INNOVATION AS A YARDSTICK IN MERGER CONTROL ANALYSIS: A STUDY OF AGROCHEMICAL, TELECOMMUNICATION AND PHARMACEUTICAL SECTORS

- MANAL SHAH & HUSNA FAZAL

ABSTRACT:

Antitrust authorities worldwide, have been increasingly assessing innovation effects in merger control analysis. Innovation, though present in antitrust laws, has seen rare use in past. In the long run, innovation or lack of innovation thereof can have significant impact not only on competition but also on consumer welfare. Using innovation as a yardstick in combination assessments can have a wide impact (positive and negative) depending upon the scope of the assessment. Innovation analysis, is pertinent in ensuring that research and development is not hampered, however the same needs to be analysed within certain boundaries to avoid it from becoming encroaching. The chief of European commission on competition law in her recent speech titled competition: the mother of invention emphasized the importance of innovation analysis. While this view been concurred, a weighted balance is required and contours are to be set.

This article first traces innovation as a yardstick in merger control analysis from antitrust laws of European Union, India and the United States (geographical focus of the article). It then attempts to trace the recent trend that emphasizes on innovation analysis by way of case studies of notable merger decisions in three sectors vis, agrochemical, telecommunication and pharmaceutical sectors.

A. Introduction

"When we look at high-tech mergers, we do not just look at whether they might raise prices, we also assess whether they could be bad for innovation" ***– Margrethe Vestager***

The above words set the tune for the European Competition Commissioner Margrethe Vestager's speech which titled '*Competition – the Mother of Inventions*'. She also added that one of the basic jobs of competition enforcers is to ensure that companies don't abuse their power to hold back innovation.[1]

When two players in any relevant market come together, there is a decrease in the number of players in the relevant market. However the significance of this statement depends on the number of players

[1] Margrethe Vestager (Chief of European Competition Commissioner), *Competition: The mother of invention* (April 18, 2016).

in that relevant market as well as the market share of the merging players. While several standard factors are put in place which need be analyzed while assessing whether a merger would have appreciable adverse effect on competition ("**AAEC**"), innovation as one has not been given due regard until recently.

Innovation is an important scale for technological progress and pertinent for human welfare in a society that is constantly changing. Merger of two of few innovators who have pipeline products and presence in various innovation spaces, has recently concerned Competition Commissions globally. These concerns involve two innovators having parallel research lines for a product or process, post-merger one line would be dropped for reasons of cannibalization or otherwise. This concern was viewed to cause a likely negative innovation impact thereby adversely impacting competition. The Paper analytically traces the starting point of this ripple effect to its present position with case studies in three market sectors, i.e. Telecom, Agrochemical and Pharmaceuticals.

Margrethe Vegstager's words, followed by the publicity of Innovation Theory of Harm followed further by important mergers such as Bayer-Monsanto, Dow and DuPont and Pfizer-Hospira which have global stronghold have led a trend of Innovation analysis as an integral part of merger control.

The European Competition Commission ("**EC**") in Vestager's term (2014 to present) saw a radical shift in its policy pertaining to innovation effects of merger. The Dow DuPont Merger saw an illustrious emphasis on Innovation Theory of Harm wherein the Commission gave notable weightage on the negative innovation effects that a merger of innovators brings.

The merger between (two firms) will result in internalization by each merging party of the adverse effect of the R&D projects on […] the other merging party; hence, […] it will reduce investment in the competing R&D projects. The innovation competition effect [of a merger] follows the basic logic of unilateral effects, which is equally applicable to product market competition and to innovation competition. – European Competition Commission in Dow-DuPont decision (Annex 4, §145)

Technological progress contributes significantly to consumer welfare. Competition law aims to achieve the same and in the long run, they complement each other. In case of invented products, the marginal cost of production is insignificant.[2] On the other hand, the cost incurred is high for

[2] ABIR ROY & JAYANT KUMAR, COMPETITION LAW IN INDIA 506 (2nd ed. 2018).

Research and Development ("**R&D**") and invention of new technology along with ancillary expenditure incurred in bringing up the product in the market.[3]

Joseph Schumpeter in his '*Theory of Monopolies leading to Invention*' argued that:

"Competition that counts [is] competition from the new commodity, the new competition, the new sources of supply, the new type of organization…competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives."[4]

Kenneth Arrow and some others criticized Schumpeter's argument that monopolies were under constant challenge from newer technologies as a result of which, those monopolies that did not innovate well were likely to be replaced by new monopolies that were more effective innovators.[5] Arrow was of the view that a monopolist would have no incentive to create a new or superior product if the profits from that product would eat into the profits of the monopolist's current products.[6]

It is put forth that innovation analysis should attempt to identify both positive and negative innovation impact of mergers and that innovation analysis should depend on case to case basis. The Authors have attempted to analyze, by way of case-studies, the outcome of several important mergers in the three sectors of Agrochemical, Pharmaceutical and Telecommunication with focus on innovation analysis by the EC, the Competition Commission of India ("**CCI**") and the Federal Trade Commission ("**FTC**").

For the purpose of studying innovation effects of consolidations, preferably a sector by sector approach should be applied. Lemley was of the opinion that while evaluating innovation efficiencies, Competition law must analyze the effects of the same, either positive or negative, in each relevant sectors separately. [7]

Crop protection products improve yields and ensure the availability, quality and affordability of crops to the benefit of farmers and consumers. Innovation for those products matters: farmers benefit from improved yields; consumers, from safer products; and the environment, from reduced

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[3] *Ibid* at 511.
[4] J.A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 84 (3rd ed. 1950).
[5] *Supra* note 2, at 512.
[6] Kenneth J Arrow, *Economic Welfare and the Allocation of Activity: Economic and Social Factors* (National Bureau of Economic Research, 1962), 611-12.
[7] Mark A. Lemley, '*Industry-specific Antitrust Policy for Innovation*' [2012] Columbia Business Law Review 637–53.

toxicity of products.[8] Innovation in the crop protection industry therefore has a key part to play in sustainably feeding a growing population in an increasingly challenging context of changing climatic conditions and consumption patterns.[9] Thus, the article *firstly* studies two of the biggest mergers of recent times in the sector.

Secondly, the article studies the Telecommunication Sector in light of its contemporary trends globally. Recently, India also witnessed the largest merger in the telecom sector which completely changed its Telecom market structure. Consolidations in the telecom sector always lead to innovation and welfare effects.

Thirdly, The Article studies the Pharmaceutical Sector. Global evolution of understanding of old and new medical conditions and the development of novel techniques as well as innovation in medicines has historically been vital to the health. However the time it takes to conduct R&D is time and cost intensive. The need to research and innovate in this sector is critical to human health.

B. Regulatory Framework

I. Indian regulatory framework

The Indian Competition law[10], similar to competition laws globally, rests on the premise that it is designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition as the rule of trade, and that unrestrained interaction of competitive forces will yield the best allocation of economic resources of the country, the lowest prices, the highest quality and greatest material progress.[11]

Combinations, unlike anti- competitive agreements are not prohibited, the commission only regulates them by orders. While exercising its regulatory power and as per Section 29 of the Act, if the commission *prima facie* finds that the merger has or is likely to have an AAEC, it can mandate the parties to disclose more details regarding the prospective combination. CCI after collecting all relevant information including objections from the public or the aggrieved, if any, ultimately

[8] European Commission, *Competition Merger Brief* (Issue 2, July 2017) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2017.353.01.0009.01.ENG accessed 15 November 2018.
[9] *Ibid.*
[10] *Supra* note 2, at 41.
[11] Northern Pacific Railway Company and northwestern Improvement Company v. United States of America, 356 U.S. 1.

investigates the case in detail, per the provisions under Section 31 of the Act. It is noteworthy that the Indian Regulatory Framework encompasses Innovation as a factor in merger control analysis.

