period of two or three years. Different periods of time, like 10 or 20 years, can be adopted in certain cases, depending on new product cycles, as it was done in *Areva/Urenco/ECT JV*,<sup>83</sup> or shorter periods of time, depending on short innovation cycles, as it was confirmed in *Microsoft/Skype* decision.<sup>84</sup> In both systems in the USA and in the EU enforcement authorities measure loss of innovation in competition.<sup>85</sup> For the assessment of mergers in high technology markets, several types of

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<sup>76</sup> Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements. [2011] OJ C 11, p. 1–72.

<sup>77</sup> Marcus Glader (n 71) p. 8.

<sup>78</sup> Guidelines on the applicability of Article 101 TFEU (n 76) chapter 3.

<sup>79</sup> J. Drexler, 'Anticompetitive stumbling stones on the way to clear world: Protecting competition in innovation without a market' (2012) 8, *Journal of Competition Law & Economics*. p 524.

<sup>80</sup> A. Lindsay and A. Berridge, *The EU Merger Regulation: Substantive Issues* (4th edn, Sweet & Maxwell (2012)). p. 266-267.

<sup>81</sup> *Astra Zeneca/Novartis* (COMP/M. 1806) Commission Decision [2001] OJ C 102, 16/4/2004

<sup>82</sup> *Glaxo Wellcome/SmithKline Beecham* (COMP/M. 1846) Commission Decision [2000] OJ C 170, 20/6/2000.

<sup>83</sup> *Areva/Urenco/ECT JV* (COMP/M.3099) Commission Decision 2006/170/EC [2006] OJ L 61, 2/3/2006

<sup>84</sup> *Microsoft/Skype* (COMP/M.6281) Commission Decision of 7/10/2011

<sup>85</sup> See cases *Philips/Agilent Health Care Solutions* (COMP/M.2256) Commission Decision [2001] OJ C 292, 18/10/2001 and *Hoffman - La Roche/Boehringer Mannheim* (COMP IV/M.950) Commission Decision 98/526/EC [1998] OJ L 234, 21/8/1998

markets can be of relevance: the market for the current product generation, the "innovation market", which focuses on R&D activities directed to new processes and products and their substitutes, and the market for a new product generation.<sup>86</sup>

## **2.6. High technology industries and competition for the markets**

High-tech industries are using cutting-edge technologies. The markets are IP-intensive and rely on technology standards in order to enable compatibility.<sup>87</sup> High-tech companies have a significant impact on economy. Sometimes the value of one merger or acquisition can be higher than a budget of a country (Apple took over Exxon-Mobil for \$337 billion in 2011).<sup>88</sup> These kinds of companies, characterized by rapid pace of innovation, create new products, platforms and ways of doing business, reduce production costs and have a huge potential to take the economy and customer welfare to a new level. High-tech industries often experience greater dynamic effects than other industries, have high fixed-costs and low marginal costs or large supply-side and demand-side economies of scale, which can affect pricing strategy.<sup>89</sup> They have started an era of platform competition between the companies with unique ecosystems, where companies may provide the services free of charge and make the traditional price-based approach ineffective. Therefore, assessment of such cases in a new refined test must include non-price considerations.

Exclusionary practices in high-tech markets differ from the classic versions of behavior as well. They can be in the form of "lock-in" effects (when music purchased on one platform cannot be played on another platform), "tipping"<sup>90</sup> (when the entire market goes to a single player, once a certain threshold is

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<sup>86</sup> William F. Baxter, 'The Definition and Measurement of Market Power in Industries Characterized by Rapidly Developing and Changing Technologies,' (1984) 53 Antitrust L.J. 717, 724.

<sup>87</sup> Fiona Scott-Morton (n 42).

<sup>88</sup> Ibid.

<sup>89</sup> Ibid.

<sup>90</sup> Carl Shapiro & Hal R. Varian, *Information Rules: A Strategic Guide To The Network Economy* (Harvard Business School Press Boston, Massachusetts 1999), Chapter 7.

reached)<sup>91</sup> and denying of access to established standards. The value of a network or a platform increases with positive feedbacks and the number of users. Barriers to entry can be created by the fact that complementary products for the platform must be popular with consumers. More users create a demand for more complementary products, which attract even more users to the platform. Users have a power to affect the development of the network or a platform and this power, as well as their privacy and safety, should be fully considered in a refined test for the assessment of mergers in high-tech markets. The focus should be on reduction of innovation and non-price considerations narrowly tailored to specific public policy goals, like consumer safety. The interplay between IPR and Competition Law is of major importance in high technology markets. Patent portfolios or limitation of the access to resulting products are used to create barriers to entry as well, which can sometimes be eliminated by maintaining alternative R&D and securing access to the resulting products.<sup>92</sup> High fixed costs and large commercial risks can also make the market entry less attractive.<sup>93</sup> Aggressive market players may create lock-in and network effects, when consumers cannot switch to another product, because it will be incompatible with the created standard. Market leaders may purchase competing products under development to retard the technology race and to get maximum profits from the current product generation. This can harm innovation, technological progress and consumer welfare and must be considered during the assessment.

In high-tech industries the companies often compete for new markets,<sup>94</sup> not on the existing markets. Firms with disruptive innovations try to displace one another from a central position in the broader ecosystem, by shifting and creating relevant market(s) so as to occupy a central stage overall.<sup>95</sup> When disruptive innovations are introduced to the market, a traditional market can remain, but its overall significance is diminished.<sup>96</sup> Due to large supply-side

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<sup>91</sup> Fiona Scott-Morton (n 42).

<sup>92</sup> Ibid.

<sup>93</sup> Ibid.

<sup>94</sup> B.R. Kern, 'Innovation Markets, Future Markets, or Potential Competition: How Should Competition Authorities Account for Innovation Competition in Merger Reviews?' (2014) *World Competition*, vol. 37, no. 2, (173), p. 174.

<sup>95</sup> Alexandre de Streel and Pierre Larouche (n 15).

<sup>96</sup> Ibid.

and demand-side economies of scale, a company may obtain and sustain a significant market share that can be hard to reverse.<sup>97</sup> On one side, disruptive innovations create new markets for high-tech companies, enabling them to collect maximum profits. On the other side, these innovations can overturn the existing dominant technology and take over the market. Therefore, it will be crucial for incumbent's survival to either purchase the innovator or exclude his company from the market. The rival can also be inadvertently killed through acquisition. These actions are harming innovation and hampering technological progress. That is why integration of disruptive innovation in a new refined test is of a crucial importance for objective assessment of mergers in high technology markets.

## **2.7. Integration of disruptive innovations in antitrust analysis**

J.L. Bower and C.M. Christensen have introduced the concept of disruptive innovations in Harvard Business Review in 1995.<sup>98</sup> In the same article they explained the differences between the sustaining and disrupting innovations and the reasons why the companies cannot stay at the top when markets and technologies change. Their work resulted in the introduction of the concept of 'maverick' firm in the EU in paragraph 42 of the EU 2004 Horizontal Merger Guidelines:

A 'maverick' firm (...) has a history of preventing or disrupting coordination, for example by failing to follow price increases by its competitors, or has characteristics that gives it an incentive to favour different strategic choices than its coordinating competitors would prefer.

The concept was later developed in the USA in paragraph 2.1.5 of the US 2010 Horizontal Merger Guidelines:

A "maverick" firm (is) a firm that plays a disruptive role in the market to the benefit of customers. For example, if one of the merging firms has a strong incumbency position and the other merging firm threatens to disrupt market conditions with a new technology or business model, their merger can involve the loss of actual or potential competition.<sup>99</sup>

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<sup>97</sup> Fiona Scott-Morton (n 42).

<sup>98</sup> J. Bower and C. Christensen (n 16).

<sup>99</sup> U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines. 2010.

OECD Secretary-General Angel Gurría explains that 'the most effective and transformative innovations are those that disrupt existing businesses'.<sup>100</sup> Alexandre de Streel and Pierre Larouche agree with this view and add that this kind of innovation is 'a frequent entry strategy, and it is usually beneficial for welfare'.<sup>101</sup> It occurs when an innovative product, which meets the basic requirements of the lower-end of an established value network, is brought to a market.<sup>102</sup> This product offers added value outside of the value network and wins over consumers,<sup>103</sup> progressively takes over the established market and can 'dethrone the leading firms in the mainstream market'.<sup>104</sup> These kinds of innovations often come from the blind side of incumbent firms. According to Bower and Christensen, if the innovators are 'successful in gaining a foothold on the low-end of the market, the value network will be redefined on their terms, and they will supplant the incumbent firms'.<sup>105</sup> Christensen underlines that it can happen, when the innovator wants to enter the market and gain new customers by identifying the ways in which existing products and processes perform worse for traditional customers and by offering a product for a lower price.

Methodologically, disruptive innovation can hardly be captured with the tools of market definition and market power analysis, which do not account for the competition for the definition of the relevant market that is characteristic of disruptive innovation.<sup>106</sup>

Therefore, regular monitoring of the innovation-intensive sectors<sup>107</sup> can enable enforcement authorities to understand the dynamics of the competition on the high-tech markets better and identify the phases when disruptive innovation can take place. In cases when the merging parties are willing to disclose the information about R&D efforts at an early stage and R&D expenditures, as an input to new products and technologies, this information can be used to

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<sup>100</sup> Angel Gurría, Secretary-General, OECD. Remarks, Paris, 29 October 2015. <[www.oecd.org/about/secretary-general/opening-of-the-2015-global-forum-on-competition.htm](http://www.oecd.org/about/secretary-general/opening-of-the-2015-global-forum-on-competition.htm)> accessed April 20, 2016.

<sup>101</sup> Alexandre de Streel and Pierre Larouche (n 15).

<sup>102</sup> Ibid.

<sup>103</sup> Ibid.

<sup>104</sup> C.M. Christensen, *The Innovator's Dilemma*. Boston: Harvard Business School Press. (1997).

<sup>105</sup> J. Bower, J. and C. Christensen, (n 16).

<sup>106</sup> Alexandre de Streel and Pierre Larouche (n 15).

<sup>107</sup> Reinhilde Veugelers (n 48).



identify relevant future market for disruptive innovations.<sup>108</sup> If this information is unavailable, enforcement authorities could identify 'the assets to which potential competitors need access in order to compete with the incumbent'.<sup>109</sup> They can be defined as "specialized assets",<sup>110</sup> "know-how" and "patents".<sup>111</sup> This approach was used in *United States v Lockheed Martin Corp.*<sup>112</sup>

Mergers and acquisitions between incumbent and disruptors can be a subject of control from competition authorities, because these transactions may harm innovation and reduce technological progress. It can be hard to establish harm to innovation and consumer welfare if the potential disruptor has not yet created a record of winning business.<sup>113</sup> In such cases the merger might not be subject to a notification obligation due to a low turnover. However, the incumbents are often ready to pay a high price to be able to stay in the market. 'The high price to buy a firm with a low turnover may indicate an impediment to the innovation process which requires antitrust analysis'.<sup>114</sup> Therefore, the enforcement authorities should use a value of the transaction (with a high acquisition price) as a proxy for the assessment in a new refined substantive test.

Assessment of market power in cases dealing with disruptive innovations under a new substantive test should differ from the classic approach with market shares as a starting point in the EU Competition Law. Market shares were used as a proxy for the assessment of market power in dynamic markets in *Microsoft/Yahoo! Search Business* and *Google/DoubleClick*.<sup>115</sup> However, it was not the case in *Microsoft/Skype*,<sup>116</sup> where the market was expected to

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<sup>108</sup> Inge Graef et al (n 37).

<sup>109</sup> Ibid.

<sup>110</sup> U.S. Department of Justice and the Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property. 1995, paragraph 3.2.3.

<sup>111</sup> EU Horizontal Guidelines, paragraph 120.

<sup>112</sup> *United States v Lockheed Martin Corp.*, Civ. No. 98-00731 (D.D.C. filed Mar. 23, 1998).

<sup>113</sup> Alexandre de Stree and Pierre Larouche, 'Note on Disruptive Innovation and Competition Policy Enforcement'. OSCD, Directorate for Financial and Enterprise Affairs Competition Committee, Global Forum on Competition, DAF/COMP/GF(2015)7. Session III. 20-Oct-2015. p. 9.

<sup>114</sup> Ibid.

<sup>115</sup> *Microsoft/Yahoo* (COMP/M. 5727) Commission Decision of 18/2/2010, par. 112-130; *Google/ DoubleClick* (COMP/M.4731) Commission Decision of 11/3/2008, par. 96-118.

<sup>116</sup> *Microsoft/Skype* (COMP/M.6281) Commission Decision of 7/10/2011, par. 70-72.

grow immensely with the number of users. In *Cisco* case<sup>117</sup> it was established that dominance in markets of fast-growing nature and with short innovation cycles is not connected to the market shares. The competitive strength of a firm was confirmed if it could behave independently from its competitors and consumers. Size of its R&D investment or concentration of relevant know-how could also be considered as a sign of market power or even dominance.

New refined legal frames can enable competition authorities to act quickly and effectively in situations, when they identify the attempt to prevent disruptive innovation. They should keep the markets open and prevent practices as defensive leveraging (as in the *Microsoft Explorer* case), when an incumbent tries to prevent the creation of an overlap between the innovative product and the established market.<sup>118</sup> They should also integrate disruptive innovation in the assessment of mergers in high technology markets, protect the disruptors and ensure that incumbent firms will not thwart them. The shift in a new refined substantive test should be made from static efficiency and price evolution to dynamic efficiency and innovation incentives, from market definition to market conduct and theory of harm.

## **2.8. Theory of harm. Effect of mergers on innovation. Dynamic harms**

Innovation harms were addressed in revised Horizontal Merger Guidelines in the USA in 2010.<sup>119</sup> They were used for the assessment of the effect that a merger could have on the combined firm's incentive to innovate.<sup>120</sup> Dynamic harms were successfully addressed in the proposed acquisition of General Motors's Allison Transmission Division by the German company ZF of Friedrichshafen<sup>121</sup> and in the line of cases in high-tech markets:

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<sup>117</sup> *Cisco Systems Inc. and Messagenet SpA v Commission*, Case T-79/12, ECLI:EU:T:2013:635, paragraph 69.

<sup>118</sup> *Ibid.*

<sup>119</sup> U.S. Department of Justice and Fed. Trade Commission, Horizontal Merger Guidelines (Aug. 2010). <[www.justice.gov/atr/public/guidelines/hmg-2010html](http://www.justice.gov/atr/public/guidelines/hmg-2010html)> accessed April 30, 2016.

<sup>120</sup> *Ibid.* See § 6.4.

<sup>121</sup> Anne K. Bingaman, Ass. Att. Gen., Antitrust Division, U.S. Dep. of Justice, Antitrust, Innovation and Intellectual Property, Remarks at the Program on Antitrust and Intellectual Property (Oct. 7, 1994), <[www.justice.gov/atr/public/speeches/0116htm](http://www.justice.gov/atr/public/speeches/0116htm)> accessed May 13 2016.

*Comcast/NBCU*,<sup>122</sup> *Google/ITA*,<sup>123</sup> *AT&T/T-Mobile*<sup>124</sup> and *H&R Block/TaxACT*.<sup>125</sup> Effect of mergers on innovation and technological activities was also explored in theoretical and empirical studies conducted by Caves, Cohen and Levin, Röller *et al*, Kamien and Schwartz, De Bondt, Hall, Hitt *et al*, Revencraft and Scherer, Valentini and Cassiman *et al*. The results confirm that mergers and acquisitions have a strong impact on innovation capacity of merging parties and on rivals' ability to innovate.<sup>126</sup> According to economy of scale and scope, mergers can improve innovation by eliminating duplicative research,<sup>127</sup> combining research efforts and increasing the diversity of research programs.<sup>128</sup> If the products or technologies of merging companies are related<sup>129</sup> or complementing each other, the transaction will have a positive effect on R&D input and output.<sup>130</sup> Negative impact on innovation is possible due to the effect of the increase in debt that often results from acquisitions.<sup>131</sup> 'If one of the merging parties is not active in the market, but developing a new technology, the merger may significantly impede effective competition by eliminating important potential competitor'.<sup>132</sup> When two companies control the major technologies for future markets, the merger between them can harm innovation and consumer welfare, if a superior technology will not be

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<sup>122</sup> Final Judgment, *United States v. Comcast Corp.*, 808 F. Supp. 2d 145 (D.D.C., 2011), <[www.atrnet.gov/subdocs/2011/274713.pdf](http://www.atrnet.gov/subdocs/2011/274713.pdf)> accessed May 13, 2016.

<sup>123</sup> Final Judgment, *United States v. Google, Inc.*, No. 11-00688 (D.D.C. 2011), <[www.justice.gov/atr/cases/f275800/275897.pdf](http://www.justice.gov/atr/cases/f275800/275897.pdf)> accessed May 13, 2016.

<sup>124</sup> Complaint, *United States v. AT&T, Inc.*, No.11-01560 (D.D.C. Sept. 30, 2011), <[www.justice.gov/atr/cases/f274600/274613.pdf](http://www.justice.gov/atr/cases/f274600/274613.pdf)> accessed May 14, 2016; Second Amended Complaint, *United States v. AT&T Inc.*, No. 11-01560 at 19 (D.D.C. Sep. 30, 2011) <[www.justice.gov/atr/cases/f275700/275756.pdf](http://www.justice.gov/atr/cases/f275700/275756.pdf)> accessed May 14, 2016.

<sup>125</sup> Complaint, *United States v. H & R Block, Inc.*, No.11-00948 (D.D.C. May 23, 2011) <[www.justice.gov/atr/cases/f271500/271579.pdf](http://www.justice.gov/atr/cases/f271500/271579.pdf)> accessed 14 May, 2016.

<sup>126</sup> A. Lindsay and A. Berridge (n 80).

<sup>127</sup> H. Ernst, and J. Vitt, 'The influence of corporate acquisitions on the behaviour of key inventors', (2000), *R & D Management* 30(2). p. 105-119.

<sup>128</sup> E. Cefis *et al*, 'The Role of Innovation in Merger Policy: Europe's Efficiency Defense versus America's Innovation Markets Approach' (2007) Discussion Paper Series 07-21, <[www.uu.nl/sites/default/files/rebo\\_use\\_dp\\_2007\\_07-21.pdf](http://www.uu.nl/sites/default/files/rebo_use_dp_2007_07-21.pdf)> accessed April 22, 2016.

<sup>129</sup> B. Cassiman, M. G. Colombo *et al*, 'The impact of M&A on the R&D process - An empirical analysis of the role of technological- and market-relatedness', (2005) *Research Policy*, 34(2). p. 195-220.

<sup>130</sup> G. Ahuja, and R. Katila, 'Technological acquisitions and the innovation performance of acquiring firms: A longitudinal study', (2001), *Strategic Management Journal*, 22(3). p. 197-220.

<sup>131</sup> M. A. Hitt, J. S. Harrison *et al*. 'Attributes of Successful and Unsuccessful Acquisitions of US Firms', (1998), *British Journal of Management*, 9(2). p 91-114.