The CCI takes into consideration various factors while investigating a combination. Section 20(4) of the Competition Act 2002 requires the CCI to give due regard to all or any of the fourteen factors prescribed therein while determining whether a merger is likely to have an AAEC in the 'relevant market'. The enlisted factors such as 'actual and potential level of competition'[12], 'extent of entry barriers'[13], 'level of combinations'[14] which find presence therein have been rightly used by the CCI time and again to gauge AAEC. It is worth mentioning that, among these factors, the nature and extent of innovation also finds place although it has not gained any light until recently.[15][16]

Section 19(4) of the Act also requires the Commission to give due regard to 'the promotion of technical, scientific and economic development by means of production or distribution of goods or provision of services.' This shows the legislative intent to analyze innovation effect as a factor in merger control. Furthermore, Section 4 of Act also prohibits dominant players from impeding technical or scientific development.

Section 31 of the Act empowers the CCI to allow the merger unconditionally if it finds that there is no likelihood of AAEC in India.[17] However, if the commission finds any irregularity, it may either approve the combination after requiring modifications in the merger arrangement or it may chose to reject it unconditionally.[18] Divestment has been the most common modification required and undergone.

II. European Regulatory framework

The EC, while evaluating merger cases, started giving attention to innovative efficiencies and incentives only recently. However, the European Commission merger guidelines for both horizontal

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[12] § 20(4)(a) the Competition Act 2002.
[13] § 20(4)(b) the Competition Act 2002.
[14] § 20(4)(c) the Competition Act 2002.
[15] § 20(4)(l) the Competition Act 2002.
[16] Mergers like Dow Du Pont and Bayer Monsanto which have taken place in past two years were strictly investigated for their innovation impacts.
[17] Section 27(a) of the Competition Act requires that after inquiry into agreements or abuse of dominant position, if the CCI finds that the merger agreement is in contravention of Section 3 or Section 4, it has the power to pass an order directing such merged entity to discontinue and to not re-enter such agreement or discontinue such abuse of dominant position.
[18] The Raghavan Committee Report had also recommended that the Regulatory Authority be empowered to **advise** a demerger under on the lines of Sections 27, 27A and 27B of present MRPT Act 1969 with suitable modifications.

and non-horizontal mergers have long contained innovation analysis. Section 8[19] of the European Commission horizontal merger guidelines contains certain benefits to the customers which the commission aims to protect; or prevent mergers from becoming depriving to customers. And one of the benefits, the guidelines strive to protect is innovation. Innovation effects are given the same anti-competitive importance as 'price increase' or 'quality'. Section 8 of the guidelines makes it clear that the Commission is mandated to consider innovation effect while making merger control decisions. Moreover Section 38[20] of the guidelines talks about the interplay between innovation and mergers. It observes that innovative efficiencies can be brought about by mergers due to the collaboration of resources. However, it also takes note of a mergers' ability to impede innovation when two competing innovators with "pipeline" products merge. Similarly the European commission non-horizontal merger guidelines have also long prescribed an assessment on a merger's ability to impact innovation.

Section 10[21] of the Non-Horizontal Merger Guidelines provide a framework similar to that of Section 8 of the Horizontal merger guidelines, it basically says that while deciding merger cases innovation effects should be considered by the commission along with parameters such as price, output and quality. According to Section 26[22] of the Non-Horizontal Merger Guidelines, the commission conducts a comprehensive investigation only under certain circumstances in the case of non-horizontal mergers. One of the circumstances provided therein, involves the merger of a company which has made a recent innovation that may lead to a substantial growth. The European Commission's guidelines for Horizontal and non- horizontal mergers have acknowledged both negative and positive innovation effects even before the Commission started focusing on it while implementing merger control.

Furthermore, the European Union Merger Regulations (EUMR) mandates EC to consider "*the development of technical and economic progress*"[23].

III/ American Regulatory Framework

[19] European Commission Horizontal Merge Guidelines, Council Regulation (EC) No 139/2004 January 20, 2004.
[20] *Ibid.*
[21] European Commission Non Horizontal Merge Guidelines, Council Regulation (EC) No 139/2004 January 20, 2004.
[22] *Ibid.*
[23] European Union Merger Guidelines, Council Regulation (EC) No 139/2004 of 20 January 2004.

There is a lacuna in the United States ("**U.S.**") regulatory framework for merger control with regards to innovation effects. It fails to cover the effects of mergers on innovation incentives of other players in the market and innovation effects in general. However, U.S. Horizontal Merger Guidelines encourages the competition authorities to analyze whether a merger has the likelihood of impeding innovation, as per Section 6.4 of the guidelines[24]. Furthermore, it observes that "competition often spurs firms to innovate".

C. Case Studies

I. Agrochemical Sector

Agrochemical companies sell formulated products. The essential component of a formulated product is the Active Ingredient ("**AI**"), which is the result of innovation efforts made by R&D agrochemical companies over a period of approximately 10-11 years. [25] Innovation is a two-step process involving discovery and further development of AI to prepare formulated product, and the overall costs for bringing a new crop protection product to the market is estimated at around $280 million.[26]

(a) Dow Chemical Company (Dow) – E. I. du Pont de Nemours and Company (DuPont)

Dow and DuPont were two major crop protection and seeds R&D players, both global science and Technology Companies incorporated in the USA and having presence in crop-protection sector, among others. Post-Merger, DowDuPont Inc. is the holding company whereas Orion Sub is the wholly owned subsidiary of DowDuPont which merged into DuPont such that DuPont is the surviving company. Similarly Diamond Merger Sub which was wholly owned subsidiary of DowDuPont, pursuant to the terms of Merger Agreement, Diamond Merger Sub merged into Dow such that Dow continues as the surviving company.[27]

[24] US Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines, August 2010.
[25] *Supra* note, 8.
[26] *Supra* note, 8.
[27] *Supra* note, 8.

CCI while assenting the merger on June 08, 2017[28] noted that the parties were involved in the manufacture and sale of products relating to the broader segments of agriculture, specialty chemicals and material sciences in India and identified the overlaps between the products. It observed that considerable R&D activities of the Parties related to crop protection products occurs outside India. Post-combination, this may lessen innovation consequently causing AAEC in the Indian Crop Protection market.[29]In this regard, the Parties assured the CCI, of a global divestiture of its activities relating to: (i) herbicides, (ii) insecticides and (iii) R&D. The Divestiture package also included certain field biology and regulatory employees to maintain the pipeline products.

The rationale behind this divestiture being to protect innovation as the purchaser of such divested entity would benefit from the stand-alone innovation organization which will aid creation of pipeline research. For this, they entered into a definitive agreement with FMC Corporation (a United States based entity).