<sup>132</sup> A. Lindsay and A. Berridge (n 80) p. 265-267.

implemented in products.<sup>133</sup> 'The possibility to better coordinate R&D investment after the merger will typically lead to lower R&D expenditures, unless technology spillovers are important, in which case a merger will lead to higher R&D expenditures'.<sup>134</sup> Analysis of the extent of relatedness between the technology and product markets, in which the merging parties are active, can also help to produce more clear-cut predictions.<sup>135</sup>

Effects of merger	Impact (positive/negative/unknown)		Likelihood that predicted effect may occur when...		
	R&D input	R&D efficiency	Firms are active in same product markets	Firms are active in same technological fields	Firms are active in complementary technological fields
Indivisibilities/specialisation: spreading fixed cost of R&D over more R&D output (scale)	+	+	Medium	High	Low
Indivisibilities/specialisation: spreading fixed cost of R&D over more and different types of R&D output (scope)	+	+	Medium	Low	High
Elimination of common R&D inputs	-	+	High	High	Low
Synergies: combining different R&D knowledge inputs	+	+	Low	Low	High
Technology market power and appropriation	?	+	Medium	High	Low
Internal organisational changes	-	-	High	Medium	Low
<b>R&amp;D input/R&amp;D performance</b>					
<b>TOTAL EFFECT</b>	?	?	- / +?	? / +	+ / +

Source: Adapted from Cassiman *et al* (2005).

Source: Reinhilde Veugelers (n 49).

Harms to innovation in high technology markets can arise in many different situations, as for example in the case when an incumbent tries to frustrate adoption of a competing platform or the next generation platform, by increasing the costs of using the second platform and forces users to “single-home”.<sup>136</sup> The market may stay tipped if economies of scale and network effects are present. Harms arise when an incumbent is trying to eliminate a “maverick firm” as in the *Honeywell-Allied*.<sup>137</sup> In case of harm to disruptive innovations<sup>138</sup> several factors should be considered<sup>139</sup> during the assessment in a new refined substantive test:

<sup>133</sup> J. Drexler (n 79) p. 524-525.

<sup>134</sup> Reinhilde Veugelers (n 48).

<sup>135</sup> *Ibid.*

<sup>136</sup> Fiona Scott-Morton (n 42).

<sup>137</sup> Horizontal Merger Guidelines (n 119). See § 2.1.5. See also *United States v General Motors Corp.*, Civ No 93-530 (D.Del. Nov.16, 1993).

<sup>138</sup> See *Microsoft Explorer case DoJ 253 F.3d 34 (D.C. Cir 2001)*; *Microsoft (tying) (COMP/C-3/39.530) Commission Decision of 16/12/2009*.

<sup>139</sup> The Commission investigates, whether the behaviour of dominant companies could threaten innovative new entrants, in several ongoing cases (two Qualcomm cases and Amazon e-books).

- (I) Incumbent firm should have a market power and sufficient incentives to protect its power against disruptors;
- (II) New entrant should be a potential disruptor, which is not a part of the same relevant market, because the aim is to prevent it from engaging into a redefinition of the relevant market by shifting the value network;
- (III) The incumbent should adopt the conduct designed to either raise costs for potential disruptor to exercise their strategy or acquire the potential disruptor, followed by mothballing.<sup>140</sup>

## **2.9. Chapter conclusions:**

Sometimes fierce competitors in innovation in high technology markets, who do not have the same products, merge together and dispose important innovative capacity for the future markets. They compete for a future product market or an innovation market. Therefore, today's conditions for their R&D, as a leading research in the field, will be the key factor of competition in tomorrow's product market or innovation market. High-tech companies may provide the services free of charge and make the traditional price-based approach ineffective. The assessment of such cases in a new refined test must include non-price considerations. In situations when an incumbent tries to prevent the creation of an overlap between the innovative product and the established market, enforcement authorities should react fast and have a flexible framework, which will enable them to intervene and protect disruptive innovations effectively.

## **3 ASSESSMENT OF INNOVATION EFFECTS IN MERGER CONTROL**

### **3.1. American approach and European approach**

Horizontal mergers in the USA are assessed under Section 7 of the Clayton Act, 15 U.S.C. § 18, Sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1, 2, and Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45. The U.S. Department of Justice (DOJ) and the Federal Trade Commission (FTC) are the federal agencies that share merger enforcement responsibilities. They consider M&A to be important mechanisms for transferring resources to their

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<sup>140</sup> Alexandre de Streel and Pierre Larouche (n 15).

most productive use.<sup>141</sup> 'These transfers can increase price competition, efficiency, and innovation, to the substantial benefit of U.S. consumers'.<sup>142</sup> Innovation as a primary driver of economic growth<sup>143</sup> was not included into merger analysis until two pioneers in Antitrust Division of the DOJ, Gilbert and Sunshine, started the debate about it in the 1990s. They explained how enforcement authorities could measure the effect of the merger on downstream product markets and on upstream innovation markets, where the parties were not competitors prior to the merger.<sup>144</sup> Gilbert and Sunshine suggested a five step test for the assessment of the anticompetitive effect of the merger based on the assessment of R&D activities of the merging firms.<sup>145</sup> It was necessary to: (I) identify the overlapping R&D activities of merging firms; (II) identify alternative sources of R&D as reasonable substitutes; (III) evaluate actual and potential competition from downstream products which would render a reduction in R&D unprofitable; (IV) assess the increase in concentration in R&D that would occur as a result of the merger and (V) assess whether the merger would lead to R&D efficiencies offsetting a potential reduction in R&D investments. The aim was to establish whether the merged firms would curtail their innovative efforts below the level that would prevail in the absence of the merger.<sup>146</sup>

The concepts of innovation market and innovation competition were introduced in the 1995 Antitrust Guidelines for the Licensing of Intellectual Property and the 2010 US Merger Guidelines.<sup>147</sup> Different types of efficiencies were addressed in paragraph 10 of revised 2010 FTC/DOJ Horizontal Merger Guidelines:

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<sup>141</sup> Deborah Platt Majoras, Chairman, Federal Trade Commission. Reforms to the Merger Review process. February 16, 2006, p. 3.

<[www.ftc.gov/sites/default/files/attachments/merger-review/mergerreviewprocess.pdf](http://www.ftc.gov/sites/default/files/attachments/merger-review/mergerreviewprocess.pdf)> accessed 4 May 2016.

<sup>142</sup> Ibid.

<sup>143</sup> Rachel Brandenburger, 'Promoting Innovation through Competition' (Department of Justice, prepared for 2011 2nd BRICS International Competition Conference, Beijing September 2011). <[www.justice.gov/atr/file/518336/download](http://www.justice.gov/atr/file/518336/download)> accessed May 6, 2016.

<sup>144</sup> R.J. Gilbert and S.C. Sunshine (n 13) p. 570.

<sup>145</sup> R.J. Gilbert and S.C. Sunshine (n 13) p. 595-597.

<sup>146</sup> Inge Graef et al (n 37).

<sup>147</sup> Horizontal Merger Guidelines (n 119)

Nevertheless, a primary benefit of mergers to the economy is their potential to generate significant efficiencies and thus enhance the merged firm's ability and incentive to compete, which may result in lower prices, improved quality, enhanced service, or new products.

The guidelines confirm that efficiencies are difficult to verify and quantify. Therefore, the merging parties are required to provide the necessary information to the enforcement authorities, so that they can verify by reasonable means the likelihood and magnitude of each asserted efficiency, 'how each would enhance the merged firm's ability and incentive to compete, and why each would be merger-specific'.<sup>148</sup> Economic or documentary evidence may be provided, but economic analysis will always play a major role in every case. Some scholars argue that the Horizontal Merger Guidelines contain elements, which confirm that antitrust authorities tend not to consider dynamic efficiencies in a full manner.<sup>149</sup>

Impact of the mergers on innovation and product variety is described in a specific section 6.4 (section of unilateral effects) of Horizontal Merger Guidelines.<sup>150</sup> The negative impact on innovation can 'take the form of reduced incentive to continue with an existing product-development effort or reduced incentive to initiate development of new products'.<sup>151</sup> The guidelines provide a twofold analysis of short-term and long-term impacts. The conduct of a merger is assessed in relation to price effects and innovation harm. The assessment is conducted on case-by-case bases and enforcement authorities try to establish what drives innovation in short and in long term. The analysis includes such important aspects, as types of products that are being invented, types of barriers to entry, existence and use of intellectual property rights and the nature of competition in the relevant market. The scope of considerations in innovation analysis was defined in Pfizer/Wyeth<sup>152</sup> case. If the harm to innovation is established the enforcement agency will design structural or

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<sup>148</sup> Ibid.

<sup>149</sup> Inge Graef et al, (n 37).

<sup>150</sup> Horizontal Merger Guidelines (n 119)

<sup>151</sup> Horizontal Merger Guidelines (n 119) paragraph 6.4.

<sup>152</sup> FTC, 'Statement of the Federal Trade Commission concerning Pfizer/Wyeth' (FTC File No. 091-0053).

<[www.ftc.gov/sites/default/files/documents/cases/2009/10/091014pwyethstmt.pdf](http://www.ftc.gov/sites/default/files/documents/cases/2009/10/091014pwyethstmt.pdf)> accessed May 6, 2016.

behavioral measures as it has done in Google/ITA<sup>153</sup> case.

Federal Trade Commission (FTC) and Department of Justice (DOJ) underlined that the 'purpose of the antitrust laws is to promote the well-being of consumers by spurring efficiency, innovation, and investment'.<sup>154</sup> Antitrust laws, which protect competition and innovation, contribute to the ability of the nation to create economic value and be competitive in a global economy.<sup>155</sup> They should be flexible and open for a dynamic analysis and must evolve together with the economy.<sup>156</sup> Competition in the high-tech in the USA can be assessed with the same antitrust rules, but they should be applied 'with sensitivity to the competitive dynamics of high-tech, dynamic markets'.<sup>157</sup>

The EU Commission analyses most of the notified mergers under the Merger Regulation and some of them - under the Article 101 and Article 102 of the Treaty on the Functioning of the European Union (TFEU).<sup>158</sup> It uses the substantive test in Article 2(3) EC Merger Regulation - 'significant impediment of effective competition' (SIEC) - to predict the likely effect of mergers on the relevant markets. Enforcement agencies are supposed to make predictions about the future development of the markets and consider future harmful effects on competition.<sup>159</sup> This approach was developed in cases *Commission v Tetra Laval BV*,<sup>160</sup> *Allied Signal/Honeywell*<sup>161</sup> and

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<sup>153</sup> DOJ, Press release 'Justice Department requires Google Inc. to develop and license travel software in order to proceed with its acquisition of ITA Software Inc.' April 2011. Accessed May 6, 2016: <https://www.justice.gov/opa/pr/justice-department-requires-google-inc-develop-and-license-travel-software-order-proceed-its>

<sup>154</sup> Richard J. Gilbert, 'Intellectual property and the antitrust laws: protecting innovators and innovations'. U.S. Department of Justice, Antitrust Division. Phoenix, February 17, 1995. p. 5.