The EC conducted a detailed study and investigation into the activities of the merging parties in pesticides.[30] It identified the negative innovation effects that the merger would have on the pesticides industry by analyzing the early pipeline products and lines of research, as well as the likely

[28] Combination Registration No. C-2017/06/519 https://www.cci.gov.in/sites/default/files/Notice_order_document/Order%20-31_519-Public%20Version-Final.pdf accessed 15 November 2018

[29] *Ibid.*

[30] Case COMP/ M.7932, Dow/DuPont Case, 2017 OJ C356/17.

reduction in the overall innovation efforts post-merger. The commission conducted an in-depth assessment of innovation based on the following elements[31]:

i. Market Features and Structure

The EC observed that in the agrochemical sector, innovation was undoubtedly an important parameter of competition as barriers to entry were high whereas the number of integrated innovative players was limited. The EC stated that bringing out new and more effective pesticides was an integral part of competition which allowed companies to defend their existing sales and to capture new market shares from competitors. Developing the main component of pesticides, AI requires complex R&D organization and specific assets, equipped not only to discover new molecules but also to perform field tests and studies and to obtain regulatory approvals in different jurisdictions. Thus, entry and expansion barriers were high in terms of discovery and development.

While the EC noted that the need to innovate, in this sector, was also due to the resistance that pests develop over time leaving the product under a threat of becoming obsolete. It refused to accept, however, that that enough was sufficient to prevent significant negative innovation effect resulting from the structural change in the post-merger R&D landscape.[32]

The pesticides industry is oligopolistic with only five integrated R&D players and not all are active in every segment of the industry. The previous waves of consolidation were observed to have been certainly accompanied with reduction in the innovation intensity and output, as demonstrated by a lower R&D spending and introduction of fewer AIs.[33]

ii. Important innovator status

The merging parties were recognized as important innovators in the EU having higher influence on competition than their market share or what their R&D expenditure demonstrated as found on basis of various past and forward-looking indicators such as, the parties' expertise and assets, target in terms of their R&D efforts, new AIs as well as track record of bringing new AIs into the market and the strength of their patent portfolios..[34]

iii. Closeness of competition

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[31] Official Journal of European Union, Summary of the Commission decision https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2017.353.01.0009.01.ENG accessed 15 November 2018

[32] Case COMP/ M.7932, Dow/DuPont Case, 2017 OJ C356/17.

[33] *Ibid.*

[34] *Ibid.*

The EC while assessing the closeness of competition in innovation, observed the importance of considering overlaps within and across stages of innovation process. The EC, thus noted that there existed a risk of cannibalization resulting from this merger, since merging parties were in direct and close competition in several important innovation spaces and had overlapping discovery targets/ lines of research/ pipelines at both, discovery and development stage.

iv. Likely effects on innovation

EC most notably considered *firstly,* that the merger would have reduced the parties' incentive to continue R&D in relation to their existing overlapping innovation project and *secondly,* that in the longer run, the merger would reduce the incentives for the parties to invest in R&D efforts in relation to new pesticides in those areas where the parties had significant overlapping R&D capabilities. The first effect would have manifested itself in the likely discontinuation, delay or re-orientation of the parallel early pipeline products and lines of research due to the risk of cannibalization.

With regard to the *first effect*, it was notably observed that while the outcome of any given innovation effort might be uncertain, it does not naturally imply that competition concerns in relation to innovation efforts are unwarranted. The *second effect* was specifically confirmed by concrete evidence (significant planned cut backs in the parties innovation efforts in terms of planned R&D inputs, R&D spend, FTEs number etc and output target) compared to the combined pre-merger plans.[35]

The Commission observed that the *other competitors* would be unlikely to compensate for the lost innovation competition. After the merger, only three global integrated players would remain competent with the merged entity in this industry market with high entry barriers. These competitors, EC noted were also not uniform in their presence in every innovation space. The concentration level in many innovation spaces was higher than at overall industry level, more than two thirds of European pesticide sales being served by four or fewer of the global R&D integrated players. The commission dived deep into the competitors' pipelines and related innovation capabilities. The non-integrated companies, though active, were found not comparable to the five global R&D integrated players due to lack of their capabilities.

The EC concluded that the mere presence and R&D efforts of competitors, were insufficient to prevent a loss of innovation competition after the merger. The commission surveyed the economic

[35] *Ibid.*

literature on the possible impact of merger on innovation to rebut the theoretical arguments brought forward by the merging parties. The commission, in its decision, supported by detailed factual investigation of the likely impact of the transaction. It did not, however, establish a general conclusion that horizontal mergers harm consumers through adverse effect on innovation.

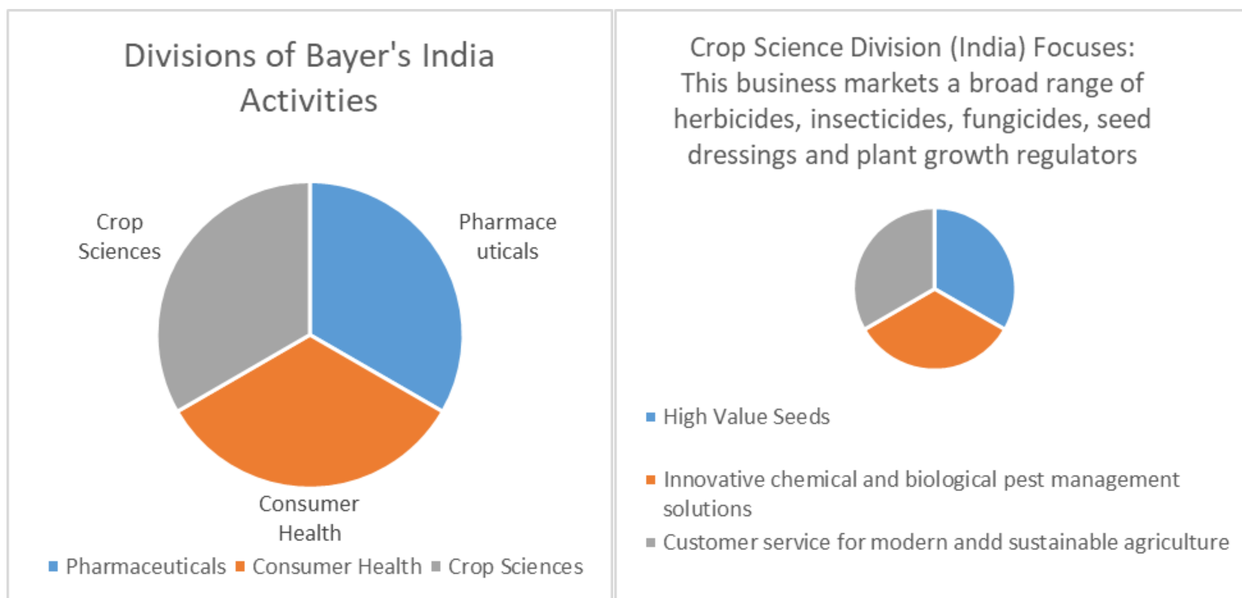
The Commission, after a structured and in-depth research and investigation, concluded that the merger would harm innovation laying emphasis on the importance of innovation competition. To address EC's innovation concerns, the parties divested most of DuPont's global R&D organization in pesticides including pipelines at the discovery stages, R&D facilities and employees, with the exception of a few limited assets to support the retained business.

(b) Bayer-Monsanto

The CCI on June 14, 2018[36] cleared the merger of Agrochemical giants Monsanto and Bayer after ratifying the Proposal of Modification to their initial Merger Agreement. The CCI conducted a detailed study of the merger involving Bayer's acquisition of Monsanto (through its wholly owned subsidiary KWA Investment Co.).

The Triangular Merger involved Merger Sub merging with and into Monsanto as the surviving entity and making Monsanto, a subsidiary of Bayer. Monsanto is globally, the largest supplier of seeds which generates most of its sales in the United States and Latin America. Bayer is a German company, standing second as the largest pesticides supplier for several crops.

[36]Combination Registration number C-2017/08/523 https://www.cci.gov.in/sites/default/files/Notice_order_document/Order_14.06.2018.pdf accessed 15 November 2018.



The CCI observed the vertically integrated nature of the merging agrochemical companies and their presence in the entire value chain of agricultural inputs like crop protection, seeds and traits as well as digital farming solutions. CCI observed that the combination had the potential to create one of the largest vertically integrated players in the agricultural market globally. While analyzing AAEC in this merger, the CCI considered innovation to be a significant factor and directed necessary divestments on innovation front.[37] The following paragraphs highlight CCI's recent focus on innovation. It recognized six broad relevant product markets:

With reference to the first relevant market sector i.e. **Non-Selective Herbicides**, Monsanto was selling *Roundup* (glyphosate formulations) while Bayer sold *Basta* (glufosinate ammonium). It was observed that there were three AIs in this sector in India, all of which were off patents, with various generic manufacturers supplying formulations based on two ingredients (glyphosate and paraguate) however formulations based on glufosinate ammonium were sold solely by Bayer and the brands of merging parties are in direct and close competition.

The CCI noted that, in this sector, there were very few integrated R&D players with an actual ability to undertake research, discovery, development and registration of the new AI as well as with access to pan-India distribution network (i.e Bayer, DowDuPont, BASF, Syngenta and Monsanto). Only

[37] CCI considered the SEBI (Substantial Acquisition of Shares and Takeover) Regulations 2011 pursuant to which Bayer had made a public announcement of its 26% purchase of the fully diluted voting equity share capital of Monsanto India Ltd. Vide its powers under S. 29 of the Competition Act 2002, CCI issued a Show Cause Notice to the parties to satisfy itself that the merger is not likely to cause AAEC in the relevant market in India.

these entities had the ability to develop and market new molecules and products in the crop protection segment. Many small players sustained on licensed IPs. On observing the ongoing R&D and pipeline products for new AI development in this sector and noting that saving the merging players, only Syngenta is an integrated R&D player, CCI concluded in the limitations on innovation front. It observed that the merger was likely to eliminate important competitive constraints in this relevant market having a harmful effect to future innovation efforts in it. CCI noted that the merger would thus have a negative innovation effect.

With reference to another relevant market sector i.e. **Herbicide Tolerant Traits/ Technology Licensing**, CCI noted that Monsanto owned Roundup Ready Technology (based on AI Glyphosate) to provide resistance against non-selective herbicides and soybean and Bayer owned Liberty Link Technology (based on AI Glufosinate ammonium) to provide resistance to similar plants against herbicides. These were developed to allow the crops to survive the application of non-selective herbicides, which cannot distinguish between crop and weed, hence killing both. Though these were not yet available or sold in India due to lack of regulatory approvals, however, and as and when the approvals would be granted, these parties would have been in direct competition. The merger would have had the likelihood of reducing incentive for the merged entity to introduce competing traits/ technologies, effecting a complete elimination of competition between them. CCI also held that the parties being significant competitors, the merger would have eliminated the threat to Monsanto from Bayer's innovation thus, reducing the incentive to innovate in order to protect its business.

With reference to yet another market sector, i.e. **Agricultural crops**, also called **broad acre crops**. Both parties were active in development, production as well as sale of various agricultural seeds globally as well as, in India. Both were also present in licensing of parental lines/ hybrids as well as in commercialization. Both overlapped in terms of commercialization of rice, cotton and millet. The seed industry was a two staged one:

CCI concluded that these stages mark distinct relevant product markets and so does each crop. It further recognized hybrids of a particular crop to constitute a single relevant product market.

CCI observed that secondary seed companies did not have a sufficiently developed breeding capability to develop new varieties of crops, lacked production capability and depended on integrated seed companies or public institutes (either in terms of production or for supply of varieties developed by other entities). CCI noted the high investment costs in innovation for seeds and the lead time (more than five years) create a substantially high degree of entry barrier in the market for both types of seeds.

In ***Cotton***, Monsanto was active in both upstream as well as downstream market for Bt Cotton (the only GM seed available in India) while Bayer was active only in the downstream market under license from Mahyco Monsanto Biotech (India) Ltd. (MMBL)[38] and Monsanto owned controlling stake in its joint venture with MMBL.

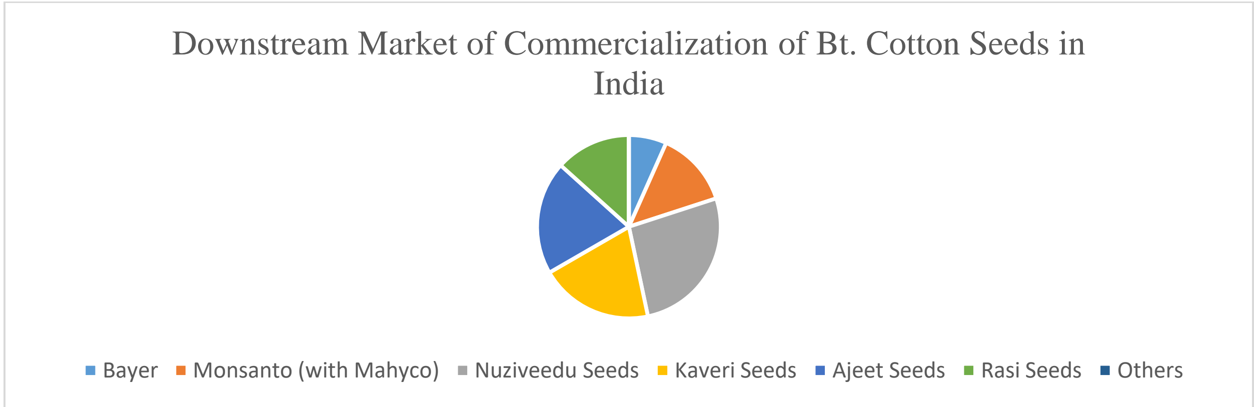
Besides Monsanto, JK Seeds, Nath Seeds, Metahelix and Central Institute of Cotton Research ("**CICR**") were competing in the upstream market. Bt Cotton technologies are of two type i.e., single gene and two gene and while all the players including Monsanto were offering two gene cotton technology, Monsanto (through MMBL) was the only player offering two gene Bt. Cotton technology which is considered more effective against pests and having sub-licensing agreements with the other players for this technology. The Technology sub-licensed by MMBL was already the most significant player in the relevant market, competitors are unable to provide effective competitive constraints and consumers are dependent on it. Monsanto was also in process of obtaining regulatory approvals for

[38] It was noted that Monsanto Investment India Private Limited (MIIPL), a wholly owned subsidiary of Monsanto had 26% equity shareholding which accords it the power to block any special resolution and at the time, it had three members on the Board of Mahyco (another active entity in the seed sector in India). In this regard, the CCI held the view that Monsanto had joint control over Mahyco along with other shareholders, and noted that MIIPL and Mahyco had a 50:50 Joint Venture MMBL.

launching its Bollgard III (a three gene Bt. Cotton technology). It was noted that outside India, Bayer offered similar products too i.e. TwinLink (two gene Bt. Cotton technology) and TwinLink Plus (a three gene Bt. Cotton technology). It was observed that these products would have been in direct competition with each other. Parties were major players in the GM cotton seed market with Monsanto's stronghold in herbicide tolerant and insect resistant transgenic traits, in the U.S. Bayer was the only other competitor with both these traits in cotton.

The CCI held the view that the absence of the merger would have left Bayer with the incentive to introduce both two and three gene technology while Monsanto would have had the incentive to introduce Bollgard III technology in India. The CCI noted the strengthening the existing significant position of Monsanto in the market coherent with a negative innovation impact.