<sup>155</sup> Ibid.

<sup>156</sup> Fiona Scott-Morton (n 42).

<sup>157</sup> Terrell McSweeney, Panel Discussion: Why Regulate Online Platforms: Transparency, Fairness, Competition or Innovation? CRA Conference – Brussels, Belgium. December 9, 2015.

<sup>158</sup> Paul Craig and Grainne de Burca, *EU Law text cases and materials* (5th edn. Oxford University Press 2011) p. 829.

<sup>159</sup> Richard Whish and David Bailey, *Competition Law* (7th edition, Oxford University Press 2012) 818.

<sup>160</sup> *Commission v Tetra Laval BV*, C-12/03 P, ECLI:EU:C:2005:87, paragraph 42.

<sup>161</sup> *Allied Signal/Honeywell* (COMP/M.1601) Commission Decision of 1/12/99 2001/417/EC [2001] OJ L 152, 07/06/2001



*Geidy/Sandoz*.<sup>162</sup> In case if the effect on competition is negative, the EU Commission allows to make efficiency claims dealing with innovation, which can counteract the merger's harm to competition under the condition that efficiencies are beneficial to consumers,<sup>163</sup> merger-specific and verifiable. Commission Guidelines on the application of Article 81(3) (now 101) TFEU<sup>164</sup> provide no method for quantification of the efficiencies or balancing them against potential harms. Article 2(1) (a) of the EU Merger Regulation refers to 'the structure of all the markets concerned', but provides no method for proving efficiencies in cross-market analyses,<sup>165</sup> or for the analysis of the mergers between firms with a complex business model such as two-sided platforms.<sup>166</sup> Recital 29 of the Merger Regulation stipulates that 'the assessment of such efficiency claims constitutes an integral part of merger case analysis'.<sup>167</sup> It is crucial for the parties to prove that the efficiencies can only be attained through the merger (and not through a cooperation agreement).<sup>168</sup>

What could be considered as "passed on to consumers" in case of R&D agreements is specified in the Guidelines on the applicability of Article 101 TFEU to horizontal co-operation agreements. It is stipulated that R&D agreements can combine complementary skills and assets, lead to a wide dissemination of knowledge, trigger further innovation and result in 'improved or new products and technologies being developed and marketed more rapidly than would otherwise be the case'.<sup>169</sup> The consumers may benefit if the R&D agreements can result in the combination of complementary skills and assets and introduction of new or improved products or services on the market, resulting for instance from efficiency gains in the sphere of R&D and

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<sup>162</sup> *Ciba-Geigy/Sandoz* (COMP IV/M.737) Commission Decision 97/469/EC [1997] OJ L 201, 29/07/1997

<sup>163</sup> *UPS/TNT Express* (COMP/M.6570) Commission Decision of 30/1/2013 *Nynas/Harburg* (COMP/M.6360) Commission decision of 2/9/2013

<sup>164</sup> Guidelines on the application of Article 81(3) of the Treaty on Functioning of European Union, [2004] OJ C 101/8.

<sup>165</sup> Thibault Schrepel (n 60), p. 201.

<sup>166</sup> In *Google/DoubleClick* the decisive factor for clearing the merger was that the firms did not operate in the same market. See also F. Etro, 'Leadership in Multi-Sided Markets and Dominance in Online Advertising', (2012). *Recent Advances in the Analysis of Competition Policy and Regulation*, (214), p. 216.

<sup>167</sup> Commission, Competition Policy Brief (n 24).

<sup>168</sup> *Ibid.*

<sup>169</sup> Guidelines on the applicability of Article 101 TFEU (n 76), 3.4.1.

innovation.<sup>170</sup> The Commission underlines in its Non-Horizontal Merger Guidelines<sup>171</sup> that vertical and conglomerate mergers provide the substantial scope for the efficiencies. Therefore, it is more likely to accept efficiency claims provided by vertical mergers.

Innovation efficiency claims relating to investments in mobile telecommunication networks were made in the recent mobile telecommunication mergers in *Hutchison 3G UK/Telefónica Ireland*<sup>172</sup> and in *Telefónica Deutschland/E-Plus*.<sup>173</sup> In both cases, after the analysis<sup>174</sup> of whether the mergers would bring material additional benefits in terms of network coverage, speed and quality, the Commission concluded that any improvements would be limited and could not outweigh the consumer harm and/or would be not merger-specific.<sup>175</sup> Innovation efficiency claims relating to faster product development arising from combining the merging firms' R&D resources were made in case *Western Digital Ireland/Vivity Technologies*.<sup>176</sup> The claims were found not verifiable because 'no detailed quantitative or other evidence was submitted that would allow their credibility to be verified'.<sup>177</sup>

### **3.2. The EU Commission's approach in the latest policy brief**

In the brief 'EU merger control and innovation' DG COMP has defined innovation as 'a critical component for the success of the Commission's top priority of boosting jobs, growth and investment'<sup>178</sup> and 'an important competitive factor, which EU merger control is well equipped to safeguard'.<sup>179</sup> It stated that the current EU framework allows the Commission to assess the

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<sup>170</sup> Horizontal Merger Guidelines, para 81.

<sup>171</sup> Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings. [2008] OJ C 265, p. 6–25.

<sup>172</sup> *Hutchison 3G UK/Telefónica Ireland* (COMP/ M.6992) Commission Decision of 28/5/2014 section 7.10.

<sup>173</sup> *Telefónica Deutschland/E-Plus* (COMP M.7018) Commission decision of 2/7/2014 sections 6.9, and 6.10.

<sup>174</sup> Commission, Competition Policy Brief (n 24).

<sup>175</sup> *Ibid.*

<sup>176</sup> *Western Digital Ireland/Vivity Technologies* (COMP/M.6203) Commission Decision of 23/11/2011

<sup>177</sup> *Ibid.*, paragraphs 996-1007.

<sup>178</sup> *Ibid.*

<sup>179</sup> *Ibid.*

impact of mergers and acquisitions on innovation and 'it puts the competitive harm caused by reduction of innovation on the equal footing with increased prices and reduced output'.<sup>180</sup> DG COMP has made an attempt to diminish uncertainty in the field of assessment of innovation effects in merger review. Until now it was unclear which factors were of importance for the Commission during the assessment of mergers dealing with innovations. It has confirmed that it will intervene, if the merger can eliminate an important competitive force.<sup>181</sup> In case of a merger with a potential competitor two conditions should be established:

- (I) that a potential competitor currently acts as a significant competitive constraint, or there is a significant likelihood that, absent the merger, it would grow into an effective competitive force in the foreseeable future;
- (II) that there are not enough actual or potential competitors to maintain the necessary competitive pressure after the merger.<sup>182</sup>

Barriers to entry have to be high enough to exclude several potential competitors, but the merging company should be positioned to overcome them.<sup>183</sup> If the loss of, or harm to, innovation is established - the Commission will require a divestment of pipeline products in horizontal cases and it will design access remedies and/or other non-divestiture remedies for non-horizontal mergers.

Commission's focus on market structure indicates that authorities tend to neglect dynamic efficiencies.<sup>184</sup> The major problem remains: DG COMP still does not provide any clear information about what is 'verifiable, merger-specific and will be passed on consumers' in case of dynamic efficiencies. In the policy brief it confirms that in one case *TomTom/Tele Atlas*<sup>185</sup> (software), about vertical acquisition of a navigable digital-map provider by a portable navigation devices producer, the Commission recognised innovation efficiencies that were at least partly merger-specific and beneficial to

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<sup>180</sup> Ibid.

<sup>181</sup> Horizontal Merger Guidelines, para 38.

<sup>182</sup> Commission, Competition Policy Brief (n 24).

<sup>183</sup> Ibid.

<sup>184</sup> Thibault Schrepel (n 60), p. 201.

<sup>185</sup> *TomTom/Tele Atlas* (COMP./M.4854) Commission Decision of 14/5/2008, summary published [2008] OJ C 237, 16/9/2008

consumers. In reality, DG COMP keeps promoting static efficiencies (in the case - elimination of double mark-ups) and does not protect the dynamic efficiencies (in the case - the development of better and faster maps). Dynamic efficiencies were not accepted, as they were deemed not verifiable. In the case *FedEx/TNT Express*<sup>186</sup> the Commission has made price considerations and established verifiable and merger-specific efficiencies in the form of network cost savings, which would benefit the consumers. Efficiency claims were partly accepted in cases *Deutsche Börse/Euronext*,<sup>187</sup> *UPS/TNT Express*,<sup>188</sup> *Ineos/Solvay*,<sup>189</sup> *Orange/Jazztel*<sup>190</sup> and *GE/Alstom*.<sup>191</sup>

DG COMP keeps conducting 'informational efficiency offence'<sup>192</sup> by promoting the legal framework, which establishes that not claiming efficiencies will not lead to any negative presumption. Therefore, 'no merger case has so far been approved by the European Commission exclusively on the basis that the merger-specific efficiencies would offset consumer harm'.<sup>193</sup> DG COMP has confirmed in the brief that 'merging parties rarely use innovations in efficiency defences'.<sup>194</sup>

Claiming them might be considered a sign of a 'weak' case: if they are emphasised, it is because there is a negative effect to counteract. Thus, there is an incentive for the parties to a merger not to claim innovation-related efficiencies, which in reality means that the effects of the merger on innovation will not be duly assessed, as DG COMP currently does not assess effects that are not claimed.<sup>195</sup>

### 3.3. Substantive tests in the USA and in the EU: SLC and SIEC

European (SIEC) test implies convergence with the U.S. "substantial lessening of competition" (SLC) test. The United States adopted the SLC standard for mergers in 1914. Section 7 of the Clayton Act currently provides that:

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<sup>186</sup> FedEx/TNT Express (COMP/M.7630) Commission Decision of 31/7/2015

<sup>187</sup> Deutsche Börse/Euronext (COMP/M.4267) Withdrawal of notification of a concentration OJ C 283, 21/11/2006

<sup>188</sup> UPS/TNT Express (COMP/M.6570) Commission Decision of 30/1/2013

<sup>189</sup> Ineos/Solvay (COMP/M.6905) Commission Decision of 8/5/2014

<sup>190</sup> Orange/Jazztel (COMP/M.7421) Commission Decision of 1/3/2010

<sup>191</sup> GE/Alstom (COMP/M.7278) Commission Decision of 8/9/2015

<sup>192</sup> L.-H. Röller, 'Efficiencies in EU merger control: do they matter?' (2010) in: Hans Jürgen Ramser and Manfred Stadler (eds.), *Marktmacht*, Tübingen pp. 185-195

<sup>193</sup> Commission, Competition Policy Brief (n 24).

<sup>194</sup> Ibid.

<sup>195</sup> Reinhilde Veugelers (n 48).

No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.<sup>196</sup>

A merger can be considered unlawful if it will be demonstrated that its effect 'may substantially lessen competition'.<sup>197</sup> This standard in Section 7 prohibits M&A, which are reasonably likely to produce significant anticompetitive effects.<sup>198</sup> The Court ruled in *Cargill, Inc. v. Monfort of Colorado, Inc.*<sup>199</sup> that a merger could violate Section 7 by leading to unlawful exclusionary conduct. All transactions are 'tested by the same standard, whether they are classified as horizontal, vertical, conglomerate or other'.<sup>200</sup> Merger enforcement is directed at market power.<sup>201</sup> The standard is flexible and allows the enforcement agencies and the courts to determine whether the standard is met in the light of the available evidence.

Harm to innovation in form of a reduction in competitive pressure is currently assessed in the EU with a SIEC test - an economic analysis<sup>202</sup> based on a combination of qualitative and quantitative/empirical evidence. It allows to establish whether the merger would create or strengthen a dominant position and cause the significant impediment of effective competition in the Internal Market or a substantial part of it.<sup>203</sup> The test was designed to establish the

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<sup>196</sup> 15 U.S.C. § 18.

<sup>197</sup> *California v American Stores Co.*, 495 U.S. 271, 284 (1990).

<sup>198</sup> OCDE, Directorate for Financial and Enterprise Affairs Competition Committee, Roundtable on the Standard for Merger Review, with a particular emphasis on country experience with the change of merger review standard from the dominance test to the SLC/SIEC test, 9 June 2009.

[www.justice.gov/sites/default/files/atr/legacy/2011/05/05/270437.pdf](http://www.justice.gov/sites/default/files/atr/legacy/2011/05/05/270437.pdf) accessed 10 May, 2016. See also *United States v Falstaff Brewing Corp.*, 410 U.S. 526 (1973).

<sup>199</sup> *Cargill, Inc. v Monfort of Colorado, Inc.*, 479 U.S. 104 (1986).

<sup>200</sup> *Federal Trade Commission v Procter & Gamble Co.*, 386 U.S. 568, 577 (1967).

<sup>201</sup> *Federal Trade Commission v H.J. Heinz Co.*, 246 F.3d 708, 713 (D.C. Cir. 2001) (quoting Lawrence A. Sullivan & Warren S. Grimes, *The Law of Antitrust* 511 (2000)).

<sup>202</sup> UPS/TNT Express (COMP/M.6570) Commission Decision of 30/1/2013; Universal Music Group/EMI Music (COMP/M.6458) Commission Decision of 21/9/2012; Outokumpu/Inoxum (COMP/M.6471) Commission Decision of 7/11/2012; Ryanair/Aer Lingus (COMP/M.6663) Commission Decision of 27/2/2013

<sup>203</sup> *Western Digital/Hitachi* (COMP/M.6203) Commission Decision of 23/11/2011, recital 1038.

likely impact of the merger on the main market competition parameters: price, output, innovation.<sup>204</sup> It is possible to apply a SIEC test beyond the concept of dominance, to assess 'unilateral effects that result from the non-coordinated conduct of companies that are not dominant'.<sup>205</sup> The EU Commission verifies whether a merger gives rise to market power to raise prices, restrict output, and retard innovation.<sup>206</sup>

Most of the assessed cases were dealing with the mergers between two undertakings active in the same market. The Commission looked at "non-coordinated effects" and assessed the possible anti-competitive effects resulting from the merger. It investigated whether a merger would enhance the risk of coordination between the merged entity and other firms ("coordinated effects")<sup>207</sup> or whether a merger between firms active in vertically<sup>208</sup> or closely related markets<sup>209</sup> would lead to the foreclosure of competitors ("vertical effects" and "conglomerate effects"). In case of the establishment of SIECs the undertakings could offer structural or behavioral measures to make the merger compatible with the Internal Market. The SIEC test is less focused on market definition and market shares than the previous dominance test and more on 'assessing the nature and significance of competition between the merging parties, the closeness of substitution between the merging parties' products and the change that will be effected by a merger, including the competition that will be lost'.<sup>210</sup> However, it should be updated and applied in the way that allows to capture different forms of competition in innovation in high technology markets. New considerations should be introduced in the substantive test to make it refined and more relevant for the assessment.

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<sup>204</sup> Carles Esteva Mosso, The Contribution of Merger Control to the Definition of Harm to Competition. <[http://ec.europa.eu/competition/speeches/text/sp2016\\_03\\_en.pdf](http://ec.europa.eu/competition/speeches/text/sp2016_03_en.pdf)> accessed 8 May 2016.

<sup>205</sup> Nicholas Levy, 'The Eu's Siec Test Five Years On: Has it Made a Difference?' (2010). *European Competition Journal*, 6:1, p. 217.

<sup>206</sup> Nicholas Levy (n 205) p. 211.

<sup>207</sup> ABF/GBI Business (COMP/M.4980) Commission Decision of 23/9/2008

<sup>208</sup> Nokia/NAVTEQ (COMP/M.4942) Commission Decision of 2/7/2008, summary published OJ C 13, 20/1/2009; TomTom/Tele Atlas (COMP./M.4854) Commission Decision of 14/5/2008, summary published [2008] OJ C 237, 16/9/2008.

<sup>209</sup> Intel/McAfee, (COMP/M.5984) Commission Decision of 26/1/2011

<sup>210</sup> Nicolas Levy (n 205) p. 211.

### 3.4. Concept of innovation in the EU Horizontal Merger Guidelines

The competitive harm caused by a reduction of innovation can be assessed on 'an equal footing with price increases, or a reduction of output, choice or quality of goods and services',<sup>211</sup> according to Horizontal Merger Guidelines (HMG).<sup>212</sup> Assessment of the innovation potential of the merging firms, conducted regardless of their current market position,<sup>213</sup> allows the Commission to consider firms, which are potential competitors, and firms, which are likely to compete in new product markets.<sup>214</sup> R&D, for example, in the pharmaceutical and medical devices sectors is structured in such a way that it is possible at an early stage to identify competing products<sup>215</sup> and evaluate the innovation rivalry between the parties (it is also confirmed in paragraph 120 of Guidelines on the applicability of Article 101 TFEU to horizontal cooperation agreements). The aim of HMG is to prohibit mergers, which are likely to deprive customers of the benefits, including innovation. Loss of innovation as one of the anti-competitive effects of a merger<sup>216</sup> has been assessed in several recent pharmaceutical and medical device cases and in the *GE/Alstom*<sup>217</sup> case. The General Court established that the horizontal mergers would lessen innovation competition. Remedies in such cases included the divestment of products that were still in pipeline. The Commission has powers to block any horizontal merger if it can demonstrate that the competition will be significantly affected by the transaction ("gap cases"). Unilateral effects of the merger are scrutinized under "complex economic assessment", which often means a limited judicial review. In such cases, European Courts would need to 'define a set of principles and proxies for this assessment of mergers in 'gap' cases'.<sup>218</sup>

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<sup>211</sup> Horizontal Merger Guidelines, para 8.

<sup>212</sup> Guidelines on the assessment of horizontal mergers (n 10) p. 5-18

<sup>213</sup> Horizontal Merger Guidelines, paras 38 and 20b. See also Tetra Pak/Alfa Laval (Case No.IV/M.68) Commission Decision 91/535/EEC [1991] OJ L 290, 22/10/1991

<sup>214</sup> See also Guidelines on the applicability of Article 101 TFEU (n 76), paras 119 and 120.

<sup>215</sup> See Pfizer/Hospira (COMP/ M.7559) Commission Decision of 4/8/2015 and Guidelines on the applicability of Article 101 TFEU (n 76), para 120.

<sup>216</sup> Commission, Competition Policy Brief (n 24).

<sup>217</sup> General Electric/Alstom (COMP/ M.7278) Commission Decision of 8/9/2015

<sup>218</sup> Pablo Ibanez Colomo, Hutchison/Telefónica UK blocked: BT wins, all the others lose. What lessons for competition law and regulation?

<<https://chillingcompetition.com/2016/05/11/hutchisontelefonica-uk-blocked-bt-wins-all-the-others-lose-what-lessons-for-competition-law-and-regulation/>> accessed 11 May 2016.