The GM technology was also observed to have a rigorous R&D, testing processes and regulatory uncertainty coupled with high cost and significant entry barriers. Saving DowDuPont (with its competing technology WideStrike in process of obtaining regulatory approvals) all other competitors were yet in process of developing two gene technology. Thus, the CCI noted yet another negative innovation impact in the merger.



The CCI further analysed the **Global nature of R&D in seeds**. In noted that R&D activities in seeds and traits with facilities of both merging parties were located globally and successful products were introduced in India per Indian conditions. Globally, the merging parties had overlapping R&D for several products. Apart from their stronghold in GM traits, the parties had strong R&D activities related to non-GM traits.

Besides, both merging parties led germplasm and genome libraries, and held strong position in traits (both GM and non-GM) which would have provided the merged entity with significant competitive

advantage in the application of genome editing and Big Data technologies, thus entrenching their leading position in agricultural biotechnology and affecting the incentives of future entrants in the industry. The Commission observed the result would create a world leader in seeds and genetic traits.

The Commission factoring the innovation impact, held that the merger was '*likely to negatively impact the innovation of new products*' as it was '*likely to negatively impact innovation and development of new GM as well as non-GM traits and licensing industry*'. CCI observed that the merger would have led to innovation loss by reducing product variety and quality. It also noted that both parties had overlapping R&D activities in seeds and traits and would have continued competing in R&D efforts, thus the combination hampered new and alternative products for ultimate consumers, especially farmers. CCI factored the likelihood of the merger to result in a reduced rate of innovation at which products are launched, thus resulting in AAEC.

In order to address the CCI's innovation concerns, a Proposal of Modification was put forth by the parties. Bayer accordingly divested its Glufosinate ammonium business and part of its broad acre seeds and traits business to BASF according to its agreement with BASF dated October 13, 2017 in order to address the potential competition concerns raised by antitrust authorities globally.

In the relevant market for 'Upstream segment for licensing of cotton traits and technology in India and the related downstream segment for production and/or sale of cotton seeds', Bayer divested its stake from the NSH-BAC venture. Furthermore, it also divested its vegetable seed business. Additionally, the divestment laid down the norms for licensing by the merged entity and prescribed these for the purpose of maintaining and restoring effective competition in the market by strengthening the agricultural input suppliers in India who will be able to innovate and launch new products for the benefits of the farmers, thus producing welfare effect. This remedy wasalso expected to suppress the negative effects of the merger on competition in the agricultural inputs supply market.

The EC conducted a similar, but comparatively more in-depth investigation and assessment of more than 2000 different product markets and reviewing 2.7 million internal document to raise concerns that this merger would have strengthened Monsanto's dominant position on certain markets where Bayer was an important challenger of Monsanto. In response, Bayer committed to grant license of its entire global digital agriculture product portfolio and pipeline products to ensure continued

competition in the emerging market. The EC after satisfying itself that the divestment package enables a suitable buyer to sustainably replace Bayer's competitive effects and continue to innovate for the benefit of European farmers and consumers, granted this merger a Green Flag.[39]

II. Telecommunication Sector

CCI has not dealt with Innovation effects in the telecom sector. The EC on the other hand considers choice, quality and innovation as the three vital parameters of competition in the telecom and digital markets. It is vastly evident in the EC's merger decisions. It evaluated the effect of mergers on innovation in various cases like Telefonica UK/Vodafone UK/Everything Everywhere Joint Venture (JV)[40], Hutchison 3G UK/Telefónica Ireland[41] and Telefónica Deutschland/E-Plus[42] to name a few.

The EC has analyzed the likelihood of advancement of innovation post-merger. There have been instances where they have denied mergers which offer innovative efficiencies on the ground that it does not outweigh the consumer harm and anti-competitive elements. This shows that the commission gives higher weightage to welfare. The commission on thes other hand has allowed mergers that have positive innovation effects as well. Like in the case of TomTom/TeleAtlas[43], the commission observed that this specific merger could offer innovation efficiencies which could benefit the consumers. But not before it recognized that it did not give rise to anti-competitive effects, regardless of innovative efficiencies. The Article hereafter analyses few such mergers.

(a) Vodafone- Idea[44]

Vodafone India Limited ("**VIL**"), Vodafone mobile services limited ("**VIMSL**") and Idea Cellular Limited ("**Idea**") on 31st August 2018 finalized their merger of the telecommunication service business as per the provisions of sections 230 to 232 of the Companies Act 2013, launching India's largest mobile operator. The parties received the final approval from the government on July 26th 2018 for the merger which will displace Bharthi Airtel from its decade long number one position. Vodafone idea holds about 35% market share and has almost 480 million subscribers.

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[39] Case COMP/M.8084, Bayer/Monsanto, 2017 O.J. C222/17.
[40] Case COMP/M.6314, Telefónica UK/Vodafone UK/Everything Everywhere JV, 2013 O.J. C66/5.
[41] Case COMP/M.6992, Hutchison 3G UK/Telefónica Ireland, 2014 O.J. C264.
[42] Case COMP/M.7018, Telefónica Deutschland/E-Plus, 2015 O.J. C68/10.
[43] Case COMP/M.4854 TomTom/Tele Atlas, 2007 O.J C237/08.
[44] Combination Registration No. C-2017/04/502 https://www.cci.gov.in/sites/default/files/Notice_order_document/Order_C-2017-04-502.pdf accessed 15 November 2018.

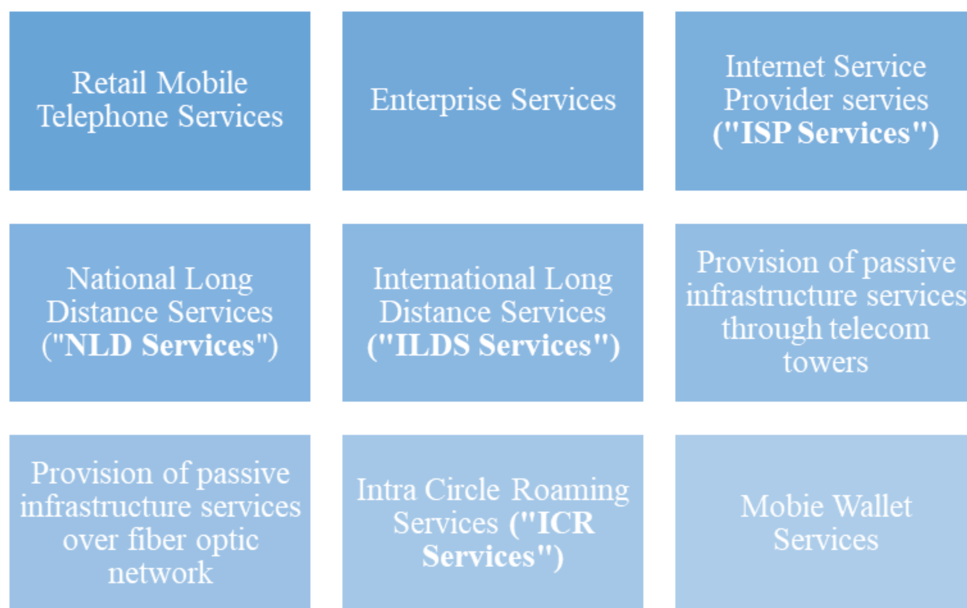
The merger was a result of the fierce tariff war caused by the arrival of Reliance Jio which left idea cellular and Vodafone India with a combined debt of INR 109,000 Crores. Out of the twenty two telecom circles in India, Vodafone idea will hold the number one revenue market share position in nine telecom circles. Vodafone Idea holds Revenue market share (AGR) of 32.2%. Both partners have equal rights and they have reached an accord on the procedure by which they will subsequently equalize their shareholdings. Currently, Vodafone group holds a stake of 45.2% while Aditya Birla group gets 26% and both the parties will jointly control and manage the merged entity.