### 3.5. Case law. Horizontal mergers

In *Deutsche Börse AG v European Commission*<sup>219</sup> judgment from 2015 the Court scrutinized a partial prohibition of the merger between Deutsche Börse and NYSE Euronext, based on the fact that it would have led to a near monopoly on European financial derivatives traded on exchanges and resulted in higher prices and lower incentives to innovate. The Court found that the competition in technology, process and market design between the parties would be lost, the merged entity's incentive to innovate would be lessened and the innovation available to customers would be reduced.<sup>220</sup> The Commission tried to include disruptive innovations into the analysis in the merger case *General Electric/Alstom*, which was conditionally cleared in September 2015. It came to the conclusion that disruptive innovation from new entrants and start-ups would be unlikely in this sector, because barriers to entry were very high and the customers attached great importance to a supplier's long-term track record and to product reliability. The Commission has also assessed the incremental innovation undertaken by established suppliers concerning gas turbines used to generate electricity. The Commission has established that removal of Alstom, as an important competitive force from an innovation and technology point of view, would reduce the competitive pressure on rivals to invest significantly in innovation.<sup>221</sup> According to the Commission, GE would close the innovation pools developed by Alstom and discontinue some of Alstom's pipeline products. Innovation would be harmed because the consumers would be deprived of innovative machinery. Loss of product variety would reduce the competitive pressure on rivals. The Commission has, therefore, designed individual remedies and demanded to ensure that competition in innovation should continue in this sector. It required the divestment of the technology and that a significant share of Alstom's long-term servicing agreements for turbines was also part of the package. It made the purchaser, Ansaldo Energia, 'a full-technology provider, thereby ensuring that innovation will continue in this sector'.<sup>222</sup>

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<sup>219</sup> *Deutsche Börse AG v European Commission*, T-175/12, ECLI:EU:T:2015:148 paragraphs 157-179.

<sup>220</sup> *Deutsche Börse /NYSE Euronex (COMP/ M.6166)* Commission Decision of 1/2/2012

<sup>221</sup> Commission, Competition Policy Brief (n 24).

<sup>222</sup> *Ibid.*



The *Medtronic/Covidien*<sup>223</sup> merger was between the market leader for drug-coated balloons to treat vascular diseases and a company, which had a promising late-stage pipeline product, a drug-coated balloon Stellarex. The Commission established that the transaction would have eliminated a credible competitor and could reduce innovation, because Covidien could constrain Medtronic in the near future by Stellarex. Medtronic committed to sell Stellarex business and provide the purchaser with all the assets required to bring Stellarex to the market. In the case of an acquisition of the *GlaxoSmithKline's (GSK)*<sup>224</sup> oncology business by Novartis the Commission presumed that Novartis would likely have stopped developing two innovative drugs for the treatment of skin, ovarian cancer and several other cancer types, like colorectal and lung cancer, because Novartis would acquire drugs with the same mechanism of action from GSK,<sup>225</sup> which would have resulted in duplicate clinical programs. The merger would have reduced innovation, because Novartis had the ability to abandon its early-stage clinical trial programme of these two drugs. Therefore, it was required to fully return one of the drugs to its owner and licensor Array BioPharma Inc. and divest the other drug to Array. The remedy addressed the early-stage pipeline concerns through a cooperation agreement between Array and a suitable partner, a worldwide developer of existing and new clinical studies.

The Commission found in the *Pfizer/Hospira*<sup>226</sup> case about a specific biosimilar drug for treating autoimmune diseases that there was a room for differentiation strategies and non-price competition between distinct biosimilars of the same molecule. The Commission presumed that Pfizer's actions could result in the net loss of future competition, or would lead to the loss of current price competition between the two companies. Therefore, it designed the remedies to preserve future innovation and required the full divestment of Pfizer's Infliximab bio-similar drug currently under development '(including global development and manufacturing rights,

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<sup>223</sup> *Medtronic/Covidien* (COMP/ M.7326) Commission Decision of 28/11/2014

<sup>224</sup> *Novartis/GlaxoSmithKline's oncology business* (COMP/M.7275) Commission Decision of 28/1/2015. See also *Protecting the drugs of tomorrow: competition and innovation in healthcare*, Competition merger brief, Issue 2/2015, p.1-4.

<sup>225</sup> Commission, Competition Policy Brief (n 24).

<sup>226</sup> *Pfizer/Hospira* (COMP/ M.7559) Commission Decision of 4/8/2015

appropriate IPRs, technology, know-how, with a licence of non-EEA marketing rights back to Pfizer).<sup>227</sup> The Commission has blocked the proposed acquisition of O2 by *Hutchison*<sup>228</sup> under the EU Merger Regulation in one of the most innovation-intensive sectors. It claimed that it had 'strong concerns that UK mobile customers would have had less choice and paid higher prices as a result of the takeover that would also have harmed innovation in the important mobile sector'.<sup>229</sup> The acquisition would hamper the future development of entire UK mobile network infrastructure and would lead to a reduced number of mobile network operators effectively willing to host virtual operators. The measures proposed by the parties (provided access to a share of the merged entity's network capacity to one of two mobile operators and divestment of O2's stake in the Tesco Mobile joint venture and a wholesale agreement for a share of its network capacity to Tesco Mobile, as well as a wholesale agreement for a share of its network capacity to Virgin Media) were not accepted. This assessment clearly demonstrates that the Commission is still focusing on pure price concerns and static efficiencies. It has established that the transaction would lead to higher prices due to the elimination of the competition between two strong competitors, it would reduce the incentives to compete and would hamper innovation. The Commission did not inform about the method of the assessment of harms to innovation. Probably, it analysed the internal documentation of the parties about pipeline products and came to the conclusion that the transaction could affect the innovation in a negative way. It is also unclear, whether the Commission took into consideration negative comments of rivals and consumers to establish the harm to innovation.

Even if SIEC allows to assess the dynamic efficiencies dealing with innovations, they are seldom claimed by the parties, because the undertakings do not want to confirm that there is a presumable harm to competition or innovation. If the efficiencies are not claimed - they are not assessed by the Commission. If they are claimed - the Commission is still focusing on price

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<sup>227</sup> Commission, Competition Policy Brief (n 24).

<sup>228</sup> Commission, Press release of 11 May 2016 <[http://europa.eu/rapid/press-release\\_MEMO-16-1705\\_en.htm](http://europa.eu/rapid/press-release_MEMO-16-1705_en.htm)> accessed 15 May 2016.

<sup>229</sup> Ibid.

concerns and market structure and does not unleash SIEC's full potential to assess dynamic efficiencies.

### **3.6. Concept of innovation in the EU Non-horizontal Merger Guidelines**

Non-Horizontal Merger Guidelines<sup>230</sup> (NHMG) describe the assessment of negative and positive effects of vertical or conglomerate mergers on innovation,<sup>231</sup> such as foreclosure of the access to the merged entity's product that is needed for rival to innovate and remain in the market. The guidelines confirm that 'mergers involving innovative companies that are likely to expand significantly in the near future will be extensively investigated even when the post-merger market share is below 30%'.<sup>232</sup> NHMG explain that non-horizontal mergers are usually more likely to create efficiencies and positive effects on innovation than horizontal mergers between rivals.

### **3.7. Case law. Non-horizontal mergers**

Harm to the ability of the merged entity's rivals to innovate was assessed in the *Intel/McAfee*<sup>233</sup> case (processor hardware for computers) and *ARM/Giesecke & Devrient/Gemalto Joint Venture*<sup>234</sup> case (smart mobile devices). In the first case Intel could foreclose downstream competitors by hampering endpoint security solutions, which competed with McAfee's from running on Intel's dominant central processing units (CPUs) and chipsets. This would negatively affect the rivals' ability and incentives to innovate. The transaction was approved with commitments after a first-phase investigation: Intel ensured that it would not block other security software providers from operating on its chips and creating new innovative solutions. Rivals were guaranteed the access to all necessary technical information.<sup>235</sup> These commitments preserved the potential innovation benefits of the merger.

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<sup>230</sup> Guidelines on the assessment of non-horizontal mergers (n 171) p. 6-25.

<sup>231</sup> Ibid, para 10.

<sup>232</sup> Guidelines on the assessment of non-horizontal mergers (n 171) para 26.

<sup>233</sup> Intel/McAfee, (COMP/M.5984) Commission Decision of 26/1/2011

<sup>234</sup> ARM/Giesecke & Devrient/Gemalto JV (COMP/ M.6564) Commission Decision of 6/11/2012

<sup>235</sup> Competition Policy Newsletter, Intel/McAfee, N.2/ 2011, p.10.

In the second case *ARM/Giesecke & Devrient/Gemalto* newly created joint venture intended to develop and market hardware-based security solutions to enhance the security of apps like corporate email, premium content delivery and mobile banking.<sup>236</sup> The competitors' forthcoming security solutions could also rely on these hardware extensions. The transaction raised concerns that ARM, as a very strong upstream supplier of IP architecture for application processors used in consumer electronics devices, smartphones and tablets, could degrade the interoperability of the hardware extension with competing software solutions and withhold or delay the communication of technical information to competitors. ARM had to ensure that rival application processor-based security solutions could be developed and operated on ARM-designed processors, thereby keeping this nascent market open to innovation and competition.<sup>237</sup>

In the case *Telefonica UK/Vodafone UK/Everything Everywhere Joint Venture*,<sup>238</sup> the Commission assessed possible harm to innovation caused by a joint venture, created by three out of four UK mobile network operators with the aim to develop a mobile wallet platform. These companies could block potential entrants in the wholesale mobile wallet platform market by foreclosing access to the handset SIM-cards, which was important for new entrants. The case was cleared in phase II, because the Commission came to the conclusion that the mobile network operators were unlikely to have the ability and/or the incentive to foreclose potential rivals or block access to embedded secure elements using technical or commercial means.