The CCI after closely examining the resources and size of the competitors present in the telecom market, expressed in its order allowing the merger, that the existing competitors are capable enough to take on the merged entity and employ sufficient competitive constraints and has the ability to eliminate any chance of AAEC. After Vodafone India and idea cellular merged there are six telephone service providers in the relevant market which includes Bharthi Airtel, Jio, Tata, RCOM and Aircel, BSNL/MTNL and the merged entity.

This merger would result in India's Telecom industry being dominated by three telecom giants namely Bharthi Airtel, Jio and the merged entity. The merger is expected to spur the pace of the telecom industry. Through this merger, Vodafone idea aspires to overcome their debts and the bad financial situation of the telecom industry primarily caused by the entry of reliance Jio. The merger will enable the parties to save a substantial amount of operational costs and other expenditures, which will in turn, aid in providing better services and quality of performance.

The National Company Law Tribunal, while sanctioning the aforementioned merger, took various reasons into consideration. Mainly the advantages of the business expansion which benefits the shareholders, reduction of operational costs and maintenance expenses resulting from the unification which gives rise to the optimum use of resources, de-duplication of work, equipment and infrastructure, availability of high spectrum, synergies in all sections and increase in quality of service and performance, among others.

The competition commission on the other hand for the purpose of competition assessment identified the following product segments of the parties on the basis of their overlaps



The CCI after identifying the different service segments conducted a detailed competition assessment taking into consideration the market shares of the competitors and market share of the merged entity in every service segment including the size and resources of competitors to rule out any likelihood of AAEC by the merged entity.[45] CCI maintained that if the merged entity's market share exceeds 50 percent in a service area post-merger, entity after the approval of the merger should minimize its market share to 50 percent within a period of one year. But is the case of spectrums, a telecom service provider can only hold 25 percent of the total spectrum available in a specific band. The merger would have resulted in breaching of the caps, in order to address CCI's concerns, the parties agreed to comply with the caps as given in the guidelines. Finally, The CCI commented on the concerns raised generally regarding consolidation as it has a likelihood of monopolization and cartelization due to the lesser number of competitors in the market and pointed out that, out of the 220 countries, 213 countries have only 4 Telecom service providers (TSPs) and that only India has more than 5 TSPs.

Every merger, especially mergers in the telecom industry are executed with the objective of enhancing geographical reach, reducing operational costs, benefiting from synergies, increased

[45] The CCI noted that the in certain service segments like National long distance services (NLD), internet service provider services (ISP) etc., the merged entity will face tough competition from its competitors as its market shares in these areas are comparatively low. The CCI in its order also mentioned about the guidelines for transfer/merger of service licenses on compromises, arrangement and amalgamation of companies, issued by Ministry of Communications and Information Technology, Government of India in 2014 ("DoT Merger Guidelines").

profitability and better technology. The CEO of Vodafone idea, Balesh Sharma claim[46]s that the merged entity is committed to offer to their customers a worthy experience by introducing new services, products and solutions to meet the evolving digital and connectivity demands. Vodafone Idea targets over 840 million 3G and 4G customers in India with a broadband network of 340,000 sites. It also proposes to provide about 200,000 GSM sites, making it India's biggest voice network which has 92 percent population coverage (i.e. over 1.2 billion Indian citizens).

Vodafone idea in its investors presentation[47] introduced three strong propositions for the stakeholders which is guaranteed to have both welfare and innovation effects. Realizing the 'digital India' vision was one of the three propositions introduced by them. They went on to further explain how they have arranged to execute this by transforming India into a digitally empowered society. The merged entity is set to launch its digital wallet services to strengthen financial inclusion by expanding payment banking and they promised to utilize their combined capability to provide high quality digital services to transform the society to a digital life. They further asserted the optimal utilization of the national resources and formation of 'digital highways. And finally they proposed to create a world class telecom infrastructure to further increase the availability of broadband services and high- speed mobile internet to compete with Airtel and BSNL who leads in the Internet service provider (ISP) service segment.

Vodafone idea further promised to deliver consumer benefits primarily by providing innovative products and attractively priced services which includes high quality international and notional roaming experience and it claims to provide the largest broadband capacity and voice network. The merged entity also offers better services for enterprises. Despite the promising nature of the merger in innovation context as mentioned above, the CCI's merger control analysis made no mention of the same.

Historically, mergers had both negatively and positively impacted welfare and innovation. The instant merger between idea and Vodafone largely contributes in digitalizing India and provides huge consumer benefits while increasing competition which drives its competitors to increase quality and give attractive consumer benefits. However, almost every merger hit the employees negatively due to the reduction of employee count to avoid duplication of resources. The merger is responsible for

[46]See Idea Cellualar Limited Corporate Presentation, www.ideacellular.com/content/dam/ideaselfcare/merger/investorpresentation/Investor-Presentation-January-26th.pdf accessed 15 November 2018.
[47] *Ibid*

almost 5000 employees losing their jobs because the company strives to save on costs and increase efficiency. The company in its struggle to maintain higher cost efficiency for improved earnings per share (EPS) and to reduce debt to equity might also refrain from providing promotions and increments for a while to its employees for a while.

(b) Telefonica UK/Vodafone UK/Everything Everywhere[48]

In this case the EC evaluated the possibility of negative impact on innovation by the joint venture. Telefonica UK, Vodafone UK and Everything Everywhere are three out of the four mobile network operators present in the UK. The three telecom giants wished to create a Joint venture for the purpose of generating a mobile wallet or E-wallet platform. The commission conducted a comprehensive investigation to evaluate the likelihood of negative effect of innovation on mobile payment platforms of upcoming or existing players. In this instant case, the EC was concerned that the parent companies could act as a barricade to other competitors as they could deny these capable entrants access to their SIM-cards. SIM-cards are important for these entrants as the sensitive information of customers used for the purpose of online payment can be stored in it. The commission while making its decision in phase two of the procedure considered the following two factors; whether the joint venture would have the capability to completely bar new entrants who wish to start a mobile- wallet and secondly, whether there is a likelihood of the parent companies blocking access to their sim cards using technical or industrial measures. While addressing these questions the commission came to the conclusion that the Joint venture is unlikely to have a negative impact on innovation of potential entrants primarily because there already exists other equivalent means of storing sensitive information of mobile payment users which can be used instead of a SIM-card and that there is no convincing evidence to show that the parent telecom companies would take measures to block these potential entrants from accessing their SIM-cards. The commission for merger control cleared the Joint venture unconditionally in phase two stating the above observations.

(c) Hutchinson 3G UK- Telefonica Ireland[49]

The EC had a different approach for merger control in this case.

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[48] *Supra* note 35.
[49] *Supra* note 36.