In the case *Intel/Altera*<sup>239</sup> the Commission assessed whether Intel could foreclose Altera's competitors by not providing the access to its proprietary technologies (called QPI and KTI) that connect the CPU to the Altera's Field-Programmable Gate Array (FPGA). The Commission concluded that the open standard interconnect technology PCIe was a viable alternative to QPI/KTI for Altera's FPGA competitors. It considered as well the fact that Intel had granted

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<sup>236</sup> Commission, Competition Policy Brief (n 24).

<sup>237</sup> Ibid.

<sup>238</sup> Telefónica UK/Vodafone UK/Everything (COMP/ M.6314) Commission Decision of 5/9/2012

<sup>239</sup> Intel/Altera (COMP/M.7688) Commission Decision of 14/10/2015

licences to QPI and KTI to some FPGA competitors and had recently made an unconditional and binding offer to enter into such licence agreements to others.

### **3.8. Current development of antitrust and non-price considerations in merger cases**

*Future trajectory of competition between the merging parties to offer customers ever more innovative products* was assessed in the merger Verisk Analytics, Inc. and EagleView Technology Corp. Verisk Analytics' wanted to acquire EagleView Technology focused on the market for rooftop aerial measurement products or "roof reports".<sup>240</sup> There was strong qualitative evidence that Verisk was uniquely well positioned to compete against EagleView in providing roof reports. Verisk had made substantial investments, which allowed it to provide more accurate measurement tools to customers. After the FTC filed for an injunction, the parties promptly abandoned the deal. *Innovation and quality competition* and harm to future competition by terminating one of the merging party's entry plans were examined in the merger FTC v. Steris Corporation and Synergy Health Plc between the second and third largest sterilization companies in the world, Steris and Synergy.<sup>241</sup> Synergy could introduce emerging x-ray sterilization technology to compete against Steris. The Commission presumed that the merger would harm future competition by terminating Synergy's entry plans. The district court judge denied the FTC's request for injunctive relief, finding that Synergy would not have entered the United States with x-ray sterilization services within a reasonable amount of time to compete against Steris. The Commission subsequently dismissed the administrative action.

*Offsetting the harm to innovation by merger-specific efficiencies* in high-tech markets that are rapidly evolving and subject to potential disruption was

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<sup>240</sup> Compl., In the Matter of Verisk Analytics, Inc. and EagleView Technology Corp., Dkt. No. 9363 (Dec. 16, 2014),

<[www.ftc.gov/system/files/documents/cases/141216veriskcmpt.pdf](http://www.ftc.gov/system/files/documents/cases/141216veriskcmpt.pdf)> accessed 7 May 2016.

<sup>241</sup> Compl., FTC v Steris Corporation and Synergy Health Plc., No. 1:15-cv-01080-DAP (filed June 4, 2015), <[www.ftc.gov/system/files/documents/cases/150529sterissynergtyro.pdf](http://www.ftc.gov/system/files/documents/cases/150529sterissynergtyro.pdf)> accessed 7 May, 2016.

scrutinized in the merger *U.S. v. Bazaarvoice*.<sup>242</sup> The parties made efficiency claims about faster production of better products because of data management improvements. However, judge Orrick wrote in upholding DOJ's challenge to Bazaarvoice's acquisition of PowerReviews, 'while Bazaarvoice indisputably operates in a dynamic and evolving field, it did not present evidence that the evolving nature of the market itself precludes the merger's likely anticompetitive effects'.<sup>243</sup> *Possible adverse effects on innovation and reduced incentives to innovate* were assessed in the FTC's investigation of Zillow, Inc./Trulia, Inc.<sup>244</sup> and their two-sided platforms: websites and mobile apps, which provided consumers with free access to residential real estate listings and information. The Commission could not establish that the merger would lead to higher prices or to a reduced incentive to innovate. Therefore it closed the investigation. *Assessment narrowly tailored to specific public policy goals, like consumer safety* was suggested in situations dealing with disruptive entrants, innovative methods of competition and inter-platform competition like between Uber and Lyft, because regulating online platforms and more traditional "non-platforms" differently could distort competition. The enforcement authorities have been asked to use the merger review to improve privacy protections for consumers, but the Commission will examine the competition and consumer protection issues separately based on the facts. *Platforms' anticompetitive conduct affecting the introduction of competing technology* and the way platform restrictions may impact competition outside that platform (i.e., inter-platform competition) is the subject of investigation by FTC at the moment.

Large volume or variety of data makes the company competitive on the market. It can help companies to reduce their advertising costs by targeting the correct audience<sup>245</sup> and set individual prices.<sup>246</sup> The use of Big Data may

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<sup>242</sup> *U.S. v Bazaarvoice*, 2014 U.S. Dist. LEXIS 3284 (N.D. Cal. 2014).

<sup>243</sup> *Ibid.*

<sup>244</sup> Statement of Commissioner Ohlhausen, Commissioner Wright, and Commissioner McSweeney Concerning Zillow, Inc./Trulia, Inc., Feb. 19, 2015, [https://www.ftc.gov/system/files/documents/public\\_statements/625671/150219zillowmko-jdw-tmstmt.pdf](https://www.ftc.gov/system/files/documents/public_statements/625671/150219zillowmko-jdw-tmstmt.pdf).

<sup>245</sup> Autorité de la concurrence and Bundeskartellamt, Competition Law and Data, Joint Report, the 10th of May, 2016

clearly affect competition and 'result in entry barriers when new entrants are unable either to collect the data or to buy access to the same kind of data, in terms of volume and/or variety, as established companies'.<sup>247</sup> Merger between an established undertaking and an innovative newcomer may have a low impact on the existing market structure, but in data-related markets it can 'result in differentiated data access and increase the concentration of data related to this market if the newcomer has access to a large database'.<sup>248</sup> Therefore, the competition authorities should analyse whether the combined amount of data will be impossible to replicate. Merger between companies from upstream and downstream markets possessing this kind of information may foreclose the market. The undertaking which already possesses big amounts of data may want to merge with producers of computers, smartphones or softwares 'to access important amounts of data through users of these services'.<sup>249</sup> These kinds of mergers may cause harm to technological progress and innovation. *Affect of Big Data on competition and innovation* was scrutinized in *Facebook/WhatsApp*<sup>250</sup> case. The enforcement authorities have recognized the possibility that consumer privacy can be a non-price dimension of competition and analysed how the merger would affect the WhatsApp's exceeded promises made to consumers about the limited nature of the data it collects, maintains, and shares with third parties.<sup>251</sup> It was concluded that protections of applicable law (Section 5) and a 2011 order against Facebook would apply to WhatsApp's data.<sup>252</sup>

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<[www.autoritedelaconurrence.fr/doc/reportcompetitionlawanddatafinal.pdf](http://www.autoritedelaconurrence.fr/doc/reportcompetitionlawanddatafinal.pdf)> accessed 13th of May 2016.

<sup>246</sup> See the joint French report by the CNIL and the DGCCRF

<[www.cnil.fr/linstitution/actualite/article/article/ip-tracking-conclusions-de-lenquete-conjointe-menee-par-la-cnil-et-la-dgccrf/](http://www.cnil.fr/linstitution/actualite/article/article/ip-tracking-conclusions-de-lenquete-conjointe-menee-par-la-cnil-et-la-dgccrf/)> accessed 13 May 2016; report by the OFT, Personalised Pricing: Increasing Transparency to Improve Trust, <[webarchive.nationalarchives.gov.uk/20140402142426/http://www.oft.gov.uk/shared\\_of/market-ets-work/personalised-pricing/oft1489.pdf](http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.oft.gov.uk/shared_of/market-ets-work/personalised-pricing/oft1489.pdf)> accessed 13 May 2016

<sup>247</sup> Joint Report (n 245).

<sup>248</sup> Joint Report (n 245).

<sup>249</sup> Ibid.

<sup>250</sup> Fed. Trade Commission, *FTC Notifies Facebook, WhatsApp of Privacy Obligations in Light of Proposed Acquisition* (Apr. 10, 2014), Press Release, <[www.ftc.gov/news-events/press-releases/2014/04/ftc-notifies-facebook-whatsapp-privacy-obligations-light-proposed](http://www.ftc.gov/news-events/press-releases/2014/04/ftc-notifies-facebook-whatsapp-privacy-obligations-light-proposed)> accessed 20 March 2016.

<sup>251</sup> Terrell McSweeney (n 157).

<sup>252</sup> See Fed. Trade Commission, *FTC Notifies Facebook, WhatsApp of Privacy Obligations in Light of Proposed Acquisition* (Apr. 10, 2014), Press Release, <[www.ftc.gov/news-](http://www.ftc.gov/news-)

The use of Big Data in different forms (as a key input, the good or service) was challenged in a merger between companies providing kindergarten through 12th grade educational marketing data.<sup>253</sup> The FTC concluded that the merger would lead to anticompetitive effects in the form of increased price and reduced innovation, including the development of new product features. In the *Google/DoubleClick* merger investigation, the Commission considered whether the merger of firms' respective consumer information data sets could be exploited in a way that threatened consumers' privacy.<sup>254</sup>

### **3.9. Chapter conclusions:**

DG Comp is promoting the legal framework, which confirms that not claiming efficiencies will not lead to negative results. It leads to the fact that parties do not claim innovation-related efficiencies. Effects of the mergers on innovation are not duly assessed. Such factors as creating or strengthening of dominant position and market structure are not of the major importance in high-technology markets. A more refined approach is needed. The concept of market power will be probably widened in the USA. The control of big amounts of data, with a potential to create a barrier to entry, may be considered as a sign of market power. The database that is difficult, or expensive to match or replicate will provide a significant advantage to the incumbent. Assessment of such cases would also need to include innovation and non-price considerations. US system of merger control is not perfect, but it is more developed and future oriented. Therefore, best practices in this field should be applied in the EU to improve the European system.

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events/press-releases/2014/04/ftc-notifies- facebook-whatsapp-privacy-obligations-light-proposed> accessed 7 May 2016.

<sup>253</sup> Compl., In the Matter of The Dun & Bradstreet Corp., Dkt. No. 9342 (May 6, 2010), <[www.ftc.gov/sites/default/files/documents/cases/2010/05/100507dunbradstreetcmpt.pdf](http://www.ftc.gov/sites/default/files/documents/cases/2010/05/100507dunbradstreetcmpt.pdf)> accessed 7 May 2016.

<sup>254</sup> Fed. Trade Commission, *Federal Trade Commission Closes Google/DoubleClick Investigation* (Dec. 20, 2007), Press Release, <[www.ftc.gov/news-events/press-releases/2007/12/federal-trade-commission-closes- googledoubleclick-investigation](http://www.ftc.gov/news-events/press-releases/2007/12/federal-trade-commission-closes- googledoubleclick-investigation)> accessed 7 May 2016.



#### 4 RTP TEST - REFINED SUBSTANTIVE TEST FOR THE ASSESSMENT OF ANTI-INNOVATIVE MERGERS

The test should be based on a reduction of technological progress (RTP) and directed at anti-innovative market power and market conduct. The RTP test should cover all aspects of a loss of innovation, including disruptive innovation, impediment of effective innovation and harm to consumers resulting from hampering innovation. Enforcement authorities should not use turnover as the only proxy for the notification. Market power assessments should start with delineating the relevant market(s); then identifying the market participants and weighing their innovative significance; and finally considering the constraining effects of entry on the ability and incentive to exercise market power. During the assessment, enforcement authorities should make non-price consideration. The US system of assessment of innovation in merger control focuses on R&D as an input. In such a case, the Gilbet and Sunshine 5 step test will be of relevance. The EU system is focusing on the effect that innovation can cause on the markets as an output. Combination of these two methods could enable more clear-cut predictions and provide more effective protection of innovation.

<b>Turnover thresholds for notification</b>	<b>High transaction value</b>		
↓	↓		
<b>(I) Type of undertakings</b>			
What kind of undertakings are merging? What kind of business model do they use? Is it "two-sided platforms"? If yes - do they operate in the same market? What is their business strategy? What are the motives behind the strategies? Do they provide services for free? If yes - include non-price considerations in the assessment. What is each undertaking's ability to innovate? What kind of products or technologies do they produce? What are the product cycles / periods of innovation?			
↓			
<b>(II) Type of competition between undertakings</b>			
Is it driven by innovation?			
No		Yes	
↓		↓	
SIEC assessment		What kind of innovation?	
<b>(III) Type of innovation</b>			
Product   Process   Leapfrogging   Breakthrough			
↓		↓	
<b>Sustaining</b> within established network		<b>Disruptive</b> mainly from outside of the established network and overturns the dominant technology or product	
Leapfrogging	Other incremental innovation improving existing products or technologies	New product	New process

<b>(IV) What drives innovations?</b>			
Short term   Long term			
↓			
<b>(V) Relevant market</b>			
Existing markets		Competition in innovation	
↓	↓	↓	↓
Product market	Technology market	R&D efforts	Market for new product generation
Is it a new product?	Is it a new technology?		
Is it a new method to deliver a product?	Incremental- or disruptive technology?		
	Do the parties control the major technology for future markets?		
<b>(VI) Relevant market in high-tech sector</b>			
Market for current product generation	Innovation market (R&D directed to new products and processes)	Market for new product generation	
<b>(VII) Market power and market conduct</b>			
Market power in R&D	Barriers to entry and exclusionary practices	Competitive restrains	
Does the company behave independently from competitors and consumers? Size of R&D investments Concentration of relevant know-how Patent portfolios	Barriers in R&D via strong IRPs Big Data Will the combined amount of data be impossible to replicate? Who possesses the information? If it is the companies from both upstream and downstream market - the merger may foreclose the market Denied access to platforms Complementary products should be popular with consumers Limited access to resulting products (can be eliminated by maintaining alternative R&D) High fixed costs Large commercial risks Lock-in effects Tipping Denying access to resulting products Defensive leveraging	Are there competitors in product/process/technology? Are the restrains weak or strong? Are there potential competitors in products/process/technology? Are the restrains wear or strong? Do disruptive innovations take place regularly in this sector? What kind of power do consumers have? Will the consumer privacy be affected?	
<b>(VIII) Harms to innovation</b>			
Short term   Long term			
Foreclosure of new- or essential product/process/technology	Elimination of a potential competitor in product/process/technology	Elimination of a potential disruptor	
	Currently two conditions should be established:  (I) that a potential competitor currently acts as a significant competitive constraint, or there is a significant likelihood that, absent the merger, it would grow into an effective competitive force in the foreseeable future; (II) that there are not enough actual or potential competitors to maintain the necessary competitive pressure after the merger.  If 'yes': behavioral measures - obligation to license out or provide interoperability If 'does not comply': structural measures - sell patents or parts of production	Three conditions should be established:  (I) Incumbent firm should have a market power and sufficient incentives to protect its power against disruptors; (II) New entrant should be a potential disruptor, which is not a part of the same relevant market, because the aim is to prevent it from engaging into a redefinition of the relevant market by shifting the value network; (III) The incumbent should adopt the conduct designed to either raise costs for potential disruptor to exercise their strategy or acquire the potential disruptor, followed by mothballing.	
<b>(IX) Effect of merger on price and R&amp;D</b>			
<b>Price</b>		<b>R&amp;D</b>	
Will it lead to price increase?		↓	
		What are the R&D pools? Does the M&A create a better possibility to coordinate R&D? Are technologies of merging parties related? Are there increased debts due to the merger or acquisition?	

		What is the relatedness between the technology and products markets?				
		<p><b>5 steps from Gilbert and Sunshine:</b> (1) identify the overlapping research and development (R&amp;D) activities of the merging firms; (2) identify alternative sources of R&amp;D that are reasonable substitutes for the activities of the merging firms; (3) evaluate actual and potential competition from downstream products which would render a reduction in R&amp;D unprofitable; (4) assess the increase in concentration in R&amp;D that would occur as a result of the merger; and (5) assess whether the merger would lead to R&amp;D efficiencies offsetting a potential reduction in R&amp;D investments.</p> <p>To assess the effect of merger on R&amp;D activities, technology- and market relatedness should be analysed as well. See table of Reinhilde Veugelers (n 48).</p>				
<b>(X) Efficiencies</b>						
Reporting of efficiencies should be made mandatory and assessed by the Commission It should not depend on the fact that parties do not claim efficiencies If they claim it means that there is a harm to competition and innovation, therefore, they do not want to do this. Parties do not claim - Commission does not assess and harms innovation and consumer welfare. This evil circle must be broken.						
<b>Static</b>			<b>Dynamic</b>			
↓			↓			
Price considerations, reduction of prices Short-term considerations			Development and diffusion of new products and processes that increase social welfare. It enhances abilities to innovate, leads to optimal rate of innovation and investment to improve products or processes. It might lead to higher prices in short run, but it will bring the improvement over long time			
Allocative efficiency	Production efficiency	Transactional efficiency	↓	↓	↓	↓
<b>Price considerations</b> Incremental dynamic efficiency is also dealing with reduction of production costs using existing technology			Investment in new machines	Elimination of duplicative R&D	Economies of scale and scope in R&D	Joint exploitation of R&D
			↓	<b>Leapfrog dynamic efficiency</b> It will provide large gains in consumer welfare from the introduction of entirely new products and new ways of production of products and processes		
			Leads to increased labour productivity			
<b>(XI) Are the efficiencies verifiable, merger-specific and beneficial to consumers?</b>						
<b>Verifiable</b>		<b>Merger-specific</b>		<b>Beneficial to consumers</b>		
↓		↓		↓		
<b>Static efficiencies</b>	<b>Dynamic efficiencies</b>	Clear from the case-law		Specified in case of R&D agreements in the Guidelines on the applicability of Article 101 TFEU to horizontal cooperation agreements		
More or less clear from the case-law	New guidelines are needed to explain what is verifiable and can be accepted by the Commission as a sound evidence					

## 5 CONCLUSIONS

This thesis has improved legal certainty in the field, introduced innovation as a real antitrust standard, provided unified theoretical framework for the assessment of mergers in high technology markets, included disruptive innovations and non-price considerations in the analysis and created a refined substantive test, which can enable an effective protection of innovation. It has compared two different approaches to the assessment of innovation effects in

merger control in the USA and in the EU, found synergies between these two systems and made a suggestion on the creation of a dynamic, flexible legal framework with a sound economic rationale for the assessment of anti-innovative mergers. The thesis has answered the question: what kind of substantive test should be done to protect innovation?

There is a strong need of the reform of EU merger control. Enforcement authorities should update the substantive test to enable effective protection of innovation. It means that different types of innovation should get a refined assessment and DG COMP should not go for one kind of innovation over another, because it is easier to verify. It should come up with a clear definition of what is "verifiable" in case of dynamic efficiencies and it should not be reluctant to assess efficiencies, which are "uncertain and long-term", because it is still possible to predict the expected outcomes. Dynamic efficiencies, which are leading to more welfare in the long run than static efficiencies must be fully considered and not analysed only when they are claimed by merging parties. Reporting about efficiencies should be made mandatory. Disruptive innovations, which play a major role in high technology markets, must be included in the analysis and put on equal footing with sustaining innovations. All the correct characteristics of high-tech markets should be considered during the assessment. New forms of competition demand new forms of assessment, where non-price considerations can take a prominent place. The use of Big Data is a sensitive matter. On one side, it is important to ensure that the companies will not foreclose the market and harm innovation, on another it is important to make sure that the interventions will not lessen the incentives to invest in development of Big Data and will not raise privacy concerns, because the forced sharing of data with third companies should not be conducted without consumers' consent. Enforcement authorities should perform the evaluation task competently and minimize error, protect innovation and consumer welfare efficiently in the long run and lead the European Union to a maximum social wealth.

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