In this more recent case the commission noted that the mergers would generate innovative efficiencies and benefits which includes high quality and speed, larger network coverage and increased research and development from the combining entities which would result in more efficient technological and product development. However, the commission while deciding this case observed that the takeover would have a negative impact on certain providers known as virtual providers in the market who do not have a network of their own. In order to offer their services they make use of another entity's network. In this instant case, both the companies who wish to merge host virtual providers or have network sharing agreements with these providers. Consolidations in the market would result in fewer competitors also making it difficult for the virtual providers to attain a willing network service provider host which would largely mitigate their market power. In addition to this another concern that came to the notice of the commission was that the merged entity would be familiar with the network arrangements of the remaining players, which the commission observed will pose negative impact on innovation in the telecom market and is anticompetitive. Answering to the concerns of the commission, Hutchison proposed to alleviate the issues by proposing certain remedies which included the firm assuring to host not more than two virtual providers post-merger. The commission, while making the decision, acknowledged the innovative efficiencies that could be introduced by this merger. However, it concluded that these innovative efficiencies are limited and not merger-specific. Adding that these, innovative efficiencies of the merged entity cannot outweigh the anti-competitive elements including the likelihood of the merger negatively affecting innovation in the telecom market and new technologies like 5G. The commission also dismissed the remedies proposed by Hutchison stating that it would only make the providers "technically and commercially dependent". Stating the above reasons, the commission refused to clear the above combination.

III. Pharmaceutical Sector Mergers

The Indian industry is slowly witnessing a catch-up in high end drug discovery and innovation.[50]

(a) Novartis/GlaxoSmithKline[51]

In this particular case, Novartis was in the process of developing two drugs which demonstrated substantial progress. The drugs, for the treatment of skin and ovarian cancer had reached phase III

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[50]Competition Commission of India, *Competition law and Indian Pharmaceutical Industry* https://www.cci.gov.in/sites/default/files/PharmInd230611_0.pdf accessed 15 November 2018.

[51] Case COMP/M.7275, Novartis/GSK, 2015 O.J. C95/14.

and were in the process of final stages of clinical trials and the same drugs had reached only phase I and phase II for the treatment of other cancers and were in the early stages of clinical trial. Novartis' acquisition of GlaxoSmithKline's oncology segment which already possessed developed drugs with the same traits as of the drugs being developed by Novartis posed great apprehension to the EC. The Commission feared that Novartis' research and development on these two drugs which showed great promise might be abandoned by it. Interestingly, the commission was not only concerned about the clinical trial program which reached Phase III but was also concerned with the Phase I and Phase II pipelines. Moreover, the commission observed that allowing the merger would give rise to duopoly since Roche and the merged entity would be the only two players with the drugs in place, specifically for ovarian and skin cancer. The European Competition commission, stating the above mentioned reasons, cleared the merger only conditionally by ordering divestiture remedy. The seriousness with which the EC views innovations is thus evident. Even in the early stage of drug development, the EC in this case tried its best to prevent mergers from impeding innovation.

(a) Pfizer/Hospira[52]

This is another merger which was conditionally approved by the commission by ordering divestiture remedy. Pfizer was in the process of developing a biosimilar drug which would substantially help in the treatment of an autoimmune disease. The drug Pfizer was developing was ingenuous and it would result to be of considerable value once it gets fully developed as it is a biosimilar drug which possesses the same therapeutical trait of the original patented drug that is already available in the market. Biosimilar drugs are not like generic drugs as they are not exact copies of the original and the primary reason for its importance is that it can be manufactured cheaply. This is a substantial positive innovation and welfare effect because it simplifies and relaxes access to medicines due to the price reduction. Due to the above mentioned reasons the commission saw a great threat to innovation when Pfizer wanted to acquire Hospira. In her speech, Margarethe Vestager, Chief of European Commission said that "…we looked at a merger between the drug company Pfizer and its rival, Hospira. We only approved the deal after Pfizer agreed to sell the European rights to an arthritis drug it was developing. One concern was that Hospira already had a competing drug on the market, and we thought Pfizer might stop work on its own drug if the deal went ahead as planned. Which would have meant less of the innovation that we depend on as patients"[53]. Hospira which

[52] Case COMP/M.7559, Pfizer/Hospira, 2016 O.J. C324/2.
[53] *Supra* note 1.

was a competitor also possessed a similar drug. When Pfizer wanted to acquire hospira the commission apprehended that it would hinder the development of the innovative biosimilar drug or worse, abandon which would have negatively affected patients welfare worldwide.

(c) *Johnson&Johnson and Actelion*

The EC emphasized on innovation on June 9, 2017,[54] in its order determining potential effects of the merger of Johnson&Johnson with Actelion. While Actelion was developing dual orexin receptor antagonist ('DORA') for primary and secondary insomnia (compound name ACT-541468, currently in Phase II). This pipeline was to be transferred to the newly created company Idorsia. J&J was developing a selective orexin-2 antagonist compound (called JNJ-7922) for the treatment of primary insomnia and depression. The compound is currently in Phase II and is being co-developed with Minerva Neurosciences, Inc. ("Minerva").

In light of the limited competition in the global development of the pipeline products (development of orexinantagonist products for insomnia treatment), commission found that there was a risk for innovation competition stemming from its possible discontinuation, delay or reorientation of either of its pipelines by targeting specific therapeutic indication(s) or patients' groups within insomnia in order not to make two pipelines directly compete. Additionally, if one of the pipeline product compared to the other had the likelihood of capturing significant revenues, it would have increase the incentive to discontinue, delay or re-orient the other one.

If JNJ-7922 and ACT-541468 were competitively developed, they would be close and direct competitors without much competitive constraints from other products, making it economically viable for discontinuation of ACT-541468 in threat of the likely cannibalization of JNJ-7922's sales. The chances of J&J doing the same were also similar.

The order recognized the harmful effects on consumers by loss of product variety and reduced intensity of future product market competition where the pipeline would have been introduced, but for the merger. the merger was viewed to have a negative innovation effect and it received a green flag from the Commission only after required divestments were conducted.

[54] Case COMP/M.8401, Johnson&Johnson/Actelion, 2017 O.J. C281/17.

(d) Thoratec-Heartware international inc.[55]

When Thoratec Corporation and HeartWare International Inc. intended to proceed with their Merger, the Federal Trade Commission of the United States of America took stride and raised that the merger agreement was in violation of Federal Trade Commission Act and Clayton Act. According to FTC, the merger threatened the U.S. left ventricular assist device ("**LVAD**") market. LVAD is a life-sustaining technology for treating end-stage heart failure patients who have failed other courses of treatment and are at a high risk of death in near future or are ineligible for a heart transplant.

FTC noted that Thoratec's flagship product, HeartMate II and its first gen LVAD, the HeartMade XVE are the only LVADs approved for commercial sale by the U.S. Food and Drug Administration ("**FDA**"). It was observed that a very small number of companies are developing this technology and even smaller number of companies are permitted by the FDA to sell these limited amount, pursuant to Investigational Device Exemptions.

It was noted that HearWare played a role in incentivizing Thoratec to innovate through HVAD (LVAD which offers a novel design that promises superior reliability with fewer surgical complications) and was still in its clinical trials, the intensity was expected to increase with FDA approval to HeartWare. FTC noted that the merger would substantially lessen competition and incentive to innovate in the relevant markets. It would also have negative welfare effect on consumers due to resultant price rises. Eventually, the Merger failed.

D. Analysis

It has to be noted that the presence of innovation effects is one of the factors prescribed by the Competition Act 2002. Similarly, The EU's legal framework for merger control explicitly addresses a merger's effects on innovation – either positive or negative – in line with the economic principles of

[55] Re: Thoratec Corporation/Heartware International Inc (FTC, USA) (Docket number 9339) https://www.ftc.gov/sites/default/files/documents/cases/2009/07/090730thorateadminccmpt.pdf accessed 15 November 2018.

contestability and synergies.[56] This shows that the legislative intent backs the premise that innovation affects competition.

There have been credits and criticisms to this interpretation and outlook with the basic premise evaluating appropriateness of innovation as a subject of assessment for merger control. From the cases analysed in this research, it has been observed that, no matter how significant the innovation effects, the Competition Commissions globally have almost always preferred modifications over a complete rejections.

Known economists Denicolo/Polo[57] viewed that mergers may even positively impact innovation and welfare since the merged entity can shut down repetitive research leading ultimately to substitutes (like in Vodafone-Idea case mentioned above). This streamlining can have positive impacts and even increase the overall probability of the invention actually fructifying.

In the Agrochemical sector, there is an obvious need to innovate considering development of resistance by pests, weeds etc and thus a merger of significant innovators where the number of integrated innovators with capacity to do valuable research are already limited, innovation had to and was rightly analysed by the competition commissions.

The EC conducted an in-depth study. The amount of work and the future analysis conducted in this regard is commendable. In specific, the commissioner weighed on the market conditions specific to Europe and kept the European consumers' welfare in mind, which is something the CCI also could have followed. The Merger of Dow Chemicals with Du Pont De Nemors was analysed to have significant negative impacts on the European competition market. The Indian competition analysis in this regard is notable but significantly influenced by that of the EC.

Vidisha Vyas and K. Narayana[58] while addressing effects of M&A on R&D observed that acquisitions appear to have a negative impact on R&D intensity. They also observed that the firms in the Indian Pharmaceutical sector are using resources meant for R&D to absorb the know-how acquired through M&A.

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[56] European Commission, *Competition policy brief* (April 2016) http://ec.europa.eu/competition/publications/cpb/2018/kdak18001enn.pdf accessed 15 November 2018.

[57] Denicolo, Vincenzo and Polo, Michele, *The Innovation Theory of Harm: An Appraisal* (March 22, 2018) https://ssrn.com/abstract=3146731 or http://dx.doi.org/10.2139/ssrn.3146731 accessed 15 November 2018.

[58] Vyas, Vidhisha & Narayanan, K. (2016). Does M&A Matter for R&D? Evidence from the Pharmaceutical Sector in India. 89-109. 10.1007/978-981-10-1684-4_6.

Merger of two innovating competitors may increase innovative capacity of the merged entity however reducing the overall innovation in the sector. The Authors have inferred that while there are negative innovation impacts such as reduction in overall competition and costs as well as regulatory hurdles making it difficult for other firms to innovate, there are also positive impacts of merger such as the economies of scale and scope among others.

If technological spillovers are high and merger allows internalization of the same, then the R&D investment increases leading to a positive impact.[59] Hall (1990)[60] while studying the impact of corporate restructuring on industrial research spending, concluded a permanent decline in R&D intensity of acquiring firms.

According to the result of weighted least squares regression analysis conducted by vidisha Vyas and K. Narayanan, there is a slight positive impact on R&D intensity in the first year followed by a subsequent negative impact in two years following it and in aggregate in these three years, basically reflecting that the immediate benefits are exploited by acquirer firms from target firms' R&D capabilities, however, in subsequent years the reduction is a result of influence of bureaucratic hurdles, restructuring cost, integration issues and disruption of established organizational and R&D routines in both target and acquirer firms.[61] They even said that the Indian scenario, economies of scale and synergies do not work the way typically. In Johnson&Johnson's merger with Actelion, the EC noted that from innovator's perspective the expected loss of profits on the products of the other party adds to the opportunity of cost of innovating, making it more likely that an early pipeline product is discontinued with.

Horizontal mergers might actually not be as bad for innovation as apprehended because familiarity would increase innovation, rather than vertical mergers where the firms do not have any overlapping pipelines but several different research.

The competition commissions globally have attempted to solve innovation issues by requiring divestments however, the tracing of innovation has been ignored as to whether such assets with an entity other than merging parties would assist increasing innovation or would lead to a rather sad end to what could have resulted into a brilliant product.

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[59] *Ibid.*

[60] Bronwyn H. Hall & Ernst Berndt & Richard C. Levin, 1990, *The impact of corporate restructuring on industrial research and development*. Brookings Papers on Economic Activity, Special issue on Microeconomics. (Vol 1990).

[61] *Supra* note 48.

The EU while analyzing innovation impacts of the above discussed, consolidations, also considered that consolidations of competitive innovators can effect price and quantity. Divestiture as remedy attempts to protect competition in the market and to ensure a wider choice for consumers. However it must be ensured that such remedies do not to defeat its own purpose by conducting of the same in a disproportionate or intrusive manner.

In Vodafone-Idea case, for example, the order discussed competition analysis, market share and its comparison on competition, while it did not touch innovation effects[62]. Whereas the merging entities have drawn innovation efficiency conclusions as well as welfare benefits. When the CCI found there would be an adverse impact of the merger on the market, a remarkable remedy was given. CCI required the merged entity to reduce its spectrum share to 25% post-merger. Thus, other remedies can also be looked at during merger control analysis to determine the most appropriate remedy on case by case basis.

The European Commission on the other hand, in the case of Hutchinson 3G UK- Telefonica Ireland completely rejected the remedy proposed by the parties to host not more than two virtual providers post-merger[63]. The Commission held that innovation efficiencies resulting from the merger cannot make up for the negative welfare effect caused by it.

Change in Stand

All of the above case studies demonstrate the recent trend which is resultant of Margrethe Vestager's Orders and her innovation approach to merger analysis seems to have caused a ripple effect. Dow and Du Pont merger was a first where the CCI considered innovation analysis seriously and it seems to have been influenced by EU's recently altered stance. Similarly in the USA, while the earlier decisions do not reflect innovation effects[64] (e.g. Hospira-Pfizer Merger) however in recent cases (Thoratect-Heartware), though very few in comparison to the EU, do follow the trend.

Contours

In the authors' opinion, there needs to be a well-defined, if not a watertight, limit on what should form part of an innovation analysis in merger control. The significance and relevance of innovation

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[62] *Supra* note 31.
[63] *Supra* note 28.
[64] Justus Haucap, *Merger Effects on Innovation: A Rationale for Stricter Merger Control?,* September 2017 http://www.dice.hhu.de/fileadmin/redaktion/Fakultaeten/Wirtschaftswissenschaftliche_Fakultaet/DICE/Discussion_Paper/268_Haucap.pdf accessed 15 November 2018.

analysis is recognized and undebated by the authors, however, the extent and usage on types of cases in which it should be done remains open to further research.

E. Conclusion

The Article, through thorough assessment of the mergers studied in three sectors (*viz.* Agrochemical, Telecommunication and Pharmaceutical), observed the recent trend recognizing the significance of utilizing innovation analysis while assessing mergers – a phenomenon rarely recognized but present in antitrust laws of almost all jurisdictions. The Article attempted to weigh the methodology applied in Innovation analysis by the European Commission which was followed in later cases by the Competition Commission of India as well as the Federal Trade Commission of America. The position of innovation analysis is unbalanced, in that, the competition commissions have either not attempted to analyze innovation impacts or have become intrusive by prescribing widely disproportionate remedies until recently. Authors conclude that the presumption (Per se rule) of negative innovation impacts on innovators or sectoral spaces can be harmful to competition in some cases and that while assessing innovation impact of mergers, negative impacts should be weighed alongside positive impacts. Further, we conclude that innovation is a valuable yardstick in assessing competitive constraints, however contours of competition analysis can be left for future research.